Entrepreneurial Beacons as Founding Triggers: The Yale Endowment, Run-ups, and the Growth of Venture Capital

Rory McDonald  
Department of Management  
McCombs School of Business  
University of Texas at Austin  
Austin, TX 78712  
E-mail: rory.mcdonald@mccombs.utexas.edu

Benjamin L. Hallen  
Department of Strategy and Entrepreneurship  
London Business School  
Regent’s Park  
London NW1 4SA  
E-mail: bhallen@london.edu

Emily Cox Pahnke  
Department of Management and Organization  
Foster School of Business  
University of Washington  
Seattle, WA 98195  
E-mail: eacox@uw.edu

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ABSTRACT

This paper investigates the social context of entrepreneurship in organizational sectors. According to prior research, new organizational foundings are driven by collective patterns of activity in the surrounding social environment, namely, patterns of prior foundings, patterns of support from related markets, and patterns of collective institutional activism. Building on research on social salience and signals, we consider instead the influence of singular triggers, which we refer to as entrepreneurial beacons. We argue that these salient organizations can attract and motivate entrepreneurs and their backers, thereby altering the rate of foundings. To test this logic, we examine the impact of the Yale endowment and venture capital-backed IPO run-ups on new venture capital firm foundings (1984 to 2011). The results and theory offer insights into which parts of the surrounding social environment matter for entrepreneurial activity and influence the dynamics of organizational sectors.
INTRODUCTION

Organizations do not exist in isolation but rather are embedded in a broader social context (Granovetter, 1985; Pfeffer, 1997; Scott & Davis, 2006). Indeed, scholars have long recognized the importance of social context in shaping a plethora of important organizational decisions such as adopting new practices and service providers (Briscoe & Safford, 2008; Davis & Greve, 1997; Haunschild & Miner, 1997), committing and disclosing wrongdoing (Mishina, Dykes, Block, & Pollock, 2010; Pfarrer, Smith, Bartol, Khanin, & Zhang, 2008), evaluating performance in financial markets (Pollock & Rindova, 2003; Pollock, Rindova, & Maggitti, 2008) and even regulating entire industries (Edelman, Uggen, & Erlanger, 1999; Hiatt & Park, 2013). Researchers have also turned their attention to the social context of entrepreneurship and specifically, to the decision to found a new organization. They have argued that the social environment surrounding a sector influences foundings by shaping potential entrepreneurs’ awareness of existing organizational templates, by socially constructing and labeling the concepts by which the sector is understood, and by convincing key audiences (e.g., customers, investors) to support entrepreneurship within the sector (Aldrich & Fiol, 1994; Sine & Lee, 2009; Stinchcombe, 1965; Tolbert, David, & Sine, 2011). But which part of the surrounding social environment actually matters for the entrepreneurial process?

From a theoretical standpoint, existing work has been surprisingly consistent in linking entrepreneurial activity to collective patterns of activity by many disparate actors in that environment. Underlying one such collective pattern, patterns of foundings, is the argument that a history of prior foundings encourages subsequent foundings. Many prior foundings serve as a template for organizing and helps explain the organizational form’s function, importance, and viability to key constituencies (Sine, David, & Mitsuhashi, 2007). As organizations accumulate within a sector, it indicates that entrepreneurs and their backers are being attracted to a sector, that the sector is legitimate, and that it offers a promising
area for entrepreneurship. Thus, early increases in foundings act at the sector level to raise awareness of and comfort with entrepreneurial opportunities, making it easier for potential entrepreneurs to assemble the resources needed to found a firm (Cattani, Pennings, & Wezel, 2003; Sine, Haveman, & Tolbert, 2005; Thornton, 1999). Overall, research has shown that collective patterns of foundings foster additional foundings in a variety of industries.

A parallel body of research argues that new foundings are also encouraged by patterns of support from influential actors in related sectors. When many influential actors decide to support, engage with, or link to a particular sector, the entire sector becomes more legitimate and conducive to entrepreneurial activity (Audia, Freeman, & Reynolds, 2006; Baum & Oliver, 1992; Hybels, Ryan, & Barley, 1994; Rao, Monin, & Durand, 2003). For example, Greve et al. (2006) showed that in counties with many influential nonprofit organizations, new LPFM radio stations (a related noncommercial sector) proliferated. Shifting patterns of support can also alter a sector’s conduciveness to entrepreneurial activity, as shown by more foundings of non-alcoholic soft drink producers in states with many members of two organizations: the Woman’s Christian Temperance Union and the American Medical Association (Hiatt, Sine, & Tolbert, 2009). These influential supporting actors created a social environment hostile to alcohol and accommodating to soft drink producers – again demonstrating that patterns (in this case of support) by numerous, influential actors within the environment act as important driver of foundings.

Researchers have also emphasized patterns of institutional activism and have described how activities by pioneers and activists within a sector encourage entrepreneurial activity. Together these groups collectively establish the social artifacts, beliefs, and infrastructures that make a sector amenable to entrepreneurship. For example, Weber, Heinze, and DeSoucey (2008) showed that the common cultural codes articulated by a coalition of activists in the grass-fed meat and dairy industry played an integral role in conveying the sector’s importance and stimulating entry by new producers. Rao (2004) found that frequent, visible reliability contests organized by car enthusiasts and automobile clubs validated the early U.S. auto industry, thereby facilitating new foundings. Related studies have shown that
activism by many formal and informal groups can challenge previously dominant organizational forms and open up alternative sectors for entrepreneurs (Sine & Lee, 2009). Overall, this research suggests that patterns of collective activism by cultural operatives serve to establish the terms and beliefs that help entrepreneurs, customers, and related audiences recognize, interact with, and participate in a sector.

Together, these studies offer a compelling and consistent explanation for how surrounding social environments make organizational sectors conducive to entrepreneurial foundings. Moreover, they are all grounded in a common logic: that many similar activities (prior foundings, influential support, or institutional activism) facilitate and encourage entrepreneurship. The logic maintains that a collective pattern of activity creates widespread awareness of the possibility of founding and persuasively establishes legitimacy for entrepreneurial activity within a sector (Aldrich & Fiol, 1994).

Despite the elegance of this characterization, anecdotal accounts indicate that entrepreneurs are oftentimes influenced not so much by collective patterns, but rather by singular triggers. For example, although relatively few Internet companies existed before Netscape’s IPO in August of 1995, many new Internet ventures formed rapidly thereafter (Goldfarb, Kirsch, & Miller, 2007). Similarly, when the venture capital firm Sequoia Capital makes a bet in a new technology sector, entrepreneurs and their backers pay close attention given the storied VC firm’s support of “niche that blossom” (Southwick, 2001: 73). In both cases, entrepreneurs would seem to be influenced by singular triggers – Netscape’s IPO or Sequoia’s investment – not by collective patterns.

Inspired by accounts such as those of Netscape and Sequoia Capital, this paper develops an additional conceptualization of how surrounding social environments influence new foundings in a sector. Drawing on research on social salience and signaling, we argue that singular triggers attract entrepreneurs and their supporters to sectors and lead them to give serious consideration to either founding or supporting a new organization there. Referring to these salient triggers as entrepreneurial beacons, we identify two distinct types of beacons. Endorsing beacons are singular organizations that stand just outside a sector, but that actively support other sectors. Due to their unique standing, when these
organizations increasingly engage with (e.g., provide greater support to) entrepreneurial firms, their actions raise awareness of the entire sector, not just the supported firm, and signal the sector’s viability to others. Demonstrating beacons, on the other hand, are organizations within a sector that experience salient events, which serve as a signal of the sector’s attractiveness. While endorsing beacons trigger foundings by revealing underlying beliefs about the sector’s future, demonstrating beacons do so by exhibiting current opportunities in the sector.

Using the empirical context of the venture capital sector in the United States, we investigate and find broad support for our theory of entrepreneurial beacons. The focal entrepreneurs are venture capital partners (Wasserman, 2002), and we examine the theoretical logic with longitudinal data on new venture capital firm foundings (1984 to 2011), historical accounts of early venture capitalists, and field interviews with venture capital founders. To study the influence of endorsing beacons on foundings, we consider the vaunted Yale endowment and its support for venture capital. We find that Yale’s support has a positive impact on the founding of new venture capital firms that operates beyond the collective support of many other elite endowments. For demonstrating beacons, we examine venture capital-backed organizations that go public and experience a dramatic increase in stock price. While both types of beacons matter for entrepreneurship, we find that endorsing beacons have a stronger influence on the founding rate of venture capital firms. Our analysis underscores the importance of singular, entrepreneurial beacons in encouraging founding activity within a sector.

Our study provides several contributions to research on the social context of entrepreneurship and highlights an important source of institutional change. First, we propose a novel theoretical mechanism to explain the process by which surrounding social environments shape entrepreneurial foundings within a sector. We argue and find that entrepreneurial foundings are driven not just by collective patterns but also by singular triggers that are especially salient. Second, by anchoring our theoretical arguments to signaling and social salience (Fiske & Taylor, 1991; Higgins, 1996), we offer a behaviorally plausible conception of how social environments shape the decisions of entrepreneurs and their backers. Finally, in
contrast to research focused on directed institutional change, which attributes shifts in social structures to intentional and purposive action, we instead portray sector expansion as at least partially driven inadvertently by organizations pursuing their own myopic agendas in adjacent sectors.

THEORY AND HYPOTHESES

Past research has emphasized how collective patterns of activity alert entrepreneurs to a sector, enhance the legitimacy of founding, and thus lead to increased entrepreneurial activity (Hiatt et al., 2009; Rao, 2004). However, the assumption that entrepreneurs and their backers are solely influenced by these patterns is difficult to reconcile with anecdotal accounts of many founding decisions (Livingston, 2008). The Netscape and Sequoia Capital examples in particular hint at a different dynamic based on the influence of singular triggers, and a compelling body of research highlights the role of such triggers as key motivators of attention, evaluation, and a variety of corresponding actions (Fiske & Taylor, 1991). Accordingly, we argue that certain organizations – due to their unique characteristics and through their actions – shape the entrepreneurial process, and these organizations serve as the singular triggers that are an important, unexplored mechanism that influences new foundings within a sector.

To build our argument connecting singular triggers and foundings, we introduce a construct that we term entrepreneurial beacons. We first define entrepreneurial beacons and describe both their characteristics (markers of social salience) and the triggering actions (signals of sector potential) that are associated with these organizations. We then develop the logic for how these beacons influence entrepreneurial foundings in a sector. Finally, we conceptualize two distinct types of entrepreneurial beacons, endorsing beacons and demonstrating beacons, which differ both in the factors underlying their salience and the nature of their roles as signals of sector potential. Overall, our arguments maintain that collective patterns may be only one mechanism by which surrounding social environments influence foundings and that singular triggers may be an additional mechanism.

Entrepreneurial Beacons: Salience and Signals of Potential in a Social Context
We define entrepreneurial beacons as single organizations that both receive widespread attention due to their social salience and that serve as signals of potential for a sector. Specifically, the actions of these organizations may be interpreted as information signals that indicate prospects for entrepreneurship within a sector. At the same time, because they are socially salient, these organizations generate signals that are “conspicuous” to the point that “all eyes have a single target” (Fiske & Taylor, 1991: 248), thereby capturing the near-universal attention of audiences in and around a sector. It is through this coupling of their actions as information signals and their own attention-grabbing salience that entrepreneurial beacons may both raise awareness of and interest in entrepreneurship within a sector among both potential entrepreneurs and the key constituencies that support them.

A core element of our entrepreneurial beacons construct is that the actions of these organizations are perceived as credible signals of a sector’s potential for entrepreneurship. Information signals are important in settings in which information is limited and asymmetrically distributed. Such signals can make market participants more comfortable with certain actions including purchasing a product (Podolny, 1993), forming an alliance (Pollock & Gulati, 2007), or supporting a new organization (Stuart, Hoang, & Hybels, 1999). While signals are often used to describe costly actions purposefully undertaken to convey one’s own inherent quality (Podolny, 1993; Spence, 1974), we use signals in a broader sense. We characterize credible signals as information that is correlated with a focal outcome or attribute, but which need not be purposefully conveyed. Such signals may be persuasive to would-be entrepreneurs and supporters when there is uncertainty about the current prospects for entrepreneurship in the sector (e.g., either because the sector is new and lacks legitimacy, or due to the dynamics of competition and uncertain demand). Yet as prior research on signals notes, their impact may be limited to audiences aware of, attending to, and considering a signal (Greve, 2008), which brings us to the second element of entrepreneurial beacons: social salience.

An entrepreneurial beacon possesses social salience to the extent that its characteristics make it stand out relative to other organizations in the environment (Fiske & Taylor, 1991). In social contexts
such as organizational sectors, one driver of salience is *contextual novelty* which refers to the fact that novel, unanticipated, and extreme properties or behaviors elicit more attention than their more expected, mundane counterparts (Hoffman & Ocasio, 2001; Rindova, Pollock, & Hawyard, 2006). For example, Haunschild and Miner (1997) showed that acquisitions with extremely high premiums were most likely to capture the attention of other firms and the media. Another driver is *vividness* since audiences attend more to organizations that are presented in a clear and striking manner. In a study of health-care reform, Nigam and Ocasio (2010) found that sector participants were influenced by “concrete representations of exemplars” (i.e., vivid examples) such as the Kaiser Foundation. According to our definition, entrepreneurial beacons exhibit these two salience characteristics so that in addition to their actions signaling potential for a sector, the organizations themselves must stand out from their environment and must convey rich information to evoke vivid description.

Social salience may lead to widespread attention to the signals arising from an organization’s actions and can influence how audiences evaluate these signals. For example, Hoffman and Ocasio’s (2001) study of environment-related events between 1960 and 1995 showed that an event’s social salience influenced whether a range of actors attended to it, while Rindova et al. (2006) argued that salient organizations are more likely to noticed by external observers. Similarly, Pollock and Gulati (2007) showed that “salient and visible events” associated with young firms elevated their standing in the field, making them more likely to attract experienced strategic alliance partners. Another consequence is greater cognitive elaboration, meaning that audiences are more likely to process the information contained in salient targets and to recall such information (McGill & Anand, 1989). Together, these two effects suggest that social salience is likely to amplify the impact of the information signals arising from an entrepreneurial beacon’s actions, since audiences are more likely to notice such signals and give greater consideration to their implications. Thus, just as the light emitted from a lighthouse grabs the attention of boat captains and influences their course, the actions of a singular entrepreneurial beacon attract the attention of entrepreneurs and may have a substantial impact on new foundings within a sector.
We now further refine the concept of entrepreneurial beacons to include two distinct types, *endorsing beacons* and *demonstrating beacons*, and contrast the singular logic of beacons with that of collective patterns.

**Endorsing Beacons**

Endorsing beacons are defined as singular organizations that stand just outside a sector, but that actively support other sectors (e.g., hiring or investing in actors in those sectors). They are organizations widely-recognized as an effective identifier of future trends in legitimacy and opportunity, either giving early support (endorsement) to sectors that later took off or withdrawing support from sectors that later became less legitimate or less promising. An example of an endorsing beacon is Sequoia Capital, a venture capital firm that achieved a unique standing by backing some of the most important entrepreneurial companies in the last several decades across a broad range of industries. A contrarian investor, Sequoia is known for backing nascent technological sectors, which later rise to great importance. When Sequoia invests in an entrepreneurial firm in a sector, it benefits not only the individual entrepreneurial firm but also signals Sequoia’s beliefs about the sector’s potential.

We argue that an endorsing beacon may be especially likely to influence entrepreneurial foundings in a sector for several reasons. First, endorsing beacons are known for backing sectors that grow, which suggests that they have certain skills or networks to help them identify promising sectors when there might otherwise be uncertainty about the prospects for entrepreneurship. Accordingly, any increases in an endorsing beacon’s support for a sector may be a credible signal, forecasting the sector’s viability and promise for entrepreneurship (while a decrease in support may conversely signal an underlying concern). Second, having previously achieved widespread recognition at least partially through supporting sectors in a way that runs counter to prevalent norms and expectations, endorsing beacons are likely to be viewed as novel due to the manner by which they achieved their standing. Moreover, to the extent that they are single organizations that are observable, their actions are likely to be vivid, representing concrete and specific examples that audiences can richly imagine and describe.
Together, such contextual novelty and vividness are likely to result in an endorsing beacon having high social salience. Shifts in an endorsing beacon’s support for a sector are thus likely to serve as the focal point of large and diverse audiences’ attention and may lead (via greater cognitive elaboration) both potential founders and their backers to process and recall information related to the signal of potential and to activate predispositions they may have toward founding in the sector.

Accordingly, we expect entrepreneurs and their backers to monitor endorsing beacons’ actions where possible, to attend to media about the beacons, and to gossip about any shifts in support for a sector. Through these mechanisms, increases in an endorsing beacon’s support for a sector may influence additional entrepreneurship in the sector through both a direct channel (potential entrepreneurs want to get into the sector) and an indirect channel (attract more backers). Overall and in contrast to the logic of collective patterns in which many influential endorsements are needed to encourage foundings, we argue that the supporting actions of a single endorsing beacon may trigger entrepreneurial activity – just as the light emitted from a single lighthouse can steer boat captains to a safe harbor. Consistent with this logic, we expect that an increase in support from an endorsing beacon will catalyze foundings within a sector.

**Hypothesis 1:** The support of a salient endorsing organization will lead to an increase in the founding rate of new organizations in the endorsed sector.

**Demonstrating Beacons**

Demonstrating beacons are defined as organizations within a sector that experience an exceptional outcome or event – but one believed to be partially related to characteristics of the sector. While endorsing beacons trigger foundings by revealing one organization’s beliefs about a sector’s future viability, demonstrating beacons do so by signaling opportunities in the sector via one organization’s achievement in it. In other words, by experiencing an exceptional outcome that is partially attributable to the sector, entrepreneurs and key constituencies may interpret the signal to indicate that they too can experience something similar by participating in the sector. By definition, the exceptional outcomes are contextually novel – far exceeding those occurring more frequently in the sector. Moreover, as single
organizations, demonstrating beacons are also likely to be vivid, allowing audiences to richly imagine and describe them. An example is Netscape, a startup that experienced a high-profile public offering that was largely seen as precursor to the first Internet boom. As an organization that captured a major opportunity in the Internet sector, Netscape’s IPO drew attention to the sector and signaled the availability of entrepreneurial opportunities to diverse audiences.

Similar to endorsing beacons, we argue that a demonstrating beacon’s salient signal of potential is what induces foundings. By exhibiting an exceptional, presumably imitable outcome, demonstrating beacons signal to entrepreneurs and key constituencies that they too can benefit from either founding or supporting new organizations within a sector. Moreover, since individuals and organizations look for visible exemplars for outcome-based imitation (Haunschild & Miner, 1997), such events are likely to be widely noticed and to diffuse throughout the sector due to their heightened salience. Likewise, for the reasons previously noted around vividness, we argue that a concrete demonstration of opportunity capture is likely to be especially persuasive to entrepreneurs and their backers (Nigam & Ocasio, 2010). Finally, even if a demonstrating beacon is deemed a noisy signal of future opportunity (because it reflects the outcome of an organization already established in the sector), the cognitive elaboration arising from the event may still spur additional foundings and greater support for those foundings by enabling potential entrepreneurs and their backers to process and recall information about the sector. Thus, just as the freeway billboard’s conspicuous advertisement of a winner pushes lottery players (and non-players) to consider buying a ticket, demonstrating beacons attract potential entrepreneurs to the sector and persuade those working inside (or outside) the sector to give greater consideration to either founding or supporting an entrepreneurial organization in the sector.

Overall, in contrast to the logic of collective patterns in which many organizational foundings create the impetus for new foundings, we argue that a demonstrating beacon’s signal may be enough to trigger additional foundings.
Hypothesis 2: An organization that experiences a salient outcome in a sector will lead to an increase in the founding rate of new organizations in that sector.

Relative Influence

So far, we have argued that endorsing beacons and demonstrating beacons are both likely to spur new organizationalfoundings in a sector. A natural question arises as to which has a stronger influence. We explore differences between these two beacons, comparing the nature of their respective signals and the information content they convey to develop a conceptualization of the differential impacts they have on entrepreneurs and those who support them.

For demonstrating beacons, the founding trigger is the signal of the sector’s present attractiveness emphasized by the exceptional outcome of an organization already in the sector. To entrepreneurs, a demonstrating beacon’s experienced event serves as an archetype of a desirable outcome—a salient exhibition of the possibility for them to experience a similar opportunity (Haunschild & Miner, 1997). Such a signal may convey shorter-term prospects for the sector, attract the attention of entrepreneurs themselves, and induce them to found in the sector. For endorsing beacons, by contrast, the founding trigger is a signal that a supporting organization with a track record of forecasting the rise of sectors has a positive (or negative) outlook on the current and future opportunities available in the sector. To entrepreneurs (and their backers), the support of an endorsing beacon serves as a stamp of approval—a visible indicator of the organization’s underlying belief in the continuing viability of the sector. Compared to demonstrating beacons, an endorsing beacon’s signal may convey a longer-term perspective on the future prospects for the sector, attract broader attention from both entrepreneurs and their backers, channel that attention to the endorsed sector, and persuade them to found there. Thus, just as a key endorsement can provide a clearer indicator of a political candidate’s future election prospects than can a salient debate performance, an endorsing beacon is likely to provide a more credible signal of a sector’s long-term prospects that is meaningful to entrepreneurs and their constituents. For these reasons, we
expect endorsing beacons to be more influential than demonstrating beacons in driving entrepreneurs to found new organizations in a sector.

Hypothesis 3: Compared to a salient outcome experienced by an organization in a sector, the support of a salient organization for a sector will have a stronger influence on the founding rate of new organizations in that sector.

METHODS
Sample and Data Sources
To investigate our theory of entrepreneurial beacons, we analyzed the founding of private venture capital firms in the United States from 1984 through 2011. Following Wasserman (2002), the entrepreneurs in our sample are the venture capital partners who undertake the founding of a new firm or, alternatively, “the investor acting as entrepreneur and seeking a return from effort and ideas as well as capital” (Wilson, 1986). Venture capital firms specialize in offering young startups financial capital, advice, and status in exchange for equity and certain board control rights (Gorman & Sahlman, 1989; Wasserman, 2008). They obtain the capital that they invest in startups from financial investors known as limited partners. Since venture capital firms seek to offer their limited partners returns well above those of investments in public markets, they have become a common investment choice for a variety of institutions including university endowments (Hochberg, Ljungqvist, & Lu, 2007; Kaplan & Schoar, 2005). Venture capital firms earn revenues from management fees (typically 2% of assets) and from sharing in the investment profits (typically 20%) (Gompers & Lerner, 1999; Gorman & Sahlman, 1989). The latter source of revenue is the most lucrative and is derived from their portfolio companies going public or getting acquired by larger firms (Gompers & Lerner, 1999).

The venture capital setting meets several assumptions or boundary conditions underlying our theory. First, there is some uncertainty about the attractiveness of founding a new firm so that potential entrepreneurs look to other indicators (e.g., endorsing and demonstrating beacons) to help them determine the sector’s conduciveness to founding. This is the case for venture capital. Second, entrepreneurs in the sector are linked to resource providers who support them. Venture capitalist entrepreneurs require
external resources, and the ability to acquire them in turn depends on backers’ (i.e., limited partners’) assessments of their likelihood of success. A new venture capital firm cannot be “bootstrapped.” Similarly, resource providers’ (e.g., endorsing beacons’) returns are tied to the sector’s economic viability so that their support can be interpreted as a belief in the sector’s future viability. Third, we focus on venture capitalists and not corporate venture capitalists, as the latter group may be primarily interested in capturing benefits other than financial return, such as access to technology (Katila, Rosenberger, & Eisenhardt, 2008). More broadly, this assumption means that those primarily interested in spillover benefits fall outside the scope of our theory. Collectively, these assumptions are useful for testing our arguments and serve as underlying boundary conditions for the theory.

We focus on venture capital firm foundings occurring between 1984 and 2011. This time range allows us to examine a time period in which third parties had begun to collect measures related to our study. Specifically, systematic data regarding university endowment allocations (used to measure endorsing beacons’ support) was available beginning in 1983, while data on VC returns (an important control variable for the financial climate) was available after 1981. Accordingly, we restricted our sample to foundings in or after 1984 to allow a one-year lag in estimated models. This restriction also ensures that the entire sample occurs after the U.S. Department of Labor clarified its “prudent man” rule in 1979 to allow pension fund managers to invest in high-risk assets, including venture capital – an important regulatory change that preceded the modern form of VC firms (note that robustness tests starting in 1980 and omitting the missing variables were consistent with the results we report). Additionally, we excluded firms founded after 2011 to avoid under sampling recently founded firms. Our overall sample captures both the early years of the venture capital industry (when it was still emerging) as well as the later years. Finally, we also excluded firms located outside of the United States, as variations in regulatory environments might otherwise lead to unobserved heterogeneity across the sample.

Our primary data source for venture capital firm foundings was the VentureXpert database, which provides information on the founding date, location, investment focus, capital managed, and investment
history of venture capital firms. The industry’s primary trade group, the National Venture Capital Association, gathers the data in VentureXpert directly from venture capital firms. The data provides an accurate representation of U.S. venture capital firms and their activities (Kaplan, Sensoy, & Strömberg, 2002) and has been used extensively in prior research (Guler, 2007; Katila et al., 2008). Given our interest in the venture capital form, we included firms classified as “private equity firm investing its own capital” and excluded firms focused on later stage investments and buyouts (i.e., forms that our fieldwork revealed to be private equity, not venture capital). Altogether, we gathered information on the founding of 1,283 new venture capital firms in the United States between 1980 and 2011.

Endorsing beacons are organizations that stand just outside a sector and support entrepreneurial foundings in the sector. In the venture capital context, these are limited partner investors, such as university endowments, that provide capital to be invested (Gompers & Lerner, 2001a; Rider, 2009). The special importance of university endowments as limited partners to venture capital has been well-documented.² Based on our discussions with venture capital founders and limited partner investors, we identified the Yale endowment as the key endorsing beacon for the sector.

The Yale endowment fits the definition of an endorsing beacon – a singular organization that stands just outside a sector, but that actively supports other sectors. Yale achieved widespread attention as a limited partner arising from its novel investing approach and support for alternative asset sectors. Yale also has the markers of social salience. For example, it exhibits contextual novelty within the asset management industry. The visionary organization adopted a novel approach to investment management, “boldly” shifting away from stocks and bonds and into higher yielding, illiquid assets including venture capital and real assets (Golden, 2009). This investment approach has since become known as the “Yale

² As venture capitalist Dana Mead (of Kleiner, Perkins, Caufield, and Byers) noted: “[Venture capital] went from a very small boutique industry to an asset class and how did that happen? It was really driven by university endowments... and what they saw was...you need to have part of that allocation in venture capital. That wasn’t a big allocation, it was 2% to 3% but they said you needed to have venture capital and so those endowments really drove the growth of the industry” (Mead, 2011).
Model” and was the subject of a popular Harvard Business School case study (Lerner & Light, 1995). Yale’s aggressive and “unorthodox” investment strategy (Knowlton, 1987) and allocations to alternative assets have “bucked the trend” (Economist, 2000), marking a major break with the tradition that endowment money “should be invested conservatively” (Myers, 2009). Moreover, Yale’s Chief Investment Officer has become a concrete example of a consummate alternative assets investor. The CIO has been described as “one of the greatest investors of all time” by Warren Buffett (Rose, 2009), as “one of only a handful of investment geniuses on the planet” by Vanguard Group founder John Bogle, and as “the best in the business” by former Harvard endowment manager, Jack Meyer (Fabrikant, 2007). Yet because Yale does not court the media and the CIO is “ambivalent about promoting himself,” its salience remains mostly confined to audiences in the investing world (Fabrikant, 2007).

These characteristics lead audiences including potential venture capitalists and their backers to pay close attention to Yale’s actions. Like other endowments, Yale routinely reports its asset allocation targets, making them visible to everyone. “Yale’s investment process is closely watched in the asset management world…its portfolio is now one of the most closely scrutinized in the country” (Economist, 2000). One group that pays attention to Yale is potential entrepreneurial backers (other asset managers), including university endowments. “In the endowment world, going to see [Yale’s CIO] for advice is like going to the pope,” stated one Ivy League asset manager, and “Yale is the bellwether and the benchmark against which every endowment measures itself,” opined an industry analyst (Fabrikant, 2007). One investment professional at an elite university endowment told us that they routinely download the Yale endowment report immediately after its release and examine the most recent allocations. A second group that pays attention to Yale is venture capitalists and potential venture capital founders. Analysts have maintained that “[Yale’s] private equity experience – venture capital in particular – is the unique source of its excess returns” (Mladina & Coyle, 2010), which has led the endowment to become a de facto signal of potential for the sector.
Confirming the importance of Yale’s “imprimatur” (Kedrosky, 2005), several prominent venture capital founders including Bill Gurley (Benchmark Capital), Marc Andreessen (Andreessen-Horowitz), and Igor Sill (Geneva Venture Partners) have publicly acknowledged monitoring Yale’s asset allocations, viewing them as a leading indicator for the sector’s future and for when it is a ‘good time’ to be in venture capital (Andreessen, 2009; Gurley, 2009; Sill, 2011). One venture capitalist that recently founded a firm admitted that she was more influenced by Yale (they “focus on generating returns over long cycles”) than by other limited partners (who provide “hot money that flows in and out of investment strategies based on the latest fad or short-term past performance”). Every venture capital founder we interviewed identified Yale as a limited partner that stands out from others when it comes to the venture capital asset class. To corroborate this insight from our fieldwork, we followed Pollock and Rindova (2003) and counted the number of publications that discussed VC activity and the various university endowments used in our study. Under a variety of scenarios, the Yale endowment emerged as the endowment with the most mentions with a magnitude several times more the other endowments. Overall, compared to other elite endowments (and other limited partner investors in venture capital), the Yale endowment is the only organization that meets the theoretical criteria of an endorsing beacon for our setting.

For our hypothesized construct of an endorsing beacon’s support, we gathered data on the percentage of its endowment that Yale allocated to the venture capital asset class. To ensure that Yale was truly a beacon and not merely representative of a broader trend, we also sought to ascertain the collective support of other influential actors. We gathered data on the average percentage allocation to venture capital by the top 20 university endowments (by size) as well as the total amount of investment dollars that flowed into venture capital. Our fieldwork indicated that the largest endowments comprised the relevant comparison group for Yale, and our informants suggested they were more sophisticated than other endowments and were better able to attract an experienced staff to help allocate to the venture capital asset class. We collected annual endowment data from Yale’s endowment reports available on its website and from the NACUBO (National Association of College and University Business Officers)
Endowment Study, a yearly survey of university endowments’ operations including size, investment performance, and asset allocations. Endowment data was only available after 1983. Accordingly, we restricted analyses involving endorsing beacons to foundings occurring in or after 1984, thus allowing for a one-year lag.

Demonstrating beacons are organizations within a sector that experience salient events, which serve as signals of a sector’s current attractiveness. In our conversations with venture capitalists, they suggested that exceptional and high-profile public offerings tend to stand out significantly and attract a lot of attention. As one early venture capitalist noted, “the ultimate goal [for portfolio companies]...was to go public” (Hughes, 2008). Prior research on IPOs has similarly emphasized the high visibility and attention-grabbing effects of firms that go public and experience a dramatic first day ‘run-up’ in their stock prices (Loughran & Ritter, 2004). For example, exceptionally large IPO run-ups have been shown to generate substantial media attention and customer interest (Demers & Lewellen, 2003; Pollock et al., 2008) and to elicit more coverage from stock analysts (Aggarwal, Krigman, & Womack, 2002; Cliff & Denis, 2004). For our purposes, these IPO run-ups are contextually novel (extreme increases in the offering price stand out from most normal stock movements, making them distinctive against that backdrop) and provide a concrete demonstration of an organization capturing an opportunity (an exemplar of a lucrative venture capital investment). One venture capital firm founder noted that, “high-profile venture [capital]-backed IPOs have a tendency to attract more people to VC” while another suggested that, “[IPO] exit events are good for VC. So when noticeable exits happen, more people want to be in VC.”

Informants emphasized the important signal generated by a high-profile IPO, suggesting that the value of a single IPO may mean the difference between venture capital firms having below average or top

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3 Pollock and Gulati (2007 p. 344) argued that a run-up is a “useful signal” that “is likely to be salient because it is figural; that is, it stands out against the background of most stock price movements because of its extremity.” They add that run-ups that “substantially exceed the norms for the period are considered noteworthy and attract attention.”
tier performance. Thus, our focal demonstrating beacons are venture capital-backed organizations that go public and experience a dramatic run-up in their stock price. Following existing work in finance (Ritter, 2012), we define a run-up as an offering that (at least) doubled in price on the first day of trading. Because some of our robustness tests include venture capital firm foundings between 1980 and 2011, we gathered data on IPO run-ups occurring between 1979 and 2010 to allow for a one-year lag between the explanatory variables and firm foundings. Moreover, because some of our control variables and robustness tests utilize general IPO information, we gathered data on IPOs from the Securities Data Corporation’s (SDC) new issue database, which has frequently been used in prior studies (Jensen, 2003; Loughran & Ritter, 2004; Podolny, 1994). Altogether, we gathered data on 7,793 IPOs occurring between 1976 and 2010 from the SDC Platinum Database.

To supplement our quantitative data, we also collected extensive qualitative data from several sources. First, for the purpose of contextual understanding, we gathered and reviewed articles about Yale and VC-backed IPO run-ups from prominent news outlets such as the New York Times, the Wall Street Journal, and BusinessWeek. Our goal was to obtain an in-depth understanding of Yale’s impact as a limited partner investor as well as that of high-profile IPOs. Next, we read the oral histories of early venture capitalists to gain sensitivity to the contextual factors that may have influenced firm founders in that sector. Finally, we conducted fifteen semi-structured interviews (twelve with founders of venture capital firms and three with university endowment managers). Ranging between 15 and 45 minutes, the interviews were conducted with two objectives in mind: (1) provide additional context on the statistical results and (2) clarify the mechanisms by which surrounding social environments may (or may not) have motivated would-be venture capital founders. Overall, these qualitative data were combined with quantitative data on venture capital firm foundings, IPO run-ups, and endowment allocations to form a rich, multi-method dataset.
Measures

Following prior studies of organizational foundings (Cattani et al., 2003; Greve et al., 2006), our dependent variable is an event count of the number of venture capital firms founded each time period. We measured *foundings* as a count of the number of U.S. venture capital firms founded in a quarter.

Independent variables

As previously discussed, we selected the Yale endowment as our focal endorsing beacon for testing hypothesis 1. We constructed this variable, *Yale Endowment’s % VC Allocation*, as the percentage of the endowment allocated to venture capital. While we considered using the absolute amount of assets allocated and then controlling for total assets, we opted to use the percentage since our informants emphasized that number as a key signal indicating Yale’s overall support for the venture capital sector relative to other asset classes. The measure is consistent with the endorsing beacons construct described previously and with qualitative assessments of venture capitalists. To better isolate the singular influence of the Yale endowment, we also included a corresponding collective support measure described in the controls section.

For our theoretical construct of demonstrating beacons (hypothesis 2), we created a dummy variable that indicates whether a venture capital firm’s portfolio company went public and had a significant run-up in price between its issue price and closing price on the first day of trading (Loughran & Ritter, 2004; Pollock et al., 2008). As previously noted, we follow prior literature (Ritter, 2012) and define run-ups as occurring if an offering at least doubled in price on its first day of trading relative to the initial offering price. Thus, the variable *VC-backed IPO Run-up* has a value of one if there was at least one VC-backed organization that went public and experienced a run-up during the quarter. As in the case of endorsing beacons, we also included a corresponding collective pattern measure to distinguish the influence of demonstrating beacons, and we describe this measure under controls.
Control Variables

Prior theory suggests collective patterns of organizational activity in the form of prior foundings (or more precisely, the set of founded organizations that have survived and that remain in the sector) as a driver for the number of new foundings in the sector (Carroll & Hannan, 2000; Sine et al., 2005). Accordingly, to measure the legitimacy and attention-grabbing influence of collective patterns of market activity of similar firms, we included VC firm density as a measure of the total number of U.S. venture capital firms that existed in a given quarter. We also included the square of density, VC firm density^2, to account for curvilinear effects. We identified U.S. venture capital firm density using the primary sample from VentureXpert of venture capital firm foundings. We characterized deaths of these firms when they were listed as “defunct,” “inactive or unknown,” or “making few if any new investments,” and we corroborated deaths by cross checking the date on which a firm made its last investment. This data was collected from VentureXpert. To reduce possible multicollinearity bias between the linear and the quadratic measures of density, we followed prior work and orthogonalized the quadratic density measure relative to the linear component using the Gram-Schmidt procedure and the orthog command in Stata (note that we report the original density measure in the descriptive table for clarity) (Cohen, Cohen, West, & Aiken, 1983; Hiatt et al., 2009; Saville & Wood, 1991; Sine et al., 2005).

As mentioned previously, we included corresponding collective pattern measures to better isolate the singular influence of our beacons construct. We constructed one of these variables, Top 19 Endowments’ % VC Allocation, as the average allocation of the largest university endowments (top 20 excluding Yale) by amount of capital managed by the endowment. Including this measure in our models helps distinguish between the actions of an endorsing beacon, the Yale endowment, and the supporting actions of several other elite university endowments. Empirically, this helps us distinguish our theory of the singular impact of endorsing beacons from past explanations of foundings influenced by collective

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4 While we also considered including a general time trend in the model, we found this measure to have a 0.975 correlation with VC firm density; accordingly, and for greater consistency with prior literature, we only include VC firm density in the reported models.
patterns of support (Baum & Oliver, 1992; Greve et al., 2006). Although we considered including each of the other endowments separately, their allocations were often highly correlated with one another (and also with the control variables). For these reasons, we report the average allocation of other elite endowments to avoid potential multicollinearity bias in the estimates.

To distinguish a singular demonstrating beacon from simply a broader trend in financial markets, we also included Additional VC-backed IPO Run-ups. This second collective pattern measure captures the presence of a broader pattern of salient events in the venture capital sector. It is measured as the count of the number of venture capital-backed IPOs in a quarter, after the first, that experienced at least a run-up (e.g., if there were three VC-backed IPO run-ups in a given quarter, then VC-backed IPO Run-ups = 1 and Additional VC-backed IPO Run-ups = 2; if there was only one such IPO, then VC-backed IPO Run-ups = 1 and Additional VC-backed IPO Run-ups = 0). Only counting additional IPO run-ups beyond the first is important as it helps reduce multicollinearity and allows us to better distinguish between periods with only one demonstrating beacon versus periods with a pattern of beacons.

We also sought to account for other potential drivers of foundings to rule out alternative explanations. One of these explanations is that a favorable economic climate encourages the founding of new venture capital firms. Accordingly, we include three measures of economic favorability that build from prior organizational and financial research on the venture capital industry. First, we controlled for the “heat” in the market for VC-backed IPOs and the perception of opportunities for venture capital firms (Gulati & Higgins, 2003; Sorenson & Stuart, 2008) by measuring the number of IPOs that were venture capital backed during the quarter (Number of VC-backed IPOs). Second, recent attractive financial returns to venture capital may attract both potential founders of venture capital firms and potential backers (Gompers & Lerner, 2001b), so we controlled for the average quarterly return of venture capital firms (VC Returns) to their limited partners. For this measure, we used the Cambridge Associates venture capital index, a highly reliable indicator of returns in the industry. Third, given that the viability of new venture capital firms depends on the availability of investment capital, we included the amount of capital
(in billions of US dollars) flowing into the venture capital industry on a quarterly basis (Net VC Inflows). While this measure does exhibit some skew, we include the measure in its original form as the logged measure was highly correlated (0.76) with VC firm density (note, however, that alternative robustness tests run using the logged measure yielded nearly identical results).

Finally, our interviews with VC partners and tax accountants informed us that potential venture capital founders may be discouraged from leaving their current employment in the fourth quarter because of (1) tax regulations on individual partners and (2) the possibility of forgoing year-end bonuses, and that new VC firms are most likely to be founded in the first quarter for these same tax reasons and due to the internal budget cycles of limited partners (i.e., endowments). Accordingly, to account for seasonal variance in the founding rates of venture capital firms, we include quarterly dummy variables with the first quarter as the omitted variable.

Analysis

Our dependent variable is an event count of the number of foundings in a focal time period. This focal dependent variable is a count variable that only takes on discrete, nonnegative values. In line with existing approaches for estimating founding rates, we rely on event-count models. Given the underlying data generating process, Poisson methods are appropriate (Long, 1997). The count variable, however, exhibits overdispersion such that the conditional variance exceeded the conditional mean. Consistent with similar studies (i.e., Baum & Oliver, 1992), we use the negative binomial model, which includes a gamma-distributed term to account for such over dispersion. Finally, given the moderate degree of correlations in some of the independent measures, we tested for multicollinearity in the models and found that all variance inflation factors were less than the traditional threshold of 10, indicating that the reported models are unlikely to be biased by multicollinearity.

RESULTS

Table 1 provides descriptive statistics and correlations for the variables in the analysis. On average, eleven new venture capital firms were founded each quarter. Across the sample, the Yale
endowment’s average allocation to venture capital was just over five percent of total assets, but this allocation ranged considerably from 1.5 percent to 12.5 percent. Large increases in the first day offering price (VC-Backed IPO Run-ups) occurred in roughly 17 percent of quarters. To develop a better visualization of the data, we also graphically depict the relationship between annual venture capital firm foundings and density in Figure 1. The graph suggests that density alone does not seem to account for the oscillations in foundings.

-- Insert Table 1 around here --

-- Insert Figure 1 around here--

Table 2 reports the results of the negative binomial estimates predicting the number of quarterly venture capital foundings. Model 1 in Table 2 contains a baseline model of control variables only. Overall, these results are largely consistent with the prior organizational literature on sector-level foundings (Sine et al., 2005) as well as with finance research on the venture capital industry (Gompers & Lerner, 2004).

-- Insert Table 2 around here --

In Model 2 we introduce the endorsing beacon variable, the support provided to venture capital by Yale (Yale Endowment’s % VC allocation). In Hypothesis 1, we argued that the support of a salient endorsing organization leads to an increase in the founding rate of new organizations in the endorsed sector. As predicted, the coefficient for Yale Endowment’s % VC allocation is positive and significant in Model 2 (p<0.001). The coefficient remains positive and significant (p<0.001) after including both the demonstrating beacon measures and the corresponding control for collective support (Top 19 Endowment’s % VC Allocation) in the full Model 6. Our results thus offer strong support for Hypothesis 1 that an increase in an endorsing beacon’s support (Yale’s allocation) has a positive and significant influence on the founding rate of new venture capital firms.

In contrast, the collective support measure, Top 19 Endowment’s % VC Allocation is not significant when included alone in Model 3 or in the full Model 6 that also controls for the other
independent variables (e.g., Yale Endowment’s % VC allocation). Thus, we do not find evidence of Top 19 Endowment’s % VC Allocation having a statistically significant effect (either positive or negative) on the founding of venture capital firms. This bolsters confidence in the importance of the Yale endowment as a singular endorsing beacon and indicates that we are not simply picking up a general trend of greater venture capital investing by elite endowments. The results are also consistent with the interviews we conducted with venture capital founders. As one venture capital founder stated when referencing Yale: “There is no question that they are sought after by the VCs and managers follow their lead...They are important to the industry, sought after and followed.” Overall, the non-significance of Top 19 Endowment’s % VC Allocation offers further support for our theory.

Model 4 in Table 2 introduces the demonstrating beacon variable, VC-backed IPO Run-ups. This measure indicates whether a venture capital firm invested in a company that experienced a run-up in its stock price at IPO. In Hypothesis 2, we argued that the experiencing of a salient event by an organization leads to an increase in the founding rate of new organizations in that sector. The coefficient is positive and significant in Model 4 (p<0.05) but not in the full Model 6. Model 5 adds the corresponding collective pattern measure, Additional VC-backed IPO Run-ups. The coefficient is not significant in either the partial Model 5 or the full Model 6. This is consistent with our theory and suggests that any impact of VC-backed run-ups occurs through the singular presence or absence of such run-ups and not their overall prevalence. Overall, we find partial support for hypothesis 2 that a demonstrating beacon positively influences the founding rate of new organizations.

Finally, the full model (Model 6) shows the comparative influence of endorsing and demonstrating beacons on the founding rate. Because the coefficient for Yale Endowment’s % VC allocation is positive and significant in both the partial and full models, while the coefficient for VC-backed IPO Run-ups is only significant in the partial model, our results are favorable for hypothesis 3. In terms of magnitude, the results indicate a one standard deviation increase in Yale’s allocation to VC (i.e., increasing allocation by 2.67%) is associated with an 57% increase in VC firm foundings.
(exp(0.169*2.67), while the estimate for demonstrating beacons indicates that the presence of a VC-backed IPO run-up is associated with a 1.1% increase in VC firm foundings (exp(0.011*1)). To formally test hypothesis 3, we also reran (unreported) estimates of model 6 after transforming Yale’s allocation into a z-score and then using the *test* command in Stata to evaluate whether the Yale allocation coefficient was statistically equivalent to the VC-backed IPO run-ups dummy. One challenge is that the measure of *Yale Endowment’s % VC allocation* is continuous while *VC-backed IPO Run-ups* is a binary measure. Accordingly, we contrasted the binary change in VC run-ups with various degrees of change in the Yale allocation. We found that a 2.5 standard deviation increase was significant at the p≈0.025 level and a two standard deviation change was significant at the p≈0.058 level, though a one standard deviation change was not statistically significant (note that this final test is comparing a relatively small change in the Yale allocation versus the maximum change in run-ups). Overall, these results offer support for hypothesis 3 and our argument that endorsing beacons have a stronger influence on the founding rate of new organizations in a sector than demonstrating beacons.

To verify and further explore the results, we also conducted a number of supplemental tests. First, one alternative explanation for the observed impact of the Yale endowment is that Yale operates not as an endorsing beacon, but simply as a resource provider. However, as seen in Appendix A, the net capital invested in new VC firms far exceeds the annual allocations of the Yale endowment (which captures both allocations to existing firms and to new firms), effectively ruling out this alternative explanation. Second, while our fieldwork pointed to Yale as an endorsing beacon in this context, but not other university endowments, we also ran robustness tests exploring the possible influence of other top 20 endowments. Since many of these endowment allocations were highly correlated with each other, we ran

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5 One additional set of tests that we ran but do not report explored for possible temporal shifts in the influence of endorsing and demonstrating beacons. We did not explicitly theorize about temporal shifts as we believe they may be context specific. Nonetheless, we explored this by interacting both beacons measures with a logged linear time trend. The interaction for the demonstrating beacons interaction was not statistically significant, while the interaction for endorsing beacons and the time trend was positive and statistically significant. While this might indicate that endorsing beacons are most impactful in more established and legitimate sectors, we are hesitant to draw conclusions from these models as both had variance inflation factors exceeding the traditional threshold of 10 – and thus any observed temporal patterns could be due to multicollinearity bias.
these robustness estimates as a variant of Model 6 that omitted the average allocation of other endowments. Assessing each endowment separately, we found that none of the coefficients for the other endowments were both positive and statistically significant. This provides additional support for our assertion that Yale is an endorsing beacon in this context and other endowments are not.

**DISCUSSION AND CONTRIBUTIONS**

In this paper, we built on a growing body of work that recognizes the critical role of social context in shaping a variety of important organizational decisions (Hiatt & Park, 2013; Mishina et al., 2010; Pfarrer et al., 2008; Pollock & Rindova, 2003; Pollock et al., 2008), and we sought to determine which part of the social context matters for entrepreneurship. Specifically, we examined how salient triggers that we called entrepreneurial beacons influence foundings within a sector. By emphasizing singular triggers, our work departs from (but is complementary to) prior work on entrepreneurial foundings, which has emphasized collective patterns of foundings (Cattani et al., 2003; Sine et al., 2007), of influential support (Baum & Oliver, 1992; Hiatt et al., 2009), and of institutional activism (Rao, 2004; Weber et al., 2008). Besides introducing entrepreneurial beacons and the related logic that intertwines social salience with signaling, we described two types of beacons – *endorsing beacons* and *demonstrating beacons* – and theorized their impact on founding rates. Using quantitative data on new venture capital firm foundings in the United States over more than a quarter of a century (1984 to 2011) and qualitative insights from venture capital founders, we presented empirical support for our theory.

Our results point to an opportunity to revisit and extend findings from research on institutional change and organizational foundings. Compared to prior research that emphasizes the collective nature of the rise and subsequent growth of new sectors (Hiatt et al., 2009; Rao et al., 2003), our study identifies singular organizations that are salient as important, additive drivers of new organizational foundings. We might imagine, for example, that in addition to the patterns of collective activity observed, the actions of a particularly influential French chef or a visionary teetotaler may have exerted a disproportional influence on the expansion of nouvelle cuisine restaurants (Rao et al., 2003) or the decline in breweries and the
proliferation of new soft drink producers (Hiatt et al., 2009) (see Briscoe & Safford (2008), Mishina et al. (2012), and Tilcsik and Marquis (2013) for related arguments outside of entrepreneurship). Disentangling the influence of demonstrating and endorsing beacons relative to that of collective patterns of activity remains an intriguing question that warrants further empirical exploration.

**Surrounding Social Environments and Entrepreneurial Foundings**

By anchoring our theoretical arguments to research on social salience (Fiske & Taylor, 1991; Higgins, 1996; Nigam & Ocasio, 2010), we also offer a conception – grounded in the socio-cognitive triggers of entrepreneurial activity – of one overlooked mechanism by which surrounding social environments shape foundings. Macro entrepreneurship research has flourished in recent years (see Tolbert et al., 2011 for an overview), but this research has been criticized for lacking a comprehensive and realistic view of entrepreneurial motivations (Thornton, 1999). One recent, promising direction has been to incorporate psychological insights into macro-theoretical models of entrepreneurship to delve more deeply into such motivations (Bingham & Eisenhardt, 2011; Sine et al., 2005). To this body of entrepreneurship research, we contribute a theoretical model of foundings that is highly sensitive to singular actors in the surrounding social environment, so long as those actors are socially salient. The model suggests that small environmental changes (from a count perspective) may trigger or spark outsized shifts in entrepreneurial activity.

In the venture capital setting, endorsing beacons such as Yale appeared to attract would-be founders and potential supporters to the sector through supporting signals of the sector’s potential, which led entrepreneurs to give greater consideration to founding and supporters to be more inclined to support entrepreneurs’ efforts. Beacons serve as a direct form of influence that, according to one venture capital founder, operated by “shedding more light on the venture capital industry and causing people to want to get in on the next ‘hot’ company.” In other words, the actions of a beacon tip the overall ‘atmosphere’ of a sector towards one that appears more conducive to founding. But these beacons also exert a more subtle indirect form of influence on foundings by capturing attention and updating entrepreneurial backers’
beliefs about the sector. As one venture capital founder expressed about Yale, “They are seen as thought leaders...they tend to influence the investments made by other limited partners and their allocations so they can cause other limited partners to change their strategies.” He was suggesting that Yale’s allocations also encourage more entrepreneurial backers to get into the sector and support the creation of new venture capital firms. Thus, the salience of a single beacon may influence both an entrepreneur’s interest in and ability to attract resources for the founding of an organization in a sector.

While we find support for our argument that endorsing beacons may have a greater impact than demonstrating beacons, we also note that our logic rests on boundary conditions that may not hold in some other contexts. Specifically, we attribute the greater impact of endorsing beacons (the Yale endowment) to the sophistication of both firm founders and their backers in this sector (Wasserman, 2008). Based on our interviews and field research, these entrepreneurs and backers appear to view an endorsing beacon’s actions as strong, credible signals that indicate one particularly sophisticated actor’s (the Yale endowment’s) beliefs about future opportunities in venture capital. In contrast, venture capitalist entrepreneurs and their limited partner backers appear to view demonstrating beacons as noisier, perhaps less credible signals that primarily reflect contemporary (not future) opportunities in the sector. For these reasons, we would expect foundings in settings with less sophisticated entrepreneurs and backers (e.g., those associated with classic small businesses such as restaurants, dry cleaners, and yogurt shops) to be more heavily influenced by demonstrating beacons.

**Beacons and Inadvertent Institutional Change**

The findings also shed new light on recent debates concerning directed institutional change, that is, the purposive shaping of a social environment to encourage entrepreneurial activity within a sector. Although some scholars have emphasized the intentional and purposive action of organizations to create new markets and expand existing ones (Fligstein, 1997; Hardy & Maguire, 2008), others have argued that the approach ascribes too much agency to these “heroic change agents” (Powell & Colyvas, 2008) and “endows them with strategic intentions, foresight, and well-rehearsed social skills” that may not be
present (Aldrich, 2010). Clearly, the two sides do not agree on the extent to which institutional change is purposive and directed.

By highlighting the unintended and potentially disadvantageous outcomes of entrepreneurial beacons’ actions, the current theory advances a view of inadvertent institutional change that may reconcile these opposing views. Specifically, by focusing on their own myopic everyday goals (investing in good asset classes for endowments and taking portfolio companies public for venture capitalists), the organizations underlying entrepreneurial beacons effected broader social change. Accordingly, these beacons can be “heroic change agents,” though they were likely not intentional about achieving this broader institutional change (see also Pollock and Gulati’s (2007) discussion of signals over which firms have limited control but which nonetheless have a large impact). Indeed, for all the ‘success’ that the Yale endowment had in changing the rate of entrepreneurship in the venture capital sector, the sector-level change likely threatened Yale’s own profits by creating a situation of “too much money chasing too few deals” (Gompers & Lerner, 2001b). As one analyst stated, “Everybody who has any aspirations in the medium-size endowments and foundations [and now pension funds] has been following them as fast as they can...there’s a wall of money moving into ‘Let’s All Look Like Yale’” (Grantham, Leibowitz, Goetzmann, Gundlach, & Nankof, 2008). More broadly, our theory suggests that institutional change may often be the inadvertent spillover of organizations myopically pursuing their own goals.

**Limitations and Future Directions**

There are several nuances and limitations of the current study that warrant consideration. We initially compared the Yale endowment and VC-backed run-ups to lighthouses and suggested that the actions of these salient organizations constituted signals that attracted entrepreneurs and their backers to particular sectors. While real beacons certainly help guide boats to their destinations, boat captains’ decisions are almost certainly influenced by many other factors including nautical charts, knowledge of the channels, and current weather conditions. A similar logic applies here, and it is important to be appropriately circumspect in our claims: there are many factors that influence foundings. Entrepreneurial
beacons emerge as simply an additional mechanism (albeit an important and previously unidentified one). Nonetheless, based our results, we conclude that singular beacons have a clear impact on founding rates. More importantly, beacons operate above and beyond a host of factors systematically identified by previous research, and as a mechanism, beacons can be both conceptually and empirically distinguished from collective patterns.

Taking the concept of beacons and our initial results as a spring board, there are several avenues of inquiry that might be further explored in the future. One avenue would examine the nature of entrepreneurial beacons in other sectors. For example, some organizational sectors may lack identifiable beacons, either because the constituents in an emerging sector are not unified on which organizations they find salient or because few events have stood out enough to merit the near universal attention of the sector. To return to a previous example, despite the relatively successful IPOs of electric car company Tesla Motors and battery maker A123Systems, John Doerr of Kleiner Perkins has argued that clean tech (a newly emergent sector) appears still to be awaiting its “Netscape moment” (Ha, 2010). Our theory suggests that while Doerr’s emphasis on singular triggers is appropriate, the expansion of the clean tech sector may be slow without an endorsing beacon stepping up to provide the credible signal of the sector’s potential and future viability. More broadly, some sectors appear to lack (or have yet to experience) entrepreneurial beacons, which reinforces our argument that they are only one possible mechanism that spurs entrepreneurial foundings. Another avenue for future research would identify other forms of entrepreneurial beacons. For example, other settings may have particularly salient organizations that spawn entrepreneurial firms in different sectors (e.g., Fairchild Semiconductors in the 1960s and 1970s), and the flow of entrepreneurs from these organizations may act as a form of beacon. Moreover, salient organizations may not always be those that generate (positive) signals of potential. Extreme failures (e.g., A123’s recent bankruptcy) can also be salient (Haunschild & Miner, 1997; Hoffman & Ocasio, 2001), and they may deter new foundings or induce exits. Altogether, these future avenues of inquiry have the
potential to identify other sector-specific triggers, yield further insights about the social drivers of new firm formation, and enrich our understanding of dynamics within organizational and social structures.
FIGURE 1: ANNUAL VC FIRM FOUNDINGS AND VC FIRM DENSITY

Note: Graph depicts annual foundings and density for clarity; models run on quarterly periods.
# TABLE 1: DESCRIPTIVE STATISTICS AND PEARSON CORRELATIONS

| Variable                                   | Mean  | Std. Dev. | Min  | Max   | 1    | 2    | 3    | 4    | 5    | 6    | 7    | 8    | 9    |
|--------------------------------------------|-------|-----------|------|-------|------|------|------|------|------|------|------|------|------|------|
| VC Firm Foundings (lagged 1 year)          | 10.83 | 18.68     | 0.00 | 109.00| 1.00 |      |      |      |      |      |      |      |      |      |
| VC Firm Density / 100                      | 5.57  | 3.00      | 1.58 | 10.32 | 0.13 | 1.00 |      |      |      |      |      |      |      |      |
| Number of VC-backed IPOs / 100             | 0.24  | 0.21      | 0.00 | 0.87  | 0.05 | -0.18| 1.00 |      |      |      |      |      |      |      |
| VC Returns                                 | 0.04  | 0.11      | -0.19| 0.84  | 0.17 | -0.07| 0.63 | 1.00 |      |      |      |      |      |      |
| Net VC Inflows                             | 8.83  | 16.95     | 0.00 | 88.31 | 0.09 | 0.56 | -0.07| 0.01 | 1.00 |      |      |      |      |      |
| Yale Endowment’s % VC Allocation           | 5.26  | 2.67      | 1.50 | 12.50 | 0.36 | 0.34 | 0.54 | 0.46 | 0.11 | 1.00 |      |      |      |      |
| Top 19 Endowments’ % VC Allocation         | 3.77  | 2.26      | 0.90 | 12.70 | 0.19 | 0.58 | 0.31 | 0.12 | 0.21 | 0.66 | 1.00 |      |      |      |
| VC-Backed IPO Run-up (Dummy)               | 0.17  | 0.38      | 0.00 | 1.00  | 0.23 | 0.01 | 0.56 | 0.49 | -0.01| 0.69 | 0.50 | 1.00 |      |      |
| Additional VC-Backed IPO Run-ups (Count)   | 1.23  | 5.03      | 0.00 | 33.00 | 0.24 | 0.11 | 0.58 | 0.75 | 0.09 | 0.54 | 0.52 | 0.54 | 1.00 |
### TABLE 2: NEGATIVE BINOMIAL ESTIMATES OF NUMBER OF VC FIRM FOUNDINGS

<table>
<thead>
<tr>
<th>Model 1</th>
<th>Model 2</th>
<th>Model 3</th>
<th>Model 4</th>
<th>Model 5</th>
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<td>0.391*** (0.10)</td>
<td>0.415*** (0.10)</td>
<td>0.251* (0.14)</td>
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<tr>
<td>-0.710*** (0.13)</td>
<td>-0.307** (0.13)</td>
<td>-0.695*** (0.14)</td>
<td>-0.568*** (0.11)</td>
<td>-0.711*** (0.13)</td>
<td>-0.310** (0.13)</td>
</tr>
<tr>
<td>Number of VC-backed IPOs / 100</td>
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</tr>
<tr>
<td>-0.749 (0.49)</td>
<td>-1.237** (0.46)</td>
<td>-0.843 (0.53)</td>
<td>-0.924** (0.47)</td>
<td>-0.834 (0.51)</td>
<td>-1.015** (0.47)</td>
</tr>
<tr>
<td>VC Returns 2.351*** (0.57)</td>
<td>1.666*** (0.46)</td>
<td>2.420*** (0.59)</td>
<td>1.992*** (0.49)</td>
<td>1.966* (0.10)</td>
<td>0.932 (0.99)</td>
</tr>
<tr>
<td>Net VC Inflows 0.007 (0.00)</td>
<td>0.006 (0.00)</td>
<td>0.007 (0.00)</td>
<td>0.006 (0.00)</td>
<td>0.007 (0.00)</td>
<td>0.005 (0.00)</td>
</tr>
<tr>
<td>Quarter 2 -2.382*** (0.18)</td>
<td>-2.347*** (0.17)</td>
<td>-2.382*** (0.18)</td>
<td>-2.410*** (0.18)</td>
<td>-2.378*** (0.18)</td>
<td>-2.359*** (0.17)</td>
</tr>
<tr>
<td>Quarter 3 -2.750*** (0.19)</td>
<td>-2.701*** (0.18)</td>
<td>-2.747*** (0.18)</td>
<td>-2.735*** (0.18)</td>
<td>-2.753*** (0.18)</td>
<td>-2.705*** (0.17)</td>
</tr>
<tr>
<td>Quarter 4 -3.084*** (0.20)</td>
<td>-3.003*** (0.19)</td>
<td>-3.085*** (0.19)</td>
<td>-3.078*** (0.19)</td>
<td>-3.069*** (0.19)</td>
<td>-2.976*** (0.19)</td>
</tr>
<tr>
<td>Yale Endowment’s % VC Allocation 0.179*** (0.04)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0.169*** (0.04)</td>
</tr>
<tr>
<td>Top 19 Endowments’ % VC Allocation 0.019 (0.04)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>-0.071 (0.05)</td>
</tr>
<tr>
<td>VC-Backed IPO Run up (Dummy) 0.549** (0.22)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0.266 (0.20)</td>
</tr>
<tr>
<td>Additional VC-Backed IPO Run ups (Count) 0.012 (0.03)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0.011 (0.02)</td>
</tr>
<tr>
<td>Constant 3.233*** (0.14)</td>
<td>2.527*** (0.22)</td>
<td>3.188*** (0.16)</td>
<td>3.240*** (0.13)</td>
<td>3.250*** (0.15)</td>
<td>2.751*** (0.26)</td>
</tr>
<tr>
<td>ln(alpha) Constant -1.375*** (0.24)</td>
<td></td>
<td>-1.788*** (0.28)</td>
<td>-1.367*** (0.24)</td>
<td>-1.505*** (0.21)</td>
<td>-1.356*** (0.24)</td>
</tr>
<tr>
<td>N 112</td>
<td>112</td>
<td>112</td>
<td>112</td>
<td>112</td>
<td>112</td>
</tr>
<tr>
<td>Log-likelihood -272.260</td>
<td>-263.147</td>
<td>-272.179</td>
<td>-269.306</td>
<td>-272.100</td>
<td>-262.050</td>
</tr>
<tr>
<td>Chi2 531.045</td>
<td>510.743</td>
<td>524.566</td>
<td>526.337</td>
<td>525.182</td>
<td>574.170</td>
</tr>
</tbody>
</table>

* p < 0.10; ** p < 0.05; *** p < 0.001; two-tailed test for all variables. Robust standard errors are in parentheses. All covariates are lagged one year.
○ Measure has been orthogonalized using Gram-Schmidt procedure (Cohen et al., 1983; Hiatt et al., 2009; Saville & Wood, 1991; Sine et al., 2005).
REFERENCES


Rose, C. 2009. A conversation with David F. Swensen, Chief Investment Officer at Yale University, *Charlie Rose*.


Wasserman, N. 2002. *The venture capitalist as entrepreneur: Characteristics and dynamics in VC firms*. Harvard University, Boston, MA.


APPENDIX A: ANNUAL CAPITAL INFLOWS INTO NEW VC FIRMS VS. YALE FUNDING