

# A R T I C L E S

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## UNICORNS, GAZELLES, AND OTHER DISTRACTIONS ON THE WAY TO UNDERSTANDING REAL ENTREPRENEURSHIP IN THE UNITED STATES

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**Dazed and confused by the wild hype surrounding “gazelles” and “unicorns,” entrepreneurship researchers have focused on the “black swans” of the entrepreneurial world, even though IPOs and venture capital financing of firms are extremely rare events. Despite the rarity of IPOs and obtaining venture capital, entrepreneurship conferences and journals have been filled with papers on various aspects of the process of “going public” and “VC networks.” Fortunately, in the middle of the Silicon Valley mania, other scholars have been paying attention to the more mundane aspects of business start-ups—the ordinary business starts, numbering in the hundreds of thousands for businesses with employees. The purpose of this article is to address what we believe to be scholars’ misplaced attention on the extreme and their neglect of the mundane in the study of entrepreneurship. Correcting the misperception that has been introduced through selection biases favoring growing and profitable firms will give scholars and policymakers a more accurate and policy-relevant picture of entrepreneurship in the 21st century.**

In December 1996, the number of publicly traded domestic companies in the United States reached a peak of 8,025. In the ensuing two decades, that number dropped to 4,333, down 46% from its peak (Davis, 2016). Entrepreneurship scholars, especially those studying initial public offerings (IPOs), took little notice. Bedazzled by the wild hype surrounding “gazelles” and “unicorns,” entrepreneurship researchers continued to focus on the “black swans,” even though the total IPOs in any given year would fit comfortably into a large lecture hall.<sup>1</sup> On average just over 100 U.S. firms went public annually between 2001 and 2016. Even at the peak, there were fewer

than 700 U.S. IPOs in 1996.<sup>2</sup> Venture capital (VC) financing of firms was only slightly more common, peaking at just over 6,400 deals in 2000. Nonetheless, entrepreneurship conferences and journals were filled with papers on various aspects of the process of “going public” and “VC networks.” Fortunately, in the middle of the Silicon Valley mania, other scholars were paying attention to the more mundane aspects of business start-ups—the ordinary business starts, numbering in the hundreds of thousands for businesses with employees, through the same era. The purpose of this article is to address what we believe to be scholars’ misplaced attention on the extreme and their neglect of the mundane in the study of entrepreneurship.

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<sup>1</sup> Unicorns are start-up businesses with a stock market value (or estimated value) of at least \$1 billion. Gazelles are high-growth companies, particularly those that have increased their revenues by 20% or more annually over a period of four or more years. Black swans are rare events, especially those that are random and unexpected.

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<sup>2</sup> Global IPOs have been equally subdued in recent years, consistently falling below a total of 500 since 2007 when attention is restricted to larger deals (\$100 million-plus) (Renaissance Capital, 2016a).

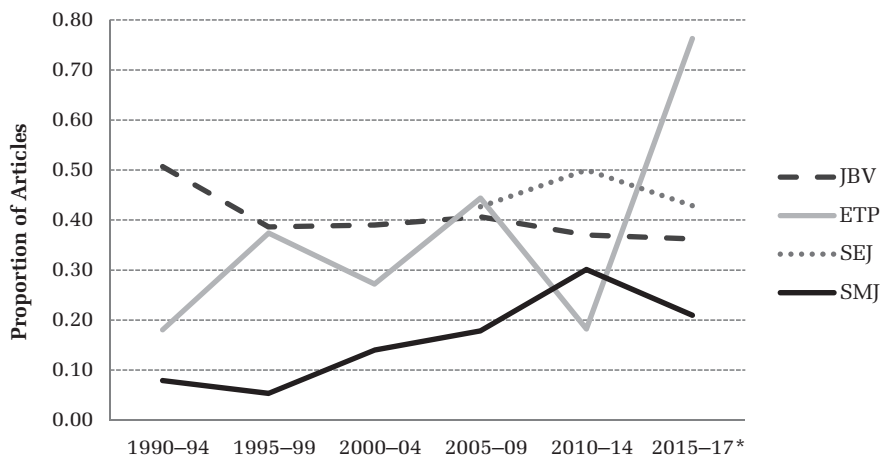
The trend toward rare events in entrepreneurship and management scholarship can be seen in Figure 1. We identified articles that included mentions of “initial public offering” or “venture capital” (or their respective abbreviations) in the full text of six journals, including the *Journal of Business Venturing* (JBV), *Entrepreneurship Theory and Practice* (ETP), the *Strategic Entrepreneurship Journal* (SEJ), and the *Strategic Management Journal* (SMJ) (see Appendix). We also examined two Academy of Management journals, the *Academy of Management Review* (AMR) and the *Academy of Management Journal* (AMJ), even though they published relatively few articles with “entrepreneurship” as their subject over this time span, because we wanted to see whether the same trends were evident in more general-interest journals.

For the journals with an entrepreneurship emphasis, Figure 1 plots articles that mentioned IPO or VC topics as a proportion of all articles published in those journals between 1990 and early 2017. The oldest entrepreneurship publication in the set, the *Journal of Business Venturing*, has shown a consistent bias toward high-capitalization businesses since its inception, with roughly 40%–50% of articles including some mention of this topic. The far younger *Strategic Entrepreneurship Journal*, started in 2007, has also been unwavering in its attention to these rare outcomes among start-ups. In contrast, the journal devoted to a less specialized audience—the *Strategic Management Journal*—published a relatively limited number of articles discussing IPOs and VCs

during the 1990s, before picking up steam and doubling that proportion in the 2000s and then quadrupling it in the early 2010s (to nearly a third of all articles). The variance for ETP has been the highest over time, but that trend line also concludes with very frequent mentions of high capitalization events. Indeed, between 2006 and 2016, we counted an average of six ETP titles or abstracts per year that referred to venture capital or initial public offerings.

Few papers published in AMR and AMJ between 1990 and 2017 concerned entrepreneurship. Including all articles, dialogues, comments, and papers in special issues, only 7% of the AMR papers and 3% of the AMJ papers were classified as having “entrepreneurship” as a subject. However, interest in entrepreneurship in those two journals picked up substantially in the past decade; more than half of the entrepreneurship papers were published between 2008 and 2017. Of the 59 entrepreneurship articles published in AMJ over the entire time span, 58% discussed IPOs and VCs, an even higher proportion than in the more specialized journals focusing on entrepreneurship. Of the 69 entrepreneurship articles published in AMR, 28% discussed IPOs and VCs, putting it slightly below three of the four specialized journals. We conclude that the obsession with IPOs and VCs manifested in specialized entrepreneurship journals was making its presence felt in more general-interest journals published by the Academy of Management.

**FIGURE 1**  
**Articles with Mentions of “IPO/Initial Public Offering” or “VC/Venture Capital” in Full Text Published in JBV, ETP, SEJ, and SMJ\***



\* Proportion is computed by dividing articles that include any mention of IPOs or VCs by total number of articles. All calculations occur over five-year intervals, except 2015-17.

These trends in scholarship might appear sensible if they were positively correlated with the occurrence of high-capitalization events for new businesses. They are not. IPOs have suffered several waves of setbacks, including ones that coincided with the bursting of the dot-com bubble after 2000, the Great Recession after 2007, and the global uncertainty of recent years (Renaissance Capital, 2016b; Ritholtz, 2015). Since 2001, VC deals have been flat, averaging roughly half their 2000 level (Dow Jones, 2016). Despite this, many entrepreneurship scholars have not wavered in their focus on large and successful firms. The infatuation with high-capitalization start-ups persists, despite their uncertain fate at the hands of the people doing the actual investing. In academia, where research time and funds are limited resources, far too much effort is devoted to understanding the handful of business start-ups that experience high growth or public offerings, and far too little effort is devoted to understanding the millions of start-ups that struggle alongside them. These business start-ups are organizations and, as such, are worthy of attention as units whose origins, growth, and survival constitute a fundamental part of the fabric of U.S. society.

Our plan is as follows. We have begun by establishing that IPOs and VC funding events are very rare, and yet entrepreneurship scholars have been paying a disproportionate share of attention to these unusual start-ups. In the next section, we identify the historical conditions and theoretical perspectives that have contributed to this myopia. Finally, we show the reader what entrepreneurship scholars tend to miss in the landscape of founders and start-ups and the kinds of perspectives and data sources that can help address those gaps. We offer several tables and figures to graphically portray our contention that entrepreneurship research needs to devote more attention to the rest of the iceberg and not just the tip.

## HISTORICAL ROOTS OF THE PROBLEM

Since the late 1970s, the academic field of entrepreneurship research has grown from groups of isolated scholars doing research on small businesses to an international community of departments, institutes, and foundations promoting research on new and high-growth firms (Aldrich, 2012). Growing numbers of knowledge producers and knowledge users now share core concepts, principles, and research methods, and a handful of highly cited scholars have emerged as thought leaders within

research subfields (Reader & Watkins, 2006; Teixeira, 2011). Landström and colleagues (2012) characterized the field as increasingly formalized and anchored in a small set of intellectual bases, although there are some signs of differentiation and fragmentation. Thus, we view the evolving system described by Landström and colleagues (2012) as an institution that has evolved within a context of institutional entrepreneurship, involving collective action by countless numbers of scholars, groups, associations, organizations, and agencies. Sometimes such collective action takes a scholarly community down the wrong path, and their view of the world becomes distorted by a few highly visible phenomena. We think that is what happened with respect to the Silicon Valley model and the entrepreneurship research community.

The development of the entrepreneurship field has much in common with the process underlying the growth of scientific/intellectual movements (SIMs), as described by Frickel and Gross (2005). A SIM is a collective effort to pursue research programs and projects while overcoming resistance from others in the scientific/intellectual community. SIMs try to produce and distribute knowledge, go beyond existing ways of approaching problems, and defeat opposition from others by taking organized collective action. The debate over what counts as “real entrepreneurship” represents one such contest. SIMs are embedded in specific historical circumstances and may attempt to alter the boundaries of existing scientific/intellectual fields, as reflected in the struggle between the traditional fields of small and family business and the emerging field of entrepreneurship over how to define their domains. In this struggle, a central paradox confronts scholars of entrepreneurship: Over the last three decades, rates of self-employment and business starts in developed economies have remained fairly flat, and were, on average, far lower than the rates observed between the 19th century and the post–World War II period (ILO, 2017; Steinmetz & Wright, 1989). Nonetheless, the golden age of entrepreneurship *research* emerged even as actual entrepreneurship entered a comparatively stagnant phase.

Three theoretical presuppositions for the analysis of SIMs are particularly relevant to the emergence of entrepreneurship as a field. First, the popularity of an idea rests not only on the extent to which it is scientifically valid, but also on social processes that institutionalize specific routes for pursuing that idea. For example, what journal reviewers and editors accept for publication validates the chosen

topics and themes as worthy of pursuit by others. Second, the ultimate shape of a SIM is contingent on the historical circumstances within which it emerges. We believe the decade of the 1990s had a major effect on the field and slanted it toward a narrower definition of entrepreneurship. The decade not only directly affected the intellectual compass of entrepreneurship research but also had an indirect impact via the dissemination of new data sources (e.g., the Venture Xpert database) and the creation of new university positions (e.g., postdoctoral fellowships and faculty appointments oriented toward high-growth enterprise). Third, the wider cultural and political environment critically affects the emergence of a SIM. Concern in the United States over economic growth, particularly employment growth, has strongly affected the field and its priorities.

In retrospect, the historical circumstances of the 1990s marked a turning point for entrepreneurship scholars as they battled for academic legitimacy in colleges and universities (Aldrich, 2012). Debates over the meaning of the terms *entrepreneur* and *entrepreneurship* were a regular feature of conference presentations and journal articles 40 years ago, and that conflict intensified during the 1990s. The divestiture movement in the 1980s broke up many large corporations, and investment money began flowing into, and creating, a market for highly capitalized new ventures. When large corporations, especially conglomerates, ruled the roost, small businesses were on the back burner. However, when the market for IPOs began to grow rapidly, new small firms were no longer consigned to the backwaters in business schools. Entrepreneurship and strategy programs began to grow.

Many of the debates in the 1990s reflected the field's attempt to distinguish itself from the field of small business studies, which had been the traditional home of people studying business start-ups.<sup>3</sup> The debate also reflected disciplinary disputes over units and levels of analysis, methods, and theoretical perspectives. Articles offering conceptual schemes, taxonomies, and typologies defining *entrepreneur* appeared regularly after the Babson College entrepreneurship conferences began in the 1980s. In a sign

that many of the contentious debates about fundamental assumptions in the field had largely been solved, the "state of the art" handbooks that had appeared every five years or so since the early 1980s stopped in 2000 (Sexton & Landström, 2000). However, the IPO and VC mania of the 1990s sparked a line of work whose flames consumed many junior authors and journal editors. Even though the IPO market is a shadow of its former self and VC financing has never been available to more than the tiniest sliver of business start-ups, effects of the 1990s conflagration are still being felt, as we argue in the remainder of this essay.

### WHAT SHOULD ENTREPRENEURSHIP SCHOLARS STUDY?

The Silicon Valley model of entrepreneurship consists of three interrelated threads that can be implicitly contrasted with a more evolutionary or emergent view. The three threads include a focus on high growth and highly capitalized firms, a focus on innovation and creativity, and in some variants, a focus on the recognition of promising opportunities. The emergence model of entrepreneurial and organizational learning that we favor certainly makes room for these three threads, but it begins with no assumptions about a new venture, beyond the fact that nascent entrepreneurs must "do something" to organize it (Aldrich & Ruef, 2006; Katz & Gartner, 1988). Unpacking the three components of the Silicon Valley model reveals the extent to which it has distorted our view of entrepreneurship.

#### Focus on High-Growth Firms

Some scholars argue that high capitalization and high-growth businesses are the proper focus of entrepreneurship studies. They distinguish such businesses from so called "lifestyle" or traditional businesses, which are purportedly founded by people content with low growth and low returns to their enterprises (Carland, Hoy, Boulton, & Carland, 1984). Some scholars implicitly equate raising large amounts of capital and taking firms public with "entrepreneurship" (Lerner, 2012; Stuart & Sorenson, 2003). In a study of 172 Silicon Valley firms often cited as a landmark in the sociological study of new ventures—the Stanford Project on Emerging Companies (SPEC)—the average firm obtained about \$2.5 million in start-up funds (Baron, Hannan, & Burton, 1999). Most received VC funding, and more than half took their firms public. Many of

<sup>3</sup> Although the small business literature does take account of the mundane businesses that we believe deserve more attention, it is mostly focused on existing businesses rather than the genesis of new ones. By contrast, the family business literature tends to focus on larger and longer-lived businesses, but again does not pay much attention to the genesis of new businesses.

the concepts and generalizations based on this study made their way into the organizations literature, such as the concept of employment models, despite the highly unrepresentative nature of such a sample. Such studies reinforce the idea that “entrepreneurship” means starting a business with lots of funding from outside investors, scaling up rapidly, and then taking the venture public. But the odds of any start-up following this path are infinitesimally small, even for firms in Silicon Valley.

High-growth and highly capitalized firms are certainly attractive entities to study, but confining studies of entrepreneurship and entrepreneurial ventures to high-growth companies introduces a strong selection bias into research (McKelvie & Wicklund, 2010). Growth is an outcome of an uncertain process, and research has shown that it is difficult to predict which firms will grow (Guzman & Stern, 2015). For example, PC Connection, a computer software firm, began in 1982 with \$8,000 in a small town in rural New Hampshire, and despite its humble beginnings grew to sales of about \$300 million by 1995 (Chura, 1995). Many eventual Silicon Valley unicorns began in garages, basements, or college dormitory rooms. Moreover, regardless of their intentions, most entrepreneurs create short-lived ventures. Even highly capitalized firms run into problems they cannot overcome, as the Internet dot-com bust in 2000 demonstrated. Understanding which activities lead to successful start-up and growth, in varying environments, requires that researchers cast as wide a net as possible, beginning with even very modest and unlikely start-up efforts.

For example, the Panel Study on Entrepreneurial Dynamics (PSED) was explicitly designed to study a nationally representative sample of new businesses and entrepreneurial teams. Prior to the PSED, research on entrepreneurship was constrained by the difficulties of obtaining representative samples. Beginning in the early 1990s, Reynolds and his collaborators demonstrated that it was possible to rigorously identify nascent entrepreneurs who were attempting to start new businesses (Reynolds & Curtin, 2009). The resulting panel research design was eventually called the PSED I. Based on what investigators learned from that study, an improved research design was created for PSED II, with more effective screening questions for identifying entrepreneurs and their co-owners.

The research design for the PSED II consisted of two phases. In the first phase, in 2005, a representative sample of 31,845 individuals living in the contiguous 48 states and the District of Columbia were

screened to identify nascent entrepreneurs. Opinion Research Corporation (ORC) phoned households as part of a national survey that involved contacting 1,000 adults (500 females and 500 males 18 years of age or older) each week. When an adult was identified and agreed to respond to the survey, a screening interview was conducted to identify nascent entrepreneurs, using a set of three general qualification questions. If respondents said yes to at least one of the three questions, three additional questions were used to ascertain whether respondents had taken any action in creating a new business, whether they would share ownership of the new businesses, and whether the new businesses had become fledgling firms. About 87% (1,214) of those identified as entrepreneurs agreed to participate in the study (Reynolds & Curtin, 2009).

In the second phase, the University of Michigan Institute for Social Research conducted full interviews to collect information on all the entrepreneurs. The data set has subsequently been used to study the gendered nature of control in new businesses (Yang & Aldrich, 2014), the role of wealth in sustaining the start-up process (Frid, Wyman, & Coffey, 2016), and the importance of constructing effective organizational boundaries in start-up survival, among other things (Yang & Aldrich, 2017). Because it is a representative sample of all business start-up attempts in the United States, we can have great confidence that its results generalize. Given the mania around VC and other forms of outside financing, the PSED estimates regarding the involvement of businesses and financial intermediaries as owners in average start-ups are particularly instructive. In both the late 1990s and in 2005–06, the overwhelming majority of owners (97%–98%) in these new businesses were individuals acting on their own behalf. In the PSED II, VC firms accounted for only a meager 0.3% of owners in U.S. business start-ups (Ruef, 2010, p. 63).

The issue of representativeness in research extends not only to investment and financial returns but also to the effects of entrepreneurship on employment. The SPEC study and mass media accounts have highlighted the number of workers employed in high-growth business start-ups and their career opportunities. But a relatively small percentage of average start-ups hire employees, and those that do tend to contribute to high levels of employment “churn” as a function of the short life of new business establishments. Table 1 summarizes the employment created and destroyed by establishment births and deaths in the U.S. for two annual cycles, one

**TABLE 1**  
**Volatility in the U.S. Business Employer Population (Private-Sector Establishments)**

	Births	Deaths	# employees for births	# employees for deaths
2nd qtr., 2005	232,000	192,000	964,000	845,000
3rd qtr., 2005	236,000	195,000	1,005,000	885,000
4th qtr., 2005	236,000	200,000	988,000	850,000
1st qtr., 2006	236,000	195,000	949,000	767,000
2nd qtr., 2013	222,000	215,000	791,000	695,000
3rd qtr., 2013	219,000	195,000	824,000	681,000
4th qtr., 2013	215,000	186,000	805,000	672,000
1st qtr., 2014	220,000	189,000	779,000	630,000

Source: Business Employment Dynamics (BED) Data Series, 2016, *Entrepreneurship and the U.S. Economy*. Washington, DC: Bureau of Labor Statistics.

before the Great Recession (2005–06) and one several years afterward (2013–14). During each annual cycle, almost a million new establishments with employees were created and each employed around four workers, all contributing to seemingly large numbers in the aggregate. But about half of the new establishments were created by *existing* firms, and the other half-million represented only a small fraction of the 7 million business start-ups attempted each year (Reynolds & Curtin, 2009). Moreover, there has been a notable decline in employees *per employer establishment*, with a roughly 13% decrease over this short eight-year interval. With less than half an employee on average (combining employer and non-employer businesses), the typical start-up attempt is now dwarfed by the employees in iconic cases of entrepreneurship studied in business schools, such as Google (72,000 employees), Apple (66,000 in the United States), and Facebook (17,000).

The consequences of a disproportionate focus on high-growth firms include a set of myths that are perpetuated by business case studies and some entrepreneurship scholars. One is that liquidity constraints constitute a major barrier to entry for start-ups. Even though financial assets are generally not associated with significant differences in rates of entrepreneurial entry (Kim, Aldrich, & Keister, 2006), the majority of start-up efforts begin with \$5,000 or less in capitalization (Ruef, 2010), and external funding from fickle investors tends to *increase* the risk of disbanding (Ruef, 2002). Another consequence of a disproportionate focus on high-growth firms is that employment models and start-up culture are a major source of consideration among start-up founders. Instead, it is far more likely that participants will be cobbled together from a founder's family members, friends, and existing business associates. Finally, the emphasis on high-growth enterprises

contributes to a view of entrepreneurs as unusual, even heroic, personalities. Yet roughly 40% of U.S. men experience a spell of self-employment or entrepreneurial activity before retirement age (Arum & Mueller, 2004).

### Focus on Innovative Activity

Based on their readings of Schumpeter, other scholars have argued that entrepreneurship should focus on innovative activity and the process by which innovations lead to new products and new markets (e.g., Schumpeter, 1911 and 2011). For example, business strategy authors often use the term “entrepreneurial” in referring to managers and executives who take innovative action in established firms, associating it with “corporate venturing,” “intrapreneurship,” and similar neologisms (Kanter, 1989). Note that “creative” does not necessarily mean “innovative” (Aldrich & Martinez, 2015). In contrast to “creativity,” which is defined as the capacity to generate novel ideas, innovation is about the translation of those ideas into viable and successful products, processes, systems, and institutions. Innovation thus represents the realization of the potential latent in creative ideas. Innovation does not necessarily mean the creation of something that is new to the world, but rather only something new for the individuals or organizations attempting to bring it to life.

Entrepreneurs would seem to have more opportunities for creativity and innovation than people working within established organizations (Aldrich & Martinez, 2015). First, they are free from the bureaucratic strictures of firms that suppress creativity and innovation. By enacting their efforts outside established structures, they are not subject to path dependency through bureaucratic mechanisms (McMullen & Shepherd, 2006). Second, some

researchers argue that entrepreneurs of necessity have to make do with whatever resources they have, following the principles of bricolage, and thus are driven to find creative ways to satisfy their needs with whatever they can cobble together (Baker, Miner, & Easley, 2003; Baker & Nelson, 2005; Desa, 2012). Based on these principles, it would seem reasonable to expect that we could use the presence of innovation as a marker for entrepreneurship and entrepreneurial firms.

However, using the degree of “innovativeness” to define entrepreneurship poses two problems for the field, one methodological and the other substantive. First, from a research design perspective, using degree of innovativeness as a criterion for picking entrepreneurs and entrepreneurial ventures to study once again introduces selection bias into research in much the same way as if we were to focus only on high-growth firms. Innovation is typically a classification of activities as new to a particular set of users and a particular environment, and is thus relative to existing conditions (Rogers, 1995). A priori, it is difficult to classify which acts are innovative and which are not until they have been introduced and others’ reactions gauged. Over his intellectual career, Schumpeter himself displayed a considerable change in perspective in what he viewed as the typical character of organizational innovation. In his *Theory of Economic Development* (Schumpeter, 1911/2011, p. 66), he posited that “new combinations are, as a rule, embodied . . . in new firms which generally do not arise out of the old ones but start producing beside them.” But 30 years later, when he completed *Capitalism, Socialism, and Democracy* (Schumpeter, 1942), he suggested that the innovative “entrepreneurial function” was increasingly being conducted within large established firms. An a priori approach that samples only innovative firms would be ill-equipped to say which of Schumpeter’s views is empirically correct (i.e., whether firm size and age are positively or negatively associated with innovative capacity).

If we want to understand the contingencies affecting a firm’s degree of innovativeness, then our sample must first include all firms at risk of being innovative, which requires a representative sample. From an evolutionary point of view, most variations, even most intentional variations, are likely to be inferior to variations that have previously been selected and retained (Aldrich & Ruef, 2006). In cases of radical changes in environments, it is quite likely that a high proportion of creative variations will be selected against. From a public policy point of view,

perhaps the most important question to address is what differentiates the firms that survived from those that exited. To answer that question, we need a representative sample of all start-ups, not just the most innovative ones.

Second, limiting the field to defining entrepreneurship as innovation deflects attention away from models of institutional structures and entrepreneurial ecosystems that link the study of entrepreneurship to organization and management studies. One of the most widely used perspectives on organizations, new institutional theory, offers not only an explanation for conditions constraining entrepreneurial innovation but also for those conditions facilitating innovations (Hargardon & Douglas, 2001; Meyer & Rowan, 1977; Scott, 2013). Using new institutional theory helps us appreciate how infrequent truly radical entrepreneurial innovation is, while at the same time helping us understand the difficulties facing entrepreneurs with innovative intentions.

When entrepreneurs begin the process of organizing their new ventures, they encounter contexts in which other people—vendors, investors, employees, customers, regulators, and so forth—already have their own expectations concerning entrepreneurship and the practices, processes, and products they will be offered (Aldrich & Martinez, 2015). Such expectations will constrain, to some extent, entrepreneurial creativity and innovation. Of course, those expectations might also educate entrepreneurs by showing them what they are supposed to do, depending on the context. Many of these expectations come from institutions, which are collections of stable rules and roles with a corresponding set of meanings that constrain actions (Czarniawska, 2008), leading humans to select activities based on their appropriateness, rather than on more technical but potentially less appropriate criteria (Biggart & Beamish, 2003).

Institutional environments have powerful effects on individuals, and it would be theoretically implausible to posit that innovative activity occurs frequently, even in favorable environments such as Silicon Valley. Institutional theory’s view is a set of assumptions about the extent to which habits and heuristics make humans highly susceptible to their surroundings. Accumulated evidence documents that much of human behavior is driven by habits and reactions to context-specific cues, rather than by contemplative forethought (Dalton, 2004; Dequech, 2013; Hodgson, 2004; Wood, Quinn, & Kashy, 2002). Habits are dispositions to act in specific ways under

certain conditions, and they play an important role in how people respond to new situations. Thus, building a more realistic understanding of entrepreneurs and entrepreneurship requires understanding why institutional forces have such strong effects on the process of starting new ventures (Aldrich & Martinez, 2015). Continuing to favor an innovation view of entrepreneurship thwarts the development of more plausible and realistic models in which most of the people, most of the time, are stuck in familiar grooves, cutting them deeper.

### Focus on Opportunity Recognition/Formation

Following Kirzner (1997), some scholars have argued that opportunity recognition or opportunity formation constitutes the heart of entrepreneurship and entrepreneurial activities (Shane & Venkataraman, 2000). From this perspective, the critical issue is not initial capitalization but rather the ability of some individuals to detect potentially valuable opportunities overlooked by others. Stevenson and Gumpert (1985), for example, defined entrepreneurship as the pursuit of opportunities without regard to resources currently controlled. This view accords with the outlook of investors and business strategy theorists, who often talk of the importance of future considerations, such as prospective market size, in funding ventures.

Two distinct positions on entrepreneurial opportunities have emerged in the past several decades. First, the discovery view (or the individual/opportunity nexus view) argues that opportunities for entrepreneurial profits have an objective existence, independent of human activity, and can be discovered and exploited by skillful entrepreneurs (Shane & Venkataraman, 2000). Although Kirzner (1997) is often cited as the source of this position, Foss and Klein (2017, p. 3) pointed out that Kirzner had always made it clear that “entrepreneurial discovery is a metaphor or analytic device, not an ontological claim.” Nevertheless, scholars pursuing the discovery view treat the opportunity-recognition process as unfolding in much the same way as natural resource prospectors search for coal or oil. If they refine their search process and possess enough entrepreneurial alertness (Kirzner, 1973) to obtain the valuable information they need, eventually the prospectors will be rewarded.

Second, the creation view drops the idea that opportunities exist independently, waiting to be discovered, and instead takes a social constructionist or evolutionary realist view (Aldrich & Kenworthy, 1999; Aldrich & Ruef, 2006; Alvarez, Barney, &

Anderson, 2013). Focus shifts from discovering something to conceptualizing and executing a plan to bring a profit opportunity into existence. Opportunities are thus formed endogenously by entrepreneurs who create them, rather than exogenously by economic forces that drive markets and industries. Theorists associated with the creation view (e.g., Alvarez et al., 2013, p. 302) accept a fundamental assumption of the discovery view in their description of opportunities as being a result of competitive imperfections in a market, a position that is common in economics. They differ from those using a discovery view, however, because they argue that entrepreneurs must use their skills to disturb the market equilibrium, thus creating opportunities, and then turn those opportunities into fruitful ventures.

From the inception of the opportunity recognition perspective, critics have pointed to its weaknesses. Opportunity discovery scholars work with the implicit assumption that the domain of potential opportunities studied includes those that could lead to business start-ups (Fiet, 2002). The perspective seems to endow some entrepreneurs with extraordinary cognitive powers. For example, Shane and Venkataraman (2000, p. 220) argued that “although recognition of entrepreneurial opportunities is a subjective process, the opportunities themselves are objective phenomena that are not known to all parties at all times.” Researchers must then discover what distinguishes those who recognize opportunities from those who do not. More generally, a major problem for organization theorists has been the pervasive belief that “discovery” explanations for entrepreneurial achievements must be sought in cognitive traits, such as achievement motivation and self-confidence. Unfortunately, for theorists pursuing this avenue of investigation, such traits are widely shared and do not differentiate between entrepreneurs and other people. Moreover, some traits traditionally associated with entrepreneurial activity—such as financial risk tolerance—are *more* common in the general population than among nascent entrepreneurs (Xu & Ruef, 2004).

The creation view of opportunities has fared better at the hands of critics, as research on it has continued to evolve in the direction of a more evolutionary and sociological perspective on entrepreneurship. In their comprehensive review of the differences between the two opportunity views, Alvarez and colleagues (2013) argued that “creation” should be seen as an evolutionary process in which enacted opportunities are formed endogenously by entrepreneurs seeking to exploit them. Drawing on the



work of Weick (1969), Campbell (1969), and Aldrich and Ruef (2006), they emphasized that entrepreneurs are working in uncertain contexts in which neither outcomes nor probabilities of success are well defined. Their model embeds the opportunity creation process in a realistic social psychology of humans as entrepreneurs and takes account of the institutional context in which entrepreneurs operate (Aldrich, 2010). If widely adopted as an alternative to the discovery view, it would be a substantial corrective to the biases we have described above.

### Focus on What Entrepreneurs Do

In contrast to these three views concerning what entrepreneurship scholars should focus on, some researchers counsel focusing on what it is that entrepreneurs are trying to do, which is to found a new organization. From this perspective, entrepreneurs are people who create new social entities. This view fits the conventional use of the term *entrepreneur*, referring to those who found an organization, regardless of its size. For example, in his review of the literature on the supposed traits of entrepreneurs, Gartner (1988) argued that entrepreneurship should be studied by focusing on the behaviors and activities of people trying to create businesses, rather than on their psychological states and personality characteristics. These start-up activities often do not culminate in success. Looking at the PSED II, most individuals (95%) who say they are “trying to start a business” have involved others in the process or hope to do so over a five-year time horizon (Ruef, 2010, pp. 10–11). This seems to be one important criterion that distinguishes the effort among these business founders to create a new social entity rather than engage in mere self-employment. Of course, many of the activities that seek to bring others into the organizing process end in frustration for average entrepreneurs.

Similarly, in a rebuttal to Ramoglou and Tsang’s (2017) proposal for a middle ground between the discovery and creationist views, Foss and Klein (2017) argued that the real middle ground would be a perspective based on the literatures in judgment (Kahneman, 2003) and effectuation (Sarasvathy, Menon, & Kuechle, 2013). Those literatures emphasize humans as struggling to do the best they can under conditions of uncertainty, making experimental forays and occasionally learning from their mistakes. Foss and Klein (2017) argued that invoking notions of opportunity creation and formation introduces unnecessary redundancy into the study of

entrepreneurship, because opportunities do not exist independent of entrepreneurial actions, and it is not opportunities that are formed but rather new ventures that are struggling to make sense of their environments as they compete for customers, revenue, supporters, and participants.

### WHAT TO DO NEXT?

In nearly all modern capitalist economies, people see business ownership as a desirable and feasible status. Positive conceptions of entrepreneurs and entrepreneurship have been pervasively diffused because multiple institutions—the media, education systems, governments, and public opinion—have bolstered the cultural appeal and social legitimacy of creating new businesses. Cross-national studies have found that millions of people participate in new venture creation every year, although there is large variation in start-up rates across countries (Blanchflower, Oswald, & Stutzer, 2001; Kelley, Bosma, & Amoros, 2011). Tellingly, some of the highest rates of adult participation in total early-stage entrepreneurial activity (TEA) are found in those countries that are least studied by entrepreneurship scholars. Thus, researchers tend to focus on the United States, where about 13% of adults are involved in entrepreneurial activity, or on Western European countries such as France, Germany, and Italy, where the number is closer to 5% (Global Entrepreneurship Monitor, 2017); far fewer entrepreneurship scholars have devoted much attention to the Global South, where countries such as Ecuador (32% TEA) and Burkina Faso (34%) exhibit extraordinarily high rates of entrepreneurial activity.

Concomitantly, large numbers of start-up attempts are matched by equally large numbers of failed efforts (Levie, Gavin, & Leleux, 2011; Sadeghi, 2008). Despite the positive valuation people place on creating a successful venture, most attempts are abandoned after a few years; only a minority survive and succeed in becoming profitable entities. As Loasby (2007, pp. 1104–1105) noted, “Though entrepreneurship is purposeful, it is an evolutionary process of trial and error; and error is more likely than success.” We think the field of entrepreneurship research should reflect such turbulence rather than being skewed by focusing on unicorns, gazelles, and other rare creatures, which also inhabit the most unusual ecosystems (i.e., high-tech agglomerations within advanced industrial countries).

Given the problems posed by the first three perspectives’ focus on the rare and unusual, we suggest

reframing the issue of emergence by focusing on questions suggested by the fourth perspective, involving entrepreneurial and organizational learning under uncertainty. First, through what process do founders construct new organizations? Organizations, as we have defined them (Aldrich & Ruef, 2006), are goal-directed boundary-maintaining activity systems, and organizational founders must attend to all three components of this definition in constructing an organization. A scheme for analyzing organizational emergence builds on the pioneering work of Katz and Gartner (1988), whose achievement was to drive home the point that organizational emergence is not a linear, step-by-step process. Indeed, they noted that the boundary between preorganization and organization is ambiguous and suggested four criteria for identifying when an organization comes into existence: (1) intentionality, perhaps as reflected in stated goals; (2) mobilization of necessary resources; (3) coalescence of boundaries, such as through formal registration and naming of the entity; and (4) the exchange of resources with outsiders. Emergence involves uneven development along several lines, any one of which might be stopped well short of an organization's successful founding. Treating entrepreneurship as the creation of new organizations changes the focus of entrepreneurship research from studying outcomes to studying the initiation of organizing processes that could result in new social entities.

Using an evolutionary perspective, we can investigate what makes the situation of entrepreneurs starting new ventures different from that of managers in established firms in their learning and knowledge (Aldrich & Yang, 2013). Unlike managers in established organizations, who generally follow or modify preexisting routines selected by others, entrepreneurs begin with mostly a blank slate. They must initiate rules or principles and experiment with them until they find the most effective or appropriate ones for their new businesses. Entrepreneurs who begin with inadequate knowledge or experience will feel strong pressure toward learning by doing. Entrepreneurs who have acquired routines or organizing procedures from existing workplaces may find it easier to muddle through the initial stages, but nonetheless they must learn to anticipate and cope with environmental changes.

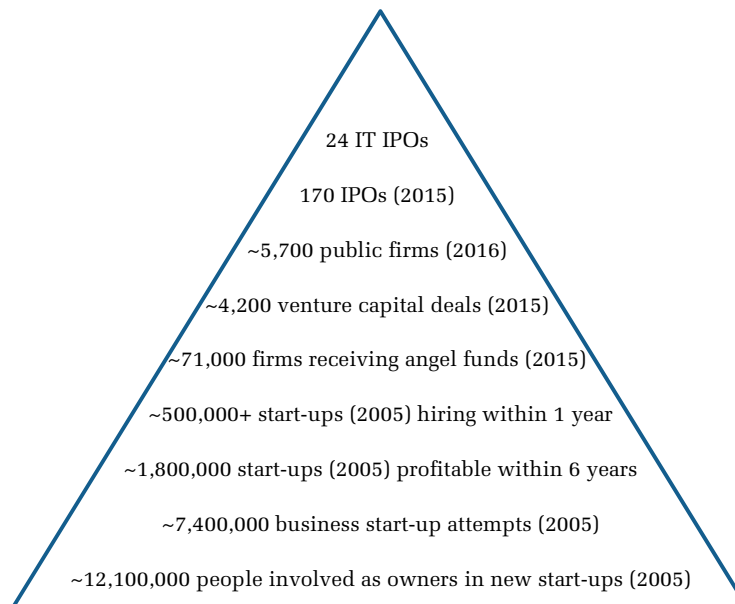
Entrepreneurial learning must therefore be understood in dynamic terms, through a life course perspective (Elder, Johnson, & Crosnoe, 2006). From

the viewpoint of the people involved, the issue is one of entrepreneurial learning, and from the viewpoint of the organizations they attempt to create, the issue is one of organizational learning. Recent developments in the study of organizational routines and organizational learning have gone a long way toward adding a dynamic dimension to our theories (Becker & Lazaric, 2009; Rerup & Feldman, 2011). We suggest focusing on the emergence of new organizations and the way in which entrepreneurs draw on their previous experience as well as the conditions they encounter during the start-up process.

Second, what selection processes affect whether new organizations reproduce or depart from existing organizational forms, routines, and competencies? This question raises a perplexing methodological issue for anyone using current research findings. Organizations need founders. But organizations cannot recruit them, because organizations do not exist until founders construct them. Thus, we typically identify founders only *after* we have already identified their organizations. If we study entrepreneurs only after their organizations have attracted enough public notice to be included in standard sampling frames, we overlook a critical phase in the founding process (Aldrich, Kalleberg, Marsden, & Cassell, 1989). At that point, selection processes have winnowed out many interesting variations. We also miss the process by which new organizations with innovative routines and competencies set in motion the genesis of new populations.

For entrepreneurship in the United States, the winnowing process can be illustrated by a pyramid showing a progressive falloff in numbers from bottom to top, which begins with start-ups as an everyday occurrence and ends with the kinds of rare high-capitalization businesses that dominate the pages of entrepreneurship journals and the business media (see Figure 2). Before the Great Recession, roughly 12 million entrepreneurs were involved as equity participants in seven million start-up attempts (Reynolds & Curtin, 2009). Only a fraction of those start-ups eventually became profitable or hired employees (Reynolds, 2016). The firms receiving angel funds are roughly 1 in 100 among the start-up attempts (Center for Venture Research, 2015), and VC deals are even less common by an order of magnitude (moreover, many of those VC deals entail follow-up funding to the unusual firms that have already been financed). Once we get to IPOs in general and information technology IPOs in particular—that is, the land of unicorns and

**FIGURE 2**  
**Many Businesses Are Created, but Few Become Unicorns and Black Swans**



Sources: Reynolds and Curtin (2009); Reynolds (2016); Center for Venture Research (2015); (Ritholtz, 2015); (Dow Jones, 2016); (Renaissance Capital, 2016b).

gazelles—we have winnowed the initial range of start-up attempts to approximately 1 in 50,000.

## DISCUSSION

Our contributions have been threefold. First, analyzing historical data since the 1990s, we have demonstrated that even though scholars publishing in the major journals on entrepreneurship pay a disproportionate amount of attention to these unusual start-ups, IPOs and VC funding events are very rare. Second, we have identified the historical conditions and theoretical perspectives that have contributed to this myopia, with the resulting focus on growth, innovation, and opportunity recognition being especially problematic. Finally, we have shown what entrepreneurship scholars tend to miss in the landscape of founders and start-ups and the kinds of perspectives and data sources that can help address those gaps.

We have not attempted to add new theory to the field, as we think the problem is not an absence of theory but rather a misallocation of theoretical resources toward explaining rare events. Consequently, our purpose has been to shift the empirical emphasis in entrepreneurship scholarship. We urge entrepreneurship researchers to pay more attention

to the mundane and the ordinary, and to avoid emphasizing the rarefied stratum of new ventures that has caused so much misunderstanding. Just as research in the biological sciences has been greatly advanced by studying simple organisms, such as the common fruit fly, entrepreneurship research would benefit from an emphasis on average start-ups rather than creatures that are more exotic (e.g., high-growth gazelles) or even mythical (billion-dollar unicorns). An increasing array of methodological tools and data sets are available that permit an investigation of the entrepreneurial dynamics at the bottom of the pyramid.

We have already described the research design used to create the Panel Study of Entrepreneurial Dynamics, a model that has been replicated in numerous countries. Other researchers have increasingly turned to longitudinal databases that cover all labor market activity in a country, such as the Longitudinal Integration Database for Health Insurance and Labor Market Statistics in Sweden (LISA) or the Integrated Database for Labor Market Research in Denmark (IDA). As entrepreneurship scholars make use of such nationally representative samples or censuses of business start-ups in their research, we would expect to see greater balance in the literature on start-ups and growth. Not only do

most new businesses not grow, but more than half do not even survive for more than a few years (Frid et al., 2016; Yang & Aldrich, 2017). Correcting the misperception that has been introduced into the literature by selection biases favoring growing and profitable firms will give scholars and policymakers a more accurate and policy-relevant picture of entrepreneurship in the 21st century.

## REFERENCES

- Aldrich, H. E. (2010). Beam me up, Scott(ie): Institutional theorists' struggles with the emergent nature of entrepreneurship. In W. D. Sine & R. J. David (Eds.), *Institutions and entrepreneurship* (Vol. 21, pp. 329–364). Bingley, UK: Emerald Group Publishing.
- Aldrich, H. E. (2012). The emergence of entrepreneurship as an academic field: A personal essay on institutional entrepreneurship. *Research Policy*, 41(7), 1240–1248.
- Aldrich, H. E., Kalleberg, A. L., Marsden, P. V., & Cassell, J. (1989). In pursuit of evidence: Strategies for locating new businesses. *Journal of Business Venturing*, 4(6), 367–386.
- Aldrich, H. E., & Kenworthy, A. (1999). The accidental entrepreneur: Campbellian antinomies and organizational foundings. In J. A. C. Baum & B. McKelvey (Eds.), *Variations in organization science: In honor of Donald T. Campbell* (pp. 19–33). Newbury Park, CA: Sage.
- Aldrich, H. E., & Martinez, M. A. (2015). Why aren't entrepreneurs more creative? Conditions affecting creativity and innovation in entrepreneurial activity. In C. E. Shalley, M. A. Hitt, & J. Zhou (Eds.), *The Oxford handbook of creativity, innovation, and entrepreneurship: Multilevel linkages* (pp. 445–456). Oxford, UK: Oxford University Press.
- Aldrich, H. E., & Ruef, M. (2006). *Organizations evolving* (2nd ed.). London: Sage.
- Aldrich, H. E., & Yang, T. (2013). How do entrepreneurs know what to do? Learning and organizing in new ventures. *Journal of Evolutionary Economics*, 24(1), 59–82.
- Alvarez, S. A., Barney, J. B., & Anderson, P. (2013). Forming and exploiting opportunities: The implications of discovery and creation processes for entrepreneurial and organizational research. *Organization Science*, 24(1), 301–317.
- Arum, R., & Mueller, W. (2004). *The reemergence of self-employment: A comparative study of self-employment dynamics and social inequality*. Princeton, NJ: Princeton University Press.
- Baker, T., Miner, A. S., & Easley, D. T. (2003). Improvising firms: Bricolage, account giving and improvisational competencies in the founding process. *Research Policy*, 32(2), 255–276.
- Baker, T., & Nelson, R. E. (2005). Creating something from nothing: Resource construction through entrepreneurial bricolage. *Administrative Science Quarterly*, 50(3), 329–366.
- Baron, J. N., Hannan, M. T., & Burton, D. M. (1999). Building the iron cage: Determinants of managerial intensity in the early years of organizations. *American Journal of Sociology*, 64, 527–547.
- Becker, M. C., & Lazaric, N. (Eds.). (2009). *Organizational routines: Advancing empirical research*. Cheltenham, UK: Edward Elgar.
- Biggart, N., & Beamish, T. (2003). The economic sociology of conventions: Habit, custom, practice, and routine in market order. *Annual Review of Sociology*, 29, 443–464.
- Blanchflower, D. G., Oswald, A., & Stutzer, A. (2001). Latent entrepreneurship across nations. *European Economic Review*, 45(4-6), 680–691.
- Campbell, D. T. (1969). Variation and selective retention in socio-cultural evolution. *General Systems*, 14, 69–85.
- Carland, J. W., Hoy, F., Boulton, W. R., & Carland, J. A. C. (1984). Differentiating entrepreneurs from small business owners: A conceptualization. *Academy of Management Review*, 9, 354–359.
- Center for Venture Research. (2015). *The angel investor market in 2015: A buyer's market*. Durham, NH: University of New Hampshire.
- Chura, H. (1995, September 17). Computer software visionary makes millions. *Raleigh News & Observer*, 4F.
- Czarniawska, B. (2008). How to misuse institutions and get away with it: Some reflections on institutional theory(ies). In R. Greenwood, C. Oliver, R. Suddaby, & K. Sahlin (Eds.), *The Sage handbook of organizational institutionalism* (pp. 769–782). Los Angeles, CA: Sage.
- Dalton, B. (2004). Creativity, habit, and the social products of creative action: Revising Joas, incorporating Bourdieu. *Sociological Theory*, 22(4), 603–622.
- Davis, G. F. (2016). *The vanishing American corporation: Navigating the hazards of a new economy*. Oakland, CA: Berrett-Koehler Publishers.
- Dequech, D. (2013). Economic institutions: Explanations for conformity and room for deviation. *Journal of Institutional Economics*, 9(1), 81–108.
- Desa, G. (2012). Resource mobilization in international social entrepreneurship: Bricolage as a mechanism of institutional transformation. *Entrepreneurship Theory and Practice*, 36(4), 727–751.
- Dow Jones. (2016). *Venture capital report 2016 U.S. Q1*. New York: Author.
- Elder, G. H., Johnson, M. K., & Crosnoe, R. (2006). The emergence and development of life course theory. In

- J. Mortimer & M. Shanahan (Eds.), *Handbook on the life course* (pp. 3–24). New York: Springer.
- Fiet, J. O. (2002). *The systematic search for entrepreneurial discoveries*. Westport, CT: Quorum Books.
- Foss, N., & Klein, P. G. (2017). Entrepreneurial discovery or creation? In search of the middle ground. *Academy of Management Review*, 42(4), 735–737.
- Frickel, S., & Gross, N. (2005). A general theory of scientific/intellectual movements. *American Sociological Review*, 70(2), 204–232.
- Frid, C. J., Wyman, D. M., & Coffey, B. (2016). Effects of wealth inequality on entrepreneurship. *Small Business Economics*, 47(4), 895–920.
- Gartner, W. B. (1988). “Who is an entrepreneur?” is the wrong question. *American Journal of Small Business*, 12(4), 11–32.
- Global Entrepreneurship Monitor. (2017). *Global report 2016/17*. Boston, MA: Global Entrepreneurship Research Association.
- Guzman, J., & Stern, S. (2015). Where is Silicon Valley? *Science*, 347(6222), 606–609.
- Hargardon, A. B., & Douglas, Y. (2001). When innovations meet institutions: Edison and the design of the electric light. *Administrative Science Quarterly*, 46(3), 476–501.
- Hodgson, G. M. (2004). Reclaiming habit for institutional economics. *Journal of Economic Psychology*, 25(5), 651–660.
- ILO. (2017). *ILOSTAT*. Geneva, Switzerland: International Labour Organization.
- Kahneman, D. (2003). A perspective on judgment and choice: Mapping bounded rationality. *American Psychologist*, 58(9), 697–720.
- Kanter, R. M. (1989). *When giants learn to dance: Mastering the challenge of strategy, management, and careers in the 1990s*. New York: Simon and Schuster.
- Katz, J., & Gartner, W. B. (1988). Properties of emerging organizations. *Academy of Management Review*, 13(3), 429–441.
- Kelley, D. J., Bosma, N., & Amoros, J. E. (2011). *Global entrepreneurship monitor: 2010 global report*. Babson Park, MA: Global Entrepreneurship Research Association.
- Kim, P. H., Aldrich, H. E., & Keister, L. A. (2006). Access (not) denied: The impact of financial, human, and cultural capital on entrepreneurial entry in the United States. *Small Business Economics*, 27(1), 5–22.
- Kirzner, I. (1973). *Competition and entrepreneurship*. Chicago, IL: University of Chicago Press.
- Kirzner, I. M. (1997). Entrepreneurial discovery and the competitive market process: An Austrian approach. *Journal of Economic Literature*, 35(1), 60–85.
- Landström, H., Harirchi, G., & Åström, F. (2012). Entrepreneurship: Exploring the knowledge base. *Research Policy*, 41(7), 1154–1181.
- Lerner, J. (2012). *Boulevard of broken dreams: Why public efforts to boost entrepreneurship and venture capital have failed—and what to do about it*. Princeton, NJ: Princeton University Press.
- Levie, J., Gavin, D., & Leleux, B. (Eds.). (2011). *The new venture mortality myth*. Cheltenham, UK: Edward Elgar.
- Loasby, B. J. (2007). A cognitive perspective on entrepreneurship and the firm. *Journal of Management Studies*, 44(7), 1078–1106.
- McKelvie, A., & Wicklund, J. (2010). Advancing firm growth research: A focus on growth mode instead of growth rate. *Entrepreneurship Theory and Practice*, 34(2), 261–288.
- McMullen, J., & Shepherd, D. A. (2006). Entrepreneurial action and the role of uncertainty in the theory of the entrepreneur. *Academy of Management Review*, 31(1), 132–152.
- Meyer, J. W., & Rowan, B. (1977). Institutionalized organizations: Formal structure as myth and ceremony. *American Journal of Sociology*, 83(2), 340–363.
- Ramoglou, S., & Tsang, E. (2017). In defense of common sense in entrepreneurship theory: Beyond philosophical extremities and linguistic abuses. *Academy of Management Review*, 42(4), 736–744.
- Reader, D., & Watkins, D. (2006). The social and collaborative nature of entrepreneurship scholarship: A co-citation and perceptual analysis. *Entrepreneurship Theory and Practice*, 30(3), 417–441.
- Renaissance Capital. (2016a). *Global IPO market: Preliminary 2016 annual review*. Greenwich, CT: IPO Research.
- Renaissance Capital. (2016b). *U.S. IPO market: 2016 annual review*. Greenwich, CT: IPO Research.
- Rerup, C., & Feldman, M. S. (2011). Routines as a source of change in organizational schemata: The role of trial-and-error learning. *Academy of Management Journal*, 54(3), 577–610.
- Reynolds, P. D. (2016). Start-up actions and outcomes: What entrepreneurs do to reach profitability. *Foundations and Trends® in Entrepreneurship*, 12(6), 443–559.
- Reynolds, P. D., & Curtin, R. (Eds.). (2009). *New firm creation in the United States: Initial explorations with the PSED II data set*. New York: Springer.
- Ritholtz, B. (2015, June 24). Where have all the public companies gone? *Bloomberg*. Retrieved from <https://www.bloomberg.com/view/articles/2015-06-24/where-have-all-the-publicly-traded-companies-gone>

- Rogers, E. M. (1995). *Diffusion of innovations* (4th ed.). New York: Free Press.
- Ruef, M. (2002). Unpacking the liability of aging: Toward a socially embedded account of organizational disbanding. In M. Lounsbury & M. J. Ventresca (Eds.), *Research in the sociology of organizations* (Vol. 19, pp. 195–229). Greenwich, CT: JAI Press.
- Ruef, M. (2010). *The entrepreneurial group: Social identities, relations, and collective action*. Princeton, NJ: Princeton University Press.
- Sadeghi, A. (2008). The births and deaths of business establishments in the United States. *Monthly Labor Review*, 131(12), 3–18.
- Sarasvathy, S. D., Menon, A. R., & Kuechle, G. (2013). Failing firms and successful entrepreneurs: Serial entrepreneurship as a temporal portfolio. *Small Business Economics*, 40(2), 417–434.
- Schumpeter, J. (1942). *Socialism, capitalism, and democracy*. New York: Harper.
- Schumpeter, J. A. (2011). *The theory of economic development: An inquiry into profits, capital, credit, interest, and the business cycle*. London: Transaction Publishers. (Original work published 1911.)
- Scott, W. R. (2013). *Institutions and organizations: Ideas, interests, and identities*. Thousand Oaks, CA: Sage.
- Sexton, D. L., & Landström, H. (Eds.). (2000). *The Blackwell handbook of entrepreneurship*. Oxford, UK: Blackwell.
- Shane, S., & Venkataraman, S. (2000). The promise of entrepreneurship as a field of research. *Academy of Management Review*, 25(1), 217–226.
- Steinmetz, G., & Wright, E. O. (1989). The fall and rise of the petty bourgeoisie: Changing patterns of self-employment in the postwar United States. *American Journal of Sociology*, 94(5), 973–1018.
- Stevenson, H. H., & Gumpert, D. E. (1985). The heart of entrepreneurship. *Harvard Business Review*, 63(March/April), 85–94.
- Stuart, T. E., & Sorenson, O. (2003). Liquidity events and the geographic distribution of entrepreneurial activity. *Administrative Science Quarterly*, 48(2), 175–201.
- Teixeira, A. (2011). Mapping the (in)visible college(s) in the field of entrepreneurship. *Scientometrics*, 89(1), 1–36.
- Weick, K. E. (1969). *The social psychology of organizing*. Reading, MA: Addison-Wesley.
- Wood, W., Quinn, J. M., & Kashy, D. (2002). Habits in everyday life: Thoughts, emotions, and action. *Journal of Personality and Social Psychology*, 83(6), 1281–1297.
- Xu, H., & Ruef, M. (2004). The myth of the risk-tolerant entrepreneur. *Strategic Organization*, 2(4), 331–355.

Yang, T., & Aldrich, H. E. (2014). Who's the boss? Explaining gender inequality in entrepreneurial teams. *American Sociological Review*, 79(2), 303–327.

Yang, T., & Aldrich, H. E. (2017). "The liability of newness" revisited: Theoretical restatement and empirical testing in emergent organizations. *Social Science Research*, 63(March), 36–53.



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## APPENDIX

We employed the following research design to study terms and concepts used in four leading journals that publish entrepreneurship research: the *Journal of Business Venturing* (JBV), *Entrepreneurship Theory and Practice* (ETP), *Strategic Entrepreneurship Journal* (SEJ), and *Strategic Management Journal* (SMJ).

First, we searched for two terms concerning venture capitalists and initial public offerings: "initial public offering/IPO" and "venture capital/VC." Some articles used only the initials of the terms; others wrote the terms out.

Then we counted the number of articles published since 1990 that included these terms, by journal and by year. We also counted the total number of articles published each year and used it as the denominator, with the numerator being the number of articles with mentions of the term. Each article is counted only once, no matter how many times the terms are used within the article.

The resulting general format is shown below, with cell entries being the number of mentions of the terms and the number of articles published in that year (# of articles with mentions/total # of articles that year):

