
Uncovering the Evolution of Director Experience in Early-Stage Ventures

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Abstract

Startups need to acquire different types of resources as they transition through organizational life cycle stages and face different sets of problems. While many studies have highlighted the role of boards as key resource providers to new ventures, less is known about how the resources needed on the board changes over time. Drawing on the board and organizational life cycle literatures, this study explores an important, yet relatively understudied question of how the resources that boards bring to the startups evolve from the startup to growth phase. We conduct an exploratory analysis of how the human capital composition of the board changes over the first 10 years of a venture's life. We find several systematic patterns in how ventures adapt boards to their needs. Our analysis shows that as startups evolve from startup to growth phase, the presence of technical, entrepreneurial, and industry experience on the board decreases, while the presence of management and director experience on the board increases.

Keywords: Board of directors, new ventures, resources, evolution



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INTRODUCTION

Scholars have long noted the entrepreneurial conundrum of how a new venture begins with zero resources and must collect and accumulate an entire arsenal of knowledge, skills and social capital (West and Noel, 2009; West III and DeCastro, 2001). The acquisition of these resources is crucial to performance and survival (Beckman et al., 2007). Moreover, acquiring resources at the right time in their development can impact how ventures benefit from those resources (Bhawe, et al., 2016).

What remains understudied is how and when new ventures acquire the resources they need. Despite all we know about the association between financial and human capital resources and new venture performance, West and Noel (2009) note that previous research pays little attention to “how or where ...resource positions were developed” (p.4). In general, research in this area is limited due to the lack of quantitative data on early-stage startups. As new ventures face pressures to rapidly learn and evolve, it must be the case that they seek out different types of expertise along the way. However, we have little empirical evidence of when and how organizational resource needs change over time (Helfat and Peteraf, 2003).

We seek to advance research in this area by examining how the resources brought in by the early board of directors of new ventures evolve from startup stage to growth stage. We argue that, as a venture matures and changes and key personnel come and go, the resource composition of the venture's board will change, reflecting different stages of venture development. This paper represents an early effort to document systematic patterns in the evolution of experience on boards of high-tech startups in response to the different stages of the organizational life cycle. We conduct an exploratory analysis of the human capital of board members in 443 new ventures in the Computer Software industry between 2000 and 2014 guided by one overarching question: What systematic patterns do we observe in the evolution of experience on the board over time as ventures transition from startup to growth stages?

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THEORETICAL DEVELOPMENT

Resource Acquisition and Evolution in New Ventures

New ventures inherently lack critical resources and capabilities required for the survival and the growth of the firm due to the liability of smallness and newness, therefore posing a major strategic challenge for nascent firms (Garg and Furr, 2017; Lichtenstein and Brush, 2001). One mechanism through which ventures can acquire resources is through the appointment of directors (Hillman et al., 2009). With every appointment, each director brings to the firm the sum of their human (experience, expertise, reputation) and social capital (connections to other firms and external contingencies) (Hillman and Dalziel, 2003).

There are two main theoretical approaches on studying the role of boards of directors-i.e., agency theory and resource dependence theories (RDT). In studying the advising and resource provider role of boards, RDT has been a predominant theoretical lens, conceptualizing directors as providers of key resources (Hillman et al., 2009) and acknowledging that their provision of resources can impact several important venture outcomes (see review by Garg and Furr, 2017). Indeed, the resource provision role of the board in a startup is important as startup boards, unlike public company boards, are frequently involved in strategic decision making (Fried and Ganor, 2006). One of the critical resources that boards bring to a new venture is human capital, an individual's skills and knowledge acquired through investments in schooling, on-the-job training, and other types of experience (Becker, 1964), which enhances survival and performance. For instance, directors can provide key social connections that affect the speed at which ventures develop alliance portfolios, which in turn affects the speed at which the venture hits revenue milestones (Beckman et al., 2014). Directors can also provide prestige or legitimacy to a new venture (Chen et al., 2008) that can enhance IPO performance (Certo, 2003; Pollock et al., 2010).

The resources and knowledge that startups seek to gain from boards, however, may not be stable over time. Organizational life cycle theorists have long argued that as an organization transitions through different life cycle phases, it faces different challenges and opportunities, and thus different needs for resources, organizational structures, and managerial capabilities (e.g., Chandler 1962; Dodge and Robbins, 1992; Kimberly and Miles, 1980). As with large, well established firms, startups face a number of different organizational problems as they evolve through different phases (Dodge and Robbins, 1992; Terpstra and Olson, 1993), which requires a different set of optimal resources to adapt to a changing environment (Lichtenstein and Brush, 2001; Quinn and Cameron, 1983; Sirmon et al., 2011). As seen in Table 1, for instance, in the start-up stage, entrepreneurs' efforts are primarily focused on a process to find a market for a new product and/or service and obtain external financing to develop that new product and/or service. Formal organizational structure is formed although there are generally very few employees of the firm and no or little formal planning and coordination is in place in this stage (Mueller et al., 2012; Quinn and Cameron, 1983; Sirmon et al., 2011).

In the growth stage, entrepreneurs' efforts need to shift from finding a market opportunity and securing external funding to managing a growing organization. Therefore, organizational development actions draw entrepreneurs' attention (Mueller et al., 2012). Much of an entrepreneurs' time and effort is spent on administrative and managerial work, such as dealing with employees, communication, internal and external coordination as firms in the growth stage will be more likely to deal with "sales growth, market share growth, and internal organization mechanisms" (Kazanjan, 1988, p. 267).

As startups require different resources and capabilities across different life cycle phases, it would be a reasonable to expect the type of experience appointed to boards to change over time. Zahra and Pearce (1989) note that boards are expected to perform different roles depending on the life cycle stage of the firm. As one of the few studies on the changing role of boards across a new venture's life cycle, Huse and Zattoni (2008) found that the role of boards evolves from a legitimacy-providing role in the startup phase to an advisory role in the growth phase, drawing more on the boards' specialist knowledge. Due to the differing activities and concerns at each stage, we would expect that ventures in the startup stage would require resources such as technological, entrepreneurial, and industry experience to assist them in building the technology or product, obtaining external financing, and navigating their market (Bjørnåli and Gulbrandsen, 2010; Forbes & Milliken, 1999; Kor and Misangyi, 2008; Vandembroucke et al., 2016). Whereas in the growth stage, we would expect new ventures to require more managerial and director

experience to assist them in growing and managing an organization (Boeker and Wiltbank, 2005; Gray and Nowland, 2013; Kroll et al., 2008). Overall, we expect to find patterns that reflect the changing resource needs as ventures transition from startup to growth stages.

Table 1. Primary activities and key resource requirements by life cycle stage

STAGE 1: STARTUP	STAGE 2: GROWTH
Primary activities	
<ul style="list-style-type: none"> ▪ Identifying business opportunities, environmental monitoring ▪ Obtaining external financing ▪ Building initial sales ▪ Generating and attaining legitimacy ▪ Product, technology, and/or service development ▪ Completing a business plan and establishing a legal entity ▪ Organizing founding team ▪ Identifying and acquiring resources ▪ Finding and securing business partners 	<ul style="list-style-type: none"> ▪ Goal setting and business planning for the long-term ▪ Organizational development <ul style="list-style-type: none"> ▪ Establishment of organizational structure, processes, and routines ▪ Increasing sales and accounting capabilities ▪ Building up an efficient and effective system ▪ Scaling up production and distribution ▪ Managing and sustaining organizational legitimacy ▪ Expanding customer base
Key resource requirements	
<ul style="list-style-type: none"> ▪ Founding experience ▪ Technological experience ▪ Industry-specific experience ▪ Weak ties with customers ▪ Legitimacy from private investors (e.g., angel investors, venture capitalists) 	<ul style="list-style-type: none"> ▪ Founding experience ▪ Managerial experience ▪ Operational management capabilities ▪ Reputation ▪ Weak ties with customers ▪ Legitimacy from a broader base of financial resource providers, primarily institutional investors

Source: Authors' creation based on Churchill and Lewis, 1983, Delmar and Shane, 2004, Fisher et al., 2016, Hanks and Chandler, 1994, Kazanjian, 1988, Lichtenstein and Brush, 2001, Lichtenstein et al., 2006, Mueller et al., 2012, Pirolo and Presutti, 2010, Quinn and Cameron, 1983, Terpstra and Olson, 1993, Wu et al., 2008.

METHODS

We use BoardEx to gather comprehensive information on the complete education, work, and service history of boards. From there, we identified the industries in the database with comprehensive coverage of new ventures. This process left us with the U.S. Computer Software and Information Technology industries that contained over 1,200 new ventures. We restricted the sample to define new ventures as firms that are age 10 or less when they enter the sample. We determine firm age from self-reported founding dates on firm websites, Crunchbase and VentureXpert. We were then able to supplement that with founder and funding data from Crunchbase and LinkedIn. Out of the total number of new ventures in the sample, we had to exclude those that had no coverage on any supplemental source (Crunchbase, VentureXpert, LinkedIn, or popular press articles). About 80% of the new ventures from the target industries were covered. The final sample includes 443 new ventures and n=1781 firm-year observations.

Variables

Board Experience

We examine board experience in the following domains: technical/scientific, entrepreneurial, industry-specific, management, and director experience. Technical/scientific experience is important for product development (Forbes and Milliken, 1999; Vandenbroucke et al., 2016). Entrepreneurial experience is also critical to early product development and attracting external financing (Beckman and Burton, 2008; Hsu, 2007). Industry-specific experience on boards can provide legitimacy to new ventures (Certo, 2003). Prior director and managerial experience have also been shown to impact entrepreneurial firm growth (Kor and Sundaramurthy, 2009). We coded the career histories of all directors to using keywords to determine the nature of their prior experience (Beckman and Burton, 2008). For instance, keywords that identified entrepreneurial experience were “Founder” and “Owner” and keywords that identified technical experience were “Engineer,” “R&D,” and “Technical Lead”. This coding process left us with the count of the number of years of experience a director has in an area. We then add up all years of experience of all current board members. We measure board experience as a proportion. For each experience type, board experience is measured as the amount of collective years of a particular experience on the board to all prior experience years of the board’s current members.

Analysis

Our guiding question asks: what systematic patterns do we observe in the evolution of experience on the board over time? Using the key experience and network variables described above and the full sample of ventures, we characterize the experience and networks of boards by venture age and use the average trendline to examine patterns over time. In characterizing lifecycle stages, we recognize that progressing from startup to growth stages does not occur uniformly across all startups. While many scholars rely on qualitative data to identify the current lifecycle stage (Huse and Zattoni, 2008; Tzabbar and Margolis, 2017), we make inferences from the patterns by firm age due to a lack of qualitative data. However, prior studies on lifecycle stages find that the transition between startup (3-7 years) and growth stages (7+ years) will be seen in the first ten years of the venture’s life (Boeker and Karachalil, 2002; Tzabbar and Margolis, 2017), and age is commonly used to demarcate the stages (Kazanjan, 1988; Smith et al., 1985).

RESULTS

Table 2 provides descriptive statistics for all variables. Of the proportion of prior experience on the board, the most common type of experience is prior management and director experience. Prior entrepreneurial and technical/scientific are much less common. However, these proportions do change by venture age. During the ten-year sample window, the ventures displayed several distinct patterns in the types of functional expertise brought in by the board (Figures 1-5). From these patterns, we establish several stylized findings about how prior experience on the board changes over time.

Table 2. Descriptive Statistics

Variable	Obs	Mean	Std. Dev.	Min	Max
Venture Age	1,781	6.5	2.5	0	10
Proportion Board TechSci	1,781	.12	.18	0	1
Proportion Board Mgt	1,781	.68	.23	0	1
Proportion Board Entr	1,781	.04	.1	0	.75
Proportion Board Dir Exp	1,781	.67	.25	0	1
Proportion Board Industry	1,781	.24	.18	0	1

First, we find that technical/scientific and entrepreneurial experience increased from year one to year four, followed by a gradual and steady decrease from years four through ten (Figures 1 and 2). Industry experience followed a similar pattern. It rose sharply from year one to year four, followed by a gradual

and steady decrease from years four through ten (Figure 3). These patterns align with venture needs in the startup vs growth stages of growth. In the startup stage, the firm's primary focus is developing the technology or the product and the secondary focus is selling the technology or product (Kazanjian, 1988). In this stage, the primary resource needs are technical experience to help build the prototype, startup experience to help commercialize or fund the product, and the industry experience to lend legitimacy to sell the product (Kor and Misangyi, 2008). We find that the systematic patterns in experience on the board does indeed reflect that need. In the first few years of the ventures, directors who were appointed had predominantly technical, entrepreneurial, and industry experience.

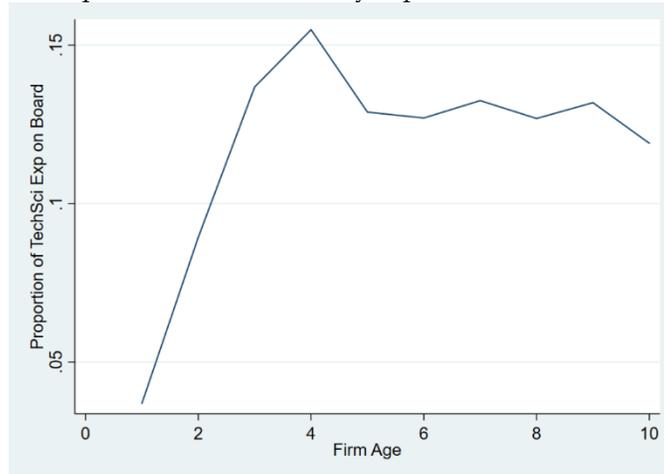


Figure 1. Technical/Scientific Experience

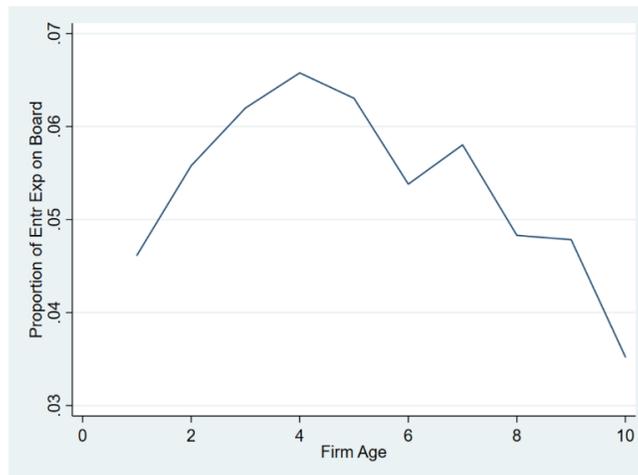


Figure 2. Entrepreneurial Experience

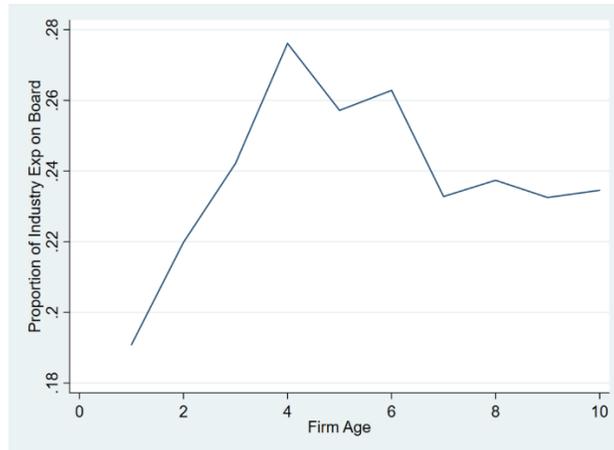


Figure 3. Industry Experience

Director and managerial experience increased steadily from year one to year ten (Figures 4 and 5). These patterns align with the growth stage of an organization's life cycle. At this point, ventures are now focused on filling out the structure of the firm. Quinn and Cameron (1983) describe this stage as having a focus on formalization and planning. The issues firms face in the growth stage are concerned with more inward-facing organizational issues, such as establishing formal systems and structures (Kazanjian, 1988). These changes are reflected in the patterns found. During this second stage, ventures decreased the amount of technical, entrepreneurial, and industry experience, and increased the amount of management and director experience.

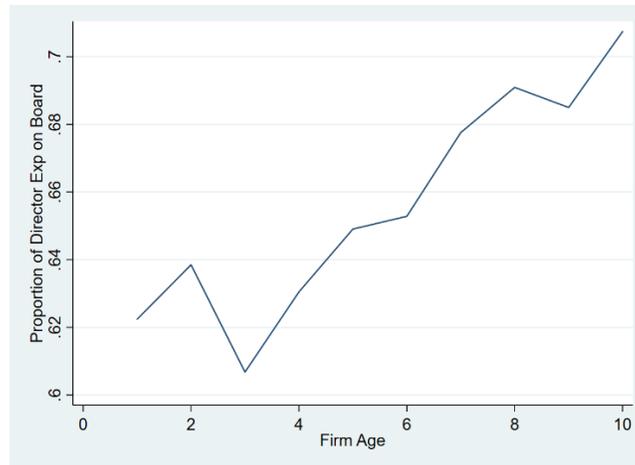


Figure 4. Director Experience

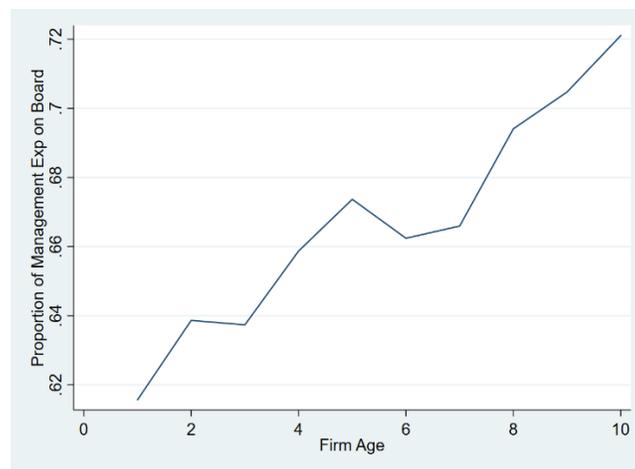


Figure 5. Management Experience

Stylized Finding 1: Technical and entrepreneurial experience on the board increase in the first stage (startup) and decrease steadily in the second stage (growth).

Stylized Finding 2: Industry experience on the board increases in the first stage (startup) and decreases steadily in the second stage (growth).

Stylized Finding 3: Director and management experience on the board increases steadily over the startup and growth stages.

DISCUSSION

In this paper, we examine the development of boards in new ventures over the first 10 years of the venture's existence. We ask: what systematic patterns do we observe in the evolution of experience on the board over time? Our exploratory analysis supports the main prediction that, as a venture matures and changes and key personnel come and go, the resource composition of the venture's board will change and reflect different stages of venture development.

Theoretical and practical implications

Our findings contribute to entrepreneurship and board research by examining evolution in how new ventures acquire resources through boards. By uncovering patterns in board experience, we expand our understanding of the board as a mechanism to acquire and adapt resources and highlight which stages in the growth process certain resources are most crucial. We also build on the board research by documenting the change in board experience as ventures transition from startup to growth stages. There

has been little previous systematic research documenting patterns of resource or board evolution over such a long period of time (Bjornali and Gulbrandsen, 2010; Gabrielsson and Huse, 2004; Helfat and Peteraf, 2003). In doing so, we shed light on when and how a board's primary function may change as a venture transitions in its life cycle, and we answer an important call to paint a more holistic picture of how corporate boards and governance evolve over time (Bjornali and Gulbrandsen, 2010; Garg and Furr, 2017). Our results also have implications for entrepreneurs and new ventures as they build and evolve their boards. Despite the importance of boards as a resource provider to startups, surprisingly, in practice, some entrepreneurs do not take the matter of board composition seriously nor do they change the board composition over time as startups grow, all of which could lead to the failure of the venture (Hamadeh and Dinow, 2016; Suster, 2014). Many startups indeed have a tendency towards path dependence in building their resource base (Beckman and Burton, 2008; Hillman et al., 2003) and to have an inertia of keeping the board composition formed in the early stage of startup (Suster, 2014). Our study points to the consideration of the experience composition of the board when adding or managing exits of directors across the life cycle of startups.

LIMITATIONS AND DIRECTIONS FOR FUTURE RESEARCH

We acknowledge limitations of our study as they can lead to new avenues for future research. First, our study only describes average patterns of how resources on boards evolve over time. As such, it limits the implications of our findings in two ways. Because ventures reach milestones at different ages, our results may not capture other patterns that evolve from the complexity and idiosyncratic history of each venture. Additionally, as we have not tied these patterns to any measure of venture outcomes or performance, we cannot make assertions that evolving a board in these patterns holds any performance benefits. However, these limitations pose several interesting questions for future work. For instance, do firms that follow these patterns of board evolution enjoy superior performance? Under what conditions does adherence to these patterns become disadvantageous? Prior research shows that board experience may be complementary and/or reinforcing to the experience of the founders. Future work could seek to explore whether the complementary or substitutive nature of board experience impacts how following these patterns impacts venture outcomes.

Second, while our results suggest that monitoring may be less important to entrepreneurs in the startup phase, they do not suggest that monitoring is less important. An interesting avenue for future research would be to examine the trade-offs and performance implications for startup-phase venture boards that favor resource provision over monitoring. As Garg and Furr (2017) point out, the recent scandals of Uber's misconduct and Theranos' fraudulent product claims suggest that the monitoring function of early venture boards may be as important as resource provision.

Third, this study examines startups in two high-tech industries, which limits the generalizability of our findings. The types of experience startups need and their evolution on the board may differ in industries that are less knowledge intensive. Further, due to the different institutional context and conditions of the competitive landscape, countries may vary in terms of resources and capabilities needed across the life cycle of startups. Future research could benefit from replicating this study to less knowledge-intensive industries and/or even other countries.

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