Corporate culture and IPOs

Cumming, Douglas J.; Meles, Antonio; Sampagnaro, Gabriele; Verdoliva, Vincenzo

DOI:
10.1111/eufm.12423

Document Version
Publisher's PDF, also known as Version of record

Citation for published version (Harvard):
Cumming, DJ, Meles, A, Sampagnaro, G & Verdoliva, V 2023, 'Corporate culture and IPOs', *European Financial Management*. https://doi.org/10.1111/eufm.12423

DOI: 10.1111/eufm.12423

ORIGINAL ARTICLE

EUROPEAN FINANCIAL MANAGEMENT WILEY

Corporate culture and IPOs

Douglas J. Cumming[1,2] | **Antonio Meles**[3] | **Gabriele Sampagnaro**[4] | **Vincenzo Verdoliva**[4]

[1]FAU College of Business, Finance Department, Florida Atlantic University, Boca Raton, Florida, USA

[2]Birmingham Business School, University of Birmingham, University House, Birmingham, United Kingdom

[3]Department of Economics, University of Campania "Luigi Vanvitelli", Capua, Caserta, Italy

[4]Department of Management Studies and Quantitative Methods, University of Naples Parthenope, Napoli, Italy

Correspondence
Douglas J. Cumming, FAU College of Business, Finance Department, Florida Atlantic University, Boca Raton, Barry Kaye Hall, Boca Raton, FL KH-25, USA.
Email: cummingd@fau.edu

Abstract

This study documents corporate culture at the time of initial public offering (IPO) and the relationship between corporate culture at the time of IPO and firm financial performance. Based on a sample of 1157 US firms that went public between 1996 and 2011 and performance information through 2016, the data provide strong evidence that regional culture, industry characteristics, and pre-IPO financing play key roles in explaining a firm's cultural orientation. Moreover, the data indicate that IPO firms with a highly competition- and creation-oriented culture experience higher profitability and less risk of financial distress than other IPO firms.

KEYWORDS
corporate culture, IPOs, regional culture

JEL CLASSIFICATION
G23, G24, G32, G33, M14

We wish to give special thanks to the Editor, John Doukas, and two anonymous reviewers for helpful comments and suggestions. Also, we are greatly indebted to Jay Ritter for his helpful comments and suggestions. This study also benefited from comments offered by Wolfgang Bessler, Murillo Campello, Arnold R. Cowan, Sris Chatterjee, Antonio De Socio, Paolo Fiorillo, Francesco Gangi, Francesco Izzo, Michael Keefe, Andreas Knetsch, Thomas Lambert, Brian Lucey, Bill Megginson, Mario Mustilli, Marcelo Ortiz, Claudio Porzio, Peter Roosenboom, Jan Schnitzler, Yi Tang, Samuel A. Vigne, Vadym Volosovych, Baolian Wang, Yihui Wang, An Yan, Xintong Zhan, and seminar participants at the Gabelli School of Business (Fordham University), the Rotterdam School of Management (Erasmus University), the 2018 IFABS conference (Porto), and the 2018 INFINITI conference (Sydney). We alone are responsible for any remaining errors.

1 | INTRODUCTION

Despite the large number of groundbreaking studies on initial public offerings (IPOs) spanning many decades (Bessler & Stanzel, 2009; Colombo et al., 2019; Loughran & Ritter, 2004; Ritter, 1991, 2003, 2015), relatively scant attention has been given to corporate culture at the time of IPO. What are the most common types of corporate culture among IPO firms? Is a firm's cultural orientation at the time of IPO related to firm-specific characteristics such as venture capital (VC) financing before the IPO? Does corporate culture affect IPO firms' profitability and risk of financial distress?

With a few noteworthy exceptions (Guiso et al., 2015), questions about corporate culture have been ignored in the entrepreneurial finance literature, despite the notable discussion over the last three decades among scholars and practitioners on the relationship between corporate culture and firm effectiveness (e.g., Deal & Kennedy, 1982; Hartnell et al., 2011).

There are two main reasons why we consider culture to be of special interest at the time of IPO. First, while various studies (e.g., Hartnell et al., 2011; Kotter, 2008; Sackmann, 2010) argue that there is a link between corporate culture orientation and firm performance and the effect of CEO behavior on the risk of fraud (e.g., Davidson et al., 2015; Ferris et al., 2019; Kamiya et al., 2019; Liu, 2016; Sheedy et al., 2019), little empirical research has investigated this relationship, especially with reference to IPO firms (e.g., Guiso et al., 2015; O'Reilly & Chatman, 1996; Sørensen, 2002). This gap clearly represents a shortcoming because although corporate culture is a key business value in general, it is particularly important for IPO firms, which experience many changes and challenges in the post-IPO period. Thus, it should come as no surprise that the CEO of *Snap Inc.*, a multibillion-dollar IPO firm, recently felt the need to reveal to investors many details about the company's corporate culture.[1]

Second, previous studies have widely recognized that VC-backed companies outperform non-VC-backed companies because of VCs' ability to select companies with high-quality business projects and provide them with funding, coaching, effective monitoring, and valuable business contacts (e.g., Croce et al., 2013; Gompers et al., 1998; Sapienza et al., 1996). However, there has been little consideration of whether the success of VC-backed firms, at least in part, comes from their corporate culture. This issue is of special interest because it is reasonable to assume that VCs choose firms that have a particular corporate culture and encourage them to strengthen their corporate cultural identity.[2]

To answer the above research questions, we perform an empirical analysis on a sample of US companies that went public between 1996 and 2011 and focus our investigation on the 5 years after the IPO. Specifically, our starting sample comprises 1157 IPOs; of these, 551 are VC-backed and 606 are not. The choice to focus on a sample of IPO firms also takes into account that an IPO provides a unique opportunity to analyze corporate culture in both VC-backed and non-VC-backed firms. Indeed, the fact that VCs tend to exit a firm after the expiration of the IPO makes it difficult to study the corporate culture of VC-backed firms simply by performing a cross-sectional analysis of publicly traded companies. It is also not feasible to focus on privately

[1]For example, *Snap Inc's* filing reports, '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'.

[2]In line with the previous literature (e.g., Krishnan et al., 2011), it is worth highlighting that while we are able to analyze cultural differences between VC- and non-VC-backed firms post-IPO, we cannot do the same before the listing. More precisely, in our case, the limitation is related to the lack of availability and the nonexistence of annual reports in the form of 10-Ks before the listing date.

held firms because the information related to their corporate culture and accounting data is difficult to proxy considering that files such as 10-Ks are not generally available.

However, there are several issues to consider when analyzing the relationship among corporate culture, VC backing and firm financial performance at the time of IPO. The first is the definition, classification and assessment of corporate culture. While prior studies (e.g., Guiso et al., 2015; Jiang et al., 2019; Sørensen, 2002) largely agree on the definition of corporate culture as 'a set of norms and values that are widely shared and strongly held throughout the organization' (O'Reilly & Chatman, 1996, p. 166), they adopt different corporate culture taxonomies (Hofstede, 1999; Kotter & Heskett, 1992; O'Reilly et al., 1991). We base our analysis on the competing values framework (CVF) developed by Quinn and Rohrbaugh (1983) because it is one of the most used in the empirical research on corporate culture.

The previous research also diverges on the question of how to measure corporate culture. A prominent example is Guiso et al. (2015), who assess the corporate culture of a sample of US firms by using both the content of their websites[3] and individual employees' opinions collected by the Great Place to Work Institute (GPTWI).[4] Other papers (e.g., Fiordelisi & Ricci, 2014; Nguyen et al., 2019) suggest obtaining a quantitative measurement of corporate culture by assessing corporate 10-K reports.[5] This approach fits well with our IPO analysis because for each IPO firm, we retrieve annual reports from the Securities and Exchange Commission's (SEC) EDGAR database. Subsequently, in running the text analysis,[6] we estimate the Quinn and Rohrbaugh (1983) dimensions of corporate culture.

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 et al., 2011) have argued is strongly (specifically, competition-oriented culture) and moderately (i.e., creation-oriented culture) linked to financial effectiveness.[7] The economic significance is large when we consider the full sample of IPOs, we find that VC backing increases the probability that an IPO firm has a strong competition- and creation-oriented culture by 54.2% and 30.5%, respectively. This result remains substantially unchanged when we use a propensity score matching technique, which allows us to control for the observed heterogeneity within the VC- and non-VC-backed IPOs.

Second, we find that IPO firms with a highly competition- and creation-oriented culture exhibit, on average, a lower risk of financial distress than other IPO firms. For example, the OLS regression results indicate that an increase of 1% in *create* and *compete* is associated with an increase in the *Z″-score*, that is, the model used by Altman et al. (1995) to predict corporate financial distress, by 0.0916 units and 0.0232 units, respectively. Turning to *ROA*, we find that an increase of 1% in *creation-* and *competition-oriented* cultures is associated with an increase in

[3]A potential limitation of using cultural values described on the websites of firms is that they may differ from firms' actual values. As highlighted by Graham et al. (2022, p. 558) companies' websites 'would not describe their culture as noninclusive, political and backstabbing or advertise that they value noncooperation'.
[4]It is not feasible to use this information for measuring the corporate culture of firms going public. In fact, as highlighted by Guiso et al. (2015), in the GPTWI sample, there are very few US firms for which data are available around the IPO.
[5]Psychological studies have extensively shown how the language and words used in a text and in any context are expressive of culture. Among others, Levinson (2003, p. 27) argues that 'language, and much of its form, are thus largely the products of culture'.
[6]In our main results, we perform a textual analysis on the entire 10-K. However, one may argue that more subjective content, such as information related to the corporate culture, show up in only certain sections of a 10-K, such as the management discussion and analysis (MD&A) section. Loughran and McDonald (2011) find results that do not support this argument, mostly related to nonrandom sample bias generated by unclear identification. However, for the sake of truth, we restrict the analysis to the MD&A section.
[7]In unreported analyzes, we also find that the *VC dummy* is not significantly related to collaboration- or control-oriented cultures and that these types of cultures are not significantly associated with our financial effectiveness indicators. Thus, for the sake of the clarity of presentation and the readability of tables, we decide to focus our discussion only on creation- and competition-oriented cultures.

ROA of 0.0933% and 0.0390%, respectively. These results are robust to all profitability and financial distress measures employed, and they are resilient to the robustness tests we perform to control for endogeneity issues.

The rest of this paper is organized as follows. The next section provides an overview of the data, sample and summary statistics. Section 3 discusses the theoretical framework. Section 4 discusses the empirical strategy and the results of the multivariate analysis, and the final section concludes.

2 | MEASURING CORPORATE CULTURE

Corporate culture has been measured by previous research in many ways. A notable example is Guiso et al. (2015), who estimate the corporate culture of a sample of US firms by using both the content of their websites and individual employees' opinion collected by the GPTWI. While this approach allows capturing qualitative information such as corporate culture, it is not suitable for the assessment of a firm's culture at and after an IPO. First, a potential limitation of using cultural values described on a company's websites is that the presented values may differ from the actual values. While a company is unlikely to advertise on its website that its culture is non-inclusive, political and backstabbing, there are workers who describe the culture of their company in these terms (Graham et al., 2017). This can be particularly true for IPO firms that have to raise financial resources through equity issues and may need to window dress their image and reputation. Second, as highlighted by Guiso et al. (2015), in the GPTWI sample, there are very few US firms for which data are available around the IPO.

Other studies (e.g., Fiordelisi & Ricci, 2014; Nguyen et al., 2019) suggest measuring corporate culture by assessing corporate 10-K filings. This approach fits well with our analysis because for each IPO firm, we retrieve 10-K filings from the SEC's EDGAR database. Specifically, we conduct a textual analysis by analyzing 10-K filings and drawing outcomes that mirror the sets of norms and values that make up Quinn and Rohrbaugh's (1983) dimensions of corporate culture, as shown in Figure 1. In support of our analysis, Loughran and McDonald (2011, p. 35) note that 'a 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'. Following them, we base our textual analysis on the word categorization approach. Aside from being the most commonly used approach in the financial research, this method has several benefits compared to alternatives such as those based on likelihood ratios and vector distance (e.g., Antweiler & Frank, 2004; Das & Chen, 2007). Specifically, Loughran and McDonald underscore that among other advantages, using a statistical approach over a word categorization one (i.e., portfolio of words) might have low power for corporate filings because 'there is no readily available dictionary that is built for the setting of corporate filings' (Li, 2010, p. 1059). Additionally, psychological studies have extensively shown how language and the words used in texts and other contexts are expressive of culture. Among others, Levinson (2003, p. 27) argues that 'language, and much of its form, are thus largely the products of culture'.

To estimate corporate culture dimensions, we replicate Fiordelisi and Ricci's (2014) methodology, which 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 et al. (2006). Second, for each word, the authors select a group of synonyms using the Harvard IV-4 Psychosocial Dictionary. The procedure concludes by obtaining an extensive

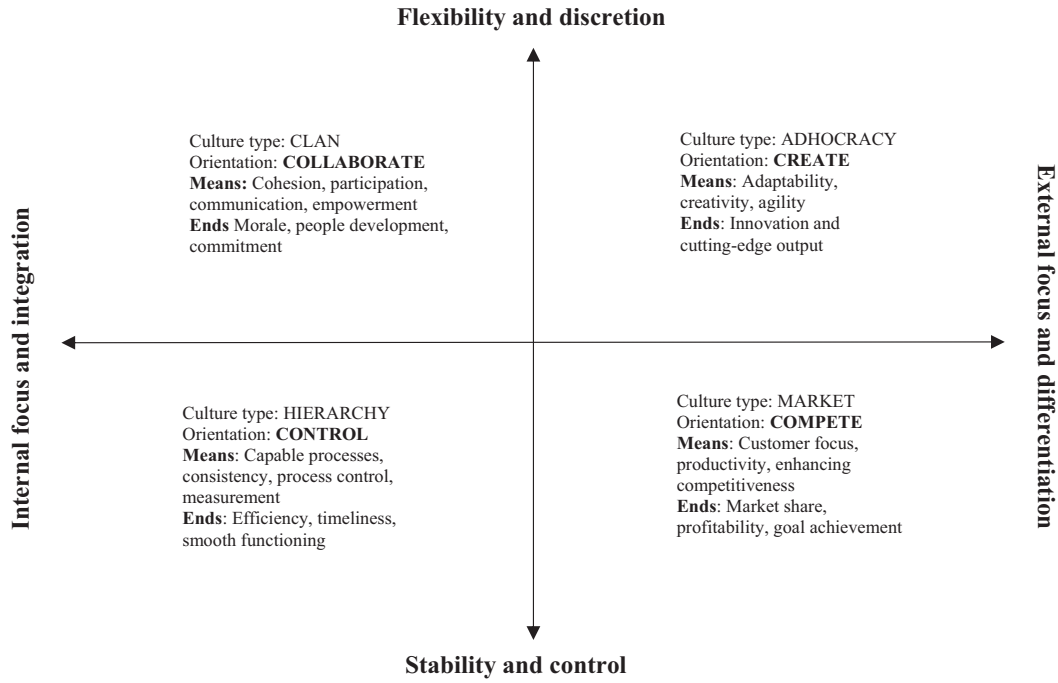

FIGURE 1 Competing values framework. This figure shows an adapted form of the competing values framework in Hartnell et al. (2011, p. 679), Figure 1.

portfolio of words that are predictive of the corporate culture dimensions (i.e., CVF). By rerunning the methodology of Fiordelisi and Ricci step by step, we obtain two lexical fields, which fit with those that these authors use to generate the variables *create* and *compete* (see Table A3 in the Appendix).

Then, we proceed as follows. First, we calculate the frequency of each word of Table A3 contained within each 10-K form, and then, we aggregate the frequency of each word over the corresponding corporate culture dimension (Table A3). Second, we divide the aggregated frequencies by the total number of words in the related 10-K. The total number of words per 10-K form is estimated by removing html tags and other nonsense symbols. We then exclude the 10-K tables and exhibits from the analysis because as explained by Loughran and McDonald (2011, p. 40), '[...] these items are more likely to contain template language that is less meaningful in measuring [...]' the variable of interest. The basic assumption behind this methodology is that the higher the frequency of these words in the annual report is, the greater the corporate orientation toward the corresponding culture dimension. To better understand this assumption, let us consider two examples of IPO companies that have a competition- or creation-oriented culture. First, Google Inc is in the first quartile for the *create* variable. In the first post-IPO fiscal year annual report, several sentences describing how Google has fostered this kind of culture appear as follows: 'We take technology *innovation* very seriously...'; 'our culture encourages the iteration of *ideas* to address complex technical challenges...'; 'we embrace individual thinking and *creativity*...'; and 'we believe that...our corporate culture... fosters *innovation, creativity* and teamwork'. The following set of example sentences refer to Amazon.com Inc., which is in the first quartile for the *compete* variable: '...the Company will be able to *compete successfully* against current and future *competitors*', and 'the Company must ...

increase its *customer* base, implement and *successfully* execute its business...provide *superior customers* service and order fulfillment, respond to *competitive* developments'.

Nevertheless, we are aware that the procedure may add noise to the corporate culture measures and thus attenuate the estimated regression coefficients. Loughran and McDonald extensively address this issue in their article. As a possible solution, the authors reflect on the possibility of restricting the investigation to only the Management Discussion and Analysis (MD&A) section of the 10-K. It is indeed plausible that the MD&A section would be more likely to provide subjective content such as information related to the corporate culture and thereby reduce noise. Despite this possibility, Loughran and McDonald do not find that the MD&A section provides more discriminating content.

In the current study, we follow the insights of Loughran and McDonald. Specifically, we perform the analysis on the entire annual report.

3 | DATA, SAMPLE AND SUMMARY STATISTICS

3.1 | Data and sample description

The data used in the current study are gathered from four main databases: (i) Thomson One, which mainly contains information related to extraordinary financial transactions, including VC deals; (ii) we use Jay Ritter's website to supplement and correct information misclassified in Thomson One; (iii) Compustat, which provides balance sheet data related to US listed companies; and (iv) the SEC's EDGAR, which reports over 21 million filings of US listed companies. Regarding our scope, the data set contains information from the IPO fiscal year-end up to 5 fiscal years after regarding US VC- and non-VC-backed IPOs that went public between 1996 and 2011.

The sampling process is as follows. First, we draw a starting list from Thomson One of approximately 1400 VC-backed IPOs. As is standard, we exclude companies with both an offer price of less than $5.00 and an amount offered of less than $3 million to reduce market microstructure effects and to remove very small companies. Second, by using the ticker symbol, we match the rest of the sample with Compustat. We further exclude IPOs (a) that show an invalid ticker symbol for Compustat and (b) that are missing accounting data for the first IPO fiscal year-end. To this end, we apply the following filter. We keep out of the sample any company that, for the IPO year, reports a missing value for the item *total assets*. Considering that *total assets* is a main variable, when it is missing, it is reasonable to conclude that the whole balance sheet will be missing, including the annual report necessary for our analysis. We conclude that for these firms, it is not possible to supplement the missing data for any year after the listing.

We focus our analysis on a time window of 6 years, that is, from the end of the fiscal year in which the IPO occurred up to 5 years after. Consequently, the most complete firms are those that show no missing accounting data for any of the 5 years after the listing.

This approach yields a sample of 551 VC-backed IPOs. Third, leaving the above criteria unchanged, we extract from Compustat the entire universe of companies that forms our sample of untreated IPOs. This procedure returns a control group of 606 IPOs. As a consequence, our final sample consists of 1117 IPOs. Finally, for each of these companies, we hand-download the related 10-Ks and 10-K405s from the EDGAR database by excluding amended documents. As noted by Loughran and McDonald (2011, p. 39), 10-K405s are simply 10-Ks that include 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 applications, and the choice to include both 10-Ks and 10-K405s does not affect the results. The downloading phase forces us to lose an additional number of observations because they do not have a valid ticker symbol for EDGAR. We also include a few IPOs for which less than, but close to, 50% of their shares are traded on the US exchange, and for this reason, they are eligible to fill out a 20-F rather than a 10-K.[8] In the Online Appendix, we provide sample representativeness tests and show robusteness.[9]

Panels A, B and C of Table 1 report the sectorial, calendar year, and state distribution of our sample, respectively. Consistent with previous studies (e.g., Colaco et al., 2009; Megginson & Weiss, 1991), we find that our sample is quite concentrated around a few sectors. Specifically, SIC codes 73 (software companies); 28 (biotech and pharmaceutical); 36 (electronic and other electrical equipment and components, except computer equipment) and 38 (measuring, analyzing, and controlling instruments; photographic, medical and optical goods) together comprise over 68% of the VC-backed IPOs in the subsample. This result does not come as a surprise, as high-tech and biotech companies belong to SIC codes in which VCs are particularly inclined to invest (Bertoni et al., 2011). It should also be noted that the majority of IPOs in our sample are headquartered in a state that is historically[10] ruled by the Democratic Party[11] (i.e., a *blue state*). In fact, sorting Panel C by the frequency of VC-backed IPOs, the first three states—namely, California (201), Massachusetts (54) and New York (27)—are blue states. Together, these three states represent over 50% of the observations, which is in line with the belief that the high-tech industry of *blue states* is much more advanced. An extraordinary example is the case of Silicon Valley in California. A recent article in the *New York Times* highlights that 'the innovation-driven growth in blue states creates broad positive externalities', and although there have been changes in recent years, '*these states are still producing high levels of prosperity*'. In addition, over the last few years, a growing body of literature has investigated how political institutions can have an impact on innovation (e.g., Ellis et al., 2020; Ovtchinnikov et al., 2020). Finally, there has been a proliferation of VC financing since the end of the 1990s.

3.2 | Summary statistics and description of variables

3.2.1 | Financial effectiveness measures

Our primary measures of financial effectiveness are *ROA*, which is calculated as the ratio between net income and total assets, and earnings before interest and taxes on assets (*EBIT/TA*). These variables are proxies for operating performance. To complement the picture of the

[8]We consider only 10-Ks and 20-Fs above 2000 words 'to eliminate filings that merely mention why the firm is not filing a full 10-K at that point in time' (Loughran & McDonald, 2014, p. 1651). However, we also perform the analysis by removing this filter. The results are substantially the same and available on request.

[9]It is possible that survivorship bias has caused the exclusion of IPOs. Our dataset is derived by the availability of 10-K forms on EDGAR. As pointed out by a helpful reviewer, consistent with the survivorship bias hypothesis, the fraction of VC-backed IPOs in the sample as a fraction of all VC-backed IPOs in a given cohort year is much lower in 1997 (30 out of 133) than in 2007 (60 out of 71) or 2011 (31 out of 44). More recent IPOs are more likely to still be listed and trading under the original ticker symbol. The non-VC-backed IPOs are also subject to this survivorship bias, but the extent of the survivorship bias may be different. Our Online Appendix offers some tests that show representativeness and robustness to the extent that our data allow. Future research could examine this issue with different data.

[10]To separate states that historically have been ruled by the Democratic Party from those historically ruled by the Republican Party, we employ the methodology described in Section 3.2.3.

[11]We equivalently use the term *blue state* (*red state*) to indicate a state historically ruled by the Democratic (Republican) Party.

TABLE 1 Distribution and characteristics of VC- and non-VC-backed IPOs.

This table reports the distribution of VC- and non-VC-backed IPOs by characteristics. Panel A shows the distribution of both the full sample and the two subsets, which are composed of VC- and non-VC-backed IPOs across two-digit SIC codes. Panel B shows the time-series distribution of the full sample and the 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 and the VC- and non-VC-backed IPOs. Republican states are in bold and italics. The table also reports the percentages of firms headquartered in states historically ruled by Democratic and Republican parties in both the full sample and the two subsets composed of VC- and non-VC-backed IPOs.

Panel A							**Panel B**							**Panel C**						
	Overall		**VC**		**non-VC**		**IPO**	**Overall**		**VC**		**non-VC**			**Overall**		**VC**		**non-VC**	
SIC code	**No.**	**%**	**No.**	**%**	**No.**	**%**	**(year)**	**No.**	**%**	**No.**	**%**	**No.**	**%**	**State**	**No.**	**%**	**No.**	**%**	**No.**	**%**
73	259	22.4	167	30.3	92	15.2	1996	161	13.9	58	10.5	103	17	CA	293	25.3	201	36.5	92	15.2
28	122	10.5	89	16.2	33	5.4	1997	82	7.1	30	5.4	52	8.6	MA	87	7.5	54	9.8	33	5.4
36	111	9.6	67	12.2	44	7.2	1998	102	8.8	24	4.4	78	12.9	***TX***	***83***	***7.2***	***27***	***4.9***	***56***	***9.2***
38	89	7.7	56	10.2	33	5.4	1999	134	11.6	82	14.9	52	8.6	NY	59	5.1	22	4	37	6.1
35	53	4.6	26	4.7	27	4.5	2000	148	12.8	96	17.4	52	8.6	IL	47	4.1	23	4.2	24	4
48	52	4.5	30	5.4	22	3.6	2001	24	2.1	11	2	13	2.2	NJ	46	4	17	3.1	29	4.8
87	34	2.9	14	2.5	20	3.3	2002	48	4.2	17	3.1	31	5.1	CO	34	2.9	17	3.1	17	2.8
13	27	2.3	6	1.1	21	3.5	2003	13	1.1	9	1.6	4	0.7	PA	32	2.8	14	2.5	18	3
59	21	1.8	14	2.5	7	1.2	2004	52	4.5	29	5.3	23	3.8	***GA***	***29***	***2.5***	***15***	***2.7***	***14***	***2.3***
58	18	1.6	4	0.7	14	2.3	2005	60	5.2	32	5.8	28	4.6	***FL***	***26***	***2.2***	***6***	***1.1***	***20***	***3.3***
37	17	1.5	6	1.1	11	1.8	2006	62	5.4	35	6.4	27	4.5	MD	25	2.2	11	2	14	2.3
44	17	1.5	3	0.5	14	2.3	2007	90	7.8	60	10.9	30	5	VA	25	2.2	10	1.8	15	2.5
20	14	1.2	3	0.5	11	1.8	2008	8	0.7	2	0.4	6	1	WA	25	2.2	16	2.9	9	1.5
49	14	1.2	3	0.5	11	1.8	2009	31	2.7	8	1.5	23	3.8	MN	23	2	10	1.8	13	2.1
50	14	1.2	5	1	9	1.5	2010	73	6.3	27	4.9	46	7.6	CT	22	1.9	7	1.3	15	2.5
Others	295	25.5	58	10.5	237	39.1	2011	69	6	31	5.6	38	6.3	Others	301	26	101	18.3	200	33
Total	1157	100	551	100	606	100	Total	1157	100	551	100	606	100	Total	1,157	100	551	100	606	100
															State Headquartered		State Headquartered		State Headquartered	
															Republican (%)	Democratic (%)	Republican (%)	Democratic (%)	Republican (%)	Democratic (%)
															24%	76%	17%	83%	30%	70%

financial effectiveness proxies and also to take into account the size of risk, we implement the *ZM score* (Zmijewski, 1984) and the *Z″-score*[12] (Altman et al., 1995)[13]. These models are computed as follows:

(i) The Altman et al. (1995) model is as follows:

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

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

(ii) The Zmijewski (1984) model is as follows:

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

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

3.2.2 | Summary statistics and univariate analysis

Panel A of Table 2 reports the summary characteristics, namely, the means, medians, standard deviations, first and 99th percentiles and frequencies that are related to our sample of VC- and non-VC-backed firms in the IPO fiscal year of total assets (mln $), revenue (mln $), age (number of years from the founding year to the IPO date), book value of total equity (mln $), market capitalization (mln $) and financial effectiveness indicators (i.e., *Z″-score*, *ZM-score*, *EBIT/TA* and *ROA*), respectively. Panel B replicates the statistics of Panel A in the 5 years postlisting.

Panels C and D of Table 2 provide the means and medians of the two dimensions of corporate culture, as Quinn and Rohrbaugh (1983) did, which are presented in percentages, calculated as explained in Section 3, and based on a time horizon of 6 years (from the first IPO fiscal year to 5 years later) by considering both the full sample (1996–2016) and various subperiods. We also report related univariate tests, that is, Wilcoxon and *t*-tests. More specifically, Panel C splits our sample into VC- and non-VC-backed IPOs. In contrast, Panel D groups, on one hand, IPOs that historically are headquartered in states ruled by Democratic parties and, on the other, Republican states.

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

[13]Aside from the fact that these models are widespread in the literature given their degree of reliability, we utilize the *Z″-score* and the *ZM-score* mainly for their 'simplicity of computation' and because both are based on 'accounting data that are easily retrieved from Compustat' (Megginson et al., 2019).

TABLE 2 Summary statistics: firm characteristics, regional and corporate culture.

This table reports in panel A the means, medians and other statistics of VC- and non-VC-backed firms in the first post-IPO fiscal year end. Total assets, revenue, equity and market capitalization are in millions of dollars. *EBIT*/total assets and *ROA* are in percentage, and *Z″*-score and *ZM-score* are in *Z″*-score and *ZM-score* units, respectively. Data are gathered by taking inflation into account (CPI 1996). Age is the number of years from the founding date to the IPO date. Panel B replicates the statistics proposed in Panel A based on 5 fiscal years end following the IPO fiscal year. Panel C provides the means and medians of the two dimensions of corporate culture under investigation, as in Quinn and Rohrbaugh (1983), considering both the full sample period (1996–2016) and various subperiods, along with associated Wilcoxon- and *t*-statistics (clustering adjustments by firms) by splitting the sample into VC- and non-VC-backed IPOs. The results are in percentages, calculated as the number of words related to the corresponding dimension of corporate culture divided by the total words per annual report document (i.e., 10-k or 20-f). Panel D replicates the analysis of Panel C by splitting the sample into IPOs that are headquartered in states that are historically ruled by the Democratic or Republican parties.

	Panel A—Characteristics of VC- and non-VC-backed IPOs in the first post-IPO fiscal year end ($t = 0$)											
	Mean		**Median**		**St. Dev.**		**1st percentile**		**99th percentiles**		**No.**	
	VC	**non-VC**	**VC**	**non-VC**	**VC**	**non-VC**	**VC**	**non-VC**	**VC**	**non-VC**	**VC**	**non-VC**
Total assets	412.1	3076.6	116.9	217.4	2446	20,965	8.3	3.0	4166	59,892	551	605
Revenue	232.7	752.7	43.9	98.9	1544.7	2650.5	0	0	2485.2	18,308.3	551	605
Age	10.4	19.1	8	9	12.7	26.5	2	1	87	123	551	605
Equity	175	478.8	70.5	89.2	1164	1870	−17	−9.2	1223	7769.5	551	605
Market cap	1171	1334	388.7	296.7	4216.4	5055.8	11.7	3	12,688	24,135	551	605
Z″-score	6.9	5.3	6.1	4.2	8.7	9.6	−11	−17	28	28	551	605
ZM-score	−2.1	−1.8	−2.6	−2.2	1.9	2.2	−4.6	−4.6	4.2	4.8	551	605
ROA	−12	−0.7	−5	3	28	25	−11	−11	26	30	551	605
EBIT/total assets	−8	4	−3	7	27	22	−96	−96	39	39	551	605
	Panel B—Characteristics of VC- and non-VC-backed IPOs in the 5 fiscal years end after the IPO fiscal year ($t = 1, 2, 3, 4, 5$)											
Total assets	562.1	3594.1	141.8	310.2	3318	23,865.3	6.0	1.7	5299.8	82,063.9	2687	2939
Revenue	368.5	1015.1	81.0	176.2	2189.2	3059.8	0	0	3431.7	18,259.4	2687	2939
Equity	279.1	634.3	85.7	130.1	2134.5	2148.4	−88.4	−139.7	2288.1	10,867.8	2687	2939

TABLE 2 (Continued)

Panel B—Characteristics of VC- and non-VC-backed IPOs in the 5 fiscal years end after the IPO fiscal year ($t = 1, 2, 3, 4, 5$)												
Market cap	1207	1604	248.1	227	8577	27,294	6.8	1.3	15,237	27,294	2687	2939
Z″-score	1.1	1.2	2.9	2.8	13	14	−59	−89	28	23	2687	2939
ZM-score	−1.2	−1.1	−1.9	−1.5	3	3	−4.6	−4.6	13.4	16.9	2687	2939
ROA	−18	−8	−4	2	42	39	−23	−24	27	30	2687	2939
EBIT/total assets	−11	−1.5	−2.5	5	32	30	−13	−16	35	39	2687	2939

Panel C—Corporate culture dimensions: VC-backed versus non-VC-backed IPOs								
	Mean		**Median**		**No.**			
Years	**VC**	**non-VC**	**VC**	**non-VC**	**VC**	**non-VC**	***T*-test (*p*-value)**	**Wilcoxon test (*z*-value)**
Create dimension—Time series distribution								
1996–2016	0.90	0.84	0.90	0.84	3238	3544	0.0000	0.0000
Subperiods								
1996–2000	0.85	0.75	0.85	0.73	738	1093	0.0000	0.0000
2001–2005	0.91	0.86	0.91	0.86	1186	1142	0.0013	0.0000
2006–2010	0.90	0.85	0.85	0.84	802	658	0.0284	0.0000
2011–2016	0.93	0.90	0.92	0.88	512	651	0.1828	0.0003
Compete dimension—Time series distribution								
1996–2016	3.06	2.70	3.01	2.60	3238	3544	0.0000	0.0000
Subperiods								
1996–2000	3.15	2.75	3.12	2.64	738	1093	0.0000	0.0000
2001–2005	3.21	2.79	3.24	2.71	1186	1142	0.0000	0.0000

(Continues)

TABLE 2 (Continued)

Panel C—Corporate culture dimensions: VC-backed versus non-VC-backed IPOs								
	Mean		Median		No.			
Years	VC	non-VC	VC	non-VC	VC	non-VC	*T*-test (*p*-value)	Wilcoxon test (*z*-value)
2006–2010	2.81	2.74	2.56	2.48	802	658	0.0000	0.0000
2011–2016	3.00	2.60	2.94	2.53	512	651	0.0000	0.0000
Panel D—Corporate culture dimensions: Democratic versus Republican								
Years	Mean		Median		No.			
	Democratic	Republican	Democratic	Republican	Democratic	Republican	*T*-test (*p*-value)	Wilcoxon test (*z*-value)
Create dimension—Time series distribution								
1996–2016	0.88	0.84	0.89	0.85	4538	1405	0.0042	0.0000
Subperiods								
1996–2000	0.80	0.78	0.79	0.77	1333	462	0.3672	0.1147
2001–2005	0.90	0.87	0.90	0.86	1684	487	0.0481	0.0003
2006–2010	0.91	0.89	0.91	0.89	829	244	0.1676	0.0552
2011–2016	0.96	0.90	0.94	0.88	692	212	0.0076	0.0000
Compete dimension—Time series distribution								
1996–2016	2.98	2.73	2.92	2.62	4538	1405	0.0000	0.0000
Subperiods								
1996–2000	2.95	2.81	2.82	2.73	1333	462	0.0738	0.0021
2001–2005	3.07	2.86	3.05	2.81	1684	487	0.0012	0.0000
2006–2010	2.85	2.52	2.80	2.42	829	244	0.0000	0.0000
2011–2016	2.98	2.45	2.98	2.39	692	212	0.0000	0.0000

The next section discusses the results of the above tests related to Panels C and D. For the 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 median and mean findings related to the subperiods by commenting on them in the outline. In Panel C, VC-backed IPOs are associated with a higher *creation-oriented* culture than their peers. Specifically, the median is equal to 0.90% and 0.84% for VC- and non-VC-backed IPOs, respectively, which are statistically different ($p = 0.000$). As we move to the subsets, the results are resilient given that this difference is statistically significant ($p = 0.000$) over time.

Similarly, the results related to a *competition-oriented* culture take the same direction as we expect, which translates into a higher *competition-oriented* culture for VC-backed IPOs compared to the control group. Specifically, we find that the median is equal to 3.01% and 2.60% for VC- and non-VC-backed IPOs, respectively, which are statistically different ($p = 0.000$); the results of the subperiods are the same, as the difference is strongly significant ($p = 0.000$) over time.

Panel D of Table 2 replicates the analysis of Panel C by splitting the sample into two groups. On the one hand, we report IPOs that historically have been headquartered in states ruled by the Democratic Party and, on the other hand, those that historically have been headquartered in Republican states. The main results suggest that companies located in *blue states* have a more *creation-oriented* culture than those located in *red states*. Specifically, we find that the median is equal to 0.89% and 0.85% for IPOs located in *blue* and *red states*, respectively, which are statistically different ($p = 0.000$). Not surprisingly, the findings regarding a *competition-oriented* culture are quite similar to the previous findings. In particular, IPOs located in *blue states* show a higher orientation toward a *competition-oriented* culture than those located in *red states*, as the former show a higher median compared to the latter (2.92% and 2.62%, respectively), and the difference is statistically significant ($p = 0.0000$). An interesting result arises by matching these results with those of Table 1. IPOs most oriented toward *competition* and *creation* come from *blue states*, where the high-tech industry is mainly based. This result seems to be in line with the belief that *competition* and *creation* stimulate innovation, which is, as is well known, a key point in such an industry.

3.2.3 | 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. Regarding firm-specific characteristics, we measure *age* as the natural logarithm of one plus the number of years since the year of the firm's incorporation until the IPO calendar year. *Ln (assets)* is defined as the natural logarithm of the total assets in thousands of dollars by the end of the corresponding fiscal year. *The CapEx ratio* is calculated as the ratio between capital expenditures and total assets. To take into account the possible differences that may arise industrywide, we include the following variables. *Industry* is a set of dummy variables describing the industrial sectors, each of which takes the value one if the firm operates in the corresponding sector and zero otherwise. We also define each sector by referring to the 2-digit SIC code. *High-tech Firm* is a dummy variable that takes the value one if the firm belongs to the 2-digit SIC codes 28, 35, 36, 38, 48 or 73 and zero otherwise. *State* is a set of dummy variables that aims to describe territorial differences, and each is equal to 1 if the firm operates in the corresponding state and zero otherwise.

In addition to the firm-specific and industrywide controls mentioned above, we utilize variables to proxy for the regional culture and to consider the phenomenon of dual class shares. The latter is related to a company's chances of issuing shares with distinct voting rights and dividend payments. If so, one can conjecture that this approach might fuel the free-rider problem and the related negative effect on financial effectiveness.

To proxy regional culture, we construct a dummy variable—namely, the *Blue dummy*, which takes a value of 1 if the corresponding company is headquartered in a state that is historically ruled by the Democratic Party and zero if ruled by the Republican Party. To label a state blue or red, we employ the following procedure. First, we retrieve the time series[14] of US electoral results. Specifically, the time series indicates whether the electorate preferred the Democratic or Republican Party for each election in each state. Second, for each state, if the electorate preferred the Democratic Party for the majority of elections that occurred between 1988 and 2016, we define that state as a *blue state*, that is, a state that historically shows a Democratic culture. Otherwise, we define that state as a *red state*.

To consider the phenomenon of dual class shares, we construct a dummy variable, *dual class dummy*, which takes the value of 1 when companies have issued shares with distinct voting rights and dividend payments and zero otherwise. To construct this variable, we first employ text analysis by searching for the following words: Class A, Class B, Class C and Class D. If the frequency of at least one of these words is equal to 1, we consider the related company a dual class issuer. However, with this methodology, we face the risk of capturing something else, and as a consequence, a dual class dummy may include some misclassifications. To reduce this risk, we supplement and correct our variable directly using Jay Ritter's data available on his website. Finally, we evaluate the impact of VC backing on companies' corporate culture and financial effectiveness. To this end, we use a dummy variable, *VC dummy*, which is set at 1 when companies have received VC financing and zero otherwise. A detailed definition of all variables included in our analysis and a correlation matrix among them is provided in the Appendix (see Tables A1 and A2, respectively).

4 | EMPIRICAL RESULTS

4.1 | Is there a relationship between corporate culture and IPO firms' financial performance?

Since there is very little empirical evidence about the importance of corporate culture for the performance of IPO firms, we begin our econometric analyzes from a base model that investigates the relationship between the types of corporate culture and IPO firms' financial performance.

Specifically, we first estimate OLS regressions (see Table 3), 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, state, industry and year dummies. More specifically, our first regression model is specified as follows:

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

[14]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'.

TABLE 3 The impact of corporate culture dimensions on financial effectiveness.

This table reports the dependent variables are *Z″-score* (columns 1–3), *ZM-score* (columns 4–6), *EBIT/TA* (columns 7–9) and *ROA* (columns 10–12). *Create* and *Compete* are the two dimensions of corporate culture estimated by employing the text analysis of the related annual report (i.e., 10-K and 20-F forms); *Dual class dummy* 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; *Ln (age)* is the natural logarithm of firm age; *Ln(assets)* is the natural logarithm of total assets; *CapEx ratio* is capital expenditures normalized by total assets; *GDP* is the annual GDP growth rate in year *t*. *State*, *Industry* and *Year* dummies are included in the estimations. Estimates are derived from OLS regressions on panel data with robust clustered standard errors. *T*-statistics are reported in parentheses. *, ** and *** indicate statistical significance at the 10%, 5% and 1% levels, respectively.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
	Z″-score	**Z″-score**	**Z″-score**	***ZM-score***	***ZM-score***	***ZM-score***	***EBIT/TA***	***EBIT/TA***	***EBIT/TA***	***ROA***	***ROA***	***ROA***
Create	9.159***		7.998***	−1.970***		−1.583***	0.0504***		0.0304*	0.0933***		0.0701***
	(9.76)		(8.78)	(−8.82)		(−7.40)	(2.90)		(1.75)	(3.99)		(3.03)
Compete		2.318***	1.485***		−0.660***	−0.493***		0.0308***	0.0279***		0.0390***	0.0324***
		(6.80)	(4.45)		(−8.24)	(−6.31)		(4.62)	(4.20)		(4.07)	(3.42)
Dual class dummy	−2.777***	−2.693***	−2.551***	0.484***	0.450***	0.414***	−0.0187**	−0.0173*	−0.0160*	−0.0326**	−0.0323**	−0.0294**
	(−5.67)	(−5.48)	(−5.31)	(4.19)	(3.90)	(3.67)	(−2.05)	(−1.89)	(−1.77)	(−2.57)	(−2.56)	(−2.36)
Ln(assets)	3.383***	3.403***	3.367***	−0.469***	−0.471***	−0.464***	0.0766***	0.0767***	0.0765***	0.0893***	0.0897***	0.0893***
	(14.82)	(14.86)	(14.93)	(−9.29)	(−9.34)	(−9.34)	(20.59)	(20.70)	(20.76)	(15.92)	(15.98)	(16.03)
Ln(age)	−0.0695	0.0639	−0.0157	0.00349	−0.0312	−0.0143	0.0331***	0.0345***	0.0341***	0.0339***	0.0359***	0.0350***
	(−0.35)	(0.32)	(−0.08)	(0.07)	(−0.66)	(−0.30)	(8.44)	(8.81)	(8.70)	(6.43)	(6.83)	(6.66)
CapEx ratio	−15.53***	−13.99***	−15.02***	1.689***	1.286**	1.503**	−0.126**	−0.109**	−0.113**	−0.196***	−0.172**	−0.181***
	(−5.35)	(−4.86)	(−5.21)	(2.80)	(2.15)	(2.51)	(−2.38)	(−2.07)	(−2.15)	(−2.90)	(−2.55)	(−2.69)

(Continues)

TABLE 3 (Continued)

	(1) Z″-score	(2) Z″-score	(3) Z″-score	(4) *ZM-score*	(5) *ZM-score*	(6) *ZM-score*	(7) *EBIT/TA*	(8) *EBIT/TA*	(9) *EBIT/TA*	(10) *ROA*	(11) *ROA*	(12) *ROA*
GDP	2.409***	2.187***	2.417***	−0.384***	−0.341***	−0.387***	0.0302***	0.0213***	0.0305***	0.0386***	0.0266***	0.0390***
	(13.12)	(12.19)	(13.17)	(−9.96)	(−9.11)	(−10.10)	(9.11)	(7.41)	(9.23)	(9.64)	(7.65)	(9.72)
State	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
Industry	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Constant	−23.00***	−20.92***	−25.75***	3.169	3.132	4.083**	−0.359***	−0.423***	−0.415***	0.244	0.184	0.179
	(−8.34)	(−7.61)	(−8.90)	(1.65)	(1.64)	(2.13)	(−3.13)	(−3.63)	(−3.54)	(0.50)	(0.38)	(0.37)
N	5977	5977	5977	6045	6045	6045	6483	6483	6483	6483	6483	6483
Adj. R^2	0.234	0.227	0.236	0.163	0.161	0.169	0.378	0.379	0.379	0.284	0.285	0.286

where i denotes a firm ($i = 1, 2, ..., 1157$). In our first round of the analysis, we consider the full sample to be an experimental setting (1157 IPOs) composed of 551 VC- and 606 non-VC-backed IPOs. Here, t denotes the time dimension as represented by the 6 fiscal years since the IPO fiscal year end ($t = 0, 1, 2, 3, 4$ and 5); y denotes the measures of financial effectiveness, namely, *ROA, EBIT/TA, Z″-score* and *ZM-score*; $\sum_{j=1}^{n} \beta_j x_{j,i,t}$ is a vector of control variables, and ε is the random error term. Starting with the base equation, we estimate the other models both by replacing the *create* variable with the *compete* variable and by using them 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, *Ln(assets)* and *GDP* have a favorable influence on a firm's profitability and risk of financial distress (the coefficients of these variables are always significant at the 1% confidence level or less), and *Ln(age)* is positively associated with a firm's profitability (at the 1% confidence level or less). Otherwise, the issuing of various types of shares by a company with distinct voting rights and dividend payments and the intensity of capital expenditures—namely, *Dual class dummy* and *CapEx*—increase the corporate risk of financial distress and reduce a firm's profitability (the coefficients of these variables are almost always significant at the 1% confidence level or less). Unsurprisingly, the set of dummy variables describing territorial differences, industry characteristics and time periods contributes significantly to the explanation of a firm's profitability and its risk of financial distress.

Regarding the effects on financial performance, we find that companies with a competition- or creation-oriented culture, on average, exhibit a higher profitability and lower risk of financial distress than other IPO firms. Indeed, we find that the variables *compete* and *create* always exhibit a favorable influence on a firm's profitability and risk of financial distress (the coefficients of these variables are always significant at the 1% confidence level or less). For example, considering the results reported in column 3, the variables *create* and *compete* exhibit a positive (7.998 and 1.485, respectively) and a highly significant coefficient ($t = 8.78$ and 4.45, respectively).

It is worth noting that these results are robust to all profitability and financial distress measures employed. In more rigorous terms, the OLS regression analysis indicates that an increase of 1% in *create* is associated with an increase of 0.0916 units in the *Z″*-score (column 1), and the same change in *compete* is associated with an increase of 0.0232 units in the *Z″*-score (column 2). Altman et al. (1995), through multiple discriminant analysis (MDA), define the following zones of discrimination: *Z″*-score > 2.6, safe zone; 1.1 < *Z″-score* < 2.6, gray zone; *Z″-score* < 1.1, distress zone. Using this scheme as a benchmark can reveal how economically important corporate culture is for financial distress risk. For example, returning to *create*, 0.0916 units are approximately 3.5% of the threshold level (i.e., 2.6), which determines the safe zone.

Given that the *ZM-score* is the result of a maximum-likelihood estimation (MLE), the model works in the opposite way, although the outcomes are qualitatively the same. Specifically, an increase of 1% in *create* is associated with a decrease of 1.970% in bankruptcy likelihood (i.e., −1.970, column 4), and the same change in *compete* is associated with a decrease of 0.660% in bankruptcy likelihood (i.e., −0.660, column 5). Regarding profitability indicators, the results suggest that an increase of 1% in a creation-oriented culture is associated with an increase of 0.050% in *EBIT/TA* (column 7) and of 0.093% in *ROA* (column 10). Similarly, for *compete*, an increase of 1% yields an increase of 0.0315% (column 8) and 0.039% (column 11) in *EBIT/TA* and *ROA*, respectively.

However, while our baseline results show that the cultural orientation of an IPO company is correlated with its financial performance, we cannot ignore the risk that this association may reflect causalities other than those that we argue. Thus, in the next two sections, we first analyze factors influencing corporate culture and then perform several additional tests to verify that our findings are robust to endogeneity concerns.

4.2 | Determining factors of corporate culture and the role of VC backing

Given the importance of corporate culture for a firm's post-IPO profitability and risk of financial distress, we next explore, through probit regressions (see Table 4), the impact of various firm-level factors (such as VC backing) and regional and industry characteristics on corporate culture. Specifically, our models are as follows:

$$z_{i,t} = \alpha + \gamma\ VC_i + \sum_{k=1}^{m} \gamma_k x_{k,i,t} + \varepsilon_{i,t}, \tag{2}$$

where i denotes a firm ($i = 1, 2, ..., 1157$). In our first round of the analysis, we consider the full sample to be an experimental setting (1157 IPOs) composed of 551 VC- and 606 non-VC-backed IPOs. Here, t denotes the time dimension, as represented by the 6 fiscal years since the IPO fiscal year end ($t = 0, 1, 2, 3, 4$ and 5), and z denotes the two dimensions of corporate culture. This time, the dimensions 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 than the sample median and zero otherwise. The other variable, namely, *Compete_High*, is built the same way. The *VC dummy* is a dummy variable, as described in section 3.2.3. $\sum_{k=1}^{m} \gamma_k x_{k,i,t}$ is a vector of the control variables, and ε is the random error term. It is worth noting that developing a model that can explain the corporate culture of an IPO firm is not only interesting per se but is also useful to properly address the endogeneity concerns that may affect the relation between corporate culture and financial performance, as we discuss in Section 4.3.

Overall, we find that various factors explain a firm's corporate culture, even if they may have different influences on the four types of corporate culture. For example, considering the results reported in column 2, we find that a *creation-oriented* culture is influenced by *Ln(assets), Ln(age)*, *Blue dummy* and belonging to a high-tech sector (*High-Tech Firm).*

Interestingly, the main variable of interest that distinguishes VC-backed IPOs from the control group is positively associated with corporate culture. Indeed, in terms of economic significance, the *VC dummy* increases the probability that a firm exhibits a strong *creation-* and *competition-oriented* culture, with values of 30.5% and 54.2%, respectively (columns 1 and 2). Although these results are consistent with the theoretical predictions, we are concerned that they may be biased by the fact that VC-backed IPOs may differ significantly from their peers because of the intensive screening performed by VCs before investing (e.g., Megginson & Weiss, 1991).

Thus, following the established literature on the role of VC backing in IPOs (e.g., Megginson et al., 2019), we use a matching technique that allows the control of the observed heterogeneity among VC- and non-VC-backed IPOs represented by the characteristics included in the matching process. To this end, we employ Rosenbaum and Rubin's (1983) propensity score matching based on the following procedure. First, we estimate a cross-sectional logit regression based on the first IPO fiscal year-end data by using the *VC dummy* as the dependent

TABLE 4 The impact of venture capital financing, regional and industry-level factors on the corporate culture dimensions.

This table reports the results of the probit regressions by estimating the impact of venture capital financing and factors at the regional and industry levels on the corporate culture dimensions investigated, namely, *Create_High* and *Compete_High*. The analysis is conducted both on the full sample (columns 1–2) and on the sample obtained by employing propensity score matching (columns 3–4). *Create_High* is a dummy variable that takes a value of 1 if for the corresponding firm the variable *Create* shows a value higher than the sample median and zero otherwise. The same goes for *Compete_High*. *VC dummy* is a dummy variable that is set at 1 when companies have received VC financing and zero otherwise; *Blue dummy* is a dummy variable that takes a value of 1 if the corresponding company is headquartered in a state that is historically ruled by the Democratic Party and zero if the state is historically ruled by the Republican Party; *High-Tech Firm* is a dummy variable that takes the value one if the firm belongs to a high-tech sector and zero otherwise; *Ln(age)* is the natural logarithm of firm age; *Ln(assets)* is the natural logarithm of total assets; *GDP* is the annual GDP growth rate in year *t*. *Firm*, *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 parentheses. *, ** and *** indicate statistical significance at the 10%, 5% and 1% levels, respectively.

	Full sample		**Propensity score matching**	
	(1)	**(2)**	**(3)**	**(4)**
	Compete_High	***Create_High***	***Compete_High***	***Create_High***
VC dummy	0.542***	0.305***	0.583***	0.229***
	(11.12)	(6.85)	(7.71)	(3.50)
Blue dummy	0.896**	1.880***	1.121***	−0.509
	(2.31)	(3.43)	(2.58)	(−0.94)
High-tech Firm	1.201***	−1.056*	1.329***	0.626***
	(9.99)	(−1.79)	(6.30)	(3.21)
Ln(assets)	0.00128	0.0347***	−0.0232	−0.0552**
	(0.09)	(2.72)	(−0.82)	(−2.33)
Ln(age)	0.0105	0.0691***	0.150**	0.227***
	(0.38)	(2.78)	(2.54)	(4.37)
State	Y	Y	Y	Y
Industry	Y	Y	Y	Y
Year	Y	Y	Y	Y
Constant	−0.422	0.272	−1.106	−0.194
	(−1.25)	(0.41)	(−1.56)	(−0.40)
N	5637	5701	1877	1913
Pseudo-R^2	0.3534	0.1798	0.3422	0.1882

variable and *Ln(age)*, *Ln(assets)*, *Industry* and *Year dummies* as explanatory ones. As is standard, we ensure that the balancing property (see Becker & Ichino, 2002) is satisfied. Second, the procedure concludes by yielding 1,157 propensity scores, one for each company. Third, for each VC-backed IPO, we select a control firm, without replacement (Heckman, 1979),

that shows a propensity score in the range ±0.01 compared to that of the corresponding treated company. If more than one IPO is within the above range, then we choose the nearest IPO excluding those VC-backed IPOs for which no control firm is found, or for which no control firm is within the range described above.

In columns 3 and 4 of Table 4, we rerun 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 have much higher probabilities of exhibiting a *competition-* and *creation-oriented* culture (at the 1% confidence level) than non-VC-backed companies (58.3% and 22.9%, respectively).

Overall, these findings are consistent with expectations and should come as no surprise for two closely related reasons. First, it is well known that an effective corporate culture matters for a firm's success (Graham et al., 2017) and that VCs use various value-creation levers to build 'winning firms' (Croce et al., 2013). Second, previous studies (Hartnell et al., 2011; Ucar, 2019) hypothesize that *competition-oriented* and *creation-oriented* cultures are strongly and moderately linked to financial effectiveness.

4.3 | The impact of corporate culture on IPO performance: Robustness tests

While our baseline results show that the cultural orientation of an IPO company is correlated with its financial performance, we are aware that the results may be affected by two types of endogeneity concerns: omitted variables and selection bias. The omitted variables may bias our coefficient estimates if the unobserved firm characteristics are correlated with both corporate culture orientation and post-IPO outcomes. To address this issue, we introduce firm fixed effects in the baseline regressions. The results that we omit for brevity are qualitatively similar to those illustrated in Table 3.

Selection bias is another endogeneity issue that could distort our regression estimates since we observe that corporate culture tends to be associated with certain characteristics at the firm, regional and industry levels, which, in turn, may explain post-IPO performance differences across companies with different cultures.

Although it is challenging to eliminate this endogeneity concern, we implement a standard Heckman (1979) 2-step selection procedure to mitigate it. In the first step, we estimate a probit model to predict the likelihood of an IPO firm having a certain culture orientation. An inverse Mills ratio is estimated from the first-step regression and is then included as an added explanatory variable in the second-step regression of post-IPO financial performance on corporate culture orientation. To implement the Heckman (1979) model, we need a set of instrumental variables (IVs) that are significantly related to the corporate culture measures and unrelated to the IPO firm performance indicators (e.g., Krishnan et al., 2011). The IVs we use are defined and motivated as follows.

First, *CEO_change dummy* is a dummy variable that takes the value of 1 when the corresponding company changes its CEO.[15] We believe that this instrument can capture a potential exogenous shock to corporate culture. Indeed, new CEOs have a golden opportunity to embark on the difficult work of building a better corporate culture. However, we use two lags

[15]Our empirical analysis would further benefit by splitting the sample on the basis of the justifications for CEO change. Unfortunately, this information is not generally available.

TABLE 5 Heckman (1979) regression analysis.

This table reports the first- and second-step Heckman (1979) regression coefficients and, in parentheses, associated standard errors that are robust to heteroskedasticity. In the first step, a probit regression is estimated by imposing two dichotomized dimensions of corporate culture as dependent variables, namely, *Compete_High* and *Create_High*. Specifically, *Compete_High* is a dummy variable that takes a value of 1 if for the corresponding firm the variable *Compete* shows a value higher than the sample median and zero otherwise. The same goes for the variable *Create_High*. The instrumental variables are *CEO change*$_{t-2}$ and *Blue dummy*. All variables are defined in the Appendix. The results of the first step of the Hackman model are presented in columns 1 and 6. As is standard, the first step concludes by estimating the inverse Mills ratio, which is included in the second step of the analysis. Hence, the dependent variables are *Z″-score* (columns 2 and 7), *ZM-score* (columns 3 and 8), *ROA* (columns 4 and 9) and *EBIT/TA* (columns 5 and 10). *, ** and *** indicate statistical significance at the 10%, 5% and 1% levels, respectively.

	Pr(Compete_High=1)	**(2)**	**(3)**	**(4)**	**(5)**	**Pr(Create_High=1)**	**(7)**	**(8)**	**(9)**	**(10)**
	(1)	***Z″-score***	***ZM-score***	**ROA**	***EBIT/TA***	**(6)**	***Z″-score***	***ZM-score***	***ROA***	***EBIT/TA***
CEO change$_{t-2}$	0.211**					0.266***				
	(0.105)					(0.967)				
Blue dummy	0.218***					0.171***				
	(0.071)					(0.066)				
Compete										
		4.839***	−0.847***	0.077**	0.044*					
		(1.530)	(0.254)	(0.040)	(0.024)					
Create							10.307***	−1.772***	0.245***	0.156***
							(2.893)	(0.509)	(0.082)	(0.188)
VC dummy	0.300***	5.293***	−0.794**	0.102*	0.040	0.294***	2.516	−0.215	0.027	0.002
	(0.059)	(2.215)	(0.368)	(0.057)	(0.034)	(0.056)	(1.786)	(0.289)	(0.046)	(0.029)
Ln(assets)	0.059***	4.583***	−0.517***	0.110***	0.091***	0.0932***	4.579***	−0.463***	0.106***	0.092***
	(0.018)	(0.558)	(0.093)	(0.014)	(0.008)	(0.0167)	(0.548)	(0.238)	(0.142)	(0.009)

(Continues)

TABLE 5 (Continued)

	Pr(Compete_High=1)	(2)	(3)	(4)	(5)	Pr(Create_High=1)	(7)	(8)	(9)	(10)
	(1)	Z″-score	*ZM-score*	ROA	*EBIT/TA*	(6)	*Z″-score*	*ZM-score*	*ROA*	*EBIT/TA*
Ln(age)	−0.0002	3.606***	−0.710***	0.108***	0.069***	0.170***	1.132	0.178	−0.0216	−0.029
	(0.040)	(1.163)	(0.193)	(0.030)	(0.018)	(0.038)	(1.173)	(0.169)	(0.031)	(0.019)
CapEx ratio	−2.306***	−43.67**	6.347**	−0.976**	−0.362	1.719***	6.366	−2.061	0.100	0.257
	(0.430)	(12.34)	(3.080)	(0.480)	(0.287)	(0.394)	(11.723)	(1.918)	(0.308)	(0.194)
CEO young dummy	0.219***	4.308**	−0.866***	0.116***	0.0640***	0.092*	−0.124	0.178	−0.018	−0.011
	(0.060)	(1.758)	(0.292)	(0.046)	(0.027)	(0.056)	(1.045)	(0.169)	(0.027)	(0.017)
High-tech Firm	1.465***	18.466**	−3.131***	0.439***	0.289**	0.555***	4.665	−0.123	−0.027	0.022
	(0.072)	(4.473)	(1.328)	(0.207)	(0.124)	(0.060)	(3.082)	(0.502)	(0.081)	(0.051)
GDP	0.010	0.397	−0.500	−0.016	−0.015	−0.0682***	−0.496	−0.294	−0.035	−0.055
	(0.015)	(5.831)	(0.970)	(0.151)	(0.090)	(0.0143)	(3.351)	(0.575)	(0.092)	(0.051)
State		Y	Y	Y	Y		Y	Y	Y	Y
Industry		Y	Y	Y	Y		Y	Y	Y	Y
Year		Y	Y	Y	Y		Y	Y	Y	Y
Firm		Y	Y	Y	Y		Y	Y	Y	Y
Constant	−0.697*** (0.158)	−112.056***	13.336***	−2.392***	−1.668***	−1.150*** (0.152)	−69.320***	3.470	−1.082*	−0.694*
		(21.509)	(3.578)	(0.558)	(0.333)		(22.708)	(3.858)	(0.620)	(0.390)
Inverse Mills ratio		24.937***	−4.148**	0.647**	0.386**		11.500	−0.496	0.053	0.033
		(10.839)	(1.803)	(0.281)	(0.168)		(8.619)	(1.392)	(0.223)	(0.141)
N		2354	2354	2354	2354		2354	2354	2354	2354

of this variable, which is shown with the prefix *l2*, because it takes some time for the new CEO to be able to significantly change the corporate culture. Consistent with the above arguments, we find that *l2.CEO_change dummy* is significantly related to both corporate culture measures but is unrelated to our IPO financial performance indicators.[16]

Second, *Blue dummy* is a dummy variable that takes a value of 1 if the corresponding company is headquartered in a state that is historically ruled by the Democratic Party and zero if the state is historically ruled by the Republican Party. This choice to use this IV is motivated by previous studies (e.g., Hofstede, 1983; Johns, 2006), which find that the external cultural context (such as national or regional culture) may significantly influence corporate culture. In contrast, it is unlikely that this state-level IV directly influences post-IPO performance. Accordingly, we find that *Blue dummy* is significantly related to corporate culture measures but is unrelated to IPO financial performance indicators.

Moreover, as is standard, all control variables in the second-step equation are also included in the first step. It should be noted, however, that in contrast to the baseline regressions of Table 3, we also include *CEO_young dummy* (i.e., a dummy that takes a value of 1 if the CEO of the corresponding company is under 50 years old) as a control variable because we argue that firms with a CEO who is under age 50 may have cultures that are on average different from those of firms with older CEOs. At the same time, previous studies (e.g., Serfling, 2014; Chowdhury & Doukas, 2022; Dong & Doukas, 2022) suggest that CEO age can have a significant impact on risk-taking behavior and firm performance.

Table 5 presents the results of Heckman's (1979) model.[17] Interestingly, the coefficients of the first step (which are reported in columns 1 and 6) confirm that our IVs are good predictors of corporate culture orientation. In fact, we find that *l2.CEO change dummy* and *Blue dummy* are positively and significantly (at the 5% confidence level or less) related to both corporate culture orientation measures. In addition, looking at the coefficients of the control variables, we find that *CEO_young dummy* shows positive and significant coefficients (at the 10% confidence level or less). This means that IPO firms with CEOs under 50 years of age are more inclined to have a *competition* and *creation* culture. Notably, the results of the second-step regressions, which are reported in columns 2–5 and 7–10, indicate that after correcting for selection bias, the profitability and financial distress risk indicators remain positively related to *competition*- and *creation*-oriented cultures. For example, considering the results reported in columns 2 and 7, the variables *compete* and *create* exhibit a positive (4.839 and 10.307, respectively) and significant (at the 1% confidence level or less) coefficient, suggesting that firms with a highly competition- and creation-oriented culture exhibit a higher *Z″-score*.

5 | CONCLUSIONS

In recent decades, a growing number of corporate managers have acquired a deep awareness of the importance of corporate culture for the outcomes of their company and of the need to preserve corporate culture during periods of tremendous transformation, such as after IPOs (Bonini & Voloshyna, 2013). Accordingly, in addressing potential investors at the time of IPO,

[16]We are not surprised to find that *l2.Ceo change dummy* is positively related to both *create* and *compete*. In fact, it is reasonable to expect that most new CEOs tend to encourage managers and employees to share a corporate culture, which, in turn, improves financial performance.

[17]We have also run all regressions reported in Table 5 by including one time-lagged dependent variable among the IVs. Overall, the results are qualitatively similar (unreported but available upon request).

the CEO of *Snap Inc.* decided to reveal many details about the corporate culture of his company.

This study participates in the ongoing debate by investigating the factors that determine an IPO firm's culture and the effects of corporate culture on an IPO firm's profitability and its risk of financial distress while controlling for firm-specific characteristics such as VC backing, regional culture, and industry-specific characteristics.

By analyzing a sample of 1157 US firms that went public between 1996 and 2011, we report several interesting results. First, holding other things constant, we find evidence that VC-backed companies are more likely to exhibit a *competition*- and a *creation*-oriented culture than non-VC-backed companies post-IPO. In terms of economic significance, when we consider the full sample, we find that VC-backed IPOs experience an increased likelihood of having a strong competition- and creation-oriented culture, with values of 54.2% and 30.5%, respectively. 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 *competitive*- and *creation-oriented* cultures exhibit a lower risk of financial distress than other IPO firms. This result is robust to all financial distress measures employed and resilient to the robustness tests used to control for endogeneity issues.

The decision to focus on IPO firms instead of examining a sample of publicly traded companies or privately held firms takes into account the fact that an IPO provides a unique opportunity to analyze the corporate culture of both VC- and non-VC-backed firms. Indeed, although VCs rarely exit at the time of IPO, they continue to hold significant equity and board positions in the post-IPO firms for a limited period of time. Of course, this result does not allow the study of the corporate culture of VC-backed firms simply by performing a cross-sectional analysis of publicly traded companies. Moreover, it is extremely difficult to measure corporate culture when firms are privately held because information related to corporate culture is difficult to proxy considering that files such as 10-ks and 20-f are not generally available.

Our study relates to the concerns raised by entrepreneurs, corporate managers, institutional investors, retail investors, and policymakers about a firm's risk of a decline in financial performance in the post-IPO years. We show that a company that goes public with a certain cultural orientation and preserves it in the post-IPO years has a better chance of successfully addressing the challenges arising after its IPO.

Future research could examine other IPO issues in relation to corporate culture, including but not limited to short-run performance (Cumming et al., 2022), long-run IPO performance in other countries (e.g., Thomadakis et al., 2012), how corporate culture affects IPOs differentially across countries (e.g., Bessler & Stanzel, 2009; Migliorati & Vismara, 2014; Ritter, 2003), how culture influences different types of investors (Colaco et al., 2009), and the intersecation between national culture (Mourouzidou-Damtsa et al., 2021; Zhang, 2022) and corporate culture.

DATA AVAILABILITY STATEMENT

Available on request.

ORCID

Douglas J. Cumming http://orcid.org/0000-0003-4366-6112

REFERENCES

Altman, E. I. (1968). Financial ratios, discriminant analysis and the prediction of corporate bankruptcy. *The Journal of Finance*, *23*, 589–609.

Altman, E. I. (2005). An emerging market credit scoring system for corporate bonds. *Emerging markets review*, *6*(4), 311–323.

Altman, E. I., Hartzell, J., & Peck, M. (1995). *Emerging markets corporate bonds: A scoring system*. New York: Salomon Brothers Inc. and in Levich, R. & Mei, J. P. The Future of Emerging Market Flaws. Kluwer. and revisited in Altman, E. I. & Hotchkiss, E. (2006). Corporate financial distress & bankruptcy. J. Wiley & Sons.

Antweiler, W., & Frank, M. Z. (2004). Is all that talk just noise? The information content of Internet stock message boards. *The Journal of Finance*, *59*, 1259–1294.

Becker, S. O., & Ichino, A. (2002). Estimation of average treatment effects based on propensity scores. *The Stata Journal*, *2*, 358–377.

Bertoni, F., Colombo, M. G., & Grilli, L. (2011). Venture capital financing and the growth of high-tech start-ups: Disentangling treatment from selection effects. *Research Policy*, *40*, 1028–1043.

Bessler, W., & Stanzel, M. (2009). Conflicts of interest and research quality of affiliated analysts in the German universal banking system: Evidence from IPO underwriting. *European Financial Management*, *15*(4), 757–786.

Bonini, S., & Voloshyna, O. (2013). A, B or C? Experimental tests of IPO mechanisms. *European Financial Management*, *19*(2), 304–344.

Cameron, K. S., De Graff, J., Quinn, R. E., & Thakor, A. (2006). *Competing values leadership: Creating value in organisations*. Edward Elgar.

Chowdhury, R., & Doukas, J. (2022). Are CEOs to blame for corporate failure? Evidence from Chapter 11 filings. *Review of Corporate Finance*, *2*(1), 1–63.

Colaco, H. M. J., Ghosh, C., Knopf, J. D., & Teall, J. L. (2009). IPOs, clustering, indirect learning and filing independently. *Journal of Banking & Finance*, *33*, 2070–2079.

Colombo, M. G., Meoli, M., & Vismara, S. (2019). Signaling in science-based IPOs: The combined effect of affiliation with prestigious universities, underwriters, and venture capitalists. *Journal of Business Venturing*, *34*, 141–177.

Croce, A., Martí, J., & Murtinu, S. (2013). The impact of venture capital on the productivity growth of European entrepreneurial firms: 'Screening' or 'value added' effect? *Journal of Business Venturing*, *28*, 489–510.

Cumming, D. J., Kochling, G., Neukirchen, D., & Posch, P. (2022). Does corporate culture influence IPO pricing?: Working paper available at SSRN https://ssrn.com/abstract=4032543

Das, S. R., & Chen, M. Y. (2007). Yahoo! for Amazon: Sentiment extraction from small talk on the web. *Management Science*, *53*, 1375–1388.

Davidson, R., Dey, A., & Smith, A. (2015). Executives' "off-the-job" behavior, corporate culture, and financial reporting risk. *Journal of Financial Economics*, *117*, 5–28.

Deal, T., & Kennedy, A. A. (1982). *Corporate culture: Rites and rituals of organizational life*. Addison-Wesley.

Dong, F., & Doukas, J. (2022). The effect of corporate investment efficiency on cross-border M&As. *Review of Corporate Finance*, *2*(2), 235–294.

Ellis, J., Smith, J., & White, R. (2020). Corruption and corporate innovation. *Journal of Financial and Quantitative Analysis*, *55*, 2124–2149.

Ferris, S. P., Javakhadze, D., & Rajkovic, T. (2019). An international analysis of CEO social capital and corporate risk-taking. *European Financial Management*, *25*(1), 3–37.

Fiordelisi, F., & Ricci, O. (2014). Corporate culture and CEO turnover. *Journal of Corporate Finance*, *28*, 66–82.

Gompers, P. A., Lerner, J., Blair, M. M., & Hellmann, T. (1998). What drives venture capital fundraising? *Brookings Papers on Economic Activity. Microeconomics*, *1998*, 149–192.

Graham, J. R., Grennan, J., Harvey, C. R., & Rajgopal, S. (2022). Corporate culture: Evidence from the field. *Journal of Financial Economics*, *146*(2), 552–593.

Graham, J. R., Harvey, C. R., Popadak, J., & Rajgopal, S. (2017). *Corporate culture: Evidence from the field (No. w23255)*. National Bureau of Economic Research.

Guiso, L., Sapienza, P., & Zingales, L. (2015). The value of corporate culture. *Journal of Financial Economics*, *117*, 60–76.

Hartnell, C. A., Ou, A. Y., & Kinicki, A. (2011). Organizational culture and organizational effectiveness: A meta-analytic investigation of the competing values framework's theoretical suppositions. *Journal of Applied Psychology*, *96*, 677–694.

Heckman, J. J. (1979). Sample selection bias as a specification error. *Econometrica*, *47*, 153–161.
Hofstede, G. (1983). The cultural relativity of organizational practices and theories. *Journal of International Business Studies*, *14*, 75–89.
Hofstede, G. (1999). Problems remain, but theories will change: The universal and the specific in 21st-century global management. *Organizational Dynamics*, *28*, 34–44.
Jiang, F., Kim, K. A., Ma, Y., Nofsinger, J. R., & Shi, B. (2019). Corporate culture and investment–cash flow sensitivity. *Journal of Business Ethics*, *154*, 425–439.
Johns, G. (2006). The essential impact of context on organizational behavior. *Academy of Management Review*, *31*, 386–408.
Kamiya, S., Kim, Y. H., & Park, S. (2019). The face of risk: CEO facial masculinity and firm risk. *European Financial Management*, *25*(2), 239–270.
Kotter, J. P. (2008). *Corporate culture and performance*. Simon and Schuster.
Kotter, J. P., & Heskett, J. L. (1992). *Corporate Culture and Performance*. Free Press.
Krishnan, C. N. V., Ivanov, V. I., Masulis, R. W., & Singh, A. K. (2011). Venture capital reputation, post-IPO performance, and corporate governance. *Journal of Financial and Quantitative Analysis*, *46*, 1295–1333.
Levinson, S. (2003). Language and mind: Let's get the issues straight!. In D. Gentner & S. Goldin-Meadow (Eds.), *Language in mind* (pp. 25–46). MIT Press.
Li, F. (2010). The information content of forward-looking statements in corporate filings—A naïve Bayesian machine learning approach. *Journal of Accounting Research*, *48*, 1049–1102.
Liu, X. (2016). Corruption culture and corporate misconduct. *Journal of Financial Economics*, *122*, 307–327.
Loughran, T., & McDonald, B. (2011). When is a liability not a liability? Textual analysis, dictionaries, and 10-Ks. *The Journal of Finance*, *66*, 35–65.
Loughran, T., & McDonald, B. (2014). Measuring readability in financial disclosures. *The Journal of Finance*, *69*, 1643–1671.
Loughran, T., & Ritter, J. (2004). Why has IPO underpricing changed over time? *Financial Management*, *33*, 5–37.
Megginson, W. L., Meles, A., Sampagnaro, G., & Verdoliva, V. (2019). Financial distress risk in initial public offerings: how much do venture capitalists matter? *Journal of Corporate Finance*, *59*, 10–30.
Megginson, W. L., & Weiss, K. A. (1991). Venture capitalist certification in initial public offerings. *The Journal of Finance*, *46*, 879–903.
Migliorati, K., & Vismara, S. (2014). Ranking underwriters of European IPOs. *European Financial Management*, *20*(5), 891–925.
Mourouzidou-Damtsa, S., Milidonis, A., & Stathopoulos, K. (2021). National culture and bank deposits. *Review of Corporate Finance*, *1*(1-2), 181–221.
Nguyen, D. D., Nguyen, L., & Sila, V. (2019). Does corporate culture affect bank risk-taking? Evidence from loan-level data: does corporate culture affect bank Risk-Taking? *British Journal of Management*, *30*, 106–133.
O'Reilly, C. A., Chatman, J., & Caldwell, D. F. (1991). People and organizational culture: A profile comparison approach to assessing person-organization fit. *Academy of Management Journal*, *34*, 487–516.
O'Reilly, C. A., & Chatman, J. A. (1996). Culture as social control: Corporations, culture and commitment. In B. M. Staw & L. L. Cummings (Eds.), *Research in organizational behavior* (Vol. 18, pp. 157–200). JAI Press.
Ovtchinnikov, A. V., Reza, S. W., & Wu, Y. (2020). Political activism and firm innovation. *Journal of Financial and Quantitative Analysis*, *55*, 989–1024.
Quinn, R. E., & Rohrbaugh, J. (1983). A spatial model of effectiveness criteria: Towards a competing values approach to organizational analysis. *Management Science*, *29*, 363–377.
Ritter, J. R. (1991). The long-run performance of initial public offerings. *Journal of Finance*, *46*(1), 3–27.
Ritter, J. R. (2003). Differences between European and American IPO markets. *European Financial Management*, *9*(4), 421–434.
Ritter, J. R. (2015). Growth capital-backed IPOs. *Financial Review*, *50*, 481–515.
Rosenbaum, P. R., & Rubin, D. B. (1983). The central role of the propensity score in observational studies for causal effects. *Biometrika*, *70*, 41–55.
Sackmann, A. S. (2010). Culture and performance. In M. N. Ashkanasy, M. F. Peterson, & C. P. M. Wilderom (Eds.), *The handbook of organizational culture and climate* (pp. 188–224). SAGE Publications.

Sapienza, H. J., Manigart, S., & Vermeir, W. (1996). Venture capitalist governance and value added in four countries. *Journal of Business Venturing*, *11*, 439–469.

Serfling, M. A. (2014). CEO age and the riskiness of corporate policies. *Journal of Corporate Finance*, *25*, 251–273.

Sheedy, E., Zhang, L., & Tam, K. C. H. (2019). Incentives and culture in risk compliance. *Journal of Banking & Finance*, *107*, 105611.

Sørensen, J. B. (2002). The strength of corporate culture and the reliability of firm performance. *Administrative Science Quarterly*, *47*, 70–91.

Thomadakis, S., Nounis, C., & Gounopoulos, D. (2012). Long-term performance of Greek IPOs. *European Financial Management*, *18*(1), 117–141.

Ucar, E. (2019). Creative culture, risk-taking, and corporate financial decisions. *European Financial Management*, *25*(3), 684–717.

Zhang, J. F. (2022). Cultural diversity and capital structures of multinational firms. *Review of Corporate Finance*, *2*(2), 295–351.

Zmijewski, M. E. (1984). Methodological issues related to the estimation of financial distress prediction models. *Journal of Accounting Research*, *22*, 59–82.

SUPPORTING INFORMATION

Additional supporting information can be found online in the Supporting Information section at the end of this article.

How to cite this article: Cumming, D. J., Meles, A., Sampagnaro, G., & Verdoliva, V. (2023). Corporate culture and IPOs. *European Financial Management*, 1–31. https://doi.org/10.1111/eufm.12423

APPENDIX

TABLE A1 Description of variables.

Variables	Symbol	Description
Financial distress indicator 1	*Z″-score*	Altman et al. model (1995) is used to predict financial distress. A higher *Z″-score* value indicates lower financial distress risk.[a]
Financial distress indicator 2	*ZM-score*	Zmijewski's model (1984) is used to predict financial distress. A higher *ZM-score* value indicates 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 earnings before interest and taxes (EBIT) normalized by total assets.[a]
Creation-oriented culture	*Create*	*Create* is the estimate of the control-oriented corporate culture of company *i* at time *t* obtained using text analysis[d].
Competition-oriented culture	*Compete*	*Compete* is the estimate of the control-oriented corporate culture of company *i* at time *t* obtained using text analysis[d].
Creation-oriented culture	*Create_High*	An indicator variable for firms with a strong creation-oriented culture, taking the value of 1 if the corresponding firm shows a *Create* value higher than the median and zero otherwise
Competition-oriented culture	*Compete_High*	An indicator variable for firms with a strong competition-oriented culture, taking the value 1 if the corresponding firm shows a *Compete* value higher than the median and zero otherwise
VC backing	*VC dummy*	Dummy variable that is set at 1 when firms are backed by a VC investor and 0 otherwise[b]
Size	*Ln(assets)*	Natural logarithm of total assets[a]
Age	*Ln(age)*	Natural logarithm of firm age[b]
Capital expenditures	*CapEx ratio*	Capital expenditures normalized by total assets[a]
GDP growth rate	*GDP*	The GDP growth rate between 2 consecutive years[c]
Firms belonging to high-tech sectors	*High-tech Firm*	A dummy variable that takes the value one if the firm belongs to 2-digit SIC codes 28, 35, 36, 38, 48 or 73 and zero otherwise[a]
Democratic and Republican states	*Blue dummy*	A dummy variable that takes a value of 1 if the corresponding company is headquartered in a state that is historically ruled by the Democratic Party and zero if the state is historically ruled by the Republican Party[e]
Dual class issuer	*Dual class dummy*	A dummy variable that takes the value of 1 when companies have issued shares with distinct voting rights and dividend payments and zero otherwise[b]

TABLE A1 (Continued)

Variables	Symbol	Description
CEO turnover	*CEO change dummy*	A dummy variable that takes the value of 1 when the corresponding company changes its CEO[d]
CEO age	*CEO young dummy*	A dummy variable that takes a value of 1 if the CEO of the corresponding company is under 50 years old[d]
Industry dummies	*Industry*	A set of dummy variables describing industrial sectors, each of which takes the value 1 if the firm operates in the corresponding sector and zero otherwise[a]
State dummies	*State*	A set of dummy variables describing territorial differences, each of which is equal to 1 if the firm operates in the corresponding state and zero otherwise[a]
Year dummies	*Year*	A set of dummy variables, each of which is equal to 1 if the firm went public in the corresponding year and zero otherwise[a]

[a]*Source*: COMPUSTAT.

[b]*Source*: Jay Ritter's website https://site.warrington.ufl.edu/ritter/ipo-data/

[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 A2 Correlation matrix.

	Create	Compete	Total asset	Age	*ROA*	*EBIT/at*	*ZM-score*	*Z″-score*	*CapEx ratio*	*Dual class dummy*	*GDP*
Create	1.0000										
Compete	0.3104***	1.0000									
Total Asset	0.0617***	−0.0202*	1.0000								
Age	0.0432***	−0.1102***	0.2447***	1.0000							
ROA	0.0516***	−0.0459***	0.0405***	0.1373***	1.0000						
EBIT/at	0.0541***	−0.0261*	0.039***	0.172***	0.8991***	1.0000					
ZM-score	−0.1179***	−0.0948***	−0.0056	0.004	−0.7912***	−0.6690***	1.0000				
Z”-score	0.09***	0.0403***	0.0186	0.0357***	0.6593***	0.6240***	−0.7639***	1.0000			
CapEx ratio	−0.0416***	−0.1871***	−0.0381***	−0.0548***	0.0404***	0.0569***	0.0071	−0.0132	1.0000		
Dual class dummy	−0.1416***	−0.1135***	−0.0058	0.0855***	0.0761***	0.1068***	0.0295**	−0.0066	0.0587***	1.0000	
GDP	−0.1213***	0.0501***	−0.0058	−0.0057	0.0254**	−0.0063	−0.0748***	0.0538***	0.0398***	−0.0086	1.0000

Note: *, ** and *** indicate statistical significance at the 10%, 5% and 1% levels, respectively.

TABLE A3 Corporate culture dimensions investigated.

Dimension	Portfolio of words
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*
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*, success*, signal*, speed*, strong, superior, target*, win*

Source: *Adapted from* Fiordelisi and Ricci (2014).