Corporate culture and venture capital: value creation in initial public offerings

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Abstract

This study investigates the determining factors of an IPO firm's culture and the effect of corporate culture on IPO firms' profitability and risk of financial distress. Using a sample of 1,383 US firms that went public between 1996 and 2011, we provide strong evidence that VC-backed companies are more likely to exhibit a competition-oriented and a creation-oriented culture and that regional culture and industry characteristics play a key role in explaining a firm's cultural orientation. Moreover, we find that IPO firms with a highly competition-and creation-oriented culture experience higher profitability and less risk of financial distress than do other IPO firms.

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Introduction

Does corporate culture affect Initial Public Offering (IPO) firms' profitability and their risk of financial distress? How does an IPO firm's corporate culture relate to firm specific characteristics, like venture capital (VC) backing, and to regional culture and industry-specific characteristics? Finally, what is the impact of corporate culture on IPO firms' profitability and financial distress risk while controlling for VC backing, regional culture and industry-specific characteristics?

With few noteworthy exceptions (Guiso, Sapienza and Zingales, 2015), these questions have been ignored by finance literature, despite there has been a remarkable discussion over the last three decades among scholars and practitioners on the relation between corporate culture and firm's effectiveness (e.g., Deal and Kennedy, 1982; Shein, 1992; Hartnell, Ou, and Kinicki, 2011), the determining factors of IPO firms performance (e.g., Ritter, 1991; Jain and Kini, 1994; and more recently, Michel, Oded, and Shaked, 2014) and the reasons why VC-backed IPOs perform differently compared to other IPOs (e.g., Jain and Kini, 1995; Ritter, 2015; Megginson, Meles, Sampagnaro, and Verdoliva, 2016). There are three main reasons why we consider of special interest to feed this debate.

First, while there are various studies (e.g., Kotter, 2008; Sackmann, 2010; Hartnell, Ou, and Kinicki, 2011) that argue a link between corporate culture orientation and firm performance, there has been little empirical research investigating this relation, especially with reference to the IPO firms (e.g., O'Reilly and Chatman, 1996; Sørensen, 2002; Guiso, Sapienza and Zingales, 2015). This clearly represents a shortcoming because although corporate culture is a key business value in general, it is particularly important for IPO firms that experience many changes and challenges over the post-IPO

period. Thus, it should come as no surprise that recently the CEO of *Snap Inc.*, a multibillion dollars IPO firm, felt the need to reveal to the investors a lot of details about the company's corporate culture[1].

Second, while previous studies have widely recognized that VCs provide portfolio firms with assistance in defining strategic planning, support in management recruitment and compensation, access to their business contacts and know-how in operational planning (e.g., Gompers and Lerner, 1998; Sapienza, Manigart, and Vermeir, 1996; Sørensen, 2007; Croce, Martí, and Murtinu, 2013), there has been little consideration of whether VCs encourage investee firms to develop a strong corporate cultural identity. This is of special interest because once the relation between corporate culture and IPO firm performance is empirically documented it becomes essential for firms to understand how to implement a certain type of corporate culture and what the central drivers are.

Finally, despite there are various papers that analyze how a firm's performance is affected by national/regional culture and corporate culture (e.g., Boubakri, Mirzaei, and Samet, 2017; Chen, Podolski, and Veeraraghavan, 2017), respectively, there is a paucity of empirical research examining how national/regional culture and corporate culture interact in influencing firms' performance. We cover this topic, because we argue that the corporate culture dimensions may fit differently within different cultural contexts.

In order to answer the above discussed research questions, we perform an empirical analysis on a sample of US companies that went public between 1996-2011 and focus the investigation up to five years after. Specifically, our starting sample is composed of 1,383 IPOs of the which 410 are VC- and 973 are non-VC-backed. For each of them, we retrieve 10-K reports from SEC's (Securities and

[1] For example, in the *Snap Inc's* filing is reported: "Our team is kind, smart, and creative… When we say kind, we mean the type of kindness that compels you to let someone know that they have something stuck in their teeth even though it's a little awkward. We care deeply about kindness because we want to create a space that helps to give our team the courage to create. We think our team feels comfortable creating new things because they are surrounded by the kindness of their peers and know they have our support."

Exchange Commission) EDGAR database. Since VCs choice, regarding in which firm to invest, is not the outcome of a random process (e.g. Megginson and Weiss, 1991), some issues of endogeneity could arise to. In attempt to overcome them, we select the control firms by employing propensity score matching based on Rosenbaum and Rubin (1983) methodology. The procedure yields a sample of 175 VC-backed IPOs that are matched, one-to-one, with 175 untreated companies. As performed by previous studies (e.g., Krishnan, Ivanov, Masulis, and Singh, 2011; Megginson, Meles, Sampagnaro, and Verdoliva, 2016; Cumming, Grilli, and Murtinu, 2017), we use the *ROA*, the EBITDA on total assets, the *Z''-score* (Altman, Hartzell and Peck, 1995) and the *ZM-score* (Zmijewski, 1984) as measures of the firm's profitability and risk of financial distress. Furthermore, following several papers (e.g., Fiordelisi and Ricci, 2014) we obtain a quantitative measurement of corporate culture by assessing corporate 10-K reports. Specifically, by running the text analysis we estimate the Quinn and Rohrbaugh (1983) dimensions of corporate culture—namely, competition, creation, collaboration and control.

We report several interesting results. First, we find strong evidence that VC-backed companies are more likely to exhibit a culture type that previous studies (e.g., Hartnell, Ou, and Kinicki, 2011) have argued to be strongly (namely, competition-oriented culture) and moderately (i.e., creation-oriented culture) linked to financial effectiveness and weak evidence that they are less likely to develop a control-oriented culture. Second, we find that also regional culture and industry characteristics play a key role in explaining the choice of a firm to develop a certain type of corporate culture.

Third, we find that IPO firms with a highly competition-and creation-oriented culture exhibit in average a higher profitability and a lower risk of financial distress than other IPO firms (namely, that with highly collaboration and control-oriented culture). This result is robust to all the profitability and financial distress measures employed and resilient to the robustness tests we perform to control for endogeneity issues.

The rest of this paper is organized as follows. The next section summarizes the related literature. Section 3 discusses the theoretical framework and develops testable hypotheses. Section 4 provides an overview of data, sample and summary statistics. Section 5 introduces the empirical strategy. Section 6 discusses the results of the multivariate analysis, and final section concludes.

2. Related Literature

2.1 Prolegomenon to corporate culture

Since the end of the 1970s, the topic of corporate culture, in turn defined as *"a set of norms and values that are widely shared and strongly held throughout the organization"* (O'Reilly and Chatman, 1996, p.166), has raised a great attention among scholars. The multidisciplinary character is certainly the foundation of its success. As such, it does not come as a surprise if numerous scholars from different disciplines (e.g., psychological, sociological, managerial and, lastly, financial) have devoted huge attention to the topic of corporate culture by providing considerable insights from different perspectives (e.g., Brayfield and Crockett, 1955; Iaffaldano and Muchinsky, 1985). However, one of the common point of these studies is that having a strong corporate culture generate benefits, in various terms, for an organization as whole (Kotter and Heskett, 1992; Gordon and DiTomaso, 1992; Burt, Gabbay, Holt, and Moran, 1994). Given the great vastness of the topic, be compressive becomes hard as well as useless for our discussion. So, we do need to investigate the argument in a sufficiently narrow way. Specifically, because we are interested in the link between corporate culture and firms' performance, we focus on a body of the literature that has devoted considerable attention to exploring how strong corporate culture, and which of its components, impacts on the financial effectiveness (more recently, Guiso, Sapienza, and Zingales, 2006, 2015). The literature (e.g., Siehl and Martin, 1990; O'Reilly, Chatman, and Caldwell, 1991; Sackmann, 2010) in the attempt to provide a linkage between corporate culture and firm's outcomes, has often followed the so-called *"trait approach"* which is based on the assumption that specified type of values and beliefs have specific effects on an

organization. In this regard, Sapienza (1985) investigates how a different opinion and belief, at top of an organization, regarding the individuals and performance, have driven two close firms, for characteristics and size, to adopt different strategy to implementing a change in law that involve the whole sector in which they operate. Based on Lee and Yu (2004) and Sørensen (2002), a company has a strong culture if concepts like homogeneity, congruence and coherence, are widely shared among employees. As noted by Sørensen (2002), the literature has introduced three interrelated explanations regarding the relationship between strong cultures and performance benefits. First, a part of it argues that when there is a sharing of the set of norms and values among the members of an organization, this improve the social control within the firm itself. As point out by O'Reilly and Chatman (1996, p.165), *"while formal control mechanisms are usually codified in the form of rules and procedures, social control emerges in the form of values and norms and is regulated through peer influence and the social construction of-reality […] the reliance on the opinions of valued others implies that social control may be far more extensive and less expensive than formal systems".* Second, work in an organization where the roles, and which of them apply in given circumstances, are well disclosed reduces the uncertainty for the employees. As well as if business goals, in terms of strategy and development, are clarified and shared even in a hierarchical way. Stated differently, the basic assumption behind this belief is that higher is the level corporate goals sharing, less questionable, among corporate staff, becomes the best choice (e.g., Hermalin, 2001). Lastly, O'Reilly and Chatman (1996, p.165) argue that having a strong culture for an organization may results in a strong sense of autonomy of action for its members. This because *"internalization of some organizational values such as helping others and contributing to society can result in a perception of intrinsic value (that is, something that the person believes in rather than something imposed-externally and subject to extrinsic justification), it may be accompanied by more positive attitudes and freely chosen behaviors".*

2.2 The importance of the corporate culture for public companies: it's all in the notoriety

Basically, it seems quite sharable that working in an organization with a strong culture should produce a list a benefits both for the employees – whom have the opportunity to work in a more *comfortable* place, and the organization— since this should translate in experiencing better performance (e.g., Gordon and DiTomaso, 1992). Without providing further insights, we are stating that these benefits (see section 2.1) produce the same effects both for private and public companies. Is it generally true? Unfortunately, it isn't. A key point to understand the matter is related to the different number of players with whom these two typology of companies do need to establish a relationship. In other words, moving from a private to a public company these players increase substantially. Stated this, it has been documented in literature (e.g., Guiso, Sapienza and Zingales, 2015) the existence of a positive relation between the number of players and firm's costs. In the case of private firms, there are mainly only two kind of actors: customers and employees. The situation is quite different in the case of a public corporation given that it needs to deal with a number of additional players, such as shareholders and stock market. Borrowing the insights by Guiso, Sapienza and Zingales (2015), in a public company the decisions taken within the board of directors, in agreement with the shareholders, may be captured by the employees by causing an overlap between a part of information intended for the market and, as such, born to be public, and information intended for the employees and, as such, born to be private. This may generate a misunderstanding among the members of the organization and, in turn, undermine the integrity and the compliance with the norms and values which make that organization as a *special place* to work. But the consequences that may arise from such circumstance could be much more serious. In fact, in case that a norm is violated, the board of directors should punish the guilty by taking into account to leave a message that will be shared inside (among other employees) and outside (among the market) the organization, given its nature as a public company. A possible scenario is that the market could negatively judge the punishment by forcing the board to be not excessively severe. As a result, this ends to put at risk, once again, the integrity and the compliance with the norms and values. And, consequently, the strength of the corporate culture. The scenario is

certainly different in the case of a private firm, in which the board of directors does not feel, or at least feel less, the public opinion. In other words, the degree of impartiality of the boards and the corporate culture of a private company appear strengthened compared to that of a public one. However, the difference between private and public companies can also be seen from a different prospective. As well-known, one of the main goal of the board of directors is to maximize the stockholders' value. To this end, some unfair policies could be undertaken for the employees. If so, this translates in a violation of the set of norms and values that make strong a corporate culture. The discussion above seems to support the belief that exist a positive correlation between employees' satisfaction and firm performance. Consistently with this prospective, Edmans (2011) finds that *"employee satisfaction causes superior stock returns"*. However, they also state that *"employee satisfaction is not directly capitalized, but only affects the stock price when it subsequently manifests in tangible outcomes that are valued by the market".*

2.3 National culture and corporate outcomes

To correctly address the question related to how the national[2] culture is interrelated with the corporate outcomes, we do need to begin by providing a definition of what national culture stands for. House, Hanges, Ruiz-Quintanilla, *et al.* (1999) define the national culture as *"shared motives, values, beliefs, identities, and interpretations or meanings of significant events that result from common experiences of members of collectives and are transmitted across age generations".* Since our analysis is focused on the US market, we devote our efforts in classifying the ideological differences that arise from States that, historically, have a Republican culture from that have a Democratic one. A stream of literature (e.g., Feldman, 1988; Goren, 2005; Goren, Federico, and Kittilson, 2009; Di Giuli and Kostovetsky, 2014; Hutton, Jiang, and Kumar, 2015) suggests that behind the different ideology and

[2] We interchangeably use the terminology Regional to point out National culture.

moral beliefs of Republican and Democratic parties, there is a different set of norms and values. A good exercise which helps to understanding the issue is to frame the core principles of American Constitutional Democracy in which is likely to find radical differences in both ethical values and norms among political parties. One of these principles is made up the moral tolerance that can been seen as the attitude of a society to welcome individuals, and groups of them, *"whose beliefs and behaviors regarding right and wrong differ from those of the mainstream"* (Goren, Federico, and Kittilson, 2009, p.808). A second one principle is represented by the equal opportunity related to the value that everyone should have the same rights in his life, including the possibility to get an exciting job. A further principle is based on the possibility for an individual to have a sufficient degree of freedom to govern himself (self-reliance) in order to undertake a behavior that is in line with the set of norms and values that, all together, makes the corporate culture. Finally, it becomes equally important to consider on which rules is based a given economy and, so, understanding what is the role played by the government. Hence, how does a different regional culture (i.e. Republican Vs. Democratic) affect these principles and, consequently, the corporate culture? It is widely spread the conjecture that Republican party particularly supports the principle of free market where the government plays a marginal role and the discipline is entrusted with the market forces. Consequently, this translates in a behavior aimed to limit the government regulation of the economy. In other words, an extreme free market vision claims a regulation not strongly disruptive for private (corporate) affairs. According to this prospective, it is desirable having a policymaker that enacts laws not particularly invasive in regulating some areas i.e. pension rights, environmental issues, etc. A common belief is that the market forces are enough to self-regulate the environment where firms carry out their productions (Malkiel and Fama, 1970). Unfortunately, given that the markets are not perfectly efficient (Akerlof, 1970), as the assumption behind this conjecture, in a region where is strong the Republican ideology, the corporate culture is not shaped to pay adequately attention to these issues (i.e. less attention to the environmental issues, workers' rights, etc.). Vice versa, Democrat ideology does not belief in the self-reliance of the market.

Conversely, it promotes an interventionist government in order that, through the regulation, it is possible to discourage and punish opportunistic behavior of companies which do not safeguard enough workers' rights and environment. Besides forcing corporates to be more socially responsible (Di Giuli and Kostovetsky, 2014). Such an economy is clearly costlier for corporates that do need to face up to heavier regulation.

3. Theoretical framework and testable hypotheses

3.1 Competing Values Framework

To shape in practical terms the concept of corporate culture addressed in the previous sections and, aftermath, to measure itself, we base our analysis on the Competing Values Framework (CVF) developed by Quinn and Rohrbaugh (1983) on the insights of Campbell, Brownas, Peterson, and Dunnette (1974). Specifically, these latter ones, in their seminal work, make an effort to provide an answer to the following questions: *"What are the main criteria for determining if an organization is effective or not? What key factors define organizational effectiveness? When people judge an organization to be effective, what indicators do they have in mind?"* (Cameron and Quinn, 2005, pp. 33-34). To this end, their study concludes by identifying as many as thirty indicators relevant for organizational effectiveness. Considering the large number of these indicators that presents itself as a limitation given the objective difficulties to manage and monitor it for an organization, a decade later, Quinn and Rohrbaugh (1983) isolate the most relevant ones and classify the indicators by adopting two main criteria which return four main clusters through which organizing them. Figure 1 summarizes the CVF. Specifically, it shows a horizontal axis and a vertical one. From their intersection, four different areas come up which, in turn, identify four different kind of culture: *Collaborate (or Clan), Create (or Adhocracy), Control (or Hierarchy)* and *Compete (or Market).*

****** Insert Figure 1 about here ******

The vertical axis incorporates the so-called *structure* definition, which comprises two opposite dimensions. On the upper side, it reports the dimension of *flexibility, dynamism and discretion;* on the underside, it reports *control and stability* concept. Indeed, the horizontal axis stresses the concept of *focus* which emphasizes, on one hand, the *internal capabilities, unity and integration among employees*. On the other, it refers to the *external orientation of the organization and rivalry*[3]. At this stage, it is worth highlighting two main aspects that arise from this framework. First, the model produces areas that competing with, or are contradictory to, along the two diagonals. For example, the upper left area which refers to *Collaborate* culture where an organization particularly values *"cohesion and morale"* among employees (Cameron and Quinn, 2005, pp.66) conflicts with the lower right which refers to *Compete* culture where an organization pays attention to the job done by people whom are *"competitive and goal-oriented"* (Cameron and Quinn, 2005, pp.66). Second, it is certainly sharable that the four kind of culture represents an extreme case and even if they are competing among them, it is quite unrealistic treating the model in dichotomous terms. Stated differently, it seems much more realistic that the corporate culture spans across more areas of the CVF and, at the same time, shows a greater trend towards one of them.

3.2 Measuring the corporate culture

We base our analysis on the CVF by Quinn and Rohrbaugh (1983). Drawing outcomes that mirror those sets of norms and values that make up the four dimensions of corporate culture, as Figure 1, we conduct a text analysis by analyzing the 10-K reports, retrieved from EDGAR database by Securities and Exchange Commission, of a sample of US firms that go public between 1996 and 2011, and study them up to five years after the listing. More details about the sampling process are provided in the section 4.1. In support to our analysis, Loughran and McDonald (2011, p.35) note that *"a*

[3] For further details, see Cameron, De Graff, Quinn, and Thakor (2006).

growing body of finance and accounting research uses textual analysis to examine the tone and sentiment of corporate 10-K reports, newspaper articles, press releases, and investor message boards". Turning to our scope, to estimate the four corporate culture dimensions i.e. *Create, Compete, Collaborate* and *Control*, we employee Fiordelisi and Ricci's (2014) methodology. Specifically, their procedure is summarized as follows. First, the authors identify, for each corporate culture dimension (see Figure 1), a specific lexical field of words, starting from that provided by Cameron, De Graff, Quinn, and Thakor (2006). Second, for each word, they select a group of synonyms using Harvard IV-4 Psychosocial Dictionary. The procedure concludes by getting an extensive portfolio of words which are predictive of the corporate culture dimensions (i.e., CVF). As introduced above, we utilize the lexical field by Fiordelisi and Ricci, reported in Table 1, to conduct our analysis. As is standard, we proceed as follows. First, we calculate the frequency of each word, among that reported in Table 1, contained within each 10-K form and, then, aggregate the frequencies over each dimension. Basically, the assumption behind this methodology is that higher is the frequency – along the annual report— of these words, greater is the corporate orientation towards the corresponding culture dimension. Second, we divide them by the total number of words of the related 10-K. The total number of words, per each 10-K form, is estimated by removing html tags and other nonsense symbols.

****** Insert Table 1 about here ******

3.3 Testable hypotheses

According to Kilmann (1985, p.356) to well perform an organization does need a culture oriented to *"risk-taking, trusting and proactive approach".* Around this context, it can be addressed the question whether and in which manner VCs impact these variable and, in turn, how portfolio firms can affectively benefit from them, especially in terms of financial effectiveness. More than two decades of research has been devoted in documenting the value added of VC for investee firms. Specifically, it is widely recognized that VCs provide benefits for portfolio firms in terms of monitoring (Kaplan and

Strömberg, 2003; Cumming, 2005; Cumming, Grilli, and Murtinu, 2017), coaching (Chemmanur, Krishnan, and Nandy, 2011; Cumming, Grilli, and Murtinu, 2017), making available its owns network (Hsu, 2006; Lindsey, 2008; Wang and Wang, 2012), as well as exhibit an active involvement among the governance (Hochberg, 2012). It is sharable that, to implement well the above actions, VCs do need to strictly work with the human resources through clarifying their goals and organizing meetings day by day. In turn, it is equally sharable that VCs can exploit these occasions to spread its idea of corporate culture in order to push towards the profitability and growth targets. In line with this view, Hofstede (1999, p.39) argues that *"key leaders undoubtedly shape organizational cultures, but the way these cultures affect ordinary members is through shared practices. Leaders' values become members' practices".* At this stage, one can also conjecture that VCs should show a special trend towards create- and compete-oriented culture. In fact, turning to Figure 1, these two dimensions intuitively should impact the financial effectiveness more than the other ones. More specifically, a create-oriented culture supports actions driven to crating new products and services, as well as process, which are based on values and norms oriented to corporate growth (Cameron and Quinn, 2005). This orientation forces employees, including the board of directors, to be risk-taker in order to increase both their proactivity and creativity; in line with increasingly, especially nowadays, demanding customers. On the side of compete-oriented culture, it supports the idea to competing outside the organization in order to conquer new territories and customers; that, in turn, are key to business growth. To do so, a such culture pushes the human resources to undertake activities that are profit-oriented and pays particular attention to customers' satisfaction through which safeguard corporate reputation and future revenues. In turn, a collaborate-oriented culture should positively impact firms' financial effectiveness as well, although the effect should be weaker compared to previous ones. As point out by Hartnell, Ou, and Kinicki (2011, p.682), *"collaborate cultures should also have a positive association with financial effectiveness criteria, but CVF theory asserts that the relationship is more distal than that of compete cultures"* and that *"[…] the more proximal relationship between market culture and financial*

effectiveness should be stronger than in collaborate culture". Following this line of reasoning, it becomes credible that VCs should not particularly impact control- culture dimension. One possible explanation can be based on the fact that a such culture is on the same diagonal of create-orientation. Therefore, as discussed over section 3.1, these two concepts go against each other. Stated differently, corporates can show a special orientation only towards one of them. Taking in consideration the discussion conducted so far and the insights provided by Figure 1, it seems quite realistic support the idea that VCs shape the corporate culture according to create- instead of control-orientation. However, we are aware that two potential biases may affect our discussion. First, VCs tend to focus their attention on certain sectors, especially that high-tech (more recently, Megginson, Meles, Sampagnaro and Verdoliva, 2016). The reason behind this nonrandom choice is that high-tech firms notoriously show a higher potential in growth compared to the other ones (e.g., Chemmanur, Krishnan, and Nandy, 2011). Then, a further potential bias is related to the existing interrelation between national culture and corporate outcomes addressed over the section 3.2. Specifically, we emphasize the attention on the fact that Republican party supports a free market vision and conclude by asserting that it pays less attention to workers' rights. Conversely, Democratic party particularly prefer a government regulation. This translates in the following belief: firms that realize their production in a so-called *"Blue State"* pay much more attention to workers' rights. On the basis of the above debate, we develop the following hypotheses:

> ***H_1:*** *VCs positively affect the corporate culture and, particularly, create- and compete-oriented ones.*
>
> ***H_2:*** *IPO firms with highly creation- and competition-oriented culture are more profitable and exhibit a less risk of financial distress.*

4. Data, sample and summary statistics

4.1 Data and sample description

The data used in the current study are gathered from three main databases: i.) Thomson One, which mainly contains information related to extraordinary financial transactions, including VC deals; ii.) Compustat, which notoriously comprises balance sheet data related to US listed companies; and iii.) Edgar by Securities and Exchange Commission (SEC), which reports over 21 million filings of US listed companies. To our scope, the dataset contains information, up to five years after the listing, regarding US VC- and non-VC-baked IPOs that go public between 1996 and 2011. Specifically, the sampling process is described as follows. First, we draw from Thomson One a starting list of about 3,000 VC-backed IPOs. As is standard, we exclude financial firms (i.e. that show a SIC code between 6000 and 6999) and companies with both an offer price less than $5.00 and an amount offered less than $3 million in order to reduce market microstructure effects (more recently, Chemmanur, Hull, and Krishnan, 2016; Megginson, Meles, Sampagnaro, and Verdoliva, 2016). Second, by using the ticker symbol, we match the rest of the sample with Compustat. We exclude a further number of IPOs which show: a) an invalid ticker symbol for Compustat; and b) missing accounting data up to five years after the listing. This yields a sample of 410 VC-backed IPOs. Third, leaving unchanged the criteria above, we extract from Compustat the entire universe of companies which makes our sample of untreated IPOs. The procedure concludes by yielding a control group of 973 IPOs. As a consequence, our final sample consists of 1,383 IPOs. Lastly, per each of these companies, we hand-download the related 10-Ks and 10-K405s from Edgar database by excluding amended documents. As point out by Loughran and McDonald (2011, p.39) 10-K405s are nothing other 10-Ks where is reported the following sentence: *"disclosure of delinquent filers pursuant to Item 405"*. The authors also highlight that the SEC has eliminated this classification over time to avoid confusion and inconsistency in its application; aside that the choice to include both 10-Ks and 10-K405s does not affect the results. This procedure

forces us to lose an additional amount of observations (around 27%) due to not having a valid ticker symbol for Edgar[4].

Panel A, B and C of Table 2 reports the sectorial, calendar year and State distribution of our sample, respectively. Consistently with the previous studies (e.g., Chemmanur, Hull, and Krishnan, 2016; Megginson and Weiss, 1991), we find that our sample is quite concentrated around few sectors. Specifically, SIC codes 73(Business services), 28 (Chemicals and Allied Products), 36 (Electronic and other Electrical Equipment and Components, except Computer Equipment), 38 (Measuring, Analyzing, and Controlling Instruments; Photographic, Medical and Optical Goods; Watches and Clocks) and 48 (Communications) make up, all together, almost 70% of the VC-backed IPOs subsample. This is not come as a surprise since high-tech companies are those belonging among these SIC codes (Ljungqvist and Wilhelm, 2003; Loughran and Ritter, 2004; Kile and Phillips, 2009) in which VCs are particularly inclined to invest (more recently, Bertoni, Colombo, and Grilli, 2011). It should be also noted that the majority of IPOs of our sample is headquartered in a State which is historically[5] ruled by democratic party[6] (i.e., *blue state*). In fact, sorting Panel C by the frequency of VC-backed IPOs, the first four States—namely, California (#144), Massachusetts (#80), Illinois (#19), and New York (#17)—show a democratic culture; aside that all together represent over 50% of the observations. This is in line with the belief that the high-tech industry of the *blue states* is much more advanced. An extraordinary pattern is the case of Silicon Valley. A recent article in *The New York Times* highlights that *"the innovation-driven growth in blue states creates broad positive externalities"* and although something is changing over the last years *"these states are still producing high levels of*

[4] We consider only 10-Ks above 2,000 words *"to eliminate filings that merely mention why the firm is not filing a full 10-K at that point in time"* (Loughran and McDonald, 2014, p.1651). However, we perform the analysis also by removing this filter. The results are substantially the same and available on request.
[5] To separate States that historically have been ruled by Democratic parties from Republican ones, we employ the methodology described in section 4.2.3.
[6] We equivalently refer to *Blue State* (*Red State*) to indicate a State historically ruled by Democratic (Republican) party.

prosperity". Lastly, one can see a proliferation of VC financing since the end of 1990s which is in line with the internet bubble[7] (e.g., Ritter and Welch, 2002).

****** Insert Table 2 about here ******

4.2 Summary statistics and description of variables

4.2.1 Financial effectiveness measures

Our primary measures of financial effectiveness are the return on assets (ROA), which is calculated as ratio between net income on total assets; and the earnings before interest and taxes on assets (EBIT/TA). As well-known, these variables are proxies for the operating performance. To complement the picture of the financial effectiveness proxies, and, as such, to take into account also the side of risk, we implement *ZM-score* (Zmijewski, 1984) and *Z''-score*[8] (Altman, Hartzell and Peck, 1995)[9]. More specifically, these models are computed as follows:

i) Altman, Hartzell and Peck (1995) model:

$$Z'' - score = 6.56\left(\frac{WC}{TA}\right) + 3.26\left(\frac{RE}{TA}\right) + 6.72\left(\frac{EBIT}{TA}\right) + 1.05\left(\frac{EQ}{TL}\right)$$

where *WC* = working capital; *TA* = total assets; *RE* = retained earnings; *EBIT* = earnings before interest and taxes; *EQ* = book value of total equity; *TL* = total liabilities. More specifically, the four ratios that make the *Z''-score* capture the degree of liquidity, profitability, operating efficiency and capital structure soundness, respectively. A higher value of the *Z"-score* indicates a lower financial distress risk.

ii) Zmijewski (1984) model:

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[7] This is consistent with the "hot issue markets" view. See Loughran and Ritter (2002) whom hypothesized the so-called "prospect theory" as explanation of the concerning phenomenon.

[8] We use *Z''-score* instead of *Z-score* (Altman, 1968) because as explained by Altman (2005, p.303) *Z''-score "could be applied to non-manufacturing, industrial firms and to private and public entities".*

[9] Aside the fact that these models are widespread in literature given their degree of reliability, we utilize Z''-score and *ZM-score* mainly for their *"simplicity of computation"* and also because both are based on *"accounting data that are easily retrieved from Compustat"* (Megginson, Meles, Sampagnaro, and Verdoliva, 2016, forthcoming).

$$ZM - score = -4.336 - 4.513\left(\frac{NI}{TA}\right) + 5.679\left(\frac{TL}{TA}\right) + 0.004\left(\frac{CA}{CL}\right)$$

where *NI* = net income; *TA* = total assets; *TL* = total liabilities; *CA* = current assets; and *CL* = current liabilities. A higher *Zmijewski-score* value indicates higher financial distress risk.

4.2.2 Summary statistics and univariate analysis

Panel A of Table 3 reports the summary characteristics, namely – means, medians, standard deviations, first and ninety-ninth percentiles and frequencies— related to our sample of VC- and non-VC-backed firms in the IPO calendar year of Total Assets (mln $), Revenue (mln $), Book Value of total Equity (mln $), Market Capitalization (mln $), and Age (number of years from the founding year to the IPO date), respectively.

Panel B and C of Table 3 provide means and medians of the four dimensions of corporate culture, as Quinn and Rohrbaugh (1983), which are in percentages and calculated as explained in section 3.2, and based on a time horizon of six years (since the IPO calendar year up to five years after) by considering both the full sample (1996–2016) and various sub-periods. They also report the related univariate tests—i.e. Wilcoxon- and *t*-tests. More specifically, Panel B splits our sample in VC- and non-VC-backed IPOs. Instead, Panel C groups, on one hand, the IPOs that historically are headquartered in States ruled by Democratic parties, and Republican ones on the other.

We next discuss the results of the above tests related to Panel B and C. For sake of brevity, we focus solely on the Wilcoxon-tests related to the medians computed on the full sample (i.e. time window 1996-2016) and avoid discussing the medians and means findings related to the sub-periods, by commenting them in outline.

In line with our hypothesis, from Panel B, VC-backed IPOs show a higher *create-oriented* culture compared to their peers. Specifically, the median is equal to 0.88% and 0.81% for VC- and

non-VC-baked IPOs, respectively; and statistically different (p=0.000). As we move on the subsets, the results are resilient given that this difference is statistically significant (p=0.000) over time.

Likewise, the results related to *compete-oriented* culture undertake the same direction of our hypothesis. This translates in a higher *compete-oriented* culture for VC-backed IPOs compared to the control group. More in detail, we find that the median is equal to 2.94% and 2.53% for VC- and non-VC-baked IPOs, respectively, and statistically different (p=0.000); as well as those related to the sub-periods where the difference is strongly significant (p=0.000) over time.

Consistently, we also find that the results related to *collaborate-oriented* culture are weaker compared to the previous ones. More specifically, aside the fact that they are not always persistence and significant over time, the difference within medians suggest that VC baked IPOs are less oriented towards a *collaborate-culture* compared to those are not (median: 1.26% and 1.30%, VC- and non-VC-baked IPOs, respectively). On the base of our hypotheses and the insights of CVF, this result does not come as a surprise. In fact, *collaborate-* is on the same diagonal of *compete-oriented* culture and, as such, these two dimensions go against each other. Stated differently, an organization can make an effort in strengthen just one of them. In the same way, the results related to *control-oriented* culture, where medians of VC- and non-VC-backed IPOs are not statistically different (overall: 0.95% and 0.95%, respectively; p=0.8433) are in line with the expectation. Indeed, *control-* is on the same diagonal of *create-oriented* culture. This is consistent with the idea that VCs devote a special attention towards a *create-culture* rather than a *control* one.

Panel C of Table 3 replicates the analysis of Panel B by splitting the sample into two groups. On one hand, we report the IPOs that historically are headquartered in States ruled by Democratic parties, and Republican ones on the other. The main results suggest that the companies located in *blue states* show a higher *create-oriented* culture compared to that located in *red states*. Specifically, we find that the median is equal to 0.87% and 0.84% for IPOs located in *blue* and *red states*, respectively; and statistically different (p=0.000). Not surprisingly, the findings regarding *compete-oriented* culture

are quite similar to the previous ones. In particular, the IPOs located in *blue states* show a higher orientation towards a *compete-oriented* culture compared to those located in *red states* since the former show a higher median compared to the latter (2.82% and 2.48%, respectively) and difference is statistically significant (p=0.0000). An interesting result arises by matching these results with those of Table 1. In fact, one should be noted that the IPOs most oriented to *compete* and *create* come from *blue states* that, in turn, are prevalently based on the high-tech industry. This seems to be in line with the belief that the *competition* and the *creation* stimulate the innovation which is, as well-known, a key point in a such industry. Similarly to the findings related to the case of VC- and non-VC-backed firms, we also find that the IPOs located in *blue states*, that, as just discussed, stress more *create*- and *compete-oriented* culture, are less oriented towards the dimensions *collaborate* and *control*. Specifically, regarding to *collaborate*, the results show weaker evidence in favor to a such dimension considering that the difference is not always statistically significant over time. Turning on *control* culture, the findings seems to be even more convincing to supporting the idea that Democratic states do not stress the *control-culture* more than Republican ones.

****** Insert Table 3 about here ******

4.2.3 Control and firm specific variables

In this subsection, we discuss the construction and measurement of the various firm-specific variables and other proxies that we use for our analysis. On the side of firm-specific characteristics, we measure *Age* as the natural logarithms of one plus the number of years since the year firm's incorporation until the IPO calendar year. *Size* is defined as the natural logarithm of the total assets in thousands of dollars by the end of the corresponding fiscal year. *Capex* is calculated as the ratio between capital expenditures on total assets. To take into account possible differences that may arise at industry-wide, we include the following variables. *Industry dummies* is a set of dummy variables describing the industrial sectors and each of that takes the value one if the firm operates in the

corresponding sector and zero otherwise. We also define each sector by referring to 2-digit SIC code. *High-Tech Firm* is a dummy variable that takes the value one if the firm belonging to one of following 2-digit SIC codes: 28, 35, 36, 38, 48, and 73; and zero otherwise. *State dummies* is a set of dummy variables which aims to describe the territorial differences and each of them is equal to 1 if the firm operates in the corresponding State, and zero otherwise. *HHI* (natural logarithm of Herfindahl-Hirschman Index) which is the to proxy for the firm's industry leader position. We construct the Herfindahl-Hirschman Index per each sector (2-gisit SIC code) per each fiscal year in each State, based on the market share of each firm in Compustat. As is standard, Herfindahl-Hirschman Index is estimated by summing up the square of each firm's market share (in sales) per each sector, per each fiscal year in each State. In addition to the firm-specific and industry-wide controls mentioned above, we also utilize variables to proxy for the regional culture and to consider the phenomenon of dual class shares. The latter is related to the chance by a company to issue shares with distinct voting rights and dividend payments. If so, one can conjecture that this may fueling the free-rider problem and the related negative effect for the financial effectiveness. To proxy the regional culture, we construct a dummy variable—namely, *Blue-Red* which takes a value of 1 if the corresponding company is headquartered in a State which is historically ruled by democratic party, and zero by republican one. To label a State as blue or red, we employ the following procedure. First, we retrieve the time series[10] of US electoral results. More specifically, the time series indicates per each State, and election by election, whether the electorate have preferred democratic or republican parties. Second, per each State, if for the majority of elections occurred between 1988-2016 the electorate have preferred democratic parties, we define that State as a *blue state* i.e. a State that historically shows a democratic culture. Otherwise, we define that State as a *red* one. To consider the phenomenon of dual class shares, we construct a dummy variable, *Dual class*, that takes the value of 1 when companies have issued shares with distinct voting

[10] We use the time series provided by *The New York Times* — "50 Years of Electoral College Maps: How the U.S. Turned Red and Blue"

rights and dividend payments, and zero otherwise. The information useful to construct this variable is gather from the 10-K reports. Specifically, we employ the text analysis by searching for the following words: Class A, Class B, Class C, and Class D. In case that the frequency of at least one of these words is equal to 1, we consider the related company as a dual class issuer[11]. Lastly, we also evaluate the impact on corporate culture and financial effectiveness while companies are backed by VCs. To this end, we use a dummy variable, *VC*, that is set at 1 when companies have received a VC financing and zero otherwise. A detailed definition of all the variables included in our analysis is provided in Table 4.

****** Insert Table 4 about here ******

5. Empirical strategy

5.1 Specification models

This section describes the empirical strategy which we employ to test our hypotheses. First, we run a *OLS* regression for panel data to evaluate the impact of the four dimensions of corporate culture, as CVF by Quinn and Rohrbaugh (1983)—see section 3.2, on the financial effectiveness proxies. Specifically, our first regression model is specified as follows:

$$y_{i,t} = \alpha + \beta\, Create_{i,t} + \sum_{j=1}^{n} \beta_j\, x_{j,i,t} + \varepsilon_{i,t}$$

where *i* denotes a firm (*i* = 1, 2, …, 1,383). In our first round of the analysis, we consider the full sample as an experimental setting (1,383 IPOs) composed of 410 VC- and 973 non-VC-backed IPOs. Here *t* denotes the time dimension represented by the five fiscal years since the IPO calendar year (*t* = 0, 1, 2, 3, 4, 5); *y* denotes the measures of financial effectiveness –namely, *ROA, EBIT/TA, Z"-score* and *ZM-score*. As the CVF, *Create* is one of the four dimensions of corporate culture. $\sum_{j=1}^{n} \beta_j\, x_{j,i,t}$ is

[11] To be sure that the methodology does not capture something else, we conduct a hand-control on about 5% of 10-Ks. We confirm the reliability of the methodology given that no one misinterpretation or error is found.

a vector of control variables; and ε is the random error term. Starting with the base equation, we estimate other models both by replacing *Create* variable with the rest of the four dimensions of corporate culture, one by one, and using them all together.

To address the issues related to the fact that local and sectorial characteristics may affect the results, we perform further analysis. Drawing from the previous models, we impose two restrictions. On one hand, we split our sample in IPOs which are headquartered in *blue* and *red states* and run the analysis by using separately these sub-sets. On the other, we split our sample in IPOs belonging among high-tech and low-tech sectors (see section 4.2.3 for their definition) and, after that, replicate the analysis as the previous case.

5.2 Endogeneity concerns and possible solutions

We next discuss the possible endogeneity issues that may affect our results and the instruments to tone down them. In fact, it is not come as a surprise that the choice of VC regarding in which firm to investing is not the outcome of a random process (e.g. Megginson and Weiss, 1991). As shown in section 4.2.2, VCs prefer certain geographic areas— namely, States historically ruled by democratic parties, and certain sectors— i.e. high-tech ones. But that is not all. Aside this, VCs, before to investing, undertake an intensive screening in order to evaluate the potential for growth of the potential portfolio firms. These peculiarities, take as a whole, generate some issues of selection biases. This matter is particularly relevant for the construction of an effective contractual sample. To overcome these kind of problems, Rosenbaum and Rubin (1983) introduce the propensity score matching which aims to identify per each treated entity an untreated one with equal characteristics but with the solely difference to having not been subject to a given treatment. To this end, we employ propensity score matching on the basis of the following procedure. First, we estimate a cross-sectional logit regression on the basis of listing year data by using *VC* as depended variable and *Age*, *Size*, *Industry* and *Year dummies* as explanatory ones. As is standard, we ensure that the balancing property (see Becker and Ichino, 2002)

is satisfied. Second, the procedure concludes by yielding 1,393 propensity scores; one per each company. Third, per each VC-backed-IPO, we select a control firm, without replacement (Heckman et al., 1997), that shows a propensity score in the range ±0.01 compared to that of the corresponding treated company. In case that more than one IPOs is within the above range, we choice the nearest one. For over 200 VC-backed-IPOs no one control firms is found. Stated differently, no one control firm is within the range above described. Our final sample includes 175 VC- and 175 non-VC-backed IPOs.

5.3 Disentangling the effects of a non-random choice

To dealing the concerns discussed in the previous section and to answer our further hypotheses, we conduct two additional tests. First, we run the probit regressions to evaluate the impact of the VCs and other regional and industry characteristics on the corporate culture. Specifically, our models are specified as follows:

$$z_{i,t} = \alpha + \gamma\, VC_i + \sum_{k=1}^{m} \gamma_k\, x_{k,i,t} + \varepsilon_{i,t}$$

where *i* denotes a firm (*i* = 1, 2, …, 1,383). In our first round of the analysis, we consider the full sample as an experimental setting (1,383 IPOs) composed of 410 VC- and 973 non-VC-backed IPOs. Here *t* denotes the time dimension represented by the five fiscal years since the IPO calendar year up to five years after (*t* = 0, 1, 2, 3, 4, 5); *z* denotes the four dimensions of corporate culture. This time, they are estimated as dummy variables. Specifically, *Create_High* is a dummy variable that takes a value of 1 if for the corresponding firm, *Create* shows a value higher compared to the sample median, and zero otherwise. The same goes for the rest— namely, *Compete_High*, *Collaborate_High* and *Control_High*. *VC* is a dummy variable as described in section 4.2.3. $\sum_{k=1}^{m} \gamma_k\, x_{k,i,t}$ is a vector of control variables; and ε is the random error term. In our second round, we replicate the analysis on the sample made up by using the propensity score matching.

Lastly, we are aware that the propensity score matching can mitigate but not completely avoid

the issue related to the fact that the VCs' choice is the result of a non-random process. We have already discussed that the VCs prefer certain geographic area, sectors and, moreover, they may prefer firms with a given culture-orientation aside that may preventively select firms that show a such orientation. To further delve with this issue, we run the two-stage Heckman-type estimation model (Heckman,1979) by employing the sample gathered through the propensity score methodology in order to disentangle the possible effect related to the screening and monitoring. The model proceeds as follows. In the first stage, we run a probit regression where *Create_High*, *Compete_High*, *Collaborate_High* and *Control_High* are the dependent variables, respectively. The procedure aims to estimate the Inverse Mills ratio which captures the unobservable factors. In the second one, we run the regression model by including the Inverse Mills ratio as explanatory variable. More specifically, in the second stage we run the following model:

$$y_{i,t} = \alpha + \vartheta_1 \, VC_{i,t} + \vartheta_2 \, Create_{i,t} + \vartheta_3 \, Inverse\ Mills_{i,t} + \sum_{k=4}^{z} \vartheta_k \, x_{k,i,t} + \varepsilon_{i,t}$$

where *i* denotes a firm (*i* = 1, 2, …, 350). We base the analysis on the sample gather while employing the propensity score matching as described in the previous section. The meaning of the variables remains unchanged while $\sum_{k=4}^{z} \vartheta_k \, x_{k,i,t} + \varepsilon_{i,t}$ is a new vector of independent variables; and ε is the random error term. As the previous case, we estimate further models by replacing *Create* variable with the rest of the four dimensions of corporate culture (i.e. CVF).

6. Results

6.1 Is there a relation between corporate culture and IPO firm financial performance?

Since there is very little empirical evidence about the importance of corporate culture for the performance of IPO firms, we start our econometric analyses by estimating a base model that investigates the relation between the types of corporate culture and IPO firm's financial performance.

Specifically, we first estimate OLS regressions (see Table 5), testing whether an IPO firm's profitability and its risk of financial distress are a function of corporate culture variables while controlling for various other firm-specific characteristics, and industry and year dummies. The dependent variables are *Z″-score* (columns 1-5), *ZM-score* (columns 6-10), *ROA* (columns 11-15) and *EBIT/TA* (columns 16-20), respectively. For each dependent variable of interest, we estimate five OLS specifications, because we first use corporate culture variables separately and then all together.

Overall, we find that several factors are statistically significant drivers of an IPO firm's profitability and its risk of financial distress. Specifically, while a firm size (*Size*) and the growth rate of GDP (*GDP*) has a favorable influence on firm's profitability and risk of financial distress (at the 10% confidence level or less), the issuing of various types of shares by a company with distinct voting rights and dividend payments (*Dual class*) increases the corporate risk of financial distress and reduces a firm's profitability (at the 1% confidence level or less). Unsurprisingly, the set of dummy variables describing territorial differences, industry characteristics and time periods contributes significantly to explaining a firm's profitability and its risk of financial distress. In contrast, the coefficients of the variables *Age*, *Capex* and *HHI* are not always significant.

Regarding the effects on financial performance of having a certain corporate culture and consistent with hypothesis H.2, we find that companies with a compete- or create-oriented culture exhibit on average, a higher profitability and lower risk of financial distress than companies with a control or collaboration-oriented culture. For example, looking at the results reported in column 5 the variables *Compete* and *Create* exhibit a positive (6.122 and 9.313, respectively) and highly significant coefficient (t= 4.52 and 3.45, respectively), while the variables *Collaborate* and *Control* are not significantly related to the dependent variable. It is worth to note that these results are robust to all the profitability and financial distress measures employed. In more rigorous terms, the regression analysis indicates that a positive changing at 1% level in *Create* impacts positively on Z″-score by increasing it of 13.55 units (column 1), as well as same changing in *Compete* causes an increasing in Z″-score of

7.169 units (column 2). Given that ZM-score works in opposite way, the results are qualitatively the same. Specifically, a positive changing at 1% level in the *Create* causes a decreasing in ZM-score of 3.33 units, and the same changing in *Compete* translates in a decreasing of ZM-score equal to 1.818 units. Turning on ROA and EBIT/TA, the results suggest that an increasing at 1% level in the create-oriented culture causes an increasing of 0.245% and 0.241%, respectively. The same goes for *Compete* where an increasing at 1% determines an increasing of 0.139% and 0.145% in terms of ROA and EBIT/TA, respectively.

However, we are concerned about potential endogeneity issues in the relation between post-IPO performance and corporate culture. A firm's performance and its corporate culture could both be affected by various firm-specific characteristics, like VC backing and several factors related to the environment in which the firm operates, like regional culture and industry characteristics, creating a spurious relation between them. To delve deeper on this endogeneity concern, we estimate the regression models on subsamples alternately stratified by industry and regional culture (Table 6). More specifically, we partition the sample by (1) firms belonging to high-tech sectors and that operate in a low-tech industry; and (2) firms headquartered in States historically ruled by Republican parties and that headquartered in States historically ruled by Democratic ones. We find that the predicted relations do not always persist in the subsample regressions confirming that endogeneity is a concern that we need to take under control. Specifically, since companies with certain characteristics at firm, regional and industry level may tend to develop a certain type of corporate culture, the contribution of corporate culture to firm financial performance will be mis-estimated if we do not correct for the simultaneity and endogeneity issues. In this paper, we conduct our endogeneity and simultaneity analyses in two stages. We extensively examine the factors determining engagement corporate culture in the first stage (Section 6.2), and then compare the financial performance of firms developing a certain corporate culture versus firm with a different corporate culture in the second stage (Section 6.3).

6.2 The determining factors of corporate culture and the importance of VC backing

To properly conduct our endogeneity and simultaneity analyses, we are first interested in developing a model that is able to explain the corporate culture of an IPO firm.

Thus, in Table 7 (columns 1-4) we use probit models for capturing those factors at firm, regional and industry level that can help to explain why an IPO firm may be more inclined to have a certain corporate culture. Overall, we find that various factors explain a firm's corporate culture, even if they may have a different influence on the four types of corporate culture. For example, looking at the results reported in column I, we find that creation-oriented culture is positively influenced (at the 1% confidence level or less) by firm's size (*Size*), firm's age (*Age*), regional culture (*Blue-Red*), market concentration (*HHI*), and the belonging to a high tech sector (*High-Tech Firm*). Instead, focusing on the results reported in column III we observe that collaborate-oriented corporate culture is negatively influenced (at the 1% confidence level or less) by firm's size (*Size*), firm's age (*Age*), market concentration (*HHI*) and positively influenced (at the 5% confidence level) by regional culture (*Blue-Red*), whereas the belonging to a high tech sector seems to be not significant (*High-Tech Firm*).

Interestingly, the main variable of interest, that is whether a company is backed by VCs, has a strong influence on a firm's culture. More in details, we find that VC-backed companies are more likely to exhibit a competition and created-oriented culture (at the 1% confidence level or less) and are less inclined to have control-oriented culture (at the 5% confidence level or less). For example,

These findings are overall consistent with the hypothesis *H.1* and should come as no surprise for two closely related reasons. First, it is well known (e.g., Caselli and Negri, 2018) that VCs push portfolio firms to change their corporate culture by encouraging their managers and employees to share a high profit-oriented culture and exerting an intense pressure to continue to develop the business. Second, previous studies (e.g., Hartnell, Ou, and Kinicki, 2011) hypothesize that competition-oriented and creation-oriented culture are linked (strongly and moderately, respectively) to financial effectiveness, whereas control-oriented culture have no positively influence on financial performance.

Despite these results are overall consistent with the theoretical predictions, we are concerned that they can be biased by the fact that VC-backed IPO firms may differ significantly from their non-VC-backed counterparts. Thus and following established literature on the role of VC backing in IPOs (e.g., Megginson, Meles, Sampagnaro, and Verdoliva, 2016), we use a matching technique, where the one-to-one nearest neighbor is matched without replacement which allows us to control for observed heterogeneity among VC-backed and non-VC backed IPOs, represented by the characteristics included in the matching process.

In columns 5-8 of Table 7, we re-run the probit regressions on the sample of IPOs identified through the propensity score matching-based analysis. Overall, the findings seem to confirm that VC-backed IPO companies are more likely to exhibit a competition and created-oriented culture (at the 1% confidence level or less). Otherwise, the coefficient of the variable *control* remains negative but is not significant.

6.3 The impact of corporate culture on IPO performance: the two stage Heckman model

Finally, in order to properly analyze the relationship between VC backing, corporate culture, regional political culture, industry characteristics, and post-IPO performance we conduct our endogeneity and simultaneity analyses through the 2-step Heckman (1979) regression (see Table 8). Specifically, we examine the factors determining corporate culture type extensively in the first stage by running the probit model with same specification in Table 7, and then analyze the impact of corporate culture and other determining factors in the second stage.

After correcting for the endogenous treatment effect and simultaneity bias we find that profitability and financial distress risk indicators remain positively related to the competition- and create-orientated culture, while the non-significance of the variables that approximate collaboration- and control-oriented culture persists. For example, looking at the results reported in column (1) and (5), the variables *Create* and *Compete* exhibit a positive (12.79 and 2.373, respectively) and significant

(*t*=2.96 and 2.03, respectively), coefficient suggesting that firms a highly competition-and creation-oriented culture exhibit a higher Z”-score. It is worth to note the coefficient of Inverse Mills ratio is almost always significant, demonstrating that the selection bias was a concern that has been removed.

Interestingly, results show that VC backing seems influencing IPO firms’ financial performance both directly and by acting on the corporate culture (namely, indirectly). For example, in column 1, it exhibits a positive and significant coefficient both in the first stage (see analysis reported in Table 7, columns 5-8) and in the second stage (e.g., in column 1, the coefficient is 4.429 and *t* is 3.92). This result was somewhat of expected considering that by encouraging portfolio firms to develop a high a high profit-oriented culture is just one of the way through which a VC can foster the value creation process. Indeed, as suggested by previous literature (e.g., Hellmann and Puri, 2002; Sørensen, 2007; Croce, Martí, and Murtinu, 2013), VCs help portfolio firms by improving their access to both financial and managerial resources and to get help in defining strategic planning, recruiting managers, accessing to a new network of contacts (i.e., financial intermediaries, suppliers and customers) and high expertise in operational planning.

Conclusions

Over the last few years a growing number of corporate managers have acquired a deep awareness of the importance of the corporate culture for the success of their company and of the need to preserve it during a period of tremendous transformation like that which occurs after an IPO. Accordingly, in addressing to the financial market participants at the IPO time, the CEO of *Snap Inc*, decided to reveal many details about the corporate culture of his company. Along with the acceleration of corporate culture issue among CEOs, finance literature (i.e., Guiso, Sapienza and Zingales, 2015) has paid attention on the necessity to analyze in depth how and why corporate culture can contribute to a public firm’s success.

This study tries to participate in the ongoing debate by investigating which factors determine an IPO firm's culture and what are the effects of corporate culture on IPO firms' profitability and their risk of financial distress while controlling for firm specific characteristics, like VC backing, regional culture and industry-specific characteristics.

Analyzing a sample of 1,383 US firms that went public between 1996 and 2011, we report several interesting results. First, we find strong evidence that VC-backed companies are more likely to exhibit a competition-oriented culture and a creation-oriented culture. Second, we find that regional culture and industry characteristics play a key role in explaining the choice of a firm to develop a certain type of corporate culture. Third, we find that IPO firms with a highly competition-and creation-oriented culture exhibit in average a higher profitability and a lower risk of financial distress than other IPO firms (namely, that with highly collaboration and control-oriented culture). This result is robust to all the profitability and financial distress measures employed and resilient to the robustness tests we perform to control for endogeneity issues.

Our study relates to concerns raised by entrepreneurs, corporate managers, institutional investors, retail investors and policy makers about the risk of a firm's decline in financial performance over the post-IPO years. We show that for a company going public with a certain cultural orientation and preserve it over the following years can represent an effective way for better addressing the challenges arising from the IPO.

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Figure 1. Competing Values Framework

Individual flexibility

	Culture type: CLAN Orientation: **COLLABORATE** A very friendly place to work where people share a lot of themselves. It is like an extended family. The leaders, or head of the organization, are considered to be mentors and, maybe even, parent figures. The organization is held together by loyalty or tradition. Commitment is high. The organization emphasizes the long-term benefit of human resource development and attaches great importance to cohesion and morale. Success is defined in terms of sensitivity to customers and concern for people. The organization places a premium on teamwork, participation, and consensus.	Culture type: ADHOCRACY Orientation: **CREATE** A dynamic, entrepreneurial, and creative place to work. People stick their necks out and take risks. The leaders are considered to be innovators and risk takers. The glue that holds the organization together is commitment to experimentation and innovation. The emphasis is on being on the leading edge. The organization's long-term emphasis is on growth and acquiring new resources. Success means gaining unique and new products or services. Being a product or service leader is important. The organization encourages individual initiative and freedom.
Internal maintenance, focus and integration		*External positioning, focus and differentiation*
	Culture type: HIERARCHY Orientation: **CONTROL** A very formalized and structured place to work. Procedures govern what people do. The leaders pride themselves on being good coordinators and organizers, who are efficiency-minded. Maintaining a smooth-running organization is most critical. Formal rules and policies hold the organization together. The long-term concern is on stability and performance with efficient, smooth operations. Success is defined in terms of dependable delivery, smooth scheduling, and low cost. The management of employees is concerned with secure employment and predictability.	Culture type: MARKET Orientation: **COMPETE** A results-oriented organization. The major concern is getting the job done. People are competitive and goal-oriented. The leaders are hard drivers, producers, and competitors. They are tough and demanding. The glue that holds the organization together is an emphasis on winning. Reputation and success are common concerns. The long-term focus is on competitive actions and achievement of measurable goals and targets. Success is defined in terms of market share and penetration. Competitive pricing and market leadership are important. The organizational style is hard-driving competitiveness.

Stability control

Source: Cameron and Quinn (1999), Figure 4.1.

Table 1. Corporate culture dimensions investigated.

Dimension	Portfolio of words
Control	capab*, collectiv*, commit*, competenc*, conflict*, consens*, control*, coordin*, cultur*, decentr*, employ*, empower*, engag*, expectat*, facilitator*, hir*, interpers*, involv*, life*, long-term*, loyal*, mentor*, monit*, mutual*, norm*, parent*, partic*, procedur*, productiv*, retain*, reten*, skill*, social*, tension*, value*
Compete	achiev*, acqui*, aggress*, agreem*, attack*, budget*, challeng*, charg*, client*, compet*, customer*, deliver*, direct*, driv*, excellen*, expand*, fast*, goal*, growth*, hard*, invest*, market*, mov*, outsourc*, performanc*, position*, pressur*, profit*, rapid*, reputation, result*, revenue*, satisf*, scan*, succes*, signal*, speed*, strong*, superior*, target*, win*
Collaborate	boss*, burocr*, cautio*, cohes*, certain*, chief*, collab*, conservat*, cooperat*, detail*, document*, efficien*, error*, fail*, help*, human*, inform*, logic*, method*, outcom*, partner*, people*, predictab*, relation*, qualit*, regular*, solv*, share*, standard*, team*, teamwork*, train*, uniform*, work group*
Create	adapt*, begin*, chang*, creat*, discontin*, dream*, elabor*, entrepre*, envis*, experim*, fantas*, freedom*, futur*, idea*, init*, innovat*, intellec*, learn*, new*, origin*, pioneer*, predict*, radic*, risk*, start*, thought*, trend*, unafra*, ventur*, vision*

Source: Fiordelisi and Ricci (2014)

Table 2. Distribution and characteristics of VC- and non-VC-backed IPOs

This table shows the distribution of VC- and non-VC-backed IPOs by characteristics. Panel A shows the distribution both of the full sample and the two subsets composed of VC- and non-VC- backed IPOs across two-digit SIC codes. Panel B shows the time-series distribution of the full sample, VC- and non-VC- backed IPOs in each IPO calendar year, respectively. Panel C shows the geographic distribution, State by State, of the full sample, VC- and non-VC- backed IPOs. The same also reports the percentages of firms headquartered in States historically ruled by democratic- and republican parties both of the full sample and the two subsets composed of VC- and non-VC- backed IPOs.

Panel A

	Overall		VC		non-VC	
SIC code	#	Cum. %	#	Cum. %	#	Cum. %
73	263	19.02	99	24.15	164	16.86
28	139	29.07	65	40.00	74	24.46
36	133	38.69	55	53.41	78	32.48
38	92	45.34	41	63.41	51	37.72
48	83	51.34	22	68.78	61	43.99
35	65	56.04	22	74.15	43	48.41
13	47	59.44	3	14.88	44	52.93
87	36	62.04	12	77.80	24	55.40
37	27	63.99	7	79.51	20	57.45
49	25	65.80	2	80.00	23	59.82
44	24	67.54	3	80.73	21	61.97
58	22	69.13	4	81.71	18	63.82
59	21	70.65	12	84.63	9	64.75
20	20	72.10	3	85.37	17	66.50
80	20	73.55	2	85.85	18	68.35
Others	366	100.00	58	100.00	308	100.00
Total	1,383	100.00	410	100.00	973	100.00

Panel B

	Overall		VC		non-VC	
IPO (year)	#	Cum. %	#	Cum. %	#	Cum. %
1996	163	11.79	31	7.56	132	13.57
1997	135	21.55	22	12.93	113	25.18
1998	107	29.28	10	15.37	97	35.15
1999	141	39.48	40	25.12	101	45.53
2000	138	49.46	50	37.32	88	54.57
2001	31	51.70	12	40.24	19	56.53
2002	26	53.58	12	43.17	14	57.97
2003	20	55.03	9	45.37	11	59.10
2004	69	60.01	30	52.68	39	63.10
2005	87	66.31	33	60.73	54	68.65
2006	90	72.81	36	69.51	54	74.20
2007	112	80.91	63	84.88	49	79.24
2008	40	83.80	1	85.12	39	83.25
2009	39	86.62	11	87.80	28	86.13
2010	95	93.49	28	94.63	67	93.01
2011	90	100.00	22	100.00	68	100.00
Total	1,383	100.00	410	100.00	973	100.00

Panel C

	Overall		VC		non-VC	
State	#	Cum. %	#	Cum. %	#	Cum. %
CA	248	17.93	144	35.12	104	10.69
TX	113	26.10	15	38.78	98	20.76
MA	80	31.88	40	48.54	40	24.87
NY	78	37.52	17	52.68	61	31.14
NJ	46	40.85	13	55.85	33	34.53
IL	44	44.03	19	60.49	25	37.10
FL	38	46.78	5	61.71	33	40.49
PA	32	49.09	8	63.66	24	42.96
CO	31	51.33	9	65.85	22	45.22
GA	27	53.28	10	68.29	17	46.97
VA	24	55.02	6	69.76	18	48.82
CT	23	56.68	7	71.46	16	50.46
MD	23	58.34	11	74.15	12	51.70
MN	23	60.00	8	76.10	15	53.24
WA	22	61.59	10	78.54	12	54.47
Others	531	100.00	88	100.00	443	100.00
Total	1,383	100.00	410	100.00	973	100.00

	State Headquartered		State Headquartered		State Headquartered	
	Republican (%)	*Democrat (%)*	*Republican (%)*	*Democrat (%)*	*Republican (%)*	*Democrat (%)*
	28.91	71.09	16.66	83.33	35.48	64.52

Table 3. Summary statistics: firms characteristics, regional and corporate culture

Panel A provides means, medians and other statistics of VC- and non-VC-backed firms in the IPO calendar year. Total assets, revenue, book value and market value are in millions of dollars. Age is the number of years from the founding date to the IPO date. Panel B provides means and medians of the four dimensions of corporate culture, as Quinn and Rohrbaugh (1983), considering both the full sample period (1996–2016) and various sub-periods, along with associated Wilcoxon- and *t*-statistics by splitting the sample in VC- and non-VC-backed IPOs. The results are in percentages, calculated as the number of words of the corresponding dimension of corporate culture divided by the total words per 10-K document. Panel C replicates the analysis of Panel B by splitting the sample in IPOs which are headquartered in States that are historically ruled by Democratic parties and Republican ones.

Panel A — Characteristics of VC backed and non-VC backed IPOs

	VC- Backed IPOs						non-VC- Backed IPOs					
	Mean	Median	St. dev.	1st percentiles	99th percentiles	N	Mean	Median	St. dev.	1st percentiles	99th percentiles	N
Total Assets	654.23	134.00	3286.13	7.21	8975	410	2291.74	216.20	19764.2	0.92	25745	973
Revenue	493.93	72.07	2743.15	0.51	4486.04	410	1150.70	105.66	4952.80	0	21107	966
Age	10.74	7	13.38	1	86	408	18.34	7	28.55	0	143	806
Book Value	310.40	93.39	1791.76	-21.34	3426.94	410	674.34	99.74	2489.05	-128.1	12002	970
Market Value	1501.99	436.02	5884.27	18.89	17673.2	410	1669.94	337.91	5333.36	3.16	25534.29	965

Panel B — Corporate culture dimensions: VC-backed Vs. non-VC-backed IPOs

	VC			non-VC			T-test	Wilcoxon test (P-
Years	Mean	Median	N	Mean	Median	N	(p-value)	value)
Create dimension - time series distribution								
1996-2016	0.88	0.88	2,358	0.81	0.81	3,675	0.0000	0.0000
Sub-periods								
1996-2000	0.77	0.77	377	0.70	0.67	818	0.0000	0.0000
2001-2005	0.90	0.89	694	0.81	0.79	1,098	0.0000	0.0000
2006-2010	0.89	0.88	813	0.85	0.84	762	0.0000	0.0000
2011-2016	0.95	0.94	474	0.89	0.87	997	0.0000	0.0000
Compete dimension – time series distribution								
1996-2016	2.94	2.88	2,358	2.59	2.53	3,675	0.0000	0.0000
Sub-periods								
1996-2000	2.89	2.85	377	2.59	2.51	818	0.0000	0.0000
2001-2005	3.00	3.00	694	2.64	2.62	1,098	0.0000	0.0000
2006-2010	2.80	2.74	813	2.55	2.49	762	0.0000	0.0000
2011-2016	3.09	3.04	474	2.56	2.52	997	0.0000	0.0000

Table 3. ***Continued (Panel B)***

Panel B — Continued

	VC			non-VC			T-test	Wilcoxon test (P-
Years	Mean	Median	N	Mean	Median	N	(p-value)	value)
Collaborate dimension – time series distribution								
1996-2016	1.30	1.26	2,358	1.35	1.30	3,675	0.0000	0.0000
Sub-periods								
1996-2000	1.34	1.32	377	1.37	1.32	818	0.3020	0.7408
2001-2005	1.33	1.29	694	1.41	1.38	1,098	0.0000	0.0000
2006-2010	1.29	1.24	813	1.27	1.21	762	0.1200	0.0028
2011-2016	1.23	1.18	474	1.34	1.26	997	0.0000	0.0000
Control dimension – time series distribution								
1996-2016	0.97	0.95	2,358	0.97	0.95	3,675	0.0485	0.8433
Sub-periods								
1996-2000	0.81	0.77	377	0.88	0.81	818	0.0000	0.0013
2001-2005	0.96	0.93	694	0.96	0.93	1,098	0.6685	0.2895
2006-2010	1.01	0.99	813	1.02	1.01	762	0.2296	0.1442
2011-2016	1.02	1.00	474	1.04	1.01	997	0.0758	0.1641

Table 3. ***Continued***

Panel C — Corporate culture dimensions: Democratic Vs. Republican

	Democratic			Republican			T-test	Wilcoxon test (P-
Years	Mean	Median	N	Mean	Median	N	(p-value)	value)
Create dimension - time series distribution								
1996-2016	0.87	0.87	3,556	0.84	0.84	1,210	0.0000	0.0000
Sub-periods								
1996-2000	0.73	0.71	825	0.70	0.66	303	0.0962	0.0444
2001-2005	0.88	0.88	1,013	0.85	0.83	354	0.0646	0.0089
2006-2010	0.91	0.90	888	0.89	0.89	266	0.3236	0.3407
2011-2016	0.95	0.93	830	0.91	0.88	287	0.0003	0.0000
Compete dimension – time series distribution								
1996-2016	2.85	2.82	3,556	2.56	2.48	1,210	0.0000	0.0000
Sub-periods								
1996-2000	2.72	2.66	825	2.57	2.53	303	0.0007	0.0008
2001-2005	2.90	2.87	1,013	2.70	2.69	354	0.0000	0.0000
2006-2010	2.84	2.79	888	2.50	2.48	266	0.0000	0.0000
2011-2016	2.94	2.94	830	2.42	2.33	287	0.0000	0.0000
Collaborate dimension – time series distribution								
1996-2016	1.28	1.24	3,556	1.26	1.20	1,210	0.1000	0.0003
Sub-periods								
1996-2000	1.36	1.32	825	1.31	1.26	303	0.0535	0.0487
2001-2005	1.32	1.29	1,013	1.30	1.26	354	0.3163	0.1416
2006-2010	1.20	1.18	888	1.14	1.11	266	0.0002	0.0000
2011-2016			830	1.26	1.14	287	0.0450	0.2731
Control dimension – time series distribution								
1996-2016	0.97	0.95	3,556	0.96	0.92	1,210	0.5952	0.0172
Sub-periods								
1996-2000	0.86	0.80	825	0.85	0.80	303	0.8915	0.4708
2001-2005	0.96	0.93	1,013	0.96	0.93	354	0.7619	0.7466
2006-2010	1.01	1.00	888	1.01	1.00	266	0.7230	0.9440
2011-2016	1.04	1.02	830	1.03	0.98	287	0.4271	0.0059

Table 4. Description of variables

Variables	Symbol	Description
Financial distress indicator 1	*Z''-score*	Altman, Hartzell and Peck model (1995) to predict financial distress. A higher Z''-score value indicates a lower financial distress risk [a]
Financial distress indicator 2	*ZM-score*	Zmijewski model (1984) to predict financial distress. A higher ZM-score value indicates a higher financial distress risk [a]
Operating performance 1	*ROA*	Book value of Net Income normalized by total assets. [a]
Operating performance 2	*EBIT/TA*	Book value of EBIT (Earnings Before Interest and Taxes) normalized by total assets.[a]
Control-oriented culture	*Control*	*Control* is the control-oriented corporate culture estimate of company i at time t obtained using text analysis[d].
Create-oriented culture	*Create*	*Create* is the control-oriented corporate culture estimate of company i at time t obtained using text analysis[d].
Collaborate-oriented culture	*Collaborate*	*Collaborate* is the control-oriented corporate culture estimate of company i at time t obtained using text analysis[d].
Compete-oriented culture	*Compete*	*Compete* is the control-oriented corporate culture estimate of company i at time t obtained using text analysis[d].
Control-oriented culture	*Control_High*	An indicator variable for highly control-oriented culture firms that takes value 1 if the corresponding firm shows a *Control* value higher compared to the median and 0and zero otherwise.
Create-oriented culture	*Create_High*	An indicator variable for highly create-oriented culture firms that takes value 1 if the corresponding firm shows a *Create* value higher compared to the median and 0and zero otherwise.
Collaborate-oriented culture	*Collaborate_High*	An indicator variable for highly collaborate-oriented culture firms that takes value 1 if the corresponding firm shows a *Collaborate* value higher compared to the median and 0and zero otherwise.
Compete-oriented culture	*Compete_High*	An indicator variable for highly compete-oriented culture firms that takes value 1 if the corresponding firm shows a *Compete* value higher compared to the median and 0and zero otherwise.
VC backing	*VC*	Dummy variable which is set at 1 when firms are backed by a VC investor and 0 otherwise [b]
Size	*Size*	Natural logarithm of the total asset [a]
Age	*Age*	Natural logarithm of the firm age [b]
Capital expenditures	*Capex*	Capital expenditures normalized by total assets [a]
GDP growth rate	*GDP*	The GDP growth rate between two consecutive years [c]
Herfindahl-Hirschman Index	*HHI*	The natural logarithm of Herfindahl-Hirschman Index, constructed per each sector (2-gisit SIC code) per each fiscal year in each State, based on the market share (sales) of each firm in Compustat [a]
Firms belonging to high-tech sectors	*High-Tech Firm*	A dummy variable which takes the value one if the firm belonging to one of following 2-digit SIC codes: 28, 35, 36, 38, 48, and 73; and zero otherwise [a]
Democratic and republican states	*Blue-Red*	A dummy variable which takes a value of 1 if the corresponding company is headquartered in a State which is historically ruled by democratic party, and zero by republican one [e]
Dual class issuer	*Dual Class*	A dummy variable that takes the value of 1 when companies have issued shares with distinct voting rights and dividend payments, and zero otherwise [d]
Industry dummies	*Industry dummies*	A set of dummy variables describing the industrial sectors and each of which takes the value 1 if the firm operates in the corresponding sector, and zero otherwise [a]
State dummies	*State dummies*	A set of dummy variables describing the territorial differences and each equal to 1 if the firm operates in the corresponding State, and zero otherwise [a]
Year dummies	*Year dummies*	A set of dummy variables each equal to 1 if the firm went public in corresponding in the corresponding Year, and zero otherwise [a]

[a] *Source*: COMPUSTAT
[b] *Source*: THOMSON ONE
[c] *Source*: WORLD BANK
[d] *Source*: EDGAR- 10-K files
[e] *Source*: The New York Times — "50 Years of Electoral College Maps: How the U.S. Turned Red and Blue"

Table 5. The impact of corporate culture dimensions on financial effectiveness

The dependent variables are *Z''-score* (columns 1 and 5), *ZM-score* (columns 6 and 10), *ROA* (columns 11 and 15) and EBIT/TA (columns 16-20). *Create*, *Compete*, *Collaborate* and *Control* are the four dimensions of corporate culture estimated by employing the text analysis of the related 10-K forms; *Dual class* is a dummy variable that takes the value of 1 when companies have issued shares with distinct voting rights and dividend payments, and zero otherwise; *Age* is the Natural logarithm of the firm age; *Size* is the natural logarithm of the total asset; *Capex* is Capital expenditures normalized by total assets; *HHI* is the natural logarithm of Herfindahl-Hirschman Index; *GDP* is the GDP growth rate between two consecutive years. *State*, *Industry* and *Year* dummies are included in the estimations. Estimates are derived from OLS regressions with robust clustered standard errors. T-statistics are reported in round brackets. *, ** and *** indicate statistical significance at 10%, 5% and 1% levels, respectively.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
	Z''-score	Z''-score	Z''-score	Z''-score	Z''-score	ZM-score	ZM-score	ZM-score	ZM-score	ZM-score
Create	13.55***				9.313***	-3.333***				-2.274***
	(4.10)				(3.45)	(-4.61)				(-3.76)
Compete		7.169***			6.122***		-1.818***			-1.592***
		(4.64)			(4.52)		(-5.58)			(-5.43)
Control			-0.664		-2.700*			-0.176		0.259
			(-0.47)		(-1.77)			(-0.52)		(0.75)
Collaborate				4.099	2.638				-0.515	-0.130
				(1.08)	(0.72)				(-0.50)	(-0.13)
Dual class	-3.714***	-2.872**	-3.891***	-4.259***	-3.022***	0.886***	0.680***	1.009***	0.998***	0.674***
	(-3.67)	(-2.72)	(-4.76)	(-4.46)	(-3.18)	(3.32)	(2.56)	(4.40)	(4.15)	(3.13)
Size	6.659***	6.603***	6.577***	6.906***	6.710***	-1.289***	-1.274***	-1.291***	-1.329***	-1.274***
	(4.18)	(4.18)	(4.09)	(4.07)	(4.03)	(-3.83)	(-3.81)	(-3.77)	(-3.64)	(-3.55)
Age	-1.317**	-1.185**	-0.899	-1.279**	-1.173**	0.291**	0.251**	0.200*	0.276**	0.257**
	(-2.47)	(-2.30)	(-1.80)	(-2.42)	(-2.31)	(2.57)	(2.31)	(1.86)	(2.48)	(2.39)
Capex	-8.052	-5.194	-5.675	-6.675	-6.156	-0.633	-1.511	-1.501	-1.062	-1.209
	(-1.01)	(-0.65)	(-0.79)	(-0.84)	(-0.77)	(-0.26)	(-0.62)	(-0.69)	(-0.44)	(-0.49)
HHI	6.576	6.419	5.663*	6.528	6.397	-1.508*	-1.509*	-1.224*	-1.531*	-1.494*
	(1.58)	(1.55)	(1.69)	(1.58)	(1.55)	(-1.69)	(-1.69)	(-1.71)	(-1.72)	(-1.69)
GDP	3.977***	3.759***	3.492***	3.330***	3.993***	-0.688**	-0.652**	-0.587**	-0.568**	-0.712**
	(4.55)	(4.49)	(4.31)	(4.36)	(4.72)	(-2.38)	(-2.33)	(-2.18)	(-2.14)	(-2.54)
State	Y	Y	N	Y	Y	Y	Y	N	Y	Y
Year	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Industry	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
_cons	-75.19**	-87.87**	-67.05**	-68.95	-92.99**	15.64	19.22**	14.55**	13.71	20.18**
	(-1.98)	(-2.20)	(-2.25)	(-1.78)	(-2.21)	(1.81)	(2.13)	(2.11)	(1.50)	(2.08)
N	5057	5057	5057	5057	5057	5114	5114	5114	5114	5114
adj. R^2	0.055	0.057	0.053	0.053	0.058	0.050	0.053	0.042	0.047	0.054

Table 5. ***Continued***

	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)
	ROA	ROA	ROA	ROA	ROA	EBIT/TA	EBIT/TA	EBIT/TA	EBIT/TA	EBIT/TA
Create	0.245***				0.154***	0.214***				0.131***
	(3.72)				(2.61)	(3.80)				(2.66)
Compete		0.139***			0.132***		0.145***			0.138***
		(4.35)			(3.95)		(4.98)			(4.83)
Control			0.0370		-0.00932			0.0644*		0.0143
			(0.91)		(-0.27)			(1.75)		(0.52)
Collaborate				-0.0595	-0.103				-0.0447	-0.0702
				(-0.53)	(-0.90)				(-0.55)	(-0.88)
Dual class	-0.0732**	-0.0553*	-0.0512*	-0.0752***	-0.0461	-0.0622**	-0.0521**	-0.0564**	-0.0678***	-0.0435**
	(-2.28)	(-1.80)	(-1.91)	(-2.67)	(-1.95)	(-2.51)	(-2.12)	(-2.52)	(-2.98)	(-2.12)
Size	0.168***	0.166***	0.162***	0.166***	0.161***	0.153***	0.152***	0.148***	0.152***	0.149***
	(6.04)	(6.06)	(5.89)	(5.59)	(5.52)	(6.42)	(6.45)	(6.26)	(6.06)	(6.05)
Age	0.0282***	0.0300**	0.0429***	0.0285***	0.0296***	0.0131	0.0169*	0.0248**	0.0136	0.0155
	(2.74)	(2.93)	(3.60)	(2.74)	(2.93)	(1.32)	(1.74)	(2.48)	(1.38)	(1.58)
Capex	0.0741	0.132	0.128	0.0937	0.110	0.151	0.215	0.192	0.165	0.188
	(0.17)	(0.31)	(0.33)	(0.22)	(0.25)	(0.41)	(0.58)	(0.59)	(0.45)	(0.50)
HHI	0.0751	0.0758	0.0476	0.0752	0.0724	0.0682	0.0674	0.0542	0.0721	0.0658
	(1.01)	(1.02)	(0.78)	(0.99)	(0.96)	(1.19)	(1.17)	(1.13)	(1.25)	(1.16)
GDP	0.0563***	0.0540***	0.0531***	0.0490***	0.0721***	0.0509***	0.0501***	0.0485***	0.0444***	0.0555***
	(3.08)	(3.07)	(3.14)	(2.93)	(3.71)	(3.25)	(3.30)	(3.36)	(3.08)	(3.58)
State	Y	Y	N	Y	Y	Y	Y	N	Y	Y
Year	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Industry	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
_cons	-1.490**	-1.827***	-1.134**	-1.260*	-1.647**	-0.978*	-1.300**	-1.334***	-0.778	-1.290**
	(-2.45)	(-2.83)	(-2.43)	(-1.76)	(-2.27)	(-1.87)	(-2.35)	(-3.10)	(-1.38)	(-2.15)
N	4339	4339	4339	4339	4339	5451	5451	5451	5451	5451
adj. R^2	0.133	0.136	0.122	0.131	0.137	0.137	0.142	0.128	0.135	0.143

Table 6. The impact of corporate culture dimensions on financial effectiveness: High-Tech Vs. Low-Tech and Blue Vs. Red

This table shows the impact of the corporate culture dimensions on the financial effectiveness while distinguishing between firms belonging to *High-Tech* and *Low-Tech*, columns (1-4) and (5-8), respectively; and firms headquartered in *Blue* and *Red* states, columns (9-12) and (13-16), respectively. The dependent variables are *Z''-score* (columns 1 and 5), *ZM-score* (columns 6 and 10), *ROA* (columns 11 and 15) and EBIT/TA (columns 16-20). *Create*, *Compete*, *Collaborate* and *Control* are the four dimensions of corporate culture estimated by employing the text analysis of the related 10-K forms; *Dual class* is a dummy variable that takes the value of 1 when companies have issued shares with distinct voting rights and dividend payments, and zero otherwise; *Age* is the Natural logarithm of the firm age; *Size* is the natural logarithm of the total asset; *Capex* is Capital expenditures normalized by total assets; *HHI* is the natural logarithm of Herfindahl-Hirschman Index; *GDP* is the GDP growth rate between two consecutive years. *State*, *Industry* and *Year* dummies are included in the estimations. Estimates are derived from OLS regressions with robust clustered standard errors. T-statistics are reported in round brackets. *, ** and *** indicate statistical significance at 10%, 5% and 1% levels, respectively.

	High-Tech				Low-Tech				Red				Blue			
	(1) Z''-score	(2) ZM-score	(3) ROA	(4) EBIT/TA	(5) Z''-score	(6) ZM-score	(7) ROA	(8) EBIT/TA	(9) Z''-score	(10) ZM-score	(11) ROA	(12) EBIT/TA	(13) EBIT/TA	(14) Z''-score	(15) ZM-score	(16) ROA
Create	13.83**	-3.303***	0.229***	0.237***	-0.408	-0.384	0.0142	0.00382	-1.199	1.003	-0.276	-0.214	0.220***	14.04***	-3.626***	0.254***
	(3.23)	(-3.69)	(2.74)	(3.00)	(-0.41)	(-1.29)	(0.55)	(0.19)	(-0.34)	(1.01)	(-1.14)	(-1.20)	(3.50)	(3.55)	(-4.28)	(3.05)
Compete	7.615***	-1.976***	0.163***	0.167***	0.361	-0.0408	-0.0141	0.00925	7.912**	-2.089**	0.275	0.243	0.136***	5.284***	-1.400***	0.100***
	(4.56)	(-5.34)	(3.67)	(4.39)	(0.67)	(-0.26)	(-0.92)	(0.88)	(2.34)	(-2.00)	(1.54)	(1.51)	(5.44)	(3.79)	(-4.72)	(3.24)
Control	-5.976**	1.049*	-0.0530	-0.0421	-0.452	-0.471	0.0235	0.0358	-0.125	-0.347	0.0780	0.0818	-0.0286	-6.570**	0.916	-0.0613
	(-2.16)	(1.68)	(-1.10)	(-0.89)	(-0.37)	(-1.24)	(0.52)	(1.16)	(-0.04)	(-0.39)	(0.60)	(0.74)	(-0.76)	(-2.30)	(1.45)	(-1.17)
Collaborate	7.572	-0.816	-0.0622	-0.0234	1.615	-0.402**	0.00135	-0.0184*	1.366	-0.752*	0.189	0.0646	-0.108	7.017	-0.388	-0.123
	(1.24)	(-0.49)	(-0.37)	(-0.16)	(0.98)	(-2.01)	(0.07)	(-1.57)	(0.64)	(-1.71)	(1.35)	(1.26)	(-0.85)	(1.14)	(-0.22)	(-0.70)
Size	10.36***	-1.986***	0.221***	0.221***	0.0790	0.00878	0.0387***	0.0288***	5.798***	-1.188**	0.220**	0.173**	0.189***	10.09***	-1.916***	0.218***
	(4.00)	(-3.53)	(5.17)	(5.65)	(0.29)	(0.14)	(5.68)	(5.70)	(3.47)	(-2.41)	(2.33)	(2.46)	(4.91)	(3.49)	(-3.06)	(4.44)
Age	-0.882	0.207	0.0449**	0.0406**	-0.438	0.0317	0.0253***	0.0162***	1.278	-0.409	0.152***	0.0780*	0.00759	-2.631**	0.567***	0.0269*
	(-1.12)	(1.17)	(2.11)	(2.01)	(-1.46)	(0.64)	(4.81)	(4.23)	(1.12)	(-1.57)	(2.59)	(2.16)	(0.53)	(-2.56)	(2.83)	(1.89)
Capex	-23.89	2.278	-0.144	-0.00741	-4.918*	-1.410**	0.0939	0.0978	20.10	-9.818	1.913	1.461	-0.110	-11.71	0.671	-0.376*
	(-1.32)	(0.40)	(-0.14)	(-0.01)	(-1.71)	(-2.19)	(1.25)	(1.46)	(0.77)	(-1.23)	(1.16)	(1.16)	(-0.66)	(-1.43)	(0.37)	(-1.86)
Dual class	-3.475**	1.122***	-0.0665*	-0.105***	-0.609	-0.222**	0.00196	0.0313***	-0.376	0.238	-0.0244	-0.00468	-0.0905***	-5.620***	1.299***	-0.130***
	(-2.18)	(3.00)	(-1.66)	(-2.84)	(-0.76)	(-2.12)	(0.20)	(4.16)	(-0.28)	(0.83)	(-0.66)	(-0.17)	(-2.80)	(-3.83)	(3.86)	(-3.22)
HHI	17.58	-4.018	0.176	0.209	-0.772	-0.230	-0.0110	0.00896	2.990*	-0.687	0.0106	0.0178	0.116	10.46	-2.309	0.189
	(1.41)	(-1.44)	(0.68)	(1.13)	(-0.88)	(-1.29)	(-0.57)	(0.58)	(1.65)	(-1.58)	(0.15)	(0.35)	(1.25)	(1.56)	(-1.55)	(1.37)
GDP	5.396***	-1.182***	0.0855***	0.0893***	0.571**	-0.0945*	0.0226***	0.0124***	2.513***	-0.470***	0.0634***	0.0219**	0.0753***	4.937***	-0.982**	0.0813***
	(4.63)	(-2.60)	(3.13)	(3.51)	(2.55)	(-1.89)	(4.94)	(3.78)	(4.17)	(-3.36)	(3.68)	(2.03)	(3.23)	(4.11)	(-2.29)	(2.96)
State	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Year	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Industry	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
_cons	-178.3*	40.75**	-2.617	-2.704*	-26.16***	0.543	-0.0957	-0.00468	-83.74***	18.26**	-2.425**	-2.243**	-2.256**	-163.8**	29.71**	-2.408**
	(-1.86)	(2.06)	(-1.51)	(-1.92)	(-4.04)	(0.38)	(-0.74)	(-0.03)	(-2.92)	(2.23)	(-2.45)	(-2.09)	(-2.05)	(-2.32)	(2.19)	(-2.04)
N	3143	3151	2718	3160	1914	1963	1621	2291	1014	1055	858	1143	3450	3195	3201	2629
adj. R^2	0.095	0.084	0.157	0.169	0.063	0.197	0.323	0.277	0.178	0.123	0.165	0.140	0.163	0.071	0.066	0.159

Table 7. The impact of venture capital financing, regional and industry level factors on the corporate culture dimensions

This table shows the results of the probit regressions by estimating the impact of venture capital financing, and those factors at regional and industry level, on the corporate culture dimensions—namely, *Create_High*, *Compete_High*, *Collaborate_High* and *Control_High.* The analysis is conducted both on the full sample (columns 1-4) and on that obtained once employing the propensity score matching (columns 5-8). *Create_High* is a dummy variable that takes a value of 1 if for the corresponding firm, the variable *Create* shows a value higher compared to the sample median, and zero otherwise. The same goes for the rest. *VC* is a dummy variable which is set at 1 when companies have received a VC financing and zero otherwise; *Blue-Red* is a dummy variable which takes a value of 1 if the corresponding company is headquartered in a State which is historically ruled by democratic party, and zero by republican one; *High-Tech Firm* is a dummy variable that takes the value one if the firm belonging to a high-tech sector, and zero otherwise; *Age* is the Natural logarithm of the firm age; *Size* is the natural logarithm of the total asset; *HHI* is the natural logarithm of Herfindahl-Hirschman Index; *GDP* is the GDP growth rate between two consecutive years. *State*, *Industry* and *Year* dummies are included in the estimations. Estimates are derived from OLS regressions with robust clustered standard errors. Z-statistics are reported in round brackets. *, ** and *** indicate statistical significance at 10%, 5% and 1% levels, respectively.

	Full Sample				*Propensity Score matching*			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Compete_High	*Create_High*	*Collaborate_High*	*Control_High*	*Compete_High*	*Create_High*	*Collaborate_High*	*Control_High*
VC	0.256***	0.275***	-0.0169	-0.0857**	0.280***	0.396***	-0.0181	-0.0809
	(6.13)	(6.46)	(-0.41)	(-2.03)	(4.44)	(6.18)	(-0.28)	(-1.27)
Blue-Red	0.435***	0.173***	0.112**	0.238***	0.380***	0.258***	0.213***	0.188**
	(9.51)	(3.69)	(2.43)	(5.10)	(4.99)	(3.29)	(2.69)	(2.34)
High-Tech Firm	0.989***	0.348***	0.00127	0.0954*	0.855***	0.654***	0.0469	0.166*
	(17.11)	(6.24)	(0.02)	(1.73)	(8.53)	(6.02)	(0.50)	(1.66)
HHI	0.496***	0.351***	-0.138***	0.214***	0.382***	0.641***	-0.338***	0.425***
	(11.01)	(8.07)	(-3.31)	(4.86)	(4.42)	(6.91)	(-4.05)	(4.43)
Size	0.0731***	0.0405***	-0.133***	0.0473***	0.0461**	0.0231	-0.178***	0.0400*
	(5.75)	(3.30)	(-10.69)	(3.86)	(2.15)	(1.12)	(-8.05)	(1.94)
Age	-0.0263	0.0592***	-0.0723***	0.0491**	0.0483	0.130***	-0.102**	0.131***
	(-1.15)	(2.65)	(-3.24)	(2.17)	(1.06)	(2.84)	(-2.24)	(2.86)
Year	Y	Y	Y	Y	Y	Y	Y	Y
_cons	-3.544***	-2.099***	1.802***	-1.137***	-2.870***	-4.350***	3.301***	-2.300***
	(-10.73)	(-6.60)	(5.79)	(-3.57)	(-4.32)	(-6.25)	(5.08)	(-3.28)
N	4616	4616	4616	4616	1763	1763	1763	1763
Pseudo-R^2	0.1122	0.1178	0.0679	0.1071	0.0816	0.1378	0.1127	0.1348

Table 8. The second step Heckman (1979) regression analysis.

This table presents the second step Heckman (1979) regression coefficients and in parentheses associated *t*-statistics. In the first step, a probit regression is estimated by imposing the four dimensions, dichotomized, of corporate culture as dependent variables --namely, *Create_High*, *Compete_High*, *Collaborate_High* and *Control_High*. Specifically, *Create_High* is a dummy variable that takes a value of 1 if for the corresponding firm, the variable *Create* shows a value higher compared to the sample median, and zero otherwise. The same goes for the rest. The results of the first step of Hackman model are those presented in Table 7 (columns 5-8). As is standard, the first step concludes by estimating the Inverse Mills ratio which is included in the second step of analysis. Hence, the dependent variables are *Z''-score* (columns 1, 5, 9 and 13), *ZM-score* (columns 2, 6, 10 and 14), *ROA* (columns 3,7,11 and 15) and EBIT/TA (columns 4,8,12 and 16). *Create*, *Compete*, *Collaborate* and *Control* are the four dimensions of corporate culture estimated by employing the text analysis of the related 10-K forms; *VC* is a dummy variable which is set at 1 when companies have received a VC financing and zero otherwise; *Blue-Red* is a dummy variable which takes a value of 1 if the corresponding company is headquartered in a State which is historically ruled by democratic party, and zero by republican one; *High-Tech Firm* is a dummy variable that takes the value one if the firm belonging to a high-tech sector, and zero otherwise; *Age* is the Natural logarithm of the firm age; *Dual class* is a dummy variable that takes the value of 1 when companies have issued shares with distinct voting rights and dividend payments, and zero otherwise; *Size* is the natural logarithm of the total asset; *Capex* is Capital expenditures normalized by total assets; *HHI* is the natural logarithm of Herfindahl-Hirschman Index; *GDP* is the GDP growth rate between two consecutive years. *State* and *Industry* dummies are included in the estimations. T-statistics are reported in round brackets. *, ** and *** indicate statistical significance at 10%, 5% and 1% levels, respectively.

	(1) Z''-score	(2) ZM-score	(3) ROA	(4) EBIT/TA	(5) Z''-score	(6) ZM-score	(7) ROA	(8) EBIT/TA	(9) Z''-score	(10) ZM-score	(11) ROA	(12) EBIT/TA	(13) Z''-score	(14) ZM-score	(15) ROA	(16) EBIT/TA
Create	12.79***	-1.417*	0.240**	0.177**												
	(2.96)	(-1.83)	(2.45)	(2.23)												
Compete					2.373**	-0.727***	0.0542**	0.0468**								
					(2.03)	(-3.38)	(2.23)	(2.30)								
Control									0.246	0.119	-0.00913	0.00554				
									(0.15)	(0.35)	(-0.27)	(0.19)				
Collaborate													0.644	0.118	-0.0441	-0.0362
													(0.11)	(0.22)	(-0.70)	(-0.64)
VC	4.429***	-0.412**	0.0181	0.0348*	3.398***	-0.482**	0.0133	0.0418*	-0.0281	0.310*	-0.0510***	-0.0344**	-0.726	0.0806	0.00442	0.0248
	(3.92)	(-2.11)	(0.77)	(1.75)	(2.92)	(-2.21)	(0.61)	(1.86)	(-0.03)	(1.84)	(-2.89)	(-2.42)	(-0.27)	(0.34)	(0.16)	(0.99)
Size	3.636***	-0.428***	0.100***	0.0948***	3.930***	-0.554***	0.106***	0.105***	2.517***	-0.257***	0.0811***	0.0711***	7.355***	-0.956***	0.121***	0.120***
	(9.59)	(-6.47)	(12.83)	(13.84)	(10.82)	(-8.19)	(14.34)	(14.71)	(8.38)	(-4.22)	(13.47)	(13.86)	(4.70)	(-6.84)	(8.47)	(8.58)
Age	1.599*	-0.0684	0.0682***	0.0745***	1.993***	-0.498***	0.0824***	0.0796***	1.691**	-0.275*	0.0603***	0.0631***	-0.383	0.177	0.0576**	0.0587**
	(1.89)	(-0.46)	(3.75)	(4.99)	(2.76)	(-3.69)	(5.61)	(5.64)	(2.43)	(-1.95)	(4.26)	(5.43)	(-0.15)	(0.77)	(2.18)	(2.41)
Capex	0.935	0.368	-0.145	-0.127	2.726	0.799	-0.159	-0.132	-10.16	3.131*	-0.274	-0.154	-31.49	4.252*	-0.821***	-0.590**
	(0.11)	(0.24)	(-0.76)	(-0.83)	(0.31)	(0.49)	(-0.91)	(-0.88)	(-1.29)	(1.91)	(-1.62)	(-1.19)	(-1.14)	(1.73)	(-2.84)	(-2.21)
Dual class	0.596	0.00389	0.00779	0.00299	-0.639	0.436*	0.00409	-0.0105	-2.579**	0.642***	-0.0933***	-0.0748***	-5.331	0.418	-0.0169	-0.0238
	(0.43)	(0.02)	(0.23)	(0.11)	(-0.48)	(1.77)	(0.15)	(-0.46)	(-2.28)	(2.72)	(-3.70)	(-3.82)	(-1.38)	(1.22)	(-0.41)	(-0.64)
HHI	2.712	-0.310	-0.0105	0.0668	0.870	-0.536	0.0201	0.0919**	0.566	0.251	0.0208	0.0772*	0.320	0.278	0.0331	0.0530
	(1.06)	(-0.68)	(-0.17)	(1.42)	(0.34)	(-1.14)	(0.37)	(2.01)	(0.24)	(0.52)	(0.38)	(1.92)	(0.04)	(0.43)	(0.41)	(0.76)
Blue-Red	-1.885	1.228	-0.0131	0.0378	-10.21*	1.931*	-0.196*	-0.126	-7.378	2.144**	-0.228	-0.0964	-8.621	1.770	-0.327	-0.109
	(-0.20)	(0.74)	(-0.15)	(0.22)	(-1.65)	(1.71)	(-1.69)	(-1.21)	(-1.57)	(2.23)	(-1.18)	(-1.16)	(-0.27)	(0.63)	(-1.02)	(-0.35)
High-Tech Firm	-1.250	-0.139	-0.193**	-0.0530	-2.411	-0.322	0.00801	0.0898	-3.919*	0.457	-0.0284	0.0184	-8.373	0.809	-0.115	-0.0580
	(-0.40)	(-0.25)	(-2.52)	(-0.90)	(-0.78)	(-0.56)	(0.13)	(1.60)	(-1.69)	(0.95)	(-0.57)	(0.45)	(-1.13)	(1.22)	(-1.47)	(-0.81)

GDP	0.510*	-0.122**	0.0154***	0.0117**	0.908***	-0.197***	0.0153***	0.0116**	0.618***	-0.162***	0.0203***	0.0163***	2.088**	-0.307***	0.0369***	0.0332***
	(1.76)	(-2.48)	(2.68)	(2.27)	(3.25)	(-3.77)	(2.73)	(2.04)	(2.75)	(-3.60)	(4.67)	(4.25)	(2.49)	(-4.07)	(4.39)	(4.11)
State	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Industry	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
_cons	-61.85**	6.307*	-0.796	-1.284***	-54.45***	12.18***	-1.455***	-1.903***	-27.37	0.272	-0.785*	-1.028***	-30.86	0.448	-1.158*	-1.039*
	(-2.88)	(1.67)	(-1.64)	(-3.28)	(-2.77)	(3.35)	(-3.64)	(-5.35)	(-1.62)	(0.08)	(-1.88)	(-3.54)	(-0.53)	(0.09)	(-1.91)	(-1.83)
Inverse Mills ratio	11.00***	-1.389***	0.0449	0.120***	10.45***	-2.149***	0.247***	0.329***	6.137***	-0.500	-0.0173	0.0168	-11.44	1.300	-0.00539	-0.0408
	(4.92)	(-3.56)	(0.77)	(3.01)	(2.95)	(-3.25)	(3.75)	(4.65)	(3.89)	(-1.57)	(-0.56)	(0.63)	(-1.26)	(1.58)	(-0.07)	(-0.45)
N	1735	1735	1543	1759	1733	1733	1591	1759	1715	1721	1557	1758	1741	1747	1665	1760