INGREDIENTS MATTER:
HOW THE HUMAN CAPITAL OF PHILANTHROPIC AND TRADITIONAL VENTURE CAPITAL DIFFERS

ABSTRACT

Philanthropic venture capital (PhVC), like traditional venture capital (TVC), provides funding and value added services to a portfolio of entrepreneurial firms. However, TVC differs from PhVC, as the primary goal of TVC is to maximize the economic return of its investments. In contrast, PhVC firms expect their portfolio companies to perform well in terms of both social *and* economic returns. Using both American and European firms, this paper explores and compares the human capital in PhVC and TVC firm founders. Our results show that there are key differences in both general and specific human capital between these firm types. While both TVC and PhVC firm founders have high levels of commercial experience, TVC firm founders tend to hold degrees in science, engineering, business, and law more frequently than PhVC firm founders. PhVC founders also differ from TVC founders by having greater work experience in the social sector.

Keywords: Firm Objectives; Human Capital; Philanthropic Venture Capital; Social Enterprises; Venture Capital.

1. Introduction

The emergence of hybrid organizations, such as social enterprises, challenges traditional management theory geared towards economically oriented companies (Doherty et al. 2013; Battilana et al., 2012; Moss et al., 2011). Hybrid firms have a primary objective of solving complex societal problems through market-based solutions (Certo and Miller, 2008; Austin, et al., 2006; Mair and Marti, 2006), while at the same time creating revenue strategies which enhance their likelihood of organizational survival (Gras and Mendoza, 2014; Carroll and Stater, 2009). In effect, social enterprises apply commercially sound "best practices" to address prescient social issues which are inadequately addressed through traditional commercial, nonprofit and/or governmental activity (Santos, 2012).

Social entrepreneurship literature has repeatedly pointed to firm founders and their human capital as a key organizational resource (Doherty et al., 2013; Short et al., 2009; Austin et al., 2006). For example, Tracey and Philips (2007) argue that human capital shapes the entrepreneurial intentions of those that pursue social opportunities. Patzelt et al. (2010) show that opportunity recognition in hybrid firms is heavily influenced by founder education and experience. Aside from Patzelt et al. (2010), research has tended to emphasize the heroic and individualistic accomplishments of social entrepreneurs, rather than the education and experiences that they possess and that differentiates them from founders of commercial enterprises (Dacin, et al., 2009). Most literature in this domain is conceptual or case-based (Dacin et al., 2009; Short et al., 2009), which emphasizes founders' social experience.

In this research, we conduct an empirical analysis of hybrid firms, asking: *how does the education and experience of firms pursuing dual objectives differ from that of firms pursuing one* *singular objective?* To answer this research question, we apply human capital (Becker, 1964) theory. This research focuses on Philanthropic Venture Capital (PhVC) firms as our hybrid firm type, making a direct comparison to its traditional singular objective counterpart, Traditional Venture Capital (TVC) firms. We argue that if education and experience is distinctive in TVC firms (Dimov and Shepherd, 2005; Walske and Zacharakis, 2009; Zarutskie, 2010), then it is likely distinctive within PhVC firms as well. Using hand-collected data, we analyse the human capital of 488 PhVC and TVC firms located in the U.S. and Europe. Results show key differences between these firm types; while both TVC and PhVC firm founders have high levels of commercial experience, TVC firm founders tend to hold degrees in science, engineering, business, and law more frequently than PhVC firm founders. PhVC founders also differ from TVC founders by having greater work experience in the social sector.

This paper contributes to the growing research within social entrepreneurship in several important ways. First, we move beyond research by Moss et al. (2011) that focuses on firm mission statements, and instead tease out which general (i.e., education) and specific (i.e., work experience) human capital can be found in singular and dual objective firms. Second, by analyzing European and American firms, we offer regional contextualization on the differences in human capital between PhVC and TVC founders. These results are especially important to the field of PhVC, due to its emerging stage of development and growing importance (Buckland, et al., 2013; OECD netFWD, 2014). Last, by having a better understanding of PhVC investors, social entrepreneurs might be more effective and efficient in raising capital.

The paper is structured as follows. First, we define the term PhVC, and discuss how this investment model differs from TVC and other forms of investing for social impact. Second, we discuss the relationship between experience and firm objectives in light of human capital theory

(Becker, 1964). Third, we present the methodology used in this research, including our data sources and a description of variables. Fourth, the paper reports the empirical results of the study, which are thereafter discussed. Last, we conclude by identifying opportunities for future research.

2. Definitions

PhVC firms are professional investment firms that apply the investing practices developed in TVC (Gompers and Lerner, 2001; Tyebjee and Bruno, 1984) to fund growing social enterprises (Scarlata and Alemany, 2010). Although TVC and PhVC firms have a similar expectation for the cycling of capital – raising, investing, and scaling their investments (Gompers and Lerner, 2001) – they have different organizational objectives. While TVC firms have a singular focus on maximizing the *economic* return of their investments, PhVC firms pursue a dual objective of maximizing the *social* and *economic* returns of their investments. As such, PhVC firms represent a specific type of hybrid social organizations that seek both social and economic value creation. To add to the complexity, PhVC firms invest in hybrid social organizations that also need to perform socially and economically.

Taking into account the success obtained by TVC backed firms in the 1990's, Letts et al (1997) argue that the adoption of a TVC investment model can improve the effectiveness and efficiency of social enterprises, which were previously deemed not scalable (Morino, 2000). Later work by Scarlata and Alemany (2010) define PhVC as an active investment vehicle for social enterprises that have the potential for a high social return on investment. To accomplish such a goal, PhVC firms channel resources to organizations that have the potential to grow, with the assumption that bigger organizations have a better chance of addressing the social needs of a larger portion of their beneficiaries, as well as having higher survival probabilities (Audretsch and Mahmood, 1994; Dunne et al, 1989, Haveman, 1995; Mata and Portugal, 1994; Mitchell, 1994; Sharma and Kesner, 1996). In sum, PhVC firms strive to have portfolio organizations that are economically self-sustaining while delivering increasingly greater social impact.

The PhVC industry is large. According to the European Venture Philanthropy Association (EVPA, 2014), European PhVC firms alone have invested more than five billion euros through 2013, with a growth rate of 28 percent between 2012 and 2013. Clark and Gaillard (2003) found that in 2002 the U.S. PhVC market represented more than six percent of the total U.S. venture capital market. It is further estimated that by 2052, $6 trillion will be directed towards the funding of social enterprises (Fulkerson and Thompson, 2008).

The vast majority of PhVC firms, which have been established mainly after the year 2000, are relatively small (Scarlata and Alemany, 2010) and operate in an investment space that does not yet have epistemological boundaries and a clear institutional structure (Nicholls, 2010). As a result, although all PhVC firms seek both a social and an economic return on their investments, the connotation of what an acceptable economic return is, differs by firm. These differences depend on the legal structure of the funded social enterprise and the aim of the PhVC firm (Scarlata and Alemany, 2010). As a result, PhVC firms fall along a spectrum of social and economic return expectations, all of which is consistent with the notion of "blended value as the organizing principle of our work: using capital to maximize total, combined value with multiple aspects of performance" (Bugg-Levine and Emerson, 2012, p. 9).

The consequence is that some PhVC firms consider only the economic sustainability of their investments, with no capital redistributed back to the PhVC firms' investors; in other words, the PhVC firm receives donations, which are then invested into social enterprises through grants or loans. An example of such a PhVC firm is Impetus Trust (Impetus). Impetus was co-founded in 2004, and is based in the United Kingdom. One co-founder, Stephen Dawson, was one of the first TVC investors in the country. The second co-founder, Nat Sloane, holds a degree in anthropology and linguistics, and was a successful for-profit and non-profit entrepreneur.

Other PhVC firms expect not only a social return, but also an economic return on their investments. An example is Acumen Fund (Acumen), a New York based PhVC firm. Its founder, Jacqueline Novogratz, founded the firm in 2001, and studied Economics and International Relations at the University of Virginia. She also earned an MBA from Stanford Graduate School of Business. She worked in the financial sector as a consultant for the World Bank, and as a social entrepreneur, founding the first microfinance institution in Rwanda. These experiences reflect Acumen's mission, which states that: "philanthropic capital combined with large doses of business acumen can build thriving enterprises serving the poor" (Acumen Fund, 2015). Acumen's donors expect no economic return, but Acumen expects either appreciation on its capital through equity investments and/or interest on its loans. These returns fund Acumen's organizational growth, placing Acumen on the spectrum of looking for both blended social impact and some financial return.

In some cases, the PhVC firm expects appreciated capital, and this appreciated capital is also distributed back to the PhVC firm's investors, akin to how TVC firms distribute capital to their limited liability partners. An example of this type of firm is Good Capital, founded in 2006, which maximizes both social and financial return. This PhVC invests in for-profit and non-profit social enterprises, with an expectation for both economic and social return. Good Capital therefore expects its mission minded and, typically, for-profit portfolio companies to scale. Their three co-founders have a mix of educational experience including an MBA, a PhD in history, and a founder holding an undergraduate liberal arts degree. They also have a mix of social and commercial work experience, including journalism, social enterprises start-up work and social investing.

Building on this definition of PhVC, those firms like Acumen Fund and Good Capital, which both "intend to create a positive impact alongside various levels of financial return, both managing and measuring the blended value they create" (Bugg-Levine and Emerson, 2012, p.9) fall within the realm of the larger impact investing sector. This sector, according Saltuk and Idrissi (2015) as well as O'Donohe, Leijonhufvud, and Saltuk (2010), has an explicit and inherent objective of creating social and/or environmental returns alongside economic return. The impact investing industry includes a wide range of funders, such as philanthropic foundations, commercial institutions, and high net worth individuals. It is important to note that impact investing is a "big tent" term, which encompasses development finance institutions, private foundations, large-scale financial institutions, commercial banks, private wealth managers, and companies, among others (O'Donohe, Leijonhufvud, and Saltuk, 2010). Saltuk and Idrissi (2015) indicate the impact investing market represented about $60 billion under management in 2014, of which 44 percent was held in private debt and 33 percent in private equity.

However, it is worth pointing out that PhVC firms like Impetus are not included in the impact investing space since they do not seek a financial return from their investments. These PhVC firms do not meet the criteria for being considered impact investors: as Freireich and Fulton (2009: 14) indicate "...impact investing, with its requirement of a minimum return of principal, is distinct from grantmaking activities." As such, PhVC refers to investing organizations that a) invest in social enterprises, and b) fall along a continuum of expected economic return.

Similar to impact investing, Crifo and Forget (2013:21) define socially responsible investing as “an investment process that integrates social, environmental and ethical considerations.” Irvine (1987) and subsequent work by Renneboog et al. (2008), among others, indicate that socially responsible investments are made in publically traded stocks. These investments typically involve a) negative or positive screens guided by ethical, normative, sectorial or best-in class factors, and/or b) engagement or shareholder activism. In other words, while investors screen investments based on their financial return, they also consider whether the target company is socially responsible, and they often become activists to improve the target company’s commitment to sound environmental and social practices. Socially responsible investment funds often then fuel corporate social responsibility by large, publicly traded companies. Social responsibility is viewed as a means to enhance economic returns by creating social, shared value (Porter and Kramer, 2011). As such, socially responsible investing is important, but different from PhVC.

Socially responsible private equity includes leveraged buy-outs and TVC (Crifo and Forget, 2013). It seeks to make investments in private companies that maximize economic returns and have positive social and/or environmental effects. Saltuk and Idrissi (2015) show that this asset class continues to grow rapidly, having increased from 12 funds annually prior to 2005, to more than 141 funds worldwide since 2005. This grew to $3.5b in 2014, with 13 percent expected year-over-year growth in 2015. Within the private equity industry, socially responsible venture capital focuses on investments in “innovative firms” that can “exploit new markets,” whereas buyout investors target “more mature markets with steady cash flows” (Crifo and Forget, 2013, p. 26). As such, socially responsible venture capital investments primarily focus on garnering high economic returns, while simultaneously investing in companies according to positive or negative screens.

3. Human Capital in Traditional and Philanthropic Venture Capital Firms

According to Becker (1964; 1975), human capital can be categorized into the general and the specific. General human capital is defined as the acquisition of knowledge and skills through formal education (Becker, 1964). In contrast, specific human capital is typically acquired through work experience; embedded in this work experience is tacit knowledge acquired in a "learn by doing" fashion (Polanyi, 1967). As such, specific human capital represents the knowledge and skills that make individual actions and decisions difficult to replicate, as they are often contextually derived. Past research indicates that the role of founders is particularly relevant in the case of new, emerging organizations (Beckman and Burton, 2007; Gimeno et al., 1997). Since emerging organizations are typically small in size, founders often have a particularly strong influence within their firms. For example, prior research has shown that founders' decisions often have a long-lasting effect on the organization's subsequent development (Stinchcombe, 1965) both in terms of the firm's strategy (Barney, 1991; Boeker, 1987) as well as its organizational identity (Barney et al., 1998, Whetten and Mackey, 2002).

Building on these premises, founders' general and specific human capital has been used as a predictor of different entrepreneurial outcomes, such as the likelihood of someone becoming an entrepreneur in the first place (Carroll and Mosakowski, 1987; Davidsson and Honig, 2003; Dimov, 2010; Evans and Leighton, 1989), the firm's growth and performance (Colombo and Grilli, 2005; Gimeno et al., 1997; Jo, 1996), and ultimately the new venture's likelihood of survival (Bruderl et al., 1992; Cooper et al., 1994; Delmar and Shane, 2004). Within the TVC literature, scholars have identified how human capital helps performance in both established

(Dimov and Shepherd, 2005; Stuart, 1990) and nascent first-time TVC firms (Walske and Zacharakis, 2009; Zarutskie, 2010). While prior literature has focused on firms that hold a singular, economic objective, human capital's influence on new firms with simultaneous dual economic and social objectives has been under-researched.

Given that organizations pursuing dual objectives have a wide array of relevant stakeholders (Low, 2006; Lumpkin et al., 2013), it is of great importance that PhVC founders, like founders of social enterprises, both know the industry in which they seek to invest capital and are knowledgeable about the larger field of social entrepreneurship (Austin et al., 2006; Doherty et al., 2013; Short et al., 2009). Since PhVC firms emphasize social value creation and the concomitant adoption of sustainable solutions to social problems, founders of these firms are required to possess general and specific human capital related to, and accrued in, social driven endeavours. This constitutes what Scofield (2011) defines as "field experience," which demonstrates to relevant stakeholders that the PhVC firm founder is indeed committed to the social causes that she invests in, and that she is familiar with its practices, peculiarities, and narratives.

Tracey and Phillips (2007) suggest that educating individuals who start firms with dual objectives is particularly challenging because of the need to focus on both social and economic considerations. Nonetheless, we would expect investors in social enterprises to have an educational background that allows them to pursue the social objectives of their investees, understand their investees' and their own firm's stakeholders, reflecting the dual identity of their firms. Mirabella and Wish (2001) indicate that leaders of firms pursuing social objectives, particularly in non-profit organizations, tend to hold general humanities degrees including letters, public administration, and communication degrees. We would expect such degrees to create a better understanding of societies and cultures, helpful to PhVC founders who often invest in developing countries that typically differ from their own. Although business schools are starting to offer social entrepreneurship related courses, Jackson et al. (2014) and Mirabella (2007) find that those pursuing organizations with primarily social objectives tend to have education concentrated in public administration programs. This leads to the formulation of Hypothesis 1 regarding founders' general human capital:

> ***Hypothesis 1:*** *Founders of PhVC firms are more likely to hold degrees in more general fields, typically found in the humanities, in comparison to founders of TVC firms.*

According to Zarutskie (2010), the dominant degrees possessed by TVC firm founders are in business administration (58%) and science and engineering (39%), with law held by far fewer TVC founders (8%). Research from Bottazzi et al. (2008) states that TVC firms benefit from having investors with education in science and engineering, as this knowledge aids them in overcoming the technological and operational challenges within portfolio companies. Zarutskie (2010) concurs, adding that most TVC investments are in technology sectors. In addition, Zarutskie (2010) and Dimov and Shepherd (2005) assert that law degrees could help TVC founders when structuring contracts with their portfolio companies. Zarutskie (2010) and Dimov and Shepherd (2005) also state that MBA degrees should help TVC founders in advising their investees on best practices. Dimov and Shepherd (2005) also argue that business education helps TVC principals screen deals, conduct deeper due diligence and advise entrepreneurs on strategy and operational issues, even though these authors' combined results were inconclusive on the positive impact of MBAs on firm performance. Given the body of research on human capital in TVC, we therefore expect that individuals with a technical, business or law education would be commonly found among TVC firm founders (Dimov and Shepherd, 2005; Zarutskie, 2010). The second general human capital hypothesis is therefore formulated:

Hypothesis 2: *Founders of TVC firms are more likely to hold degrees in the domain specific fields such as science, engineering, business and law, when compared to founders of PhVC firms.*

If PhVC is indeed an outgrowth of TVC (Letts, et al., 1997; Scarlata and Alemany, 2010; Scarlata, et al., 2012), we would expect PhVC firms to exhibit specific human capital that mirrors TVC firm founders. Having similar human capital of that found in TVC would allow PhVC founders to properly and efficiently implement TVC investing practices, thereby increasing the probability of achieving their PhVC firms' financial objectives. Having said this, individuals with such experience may be less inclined to found PhVC firms, given that PhVC firms offer lower levels of financial compensation in comparison to TVC firms, as Handy and Katz (1998), Leete (2000), Manzo (2004), Preston (1989), Ruhm and Borkoski (2000), indicate. This is due to inefficient resource mobilization (Austin et al. 2006) and the implicit expectation that as much funding as possible should go into programs that support the firm's social mission. As such, both market wages and economic incentives typically available to recruit highly skilled people in the commercial sector are rarely available in the social sector (Austin et al., 2006). This ultimately relates to Pareto's (1906) assumption, that achieving a social and/or environmental return inevitably reduces economic returns, negatively impacting PhVC founder compensation in comparison to TVC founders.

One could argue that PhVC firm founders might be pursuing this industry after achieving a certain level of financial success. However, one could also argue that individuals with specific human capital garnered in commercially oriented endeavors might be less inclined to move from an economic maximizing career, such as TVC, to one balancing economic and social considerations, as found in PhVC. This could be due to difficulties in adapting to different earnings expectations. As a result, even though a minimum level of commercial experience, like those typically found in TVC firms (Dimov and Shepherd, 2005; Walske and Zacharakis, 2009; Zarutskie, 2010), legitimizes PhVC investors' activity with their stakeholders, we suggest that commercial experience is likely less present in PhVC founders, in comparison to TVC firm founders. This leads to Hypothesis 3, which focuses on specific human capital:

> ***Hypothesis 3:*** *Founders of TVC firms are more likely to have greater commercial experience than founders of PhVC firms.*

At the same time, as Lumpkin et al. (2013) suggest, organizations with dual objectives have to meet the needs of multiple stakeholders, who legitimize the organizational activity and contribute in its resource acquisition (Gras and Mendoza, 2014). As such, experience in social specific endeavours further cements the connection between individual experiences, organizational legitimacy, and the pursuit of the PhVC firm's social objectives. This is consistent with Mair, et al. (2012: 356) who argue that social entrepreneurs "use different logics of justification which correspond to their own rationales for choosing a certain course of action." Therefore, we suggest that founders of PhVC firms often hold specific human capital in the social sector:

> ***Hypothesis 4:*** *Founders of PhVC firms are more likely to have social experience than founders of TVC firms.*

4. Methodology

In this section, we provide a description of how the TVC and PhVC datasets were built using hand-collected data. We also provide details on the dependent and independent variables used in our empirical analysis.

4.a. Dependent variable – Dual vs. singular objective firm.

To identify firms with dual or singular organizational objectives, we followed the research protocol used by Moss, et al. (2011), by categorizing firms as either having a singular organizational objective (i.e., TVC firms), or dual organizational objective (i.e., PhVC firms). We coded whether a firm is a TVC or PhVC firm using a dummy variable. If the firm exhibits a singular organizational objective, its value is equal to zero; if the firm pursues dual objectives, its value is equal to one.

TVC firms were identified based on data from VentureXpert, which includes all U.S. and European based independent first-time TVC firms founded between 1993 and 2011. From this initial list, we eliminated those firms that were not started by individuals, and hence, were not truly independent TVC firms (it thereby excludes corporate and captive TVC firms, which are often financed and owned by a corporation, financial institution, or insurance firm respectively). This resulted in 438 independent first-time TVC firms started by 735 individuals; of these 67 were started in Europe and 371 in the United States.

Consistent with our TVC dataset, we included both U.S. and European PhVC organizations founded between 1993 and 2011, with the exception of one PhVC firm, which was founded in 1980. PhVC firms were identified through the U.S.-based National Venture Capital Association (NVCA, 2014) and the European Venture Philanthropy Association (EVPA, 2014). From the final dataset we excluded firms that are consultancy firms and hence, do not invest money in social enterprises. Further, since the TVC dataset only included independent TVC firms, PhVC firms that were the equivalent of corporate and captive TVC firms were removed from the dataset. The final population of independent PhVC firms results in 103 founders from 70 first-time independent PhVC firms; of these, 44 were started in Europe and 26 in the United States.

4.b. Independent variables – General and specific human capital

After identifying independent TVC and PhVC firms, we gathered information on the human capital of firm founders. To do so, we hand-collected data using VentureXpert, Capital IQ, Zoom Info, LinkedIn, BusinessWeek, Crunchbase, company websites and Internet searches. Firms were eliminated if no biographical information on the founders could be located. If partial biographical data on founders was available, firms were included, in keeping with prior research (Beckman and Burton, 2008; Gompers, et al., 2005). These steps resulted in the inclusion of 488 firms, started by 837 individuals. Of these, 422 are TVC (64 European and 358 U.S. based) and 66 are PhVC firms (41 European and 25 U.S. based).

General human capital was measured by firm founders' education, consistent with prior work (Dimov and Shepherd, 2005; Zarutskie, 2010). We coded the highest level of education that the individual founder obtained. This approach was taken for two reasons. First, the European and American education systems have been harmonized only recently. Therefore, we had to take into account differences within Europe, where one could receive a degree equivalent to a Master's degree, without having to obtain an undergraduate degree beforehand. Second, the highest level of education corresponds to the most recent and last exposure to formal education, which greatly influences the career path of an individual.

The variable related to the highest level of education obtained by founders was calculated in the following way: for each founder we coded as a "1" if the highest degree was an Undergraduate degree, "2" if the highest degree was a Master's degree (including MBA), and "3" if the highest degree was a PhD, MD, or JD degree. We then summed the highest degree level obtained by each founder to get a firm-level variable. Therefore, a firm with two founders both having a PhD would end up with an aggregated level of education amounting to six; a firm with three founders, one of them having an undergraduate degree, and two having a Master degree would have a value of five. Table 1 reports the classification of all majors held by all founders in our sample.

Insert Table 1 about here

For specific human capital, we measured all prior work experience, which was used in the testing of Hypotheses 3 and 4. This is consistent with extant work by Dimov and Shepherd (2005); Walske and Zacharakis (2009); and Zarutskie (2010). Commercial experience, related to Hypothesis 3, was identified based on work prior to founding a TVC and included in the sum of prior TVC experience. Also included was entrepreneurial, financial, senior management, technological and consulting experience (Dimov and Shepherd, 2005; Walske and Zacharakis, 2009; Zarutskie, 2010). Prior TVC experience indicates that the person has experience with TVC or private equity investing. Entrepreneurship experience includes having founded a commercial entrepreneurial company. Finance experience includes investment banking, options trading, foreign exchange management, commercial banking, accounting and mutual fund portfolio management. An individual was coded as having senior management experience if she had been a Chief Executive Officer (CEO), Chief Operating Officer (COO), Chief Strategy Officer (CSO) or Chief Financial Officer (CFO). Consulting experience includes prior work in strategic and management consulting firms. Technical experience takes into account whether the individual had previously held a scientific or technical position (e.g., a medical doctor, or an engineer).

Social experience was identified based on prior work by Scarlata, et al. (2012), and includes the sum of prior work experience in social management (e.g., employed by a charity or a grant-making foundation), government agencies, and in social entrepreneurship (e.g., having founded a nonprofit organization or a social enterprise). The coding process followed what was done for educational variables, with each founder receiving a "1" for each type of specific experience which is also consistent with prior research conducted by Beckman and Burton (2008), and Carpenter, Pollock and Leary (2003), and Walske and Zacharakis (2009).

A logistic regression model was fitted to the data to test Hypotheses 1 through 4. We controlled for the following variables: a) years of education obtained by each firm founder, calculated as the sum of the highest level of obtained education, b) the natural logarithm of the number of founders in each firm, c) the year when the firm was created, and d) a dummy variable for the geographical region where the firm was started (Europe vs. U.S.). For the sake of robustness, we attempted to include a control for firm size (measured as the amount of assets under management). Although results were consistent and stronger than those reported in this paper, size was not available for all PhVC firms in our sample, causing us to lose 26 firms out of 70 PhVC firms. For this reason, we decided not to report the regression results which included firm size in this paper, but they are available upon request.

5. Results

Table 2 reports the descriptive statistics for TVC and PhVC firm founders and their general and specific human capital. Table 3 includes the correlations of dependent, independent variables, and controls. Table 4 shows regression results in support of Hypotheses 1 through 4.

As shown in Table 2, PhVC firm founders, on average, exhibit a lower number of founders (1.41) than TVC firms (1.75). In terms of general human capital, PhVC and TVC firm founders show the same level of educational achievement, except that TVC firm founders have significantly more business-related degrees and PhVC firm founders have significantly more general masters degrees. Similarly, across the five majors (i.e., humanities, science, engineering, business, and law), PhVC firm founders have approximately two times more humanities related education in counts than TVC firm founders. TVC firm founders have 1.5 times more science and engineering related education than their PhVC counterparts. Last, TVC firm founders have seven times more business and law education in comparison to PhVC firm founders. In sum, TVC founders appear to have more domain specific degrees, such as business, law, science and engineering, while PhVC founders have a greater number of general degrees in the humanities.

For specific human capital, PhVC firm founders show higher levels of experience in entrepreneurship, senior management, consulting, social management, government, and social entrepreneurship than TVC firm founders. Founders of TVC firms predictably have greater prior experience in TVC, but also have deeper experience in finance and technical fields. When reviewing the composite categories of social and commercial human capital, commercial human capital can be found in 3.06 TVC firm founders vs. 2.98 in PhVC firm founders. In contrast, social human capital is possessed by 0.24 TVC founders vs. 1.04 PhVC firm founders, suggesting that PhVC firm founders have four times more social experience than TVC founders.

Insert Table 2 about here

Table 3 shows correlation coefficients between general and specific human capital measures and firm types. A positive and significant correlation between education in the humanities and social experience also exists in the data. A negative and significant correlation is found between type of firm and education in engineering and business.

Insert Table 3 about here

Table 4 indicates that general and specific human capital of TVC and PhVC firm founders differ on several dimensions. Results indicate that there is no significant statistical evidence that PhVC firm founders exhibit greater education in the humanities, as predicted by Hypothesis 1. Consistent with Hypothesis 2, TVC firm founders are more likely to possess degrees in science ($\beta = -2.36$, $p < .05$), engineering ($\beta = -5.22$, $p < .001$), and business ($\beta = -2.34$, $p < .05$). Contrary to Hypothesis 2, there is no significant difference between PhVC and TVC firm founders with law degrees. Our results do not identify a difference between PhVC firms and TVC firm founders in terms of their commercial human capital, therefore, providing no support for Hypothesis 3.We do find, however, support for Hypothesis 4; PhVC firm founders are more likely to exhibit higher levels of social human capital ($\beta = 1.69$, $p < .001$) in comparison to TVC founders.

Insert Table 4 about here

In addition, as per results in Table 4, the control variable “country” appeared to be significant ($\beta = -2.17$, $p < .001$). To further analyse this result, we ran a post-hoc analysis and two separate regressions, one including only European firms, the other including only American firms. Table 5 reports regression results for each of these cases.

Insert Table 5 about here

Consistent with results presented in Table 4, the level of humanities education of European PhVC firm founders does not differ from that of their TVC counterparts. However, there is empirical evidence that in the U.S., PhVC firm founders have more degrees in the humanities than TVC founders ($\beta = 4.485$, $p < .001$). European PhVC founders also have significantly lower science ($\beta = -3.86$, $p < .001$), engineering ($\beta = -6.35$, $p < .001$), business ($\beta = -3.95$, $p < .001$), and law ($\beta = -3.43$, $p < .001$) education than their TVC counterparts. In contrast, American PhVC founders do not seem to differ from TVC founders in their science, business, and law education. It is also worth noting that not one U.S. PhVC firm founder received engineering related education. For the specific human capital variables, we find that both American and European PhVC firms show higher social experience than TVC founders (β United States = 2.03, $p < .001$; β Europe = 1.86, $p < .001$).

6. Discussion

This research sought to identify whether differences exist in the general and specific human capital possessed by founders of firms that pursue a dual objective (i.e., social and economic) as opposed to firms with a singular economic objective. To accomplish this, we studied the role of education and prior work experience in the context of European and American PhVC firm founders.

Consistent with theoretical expectations, our results show that individuals with university level education in science, engineering, or business are more likely to be founders of TVC firms. Lower science and engineering education amongst PhVC firm founders could be a missed opportunity for PhVC firms, causing them to invest less in technology driven firms with high social benefit. Contrary to our expectations, we did not find any difference between TVC and PhVC firm founders in terms of humanities and law education.

However, significant differences emerge when taking into account the specific human capital, or work experience, possessed by investing individuals at PhVC and TVC firms. Importantly, and consistent with theoretical predictions, those with more experience in social endeavors are more likely to be founders of PhVC firms. This is in line with both the social component of their investment philosophy and the backed organization's social mission. As indicated by Nicholls (2009) and Scarlata and Alemany (2010), experience in socially driven endeavors becomes particularly relevant to managing investments and communicating their social impact to relevant stakeholders. We did not find significant differences in commercial human capital by firm type. This suggests that indeed, PhVC firm founders possess commercial human capital, which they use to implement the investing practices characterizing TVC (Letts et al., 1997).

This prevalence of commercial experience in both PhVC and TVC firm founders is consistent with the arguments made by Moss et al. (2009), which indicates that organizations with dual objectives have the same commercial focus as organizations with only an economic objective. Our results also supports prior research, which has shown that PhVC partners tend to focus more on commercial factors than social outcomes when selecting investments (Miller and Wesley, 2009) and that this helps PhVC firms achieve higher levels of blended performance (Scarlata, Zacharakis, and Walske, forthcoming). More importantly, a hybrid organization with economic and social objectives cannot accomplish its social mission if it is not financially sustainable. Therefore, both economic and social objectives are essential.

Given that the control variable "country" was highly significant, we conducted further analysis to understand how founders' human capital differs between European and American firms. Post-hoc results indicate that European PhVC firms have significantly less general human capital in science, engineering, business and law. This could be due to the European social enterprise sector being more homogeneous, often filling the gap that has arisen between what the "welfare states" of Europe used to provide, and what is now needed (and missing) in social services (Kerlin, 2006). Specifically, greater levels of general human capital might be more appropriate for European PhVC firms, given that they invest in social enterprises that serve unemployed populations and broader marginalized communities (Kerlin, 2006). As a result, social sector experience is highly significant and more frequent in European PhVC firms compared to their European TVC counterparts.

Our data shows that for American firms, PhVC founders tend to have greater level of humanities education and more social sector experience than TVC firms. With the U.S., there is also a higher level of business education across both PhVC and TVC firms, in contrast to European PhVC and TVC firms. This might be due to American social enterprises having a longer history of revenue generating techniques than their European counterparts (Kerlin, 2006).

Finally, given that revenue-generating capabilities is valued by all firm types (i.e., U.S. and European TVC firms, U.S. and European PhVC firms), the high levels of commercial experience across all firm types is reasonable.

The contributions of this research are fourfold. First, from a scholarly perspective, this paper responds to the call by Austin et al. (2006), Doherty, et al. (2013) and Short et al. (2009) for greater empirical research on organizations that provide financial support to social enterprises, a field of academic enquiry that is just now emerging. Our hypotheses test how the general human capital of PhVC and TVC founders are similar, in humanities education, as well as how they differ, in science, engineering, business, and law education. As to specific human capital, contrary to our hypotheses, both firm types have similar levels of commercial experience, but founders of PhVC firms have higher levels of social experience.

The variation in human capital between firm types leads to a number of questions for future research. For example, the fact that PhVC firm founders do not trade-off commercial for social experience might imply that the field of PhVC is in some ways more difficult to not only recruit for, but to possibly succeed in. It also might imply that those in PhVC are more senior than typical TVC investors, or that while PhVC firm founders have prior commercial experience, it is of a shorter duration than their TVC counterparts. Further investigative work on how many years of social and commercial experience PhVC founders hold might provide greater insight into not only the type of specific human capital that they hold, but how deeply it is held, too.

Second, this research builds upon, and goes beyond, Moss et al. (2009), identifying the peculiar general and specific human capital within firms that pursue dual objectives and exhibit dual organizational identities. An extension of this study could also explore how education and experience not only influences the pursuit of each organizational objective, but also how these knowledge stocks lead to investment success. PhVC firms, for example, often must convince their investors that they are pursuing not only social objectives, but that they are also capable of showing financial returns. Similarly, they must also provide evidence to their investees about their dual commitment to creating financial and social value. Relying on stakeholder theory (Freeman, 1984), future research could investigate how PhVC firm founders build firm legitimacy in the social and financial sectors, looking at the length of time it takes them to raise and invest capital.

Third, at a professional level, our research provides insights to those interested in creating a PhVC firm as to which type of expertise is typically found within PhVC. Given the presence of *both* commercial and social experiences within PhVC firm founders, our research suggests that a PhVC firm needs both experience types in order to accomplish its dual objectives. Determining which specific experiences, both at the commercial and social level, are more likely to be found in certain firms than others is a promising avenue for future work. Additionally, understanding who the partners are within PhVC firms is beneficial to those social entrepreneurs seeking capital, enabling them to better demonstrate how their social enterprise fits the dual-purpose goals of PhVC firms.

Fourth, we take a deep dive into how the human capital of founders differs in the two regions considered in our empirical analysis, (i.e., Europe and the U.S.). We find that across both regions, the social experience of founders is greater in PhVC firms, in comparison to their TVC counterparts. However, in Europe, PhVC founders are less likely to be educated in science, engineering, business and law. In the U.S., PhVC founders are more likely to be educated in the humanities. Understanding these differences between U.S. and European PhVC firms is a unique contribution of our research, and adds to the growing field of PhVC literature.

While our work has shed light on what experiences founders hold within hybrid firms, our research faces some limitations. First, our data is subject to self-reporting bias. We attempted to minimize this bias by consulting different data sources. However, as indicated in prior human capital research (Beckman and Burton, 2008; Walske and Zacharakis, 2009), individuals tend to disclose education and prior work information that they deem to be relevant to the fields that they are currently in, or wish to join in the future. We were also not able to track the length of time over which each experience was accumulated, or the level of success in each prior position, which has also been problematic in other published research (Gompers, et al., 2005). For instance, it could be that PhVC founders report commercial experience, but that this experience may have been shorter, or less successful, than that of their TVC compatriots. Thus, it is difficult to investigate the relative strength or quality of commercial or social experience that each person possesses. Future qualitative based research might help to understand this nuance further, and also identify other demographic differences between founders of hybrid firms, such as age, gender, ethnicity, socio-economic status, political affiliations, etc. Second, as noted earlier, with the current available data, we cannot rule out the possibility that PhVC firms could be founded by individuals who made their fortune earlier in their careers and, are then able to absorb a lower PhVC salary given their wealth accumulation. Third, while we argue that certain experiences are more relevant than others in various phases of the investment process, we are not able to empirically test for this, as our analyses does not break down human capital's applicability by phase (i.e., sourcing, structuring, managing and exiting investments). Further research could yield additional data and allow us the opportunity to investigate the extent to which these experiences do help in each stage of investing, similar to TVC research by Bottazzi, et al. (2008).

7. Conclusions

While our collective understanding around the unique aspects of dual objective organizations continues, this paper advances knowledge in this field by investigating human capital's presence in hybrid firms. Our results emphasize that organizations pursuing dual objectives do differ from those pursuing a single objective, given that hybrid firm founders exhibit experience both in the commercial and social sector. This paper also shows that, when looking at founders' human capital, PhVC appears distinctive and indeed separate from TVC. As such, our empirical results indicate that PhVC combines both specific commercial and social human capital, with a heavy focus on social-sector related experience. While TVC firms' founders show greater commercially relevant educational experience, both TVC and PhVC appear to hold substantive experience in the commercial sector, which we suggest remains key to the viability of both venture firm types.

In closing, this paper supports our original belief that education and experience does indeed matter in organizations with dual objectives. This work uniquely applies a fine-grained analysis to the human capital differences between founders of PhVC firms in comparison to founders of TVC firms. We then nuance this understanding by exploring the differences between U.S. and European TVC and PhVC firms. Finally, our research findings substantively add to the current literature within the social sector, building a more complete theoretical framing for the role of human capital in the typology of hybrid organizations and their founders.

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Table 1: Classification of majors

Education	*Major*
Humanities	Public Administration, Public Policy Analysis, Arts, Studio art, English literature, European Literature, History, Communications, Education, Social studies education, Journalism, Philosophy, Theology, American civilization.
Science	MD and medical related degrees, Engineering and engineering related degrees, Mathematics, Physics, Astrophysics.
Engineering	Engineering and engineering related degrees.
Business	Business and business related degrees, Economics and economics related degrees, Finance and finance related degrees.
Law	JD and law related degrees.

Table 2: Descriptive statistics – Founders' experience in TVC vs. PhVC firms

	TVC				PhVC			
	N	Mean	Median	SD	N	Mean	Median	SD
General HC								
Humanities	422	.08	.00	.29	66	.18	.00	.39
Science	422	.20	.00	.51	66	.12	.00	.33
Engineering	422	.13	.00	.37	66	.01	.00	.12
Business	422	1.17	1.00	.85	66	.88	1.00	.73
Law	422	.16	.00	.44	66	.12	.00	.33
Commercial HC	422	3.06	3.00	1.83	66	2.98	2.00	3.86
TVC	422	.76	1.00	.81	66	.42	.00	.61
Entrepreneurship	422	.49	.00	.69	66	1.03	.00	3.27
Finance	422	.58	.00	.74	66	.38	.00	.74
Senior management	422	.65	.00	.78	66	.68	1.00	.77
Technical	422	.24	.00	.51	66	.04	.00	.27
Consulting	422	.33	.00	.56	66	.42	.00	.56
Social HC	422	.24	.00	.54	66	1.04	1.00	1.21
Social management	422	.13	.00	.38	66	.42	.00	.66
Government	422	.08	.00	.28	66	.30	.00	.52
Social entrepreneurship	422	.03	.00	.18	66	.29	.00	.52
Level of education	422	3.43	3.00	1.98	66	2.44	2.00	1.38
Number of founders	422	1.75	2.00	.82	66	1.41	1.00	.63
Year	422	1999	1999	5.19	66	2002	2004	5.89
Country	422	.85	1.00	.36	66	.38	.00	0.49
Size	410	88.87	37.00	326.44	40	77.38	10.75	326.59

Table 3: Correlation of general and specific human capital with type of firm

	N	1	2	3	4	5	6	7	8	9	10	11	12	13
1 PhVC vs. TVC	488	1.00												
2 Humanities	488	.11**	1.00											
3 Science	488	-.06	-.12**	1.00										
4 Engineering	488	-.11**	-.00	-.06	1.00									
5 Business	488	-.12**	-.17**	-.23***	-.19***	1.00								
6 Law	488	-.04	.01	-.05	-.03	-.28***	1.00							
7 Commercial HC	488	-.11*	-.01	.24***	.11**	.43***	.09**	1.00						
8 Social HC	488	.37***	.05	-.07*	-.01	.07	-.00	.02	1.00					
9 Education level	488	-.17***	.00	.43***	.08*	.39***	.32***	.60***	.02	1.00				
10 # of founders	488	-.15**	.14**	.24***	.15**	.59 ***	.19***	.66***	.08**	.84 ***	1.00			
11 Year	488	.19***	.12**	.07	-.02	-.07	-.04	.02	.03	-.02	-.00	1.00		
12 Country	488	-.39***	-.05	.05	.04	.15**	.07	.21***	-.07*	.23***	.19***	-0.24***	1.00	
13 Size	460	-.01	-.03	-.17**	-.04	.01	.01	.13*	.01	.22***	.15***	.01	.02	1.00

*** Coefficient significant at 0.01 level; ** Coefficient significant at 0.05 level; * Coefficient significant at 0.1 level.

Table 4: Logit Estimation of the Likelihood of Establishing a TVC vs. PhVC Firm

Dual vs. Single Objective Firms	Coeff.	St. Error
Humanities	-.98	1.23
Science	-2.36*	1.32
Engineering	-5.22**	1.70
Business	-2.34*	1.19
Law	-2.12	1.30
Commercial HC	.18	.13
Social HC	1.69***	.25
Education level	-.016	.23
Ln Number of founders	1.59	1.77
Year	.06**	.03
Country	-2.17***	.39
Constant	-130.54	66.73
Log likelihood	-117.20	
Chi square	152.33***	
N	488	

*** Coefficient significant at 0.01 level; ** Coefficient significant at 0.05 level; *Coefficient significant at 0.1 level. 1=PhVC firms, and 0=TVC firms.

Table 5: Logit Estimation of the Likelihood of Establishing a TVC vs. PhVC Firm in Europe and in the U.S.

	Europe		United States	
Dual vs. Single Objective Firms	Coeff.	St. Error	Coeff.	St. Error
Humanities	-2.41	1.90	4.48*	2.35
Science	-3.85*	1.97	2.64	2.58
Engineering	-6.35**	2.23	Omitted	
Business	-3.95**	1.84	2.74	2.38
Law	-3.43*	1.88	2.88	2.57
Commercial HC	.24	.16	.24	.19
Social HC	1.86***	.41	2.03***	.35
Education level	.35	.30	-.31	.33
Ln Number of founders	3.85	2.75	-7.14	3.79
Year	.06	.05	.04	.04
Constant				
Log likelihood	-61.99		-59.80	
Chi square	56.21		59.01	
N	130		340	

*** Coefficient significant at 0.01 level; ** Coefficient significant at 0.05 level; *Coefficient significant at 0.1 level. 1=PhVC firms, and 0=TVC firms.