When to be a Nonconformist Entrepreneur? Organizational Responses to Vital Events*

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September 2012

*Thanks to Andy Rachleff, Hayagreeva Rao, Jesper Sørensen, and Olav Sorenson for useful ideas. We thank the Graduate Schools of Business at Stanford and the University of Chicago for support. This work is partially funded by the Charles E. Merrill fund at the University of Chicago.

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Abstract

Salient successes and failures among organizations, such as spectacular venture capital investments or agonizing bankruptcies, affect consensus beliefs about the viability of particular markets. We argue that such vital events lead to over-reactions in the organizational entry process, with new firms flooding the market after salient successes and a dearth of entries after salient failures. Particularly notable are the implications of nonconformity under these conditions. An entrepreneur who bucks the consensus and enters a market after salient failures must endure considerable scrutiny, and so is likely have a strong fit to that market. Such a nonconformist will be spared from a passing fad, whereas an entrepreneur that follows trends is more likely to enter markets that are not a good fit for the organization. So we propose that in the wake of salient vital events nonconformity is a preferable approach. We find support for this idea in an analysis of software firms: Organizations that enter a software "market space" after salient bankruptcies are especially likely to remain, while those that enter a space after high-profile venture capital funding events are especially likely to leave.

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Organizational Responses to Vital Events

Entrepreneurship has long intrigued and perplexed social scientists. Most work on the topic follows Schumpeter (1934) and takes an evolutionary approach (e.g. Aldrich and Ruef, 2006; Klepper, 2007). By and large, such research looks for the conditions that give rise to market entries and covers both the social and economic bases of entrepreneurship (e.g. Baumol, 1990; Ruef, 2010). The search for what drives entrepreneurship points to various mechanisms – ranging from social structural explanations (Stuart and Ding, 2006), to the importance of organizational contexts (Sørensen, 2007), to dynamics within founding teams (Beckman and Burton 2008), to economic mechanisms (Evans and Jovanovic, 1989; Lazear, 2005). Yet for all the attention paid to what leads to entrepreneurial behavior, the fact remains that organizations do not frequently enter new markets (Shane, 2003; Reynolds and Curtin, 2009).

In this paper, we investigate the least celebrated of entrepreneurial events: those carried out by nonconformists who move against prevailing wisdom in their entry decisions. Like much of the literature, we take an evolutionary perspective, but we do so in order to understand the theoretical significance of organizations that buck the trends in their particular industries. From an evolutionary perspective, market entry can be understood as a selection process, and organizations that are in a market at a given point in time are the survivors of this entry-selection process. Other organizations may have considered entering the market but chose not to. This outcome often is interpreted in terms of structural barriers to entry, as when an organization lacks the know-how or resources to compete in a market, or when there is not enough demand to support another entrant. But perceptions of market viability also play an important role in the entry decision. When other organizations in a market experience positive events the market becomes more attractive; when they experience negative events the market seems less so. This translates into varying selection thresholds for market entry. Markets that seem especially promising have lower entry selection thresholds, and many organizations will enter. But markets that do not seem viable have stringent thresholds and entries are thus rare. The degree to which we see nonconformist entrepreneurs, therefore, reflects the rigor of the entry-selection threshold. What's more, perceptions of market viability vary from market to market and over time within markets, leading to periods of boom and bust.

The nature of such organizing waves is much studied. During boom times, many lament "herding behavior" among entrepreneurial companies, their backers, and other supporting institutions such as law firms and financial analysts. In these booms, reactions to salient vital events, like high-profile financings, can be extreme. On the flip side, slowdowns in organizing activity also appear to be exaggerated, and

during such times nascent entrepreneurs complain that they are unable to mobilize support. High-profile business failures often render a market untouchable, triggering a cascade of mutually reinforcing reluctance among market players. These peaks and valleys have attracted the attention of scholars, from economic models of the business cycle (Bikhchandani et al., 1998; Jovanovic, 2009) to those who point to psychological biases or social processes to account for flocking in and out of markets (Camerer and Lovallo, 1999; Kahneman, 2011). In our view, boom and bust cycles are particularly interesting because they present us with an opportunity to identify periods during which entrepreneurs are nonconformists.

In particular, we investigate the long-term effects of conformity and nonconformity in the wake of salient successes and failures. In the entrepreneurial process, spectacular vital events – such as prominent venture capital investments or agonizing bankruptcies – generate considerable discussion in their wake. We think of such events in terms of how they then affect the entry-selection process. Because salient vital events are widely discussed, they carry considerable influence as social facts shaping beliefs about the viability of markets. Such events affect consensus thinking, and so they make non-consensus behavior especially interesting. Bankruptcy may taint a particular market, at least for a time, making it untouchable in the consensus view. A firm entering this market at that point is likely to be especially noteworthy, since it managed to mobilize support in a context marked by vivid skepticism. By contrast, a firm that seeks to enter a market space that has been recently blessed by high valuations has consensus on its side – so support will be easier to mobilize for this firm.

To investigate these processes, we look at the entry and exit of software firms into and out of market spaces. The software industry is characterized by many distinct sub-markets – referred to by industry insiders as "spaces" – such as "customer relationship management," "digital audio," "computer-aided manufacturing," and the like. During the period from 1990 through 2002, organizations identified with over 400 spaces in this industry. To make sense of these spaces, managers, financiers, analysts, and employees searched for social cues about whether a given space held promise. Market spaces may be associated with a particular product or technology, but frequently they are more loosely defined by function or product use, and typically there are a number of market spaces that any organization could credibly claim. The choice to affiliate with a market space is partially a framing process, where managers choose from among many potential frames which market to enter in order to position their organizations within the industry. Thus, barriers to market space entry are in part perceptual. Given this, we expect that managers' perceptions of a market's viability will be especially influential in the market entry decision. As a result, this context is well suited to study the long-term effects of salient successes and failures on market entry and exit. How did vital events affect organizational entry into these spaces? And what happened to the nonconformists – the organizations that went against the tide of common knowledge following such events?

Entrepreneurial Waves and Vital Events

Markets develop over time in uneven waves of organizational entry and exit. This fact has long been the subject of research from various schools of thought – ranging from broad, historical theories of economic and social change (Kondratieff, 1935; Polanyi, 1944), to various theories of the "business cycle" in the tradition of Schumpeter (1934; 1942). Since, studies have focused on the conditions that invite the entry of new organizations or the expansion of existing ones (Ijiri and Simon 1977; Nelson and Winter 1982; Tushman and Anderson 1986; Klepper 1996; Jovanovic, 2009). Generally, waves of entries are understood in terms of a feedback process, where experiences in an industry at one point in time provide information to potential entrepreneurs who follow (Miner and Haunschild 1995; Dosi and Lovallo 1997; Aldrich and Ruef 2006). The persistence of waves suggests that this feedback process may magnify, rather than correct, perceptions. For instance, Denrell and March (2001) show that sequential updating generates a bias against risky behavior, with successful behaviors being repeated and unsuccessful ones avoided. This idea is consistent with the considerable evidence of herding behavior, where organizations enter markets especially after other organizations have done so (Delacroix and Carroll 1983; Haveman 1993; Greve 1996; Carroll and Hannan 2000; Sørensen and Sorenson 2003).

Psychological mechanisms are thought to be behind observed patterns of market herding (Kahneman, 2011). Camerer and Lovallo (1999) point to high numbers of entries followed by high rates of exit as symptoms of "overconfidence" by entrepreneurs making entry decisions. Barbarino and Jovanovic's (2007) theoretical model depicts how optimism can produce boom and bust cycles of overcapacity and "shake out" over time. But negative perceptions of a market are likely involved, too. Moore et al. (2007) claim that both booms and busts follow from myopic self-focus among entrepreneurs, so that they are overconfident in "easy" markets and under-confident in "difficult" ones. Further, negative information during downturns may be especially salient, given that people tend to heavily weight negative information and memories (Baumeister, Bratslavsky and Vohs 2001; Rozin and Royzman 2001).

Although much of the literature describes "waves" of under- and over-confidence, we think it is important to distinguish the role played by specific vital events such as high-profile financings and dramatic organizational failures. These types of events may be either an actual or perceived indicator of the underlying quality of a market. Either way, when vital events are broadcast, managers evaluating the viability of alternative markets will take note, and even one vital event can exert influence, particularly when limited information is available (Levinthal and March 1993). As a result, a widely discussed vital event is likely to have an exaggerated effect on market assessments – a notorious problem in limited, sequential sampling (Denrell and March 2001). A high-profile financing may trigger an explosion of interest in a particular market space, as we see in the eruption of fads and fashions (Strang and Macy,

2001). On the downside, bankruptcy, perhaps the most salient negative event for a business organizations, elicits strong negative reactions from audiences (Sutton and Callahan 1987). So both salient successes and failures likely serve as powerful indicators of the (apparent) wisdom or folly of particular strategies in particular market spaces.

Moreover, salient events are social facts, shared and discussed collectively among audiences. Even if these social facts are based on differences in quality among markets, the buzz generated through comparisons among markets in the wake of vital events will create exaggerated assessments of the benefits or hazards of a particular market. This process is reinforced under conditions of uncertainty (Festinger 1954; Kahneman, 2011). Meanwhile, people who are disposed to question whether a salient event is diagnostic may be unlikely to express this deviant view (Miller and Morrison 2009), further propagating herding behavior. Add to this that individuals and organizations tend to imitate high-status others (Burt 1987; Davis 1991). Such imitation fuels the social construction of knowledge within an industry (Strang and Soule 1998) and can lead to the perception of munificence or decline, in turn promoting behavior reinforcing those perceptions (Strang and Macy 2001).

In sum, we expect that salient vital events will generate exaggerated levels of exuberance and skepticism, triggering the waves of entries and exits so commonly seen in markets over time. Relevant audiences and decision makers must mobilize support to move an organization into a new market space (Stinchcombe, 1990). When exuberance over a market is high, many firms can make the move. By contrast, when a market is seen skeptically, it is difficult for a firm to enter the market. Just as Linux start-ups proliferated after the successful IPOs of Red Hat and Andover, it was nearly impossible to fund a disk storage company after the storage market failures of the early 1980s. Stories abound of the waves of entries that follow publicized successes, and of the desert-dry conditions that follow in the wake of salient failures. We think these examples follow from a more general process, where vital events at one point in time help to determine ensuing rates of market entry and exit:

Hypothesis 1: The greater the number of positive (negative) vital events in a market, the greater (lower) the ensuing rate of organizational entry into that market.

Our ideas can be thought of in terms of "waves" of change in markets, but they imply that the popularity of markets may change rapidly. If vital events were simply indicators of the underlying quality of a market – which presumably does not change rapidly – then one might expect the evolution of markets to slowly converge on a steady-state level of organizational activity. But we argue that vital events trigger a sudden and discrete change in appraisals of markets. In the wake of these events, history will be revised, as important decision makers fall victim to retrospection bias (Kahneman, 2011). As a result,

markets that may have once seemed attractive may rapidly be tainted by salient, negative events such as bankruptcies – and unattractive markets will come to be remembered as lucrative once a salient success takes hold. More generally, in a fast-paced industry new information may have a powerful impact, possibly reversing the process as potential entrepreneurs update their views in response to recent vital events.

For example, technology trackers might remember Alta Vista, Northern Light, FAST Search, or Lycos – some of the many firms that specialized in searching the World Wide Web during the 1990s. After a spate of failures of such firms, many observers declared that the search space was not viable, and new entries into this space fell off sharply. Yet within a short time, the fantastic success of Google would completely reverse this impression of the search space. Post-Google, search is not only understood to be a lucrative market, but is now regarded by many as the ideal online advertisement-based business. Similar changes – for better or for worse – can be seen over time in market spaces such as artificial intelligence, data compression, embedded operating systems, software tools, online grocery delivery, social networks, and the list goes on. What these market spaces have in common is that perceptions of their munificence change rapidly over time, as potential entrepreneurs and their backers react to the limited (and biased) information provided by salient vital events.

Nonconformity and the Entry-Selection Process

What happens when entrepreneurs go *against* the consensus? The market where an organization operates helps to define its competitive position within its industry (White 1981; Porac, Thomas, Wilson et al. 1995) and affects its ability to attract resources. It follows that new entrants into a "hot" market will attract attention, and those that defy common wisdom and identify with tainted markets are more likely to be rejected or ignored. Furthermore, one would expect that individual entrepreneurs would be especially unlikely to risk being seen as a fool by trying to enter a tainted market. In this situation, both the literatures on conformity and research on loss avoidance would suggest that nonconformity will be rare in the face of salient failures (Kahneman, 2011). Yet nonconformists do come along, entering markets despite overwhelming consensus about the foolishness of their actions. A natural next question is what is an organization's chance of market survival, depending on whether it has taken a "conformist" or "nonconformist" strategy after salient vital events. In order to answer this question, we theorize in terms of the entry-selection process.

Ordinarily, we think of selection processes among organizations as eliminating some organizations and allowing others to continue to exist. But selection processes also operate as organizations are trying to enter markets (Barnett et. al, 2003). Some potential entrants move into a market, while others do not. In this sense, there is an entry-selection threshold that governs the process of

market entry. Assuming that organizations are more likely to clear this threshold if they are better fit with that market, then when the entry-selection threshold is high only especially fit organizations enter. By contrast, when the entry-selection threshold is low, then organizations with lower product-market fit also will enter. By shaping perceptions of market, vital events shift the entry selection threshold up or down – at least temporarily.

Positive events lead to market "hype," or a perception that a market is especially promising. This leads outsiders to have more positive first reactions to organizations that affiliate with the market, and motivates managers to try to position their organizations as part of that market. The perception of market viability effectively lowers the entry-selection threshold for that market, and the surge of organizations that enter a market after such an event is a consequence. But the lowered entry threshold also indicates that entrants will, on average, be less fit for that particular market than would have been the case without the hype. Conversely, in the wake of a negative event there is widespread skepticism regarding whether the market is viable. Nonconformists suffer a trial by fire moving into a tainted market, and so those that do enter are likely to have an especially strong product-market fit (Swaminathan 1996). Thus, whether markets experience salient events has long-run consequences in terms of whether organizations are especially fit or especially unfit compared to others in their market:

Hypothesis 2: Organizations that enter a market following positive (negative) vital events will be more (less) likely to exit that market over time.

Note that Hypothesis 2 predicts a long-run pattern of consequences. Nonconformists are especially rewarded after negative vital events – but only if they can survive the trial by fire. As time passes after entry, the "halo" or "stigma" of prior vital events wears off. So as time passes, those organizations that managed to successfully enter after salient bankruptcies should increasingly prove to be fit with the market. By contrast, those that entered with exuberance following high-profile VC fundings will increasingly show their lack of fit. In either case, it is not that these entry conditions "cause" entrants to be more or less fit; rather, entry conditions weed out (or fail to weed out) less fit organizations through the entry-selection process. The consequence is that nonconformists, who bet against popular opinion, fare better in terms of long-run exit rates. From the entrepreneur's perspective, this outcome can be understood in terms of the information they gain in the process of trying to move into a market. When the entry-selection threshold is weak, support for a move into a market space has little significance. By contrast, support for market entry despite the taint of a recent failure is especially meaningful information for an entrepreneur.

Taken together, hypothesis 1 and 2 imply that reactions to vital events are indeed exaggerated, and that such events are not a simple proxy for the underlying quality of a market. If that were the case, we would expect vital events to influence entry as predicted by hypothesis 1, but we would also expect that these entries were appropriate reactions to accurate assessments of market quality. Thus, we would not expect to see the subsequent exits as predicted by hypothesis 2.

Study Context

We study these ideas in the context of the software industry between 1990 and 2001. Since its emergence in the 1950s and 1960s, the software industry has been divided into many sub-markets, or "spaces" as they are called in the industry. Spaces such as "system software," "productivity applications," "client-server computing," "middleware," "databases," "enterprise resource planning (ERP)" and many hundreds more emerged as ways of classifying organizations in software (Steinmueller 1995; Campbell-Kelly 2003). Figure 1 shows a map of spaces in the software industry for an example year. This is a network plot where spaces are located in close proximity when they overlap.[1] Two spaces are said to overlap to the extent that organizations claim both labels. Specifically, for each pair of spaces a weighted count of overlapping organizations is created, where the weight of each organization is its grade of membership in the given market space. (Grade of membership is defined by the number of times an organization claims the label in the year, divided by total number of claims.) The size of each node indicates how much that space overlaps with other spaces across the industry. As this diagram shows, some spaces, such as "enterprise" and "tools" overlap with many others, whereas many spaces have less overlap. The space(s) that an organization identifies with is an important way of conveying what its products or services can be used for.

The software industry is populated with entrepreneurial start-up companies, a number of which became markedly and (often unexpectedly) successful. This has drawn attention to the industry and created incentives for speculators. For example, Microsoft, Oracle, and Siebel are examples of exceptional successes that enticed entrepreneurs and financiers alike to become the next "new thing." However, the industry has also been a site for spectacular failures. Prominent bankruptcies such as those by System Software Associates, BuildNet or Lernout & Hauspie were cautionary tales. The uncertainty, upside potential, and fractured nature of the industry's classification system may have contributed to a "herd mentality" within the software industry. Investors clamored to sponsor what would be the next breakthrough, and companies vied to be seen as the fulfillment of this promise. Venture capitalists, whose funding is essential to this industry, looked to fund companies that were in promising markets

[1] This plot was created using the Fructermin-Reinghold algorithm in Gephi, a convenient way to reduce a multidimensional proximity matrix to a 2-dimensional plot.

(among other things). In fact, the tendency of venture capitalists to become "sector speculators" and to invest in companies that are in "hot markets [with] hyped business models" has been cited as a factor that led to the internet bubble and its subsequent collapse (Valliere and Peterson 2004). Software spaces – and their reputations – are important to the dynamics within this industry. So this context provides a good setting to study organizational action in response to vital events within industry sectors.

We use data on software organizations and spaces gathered from industry press releases issued between 1990 and 2001. These data were collected from all press releases in *Businesswire*, *PR Newswire*, and *Computerwire* that contained at least three mentions of the word "software." There were 268,963 of these. At one point in each press release, software organizations claim to be a part of a space. A combination of automated text scanning software and manual inspection of the resulting data produced a data set of software organizations and the spaces they inhabit in each year (Pontikes 2008). In order to identify vital events, we used data on all venture capital investments and software company bankruptcies from Thomson Financial over the study period. We matched these data with our data on software organizations to identify whether an organization in a space experienced either of these vital events in a given year. We then used the number of venture capital investment events to measure positive vital events for each space, and bankruptcies to measure negative vital events.

Empirical Models

We test Hypothesis 1 by analyzing organizational entries into the market spaces in our data. To study this process, we configured the data so that the organization-market space is the unit of analysis. Using dyads allows us to include in our model characteristics of the market space as well as those of the organization. We then constructed, for each year, the set of organization-market spaces at risk of experiencing a market-entry event. Over time, as these organizations enter and exit market spaces, the risk set is updated accordingly. So configured, these data allow us to estimate a model of the hazard of market space entry:

$$\lambda_{jk}(t) = \lambda_{jk}(t)^{*}\exp[aF_k+bV_k],$$

where λ is the rate of entry of organization j into market space k, varying as a function of duration (t), and $\lambda_{jk}(t)^{*}$ is a baseline rate specified as a function of observables (see below). We specified duration dependence (t) using the piecewise exponential model available in STATA. F_k counts the number of prior bankruptcies in market space k, and V_k is the number of venture capital funding events in market space k.

Estimating the coefficients of F_k and V_k allows us to test Hypothesis 1. Each of these variables counts the number of each kind of event in market space k over a three year moving window just prior to the year in which an organization is at risk of entry into market space k. According to our hypothesis, we

expect to find $a<0$ and $b>0$, meaning that entry into a market space is made less likely by prior bankruptcies in that space, and more likely by prior VC investments in that space.

Hypothesis 2 concerns the survival of organizations in a market space, depending on whether the organization had entered the space in the wake of vital events. To test this hypothesis, a risk set was created including, for each year, any organization that was at risk of exiting any market space – so again the organization-market space dyad is the unit of analysis. A market exit was said to occur in any year when an organization exits a given space. The market exit rate was then modeled according to:

$$r_{jk}(\tau) = r_{jk}(\tau)*\exp[c_\tau F_{k,\tau=1} + d_\tau V_{k,\tau=1}],$$

where r is the market exit rate of organization j from market space k, varying over τ, the duration that organization j has been in market space k. Again, we use the piecewise exponential specification of this model as implemented by STATA. F and V measure the number of bankruptcies and venture investments, respectively, in market space k at the time of organization j's entry into the space ($\tau=1$). Note that we allow estimates of the effects of F and V to vary over time τ, to test our argument that the enduring effects of market entry conditions take time to materialize. So, according to Hypothesis 2, we expect to find $c_\tau<0$ and $d_\tau>0$ – such that being founded after a spate of bankruptcies implies that an organization is less likely to exit, and being founded after numerous VC investments in a space predicts that the organization is more likely to exit. However, both of these effects should become stronger as time passes and the initial stigma or halo of the prior events wears away.

We also include a number of control variables that are likely to affect market space entry and exit. Space covariates include the (fuzzy) market space density, entries into and exits from the space, and the number of years the space has been in the industry. Organizational covariates include size (small or large), measured by whether the organization has appeared in *Software Magazine's* Software 500 rankings, the number of times the organization previously received venture capital funding, and the number of years the organization has been in the industry. Year dummies are included. All variables are measured as of the start of each time period.

Results

Market Entry Analysis

Table 1 provides descriptive statistics and table 2 reports results of the entry analysis. Model 1 includes control variables only. This shows that market space density and number of previous entries into a space have a positive and significant effect on entries, while number of exits yields a negative and significant effect, indicating that organizations monitor others' behavior when making market entry decisions – a pattern that is consistent with the spirit of hypothesis 1. The number of years a space is in the industry has a positive effect, which indicates that age may provide some legitimacy to market spaces.

Large organizations and those that receive venture capital funding are more likely to enter a new space, which indicates organizations with resources tend to expand scope. The more time that has passed since an organization entered a new space, the *less* likely it is to enter another market space. This suggests that some organizations bounce around entering new spaces, while others come to take on more consistent market identities.

Model 2 tests hypothesis 1 and includes the effects of positive vital events on the ensuing entry rates, which we expect to be positive. The estimates show support for this hypothesis. Entries into a space increase significantly following venture capital fundings in that space. Figure 2 illustrates this effect, and shows it to be substantively strong over the observed range of the independent variable. For instance, an organization is ten times more likely to enter a space if there have been ten venture capital funding events in that space over the prior three years. These results provide support for Hypothesis 1 when it comes to following positive events.

--- Insert figure 2 about here ---

Model 3 continues the test of Hypothesis 1 by including the number of prior bankruptcies in a space. This term does not have a statistically significant effect on the entry rate, so we fail to reject the null for this part of our test of Hypothesis 1. We had thought that salient negative events would be especially important for creating stigma around a market space, and we know that bankruptcies are among the most salient of negative events possible among commercial organizations. Our failure to reject the null has us rethinking both our understanding of the importance of negative events, and also our operationalization of the construct. It is possible that this result reflects that bankruptcy counts do not fully account for all negative vital events in this context. This industry has witnessed many organizational failures, but often this is in the form of an unfavorable acquisition or where the organization shuts down without filing for bankruptcy. Consequently, there are only 24 formal bankruptcies in our data, as compared to 1781 venture capital funding events, so the bankruptcy measure may lack some statistical power. However, as reported, we do find that prior exits from a market space significantly lower the entry rate, which indicates that organizations do look to external events when making entry decisions.

Market Exit Analysis

Table 3 provides descriptive statistics for the market exit analysis, and table 4 reports the model estimates. Model 4 includes control variables only. Market space density has a negative effect on exit. This effect is consistent with the results in the entry analysis, where density increased the entry rate. Together, these effects suggest that the density of organizations in a space is measuring the carrying capacity for organizations in the space. Note that, in general, ecological models of organizations typically include density to capture interdependence among organizations in terms of competition and mutualism.

But such models assume that the carrying capacity of markets is separately controlled in the model. Here, with so many different market spaces in the data, it is not possible for us to independently measure the carrying capacities of all the market spaces. Consequently, dead-end market spaces are included along with spaces that are thriving, and the density of organizations appears to be picking up this difference. Also interesting is the positive effect of lagged exits on exits, indicating positive first-order autocorrelation in the exit process. In all likelihood, this pattern indicates that good and bad times carry over across multiple years for any given market space. Finally, large, well-funded, and old organizations are more likely to exit market spaces. Combined with the results from the entry analysis, these findings suggest that market exit is a strategic behavior among organizations that have the wherewithal to intentionally position themselves in market space.

Models 5-7 test hypothesis 2. Bankruptcies and venture capital funding events in a space at the time of the organization's entry are included in the time pieces to test how these variables affect exit over time. Results show that entering a space blessed by positive vital events meant that an organization is significantly more likely to exit after only one year, and the effect becomes even stronger as time passes. Meanwhile, organizations that enter a space after negative vital events are *less likely* to leave over time, as we predicted. The effect is negative and significant after two years in the space, and becomes more strongly negative after four years in the space.

--- Insert figure 3 about here ---

These results are illustrated in figure 3. Organizations that follow the consensus and enter a space after positive vital events are more likely to exit over time. For organizations that entered a space at the maximum observed levels of prior VC fundings, after 4 years in the space these organizations were nearly 250% more likely to exit the market due to this effect. By contrast, organizations that entered a space at a time when bankruptcies were occurring there had much better long-run survival chances – ending up less than half as likely to exit as a result of this effect. Overall, this pattern is fully supportive of Hypothesis 2, and demonstrates important, long-run consequences of being a nonconformist in the wake of salient vital events.

Discussion

Evolutionary approaches to the study of entrepreneurship are common, since the phenomenon of market entry is dynamic. Yet most studies of market entry seek to understand what makes market entry more likely, and have not investigated the long-term effects of market entry choices. In our view, a particular advantage of the evolutionary approach is that it highlights the importance of rare, exceptional events. By understanding market entry as a selection process, we see the nonconformist as a survivor in a rigorous selection process. By contrast, those that enter when a market is abuzz with excitement are not

subjected to such scrutiny. Further, these entry decisions in the face of salient events have long-term consequences. We were able to empirically demonstrate the importance of the entry selection process to the long-term persistence of organizations within a market. These findings suggest that there is merit to paying more attention to the exceptions we see when selection processes are operating.

Specifically, nonconformists in the process of entrepreneurship are especially intriguing. Although the non-consensus view may seem like foolishness at the time, it may turn out to be the wise alternative – especially if the consensus view is exaggerated. Consensus about the meaning of salient events clears the way for those who conform to the prevailing view. Positive "hype" about spectacular financing opportunities may dissuade people from critically questioning whether a market is a good fit for the organization. In contrast, when the consensus view is that a recent failure is evidence of deeper problems in a market, a nascent entrepreneur will be required to defend her nonconformist approach at every turn. A start-up that braves this process is especially capable.

We find evidence that organizations flood into market spaces immediately following positive vital events – here venture capital fundings, although we do not find evidence of herding behavior following negative events. At the same time, we do find that there are long-term hazards associated with conformity, and potential benefits for nonconformist organizations. Organizations that act in line with common beliefs and join "hot" market spaces are quick to abandon these new markets. In fact, they are increasingly likely to exit market spaces after just one year. Conversely, even though results do not show a statistical effect of bankruptcies on market entry, they do indicate that organizations that move against the grain and enter tainted spaces after bankruptcies are especially likely to remain in these market spaces in the long-term. This indicates that in the wake of salient vital events, the selection threshold for market entry increases in terms of the quality of the entering organizations, although not in terms of the quantity of organizations that enter the market.

Results indicate that conforming to common wisdom regarding what is a "good" or "bad" market space can have deleterious effects in terms of organizations preserving a consistent identity. Because reactions to positive or negative events tend to be exaggerated, organizations that join "hot" new spaces in the hopes of gaining some of the benefits bestowed on their competitors might find themselves late to the party, in an over-crowded space where resources have become sparse. These organizations find themselves ill suited to their markets, and thus more likely to subsequently exit, perhaps looking for the next new fad. Tracking on spaces that are "blessed" by positive vital events may establish an organization as a perpetual follower.

But organizations that go against common knowledge and enter a space after a negative vital event are especially likely to stay over time. This indicates that organizational aversion to spaces tainted by bankruptcies is not simply an artifact of the underlying quality of a space, but also reflects an

exaggerated response to negative information, consistent with previous research that indicates negative events are especially salient, (Baumeister, Bratslavsky and Vohs 2001) and that people avoid even trace associations with stigma (Pontikes, Negro and Rao 2010). Given that results do not show an effect of bankruptcies on subsequent entries, in this context the overreaction does not manifest in terms of the numbers of organizational entries; rather, it is apparent in terms of how well suited entrants are to the market space. Because there is an exaggerated reaction to negative events, organizations that nevertheless enter these spaces may attend to their market positioning with a more critical eye and therefore have a stronger product-market fit. These organizations are more likely to have a consistent identity over time.

These findings indicate that consensus behavior can increase risks associated with organizational change, while non-consensus behavior may reduce such hazards. Major organizational change is perilous, especially when it affects a core aspect of the organization (Barnett and Carroll 1995). Market exit is a significant change that requires external and internal audiences to reevaluate the organization, calling into question the credibility of its claims. Results here indicate that in the wake of vital events, consensus behavior leads to market exit in the long-term, a disruptive change which can increase an organization's overall risk of failure. Non-consensus behavior is more likely to lead to a consistent identity, reducing the hazards associated with change.

Note that our theory identifies a process that is different from the so-called "renewal process" in organizational ecology – where vital events at one point in time trigger new foundings by freeing up resources (Delacroix and Carroll, 1983). In our theory, vital events affect perceptions about the viability of particular market spaces, and these perceptions change the likelihood that important actors will favor or oppose entry. In the renewal process, failures at one point in time increase entries at the next point in time directly by freeing up resources that are re-deployed into the building of new firms. Similarly, Stuart and Sorenson (2003) find that founding rates have increased in the wake of so-called "liquidity events" in the biotechnology industry, as acquisitions and initial-public offerings give technically skilled employees the wherewithal to create new firms. Independent from our theory such effects may occur, but they are distinct from the effects that vital events have on perceptions of a market space. With this distinction in mind, we will operationalize vital events to distinguish the mechanism that we propose. By looking at high-profile venture capital investments (rather than liquidity events), we identify events that "bless" a market space but that do not free up resources for the creation of new firms.

Also, our findings may help to clarify some of the mixed empirical results on renewal processes. Since the Delacroix and Carroll (1983) study first found that organizational failures increase rates of organizational founding, subsequent work has revealed mixed results regarding this question. In their review of the organizational ecology literature, Carroll and Hannan (2000) conclude that there is no clear consensus on renewal processes. In light of this study, we suggest that it may be necessary to distinguish

the direct and indirect effects that different kinds of "failure" have on subsequent foundings. We study the effects of bankruptcies – high-profile events that only sometimes release resources for new foundings. By contrast, most organizational ecology studies look at the number of ending events of any kind – only some of which are bankruptcies. Many of these ending events may trigger what are essentially "re-starts" of the organization, or at least are events that may not be accompanied by the stigma of bankruptcy. Given these differences, it seems clear that future work on population dynamics should distinguish the renewal process from the changes in the popularity of market spaces that result from high-profile vital events.

More generally, we think that our findings here suggest that there is merit to studying entrepreneurship in terms of the entry selection process. For instance, Nanda and Rhodes-Kropf (2012) find that firms funded by venture capital when many other firms receive such funding are more likely to have high-value IPOs (although are less likely to make it to an IPO). Their finding is consistent with an entry-selection process approach, in this case suggesting that boom times allow for greater risk taking. Our theoretical arguments around conformity raise some additional questions in the wake of this finding. Are these high-value IPO firms the cream of the crop among a large cohort of conformists, or are they the high-value subset of deviant firms? Further work should look at the differences among firms that flood into markets during boom times to distinguish between these accounts.

This study also contributes to the literature on mimetic adoption and market emergence. Consistent with previous research, results show that organizations flock to enter markets where their competitors have achieved success. This provides support for the idea that markets emerge through a process where organizations keep close tabs on the actions and achievements of their competitors, often reflected through third party endorsements (White 1981; Porac, Thomas, Wilson et al. 1995; Kennedy 2005). This study also investigates the negative side of the diffusion process, often neglected in organizational research (Labianca and Brass 2003). Although findings do not indicate that negative events lead to lower entry rates, they do show that negative events lead to opposing long-term effects on market exit.

Paradoxically, what is good for market growth may be problematic for the organizations entering that market. Positive events draw a host of entries, including organizations whose offerings do not fit well. Over time, the reality of the benefits the space will provide set in, and the organizations with a lower market fit will exit. Negative events increase the entry-selection threshold, keeping away all organizations but those with the best market fit. Over time, as the negative events fade from public memory, these organizations are especially likely to remain. Although conformity may seem to be the safe bet, when it comes to herding behavior in markets, this study indicates that nonconformity may be a more sustainable strategy.

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Tables

Table 1. Descriptive Statistics for Market Space Entry Analysis[1]

	Mean	Standard Deviation	Minimum	Maximum
Organization enters market space	0.0036	0.0603	0	1
Venture capital funding events in space (3 year window; logged)	0.454	0.65	0	4.1
Bankruptcies in space (3 year window)	0.027	0.152	0	2.33
Fuzzy density of market label	4.688	10.33	0	163.8
Entries into label last year	2.309	5.479	0	86.70
Exits from label last year	2.079	5.226	0	102.7
Age of label (since 1990)	5.787	3.669	0	13
Organization was in software magazine last year	0.1362	0.3430	0	1
Organization received vc funding last year	0.0809	0.2727	0	1
Time since organization last entered a market label	1.077	1.501	0	13
Organization age (since 1990)	2.814	2.852	0	13
Year	1998.6	2.600	1990	2002

[1] These data contain 1,893,569 potential organization-market space pairs for the years 1990 through 2002. There are 23,629 market space entries over 6,485,521 organization-space-years.

Table 2. Estimated Models of the Rate of Organizational Entry into Space[1]

	Model 1	Model 2	Model 3
Bankruptcies in space (3 year window)			0.0207
			(0.0888)
Venture capital funding events in space (3 year window; logged)		1.002***	1.001***
		(0.0520)	(0.0515)
Fuzzy density of market space	0.0231**	0.00819*	0.00825*
	(0.00788)	(0.00414)	(0.00414)
Entries into space last year	0.0463***	0.0293***	0.0294***
	(0.0107)	(0.00773)	(0.00765)
Exits from space last year	-0.0380***	-0.0368***	-0.0372***
	(0.00994)	(0.00923)	(0.00932)
Age of market space (since 1990)	0.0640***	0.0266**	0.0265*
	(0.0162)	(0.0103)	(0.0103)
Organization was in *Software Magazine* rankings last year	0.625***	0.645***	0.644***
	(0.0331)	(0.0341)	(0.0341)
Organization received VC funding last year	0.256***	0.275***	0.275***
	(0.0362)	(0.0363)	(0.0363)
Time since organization last entered a market space	-0.108***	-0.102***	-0.102***
	(0.00912)	(0.00853)	(0.00853)
Organization age (since 1990)	0.00146	0.0168*	0.0168*
	(0.00780)	(0.00664)	(0.00665)
Time piece: 0-1 year	-6.009***	-6.585***	-6.585***
	(0.150)	(0.103)	(0.103)
Time piece: 1-2 years	-6.531***	-7.138***	-7.139***
	(0.163)	(0.109)	(0.109)
Time piece: 2-4 years	-6.536***	-7.197***	-7.198***
	(0.178)	(0.114)	(0.114)
Time piece: 4+ years	-6.484***	-7.211***	-7.211***
	(0.191)	(0.123)	(0.122)
Year dummies	Yes	Yes	Yes
Log pseudolikelihood	-133291.8	-129735.4	-129735.1
Degrees of freedom	23	24	25

* $p<0.05$ +$p<0.10$

[1] Models are run on 1,893,569 potential organization-market space pairs for the years 1990 through 2002. There are 23,629 market space entries over 6,485,521 organization-space-years. Standard errors are clustered by market space. All independent variables are measured at the start of each time period.

Table 3. Descriptive Statistics for Market Space Exit Analysis[1]

	Mean	Standard Deviation	Minimum	Maximum
Organization exits market space	0.3527	0.4778	0	1
Bankruptcies in space at organization's entry (3 year window)	0.0695	0.2361	0	1.833333
VC funding events in space at organization's entry (3 year window; logged)	1.003	1.00	0	3.92
Bankruptcies in space, current (3 year window)	0.0520	0.2014	0	1.107143
VC funding events in space, current (3 year window; logged)	2.603	4.63	0	25.07
Fuzzy density of market label	23.06	32.94	0	163.8
Entries into label last year	12.05	18.14	0	86.70
Exits from label last year	9.296	15.15	0	80.21
Age of label (since 1990)	6.885	3.236	0	12
Organization was in software magazine last year	0.2194	0.4139	0	1
Organization received venture capital funding last year	0.0885	0.2841	0	1
Time since organization last exited a market label	1.182	1.792	0	12
Organization age (since 1990)	3.098	2.984	0	12
Year	1997.9	2.745	1990	2001

[1] These data contain 21,589 organization-market space pairs for the years 1990 through 2001. There are 13,880 market space exits over 39,359 organization-space-years. Standard errors are clustered by market space. All independent variables are measured at the start of each time period.

Table 4. Estimated Models of the Rate of Organizational Exit from Market Spaces[1]

	Model 4	Model 5	Model 6	Model 7
VC funding events at time of organization's entry, time in space 0-1 years		0.0271	0.0257	0.0315
		(0.0206)	(0.0198)	(0.0202)
VC funding events at time of organization's entry, time in space 1-2 years		0.0897**	0.0894**	0.104***
		(0.0275)	(0.0289)	(0.0290)
VC funding events at time of organization's entry, time in space 2-4 years		0.118*	0.142***	0.156***
		(0.0474)	(0.0413)	(0.0386)
VC funding events at time of organization's entry, time in space 4+ years		0.206**	0.259***	0.271***
		(0.0635)	(0.0534)	(0.0522)
Bankruptcies at time of organization's entry, time in space 0-1 years			-0.00813	0.0488
			(0.0577)	(0.0674)
Bankruptcies at time of organization's entry, time in space 1-2 years			-0.0398	-0.0647
			(0.166)	(0.161)
Bankruptcies at time of organization's entry, time in space 2-4 years			-0.368*	-0.389**
			(0.148)	(0.141)
Bankruptcies at time of organization's entry, time in space 4+ years			-0.744***	-0.741***
			(0.162)	(0.167)
Bankruptcies in space, current (1 year window)				-0.0690
				(0.0686)
Venture capital fundings in space, current (1 year window; logged)				-0.0133*
				(0.00574)
Fuzzy density of market space	-0.00827*	-0.0100**	-0.00940**	-0.0114***
	(0.00333)	(0.00319)	(0.00308)	(0.00255)
Entries into space last year	-0.00480	-0.00361	-0.00441	0.000214
	(0.00342)	(0.00344)	(0.00339)	(0.00328)
Exits from space last year	0.0231***	0.0229***	0.0228***	0.0250***
	(0.00425)	(0.00385)	(0.00370)	(0.00319)
Age of market space (since 1990)	-0.00216	-0.00346	-0.00396	-0.00329
	(0.00514)	(0.00522)	(0.00525)	(0.00510)
Organization was in *Software Magazine* rankings last year	0.177***	0.172***	0.170***	0.171***
	(0.0265)	(0.0261)	(0.0262)	(0.0262)
Organization received VC funding last year	0.168***	0.164***	0.164***	0.167***
	(0.0261)	(0.0263)	(0.0262)	(0.0261)
Time since organization last exited a market space	0.0154***	0.0154***	0.0152***	0.0151***
	(0.00450)	(0.00455)	(0.00457)	(0.00457)
Organization age (since 1990)	0.0406***	0.0417***	0.0418***	0.0419***
	(0.00390)	(0.00392)	(0.00393)	(0.00394)
Time piece: 0-1 year	-1.571***	-1.551***	-1.552***	-1.545***
	(0.102)	(0.103)	(0.103)	(0.102)
Time piece: 1-2 years	-1.860***	-1.893***	-1.894***	-1.887***
	(0.103)	(0.104)	(0.103)	(0.101)
Time piece: 2-4 years	-2.129***	-2.162***	-2.171***	-2.160***
	(0.115)	(0.105)	(0.107)	(0.105)
Time piece: 4+ years	-2.383***	-2.427***	-2.438***	-2.423***
	(0.119)	(0.116)	(0.117)	(0.115)
Year dummies	Yes	Yes	Yes	Yes
Log pseudolikelihood	-24810.6	-24792.9	-24786.0	-24780.9
Degrees of freedom	23	27	31	33

p<0.05 +p<0.10

[1] Models are run on 21,589 organization-market space pairs for the years 1990 through 2001. There are 13,880 market space exits over 39,359 organization-space-years. Standard errors are clustered by market space. All independent variables are measured at the start of each time period.

Figure 1. Map of "spaces" in the Software Industry for Year = 1991.

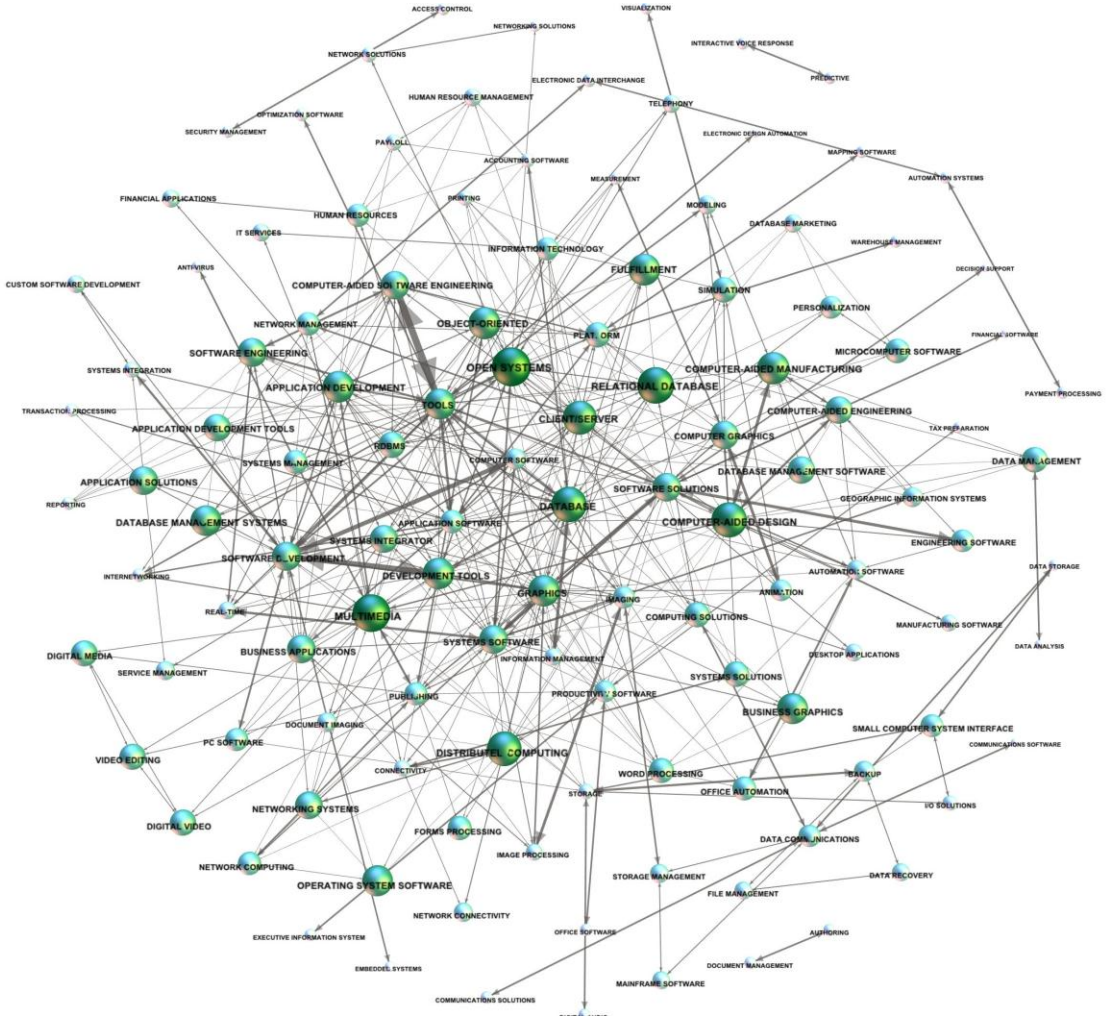

Figure 2. Predicted Effects of Venture Capital Fundings on the Entry Rate into Market Spaces

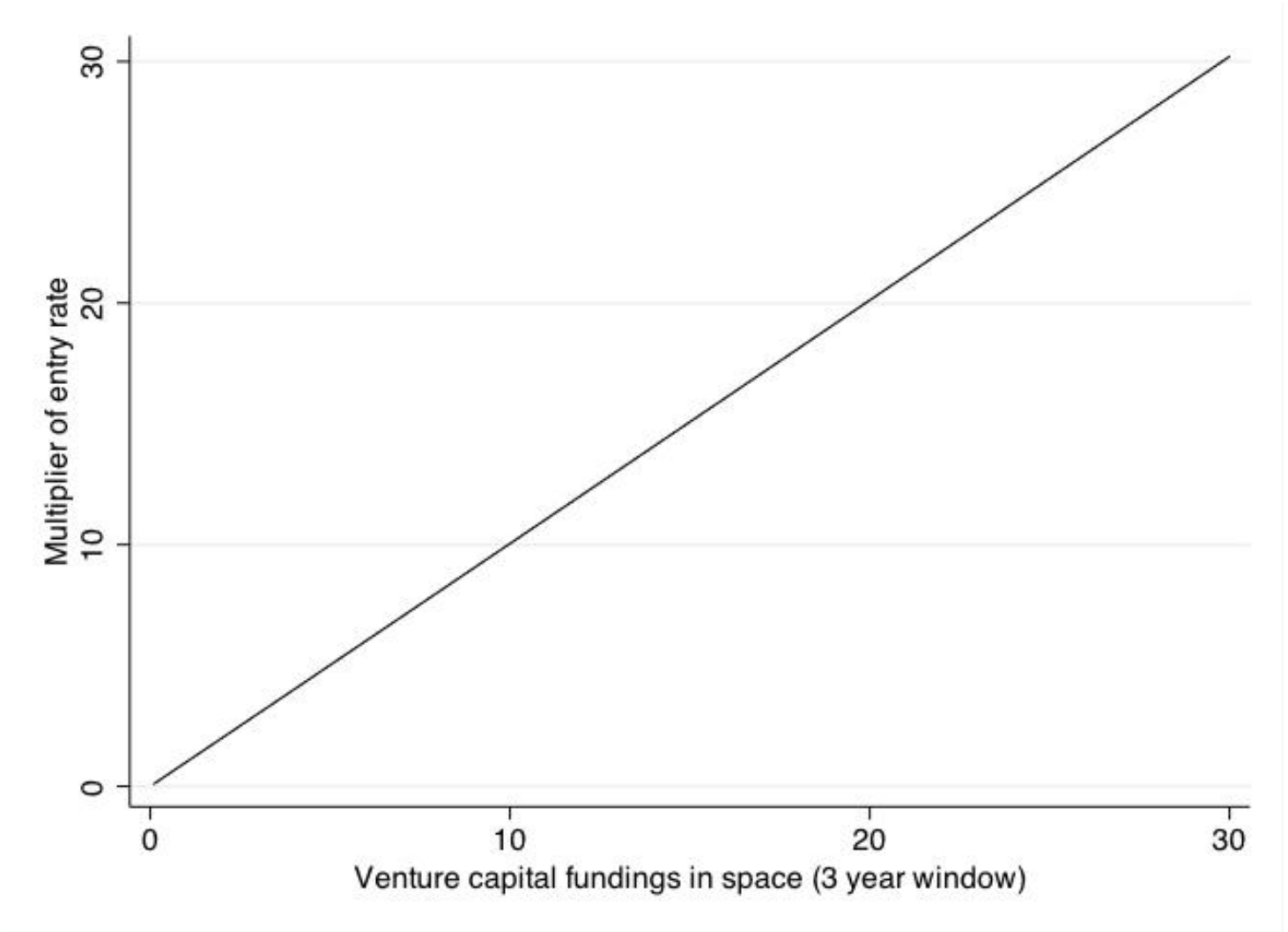

Figure 3. Predicted Effects of Entry After Vital Events on the Organization's Category Exit Rate