



Venture capital and the delegation of decision authority in startups: an exploratory study

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Abstract

We study the delegation of authority over strategic decisions in startups and how it relates to venture capital (VC) investment through a mixed-methods study. We first show that startups typically centralize decision authority. The extent of delegation is higher if startups are VC-backed. In startups backed by corporate VC investors the aim is to leverage the unique knowledge possessed by entrepreneurial team members in a context characterized by low principal-principal agency costs. In those backed by independent VC investors, the increase in delegation is paired with the emergence of a polyarchy and decoupling between the formal and real organizations. In this situation delegation may serve as a control mechanism aligning the actions of startups with the interests of the VC investors.

Keywords Startups · Decision authority · Delegation · Venture capital · Control

JEL codes L22 · L26 · G24

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1 Introduction

The organizational design of startups, its antecedents and performance effects are receiving increasing attention by entrepreneurship scholars (e.g., Burton et al., 2019; for a survey, see Colombo et al., 2016). So far, scholars have focused attention on key dimensions of startup organizational design, such as the adoption of a hierarchical structure (e.g., Baron, Burton et al., 1999; Baron, Hannan et al., 1999; Colombo & Grilli, 2013; Grimpe et al., 2019; Lee, 2022; Lee et al., 2023; Sine et al., 2006), the allocation of tasks among the members of the entrepreneurial team (Jung et al., 2017; Katila et al., 2017; Lahiri et al., 2019), and task formalization (Baron, Burton et al., 1999; Cosh et al., 2012; Mathias & Williams, 2018; Sine et al., 2006) and specialization (e.g., Beckman & Burton, 2008; Burton & Beckman, 2007; Sine et al., 2006; Talaulicar et al., 2005). Moreover, scholars have highlighted that receipt of venture capital (VC) has a strong influence on the organization of startups.

Studies have shown that VC affiliation favours the development of a more articulated managerial hierarchy (Colombo & Grilli, 2013), the formalization and professionalization of managerial roles (Boeker & Wiltbank, 2005; Hellmann & Puri, 2002; Wasserman, 2003), and the adoption of professional managerial practices, relating for example to incentive and hiring systems (Hellmann & Puri, 2002).

Nevertheless, the literature on the organizational design of startups has hitherto understudied their decision systems, with a few exceptions.¹ In other words, we have limited knowledge on the extent to which startups' Chief Executive Officers (CEOs) delegate authority over different decisions to individual team members rather than centralizing it in their hands, nor do we know why. Moreover, no study has investigated the influence VCs may have on the delegation of decision authority.

This is an important gap as decision systems are a key organizational design element (e.g., Child, 1972; Pugh et al., 1963). Allocating decision authority effectively is especially important for startups. Entrepreneurs are often overburdened and their time is generally a very scarce resource, especially if they operate in high velocity environments (Eisenhardt, 1989a). The productive use of entrepreneurs' time clearly depends on allocating authority over key decisions effectively. However, effectively allocating decision authority is a difficult task. Organization theorists suggest that the "optimum" level of delegation of decision authority depends on the balance between the informational benefits associated with delegation and the costs arising from the loss of control over decisions (Aghion & Tirole, 1997; Dessein, 2002; Harris & Raviv, 2005; Jensen & Meckling, 1992). Entrepreneurs may not have the required managerial abilities to consider carefully these benefits and costs. Furthermore, entrepreneurs may want to keep control over key decisions because they have a psychological attachment to their "baby" (Arthurs & Busenitz, 2003; Cardon et al., 2005) or because they are overconfident (Busenitz & Barney, 1997; Gutierrez et al., 2020; Lee et al., 2017) and have unrealistic expectations about the number and type of decisions they can effectively manage. The advent of a VC investor may

¹ For example, T. Hellmann and Wasserman (2017) and Hellmann et al. (2019) examine the logic by which equity shares are allocated among startups' founders, which has clear implications for the allocation of decision rights and their evolution over time.

lead startups to adopt more effective decision systems, which generally involve an increase in the level of delegation of decision authority. Nevertheless, it also creates a principal-principal agency relation, which may influence the delegation of authority over key strategic decisions. To further complicate this conundrum, it should be taken into account that not all VC investors are alike. Scholars have highlighted that corporate VCs (CVCs) have different resources endowments than independent VCs (IVCs) (Chesbrough, 2002; Dushnitsky & Lenox, 2006; Dushnitsky, 2012). They also have different objectives (i.e., strategic in addition to financial objectives) and impact differently on the performance of portfolio startups (e.g., Chemmanur et al., 2014; Colombo & Murtinu, 2017; Maula et al., 2005), which again may influence the level of delegation of decision authority in their portfolio companies.

The aim of this paper is to contribute to filling these gaps in the literature. For this purpose, we provide for the first time fine-grained quantitative evidence on how startups allocate authority over a large set of strategic decisions, and how the level of delegation of decision authority differs depending on whether startups are VC-backed or not. We also consider the heterogeneity of VC investors, distinguishing between IVC and CVC investors. Moving from these premises, this paper addresses the following research questions: *To what extent do startups delegate decision authority over strategic decisions? Does the level of delegation of decision authority of VC-backed startups differ from the one of non-VC-backed startups? Are there differences between IVC-backed and CVC-backed startups? What are the mechanisms underlying the changes in startups' decision systems triggered by VC investments? Do they depend on the type of the investor (IVC or CVC), their objectives and resources?*

To answer these questions, we used a mixed-methods approach, which seems particularly appropriate given the intermediate state of development of the topic (Edmondson & McManus, 2007). First, we relied on survey data, described in Rovelli and Buttice (2020), on startups' allocation of authority over a set of strategic decisions by 241 Italian startups and related the level of delegation of authority over these decisions to the presence of VC investors in startups' equity capital and their type (IVC or CVC). Second, because these quantitative data do not allow to investigate the mechanisms which may lead to differences in the level of delegation of decision authority between CVC-backed and IVC-backed startups, we conducted a qualitative study based on 12 interviews with entrepreneurs who founded twelve startups (4 IVC-backed, 4 CVC-backed and 4 non-VC-backed) and 4 interviews with VC investors. The aim was to gain insights into the determinants of the chosen level of delegation of decision authority, and the rationale and mechanisms underlying the relationship between startups' allocation of decision authority and affiliation with IVC or CVC investors.

Our findings confirm that startups tend to centralize authority over strategic decisions. However, startups that are affiliated with VC investors exhibit a higher level of delegation, which is not explained exclusively by the larger size of VC-backed startups. Our qualitative study reveals that startups backed by CVC investors are more inclined to delegate authority over strategic decisions to existing members of the entrepreneurial team with the aim of taking full advantage of the expertise of these individuals and reducing information overload. Instead, in startups backed by IVC investors, the increase in the level of delegation of decision authority pairs

with the emergence of a polyarchy and decoupling between the startups' formal and real organizations. The managers hired with the help of the IVC investors exert real authority over key strategic decisions despite the absence of a formal role. These organizational arrangements have the purpose of closely monitoring the operations of portfolio companies, aligning their actions with the IVC investors' objectives.

This paper advances the literature in three major directions. First, we contribute to informing the limited and fragmented knowledge on startups' organization (Colombo et al., 2016) by answering the call for investigation of their decision systems, a topic that has not been adequately covered by previous studies (Burton et al., 2019. See Rovelli & Buttice, 2020 for an exception). In so doing, we provide fresh insights based on quantitative micro-data, as well as on qualitative evidence, that make it possible to uncover the rationale and mechanisms behind variations in the allocation of authority over strategic decisions. Second, the paper contributes to the literature on the alleged mutual relationship between startups' organization and mode of financing, by introducing the allocation of decision authority in the conversation on the role of VC investors in shaping startups' organizational design. In doing so, the paper also contributes to the entrepreneurial finance literature interested in comparing different types of VC investors, by showing that the changes in startups' allocation of decision authority and the mechanisms driving these changes, vary between IVC and CVC investors.

2 Literature review

2.1 The allocation of decision authority in startups

Scholars of organizational design refer to the allocation of decision authority as the way in which authority over a firm's decisions is distributed among its members at the various levels of the corporate hierarchy (e.g., Colombo & Delmastro, 2008, Chap. 2; Pugh et al., 1963). In startups, decisions can be centralized in the hands of the CEO (i.e., the principal) or can be delegated to other organizational members (i.e., the agents). These latter may be top managers, who again are typically also shareholders of the firm, or other managers at lower levels of the corporate hierarchy.

The "optimum" level of delegation of decision authority depends on the trade-off between the benefits and costs associated with delegation. In accordance with the insights of delegation theory (Aghion & Tirole, 1997; Dessein, 2002; Harris & Raviv, 2005; Jensen & Meckling, 1992), delegating the authority over a focal decision in the hands of the individual who possesses the relevant knowledge needed to make the decision allows startups to use the knowledge that is distributed across the members of the organization in an efficient way. Moreover, the delegation of non-key decisions frees the time of startups' top managers who can consequently devote their attention and energy to the most important and strategic decisions (Garicano, 2000; Harris & Raviv, 2002). An additional advantage of delegation is that decisions are made more quickly, since different organizational members can make decisions at the same time but independently, avoiding the leaks (Keren & Levhari, 1979, 1983, 1989) and delays (Radner, 1993; Van Zandt, 1999) in transmitting information throughout the

firm that are instead typical of centralized decision systems. Previous studies have found that the above factors that foster the delegation of decision authority have stronger impact when firms operate in very competitive (Lin & Germain, 2003) or high-velocity environments (Eisenhardt, 1989b), and have a unique offer (Acemoglu et al., 2007).

The drawback of delegating authority over a focal decision to an agent is the principal's loss of control over the decision. If the objectives of the agent are not aligned with those of the principal and monitoring the agent's behaviour is difficult, the agency cost of losing control can be significant (Hölmstrom, 1979; Jensen & Meckling, 1976). Most startups' managers are also key shareholders. If they are not, their salary packages generally include high-powered incentives, such as stock options and bonuses that realign their interests with those of shareholders. Moreover, the small size and simple operations of these firms make agents' behaviour easy to monitor, reducing agency costs.

In sum, based on the above arguments, one would expect a high "optimal" level of delegation of decision authority in startups. Nevertheless, in these firms there are other aspects that may limit the level of delegation and are not considered in the delegation literature. A particular aspect of startups is the presence of the founder-entrepreneurs at the apex of the corporate hierarchy. These individuals are typically overconfident (Busenitz & Barney, 1997; Lee et al., 2017), in that they are inclined to overestimate their own abilities and skills compared to those of others (Camerer & Lovo, 1999; Fox & Tversky, 1995). Previous studies show that overconfidence leads entrepreneurs to overestimate their chances of success (Cooper et al., 1988; Gutierrez et al., 2020; Hvide & Panos, 2014; Simon & Shrader, 2012). In a similar vein, entrepreneurs may misjudge the quality of the information they possess relating to a focal decision. They may also underestimate the time needed to make effective decisions. Therefore, entrepreneurs may centralize authority over too many decisions in their hands even if they are not fully knowledgeable about some of these decisions. In addition, entrepreneurs often develop emotional attachment to their ventures (Cardon et al., 2005) to the point that they feel that their venture is their "baby" (Arthurs & Busenitz, 2003). They often consider the firm that they have founded as their lifetime achievement and have strong identification with their firms (Dobrev & Barnett, 2005; Jayaraman et al., 2000). Indeed, "the foremost way that people develop strong identification with an organization is by creating it" (Wasserman, 2006, p. 962). Therefore, entrepreneurs may perceive high costs of loss of control, which make them less inclined to delegate decision authority to other individuals.

2.2 The role of VC in shaping the organizational design of startups

In this paper, we argue that the receipt of VC may trigger important changes relating to the allocation of authority over strategic decisions in portfolio companies. The VC investors' main goal is to maximize the returns from their investments. They thus have clear incentives to encourage portfolio companies to choose the "optimal" level of delegation, independently of the bias that may influence entrepreneurs' behaviour. The view that VC investors play an active role in shaping the organizational design of the ventures in which they invest is not new in the literature. Proceeding from the

idea that VC investors are “hands-on” investors, scholars have already focused attention on several organizational design changes triggered by VC investors.

Studies inspired by the life cycle approach argue that startups’ founders generally do not possess the managerial abilities needed to effectively expand operations (e.g., Jayaraman et al., 2000). Hence, when VC investors come on board, they often replace founder CEOs with experienced managers (Pollock et al., 2009; Wasserman, 2003). This move is instrumental in eliminating the uncertainty about the untested execution abilities of founder CEOs and aligning the abilities of the CEOs with the objective of VC investors to rapidly scale up startups’ operations, extend their market reach and make a successful exit. In turn, the newly appointed CEOs rely on the support of the VC investors to change the composition of the top management team and the allocation of tasks among team members (Hellmann & Puri, 2002; Kaehr Serra & Thiel, 2019). In accordance with this view, Boeker and Wiltbank (2005) find that the number of directors that the VC investors appoint in startups’ top management teams is positively associated with both the ownership shares they possess and their representation in the startups’ boards. Other studies have considered the changes in other elements of startups’ organizational design. Beckman and Burton (2008) analyze the time from startups’ foundation up to the creation of the first executive position in six functional areas (science/engineering, sales/marketing, manufacturing/operations, finance/accounting, administration/human resources and strategy/business development). They find that the cumulative number of VC rounds received by startups is a strong predictor of the creation of these functional managerial positions. Colombo and Grilli (2013) focus on the vertical depth of startups’ organization. They highlight that VC-backed ventures more rapidly hire a salaried manager than their non-VC-backed counterparts, switching from a two-layered organization to a three-layered one. Haeussler et al. (2019) show that VC investors apply a greater division of labour among the entrepreneurial teams’ members. Technologically competent founders specialize in technological tasks in which they enjoy a relative advantage, while commercial and managerial tasks are assigned to professional managers that are hired with the help of the VC investors. Hellmann and Puri (2002) show that the receipt of VC results in a substantial increase in the likelihood of hiring a Vice-President of sales and marketing. They also find that VC-backed ventures are more likely to use business and professional contacts for recruiting sales, marketing, administrative and managerial personnel than their non-VC-backed counterparts and to adopt stock option plans that generate high-powered incentives, aligning the objectives of startups’ employees with those of shareholders.

In sum, previous studies indicate that VC investors play a crucial role for the professionalization of startups’ organization². There are reasons to expect that VC

² An alternative view contends that rather than being induced by VC investors, the adoption of a professional organization by startups makes them more attractive to these investors, who therefore invest in these ventures. Indeed, startups that adopt a more professional organization achieve superior performance and as such these ventures are more appealing for a potential external investor. For instance, Sine et al. (2006) showed that functional specialization, role formalization and relative size of the TMT (i.e., the ratio of the number of TMT members to the number of employees), which are aspects associated with startups’ professionalization, positively influence their revenues. In either case, one expects to observe a more professionalized organization in VC-backed startups.

investors also influence startups' decision systems. If behavioural biases prevent entrepreneurs to select the "optimal" level of delegation, keeping decisions centralized at the apex of the corporate hierarchy, the advent of VC investors, while removing these biases, may result in more delegation of decision authority. The objectives of VC investors to rapidly scale up operations may push in the same direction.

However, our understanding of this issue remains limited, with no prior research delving into the relationship between the characteristics of VC investors and the consequent shifts in the organizational design of portfolio companies. The entrepreneurial finance literature emphasizes significant heterogeneity among VC investors, particularly in ownership and governance structures (Bertoni et al., 2015; Dimov & Gedajlovic, 2010). Notably, corporate venture capital (CVC) investors markedly differ from independent VCs (IVCs) in resource endowment and investment objectives, leading to different impacts on startup outcomes (Bertoni et al., 2013; Chemmanur et al., 2014; Ivanov & Xie, 2010; Park & Steensma, 2012; Colombo & Murtinu, 2017). In this study, we examine whether these differences also influence startups' decision systems.

Contrasting with the primarily financial goals of IVCs, CVCs prioritize strategic objectives like open innovation and market expansion (Alvarez-Garrido & Dushnitsky, 2016; Chemmanur et al., 2014; Pahnke et al., 2015; Paik & Woo, 2017). Moreover, CVCs' parent companies possess unique resources, inaccessible to other VC types, such as sales channels, industry *hands-on* experience, and R&D and production facilities (Dushnitsky & Lenox, 2006; Gutmann et al., 2019; Huang & Madhavan, 2020; Maula, 2001). Gaining access to these resources (e.g. the corporation labs, Alvarez-Garrido & Dushnitsky, 2016) and leveraging CVC investors' social capital (Maula et al., 2005) to establish connections with key suppliers or customers (Park & Steensma, 2012), increase the frequency and change the nature of interactions between the invested startups' entrepreneurs and the personnel of the CVCs' parent companies compared to the case of IVC investors. The greater level of interaction between startups and CVC vis-à-vis IVC investors likely influence the degree of authority delegation over startups' strategic decisions. This paper aims to explore this issue and elucidate heterogeneity in decision authority delegation between CVC-backed and IVC-backed startups.

3 Methodology

To answer our research questions, we used a sequential explanatory mixed-methods design that consisted of collecting, analyzing, and integrating both quantitative and qualitative data (Ivankova et al., 2006; Teddlie & Tashakkori, 2009). We consider this approach as appropriate given the intermediate stage of theory development (Edmondson & McManus, 2007) and our goal of identifying both an association between the delegation of decision authority and the presence of VC investors, of different type (i.e., IVCs and CVCs) and the motivations and mechanisms underlying such association (Johnson et al., 2007). Moreover, as explained below, while the quantitative data we collected allowed to establish whether the allocation of decision authority differs between VC-backed and non-VC-backed startups, we needed quali-

tative data to develop an in-depth understanding of the mechanisms behind differences in the level of delegation. Finally, the use of mixed-methods design provides an opportunity for cross-validation of findings across techniques.

Figure 1 describes in detail our research design. We started with a survey data collection to gather quantitative data. Based on the respondents to the survey, we selected appropriate cases and developed an interview protocol that we used in the following qualitative data collection. Finally, we analyzed quantitative and qualitative data and we integrated and cross-checked the corresponding results. In the following, we provide a detailed description of each phase.

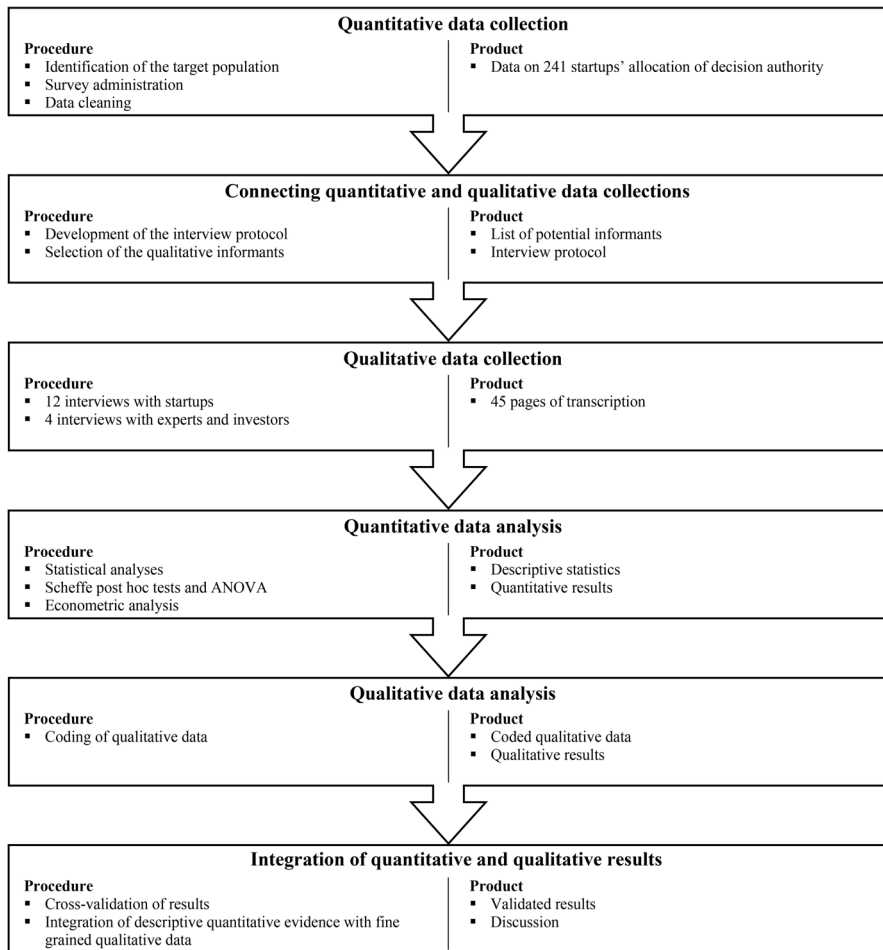


Fig. 1 Research design

3.1 Quantitative analysis

3.1.1 Data collection and sample

To test differences in the delegation of authority over strategic decisions between VC-backed and non-VC-backed startups, we first relied on quantitative data on a sample of Italian startups founded by graduates from the largest Italian technical university.

To collect this data, a survey data collection was administered in the second semester of 2015³. The target population included 1,889 startups (i) founded between 2004 and 2010 by one or more individuals who graduated between 2002 and 2010, (ii) located in Italy, and that (iii) survived as independent startups until December 2014 (i.e., these startups were 10 years old or younger in December 2014). Besides being in line with previous studies (e.g., Beckman & Burton, 2008; Boeker & Wiltbank, 2005; Sine et al., 2006; Talaulicar et al., 2005), the choice of using such a convenience sample allowed to obtain a high response rate (e.g., Kriauciunas et al., 2011) and to reduce the risk of having in the sample startups that failed to adopt a “professional” organization due to a low human capital of their founders. Moreover, our convenience sample assured the presence of an adequate number of startups backed by VC investors, as many of the startups were located in the Milan metropolitan area, the largest Italian VC hub.

For all startups in our target population, we retrieved information on shareholders and accounting data from the AIDA dataset managed by Bureau van Dijk, and we searched for the personal email and/or telephone contact of one of their owner-managers. We were able to retrieve contact information for 1,075 entrepreneurs from as many startups, which constituted the target sample to which we administered a structured questionnaire. The questionnaire included several questions on the organization of startups. Among these, one was specific on the allocation of decision authority over a set of 19 strategic decisions (Table 1 in the *Results* section). Some of these decisions relate to specific functional areas (e.g., decisions concerning the development of innovative products and services or major changes in marketing activities), while others are corporate level decisions (e.g., entry in and exit from product-markets, strategic alliances). For each strategic decision, respondents indicated who is responsible for the decision and how the decision is typically made (i.e., autonomously by an individual or as the outcome of discussion between two or more individuals). Before starting the data collection, we pilot tested and pre-tested the questionnaire. First, we asked five entrepreneurs, who founded startups not included in the target population, to answer the questionnaire and provide feedback; Then, we administered a new version of the questionnaire, which we refined based on the feedback received in the pilot test, to a sample of 100 startups randomly extracted from the target population. Because in the pre-test only 10% of the startups answered to the questionnaire, we redesigned the contact methodology to increase response rate. Specifically, instead of sending out invitation emails, which were rarely read by entrepreneurs during the pre-test, the research team decided to administer the ques-

³ Rovelli and Buttice (2020) provided a detailed description of the survey and general descriptive statistics.

Table 1 Key informants' description

EV name ^a	Business description	Industry	Number of employees	VC backed	VC type	Entrepreneurial team size	Delegation of decision authority
Alfa	Development of advanced information computer technologies and solutions with a particular focus on healthcare, telemedicine, sport and fitness	Manufacturing	4	Yes	CVC	4	1.526
Beta	Development of software to handle healthcare services	Services	4	Yes	CVC	2	1.789
Gamma	Production of plastic injected coffee capsule	Manufacturing	12	Yes	CVC	3	1.474
Delta	Consultancy company specialized in optimization of production and energy supply	Services	8	Yes	CVC	2	1.368
Epsilon	Digital platform to organize shared sailing boat holidays	Services	7.5 ^b	Yes	IVC	2	1.579
Zeta	Software development and consulting company focused on systems with high technological content	Services	10	Yes	IVC	3	1.632
Eta	Development of project portfolio management and custom relation management software	Services	5	Yes	IVC	2	1.176
Theta	Production of self-recharging wheels for electric bikes	Manufacturing	14	Yes	IVC	8	1.526
Iota	Consultancy company specialized in built environment engineering	Services	9	No	-	3	2.263
Kappa	Development of software for social media marketing	Services	5	No	-	1	1.000
Lambda	Development of software for workout management, sport and fitness	Services	3	No	-	2	1.222
Mi	Consultancy company specialized in qualification and validation of chemical, pharmaceutical, equipment and systems.	Services	8	No	-	3	1.789

a: startups names have been changed to ensure anonymity

b: part-time employees count 0.5

tionnaire through direct phone calls. Conversely, no problems emerged regarding the questionnaire.

Starting from June 2015, trained research assistants contacted all the entrepreneurs included in the target sample by phone, then sending an email containing the link to access the online questionnaire on SurveyMonkey. For each questionnaire received, answers were checked for internal coherence. If needed, missing data and mistakes were solved through an additional phone call with respondent entrepreneurs. 254 completed questionnaires with no missing data were returned, corresponding to a 23.6% response rate.

We performed several checks regarding the reliability of the data, the representativeness of the sample, and the possible presence of non-response biases (results are available from the authors upon request). First, we checked the reliability of the collected data by triangulating the answers received from 24 respondent entrepreneurs with those provided by a second respondent, typically another owner-manager, in the same startups: no significant difference emerged over the organizational design elements we consider in this study (i.e., the delegation of decision authority) across different respondents from the same startup. Second, we checked whether the sample of 254 startups is representative of the target sample of 1,075 startups. To this aim, we used t-tests and Kolmogorov-Smirnov tests for equality of distribution functions for continuous variables and chi-squared tests for categorical variables, which confirmed no significant differences between the distribution of the sample and of the target sample with respect to the size of startups (measured by sales in 2015, t-test=0.518, p-value=0.605), their foundation year ($\chi^2(9)=1.142$, p-value=0.285), the geographical area where startups are located ($\chi^2(2)=3.041$, p-value=0.219) and the industry in which they operate ($\chi^2(3)=2.661$, p-value=0.447).⁴ Finally, we compared early and late respondents⁵, finding no significant differences with respect to startups' organization and modes of financing.

Due to missing data in the financial information retrieved from AIDA, we run our analyses on 241 startups, 26 of which had received equity financing from VC investors. The majority of the startups in the sample are located in the north of Italy (94.2%), with 48.4% of them in the Milan urban area, the largest Italian hub for entrepreneurial finance. Most startups operate in the service industry (75.1%), while 14.9% are in manufacturing. In most cases, startups were founded by a team of entrepreneurs (64.6%). On average, sample startups are 4.3 years old, with average sales of 609,692 €.

3.1.2 Variables and method

To measure the level of delegation of authority over the 19 strategic decisions under consideration we proceeded as follows (Colombo & Delmastro, 2004; Hempel et al., 2012; Lin & Germain, 2003). For each strategic decision, respondents were asked

⁴ We considered 3 geographical areas: north, centre, and south of Italy, and 4 industries: manufacturing, services, agriculture and construction.

⁵ Early respondents are entrepreneurs who answered after the initial phone call and related email; late respondents are instead those that answered after at least one email reminder.

to indicate who in the startup was responsible for the decision and how the decision was made. The following five situations, in ascending level of delegation, were defined: (1) the CEO makes the decision; (2) a member of the entrepreneurial team makes the decision, but the approval of the CEO is needed; (3) a member of the team makes the decision autonomously; (4) a startup's employee or middle manager makes the decision but the approval of an entrepreneurial team member is needed; (5) a startup's employee or middle manager makes the decision autonomously. We measured delegation of decision authority at two levels of analysis. At the decision level, *Delegation of decision authority_DL* is the level of delegation indicated by the respondent for each of the 19 strategic decisions, considered separately; at the venture level, *Delegation of decision authority_VL* is the average level of delegation over the 19 strategic decisions.⁶

VC investor is a dummy variable that equals 1 if at least one external investor owns shares of the equity capital of the focal startup. External investors of startups in our sample mainly comprise CVC and IVC investors. We created a dummy variable for each type of VC investor (*CVC investor* and *IVC investor*), which equals 1 if the investors that own shares of the startup belongs to the category represented by the dummy. Only one venture initially received founding by a business angel and later was backed by an IVC investor.

The aim of the quantitative analysis was to detect the existence of systematic differences in the delegation of authority over strategic decisions between startups with and without VC investors in their equity. Therefore, we ran ordered logit and OLS multivariate analyses using the measure of the delegation of decision authority at decisions and venture level, respectively, to test whether the presence of VC investors and the type of investor are significantly associated with the delegation of decision authority. In these models, we considered a set of control variables. These variables represent venture's *Size*, measured by the number of employees (converted into logarithms due to skewness)⁷, *Age* (converted into logarithms), geographical location – measured by two dummy variables representing the *North* and *South* of Italy (while the *Centre* is the baseline) – and the industry – measured by two dummies representing the *Manufacturing* and the *Service* industries. In the decision level analysis, we also added decision level dummies and we clustered errors by firm.

⁶ It is worth mentioning that due to the low number of strategic decisions delegated below the entrepreneurial team (only 174 decisions over the 4,703 decisions in the sample (3.70%), corresponding to 4 startups with average delegation greater than 3), we decided to limit our decision level categorical *Delegation of decision authority_DL* variable to 3 ordered categorical variables corresponding to increasing levels of delegation. To do so, we associated a level of delegation equal to 3 to the strategic decisions corresponding to situations 3, 4 and 5 as described above. To compute the venture level variable we considered instead all the 5 levels of delegation.

⁷ As a robustness check, we also ran estimates by considering startups' size in terms of sales. Results are fully in line with those presented in this paper and available from the authors upon request.

3.2 Qualitative analysis

3.2.1 Data collection

The aim of the qualitative analysis was to gather detailed information about the motivations, mechanisms and dynamics underlying the association between the delegation of authority over strategic decisions and the mode of financing of startups, giving special attention to differences that may be attributable to the type of VC investors (i.e., IVC vs. CVC). Due to limited theory and empirical evidence on these aspects, we used inductive theory-building with multiple cases (Eisenhardt, 1989b), which enable a more robust, generalizable, and parsimonious theory than single cases (Eisenhardt & Graebner, 2007).

We started the data collection in summer 2016 with four non-structured pilot interviews with 2 CVC and 2 IVC investors operating in the Milan area. The main goal of these interviews was to understand whether VC investors consider startups' organization in terms of allocation of decision authority in their investment decisions, to grasp what changes in startups' allocation of decision authority they promote after entering their equity capital, and to determine what the main reasons for these changes are.

In a second phase, we collected original material from interviews with entrepreneurs. To this end we contacted all the respondents to our survey whose startups had attracted at least one VC investor within the previous five years. This strategy allowed us to minimize validity issues related to retrospective bias (Huber & Power, 1985), as the entry of the VC investor was still vivid in informants' memory. We also included in the sample entrepreneurs whose startups had not received any VC investment to create a comparison group with the aim of improving the generalizability of our results and reduce possible biases in interpretation caused by sample selection (for a similar approach see for instance Autio et al., 2011; Wasserman, 2003). We selected these four cases considering similarities with the other startups in our sample⁸.

Initially, the sample included eight entrepreneurs, of whom four had received at least one equity investment from IVC or CVC investors. Later, we added four more startups to achieve theoretical saturation (Merriam, 1988). Information about the twelve informants is reported in Table 2. None of the startups in our sample experienced founder-CEO succession (Wasserman, 2003). In the concluding section, we will discuss our findings in light of this peculiarity.

Beginning in spring 2017, we contacted the owner-managers of the startups who had responded to the survey. In parallel, we gathered secondary data on the history and performance of these startups from press articles, ventures' websites and other Internet resources (e.g., from the AIDA database, which provided accurate data on these startups' financials). During March-May 2017 we started conducting the semi-structured interviews with one of the founding entrepreneurs⁹. We chose this type of interview to favour free expression of the entrepreneurs' ideas and to facilitate com-

⁸ For each group of startups operating in a given industry that received VC investments, we selected among the respondents of our survey another entrepreneur whose startup operated in the same industry but had not received any VC investment.

⁹ The interview protocol is available upon request from the corresponding author.

Table 2 Descriptive statistics and correlations (*p*-values in parentheses)

	Mean	Std. Dev.	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
(1) Delegation of decision authority_VL	1.6045	0.5471	1.0000											
(2) VC investor	0.1079	0.3109	0.1373	1.0000										
(3) CVC investor	0.0871	0.2826	0.0948	0.8884	1.0000									
(4) IVC investor	0.0207	0.1428	0.1113	0.4186	-0.045	1.0000								
(5) Size (employees)	1.8462	1.0196	0.1514	0.037	0.0273	0.0264	1.0000							
(6) Age	4.3154	2.5083	0.0187	0.5680	0.6732	0.6832		1.0000						
(7) Cash and cash equivalents over total assets	0.1969	0.2137	0.1251	-0.0652	-0.0037	-0.1346	0.0795	1.0000						
(8) Debt over total assets	0.6271	0.2634	0.0524	0.3136	0.9549	0.0367	0.2188		1.0000					
(9) North	0.9419	0.2344	0.0067	0.0698	-0.0237	0.1989	-0.0075	-0.2073	1.0000					
(10) South	0.0456	0.2091	0.9182	0.2805	0.7141	0.0019	0.9081	0.0012		1.0000				
(11) Manufacturing	0.1494	0.3572	0.1416	-0.1279	-0.0957	-0.089	-0.0395	-0.0576	-0.3449	1.0000				
(12) Services	0.7510	0.4333	0.0280	0.0474	0.1386	0.1685	0.5421	0.3730	0.0000		1.0000			
			-0.0143	0.0864	0.0767	0.0361	-0.0149	0.0171	0.0245	0.0416	1.0000			
			0.8251	0.1815	0.2354	0.5766	0.8179	0.7915	0.7054	0.5204		1.0000		
			0.0002	-0.0761	-0.0676	-0.0318	0.0037	0.028	-0.0001	-0.0486	-0.8806	1.0000		
			0.9976	0.2395	0.2962	0.6229	0.9550	0.6649	0.9986	0.4527	0.0000		1.0000	
			-0.0529	0.0419	0.0356	0.0207	0.0163	-0.1132	-0.0695	0.0291	-0.0452	0.0199	1.0000	
			0.4138	0.5176	0.5821	0.7495	0.8017	0.0793	0.2826	0.6526	0.4847	0.7585		1.0000
			0.0548	0.0456	0.0418	0.0165	-0.0038	0.0342	0.0652	-0.078	0.0211	-0.012	-0.7278	1.0000
			0.3967	0.4814	0.5185	0.7991	0.9532	0.5973	0.3134	0.2275	0.7444	0.8527	0.0000	

parison among information provided by different entrepreneurs (Bjørnholt & Farstad, 2014). Two of the authors participated in the interviews. When possible, we met the informants in their offices. However, occasionally we conducted interviews at our premises (1 case) or on Skype (3 cases). Interviews lasted between 30 min and 2 h. During interviews we asked entrepreneurs about the evolution of their startups from founding until recent days. We asked entrepreneurs to focus on how and why they changed the organization of their startups over time. If the entrepreneurs indicated the receipt of VC investments among the reasons for organizational change, we asked other questions on this specific topic. Additional non-directive questions were used to obtain further details. We systematically audio-recorded and then transcribed verbatim the interviews with entrepreneurs to facilitate the coding of documents.

To ensure construct validity and account for retrospective bias, we triangulated the information provided by entrepreneurs using diverse information sources (Gibbert et al., 2008). First, we conducted 4 additional interviews with VC investors. In three cases out of four, investors had directly invested in one of the startups in our qualitative sample. In this way, we obtained the perspectives of both investors and entrepreneurs, which are unavailable from other sources (Hallen & Eisenhardt, 2012). Second, we collected all the press articles related to the startups covered by our study. Finally, we had a final round of follow-up interviews with all the startups in our sample to clarify ambiguous or unclear statements. These follow-up interviews occurred from May to July 2017. In all cases, we interviewed one member of the entrepreneurial team who was still active in the management of the startup. These interviews were shorter compared to the previous round and lasted no more than 30 min. Overall, we gathered more than 15 h of original interview recordings, equivalent to approximately 62 pages of transcriptions. In addition, we gathered approximately 50 additional documents of non-original material (e.g., articles from magazines, press reviews, and technical journals).

3.2.2 Data analysis

Consistent with multiple-case study methods (Eisenhardt, 1989a), we began by writing case histories for each venture. To avoid errors arising from halo effects and other interpretation biases (Strauss & Corbin, 1998), two of the authors initially analyzed the transcription of the interviews separately. We then discussed the results together, involving in the discussion the author who was not present at the interviews to include an unbiased interpretation of the material. We coded the collected data along two main dimensions. First, we coded information about startups' organization. In this respect, we kept track of all references to the *Delegation of decision authority* variable considered in the quantitative part of our study. We coded all the changes in startup's organization including when they occurred and their motivations. Second, we looked at the presence of VC investors. When the startup received VC, we coded information about: (i) the type of investor, (ii) investment's timing, (iii) investor's objectives, (iv) the relationship between investors and entrepreneurs before the investment and (v) the relationship between investors and entrepreneurs after the investment. At the end of this phase, we compared the codes we had gener-

ated. When discrepancies in the interpretation of the material among the researchers were detected, we discussed and clarified them.

We took advantage of this analysis to gain familiarity with the cases and to gain a better understanding of the evolution of startups' organization over time. We also used the individual case histories to conduct within-venture analysis. Our initial focus was on identifying the reasons for changes in the allocation of decision authority. We then linked these changes to relevant milestones in the startup lifecycle. In this phase we also created for each startup a graphic representation which described how the organization in general and allocation of decision authority in particular had changed since the founding of the venture.

Subsequently we performed cross-case analysis to ensure external validity (Gibbert et al., 2008). During this phase we initially compared codes among different cases to assess consistency. Then we separated our sample based on whether startups had obtained VC investments and looked for within-group similarities and inter-group differences (Eisenhardt, 1989b). At this stage, we checked whether differences existed in the evolution of startups' organization that could originate from the receipt of external equity financing. In parallel, we also checked construct validity by means of a continuous dialogue among authors and field experts. We continued this process until discussions among authors and with informants revealed no apparent errors in the interpretation of data.

Lastly, we performed theory triangulation to enhance internal validity (Merriam, 1988). During this stage we assessed similarities and differences between our findings and existing theory and literature (Eisenhardt, 1989a). When differences emerged, we looked at neglected contingency factors and underlined explanations to reconcile apparently divergent results.

4 Results

4.1 Results of the quantitative study

Table 3 reports descriptive statistics and correlations. The average level of *Delegation of decision authority_VL* of sample startups is equal to 1.605 (s.d. = 0.547). Thus, sample ventures typically centralize decision authority in the hands of the CEO or, when decision authority is delegated to a member of the entrepreneurial team, the CEO has the ultimate say over the decision. The decisions that exhibit the highest level of delegation of authority relate to procurement and management control systems, while decisions relating to major investments are the ones for which decision authority is most centralized (see Table 1). At the end of 2014, 10.8% of sample startups (i.e., 26) had received equity financing from VC investors (s.d. = 0.304). Quite interestingly, in 80.8% of the cases (i.e., 21 startups) the investor is a CVC investor that invests either directly or through a specialized vehicle such as a CVC subsidiary or a family investment office, whereas the remaining ventures (i.e., 5 startups) are backed by IVC investors. In VC-backed startups decision authority is more delegated than in non-VC-backed ones, especially as regards decisions related to finance, expansion of production capacity and major investments. Accordingly, *VC investor* is posi-

Table 3 Types of strategic decision and their average level of delegation

N	Decision	All startups	VC-backed startups	Non-VC-backed startups	t-test
		(241 startups)	(26 startups)	(215 startups)	p-value
1	Developing innovative products and services	1.6511	1.8000	1.6333	0.2669
2	Introducing significant changes in products and/or services	1.6737	1.8400	1.6540	0.1908
3	Introducing major changes in marketing activities	1.6271	1.7600	1.6114	0.2946
4	Entry or exit decisions from markets	1.5149	1.5600	1.5095	0.7196
5	Opening of new product lines	1.5745	1.6800	1.5610	0.4113
6	Major price decisions	1.5756	1.7600	1.5540	0.1457
7	Radical changes in organizational processes and procedures	1.6410	1.8000	1.6220	0.2297
8	Significant changes in the organizational structure	1.3923	1.5200	1.3780	0.2465
9	Strategic alliances/partnership with other firms or organizations (acquisitions and joint venture are not included)	1.4370	1.6154	1.4151	0.1026
10	Major business investments (e.g., acquisitions, joint ventures, creation of new firms, opening new plants, creation of new infrastructures)	1.2918	1.5600	1.2596	0.0059
11	Hiring and firing	1.4051	1.5200	1.3915	0.2887
12	Promotions, salaries and incentives for the employees	1.4407	1.5600	1.4265	0.3094
13	Design of management control systems (e.g., planning, budgeting, controlling)	1.7479	2.0000	1.7177	0.0653
14	Relations with external equity investors (e.g., business angels, venture capitalists)	1.4585	1.7200	1.4265	0.0262
15	Opening/closing of relations with financial institutions	1.4681	1.8077	1.4258	0.0037
16	Strategic decisions about purchases (e.g., major supplier selection)	1.8213	1.9200	1.8095	0.4787
17	Strategic decisions about production insourcing/outsourcing	1.6853	1.8000	1.6715	0.3889
18	Expansion of production capability, expansion and modernization of production equipment and plants	1.5522	1.8400	1.5171	0.0164
19	Significant investments in information and communication systems	1.6298	1.8000	1.6095	0.1706

tively and significantly correlated with c ($\rho=0.137$, $p\text{-value}=0.033$). To exclude multicollinearity, we performed variance inflation factors tests; indexes (model with VC investor as independent variable: $\max\text{ VIF}=4.36$, $\text{mean VIF}=2.03$; model with CVC investor and IVC investors as independent variables: $\max\text{ VIF}=4.36$, $\text{mean VIF}=1.95$) were lower than the cut-off of 5 that is typically associated with multicollinearity issues (Hair et al., 2010).

In Table 4 we report the econometric estimates, while in Table 5 we report the Average Marginal Effects (AMEs) of the variables representing the receipt of VC

Table 4 Results of econometric estimates (dependent variables: Models 1–3, *Delegation of decision authority_DL*; Models 4–6, *Delegation of decision authority_IL*)

	Model 1		Model 2		Model 3		Model 4		Model 5		Model 6	
	Ordered logit model	coef.	<i>p</i> -value	Ordered logit model	coef.	<i>p</i> -value	Ordered logit model	coef.	<i>p</i> -value	Ordered logit model	coef.	<i>p</i> -value
VC investor	-	0.7755	0.0020	-	-	-	-	0.2913	0.0053	-	-	-
CVC investor	-	(0.2508)	-	0.6710	0.0182	-	-	(0.1034)	-	0.2374	0.0499	(0.1204)
IVC investor	-	-	-	1.3063	0.0001	-	-	-	-	0.5276	0.0003	(0.1436)
Size (employees)	0.1985	0.0370	0.1999	0.0360	0.0326	0.0789	0.0173	0.0756	0.0207	0.0748	0.0211	(0.0322)
	(0.0951)		(0.0953)		(0.0944)		(0.0329)		(0.0325)		(0.0325)	
Age	0.0846	0.0267	0.0893	0.0190	0.0925	0.0166	0.0325	0.0348	0.0214	0.0361	0.0181	(0.0151)
	(0.0382)		(0.0381)		(0.0386)		(0.0151)		(0.0150)		(0.0151)	
Cash and cash equivalents over total assets	0.8315	0.0482	0.8612	0.0346	0.8108	0.0533	0.2698	0.0926	0.2643	0.0817	0.2332	0.1423
	(0.4209)		(0.4076)		(0.4197)		(0.1598)		(0.1512)		(0.1584)	
Debt over total assets	1.0428	0.0013	1.1772	0.0003	1.1858	0.0003	0.4101	0.0034	0.4522	0.0010	0.4501	0.0011
	(0.3251)		(0.3249)		(0.3265)		(0.1388)		(0.1361)		(0.1358)	
North	-0.5967	0.5786	-0.7206	0.5029	-0.7232	0.5006	-0.2229	0.5002	-0.2652	0.4217	-0.2650	0.4215
	(1.0744)		(1.0756)		(1.0738)		(0.3301)		(0.3294)		(0.3292)	
South	-0.3670	0.7408	-0.3829	0.7304	-0.3844	0.7291	-0.2051	0.5523	-0.2115	0.5391	-0.2117	0.5388
	(1.1095)		(1.1113)		(1.1102)		(0.3446)		(0.3438)		(0.3438)	
Manufacturing	0.2836	0.4204	0.1681	0.6348	0.1647	0.6395	0.0131	0.9196	-0.0241	0.8535	-0.0239	0.8538
	(0.3520)		(0.3539)		(0.3517)		(0.1298)		(0.1302)		(0.1296)	
Services	0.2923	0.3911	0.2068	0.5467	0.2110	0.5366	0.0835	0.5237	0.0538	0.6815	0.0547	0.6752
	(0.3409)		(0.3430)		(0.3415)		(0.1307)		(0.1309)		(0.1304)	
Decision dummies	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No	No	No
Constant cut 1	1.1364	0.3413	1.1280	0.3447	1.1393	0.3391	-	-	-	-	-	-
	(1.1941)		(1.1938)		(1.1919)							

Table 4 (continued)

	Model 1		Model 2		Model 3		Model 4		Model 5		Model 6	
	Ordered logit model	coef. p-value	Ordered logit model	coef. p-value	Ordered logit model	coef. p-value	OLS model	coef. p-value	OLS model	coef. p-value	OLS model	coef. p-value
Constant cut 2	3.3168 (1.2081)	0.0060	3.3310 (1.2082)	0.0058	3.3451 (1.2063)	0.0056	-	-	-	-	-	-
Constant	-	-	-	-	-	-	1.1628 (0.3748)	0.0022	1.1702 (0.3717)	0.0019	1.1727 (0.3713)	0.0018
Observations	4,457		4,457		4,457		241		241		241	
Clusters	241		241		241		-		-		-	
Adj R-squared	-		-		-		0.0422		0.0653		0.0659	
Log likelihood	-3956.5		-3923.9		-3920.2		-186.8		-183.4		-182.7	
Robust standard errors in parentheses.												

Table 5 Average marginal effects of the ordered logit models

	Average Marginal Effects of	p-value
Model 2		
<i>VC investor</i>		
Delegation of decision authority_DL=1	-0.1767 (0.0556)	0.001
Delegation of decision authority_DL=2	0.1108 (0.0357)	0.002
Delegation of decision authority_DL=3	0.0658 (0.0217)	0.002
Model 3		
<i>CVC investor</i>		
Delegation of decision authority_DL=1	-0.1527 (0.0635)	0.016
Delegation of decision authority_DL=2	0.0957 (0.0403)	0.018
Delegation of decision authority_DL=3	0.0570 (0.0244)	0.020
<i>IVC investor</i>		
Delegation of decision authority_DL=1	-0.2972 (0.0721)	0.000
Delegation of decision authority_DL=2	0.1863 (0.0478)	0.000
Delegation of decision authority_DL=3	0.1109 (0.0283)	0.000
Robust standard errors in parentheses.		

investments in the ordinal logit models. Model 2 reveals a positive and statistically significant relation between *VC investor* and *Delegation of decision authority_DL*. The AME indicates that when *VC investor* switches from 0 to 1, the probability of centralizing decision authority in the hands of the CEO decreases by 17.7% points (p-value=0.001). In contrast, the probability that a focal decision is made jointly by the CEO and another entrepreneurial team member increases by 11.1% points (p-value=0.002), and the probability of delegating authority over a focal decision to an individual entrepreneurial team member or assigning it to a lower hierarchical level (i.e., *Delegation of decision authority_DL* is equal to level 3 of our scale) increases by 6.6% points (p-value=0.002). The estimates of Model 3 highlight a positive and significant relation of *Delegation of decision authority_DL* with both *CVC Investor* and *IVC investor*. Specifically, the presence of one or more IVC investors in the startup's equity capital leads to a 29.7% points decrease in the probability of the CEO making the focal decision autonomously (p-value=0.000). The decrease is instead equal to 15.3% points (p-value=0.016) when there are one or more CVC investors.

Looking at OLS models, the estimates of Model 5 confirm a positive and significant relation between *VC investor* and *Delegation of decision authority_VL* (p-value=0.005) of considerable magnitude. The increase in the level of *Delegation of decision authority_VL* associated with the presence of a VC investor in the startup's equity capital is equal to half the standard deviation of the dependent variable.

Model 6 distinguishes between the two types of VC investors. Both *CVC investor* and *IVC investor* positively and significantly relate to *Delegation of decision authority_VL* (p-value=0.050 and 0.000, respectively). The magnitude of the increase in the level of delegation when *CVC investor* switches from 0 to 1 is equal to about one third of the standard deviation of the dependent variable, whereas the magnitude of the estimated differences in the level of *Delegation of decision authority_VL* between IVC-backed and non-IVC-backed ventures is as large as the standard deviation of the dependent variable.¹⁰

4.2 Results from the qualitative study

In this section we illustrate the evidence collected during the interviews on the role played by VC investors in changing startups' allocation of authority over strategic decisions after the investment. We also show that these effects markedly differ depending on the types of VC investor and their objectives. As in the previous section, we distinguish between IVC and CVC investors. The interviewed IVC investors pursue mainly financial objectives, thus aiming at realizing a substantial capital gain by a successful and timely exit from the investment. In addition to financial objectives, the interviewed CVC investors pursue strategic objectives. They aim at opening a window on a promising new technology such as the injected coffee capsule production technology developed by Gamma, enlarging their portfolio of products or services, as in the case of the optimization of production and energy supply services offered by Delta, or obtaining access to a key component technology such as the information technology solutions for healthcare, telemedicine, sport and fitness produced by Alfa or the software for healthcare services of Beta.

As a preliminary remark, from our interviews we do not find any compelling evidence that VC investors consider aspects of startups' organization when evaluating and selecting their investment targets. None of the interviewed investors mentioned the organization of startups as a fundamental driver of their investment decisions. Although a startup's entrepreneurial team is often mentioned as an important element of the investment decision, investors focus on either the presence of individual entrepreneurial team members with sophisticated and complementary skills or the trustful relationships among team members. The current organization of the startup was never mentioned.¹¹ One of the partners of a well-known Italian VC investor is very clear in this respect:

What we look at is: A good idea, a strong technological basis, and a high-skilled team able to develop the technology and execute the idea [...] It is one of our

¹⁰ These multivariate results must be interpreted as indicating a *positive association* between backing by an IVC or CVC investor and the level of delegation of authority over strategic decisions. The limited size and the composition of the sample makes it impossible to identify the "treatment effect" of VC-backing. We leave this interesting issue to future research, even though our qualitative analysis provides some interesting, though preliminary and partial insights.

¹¹ These results are in line with the evidence provided by previous studies that have analyzed the criteria used by VC investors to evaluate potential investments (e.g., Kaplan & Strömberg, 2004; MacMillan et al., 1985; Petty & Gruber, 2011; Gompers, Gornall, Kaplan, & Straebulaev, 2020).

goals to empower the startups in our portfolio by adding to the entrepreneurs' high-profile managers who share a professional culture.

Coherent with this view, none of the interviewed entrepreneurs report that before receiving VC investments they organized their startups in a way that rendered them more appealing for external investors.¹²

By contrast, the interviews corroborated the view that once VC investors are on board, they initiate significant changes in startups' allocation of decision authority over strategic decisions¹³. The level of delegation systematically increases after the investment. As to CVC investors, while major corporate level strategic decisions (e.g., major investments or exit from and entry into products-markets) are kept centralized at the top of the startups' hierarchy, entrepreneurial team members in charge of specific functional areas are given greater autonomy. This pattern is well described by the founder of *Delta*, who comments about the changes initiated by the investor:

[...] I was encouraged [by the investor] to take autonomous decisions in my specific area of trading and operations. [...] We decide all together about corporate-level strategic issues.

CVC investors foster greater delegation of functional decisions to individual entrepreneurial team members to exploit their specific functional knowledge, thus improving the quality of decisions (Hayek, 1945; Jensen & Meckling, 1992). The increase in the delegation of decision authority is particularly apparent for decisions that do not have substantial impact beyond the pertinent functional area. For example, the CVC investor of *Beta* encouraged the increased delegation of authority over decisions related to the startup's products and services (e.g., the development of an ad hoc software for a new small customer) and selection of suppliers (e.g., the selection of suppliers of IT equipment), with the ultimate objective of making *Beta's* organization "more responsive and effective". In accordance with the technology window strategy pursued by the CVC investor, the benefit for the investor lies in the greater chances that *Beta* will succeed in developing innovative software applications for health care. Delegation of decision authority also serves the purpose of timely solving the problems that arise in day-to-day activities and reducing information overload at the top of the startup (Harris & Raviv, 2002). Accordingly, the Chief Technology Officer of *Gamma* appreciated the possibility "to take fast decisions in my area of expertise [...] without the need to arrange a meeting every time". Similarly, the CEO of *Alfa* positively valued the opportunity of concentrating effort and attention on technology development:

¹² This does not rule out the possibility that the adoption of an organization that leads to better performance indirectly attracts the interest of VC investors.

¹³ The interviews also show that after a VC investment, the size of the management team increases, as the investor appoint new managers in the startup.

In this way, we have the chance to focus on developing a functioning technology, rather than wasting time in meetings to decide who goes to the post office or with other hassles.

In the case of startups backed by IVC investors, the interviews also revealed a post-investment increase in the level of delegation of decision authority, but the underlying motives and mechanisms were different. The delegation of decision authority by the CEO/founder to entrepreneurial team members was often coupled with the appointment in the entrepreneurial team of newly hired managers (Hellmann & Puri, 2002) and the adoption of a *polyarchical* organization in which managers regularly met in committees to discuss strategic issues, evaluate proposals and make ultimate decisions. This arrangement enhanced IVC investors' ability to monitor the startup's decision-making process. The CEO of *Theta* reported that the IVC investor insisted “to add [in the team] a person [who had a family relationship with the investor], who was a watchdog during the meetings”. Similarly, the founder of *Eta* noticed that the IVC investor was “irremovable in his will to add new managers of his choice to the entrepreneurial team”.

The emergence of a *polyarchy* was accompanied by the decoupling between the startups' *formal* and *real* organizations (Gulati & Puranam, 2009), which allowed the IVC investors to crucially influence the decision-making process and align decisions with their own agenda. The informants often reported that the managers appointed by the IVC investors had the ultimate say in key strategic decisions, independently of their formal role. For instance, the CEO of *Epsilon* admitted that “[during the meetings] they [the managers appointed by the IVC investor] controlled all the most important strategic decisions”. Similarly, the founder of *Zeta* mentioned that although he was formally the CEO, a manager appointed by the VC investor – an IVC investor that received a large share of the equity capital of *Zeta* in exchange for a substantial infusion of finance – was involved in all strategic decisions and had the final say, forcing the other entrepreneurial team members to follow his advice. Specifically:

We had different objectives compared to those of the investor. At the end, we spent a lot of time in trying to convince him that our decisions were good. However, it was him [the manager appointed by the investor] who had the final say.

The decoupling of the real and formal organizations was ascribable to the high bargaining power of the VC investors. These investors owned a large share of the equity capital of the portfolio startups. Moreover, the investment contracts often included clauses that confer them special control rights.

The delegation of decision authority, together with the emergence of a polyarchy and the decoupling between the formal and real organizations, was instrumental in reducing the principal-principal agency costs (Young et al., 2008) created by the VC investments by realigning the ventures' actions with the VC investors' objectives. This result only apparently contrasts the well-established view that delegation of authority over a focal decision to an agent implies the principal's loss of control over the decision. Indeed, in all the cases analyzed we observed that after the VC invest-

ments, real authority over key strategic decisions, that previously was in the hands of the startups' CEO/founders, was (fully or partially) delegated to another entrepreneurial team member. This individual, even in absence of a formal organizational role, exerted this authority in autonomy or, more often, jointly with the other entrepreneurial team members, due to the startups' adoption of a polyarchic organization. This organizational arrangement indeed implies that the CEO/founder of the startup loses control. However, this loss of control is paired with the reduction of principal-principal agency costs between the entrepreneurs and the VC investors. In fact, the latter exercised tight control over startups' operations and strategies through the managers they appointed in the entrepreneurial teams. These managers represented for the IVC investors a privileged channel to obtain first-hand information about the startups and to influence strategic decisions consistently with their financial goals.

In the case of startups backed by CVC investors we observed neither the emergence of a polyarchy nor the decoupling between the formal and real organizations, even if the level of delegation of authority over strategic decisions increased after the investment, as said earlier. A possible reason is that CVC investors relied on other mechanisms to reduce principal-principal agency costs. Startups backed by CVC investors frequently used the laboratories of the investor to further develop their new technologies or their sales force to deliver their products to customers. This offered the CVC investor the opportunity to interact directly not only with the members of the entrepreneurial team of the startup but also with other personnel with operating roles and to collect from them fresh insights on startup's operations. Second, it was not uncommon for startups to share the same distributors or suppliers with their CVC investors. Accordingly, the CEO of *Beta* mentioned that once his startup received equity capital from a CVC investor (a CVC fund owned by an Italian hospital and health care service provider), he immediately asked to be introduced to the investors' suppliers to gain access to the state-of-the-art hardware they produced. Startups' collaborations with these third parties had a twofold effect. First, they represented an additional source of information for CVC investors about portfolio startups. Second, they enabled collective oversight and punishment of misbehaviour through the influence that the CVC investors exerted on the third parties with which the CVC-backed ventures collaborated, thus discouraging startups' entrepreneurs from indulging in opportunistic behaviour. These mechanisms were out of reach for IVC investors, which were then forced to shape the organization of portfolio startups in a way that reduced principal-principal agency costs.

5 Discussion and conclusions

In this paper, we relied on a mixed-methods approach to study the association between the delegation of authority over strategic decisions in startups and the presence of VC investors in the equity capital of these ventures. By means of a survey on a sample of 241 startups, we showed that startups have generally a low level of delegation of decision authority. Startups that receive finance from VC investors exhibit a higher level of delegation than non-VC-backed ventures, especially when they are backed by IVC investors compared to CVC investors. Interviews with entre-

preneurs and VC investors indicated that this increase in delegation mainly emerges in the aftermath of the investment as a result of organizational changes initiated by the VC investors. Moreover, noticeable differences emerged between startups backed by CVC and IVC investors. Startups backed by CVC investors reported consistently that the delegation of decision authority to individual existing entrepreneurial team members serves the purpose of making the best use of the knowledge and aptitudes of these individuals (e.g. Dessein, 2002). In contrast, the organizational changes triggered by IVC investors have an additional governance logic, which goes hand in hand with their shorter-term financial objectives and the need for a timely exit from their investments. Accordingly, we observed the delegation of authority over strategic decisions to newly appointed professional members of the entrepreneurial team who have been hired with the help of and are loyal to the IVC investor. Delegation of decision authority occurred in combination with the emergence of a polyarchic organization and the decoupling between startups' formal and real organizations. These organizational arrangements served the purpose of allowing the IVC investors to exercise tight control over startups' operations and shape their strategies, reducing principal-principal agency cost (Young et al., 2008). In CVC backed ventures we did not observe a similar transformation of the startups' organization accompanying the increase in the level of delegation of decision authority. The reason is probably that CVC investors have other levers to keep principal-principal agency costs under control.

With this paper we offer three contributions to the extant literature. First, the paper extends our knowledge of an important and under-researched aspect of startups' organization, by investigating who is assigned authority over strategic decisions and how startups make these decisions. To the best of our knowledge, this is the first study to provide fine-grained micro-level data on the decision systems of a large sample of startups. Whereas Rovelli and Buttice (2020) provided a quantitative overview of the organizational configurations of startups, in this study we investigated in-depth the link between the presence of VC investors and one important organizational dimension – i.e., the delegation of decision authority, as well as the differences between IVC-backed and CVC-backed startups. In so doing, we complemented quantitative data with qualitative ones, which allowed us to better understand the mechanisms behind the investigated relations. In this way, our study answers the call for more large-scale evidence on startups' organization (Burton et al., 2019). Second, this study contributes to the literature on the effects of VC investors on startups' organization. Previous studies have shown that VC investors play a key role in enlarging the entrepreneurial team (Beckman & Burton, 2008; Boeker & Wiltbank, 2005), helping portfolio ventures hire professional managers in the CEO (Pollock et al., 2009; Wasserman, 2003) and other managerial positions (Colombo & Grilli, 2013; Hellmann & Puri, 2002). They also promote the specialization of tasks and formalization of roles within the entrepreneurial team (Beckman & Burton, 2008; Haeussler et al., 2019) and the adoption of professional managerial practices (Hellmann & Puri, 2002). We extend this literature by providing initial quantitative and qualitative evidence suggesting that the advent of a VC investor triggers changes in startups' decision systems and fosters greater delegation of authority over strategic decisions. Interestingly, we pointed out different patterns when distinguishing between CVC and IVC investors.

In so doing we also contribute to the growing stream of entrepreneurial finance literature interested in assessing the differential impact on portfolio companies of investments by corporations (e.g., Bertoni et al., 2013; Chemmanur et al., 2014; Colombo & Murtinu, 2017; Park & Steensma, 2013). As far as we know, no previous study has examined the impact of CVC investments on the organization of portfolio ventures. Lastly, this study advances the theory of delegation of decision authority in the important context of new ventures. Delegation theory has traditionally been framed in a principal-agent setting (e.g., Dessein, 2002; Harris & Raviv, 2005). In this setting, greater delegation of decision authority results in greater loss of control and associated agency costs for the principal. However, the level of agency costs tends to be limited in startups, even with extensive delegation. What hinders the delegation of decision authority, in spite of its obvious advantages, is typically the personal preferences of entrepreneurs to keep decision authority centralized (Wasserman, 2017), resulting in a level of delegation lower than the “optimal” one. Therefore, one may expect that when a VC investor comes on board, delegation of decision authority increases as entrepreneurs have less room to shape their ventures’ organization in accordance with their own wishes. This is what we observe, especially in CVC-backed ventures. Our qualitative study points to another important driver of the delegation of decision authority triggered by IVC investments. Delegation of authority over strategic decisions to newly hired professional members of the entrepreneurial team who are loyal to the IVC investors, combined with the adoption of a polyarchic organization and the decoupling of startups’ real and formal organizations, also serves the purpose of reducing the principal-principal agency costs between investors and entrepreneurs. In this way IVC investors can closely monitor startups’ operations and are reassured that ventures’ strategies are in line with their objective to successfully exit their investments.

This paper has some limitations rooted in the nature of our data. First, we took advantage of a convenience sample. Our sample has some important strengths. Sample firms have similarly trained and highly educated founders (i.e. graduates from the same Italian technical university) and are located in a constrained and very developed region which gives these entrepreneurs access to comparable ecosystem resources. We focus on the early stages of the firm – prior to a succession event – which allows us to see the original decision-making design choices as implemented by the founder. However, there may be concerns about the generalizability of our results. We are confident that our results can easily be extended to other startups founded by highly trained technicians and located in prosperous regions. These firms are reportedly more innovative and productive than other startups and play a key role in growth and new job creation (e.g., Criscuolo et al., 2014). Conversely, we cannot take it for granted that they are valid for startups founded by less educated individuals or located in peripheral geographic areas. For example, these startups may encounter obstacles in enlarging their entrepreneurial teams, which in turn may influence the level of delegation of decision authority. Moreover, we did not consider in our sample startups that did not survive up to 2014 and we did not have data on whether ventures that did not respond to the survey obtained external equity financing. Future studies might consider these limitations to improve our understanding of the investigated relation. Second, none of the informants in our qualitative study reported

any founder-CEO succession after the receipt of external equity over the observation period. Accordingly, we cannot extend our results to the cases in which the VC investor replaces the founder CEO with a professional manager. Nevertheless, our results are a nice complement to the findings of the literature on this topic (e.g., Pollock et al., 2009; Wasserman, 2003, 2017). Previous studies highlighted that an important reason why VC investors induce the founder-CEO succession relates to the reduction of the uncertainty about their investments generated by high principal-principal agency costs. Our study underlines that partial or full delegation of decision authority to newly hired professional members of the entrepreneurial team may serve the same purpose. One may also wonder whether the organizational changes described in our study pave the way to founder-CEO succession or substitute for it. Unfortunately, our data does not allow us to investigate this interesting issue which we leave to further work. Third, in our sample the absolute number of startups that obtained VC investments is rather limited. Moreover, our quantitative data is cross-sectional. Hence, our findings wait for corroboration from larger scale quantitative studies based on longitudinal data, especially as regards differences between IVC and CVC investors and any causal relation between the advent of a VC investor and the change in the level of delegation of decision authority. Lastly, in this work we did not examine whether the detected changes in the allocation of decision authority triggered by VC investors lead to performance improvements. Again, in order to investigate this interesting issue, one would need longitudinal data for a larger sample of VC-backed ventures.

These caveats notwithstanding, we are confident that our study has important implications for entrepreneurs. We show that backing from VC investors has a strong influence on the allocation of authority over strategic decisions within startups. In our IVC-backed ventures delegation of decision authority to professional managers loyal to the IVC investors changes the locus of control even if entrepreneurs are formally in charge of operations (i.e., they maintain the position of CEO). These changes may reduce the personal well-being of entrepreneurs. Therefore, while evaluating offers from IVC investors, entrepreneurs should carefully consider the net benefits of enlarging their kingdom but giving up their (real) crown, independently of whether the investors agree to keep them in the CEO position or not.

Overall, we hope that this study has laid the foundations to stimulate a new theoretical and empirical research agenda at the intersection between organizational design and entrepreneurial finance.

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