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Ties of survival: Specialization, inter-firm ties, and firm failure in the U.S. venture capital industry



Alex Makarevich

ESADE Business School, Av. Torreblanca, 59, 08172 Barcelona-Sant Cugat, Spain

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ABSTRACT

This study examines how firms' network ties interact with their level of specialization in affecting the risk of failure in the U.S. venture capital (VC) industry. Testing my hypotheses on data spanning 41 years, I find that there is an inverted J-shaped relationship between the degree of VC firms' specialization and the risk of failure and that this pattern is moderated by firms' portfolio homogeneity. I further find that VC firms depend on their network ties in avoiding failure, that this effect is stronger for generalist VC firms than specialist firms, and that ties to specialist VC firms reduce the risk of failure of generalist firms with heterogeneous portfolios the most. These results advance our understanding of the joint effects of specialization and network connections on firm survival and, more broadly, of the interdependence of generalist and specialist organizations.

1. Introduction

The burgeoning literature on inter-organizational networks shows that network ties are important conduits of resources, such as information, knowledge, legitimacy, and prestige that affect a multitude of organizational outcomes ranging from firm performance (Bellavitis, Filatotchev, & Souitaris, 2017; Gulati, 2007; Shipilov & Li, 2008) to market entry (Jensen, 2003; Tuschke, Sanders, & Hernandez, 2014) to financial returns (Rowley, Behrens, & Krackhardt, 2000) to learning (e.g., Peters, Pressey, & Johnston, 2016) and creation of innovation (e.g., Owen-Smith & Powell, 2004). Survival, a crucial organizational outcome, has also been linked to the pattern of network resource utilization by firms in different industries. For example, Baum and Oliver (1991) discovered that legitimation-granting ties to institutional actors enhanced survival chances of Toronto day care centers. Uzzi (1997) found that the right amount of network embeddedness is necessary for organizational survival in the New York garment industry whereas both under- and over-embeddedness hinder survival chances. Cattani, Ferriani, Negro, and Perretti (2008) showed that network ties between producer and distributor organizations played a key role in the survival of producers in the U.S. film industry. This prior research has thus established a link between network ties and organizational survival and advanced our understanding of the multitude of ways in which network resources affect organizations. Yet we lack an understanding of how firms' characteristics shape and mediate the effects of their network connections and of the utility that firms with different characteristics derive from network resources (Shipilov, 2006). Such understanding is necessary, however, for a nuanced and differentiated view of the role of network ties in firms' outcomes.

One of the most fundamental dimensions on which organizations differ, along with such demographic characteristics as size and age, is the degree of specialization. Specialist and generalist organizations pursue different competitive strategies, have different organizational structures and capabilities, and possess different types of resources. This heterogeneity has implications for their market survival (e.g., Carroll & Swaminathan, 2000; Hannan & Freeman, 1977). It also likely affects the type of network resources firms require, the pattern of utilization of such resources, and the benefits gained from them. Yet the question of how specialization and network ties interact to affect firms' outcomes is significantly understudied.

In this study, I first discuss how the degree of specialization affects survival chances of firms in the venture capital (VC) industry. I bring homogeneity of firms' market portfolios into the discussion of benefits of specialism and generalism as firms' market survival strategies. Prior research, while focusing on specialization (or firms' market "niche width"), often ignored the relatedness of resources within a firm's portfolios. Studies in corporate diversification demonstrate, by contrast, that the relatedness of firms' domains of operation affects a range of organizational outcomes (e.g., Sakhartov & Folta, 2014; Teece, Rumelt, Dosi, & Winter, 1994). Examining the role of portfolio homogeneity allows me to provide a more nuanced account of what determines specialists' and generalists' survival, compared to prior research in this area.

Building on this analysis, I then elaborate on the role of network ties in affecting survival chances of generalists and specialists of different degrees of portfolio homogeneity. In a study of how firm performance

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E-mail address: alex.makarevich@esade.edu.

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in open networks is affected by a firm's specialization, Shipilov (2006) argues that the "presence of generalists in multiple market segments, and specialists' deep expertise within select industry segments, represent differentiated resources that will be desired by other network members" and finds that in open networks both wide-niche generalists and specialists outperform firms with a medium degree of specialization. Shipilov argues that particular capabilities of specialists and wideniche generalists make them more attractive network partners to all other organizations, which in turn positively affect their performance. My analysis is based on a similar premise, i.e., that the degree of specialization has direct implications for the network resources the organizations require and for the utility they derive from these resources. I consider, however, two different questions: 1) Does a firm's specialization affect the degree to which it depends on network ties in achieving survival? and 2) Under what conditions do the distinct capabilities of specialists and generalists make them more important partners to each other in achieving survival? To address these questions, I examine how specialization, portfolio homogeneity, and network ties separately and jointly affect the risk of firm failure. I situate my analysis in the context of the VC industry using data over a 41-year period as an ideal setting to study the interplay of specialization, portfolio homogeneity and network connections.

2. Theory and hypotheses

2.1. Specialization and the risk of failure in the VC industry

A firm's degree of specialization reflects its pattern of resource utilization (Dobrev, Kim, & Hannan, 2001; Hannan & Freeman, 1977). Generalist firms utilize a more diverse set of resources, whereas specialized firms focus on a limited resource set. In the venture capital (VC) industry - the empirical setting of this study - firms invest in companies (startups) in one or several domains (e.g., medical, telecommunications, energy, computer hardware). VC firms do not only provide financial resources, but - more importantly - act as "coaches" (Gompers & Lerner, 2001), mentors, advisors, and connectors to supported startup companies (Feld & Ramsinghani, 2013; Lerner, 1994; Li & Mahoney, 2011; Ma, Rhee, & Yang, 2013). In advising, coaching, monitoring, and guiding of startups, VC firms rely primarily on knowledge resources (Gompers & Lerner, 2001; Matusik & Fitza, 2012). The pattern of a firm's investments determines its degree of specialization and reflects one of two strategies that VC firms may pursue to deal with the risk inherent in the VC industry (Matusik & Fitza, 2012). Each of the strategies provides distinct but different survival advantages.

The specialization strategy leads VC firms to develop an in-depth knowledge of a limited number of market domains. Capitalizing on the depth of knowledge in a narrow segment of the market allows firms to cope with the risk of investing by both being better able to select investment targets and to better shepherd selected startups through developmental stages and unexpected circumstances. A narrower scope allows specialist VCs to develop expertise that includes an understanding of market domain trends, technology, regulation, human resources, competitive landscape, successful product development strategies used by other companies in a domain, etc. It also allows specialist VC firms to build up more fine-grained and nuanced domain-specific experience. This, in turn, increases specialists' performance and staying power in the market.

The generalist strategy, by contrast, comprises building a broad knowledge base, as opposed to a deep one (Matusik & Fitza, 2012; Shipilov, 2006). The value of generalist VC firms' knowledge comes from the breadth of exposure in a variety of domains. For example, a partner at Kleiner Perkins Caufield & Byers (KPCB), a prominent generalist VC, "invests in consumer and energy-related technologies and markets, including software, electronic commerce, Web services, semiconductors, consumer systems, media and telecommunications" (http://www.kpcb.com/team, accessed 03/2017). The involvement of

generalist firms with startups in different domains facilitates intrafirm learning and the transfer of expertise, i.e., knowledge spillover (Kang, Burton, & Mitchell, 2011). As a result, generalist firms' stock of knowledge contains solutions applicable across a variety of different domains and what is learned in one domain can be used other domains. Knowledge spillover positively affects the generalist firms' performance as it allows them to find solutions by drawing on experiences from a variety of domains. This, in turn, increases VC firms' survival potential in the market.

Firms with a medium degree of specialization, on the other hand, likely experience neither the benefits of generalism nor those of specialization. These firms have neither the knowledge breadth of generalists that can sustain them in the market by relying on diversification and knowledge spillover across domains nor the in-depth expertise of specialist firms that can sustain them by achieving better performance in a narrow segment of the market. These firms likely suffer from the 'stuck-in-the-middle' phenomenon (Porter, 1985). Accordingly, the staying power of VC firms with medium degrees of specialization is likely lower than that of either generalist or highly specialized firms, which suggest a curvilinear relationship between specialization and failure in the VC industry:

H1. A VC firm's degree of specialization has an inverted U-shape relationship with its risk of failure so that generalist and specialist firms have a lower failure rate compared to firms with medium degrees of specialization.

2.2. VC firms' portfolio homogeneity and benefits of specialization

The survival of generalists and specialists depends not only on their capability to execute their chosen strategy but also on their ability to weather change in their environment (e.g., Freeman & Hannan, 1983). As a trade-off for their survival advantage in a narrow market, niche specialists accept the risk of a major (or "coarse-grained", Freeman & Hannan, 1983) environmental change to which they may not be able to adapt. In the VC industry, if the domains in which firms are specialized experience an upheaval due to e.g., change in governmental regulations, emergence of a disruptive technology, increased competition, specialist the VC firms' ability to respond to these new developments may be limited and result in an increased risk of firm failure. Generalists, on the other hand, trade off greater adaptability to the environment for lower exploitation capability in each of the domains in their market niche (Hannan & Freeman, 1977). The necessity to operate in a range of domains implies a lack of expertise in any of the domains (Hannan, Pólos, & Carroll, 2007; Hsu, 2006). In order to sustain themselves in a range of domains, generalists also have to carry excess capacity (i.e., 'organizational slack', e.g., Cyert & March, 1963; Penrose, 1959), which implies that generalism can be a costly strategy and negatively affect the firms' survival chances if the cost of slack becomes unbearable.

The ability of specialists and generalists to cope with changes in their environment likely not only depends on their degree of specialization (or 'niche width') but also on the relatedness of resources required to operate in different domains within their niche. The similarity of domains in firms' niches has implications for the generalists' and specialists' ability to weather environmental change and address their respective challenges. In particular, the greater similarity of domains comprising a specialist VC's niche (i.e., portfolio homogeneity) likely makes the firm's survival more susceptible to environmental change. The more similar domains A and B in a specialist's portfolio, the greater the chance that forces that produce a change in A will also produce a change in B and thus the firm may not be able to weather environmental change. By contrast, if domains A and B are dissimilar, the firm may rely on domain A to sustain itself in the market while domain B undergoes a drastic change to which the firm is unprepared. Thus specialists likely have a survival advantage when domains in their

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