Should I Stay or Should I Go?
Informal Social Ties and Entrepreneurship Choices:
Evidence from the Mutual Fund Industry

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ABSTRACT

Although new organizations typically emerge from existing organizations, the conditions under which nascent entrepreneurs create new ventures outside, as opposed to inside, remain less well understood. I propose that the entrepreneur’s choice between internal and external venture formation is affected by formal organizational structures (i.e., incentive systems) and informal social structure extending beyond the parent organization. Using unique data on the mutual fund industry over the period 1979-2006, I show that the parent organization induces internal venture formation by providing fund managers with higher compensation and greater discretion. However, the impact of incentives is limited by the fund manager’s informal social network of preexisting ties to her school colleagues. Specifically, I find that fund managers imitate previous entrepreneurship choices of other school network members. Additional analyses show that the effect of school ties is amplified by the spatial proximity of school network members, and is greater within same-gender school ties – providing support for inter-actor influences rather than isomorphism. Together, the study offers important theoretical implications for understanding the entrepreneurship process and how it interacts with the boundaries of a modern organization in a knowledge-based economy.

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Introduction

In today’s fast-paced environment, organizations face an increasing challenge to foster growth through product innovation and internal venture formation (Baum and Oliver, 1996; Lumpkin and Dess, 1996; Powell, Koput, and Smith-Doerr, 1996). Although, every year, organizations invest billions of dollars to train their employees to create new businesses and products, organizational members with good ideas often leave to found their own ventures. For example, several employees of Fairchild left to found Intel; similarly, a number of Google’s managers have recently defected to start new organizations. A theme underlying the above examples is that, in the increasingly knowledge-based and post-industrial economy, where talent and skills are readily portable, individuals are often faced with the following choice; should they deploy their creative efforts internally, or should they leave to found their own organizations. Because the decision of where to develop a new venture is vital for the entrepreneur and the parent company itself, it is important to understand its determinants. Consequently, the objective of the current paper is to theoretically outline and empirically assess the determinants of “entrepreneurship choices”—or the factors that influence the direction in which entrepreneurial individuals exploit opportunities for new ventures.

The question regarding the entrepreneurship choices can be framed within a broader context of an individual’s role in creating new organizations (e.g., Aldrich and Widenmeyer, 1993). A number of studies suggest that entrepreneurs emerge from existing organizations (e.g., Freeman, 1986) which provide bountiful resources that enhance an individual’s motivation and ability to create new ventures (e.g., Burton, Sørensen, and Beckman, 2002; Freeman, 1986; Phillips, 2001; Romanelli, 1989; Romanelli and Schoonhoven, 2001). However, these theories focus primarily on individuals who have already made the choice to found new organizations,
and rarely examine the preceding decision to develop the new venture either internally or externally. Consequently, the conditions under which entrepreneurial actors leave to found new organizations, or stay to create new ventures inside remain less well understood.

This neglect is surprising because the question regarding the determinants of internal and external venture formation can be traced to Schumpeter (1942; 1950) and a long-lasting debate about the locus of innovation. While Schumpeter argues that entrepreneurship will eventually be dominated by large established organizations that represent the driving force behind technical progress, others suggest that small entrepreneurial organizations are more suited to recognize and assimilate emerging entrepreneurial opportunities (e.g., Henderson, 1993; Tripsas, 1997). The prevailing approaches focus primarily on technological attributes of innovation or resources available to the parent organization and rarely incorporate the impact of an individual’s choices to understand the locus of innovation. Hence, the present study contributes to this debate by providing a unique perspective that focuses on the quintessential role of an individual in determining whether large established firms or small entrepreneurial ventures are the source of technological progress and innovation.

To uncover the role of an individual in affecting the loci of new ventures, this paper provides a theoretical outline and an empirical assessment of the factors that determine an individual’s decision to create new ventures internally or externally. In light of the extensive sociological evidence suggesting that the social context shapes the likelihood of entrepreneurial entry (e.g., Sørensen, 2007a), the present study’s main focus lies in understanding how the entrepreneurship choices are affected by the context in which entrepreneurs operate. Specifically, the study suggests that organizations, through their formal structures (i.e., incentive systems), exercise only a limited influence over the entrepreneurial choices of their members. A core point
for the argument is that individuals’ decisions regarding the choices between internal and external venture formation are affected by their informal social ties exogenous to the organization and therefore less susceptible to its influence. Specifically, the study proposes that variation in the characteristics of individuals’ ties to school colleagues impacts the choice between internal and external venture formation.

The determinants of an individual’s choice between internal and external venture formation have theoretical implications that extend well beyond entrepreneurial process; they pertain to the vital question regarding organizational boundaries and organizational existence. Theories of the firm have long been concerned with the way organizations are bounded and delimited from their external environment (e.g., Coase, 1937; Kogut and Zander, 1996; Williamson, 1985). Although, boundaries of the firm are conceptualized differently across various theoretical paradigms, each proposing a distinct set of rules to specify the sphere of an organizational activity or influence, a common assumption underlying these theories is that organizational boundaries are placed, regulated, and maintained by the unitary decision-maker that amounts to more than just the sum of its parts— the organization itself. However, little attention has been devoted to understanding how individual members of the organization redraw the boundaries of the firm, even though their goals and interests may often be separate from those of the organization. Because the question of whether a new venture is created inside or outside the organization is central to the definition of its boundaries, examining the determinants of an individual’s entrepreneurship choices allows me to probe the role of an individual in shaping the boundaries of the firm. By deciding the locus of a new venture, nascent

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1 Examples of inclusion criteria that specify organizational boundary include power and influence (e.g., Pfeffer and Salancik, 1978), resources (e.g., Penrose, 1959, Chandler, 1977), identity (e.g., Kogut and Zander, 1996), and efficiency (e.g., Coase, 1937; Williamson, 1985).
entrepreneurs influence which activities will be conducted inside the organization, and which activities will fall outside.

To test my theoretical framework, I use an empirical context of the mutual fund industry. The mutual fund setting provides an excellent arena in which to investigate the determinants of entrepreneurship choices for several reasons. First, modeling the dependence of internal and external entrepreneurship choices is non-trivial; it requires finding a context in which both internal and external venture formation can be observed and studied in conjunction. Unlike many other settings, the mutual fund context offers a unique opportunity to empirically isolate both internally and externally created ventures. In this knowledge-intensive environment absent non-compete clauses, highly skilled and mobile managers are able to easily found a new venture (i.e., new funds) either inside or outside the established organization. Moreover, over the past three decades, the mutual fund industry experienced an unprecedented growth in the formation of internal and external ventures alike – overall, the number of funds grew from 564 to over 8,000 between 1980 and 2000s. Finally, the mutual fund context offers an advantage of studying and comparing the entire population of internal and external entrepreneurs, as well as the universe of individuals at risk of transitioning to entrepreneurship inside or outside established organizations. Overall, using the context of mutual funds, this study examines the determinants of fund managers’ choices between internal and external fund creation, and points to the theoretical

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2 Existing research has theorized about the conditions under which employees choose to commercialize their ideas in external spinoffs rather than within the firm (Anton and Yao, 1995, Klepper and Sleeper, 2002, Klepper, 2001, Klepper and Thompson, 2006). The present study is different from that research in at least two respects. First, while previous studies have typically related the outside decision to the entrepreneur’s inability to choose inside, I examine entrepreneurial choices when possibilities for both inside and outside ventures exist. Second, the present study compares empirically internal and external venture formation, whereas existing studies have been largely theoretical (e.g., Anton and Yao, 1995), or have only measured the creation of external ventures.
implications of such choices for the locus of innovation, processes of organizational emergence, and the boundaries of the firm.

The rest of the paper is organized as follows. The first section presents the theoretical framework that examines how entrepreneurship choices are determined by both formal organizational structures (i.e., incentive systems) and an informal social structure. This section is followed by a section describing the methodology, sample, and variables. The subsequent section presents the main results, and various robustness checks. Contributions and implications are discussed in the concluding section.

Theory and Hypotheses

*Formal Organization and Entrepreneurship Choices*

I begin by suggesting that organizational context has a significant impact on an individual’s choice regarding the locus of a new venture. The notion that organizations exercise a great deal of control over actions and behaviors of their members carries through much of the classic work in organization theory and sociology. Weber (1924), for instance, paints a stark imagery of an iron cage – a bureaucratic and rationalized organization that serves as a powerful tool to control the humanity. Similarly, other theories of organizations emphasize the benefits of formally prescribed decision hierarchies in orchestrating the actions and behaviors of their members (Thompson, 1967; Williamson, 1975). Although multiple dimensions of organizational structures are relevant to evaluating the influence of organizations on the entrepreneurship choices of their members, I focus on formal incentive systems, based on the extant research documenting the importance of individuals’ motives and incentives behind entrepreneurial entry.
The literature considers two motives as most pertinent to explaining an individual’s decision to enter entrepreneurship. First, classical economic theories posit that entrepreneurs consider the pursuit of profit as the fundamental driver behind entrepreneurship (Kirzner 1973; Schumpeter 1942; Scitovszky 1943). Second, as suggested by more recent accounts, entrepreneurs are motivated by the desire to gain autonomy and control (Blanchflower and Oswald 1998; Blanchflower, Oswald and Stutzer 2001; Hamilton, 2000). Applied to the context of entrepreneurship choices, this suggests that, by providing the would-be entrepreneurs with higher compensation and a greater amount of discretion, organizations will be able to induce the formation of internal ventures and to lower the probability of entrepreneurial exodus.

Specifically, from the perspective of the nascent entrepreneur, an increase in compensation inside the organization will strengthen her ex-ante incentives to deploy her efforts inside the organization, if everything else, including the potential outside profits, is equal. Consistent with this argument, economic literature emphasizes the beneficial impact of compensation on managerial motivation and on the alignment of the principal’s and the agent’s interests (e.g., Jensen and Murphy, 1990). Similarly, entrepreneurial actors will have stronger incentives to create new ventures internally, when provided with greater amount of discretion by the parent organization. In this respect, the property rights theory illuminates the importance of an actor’s control over inputs in sustaining her engagement and motivation in the transaction with another party (Hart and Moore, 1990). Therefore, as nascent entrepreneurs are endowed with a greater amount of discretion inside the organization, they will have stronger ex-ante incentives to pursue entrepreneurial opportunities inside.

In sum, formal organizational structures (i.e., incentives) play an important role in influencing entrepreneur’s decision regarding the locus of a new venture. By providing their
members with higher compensation and discretion – the two motivating forces behind the entrepreneurial entry – organizations will be able to strengthen the nascent entrepreneurs’ incentives to create new ventures inside and thus to lower the probability of entrepreneurial rates outside. More formally,

*Hypothesis 1:* An increase in compensation of organizational members will increase the likelihood of creating new ventures internally rather than externally.

*Hypothesis 2:* An increase in the discretion of organizational members provided by the organization will increase the likelihood of creating new ventures internally rather than externally.

**Limits to Formal Organization: Informal Social Structure**

Consistent with the theoretical perspectives that consider organizations as powerful systems of control, one might expect formal organizational structures, such as incentives systems, to exert much influence on an individual’s entrepreneurship choices. But entrepreneurship is also a social process and entrepreneurial actors often respond to a rich set of cues from their social environment. For instance, the preponderance of the evidence suggests that entry to entrepreneurship is importantly affected by the composition of an individual’s peer group (e.g., Nanda and Sørensen, 2008), family endorsement (Sørensen, 2007b), or prior conduct of close associates (e.g., Stuart and Ding, 2006). The quintessentially social nature of entrepreneurship is further evident in a vast number of theoretical and empirical studies that relate the entrepreneur’s ability to create new ventures to her position in a social structure; more specifically, the central role of networks at every stage of entrepreneurial process - from opportunity identification to resource mobilization - has been well established (see Stuart and Sorenson, 2007; Thornton, 1999 for review). Therefore, to the extent that incentives of nascent entrepreneurs are embedded in an informal social structure (e.g., Granovetter, 1974; 1985), one
might expect that the consideration of formal structures of the organization offers a limited account of the determinants of internal and external venture formation. Hence, a comprehensive theoretical account of entrepreneurship choices must incorporate an understanding of how these choices are shaped by the variation in the characteristics of nascent entrepreneur’s informal social ties often exogenous to the organization and less susceptible to its influence.

If an informal social structure is consequential for the decision regarding the locus of a new venture, the question arises, what is a theoretically relevant and empirically observable manifestation of that structure? Naturally, entrepreneurs’ motives and abilities may be influenced by different kinds of social ties, ranging from “strong” friendship networks that provide socio-emotional resources (e.g., Brüderl and Preisendörfer, 1998) to “weak” or “bridging” ties that transfer information across market participants (Burt, 1992; Granovetter, 1973; 1974). Because weak ties facilitate recruitment into the organization (e.g., Fernandez, Castilla and Moore, 2000; Fernandez and Weinberg, 1997; Granovetter, 1995) and provide mobility-related advantages (De Graaf and Flap, 1988; Granovetter, 1974), they may play an equally important role on “the way out,” as entrepreneurial actors decide to leave in pursuit of external ventures.

While many examples of weak ties could be cited, I focus on “school ties,” based on several grounds. First, albeit not extensive, there is some evidence that school networks play an important role in financial markets. Specifically, Cohen, Frazzini and Malloy (2007; 2008) find that analysts outperform on their stock recommendations when they are tied to the company through school networks, and that portfolio managers place larger bets and perform significantly better on firms they are connected to through their school network. Second, whereas the majority of existing studies relate the creation of new internal ventures and internal innovation to intra-organizational networks (e.g., Kogut and Zander, 1996), the impact of external ties on internal
venture formation has been less well explored. Finally, whereas a majority of network studies in the entrepreneurial context notoriously suffer from endogeneity, school ties may be less susceptible to this concern, given that they are typically formed before an individual’s entry into the labor market.

An overview of the fund managers’ educational backgrounds further suggests that school ties may be salient in the mutual fund industry. Consider, for example, that 28% of all fund managers hold an Ivy League diploma, even though there only are eight Ivy League institutions altogether. Although, in the United States, there are over 4,000 accredited academic universities, 40% of fund managers attended an “elite school” – which, in addition to Ivy Leagues, includes a number of other prestigious universities, such as Stanford, Northwestern, University of Michigan, University of California- Berkeley, University of California-Los Angeles, New York University, and the University of Chicago (Useem and Karabel, 1986). Because a disproportionate number of fund managers obtained their training at a relatively small number of similar academic institutions, one may expect these managers to be mutually acquainted or to have come into direct contact. While anecdotal evidence has long suggested the importance of school ties for individual and organizational outcomes, their importance has remained relatively underexplored, with an exception of a handful of studies documenting the influence of school networks on labor markets (e.g., Saloner, 1985; Simon and Warner, 1992), or in the context of strategic alliance formation (Siegel, 2005). To date, few studies, however, examined whether and how school ties matter for entrepreneurship.

Although multiple mechanisms may be operative, I suggest that school networks are most likely to impact the choices of nascent entrepreneurs by serving as conduits of social influence exerted across network members. There is a vast literature documenting the role of social
proximity in triggering processes that mold the attitudes and behaviors of social actors (e.g., Burt, 1987; Coleman, 1964, Katz and Lazarsfeld, 1955; Marsden and Laumann, 1984). Because common educational background represents an important dimension of sociodemographic proximity, attendance of the same academic institution should provide a sufficient condition for the ego to view network alters as socially comparable, and to use their behaviors as a frame of reference for subjective judgments.

Socio-psychological mechanisms are particularly relevant to illuminating the impact of informal school ties on the choices of the nascent entrepreneur. Specifically, based on social comparison theory Festinger’s (1954), nascent entrepreneurs may “monitor” and compare themselves to other socially relevant members of the network. Similarly, as predicted by the social learning theory, nascent entrepreneurs will refer to the behaviors of socially comparable school network alters to infer appropriate courses of action (Bandura, 1986), expecting similar payoffs from engaging in similar activities (Ellison and Fudenberg, 1993). The socio-psychological mechanisms rooted in the social comparison and social learning theories provide insights that are somewhat similar to those offered by structural and role equivalence (Burt, 1987; 1990; Sailer, 1978; Winship and Mandel, 1983)–whereby the members of the school network should perceive one another as playing similar roles in the social structure, or sharing similar types of relations with other network members.

Whereas observation-based information exchange and social comparison processes may offer a sufficient condition to trigger inter-actor influences and therefore affect entrepreneurial choices, it would be difficult to eliminate theoretically and econometrically the possibility that, at least some members of the network are connected through interpersonal ties that diffuse information and advice (e.g., Coleman, Katz, and Menzel, 1966; Katz and Lazarsfeld, 1955).
However, even if person-to-person communication underlines the effect of the school network on an individual’s entrepreneurship choices, the predictions would, nonetheless, be consistent with those formulated based solely on observation and social comparison. Therefore, isolating the precise mechanism is less central to the study, given the similar predictions that these different theoretical mechanisms yield. Nevertheless, additional qualitative evidence provides further support for observation-driven social comparison mechanisms. As one manager noted,

“I try to get a sense of what other folks from my university do. Did they get into a hedge fund business? And I think to myself, if they can succeed, I can succeed, too. After all, we all got the same degree, and we should get similar returns from it.”

Together, these arguments suggest that nascent entrepreneurs will refer to and emulate the previous entrepreneurship choices made by their socially relevant peers – the members of their school network. Thus, as the number of network alters who previously created external ventures increases, the nascent entrepreneur will be more likely to create external rather than internal ventures. Similarly, an increase in the number of school colleagues who developed new ventures internally will increase the likelihood that the manager subsequently develops a new venture inside rather than outside. Therefore, I hypothesize that:

*Hypothesis 3a:* The probability of external venture formation increases if the number of external ventures developed by school network members increases.

*Hypothesis 3b:* The probability of internal venture formation increases if the number of internal ventures developed by school network members increases.

**School Ties or Isomorphism?**

Whereas theories of social influence predict that previous conduct of school network members should increase the probability that the ego engages in a similar behavior, an alternative explanation would point to the role of common education, given that academic institutions foster “the development of organizational norms among professional managers and
their staff” (DiMaggio and Powell, 1983: 152). To mitigate this concern, I conduct additional tests. To the extent that network mechanisms account for the similarity of entrepreneurship choices across school network alters, the school ties’ effect should increase with greater proximity of school network alters. On the other hand, if common education explains the similarity of entrepreneurship choices, the proximity of school network alters would be irrelevant when assessing the impact of those alters on the ego’s decision. To further evaluate these predictions, I focus on two dimensions of proximity: spatial and social.

There is much evidence to suggest that observation and interaction of social actors are facilitated across smaller geographic distances (e.g., Festinger, Schachter, and Back, 1950; Hedström, 1994). For instance, diffusion studies have documented that geographic proximity facilitates the spread of innovation (Davis and Greve, 1997), and increases the likelihood of entry into a new market position (Greve, 1998). Therefore, if network mechanisms underline the similarity of entrepreneurship choices across same-university graduates, the effect of school ties should be stronger for spatially proximate network members. Relatedly, interaction and role modeling have been shown to increase across socially similar actors (e.g., McPherson, and Smith-Lovin, 1986; Rogers and Kincaid, 1981). Consistent with this principle, there is evidence that social similarity of previous adopters facilitates the spread of a new practice (e.g., Rogers, 1983). Because social ties are typically homophilous with respect to gender (e.g., Ibarra, 1992; Marsden, 1988; McPherson, and Smith-Lovin, 1986), I expect the effect of school ties on entrepreneurship choices to be stronger for same-gender ties. More formally,

**Hypothesis 4:** The influence of school ties on the ego’s choice between internal and external venture formation will be stronger with greater spatial proximity of school network alters.

**Hypothesis 5:** The influence of school ties on the ego’s choice between internal and external venture formation will be stronger within same-gender ties.
Empirical Context: the Mutual Fund Industry

I use the context of the mutual fund industry to understand when organizational members create internal ventures, as opposed to leaving to founding new ventures outside. This context provides an ideal setting for several reasons. First, over the past three decades, the mutual fund industry experienced an unprecedented growth both in internal and external ventures, as numerous products, product categories, and free-standing ventures have been developed and marketed by individual and organizational actors (Davis, 2008). The number of mutual funds grew from 564 to over 8,000 between 1980 and 2007, and the funds’ population increased exponentially by 168% in the 1990s alone due to a higher demand for retirement savings and personal pension plans, such as 401k (Investment Company Institute). Currently, there are more mutual funds in the United States than companies listed on the U.S. stock exchanges, and mutual funds have become the most significant corporate owners in the United States, holding 25% of the outstanding stock of all publicly traded U.S. companies and a total of $13 trillion in assets. By the end of 2007, there were more than 90 million shareholder accounts.

The second advantage of the mutual fund context pertains to the fact that the industry represents a knowledge-based environment, often referred to as “a people-driven business” (Darragh, Dodig, and O’Hanley, 1997), where highly skilled and talented portfolio managers are responsible for buying and selling securities, based upon investment judgment and extensive

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Insert Figure 1 about here
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3 The proportion of households invested in mutual funds increased from 6% in 1980 to half of all households by 2000. For more information on mutual funds Hhttp://www.icifactbook.org/
financial research (Chevallier and Ellison, 1999). Compared to other knowledge-based industries, the mutual fund context offers a further important advantage: because the industry is absent of non-compete clauses, mobile fund managers are able to create new ventures (funds) not only inside but, foremost, outside their parent companies. Consequently, entrepreneurial fund managers face two choices: they may create new funds inside, or they may leave their parent company – a “fund family” – to start up a new fund externally. A “fund family” consists of a collection of funds bound together by a brand name, shared distribution channels, research managers, and traditions, such as Fidelity, Vanguard, American Funds, T. Rowe Price, and Janus. The single largest shareholder, the Fidelity family, has experienced a significant expansion of internally launched funds between 1980s and 2000s, and has more than 250 internal funds today.

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Each newly created fund represents a new venture – a strategic business unit with a separate legal entity, its own directors, its own marketing, and its own division (portfolio) managers. Funds may differ across the spectrum of investment styles, sizes, fees and expenses, region and industry specializations, as well as services provided to their owners. Although new funds are officially launched by the fund family, highly knowledgeable fund managers represent the “engine” behind the fund’s creation. Situated at the forefront of important decisions in the

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4 A fund family is typically managed by the management company that represents an independent publicly traded or privately owned firm, a wholly owned subsidiary of financial services, such as banks and insurance companies, or independent securities broker-dealers, known as fund distributors.
company, entrepreneurial managers can provide creative ideas and launch their own new funds inside fund families. Informal interviews conducted as a part of the study provide further evidence that fund managers play an important role in internal fund creation. One manager explained:

“I came up with an idea to open a technology fund, when I realized that smaller high tech companies are an attractive buy for us. My fund turned out a big success, given the market conditions.”

In addition to internal, portfolio managers frequently create external funds, enjoying “great freedom of movement” (Darragh, Dodig, and O’Hanley, 1997). For example, in May 1996, Jeffrey Vinik, the head of Magellan – the Fidelity’s flagship and then the largest actively managed mutual fund in the United States, left to open a hedge fund. Vinik’s departure was one of the first cases of what has subsequently become a wave of managerial departures to start their own hedge funds. Although entrepreneurial managers are typically able to derive substantial profits from setting new funds internally, many decide to leave to create independent funds, despite the significant reputation and financial risk. As described in the popular press:

“When Gilbert's fund flamed out, he became paralyzed with depression, closed the curtains and refused to leave his bed. Wife Sharon was left to tell his team of 12 that they no longer had jobs, and to liquidate the firm.” (Biggs, 2006: 56).

Finally, the mutual fund context provides an advantage of understanding the growth and innovation dynamics present in financial markets. The past two decades witnessed the emergence and proliferation of new financial industries, such as hedge funds, on-line brokerages, and free-standing mortgage firms. Despite the rapid growth of novel financial tools and products, entrepreneurial mechanisms and entrepreneurial agents present in financial markets have received only scarce attention from organizational scholars. Yet in the wake of the financial
crisis and the expansive influence of financial services over the society, the need to understand entrepreneurship in financial markets is evident.

**Data and Methods**

**Sampling**

I use a sample of all mutual funds from the CRSP US Mutual Fund. The data available via CRSP are survivor-bias free, as they include information on both live and defunct funds. This study uses data collected for the period between 1979 and 2006, since the mutual fund industry grew rapidly over that period. The sample size amounts to 8,313 unique funds and 8,014 unique fund managers – for the total of 569,946 month-manager observations. For the purpose of my study, the population of interest includes solely entrepreneurial portfolio managers – those who created new ventures either internally or externally. Over the study period, sixty-seven percent of the entire population of managers (the total of 5,388 managers) founded a new fund. Of those, seventy percent or 3,793 managers chose to create a new fund internally, while thirty percent or 1,595 managers left to create new funds externally.

I further use the TASS Database on hedge funds to crosscheck the names of portfolio managers and identify fund managers who left to start hedge funds. The TASS Database tracks information on live and defunct hedge funds, and is free of survivorship bias. It provides the names of managers in charge of a given fund, as well as a set of financial characteristics, including monthly net asset value, fund inception date, and investment objectives. Managers whose name appears in both databases are identified as those who depart from the mutual fund industry to start up a hedge fund. I merge the CRSP and TASS data sets by the unique names of

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6 In additional analyses (unreported), I include the entire population of managers to account for non-entrepreneurial actors.
portfolio managers, including the first and the last name, and the middle initial. To further ensure identification, I check if the data on manager’s appearance in the TASS database coincides with the date they last appear in the CRSP data base.

I supplement my quantitative analyses with the semi-structured and informal but relevant interviews on a convenience sample of twenty-five fund managers. The interviewees were asked about the processes of internal and external venture formation, as well as the role of the school ties in shaping entrepreneurial choices of fund managers. These interviews clearly support the view that fund managers, indeed, face the choices described above, and that their informal ties to school colleagues play an important role in affecting those choices.

**Fund Manager Data**

I collect data on managerial characteristics and career histories from several different sources. Part of the data is obtained from the Morningstar Mutual Funds OnDisc database that provides a list of managers, including names of all current and past managers, the dates when their tenures began and ended, and some biographic data, including academic institutions attended and managers’ dates of graduation. A possible problem with the Morningstar database is that it reports data starting 1990 and provides biographic data for less than half of the universe of mutual fund managers, raising a potential concern of sample selection bias. Therefore, I update missing values using hand-collected data. First, I supplement the list of fund managers with data obtained via CRSP. I further consult the Nelson directories on U.S. mutual funds that report extensive data on managers, mutual funds, and fund families. Additionally, I use multiple Internet sources, including publicly available SEC filings, mutual fund websites, and on-line career search engines (i.e., Zabasearch, LinkedIn, and ZoomInfo). Combining this set of different resources, I am able to obtain an extensive list of portfolio managers, dates of their tenures in
each fund, year of each manager’s birth, manager’s gender, undergraduate and graduate
institutions attended, and the year when the manager obtained a degree at each of the institutions
attended.

**Dependent Variables**

*External vs. Internal Choice.* For each portfolio manager that forms a new venture, I
create a variable equal to 1 if a new venture is created externally, and 0 if a new venture is
created internally. External venture creation is defined as a departure of the fund manager to set
up an external fund. Internal fund creation involves opening a new fund inside the parent fund
family. To mitigate the concern that the manager could be hired to supervise an internally created
fund, I focus solely on those managers who are employed by the family prior to the creation of
the new fund. This variable is observed monthly and moved forward by one period \((t + 1)\).7

**Explanatory Variables**

**Formal Organizational Structures: Incentive Systems**

*Discretion.* I measure manager’s discretion by accounting for the amount of decision-
making control she has over the funds supervised. Funds managed by multiple managers have
diffused decision-making processes and provide any single manager with less control over
important decisions, such as the selection of stocks to buy or to sell. For each manager, the
variable is equal 1 divided by the number of co-managers supervising the focal fund. Therefore,
the variable takes values from 0 to 1, where higher values indicate that the focal manager has
fewer co-managers and is, therefore, endowed with greater discretion.8

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7 For robustness, I also move the dependent variable six and 12 months forward to control for the fact that it may
take longer for the explanatory variable to affect entrepreneurial decisions. I obtain qualitatively similar results.

8 For managers supervising more than one fund, the variable is averaged across all funds that the manager
supervises.
Compensation. Although data on exact managerial compensation in the mutual fund industry is simply nonexistent, the finance literature commonly uses a proxy that represents the product of assets under manager’s supervision and the expense ratio, where the expense ratio indicates the total investment that shareholders pay for the fund’s operating expenses, including management fees or the compensation received by the manager. The assumption here is that manager’s compensation increases with higher expense ratio and the fund’s size.

Informal Social Structure: School Ties

For each set of regressions, I create different independent variables that aim to test the effect of school ties on entrepreneurship decisions. I identify the school network by grouping fund managers who attended the same university and obtained at least one of the following degrees: BBA, BA, BSc, MBA, MA, JD, or PhD. Managers who graduated from more than one academic institution are members of more than one network. For example, a graduate of Stanford and Michigan is a member of both networks.

Network members’ entrepreneurship choices. To test the hypothesized social influence of past choices of school network members on the entrepreneurial choice of the focal manager, I create two measures – one for internal and the other for external ventures. First, I count the number of school network members who created external funds in the previous period. I subsequently construct an internal venture measure by counting the number of school network members who created internal ventures in the previous period. Both variables are observed monthly.

Spatial Proximity. I measure spatial proximity based on the zip code in which a fund family is headquartered. I use the CRSP database to obtain a zip code corresponding to each fund family’s headquarters. For externally created funds, I aggregate the number of school network
members who developed external ventures in the past period, and who operate in the same zip code as the focal manager. I further construct a similar measure for internally created funds. For robustness, I use a fax area code (since most phone numbers listed in the database begin with “1-800”) and obtain similar results. The two variables are observed monthly.

*Same-gender.* To test whether the effect of school ties is amplified within same-gender ties, I count the network members who created external ventures and whose gender is the same as that of the focal manager. I further construct a similar measure for internally developed ventures.

**Control Variables**

I first control for various manager-specific characteristics that may influence the choice between internal and external venture formation. To that end, I account for manager’s demographics, such as gender and age. Gender is inferred from the managers’ first name and coded as 1 if male and 0 if female. I use various Internet search engines, such as the Zoominfo database and the on-line SEC filings to identify the masculine (“Mr.”) or the feminine (“Ms.”) prefix for names with no clear corresponding gender. To account for age, I hand collect data on the fund manager’s dates of birth using various Internet search engines (e.g., LinkedIn, Zoominfo), and the existing databases (e.g., Morningstar and Nelson Directory of Investment Managers).

I further include various measures of human capital because the decision regarding the new venture locus may be influenced by managerial skills and talent. Past research has suggested that the risk of entrepreneurial transition increases with an individual’s career experience, as individuals acquire resources and skills conducive to founding a new business (e.g., Higgins, 2005; Romanelli, 1989; Sorenson and Audia, 2000). Consequently, I control for the manager’s
industry tenure by counting the number of months the manager appears in the database. In addition, I account for manager’s performance. Prior research has documented that high performing knowledge workers found new organizations to derive returns on their human capital (Groysberg, Nanda, and Prats, 2007). I therefore expect that, compared to their counterparts, higher performing fund managers will tend to leave in pursuit of external ventures rather than to create new funds inside. I measure manager’s performance using monthly total fund returns available via CRSP – a standard performance measure used in the finance literature.

Furthermore, I control for the focal manager’s human capital by including a measure of her formal education. Because nascent entrepreneurs with deeper educational backgrounds should have greater human capital, they may be more likely to create independent ventures, as opposed deploying their entrepreneurial efforts inside the parent organization. Educational attainment is coded 1 if the focal manager received a bachelor’s degree (BBA, or BA/BS), 2 if the manager eared MBA, MA/MS, or JD, and 3 if the manager obtained a PhD degree. In addition, I control formally for elite school education. Because elite schools graduates have been shown to advance to executive positions inside organizations (Useem and Karabel, 1986), they may be systematically exposed to differential opportunities regarding new venture creation. To measure elite school education, I create a binary variable equal 1 if the focal manager attended an Ivy League or received a degree from a non-Ivy League but an elite institution. For robustness, I create a measure of Ivy League institutions only, and obtain similar results (unreported).

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9 Based on the Useem and Karabel’s (1986) list of elite schools, I consider Stanford, Northwestern, University of Michigan, University of California- Berkeley, University of California-Los Angeles, New York University, and University of Chicago as elite schools.
Finally, for each manager, I control for the focal manager’s network size. A larger school network may broaden the entrepreneur’s opportunity structure and thus affect the choice between internal and external fund formation. To that end, I aggregate the number of managers who graduated from the same school as the focal fund manager. This variable is observed monthly.

Another group of control variables takes into account firm-specific context that may affect entrepreneurship choices. Specifically, I account for organizational age, size and performance. Prior literature has shown that older and bigger organizations provide exposure to fewer entrepreneurial opportunities and that they equip organizational members with limited skills to create independent ventures (Dobrev and Barnett, 2005; Gompers, Lerner and Scharfstein, 2005; Sørensen 2007). Consequently, I expect that individuals socialized in older and larger organizations will be less likely to develop external ventures. By contrast, larger and older organizations may offer more opportunities for internal venture formation (Schumpeter, 1950). To measure firm size, I use total assets under management, which represents a commonly used measure of the size of the fund family. For robustness, I include a count of all managers employed by the fund family. To measure firm age, I use the CRSP database to derive the age of the oldest fund in the family.

I further account for fund family performance. On the one hand, better performing organizations may equip their entrepreneurs with resources that facilitate the formation of independent ventures. For instance, Burton, Sørensen and Beckman (2002) find that entrepreneurs benefit from reputational and informational resources provided by their prior employers. On the other hand, highly performing organizations may be able to allocate more resources towards internal venture formation and provide their members with opportunities for internal venture formation. Firm performance is calculated as the average fund return for the
focal fund family using a value weighted approach. The value weighted approach captures the
total return by multiplying each family’s return by its relative size in the family, and by taking
the sum across all weighted fund returns inside the firm.

Finally, I control for market uncertainty. Because creating a new venture is associated
with higher risk and uncertainty (Knight, 1921; Venkataraman, 1997), the probability of external
entrepreneurship should decrease with unfavorable market conditions. Compared to external,
internal ventures are associated with lower degree of risk, as the company is likely to cushion
potential risk of failure by reallocating the failed entrepreneur to another task (Scharfstein and
Gromb, 2002). Hence, under greater market uncertainty, entrepreneurial managers should deploy
their efforts to create internal rather than external funds. I create the measure of market
uncertainty using a financial formula to calculate market volatility for period \( t \) (Campbell et al.,
2001).\(^{10}\)

**Model Specification**

I estimate the effect of the formal incentive systems and school networks on the choice
between internal and external venture formation by using logistic regression models.\(^{11}\) To
address concerns related to the unobserved firm, and school characteristics and economy-wide
effects, I use firm-fixed effects, school-fixed effects, and time fixed-effects. More specifically, I
estimate the following model:

\[
\Pr(O_{ijt} = 1) = F(\alpha_j + \beta_i + \delta_t + \gamma X + e_{ik}) ,
\]

\(^{10}\) I use the following formula to calculate market volatility: \( \text{MKT}_t = \sigma^2_t \sum (R_{mt} - \mu) \) where \( \mu_m \) is defined as the
mean of the market return \( R_{mt} \) over the sample.

\(^{11}\) The relation could also be modeled using the Cox proportional hazard model that allows for multiple outcomes
and measures the time duration until one of the types of a new venture is formed. However, the Cox proportional
hazard model does not allow for firm-fixed effects when subjects in the firm experience no more than one event.
However, for robustness, I use the Cox model and obtain similar results (unreported).
where \( O_{ijt} \) is equal to 1 if the new venture is developed outside the fund family, and 0 if it is developed inside, \( \alpha_j \) are school-fixed effects, \( \beta_i \) are firm-fixed effects, \( \delta_t \) are time-fixed effects, \( X \) is the vector of the explanatory variables, and \( F(.) \) is the logistic function. For robustness, I include manager-fixed effects to mitigate the concern of managerial self-selection to firms with varying exposure to entrepreneurial opportunities. I obtain similar results (unreported).

RESULTS

Descriptive Statistics

Table 1 reports the descriptive statistics for the main variables. The total sample consists of 8,014 managers, of which 67% create new funds. Seventy percent of entrepreneurial fund managers create internal ventures, whereas thirty percent choose to create new funds outside. The average fund manager is 44.6 years old and has 5.5 years of professional experience, which suggests that most fund managers have previous work experience before they begin to supervise a fund. Fund managers have, on average, 1.7 educational degrees. Interestingly, only 15% of all fund managers are females. The average size of the fund family is $40 billion and varies between $1 million and $1106 billion, and the average fund is 29 months old.

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Insert Table 1 about here

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Formal Organizational Structure, Informal Social Structure and Fund Managers’ Entrepreneurship Choices: Multivariate Analysis

Table 2 presents the results estimated using firm-fixed effects regression models to test the hypothesized effect of formal (i.e., incentives) and informal (school ties) structures on
entrepreneurial choices. Model 1 shows the estimates for the effect of discretion and compensation on the choice between internal and external fund formation. The results provide support for the hypothesized relation between discretion and entrepreneurship choices, consistent with property rights theory, which suggests that greater discretion strengthens individual’s *ex-ante* incentives. A negative coefficient on the variable measuring discretion indicates that, relative to their counterparts, fund managers endowed with greater discretion are more likely to develop new ventures inside than outside. Similarly, a negative coefficient on compensation indicates that an increase in the pay of fund managers will make it more likely for them to invest their efforts in creating new ventures inside the parent organization than outside.

The results are significant in magnitude. One standard deviation increase in the level of discretion will decrease the odds of the focal manager founding a new fund externally rather than internally by 21% (exp(-0.774*0.305)-1). Finally, one standard deviation increase in the level of managerial compensation will decrease the odds of the focal manager founding a new fund externally rather than internally by 34% (exp(-0.008*52)-1). Overall, the results reported in model 1 show that, by providing their entrepreneurial members with greater compensation and discretion, organizations are able to induce internal fund creation, and thus decrease the probability of entrepreneurial exodus of their employees.

Models (2)-(3) further report the results regarding the influence of school ties on the fund manager’s entrepreneurial choice. Model (2) provides support for Hypothesis 3a indicating that managers will set up external funds when a greater number of their school network members developed new funds outside in the previous period. Similarly, Model (3) demonstrates the effect of internal ventures developed by school network members on the focal manager’s future choices. As predicted (Hypothesis 3b), the probability of internal fund formation increases with
the number of school colleagues who previously created new funds internally. Model (4) shows the estimates for the two network variables (internal and external funds created by school network alters) together, while Model (5) adds an additional control – the size of the school network. The results reported in Model (5) demonstrate that the impact of school ties on entrepreneurship choices is independent of the network size.

It further merits note that the results are substantial in magnitude. The coefficients in Model (5) suggest that if one more member in the focal manager’s school network created an external fund in the previous period, the odds of the focal manager founding an external rather than internal fund will increase by 112% (exp(0.753*1)-1). Alternatively, if one more member in the focal manager’s school network created an internal fund in the previous period, the odds of the focal manager founding an external rather than internal fund will decrease by 22% (exp(-0.250*1)-1).

Additional results presented in Table 2 further report the impact of individual, organizational, and macroeconomic characteristics on fund managers’ entrepreneurial choices. With respect to manager-specific characteristics, the results indicate that men are more likely than women to create external funds (Model 1 and Model 3). Moreover, Models (1) - (5) show that the probability of external, as opposed to internal, fund creation decreases with manager’s age, suggesting that old managers may prefer to pursue the development of less risky ventures inside the parent firm. Consistent with the literature indicating that talented individuals are more likely to leave to set up their own businesses (e.g., Groysberg, Nanda, and Prats, 2007), I find that the probability of external fund formation increases with manager’s performance, as evidenced by Models (1) - (5). Contrary to the expected relation, the probability that a fund manager starts up an external fund decreases with her industry tenure (Models 2, 4 and 5). Other
measures of human capital remain mostly insignificant: the results show that elite school education, and the highest degree earned do not systematically predict the fund manager’s choice between external and internal fund formation.

With respect to firm-specific characteristics, the results consistently indicate (Models 1-5) that larger organizations experience higher rates of inside than outside ventures, even though the coefficients have a low economic significance. The coefficient on the number of fund managers inside the fund family is not significant. Additionally, the findings indicate that the probability of internal rather than external fund formation increases with firm performance (Models 2-5), while the prediction that older organizations will have a stronger influence entrepreneurial choices finds no empirical support.

Together, these findings have important implications for the literature examining the impact of bureaucracies on entrepreneurial rates. Whereas most extant research documents that bureaucratic organizations reduce entrepreneurial rates by providing limited exposure to entrepreneurial opportunities (e.g., Dobrev and Barnett, 2005; Gompers, Lerner and Scharfstein, 2005; Sørensen, 2007a), an alternative explanation (supported in the present study) may be that large bureaucratic organizations “spawn” fewer external ventures because they are able to foster entrepreneurial activity inside.

Finally, consistent with the hypothesized relation between market uncertainty and entrepreneurship choices, the estimates show that the probability of internal vs. external fund formation increases as markets become more uncertain (Models 1-5). This finding validates the claim that entrepreneurs may perceive external venture formation as more risky and are, therefore, compelled to create external funds under lower market uncertainty.

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[28]
Table 3 further presents the results estimated using firm-fixed effects to test the moderating impact of geographic propinquity. The results presented in Table 3 provide support for Hypothesis 4, demonstrating that the school network effect is amplified with geographic propinquity of school network members. As illustrated by Model (1), the coefficient on the count of spatially close school network alters who created external funds is positive and significant, controlling for the total number of school alters who created new funds externally. Similarly, as evidenced in Model (2), the coefficient on the number of spatially proximate network alters who created new funds internally is negative and significant, even when controlling for the total number of network members who founded new funds inside. Model 3 illustrates the results when both measures of spatial propinquity are included. Together, these results indicate that the effect of school ties is, indeed, amplified by spatial propinquity of the network members – and is, therefore, less likely to be explained by the influence of common education.

Similarly, Table 4 presents regression results estimated using firm-fixed effects to test the prediction that the school network effect should be stronger within same-gender ties. As illustrated in Table 4, this hypothesis finds empirical support. The results provide support for Hypothesis 5, showing that the school network effect is amplified within same-gender school ties. Model (1) shows that the coefficient on the count of same-gender network alters who created external funds is positive and significant, controlling for the total number of school alters.

[29]
who created new funds externally. Similarly, Model (2) shows that the coefficient on the number of same-sex network alters who created new funds internally is negative and significant, when controlling for the total number of network members who founded new funds inside. Model 3 reports the results for both measures included. Overall, these results indicate that the focal fund manager is more likely to imitate the prior conduct of her school network members, when those members are of the same gender as the focal manager herself. These results provide further support to the claim that the effect of school ties is due to network mechanisms rather than common educational experience.

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Insert Table 4 about here

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Robustness Tests- Alternative Explanations

Although the present study suggests that the locus of a new venture is shaped by the social influence of school network members, it may be that school ties simply proxy for other sources of social influence. First, based on the literature that documents the influence of co-workers on entrepreneurial transition (e.g., Nanda and Sørensen, 2008; Stuart and Ding 2006), we may expect that the effect of school network members proxies for the influence of co-workers. Second, extant research has demonstrated that the launch of new ventures in geographic proximity stimulates prospective entrepreneurs to follow, as they interpret the interest of others in the market as a signal of the market’s munificence (e.g., Bikchandani, Hirschleifer and Welch, 1992; Sørensen and Sorenson, 2003). Hence, the observed impact of school network members may simply proxy for the regional rates of internally or externally created ventures. To account for those two additional sources of influence, I control for the previous entrepreneurship choices
of the focal manager’s co-workers (i.e., managers employed by the same fund family), as well as for the regional rates of internally and externally created funds. The results in Table A1 (Appendix 1) indicate that school ties affect the manager’s choice between internal and external venture formation even after controlling for the previous choices of co-workers, and for the regional founding rates.

Moreover, it may be that the observed effect of school ties on the fund manager’s entrepreneurship choices is driven by the number of ties inside and outside the parent organization. Because networks facilitate the identification of opportunities and mobilization of resources (e.g., Aldrich and Zimmer, 1986; Burt 1992; Freeman, 1986), a larger external school network may broaden the manager’s opportunity set and yield greater social capital benefits (Burt, 1992; 1997, Lin, 1999), thereby increasing the likelihood of external rather than internal fund formation. Similarly, if informal networks help mobilize resources and reduce uncertainty inside the organization, managers may be more inclined to create internal rather than external ventures when tied to a larger number of alters inside the organization. In both cases, we might expect that the sheer number of school ties inside and outside the organization will account for the observed similarity of entrepreneurship choices across the network alters. In additional analyses, I therefore control for the number of the focal manager’s school ties both outside and inside the parent organization. The results in Table A2 (Appendix 2) show that the primary effect of the school network is separate from the effect of network size inside and outside the organization. The results further illustrate that the size of external network is positively related to

\[ \text{New ventures are considered as being created in the same region when they are founded by managed employed by firms headquartered in the same zip code. For robustness, I use alternative definitions of geographic proximity, based on fax number area code, and city, and obtain similar results.} \]
the likelihood of external rather than internal fund creation, whereas the number of internal ties does not significantly affect entrepreneurial choices.

**Discussion**

A few decades ago, Schumpeter warned us that economic development would ultimately lead to the disappearance of the entrepreneur, and that large firms with a considerable degree of market power would drive technological progress (Schumpeter, 1950). As a rejoinder, the present study provides an unprecedented window into entrepreneurial rates both inside and outside large organizations. Using the empirical setting of the mutual fund industry, I find that, contrary to the Schumpeterian prophecy, within the population of entrepreneurial individuals as many as 30% leave larger organizations to found new ventures externally; even in spite of strong formal incentives (i.e., discretion and compensation) often provided by the parent organization to induce the creation of the new venture inside. However, consistent with Schumpeter’s claim, I too find that a large portion of innovative activity takes place inside larger established organizations. Whereas, since Schumpeter, scholars have examined entrepreneurship (e.g., Aldrich and Widenmeyer, 1993; Gompers et al., 2005; Sorensen and Audia, 2000) and internal venture formation (e.g., Amit, Glosten, and Mueller, 1993; Burgelman, 1983; Pinchot, 1985; Schumpeter, 1942; 1950) typically in separation, the present study proposes that much insight can be gained from a joint consideration, given that the two are interrelated.

To understand the conditions under which new ventures are created inside established organizations and when, by contrast, they are founded externally, this study focuses on a role of an individual in determining the locus of the new venture. Specifically, it proposes that nascent entrepreneurs often face the choice between creating a new venture inside and leaving in pursuit of a new venture outside. Although their choice is partially influenced by the nature of the
organizational context through the formal incentive systems in place, the decision to create a new venture inside or outside is also informed by the entrepreneur’s informal social networks. I find that informal social ties to school colleagues impact entrepreneurial choices by providing powerful external role models that exert social influence across the members of the network. The school network effect is further amplified for geographically close, and same-gender social ties, indicating that the impact of school ties is not driven primarily by isomorphism and common education – but, instead, it arises due to inter-actor influences transmitted through an informal social structure.

More broadly, by examining the conditions under which new ventures are developed internally and externally, the present study illuminates the role of an individual in shaping and specifying the boundaries of the modern organization. While the prevailing theories of the firm concentrate on the role of a unitary organizational actor in delimiting the boundaries of its activity (e.g., Kogut and Zander, 1996; Williamson, 1985), there is little understanding of how boundaries of the firm are redrawn by the actions and decisions of individuals, whose goals and interests are not always aligned with the organization. Indeed, my findings suggest that variation in the characteristics of the individuals’ social ties has an important impact on how the boundary of the firm is specified and what activities occur inside and what activities fall outside the organizational domain. Consequently, the current study opens a fruitful avenue for future research that would integrate the role of individuals into the existing theories of the firm.

An additional implication of the present study is that individual-specific informal social ties may represent a non-trivial challenge to the organization that strives to regulate and control its boundaries. Although organizations exert some influence on the choices of their members by providing appropriate incentives, organizational impact is largely limited by the employees’
informal social ties that, as evidenced in the study, may increase the probability of entrepreneurial exodus. A natural follow-up question would therefore be whether established organizations are able to internalize or respond to the “boundary challenge” posed by the social ties of their employees. For example, future studies could examine if and under what conditions organizations cede greater rewards and provide stronger incentives to managers with larger external ties or ties to other entrepreneurs. More broadly, building on the present study, future research may examine the value of the employee’s social ties to the firm. Although employees’ networks are typically considered a valuable asset to the parent organization, the present study provides an initial step towards challenging this assumption, by demonstrating the role of informal employee’s networks to reduce the organization’s control over its boundaries.

Relatedly, the current study offers other opportunities for future research. With the extensive and detailed data on mutual funds, many prevailing questions about entrepreneurial process and the emergence of new organizations could be addressed. For instance, directly extending the current findings, one could examine how the social influence transmitted through informal ties at the time of venture founding impacts new venture’s future performance and survival. On the one hand, funds created under the social influence of network alters should outperform their counterparts if informal school ties signal the presence of entrepreneurial opportunities difficult to identify by network outsiders. On the other hand, nascent entrepreneurs may imitate the previous choices of their school network alters even if opportunities for profit have been already depleted. Hence, in additional analyses, I examine this question empirically by testing the effect of school ties on the new fund performance and survival. Consistent with the second hypothesis, the results (unreported) indicate that funds created under the social influence
of school network members are more likely to experience negative future performance and shorter survival times.

A number of additional suggestions for further research relate directly to the limitations of the study. First, isolating the specific operative mechanisms underlying the observed network effect is beyond the scope of the study and peripheral to its purpose. Although some qualitative data collected as a part of this study indicates that school ties trigger social comparison processes and exert attitudinal influence on the focal manager, it remains possible that at least some of such ties are interpersonal and that they transmit resources and information to shape the choice of entrepreneurial activities. Given this limitation, future studies may further capitalize on the collection of qualitative data to isolate the exact mechanisms underlying the effect of school ties. Similarly, future research could extend the analyses of entrepreneurial choices to other empirical contexts. Whereas the mutual fund industry provides a unique opportunity to observe and compare new venture formation both inside and outside established organizations, further studies may conduct a cross-industry analysis to increase the generalizability of the findings presented in this paper.

**Conclusion**

Using the context of the mutual fund industry, this study investigates the conditions under which entrepreneurial actors create internal ventures and when, by contrast, they leave in pursuit of entrepreneurial opportunities outside established organizations. However, the theoretical implications of this study extend well beyond the details of entrepreneurial process. By examining the determinants of internal and external venture formation, the current paper hopes to draw the attention of organizational scholars to the ways in which individuals and differences
amongst them shape some of the most important firm-level outcomes, related to internal innovation, organizational founding, and ultimately the boundaries of the organization.
Table 1. Descriptive Statistics

<table>
<thead>
<tr>
<th>Variables</th>
<th>Mean</th>
<th>SD</th>
<th>Min</th>
<th>Max</th>
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</thead>
<tbody>
<tr>
<td>External vs. Internal Choice (1 if external, 0 if internal)</td>
<td>0.296</td>
<td>0.456</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>School network members creating external funds (count)</td>
<td>1.631</td>
<td>2.207</td>
<td>0</td>
<td>14</td>
</tr>
<tr>
<td>School network members creating internal funds (count)</td>
<td>3.807</td>
<td>5.304</td>
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<td>20</td>
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<tr>
<td>Manager’s Discretion (1/fund co-managers’ count)</td>
<td>0.654</td>
<td>0.305</td>
<td>0.04</td>
<td>1</td>
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<tr>
<td>Manager’s Compensation (Assets*Expense Ratio)</td>
<td>18.63</td>
<td>52.04</td>
<td>0.0122</td>
<td>665.1</td>
</tr>
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<td>Gender (1 if male)</td>
<td>0.855</td>
<td>0.305</td>
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<td>1</td>
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<td>Manager’s Age</td>
<td>44.6</td>
<td>9.9</td>
<td>20</td>
<td>86</td>
</tr>
<tr>
<td>Manager’s Performance (Fund return)</td>
<td>0.007</td>
<td>0.0334</td>
<td>-0.297</td>
<td>0.359</td>
</tr>
<tr>
<td>Industry Tenure (Months)</td>
<td>50.97</td>
<td>51.74</td>
<td>1</td>
<td>375</td>
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<tr>
<td>Elite School Degree (0-1)</td>
<td>0.389</td>
<td>0.487</td>
<td>0</td>
<td>1</td>
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<td>Highest Degree Earned</td>
<td>1.7</td>
<td>0.521</td>
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<td>Firm Size (Assets)</td>
<td>40,782.02</td>
<td>114,425.4</td>
<td>0.036</td>
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<td>Total Fund Managers (Firm)</td>
<td>25.7</td>
<td>27.8</td>
<td>1</td>
<td>145</td>
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<tr>
<td>Firm Performance (weighted family returns)</td>
<td>0.008</td>
<td>0.047</td>
<td>-0.891</td>
<td>1.623</td>
</tr>
<tr>
<td>Firm Age (Oldest fund – month count)</td>
<td>28.67</td>
<td>21.47</td>
<td>1</td>
<td>81</td>
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<tr>
<td>Market volatility</td>
<td>0.040</td>
<td>0.018</td>
<td>0</td>
<td>0.266</td>
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Table 2. The Effect of Formal Organizational Structures (incentives) and School Ties on Entrepreneurship Choices

<table>
<thead>
<tr>
<th>Variables</th>
<th>External vs. Internal Entrepreneurship</th>
<th>External vs. Internal Entrepreneurship</th>
<th>External vs. Internal Entrepreneurship</th>
<th>External vs. Internal Entrepreneurship</th>
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<td>(1)</td>
<td>(2)</td>
<td>(3)</td>
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<td>(5)</td>
</tr>
<tr>
<td>School network alters creating</td>
<td>0.579***</td>
<td>0.671***</td>
<td>0.753***</td>
<td>(0.048)</td>
<td>(0.054)</td>
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<tr>
<td>external funds (count)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>School network alters creating</td>
<td>-0.255***</td>
<td>-0.305***</td>
<td>-0.250***</td>
<td>(0.026)</td>
<td>(0.029)</td>
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<tr>
<td>internal funds (count)</td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>School network size</td>
<td></td>
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<td></td>
<td></td>
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<td>Manager’s Discretion</td>
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<td>-0.774***</td>
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<td>-0.005***</td>
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<td>-0.008***</td>
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<tr>
<td>Gender (male)</td>
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<td>0.573**</td>
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<td>-0.932**</td>
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<td>-0.987***</td>
<td>-0.923**</td>
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<td>-0.003*</td>
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<td>-0.142</td>
<td>-0.167</td>
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<tr>
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<td>-0.000***</td>
<td>-0.000***</td>
<td>-0.000***</td>
<td>-0.000***</td>
</tr>
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<td>Total Fund Managers (Firm)</td>
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<td>-0.007</td>
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<tr>
<td>Firm Age</td>
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<td>0.001</td>
<td>0.008</td>
<td>-0.001</td>
<td>-0.000</td>
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<td>2065</td>
<td>2065</td>
<td>2065</td>
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</tr>
<tr>
<td>Number of Fund Families</td>
<td>0.14</td>
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<td>0.32</td>
<td>0.33</td>
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Standard errors in parentheses

* significant at 10%; ** significant at 5%; *** significant at 1%
Table 3. The Effect of Formal Organizational Structures (incentives) and School Ties on Entrepreneurship Choices (Geographic proximity)

<table>
<thead>
<tr>
<th>Variables</th>
<th>External vs. Internal Entrepreneurship (1)</th>
<th>External vs. Internal Entrepreneurship (2)</th>
<th>External vs. Internal Entrepreneurship (3)</th>
</tr>
</thead>
<tbody>
<tr>
<td>School network alters creating external funds (count)</td>
<td>0.515*** (0.056)</td>
<td>0.609*** (0.063)</td>
<td></td>
</tr>
<tr>
<td>School network alters creating external funds in geog. prox.</td>
<td>3.348*** (0.242)</td>
<td>3.183*** (0.245)</td>
<td></td>
</tr>
<tr>
<td>School network alters creating internal funds (count)</td>
<td>-0.280*** (0.031)</td>
<td>-0.290*** (0.039)</td>
<td></td>
</tr>
<tr>
<td>Manager’s Discretion</td>
<td>-0.780*** (0.285)</td>
<td>-0.909*** (0.239)</td>
<td>-0.809*** (0.302)</td>
</tr>
<tr>
<td>Manager’s Compensation</td>
<td>-0.009*** (0.003)</td>
<td>-0.005*** (0.002)</td>
<td>-0.012*** (0.003)</td>
</tr>
<tr>
<td>Gender (male)</td>
<td>0.146 (0.324)</td>
<td>0.578** (0.280)</td>
<td>0.285 (0.357)</td>
</tr>
<tr>
<td>Manager’s Age</td>
<td>-0.658** (0.006)</td>
<td>-0.632** (0.004)</td>
<td>-0.245** (0.006)</td>
</tr>
<tr>
<td>Manager’s Performance</td>
<td>9.977*** (2.469)</td>
<td>8.765*** (2.029)</td>
<td>10.318*** (2.613)</td>
</tr>
<tr>
<td>Manager’s Industry Tenure</td>
<td>-0.002* (0.002)</td>
<td>-0.002 (0.001)</td>
<td>-0.003 (0.002)</td>
</tr>
<tr>
<td>Elite School Degree</td>
<td>-0.161 (0.335)</td>
<td>0.752*** (0.281)</td>
<td>0.293 (0.366)</td>
</tr>
<tr>
<td>Highest Degree Earned</td>
<td>-0.212 (0.161)</td>
<td>-0.134 (0.136)</td>
<td>-0.213 (0.175)</td>
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<tr>
<td>Firm Size (Total Assets)</td>
<td>-0.000*** (0.000)</td>
<td>-0.000*** (0.000)</td>
<td>-0.000*** (0.000)</td>
</tr>
<tr>
<td>Total Fund Managers (Firm)</td>
<td>0.002 (0.013)</td>
<td>-0.007 (0.011)</td>
<td>0.006 (0.014)</td>
</tr>
<tr>
<td>Firm Performance</td>
<td>-4.257 (2.679)</td>
<td>-4.199* (2.175)</td>
<td>-5.099* (2.856)</td>
</tr>
<tr>
<td>Firm Age</td>
<td>0.004 (0.012)</td>
<td>0.007 (0.010)</td>
<td>0.003 (0.012)</td>
</tr>
<tr>
<td>Market volatility</td>
<td>32.726*** (6.639)</td>
<td>28.675*** (5.316)</td>
<td>36.869*** (7.253)</td>
</tr>
<tr>
<td>Observations</td>
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<td>2065</td>
<td>2065</td>
</tr>
<tr>
<td>Number of Fund Families</td>
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<td>184</td>
<td>184</td>
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<td>Pseudo R-squared</td>
<td>0.46</td>
<td>0.20</td>
<td>0.52</td>
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Standard errors in parentheses
* significant at 10%; ** significant at 5%; *** significant at 1%
Table 4. The Effect of Formal Organizational Structures (incentives) and School Ties on Entrepreneurship Choices (Same-gender Ties)

<table>
<thead>
<tr>
<th>Variables</th>
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<th>External vs. Internal Entrepreneurship</th>
<th>External vs. Internal Entrepreneurship</th>
</tr>
</thead>
<tbody>
<tr>
<td>School network alters creating external funds (count)</td>
<td>0.284*** (0.082)</td>
<td>0.175** (0.085)</td>
<td></td>
</tr>
<tr>
<td>School network alters creating external funds (same gender)</td>
<td>0.457*** (0.107)</td>
<td>0.879*** (0.117)</td>
<td></td>
</tr>
<tr>
<td>School network alters creating internal funds (count)</td>
<td></td>
<td>-0.075** (0.037)</td>
<td>-0.011** (0.024)</td>
</tr>
<tr>
<td>School network alters creating internal funds (same gender)</td>
<td></td>
<td>-0.287*** (0.057)</td>
<td>-0.555*** (0.054)</td>
</tr>
<tr>
<td>Manager’s Discretion</td>
<td>-0.968*** (0.230)</td>
<td>-1.143*** (0.224)</td>
<td>-1.071*** (0.250)</td>
</tr>
<tr>
<td>Manager’s Compensation</td>
<td>-0.006*** (0.002)</td>
<td>-0.004** (0.004)</td>
<td>-0.007*** (0.005)</td>
</tr>
<tr>
<td>Gender (male)</td>
<td>0.021 (0.281)</td>
<td>0.982*** (0.287)</td>
<td>0.476 (0.309)</td>
</tr>
<tr>
<td>Manager’s Age</td>
<td>-0.534** (0.004)</td>
<td>-0.650** (0.004)</td>
<td>-0.456** (0.005)</td>
</tr>
<tr>
<td>Manager’s Performance</td>
<td>9.672*** (2.129)</td>
<td>9.875*** (2.044)</td>
<td>9.487*** (2.271)</td>
</tr>
<tr>
<td>Manager’s Industry Tenure</td>
<td>-0.001 (0.001)</td>
<td>0.001 (0.001)</td>
<td>-0.001 (0.001)</td>
</tr>
<tr>
<td>Elite School Degree</td>
<td>-0.277 (0.290)</td>
<td>0.760*** (0.271)</td>
<td>0.206 (0.328)</td>
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<tr>
<td>Highest Degree Earned</td>
<td>-0.135 (0.137)</td>
<td>-0.133 (0.132)</td>
<td>-0.160 (0.150)</td>
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<tr>
<td>Firm Size (Total Assets)</td>
<td>-0.000*** (0.000)</td>
<td>-0.000 (0.000)</td>
<td>-0.000** (0.000)</td>
</tr>
<tr>
<td>Total Employees</td>
<td>0.004 (0.012)</td>
<td>-0.017 (0.009)</td>
<td>0.016 (0.012)</td>
</tr>
<tr>
<td>Firm Performance</td>
<td>-4.764** (2.134)</td>
<td>-4.235** (2.022)</td>
<td>-5.023** (2.281)</td>
</tr>
<tr>
<td>Firm Age</td>
<td>0.006 (0.010)</td>
<td>0.025*** (0.009)</td>
<td>0.010 (0.010)</td>
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<td>Market volatility</td>
<td>-13.915*** (3.576)</td>
<td>-7.692** (3.283)</td>
<td>-12.634*** (3.885)</td>
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<tr>
<td>Observations</td>
<td>2065</td>
<td>2065</td>
<td>2065</td>
</tr>
<tr>
<td>Number of Fund Families</td>
<td>184</td>
<td>184</td>
<td>184</td>
</tr>
<tr>
<td>Pseudo R-squared</td>
<td>0.22</td>
<td>0.15</td>
<td>0.34</td>
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Standard errors in parentheses
* significant at 10%; ** significant at 5%; *** significant at 1%
<table>
<thead>
<tr>
<th>Variables</th>
<th>External vs. Internal Entrepreneurship</th>
<th>External vs. Internal Entrepreneurship</th>
</tr>
</thead>
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<tr>
<td></td>
<td>(1)</td>
<td>(2)</td>
</tr>
<tr>
<td>School network alters creating external funds (count)</td>
<td>0.671***</td>
<td>0.579***</td>
</tr>
<tr>
<td></td>
<td>(0.054)</td>
<td>(0.086)</td>
</tr>
<tr>
<td>School network alters creating internal funds (count)</td>
<td>-0.305***</td>
<td>-0.266***</td>
</tr>
<tr>
<td></td>
<td>(0.029)</td>
<td>(0.054)</td>
</tr>
<tr>
<td>Geographically proximate managers creating external funds (count)</td>
<td></td>
<td>0.312***</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(0.092)</td>
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<tr>
<td>Geographically proximate managers creating internal funds (count)</td>
<td></td>
<td>-0.017*</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(0.009)</td>
</tr>
<tr>
<td>Co-workers creating external funds (count)</td>
<td>0.496***</td>
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</tr>
<tr>
<td></td>
<td>(0.105)</td>
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<tr>
<td>Co-workers creating internal funds (count)</td>
<td>0.018*</td>
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<tr>
<td></td>
<td>(0.011)</td>
<td></td>
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<tr>
<td>Manager’s Discretion</td>
<td>-0.782***</td>
<td>-0.981***</td>
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<td></td>
<td>(0.254)</td>
<td>(0.481)</td>
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<tr>
<td>Manager’s Compensation</td>
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<td>-0.004***</td>
</tr>
<tr>
<td></td>
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<td>(0.003)</td>
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<tr>
<td>Gender (male)</td>
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<td>(0.301)</td>
<td>(0.594)</td>
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<td>Manager’s Age</td>
<td>-0.932***</td>
<td>-0.935***</td>
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<tr>
<td></td>
<td>(0.005)</td>
<td>(0.004)</td>
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<td>Manager’s Performance</td>
<td>9.517***</td>
<td>13.472***</td>
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<td>Manager’s Industry Tenure</td>
<td>-0.003*</td>
<td>-0.006**</td>
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<td>(0.001)</td>
<td>(0.003)</td>
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<td>0.362</td>
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<td>-0.000***</td>
<td>-0.000***</td>
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<td>(0.000)</td>
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<td>Total Employees</td>
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<td>(0.020)</td>
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<td>0.011</td>
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<td></td>
<td>(0.011)</td>
<td>(0.019)</td>
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<td>Market volatility</td>
<td>-28.828***</td>
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<td>(5.773)</td>
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<tr>
<td>Observations</td>
<td>2065</td>
<td>2065</td>
</tr>
<tr>
<td>Number of Fund Families</td>
<td>184</td>
<td>184</td>
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<tr>
<td>Pseudo R-squared</td>
<td>0.32</td>
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[41]
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<th>External vs. Internal Entrepreneurship (2)</th>
<th>External vs. Internal Entrepreneurship (3)</th>
</tr>
</thead>
<tbody>
<tr>
<td>School network alters creating internal funds (count)</td>
<td>-0.262***</td>
<td>-0.250***</td>
<td>-0.262***</td>
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<tr>
<td></td>
<td>(0.027)</td>
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<td>(0.033)</td>
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<tr>
<td>Internal School Ties</td>
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<td>School network alters creating external funds (count)</td>
<td>0.786***</td>
<td>0.747***</td>
<td>0.771***</td>
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<tr>
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<td>(0.059)</td>
<td>(0.060)</td>
<td>(0.060)</td>
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<td>External School Ties</td>
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<td></td>
<td>(0.005)</td>
<td>(0.006)</td>
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<td>Manager’s Discretion</td>
<td>-0.765***</td>
<td>-0.876***</td>
<td>-0.771***</td>
</tr>
<tr>
<td></td>
<td>(0.252)</td>
<td>(0.237)</td>
<td>(0.257)</td>
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<td>Manager’s Compensation</td>
<td>-0.007***</td>
<td>-0.005***</td>
<td>-0.008***</td>
</tr>
<tr>
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<td>(0.002)</td>
<td>(0.002)</td>
<td>(0.002)</td>
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<td>Gender (male)</td>
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<td>-0.019**</td>
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<tr>
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<td>(0.009)</td>
<td>(0.008)</td>
<td>(0.009)</td>
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<td>Manager’s Industry Tenure</td>
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<td>-0.001</td>
<td>-0.002</td>
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<td>(0.001)</td>
<td>(0.001)</td>
<td>(0.002)</td>
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<tr>
<td>Elite School Degree</td>
<td>0.675**</td>
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<td>(0.317)</td>
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<td>-0.000***</td>
<td>-0.000***</td>
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<tr>
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<td>(0.000)</td>
<td>(0.000)</td>
</tr>
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<td>Total Employees</td>
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<td>(0.012)</td>
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<tr>
<td>Firm Performance</td>
<td>-4.462*</td>
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<td>-5.015**</td>
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<td>0.006</td>
<td>-0.001</td>
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<td>(0.011)</td>
<td>(0.010)</td>
<td>(0.012)</td>
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<td>(5.579)</td>
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<td>(5.785)</td>
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<tr>
<td>Pseudo R-squared</td>
<td>0.30</td>
<td>0.21</td>
<td>0.33</td>
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</table>

Standard errors in parentheses
* significant at 10%; ** significant at 5%; *** significant at 1%
Figure 1: Mutual funds' expansion, 1940-2007.
(Data compiled by the Investment Company Institute)

Figure 2: Fidelity’s Internal Funds, 1979-2006
(author’s analyses)
References


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