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Local creative culture and firm value☆

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ABSTRACT

In this paper we investigate the association between local creative culture, and firm value. Using data of US listed firms, we find strong evidence that firms headquartered in US counties with highly creative cultures generate higher firm value. We also find evidence that the positive association between creative culture and firm value is mediated partially through both the innovation and cash holding channels. Our results hold after controlling for endogeneity concerns. Our study contributes to the emerging literature on local creative culture by documenting that such a culture influences managers to undertake risky but profitable projects, thereby, increasing firm value.

1. Introduction

Over the years, the literature related to the consequences of local socioeconomic factors on accounting, finance, and corporate governance outcomes has been growing (Habib et al., 2023). This strand of research is important, because people live in a society and behave and act in a manner that is influenced by the socioeconomic environment of the region in which they live and the people with whom they interact (AkerlofAker, 2007; Marquis and Battilana 2009). Thus, business practices and policies are forged by local characteristics, and one such factor is local creative culture. In this paper, we examine the association between local creative culture, defined as the county-level proportion of the workforce engaging in occupations that require creative thinking, and firm value.

The US Department of Agriculture Economic Research Service (ERS) defines the creative class as the occupations that require high level of creative thinking such as, "*Architecture and engineering occupations; arts, design, entertainment, sports, and media occupations; business and financial operations occupations; computer and mathematical occupations; education, training, and library occupations; life, physical, and social science occupations; legal occupations; management occupations; and sales and related occupations*".[1] A creative class of the population is highly sought after in societies and organizations, owing to its ability to produce novel ideas and solutions for given problems and the flexible nature of creative individuals, which allows them to adapt to dynamic environments (Runco, 2004). Florida (2002a,b) is one of the first to argue that creative classes among populations play an extremely critical role in fostering economic growth and development owing to their ability to think creatively. Creative classes promote creative cultures, and such creative communities tend to generate creative solutions (Leuenberger and Kluver, 2005). An individual's ability to be creative in solving a problem or exceling in a task requires the ability to "think out of the box" (Gino and Wiltermuth, 2014). Thus, firms with creative individuals develop unique business processes, and the ability to adapt to changing business environments easily, which renders them

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[1] https://www.ers.usda.gov/data-products/creative-class-county-codes/documentation/

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significant competitive advantages (Guggenmos, 2020). However, such innovative individuals and firms are likely to have higher risk-taking propensities (e.g., Amabile, 1983; Dewett, 2006; Ucar, 2018).

Guggenmos (2020) reveals the dark side of creative culture by documenting that higher risk-taking tendencies create an environment that encourages financial misreporting. Further, previous research also documents a negative association between risk-taking and firm value (Bromiley, 1991; Armstrong and Vashishtha, 2012). Armstrong and Vashishtha (2012), for example, refute the popular belief that executive stock options (ESOs) can incentivize risk-averse CEOs' to invest in risky but positive-NPV projects. Their findings reveal that "*ESOs may induce managers to increase their firms' systematic risk [which]…can adversely affect shareholders [because]…there could be costs associated with managerial time and effort spent seeking systematic risk that does not necessarily increase firm value [and]…it could lead to excessive systematic risk in equity markets, which may, in turn, lead to reduced risk-sharing among investors and lower firm values*"(p. 86). Empirical studies show that ESOs lead to earnings manipulation, accounting fraud, and option backdating to escalate stock prices but when unveiled to the market results in shareholder wealth losses (Bernile and Jarrell, 2009; Narayanan and Seyhun, 2008). Managerial excessive risk-taking behavior due to non-binding nature of risk taking led to too much borrowing and over-leveraging resulting in the collapse of Enron in 2001 and financial crisis of 2007 (Dong et al., 2010).

However, risk-taking may not necessarily be detrimental for the firm. Firm growth is likely to be dependent on a certain level of managerial risk appetite. Risk-taking can increase firm value through new product development or applied research, resulting in successful patents or citations. Since risk-taking have been linked to organizational success (Pitta et al., 2008), we posit that firms operating in regions with highly creative cultures will facilitate organizational growth, manifested in higher sales, higher profits and, hence, enhanced firm value. However, it is not only the risk-taking trait of creative individuals that will increase firm value, but also the learning and problem-solving traits they possess. When creative individuals encounter roadblocks at work, they would be able to develop unique ideas and unearth several potential solutions that are not limited to radical inventions, but likely to include improvement of existing product, service, or overall business process (Pitta et al., 2008).

We test the association between county-level creative culture and firm value for a sample of US firms between 1995 and 2017. We calculate creative culture as the proportion of the creative class in a given county using data from ERS. The ERS-provided county-level creative share dataset comprises occupations that require a high level of creative thinking (Ucar, 2018). We employ two measures to capture firm value. Our first proxy is *Qtot* based on Peters and Taylor (2017) measure which captures intangible capital. Our second proxy is the widely used Tobin's Q (*TobinQ*). Our empirical test provides evidence of a positive association between creative culture and firm value. In terms of economic significance, a one standard deviation shift in creative culture increases firm value by 10.04 %. Our results remain robust to endogeneity concerns arising from omitted variables that are potentially correlated with both local creative culture and firm value.

Next, we perform two mediation tests. Our first mediator is innovation intensity. Corporate innovation is considered as the source of technological change and radical inventions that drive corporate productivity and growth (Kogan et al., 2017). Thereby, investment in innovation has been linked to higher profit and better financial returns, thus, translating into higher firm value (e.g., Hall et al., 2005; Hall and Oriani, 2006; Simeth and Cincera, 2016). The risk-taking tendency is essential for new product development, and creative individuals tend to be risk-takers. Based on this premise, Ucar (2018) argues that risk-taking propensity among creative individuals could promote innovation, and documents that firms headquartered in counties with highly creative cultures tend to generate more patents and citations. Using three proxies to capture innovation we find strong evidence that innovation intensity partially mediates the positive relationship between creative culture and firm value.

Our second mediating variable is corporate cash holdings. Ucar (2019) documents a positive association between local creative culture and corporate cash holding. Firms located in high creative culture regions are expected to be more innovative. However, investment in innovation is mostly intangible in nature, and the outcome of such investment is highly uncertain, making it difficult and expensive to raise funds externally to finance innovation. Consequently, innovative firms tend to hold more cash (He and Wintoki, 2016). Firm's inability to obtain required external finance in time, will lead to the abandonment of positive net present value (NPV) projects: abandonment that will have serious adverse effects on firm profitability. Thus, managers can use the saved cash to invest in positive NPV projects in order to increase firm value (Martínez-Sola et al., 2013). Existing literature indicates that corporate cash holding increases firm value (e.g., Drobetz et al., 2010; Martínez-Sola et al., 2013; Opler et al., 1999). Martínez-Sola et al. (2013) document that an optimal level of cash holding enhances firm value. Using two proxies for corporate cash holding (*Cash*), we find evidence of partial mediation effect of cash holdings on the association between creative culture and firm value. The innovation and cash holding channels are appropriate mediating variables, because investment in innovation, although productive, is also plagued with highly uncertain outcomes, making it difficult and expensive to raise funds externally to finance innovation; consequently, innovative firms tend to hold more cash (He and Wintoki, 2016).

Our research contributes to the literature in several ways. First, although prior studies reveal that firms operating in counties with highly creative cultures are more innovative, whether such innovation translates into enhanced firm value remains unexplored. We fill this void in the literature. Second, our study enriches the literature on determinants of firm value. A plethora of research provides evidence of firm-level determinants of firm value. We provide evidence that local creative culture, a socioeconomic element, is an important determinant of firm value. Finally, although we acknowledge the dark side of creative culture in the literature, our empirical findings provide support for the bright side of creative culture. Local creative culture influences managers and employees to be more inclined to undertake risky initiatives; however, such initiatives and unique ideas, when harnessed competently, could bring organizational growth and success.

We organize the remainder of the paper as follows. Section 2 elaborates the data and methodology, while Section 3 presents results. We present our conclusion in Section 4.

2. Research design

2.1. Data and sample

To test our research question, we retrieve financial statement data from Compustat, corporate governance data from Board Analysts, institutional ownership data from Thomson Reuters, and demographic data from the US census bureau. We collect corporate headquarter addresses from a firm's 10-K filings in EDGAR. We obtain data for local creative share from the website of the ERS. Fig. 1 shows the creative class counties ranked in the top quarter in employment in creative class occupations. As the county-level creative share data is available for 1990, 2000 and 2007; we use linear interpolation to fill in the values for the years without available data: a common procedure for research on social norms (Habib et al., 2023).

After excluding observations from financial institutions (sic 60–69) and regulatory industries (sic 49), we begin with an initial sample of 99,671 firm-year observations for the period 1995–2017. We begin with 1995, as the fips (from the 10XHeader dataset) is only available from 1994 and onwards: a key requirement for merging creative culture data reported for counties with Compustat firm-level data. Next, we exclude 58,196 firm-year observations with missing control variables. Our baseline sample, therefore, consists of 41,475 firm-year observations. Firm-year observations come from a wide variety of industries, with two-digit SIC codes, 35–39 (27.74 %) and 70–79 (15.33 %) commanding the largest industry representation in our sample (untabulated).

2.2. Regression model

We use the following OLS model to test the relation between creative culture and firm value.

$$FirmValue_{i,t+1} = \beta_0 + \beta_1 Share_{i,t} + \beta_2 Risk_{i,t} + \beta_3 Risk2_{i,t} + \beta_4 Size_{i,t} + \beta_5 Leverage_{i,t} + \beta_6 Roa_{i,t} + \beta_7 Growth_{i,t} + \beta_8 Iown_{i,t} + Fixed\ Effects + \varepsilon \quad (1)$$

We use two proxies for firm value. The first measure, denoted as *Qtot*, is based on Peters and Taylor (2017). Our second proxy for

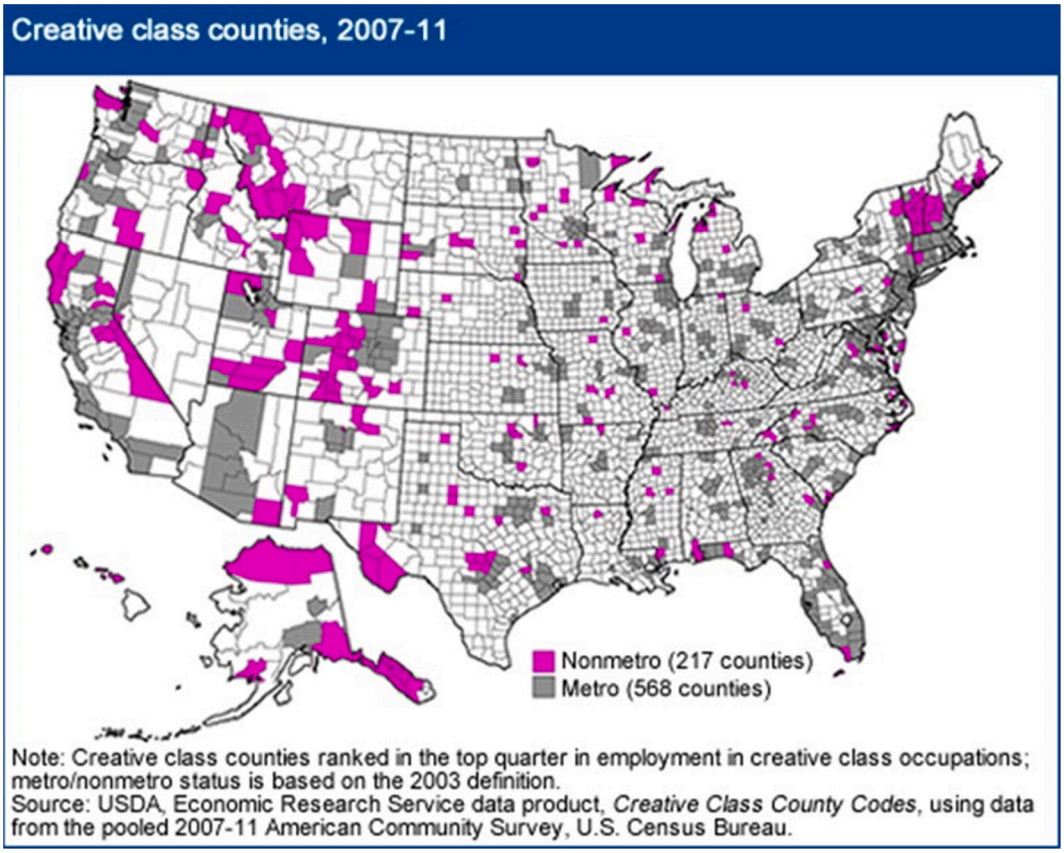

Fig. 1. Creative culture for the U.S. counties.
Source: US Department of Agriculture Economic Research Service (ERS) website. Available at https://www.ers.usda.gov/data-products/chart-gallery/gallery/chart-detail?chartId=63500.

firm value is Tobin's Q (*TobinQ*). This measure of firm value has been widely used in prior literature (e.g., Henry, 2008; Villalonga and Amit, 2006). Our main variable of interest is the share of creative culture (*Share*). We control for firm risk (*Risk*), firm risk squared (*Risk2*), firm size (*Size*), leverage (*Leverage*), firm profitability (*Roa*), firm growth (*Growth*) and institutional ownership (*Iown*). All variables are defined in the Appendix. Our regression controls for industry- and year-fixed effects. We expect *Risk, Leverage, Roa,* and *Iown* to be positively related with *Qtot* and *TobinQ*; while *Size* and *Growth* to be negatively related with *Qtot* and *TobinQ*. To avoid the influence of outliers, we winsorize all the continuous variables at the extreme 1 % of their respective distributions.

3. Empirical results

3.1. Descriptive statistics

Descriptive statistics of the regression variables are reported in Table 1. The mean (median) of *Qtot* and *TobinQ* are 1.15 (0.69) and 2.02 (1.46), respectively. The average (median) proportion of *Share* is 0.31 (0.29) suggesting that an average of 30 % of the county-level population engages in jobs requiring creative techniques. The average firm is large (*Size* = 5.98), with moderate risk (*Risk* = 0.14), and moderate leverage (*Leverage* = 0.26). Our sample firms report a median *Roa* of 3 %. Sample firms exhibit high growth opportunities based on dividend yield (*Growth* = 0.01). Institutional ownership (*Iown*) averages 51 %. Descriptive statistics pertaining to moderating variables reveal among others, that sample firms, on average, generate patents worth 15 cents for every dollar of market equity (*Pat_Value*). We find that average firms hold 42 % (63 %) of net assets (total sales) in cash.

3.2. Baseline regression results

Table 2 presents the regression results for the association between creative culture and firm value. Columns (1)–(4) uses *Qtot* as the proxy for firm value while columns (5)–(8) present results using *TobinQ* as the firm value proxy. Column (1) shows that the coefficient on *Share* is positive and significant (coefficient 1.65, $p < 0.01$), implying that firms located in counties with a higher proportion of workforce employed in creative work generate greater firm value. In terms of economic significance, the reported coefficient suggests that a one standard deviation change in *Share* increases *Qtot* by 10.04 % relative to its mean, which is economically meaningful. Columns (2) and (3) include additional control variables including institutional ownership (*Iown*) and county-level demographic variables and provide robust evidence of a positive relationship between creative culture and firm value (coefficients of 1.99 ($p < 0.01$) and 1.62 ($p < 0.01$), respectively. Finally, in Column (4), we estimate the regression using data for firm-years with available *Share* data only, which are 2000 and 2007 during our sample period. Despite a substantial drop in the sample size, we continue to find a positive and significant coefficient on *Share* (coefficient 2.30, $p < 0.01$). With respect to control variables, larger firms and riskier firms have lower firm values; while firms with higher institutional ownership generate higher firm values Among the demographic controls, only the coefficient on *Age* is negative and significant in column (3). We find consistent results for *TobinQ* measure.

3.3. Endogeneity tests

We first address the endogeneity problem stemming from observable differences in firm characteristics between firms located in high as opposed to low creative culture regions by using entropy balancing, a generalized multivariate propensity score weighting strategy (Hainmueller 2012; McMullin and Schonberger, 2020). For implementing the entropy balancing test, we create a binary variable *Share_D* coded 1 (treatment group) if the value of *Share* is above median, and 0 (control group) otherwise. We employ entropy balancing to ensure that the mean, variance, and skewness of the observations in the two groups are similar. Using the entropy-balanced sample, we combine the matched pairs into a pooled sample and, perform our baseline regression analysis. The coefficients on *Share* continue to be positive and significant for *Qtot* (coefficient 1.731, $p < 0.01$) and *TobinQ* (coefficient 2.535, $p < 0.01$) (results untabulated). We then perform a two-stage least square (2SLS) regression with an instrumental variable and report the results in Panel A of Table 3. We use the natural logarithm of annual total federal arts grants in a county lagged by one year (Art_Grant_{t-1}) as our instrument following Ucar (2019).[2] We expect this variable to affect the county-level creative culture positively, because such grants are instrumental in fostering a creative and innovative environment. However, we do not expect this variable to affect firm value other than through the creative culture channel. We regress Art_Grant_{t-1} on $Share_t$ in the first stage and find the coefficient on Art_Grant_{t-1} to be positive and highly significant in column (1) (coefficient 0.008, $p < 0.01$) and in column (3) (coefficient 0.008, $p < 0.01$), thus, supporting the validity of the instrumental variable. The Cragg-Donald Wald F statistic is far higher than the Stock-Yogo (2005) critical value, thereby confirming that our chosen instrument is not weak. The coefficients on *Share* in the second stage regression are positive and significant (coefficient 3.885, $p < 0.01$ for *Qtot* and 3.589, $p < 0.05$ for *TobinQ*).[3] Our results, therefore, remain robust to endogeneity tests.

We further test whether headquarter relocations affect the relationship between creative culture and firm value. Following Hasan et al. (2017) we require that all relocated firms have data for the two years immediately preceding, and two years immediately following, the relocation year. We identify 1200 headquarter relocation observations in our sample, which meets our data availability

[2] Federal arts grant data is accessible at https://apps.nea.gov/grantsearch/.

[3] Given that the two-stage estimator is biased and inefficient but consistent (Wooldridge, 2006), it is not surprising that the coefficient on *Share* is much larger than, but as statistically significant as, the coefficient estimate on *Share* in the baseline result reported in Table 2 (Li et al., 2018).

Table 1
Descriptive statistics.

	Variables	*N*	Mean	Std. Dev.	25 %	Median	75 %
Baseline regression variables	*Qtot*	41,475	1.15	1.97	0.30	0.69	1.32
	TobinQ	39,321	2.02	2.81	1.09	1.46	2.17
	Share	41,475	0.31	0.07	0.26	0.29	0.35
	Risk	41,475	0.14	0.09	0.08	0.12	0.18
	Risk2	41,475	0.03	0.05	0.01	0.01	0.03
	Size	41,475	5.98	2.03	4.51	5.95	7.40
	Leverage	41,475	0.26	0.32	0.02	0.11	0.40
	Roa	41,475	−0.04	0.45	−0.03	0.03	0.07
	Growth	41,475	0.01	0.02	0.00	0.00	0.01
	Iown	41,475	0.51	0.31	0.23	0.54	0.78
	Popu	41,475	0.01	0.01	0.00	0.01	0.02
	Income	41,475	10.88	0.28	10.66	10.86	11.06
	Age	41,475	3.57	0.08	3.52	3.57	3.63
Mediating test variables	*Ln_Patent*	14,057	2.02	1.74	0.69	1.79	3.14
	Ln_Tcw	10,005	2.50	1.71	1.15	2.28	3.54
	Pat_Value	14,057	0.15	0.23	0.02	0.06	0.17
	Cash_Ast	41,475	0.42	1.19	0.02	0.09	0.28
	Cash_Sale	41,200	0.63	2.70	0.02	0.07	0.24
	Firm_Age	41,475	2.75	0.82	2.08	2.77	3.40
	Capex	41,235	0.06	0.07	0.02	0.04	0.07
	R&D	41,475	0.05	0.12	0.00	0.00	0.05
	Mtb	41,464	2.95	7.67	1.18	2.04	3.55
	Wcap	40,354	0.07	0.33	−0.03	0.07	0.19
	Div	41,446	0.19	5.51	0.00	0.00	0.12
	Opcf	41,433	0.04	0.35	0.02	0.08	0.13
	Sigma	41,374	0.08	0.19	0.02	0.04	0.08

Note: This table presents the descriptive statistics for the regression variables. Refer to Appendix for variable definitions.

requirements. In the regression model for this analysis, our main variable of interest is the coefficient of the interaction variable, *Post x Inc_share*, which provides an estimate of the difference in the over-time change in firm value between firms with a share of creative culture-increasing, versus decreasing, relocations. A total of 151 (109) firms relocated to counties with high (low) creative cultures. We find the coefficient on the interaction variable positive and marginally significant for both the *Qtot* (coefficient 0.481, $p < 0.10$) (column 1) and *TobinQ* (coefficient 0.692, $p < 0.10$) (column 4) measures (Panel B). This result shows that firms changing headquarters from a low- to a high-creative culture region enjoy a greater increase in firm value.

Since the variable *Inc_share* does not distinguish between a large difference and a small difference in *Share*, we further test the effects of headquarter relocation using the difference in the top and bottom quartile of distribution in *Share*.[4] Top (bottom) quartile sample consists of all the firm-year observations relocating to counties with lower *Share* and firm-year observations relocating in counties in the top (bottom) 25 % of increase in *Share* while discarding observations in the remaining 3 quartiles of increase in *Share*. The coefficients on *Post x Inc_share* are positive for the top quartile (coefficient 1.006, $p < 0.05$) (column 2) and the bottom quartile (coefficient 0.371, $p < 0.10$) (column 3) for *Qtot* measure. The larger coefficient for the top quartile suggests that relocating to counties with a larger increase in *Share* has greater impact on firm value. However, the coefficients are insignificant for the *TobinQ* measure in columns (5) and (6).

3.4. Local creative culture and firm value: mediation test result

We now examine whether innovation intensity and cash holdings by firms mediate the relationship between creative culture and firm value. For the sake of brevity, we only report the results for *Qtot*-based firm value regression.[5] We choose three proxies for innovation intensity and regress those proxies on *Share* and control variables. Results are reported in Panel A of Table 4. We document a positive and significant relationship between *Share* and *Ln_Patent* (coefficient 0.417, $p < 0.10$) (column 1); *Ln_Tcw* (coefficient 0.602, $p < 0.05$) (column 3) and *Pat_Value* (coefficient 0.164, $p < 0.01$) (column 5) confirming prior findings by Ucar (2018). Columns (2), (4) and (6) include *Share* and *Innovation* together in the firm value regression model. Across all three columns we find the coefficients on both *Share* and *Innovation* positive and significant. At the bottom of the table, we report direct effects of *Share*, indirect effects of *Innovation* and the total effects. We find strong evidence for a partial mediation effect of innovation intensity for all three innovation proxies with *Pat_Value* accounting for 9.41 % of the total effects.

Table 4, Panel B, reports regression results using cash holdings as the mediating variable and *Qtot* as the proxy for firm value. We use cash scaled by net assets (*Cash_Ast*) and cash scaled by sales (*Cash_Sale*), and document a positive and significant relationship between *Share* and these two proxies for cash holdings (coefficient 0.677 and 1.433 respectively, both significant at $p < 0.01$). Columns

[4] We thank an anonymous reviewer for this suggestion.
[5] Results are qualitatively similar for *TobinQ* measure.

Table 2
Main regression results - local creative culture and firm value.

Dependent Variables	(1) $Qtot_{t+1}$ Full sample	(2) $Qtot_{t+1}$ Full sample	(3) $Qtot_{t+1}$ Full sample	(4) $Qtot_{t+1}$ Restricted Sample	(5) $TobinQ_{t+1}$ Full sample	(6) $TobinQ_{t+1}$ Full sample	(7) $TobinQ_{t+1}$ Full sample	(8) $TobinQ_{t+1}$ Restricted sample
Share	1.652***	1.993***	1.620***	2.304***	1.700***	2.031***	1.691***	2.090***
	[6.21]	[6.51]	[3.96]	[5.92]	[5.55]	[6.87]	[3.82]	[5.70]
Risk	−1.278***	−0.693	−0.803	−1.309***	−4.401***	−2.524**	−2.631**	−3.387***
	[−2.98]	[−1.42]	[−1.63]	[−2.83]	[−4.57]	[−2.26]	[−2.30]	[−2.73]
Risk2	2.391***	2.565***	2.767***	3.159***	7.418***	5.150*	5.337**	6.064**
	[3.43]	[2.96]	[3.15]	[3.67]	[3.59]	[1.94]	[1.96]	[2.14]
Size	0.022**	−0.026*	−0.027*	−0.032**	−0.048***	−0.088***	−0.088***	−0.094***
	[2.26]	[−1.86]	[−1.90]	[−2.35]	[−3.09]	[−5.45]	[−5.38]	[−5.79]
Leverage	0.210***	0.252***	0.255***	0.229***	0.277***	0.267***	0.270***	0.250***
	[3.45]	[3.51]	[3.49]	[3.14]	[3.99]	[4.49]	[4.47]	[4.16]
Roa	0.004	0.054	0.050	0.066	−2.124***	−2.315***	−2.321***	−2.311***
	[0.12]	[1.03]	[0.95]	[1.26]	[−7.82]	[−6.18]	[−6.17]	[−6.20]
Growth	−2.293*	−0.860	−0.725	−1.539	−1.762***	−0.066	0.073	−0.575
	[−1.74]	[−0.59]	[−0.49]	[−1.02]	[−2.67]	[−0.09]	[0.09]	[−0.76]
Iown	–	0.729***	0.742***	0.591***	–	0.813***	0.812***	0.735***
		[8.62]	[8.68]	[7.03]		[8.62]	[8.48]	[8.29]
Popu	–	–	2.423	3.749**	–	–	1.535	1.775
			[1.50]	[2.43]			[0.81]	[0.95]
Income	–	–	0.159	−0.117	–	–	0.160	0.008
			[1.37]	[−1.26]			[1.30]	[0.08]
Age	–	–	−0.622**	−0.616**	–	–	−0.598**	−0.563**
			[−2.54]	[−2.58]			[−2.32]	[−2.19]
Industry	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Constant	0.258*	0.089	0.652	3.774***	1.565***	1.289***	1.771	3.414***
	[1.94]	[0.59]	[0.51]	[3.91]	[9.91]	[8.16]	[1.43]	[2.93]
Observations	53,538	42,213	41,475	4109	54,863	40,196	39,523	3915
Adj. R-squared	0.04	0.05	0.05	0.04	0.15	0.18	0.18	0.17

Note: This table reports the results from the OLS regressions of the association between creative culture and firm value. Robust t-statistics are in brackets and are based on standard errors clustered by firm.
*** $p < 0.01$.
** $p < 0.05$.
* $p < 0.10$.
Refer to Appendix for variable definitions.

(2) and (4) reveal that the coefficients on *Share* and *Cash* are positive and significant when included in the same regression model. With respect to the mediating effect, we again find evidence of partial mediation with *Cash_Ast* accounting for 12.95 % of the total effects of creative culture on firm value.

4. Conclusion

Using a large sample of US listed firms, we investigate the association between local creative culture and firm value. Our empirical result suggests that firms headquartered in US counties with high creative cultures generate higher firm value. Our results remain robust to controlling for endogeneity issues. We further provide evidence that the positive relationship between creative culture and firm value is partially mediated by the innovation and cash holdings channels. Our study contributes to the recent surge in the literature investigating the influence of various socioeconomic factors on firm level managerial decision making and corporate policies. Findings of this study deepen our understanding and knowledge regarding investors' valuations of firms. Finally, our empirical findings provide evidence for the bright side of creative culture. However, creative counties are mostly located in metropolitan areas and despite our controlling for some demographic variables and performing endogeneity tests, we cannot completely rule out the possibility that our results might be capturing firms located in cities with high concentration of technical skills.[6]

Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

[6] We thank an anonymous reviewer for this suggestion.

Table 3
Endogeneity tests.

Panel A: Two-stage-least-square (2SLS) regression results				
	(1)	(2)	(3)	(4)
Dependent Variables	$Share_t$	$Qtot_{t+1}$	$Share_t$	$TobinQ_{t+1}$
	1st Stage	2nd Stage	1st Stage	2nd Stage
Art_Grant_{t-1}	0.008***	–	0.008***	–
	[18.16]		[17.72]	
$Share_t$	–	3.885***	–	3.589**
		[2.74]		[2.40]
Other control variables$_t$	Yes	Yes	Yes	Yes
Industry	Yes	Yes	Yes	Yes
Year	Yes	Yes	Yes	Yes
Constant	−2.039***	4.181	−2.033***	4.656*
	[−45.36]	[1.63]	[−44.10]	[1.71]
Underidentification test				
Kleibergen–Paap rk LM statistic	284.85	–	274.48	–
p-value	0.000	–	0.000	–
Weak identification test				
Cragg–Donald Wald F statistic	3184.85	–	2997.16	–
Stock-Yogo (2005) 10 % maximal IV size (critical value)	16.38	–	16.38	–
Observations	25,385	25,385	24,115	24,115

Panel B: Firms with creative culture changing headquarters relocations						
	(1)	(2)	(3)	(4)	(5)	(6)
Dependent Variables	$Qtot_{t+1}$	$Qtot_{t+1}$	$Qtot_{t+1}$	$TobinQ_{t+1}$	$TobinQ_{t+1}$	$TobinQ_{t+1}$
	Full Sample	Top Quartile	Bottom Quartile	Full Sample	Top Quartile	Bottom Quartile
Post	−0.454***	−0.416***	−0.428***	−0.426***	−0.037	−0.029
	[−2.74]	[−2.86]	[−3.01]	[−3.17]	[−0.33]	[−0.32]
Inc_Share	−0.342	−0.587***	−0.499***	−0.477**	0.231	−0.397**
	[−1.58]	[−3.39]	[−3.28]	[−2.22]	[0.68]	[−2.22]
Post x Inc_Share	0.481*	1.006**	0.371*	0.692*	−0.072	−0.219
	[1.73]	[2.07]	[1.90]	[1.73]	[−0.22]	[−1.37]
Other control variables	Yes	Yes	Yes	Yes	Yes	Yes
Industry	No	No	No	No	No	No
Year	No	No	No	No	No	No
Constant	2.967	7.820	4.324	1.652	1.820	−4.337
	[0.81]	[1.49]	[0.92]	[0.46]	[0.32]	[−1.16]
Observations	1200	656	656	1120	657	657
Adj. R-squared	0.03	0.12	0.18	0.28	0.37	0.11

Notes: Panel A reports two-stage-least-square (2SLS) regression results using the natural logarithm of annual total federal arts grants in a county lagged by one year (*Art_Grant*) as an instrument. Robust t-statistics (for first stage) and z-statistics (for second stage) are in brackets and are based on standard errors clustered by firm.

*** $p < 0.01$.

** $p < 0.05$.

* $p < 0.10$.

Refer to Appendix for variable definitions.

Note: Panel B reports the results of a difference-in-differences analysis based on the quasi-experiment. The model uses a reduced sample of firms during the 2-year period before and the 2-year period after the relocation event. *Post* equals 1 if the observation is after the relocation event; it equals 0 if the observation is before the relocation event. *Inc_Share* equals 1 if a firm relocates its headquarters to a county with a higher level of creative share; it equals 0 if a firm relocates to a county with a lower level of creative share in columns (1) and (3). In the remainder of the columns, top (bottom) quartile sample consists of all the firm-year observations relocating to counties with lower *Share* and firm-year observations relocating in counties in the top (bottom) 25 % of increase in *Share* while discarding observations in the remaining 3 quartiles of increase in *Share*. Robust t-statistics are in brackets and are based on standard errors clustered by firm.

*** $p < 0.01$.

** $p < 0.05$.

* $p < 0.10$.

Refer to Appendix for variable definitions.

Data availability

Data will be made available on request.

Appendix

Variable definitions

Table 4
Mediation test.

Panel A: Innovation as a mediator

Dependent Variables	(1) *Ln_Patent*	(2) *Qtot* $_{t+1}$	(3) *Ln_Tcw*	(4) *Qtot* $_{t+1}$	(5) *Pat_Value*	(6) *Qtot* $_{t+1}$
Share	0.417*	2.640***	0.602**	2.771***	0.164***	2.456***
	[1.89]	[7.11]	[2.24]	[6.92]	[4.20]	[6.72]
Innovation	–	0.193***	–	0.118***	–	1.554***
		[13.96]		[8.04]		[19.86]
Risk	–	0.200	–	0.344	–	−1.197*
		[0.31]		[0.50]		[−1.87]
Risk2	–	3.458***	–	1.959	–	5.445***
		[2.95]		[1.62]		[4.65]
Size	0.707***	−0.127***	0.642***	−0.035**	0.048***	−0.069***
	[97.18]	[−8.29]	[67.36]	[−2.12]	[37.18]	[−5.52]
Firm_age	−0.012	–	0.021	–	−0.017***	–
	[−0.77]		[0.96]		[−5.85]	
Capex	1.488***	–	0.713**	–	0.365***	–
	[6.12]		[2.39]		[8.39]	
R&D	3.135***	–	2.524***	–	0.435***	–
	[28.78]		[21.46]		[22.30]	
Mtb	0.005***	–	0.006***	–	−0.000	–
	[4.17]		[3.71]		[−1.50]	
Leverage	0.163***	0.204***	0.252***	0.183***	0.006	0.225***
	[4.69]	[3.49]	[5.87]	[2.85]	[1.04]	[3.88]
Roa	0.347***	0.382***	−0.021	0.052	−0.012	0.465***
	[6.89]	[5.45]	[−0.55]	[1.01]	[−1.32]	[6.65]
Growth	−2.319***	−11.698***	−5.172***	−14.473***	−1.237***	−10.642***
	[−2.72]	[−8.15]	[−4.46]	[−8.40]	[−8.11]	[−7.46]
Iown	−0.754***	0.507***	−0.546***	0.539***	−0.059***	0.442***
	[−15.04]	[5.92]	[−8.56]	[5.61]	[−6.62]	[5.24]
Popu	−5.709***	5.763***	−4.103***	3.787*	0.004	4.633**
	[−5.03]	[3.02]	[−3.03]	[1.88]	[0.02]	[2.45]
Income	0.580***	−0.002	0.539***	−0.069	0.039***	0.058
	[8.52]	[−0.02]	[6.15]	[−0.53]	[3.19]	[0.51]
Age	−0.923***	−0.216	−1.020***	−0.554*	−0.065**	−0.294
	[−5.88]	[−0.82]	[−4.95]	[−1.81]	[−2.32]	[−1.12]
Constant	−5.994***	1.043	−4.150***	2.374*	−0.343***	0.527
	[−8.19]	[0.85]	[−4.30]	[1.66]	[−2.62]	[0.43]
Industry	Yes	Yes	Yes	Yes	Yes	Yes
Year	Yes	Yes	Yes	Yes	Yes	Yes
Observations	13,990	13,990	9939	9939	13,990	13,990
Adj. R-squared	0.54	0.11	0.45	0.09	0.19	0.12
Direct effect	–	2.640***	–	2.771***	–	2.456***
Indirect effect (***Innovation***)	–	0.081*	–	0.071**	–	0.255***
Total effects	–	2.720***	–	2.843***	–	2.711***

Panel B: Cash holding as a mediator

Dependent Variables	(1) *Cash_Ast*	(2) *Qtot* $_{t+1}$	(3) *Cash_Sale*	(4) *Qtot* $_{t+1}$
Share	0.677***	1.391***	1.433***	1.524***
	[6.64]	[7.30]	[5.78]	[8.01]
Cash	–	0.307***	–	0.082***
		[35.11]		[22.02]
Risk	–	−1.420***	–	−0.767**
		[−4.34]		[−2.34]
Risk2	–	3.259***	–	2.385***
		[5.60]		[4.08]
Size	−0.051***	0.007	−0.079***	−0.007
	[−16.69]	[0.96]	[−10.67]	[−0.94]
Capex	−1.853***	–	−1.605***	–
	[−20.29]		[−7.19]	
R&D	3.199***	–	5.989***	–
	[62.71]		[47.01]	
Mtb	0.006***	–	0.006***	–
	[9.27]		[3.65]	
Leverage	0.064***	0.196***	−0.202***	0.249***
	[3.72]	[6.16]	[−4.83]	[7.82]
Wcap	−0.174***	–	−0.009	–
	[−9.19]		[−0.20]	
Div	−0.001	–	−0.001	–

(*continued on next page*)

Table 4 (*continued*)

Panel B: Cash holding as a mediator				
	(1)	(2)	(3)	(4)
Dependent Variables	*Cash_Ast*	*Qtot* $_{t+1}$	*Cash_Sale*	*Qtot* $_{t+1}$
	[−0.89]		[−0.61]	
Opcf	0.454***	–	−0.028	–
	[21.25]		[−0.51]	
Sigma	1.167***	–	1.629***	–
	[34.57]		[17.47]	
Roa	–	0.123***	–	0.128***
		[5.51]		[5.59]
Growth	–	−0.040	–	0.011
		[−0.07]		[0.02]
Iown	–	0.607***	–	0.686***
		[13.72]		[15.55]
Popu	−1.895***	4.002***	−1.523	3.318***
	[−3.67]	[4.15]	[−1.21]	[3.45]
Income	0.262***	−0.010	0.145*	0.091
	[8.24]	[−0.17]	[1.87]	[1.54]
Age	−0.351***	−0.374***	−0.297*	−0.477***
	[−4.87]	[−2.79]	[−1.70]	[−3.56]
Constant	−1.219***	1.521**	−0.048	0.722
	[−3.51]	[2.35]	[−0.06]	[1.12]
Industry	Yes	Yes	Yes	Yes
Year	Yes	Yes	Yes	Yes
Observations	40,043	40,043	39,776	39,776
Adj. R-squared	0.30	0.08	0.20	0.06
Direct effect	–	1.391***	–	1.524***
Indirect effect (***Cash***)	–	0.207***	–	0.117***
Total effects	–	1.598***	–	1.641***

Note: This table reports the mediation test results. Panel A presents the regression results of the mediation effect of innovation on the association between creative culture and firm value. Panel B presents the regression results of the mediation effect ofcorporate cash holdings on the association between creative culture and firm value. Robust z-statistics are in brackets and are based on standard errors clustered by firm.

*** $p < 0.01$.

** $p < 0.05$.

* $p < 0.10$.

Refer to Appendix for variable definitions.

Note: This table reports regressions results of the mediation effect of corporate cash holding on the association between creative culture and firm value. Robust z-statistics are in brackets and are based on standard errors clustered by firm.

*** $p < 0.01$.

** $p < 0.05$.

* $p < 0.10$.

Refer to Appendix for variable definitions.

Variables	Definition
Baseline regression variables	
Qtot	Measured by scaling firm value by the sum of physical and intangible capital, using Peters and Taylor (2017) methodology.
TobinQ	Tobin's Q, measured as Compustat data item [*At* + *(Csho * Prcc_F)* − *Ceq-Txdb] / At.*
Share	The proportion of the creative class in a given county in percentage points.
Risk	Firm risk, calculated as the standard deviation of monthly share returns (CRSP).
Risk2	Firm risk squared to account for the quadratic relationship between firm risk and firm value.
Size	The natural logarithm of total assets (*At*).
Leverage	Debt in current liabilities (*Dlc*) divided by total debt (*Dlc*+*Dltt*).
Roa	Return-on assets measured as net income (*Ni*) divided by total assets (*At*).
Growth	Firm growth or investment opportunities calculated as dividend per share (Compustat data item [*Dvc/Csho*]) dividend by end-of year share price (Compustat data item *Prcc_F*).
Iown	Percentage of common shares held by institutional investors retrieved from Thomson Reuter's F13 File.
Popu	County-level population growth.
Income	Natural log of the median household income per capita in a county in a given year.
Age	Natural logarithm of the median age of residents in a county during a year.
Mediating test variables	
Ln_Patent	Natural logarithm of the total number of patents applied by a firm in year t and that are eventually granted plus one. Source: <https://iu.app.box.com/v/patents>.
Ln_Tcw	Natural logarithm of the total citations received on patents applied for, adjusted for truncation. Source: <https://iu.app.box.com/v/patents>.
Pat_Value	Economic value of patent ($) over the market value of equity. Source: <https://iu.app.box.com/v/patents>.
Cash_Ast	Cash and marketable securities (*Che*) divided by net assets (*At* – *Che*).
Cash_Sale	Cash and marketable securities (*Che*) divided by sales.
Firm_Age	Firm age is measured as the number of years since the firm was first appeared in Compustat.

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Capex	Capital expenditure (*Capx*) divided by total assets.
R&D	Research and development expenditure (*Xrd*) over total assets. We replaced missing R&D with zero.
Mtb	Market-to-book ratio defined as market value of equity (*Csho* * *Prcc_F*) divided by common equity (*Ceq*).
Wcap	Net working capital calculated as working capital (*Wcap*) minus cash and marketable securities scaled by total assets.
Div	Common dividends (*Dvc*) divided by net income (*Ni*).
Opcf	Operating cash flows (*Oancf*) deflated by total assets.
Sigma	Rolling standard deviation of the *Ocf* over past 3 years for firms in the same industry, as defined by the 2-digit SIC code.

References

Akerlof, G.A., 2007. The missing motivation in macroeconomics. Am. Econ. Rev. 97 (1), 5–36.
Amabile, T.M., 1983. The social psychology of creativity: a componential conceptualization. J. Pers. Soc. Psychol. 45 (2), 357.
Armstrong, C., Vashishtha, R., 2012. Executive stock options, differential risk-taking incentives, and firm value. J. Financ. Econ. 104 (1), 70–88.
Bernile, G., Jarrell, G.A., 2009. The impact of the options backdating scandal on shareholders. J. Account. Econ. 47 (1–2), 2–26.
Bromiley, P., 1991. Testing a causal model of corporate risk taking and performance. Acad. Manag. J. 34 (1), 37–59.
Dewett, T., 2006. Exploring the role of risk in employee creativity. J. Creat. Behav. 40 (1), 27–45.
Dong, Z., Wang, C., Xie, F., 2010. Do executive stock options induce excessive risk taking? J. Bank Financ. 34 (10), 2518–2529.
Drobetz, W., Grüninger, M.C., Hirschvogl, S., 2010. Information asymmetry and the value of cash. J. Bank. Finance 34 (9), 2168–2184.
Florida, R., 2002a. The Rise of the Creative Class: And How It's Transforming Work, Leisure, Community and Everyday Life. Basic Books, New York.
Florida, R., 2002b. Bohemia and economic geography. J. Econ. Geogr. 2 (1), 55–71.
Gino, F., Wiltermuth, S.S., 2014. Evil genius? How dishonesty can lead to greater creativity. Psychol. Sci. 25 (4), 973–981.
Guggenmos, R.D., 2020. The effects of creative culture on real earnings management. Contemp. Account. Res. 37 (4), 2319–2356.
Hainmueller, J., 2012. Entropy balancing for causal effects: a multivariate reweighting method to produce balanced samples in observational studies. Polit. Anal. 20 (1), 25–46.
Hall, B.H., Jaffe, A., Trajtenberg, M., 2005. Market value and patent citations. RAND J. Econ. 16–38.
Hall, B.H., Oriani, R., 2006. Does the market value R&D investment by European firms? evidence from a panel of manufacturing firms in France, Germany, and Italy. Int. J. Ind. Organ. 24 (5), 971–993.
Habib, A., Costa, M., Al-Hadi, A, 2023. Consequences of local social norms: a review of the literature in accounting, finance, and corporate governance. Account. Finance 63 (1), 3–45.
Hasan, I., Hoi, C.K., Wu, Q., Zhang, H., 2017. Social capital and debt contracting: evidence from bank loans and public bonds. J. Financ. Quant. Anal. 52 (3), 1017–1047.
He, Z., Wintoki, M.B., 2016. The cost of innovation: R&D and high cash holdings in US firms. J. Corp. Finance 41, 280–303.
Henry, D., 2008. Corporate governance structure and the valuation of Australian firms: is there value in ticking the boxes? J. Bus. Finance Account. 35 (7–8), 912–942.
Kogan, L., Papanikolaou, D., Seru, A., Stoffman, A., 2017. Technological innovation, resource allocation, and growth. Q. J. Econ. 132 (2), 665–712.
Leuenberger, D.Z., Kluver, J.D., 2005. Changing culture: generational collision and creativity. Public Manag. 34 (4), 16.
Li, K., Qiu, B., Shen, R., 2018. Organization capital and mergers and acquisitions. J. Financ. Quant. Anal. 53 (4), 1871–1909.
Marquis, C., Battilana, J., 2009. Acting globally but thinking locally? The enduring influence of local communities on organizations. Res. Organ. Behav. 29, 283–302.
Martínez-Sola, C., García-Teruel, P.J., Martínez-Solano, P., 2013. Corporate cash holding and firm value. Appl. Econ. 45 (2), 161–170.
McMullin, J.L., Schonberger, B., 2020. Entropy-balanced accruals. Rev. Account. Stud. 25, 84–119.
Narayanan, M.P., Seyhun, H.N., 2008. The dating game: do managers designate option grant dates to increase their compensation? Rev. Financ. Stud. 21 (5), 1907–1945.
Opler, T., Pinkowitz, L., Stulz, R., Williamson, R., 1999. The determinants and implications of corporate cash holdings. J. Financ. Econ. 52 (1), 3–46.
Peters, R.H., Taylor, L.A., 2017. Intangible capital and the investment-q relation. J. Financ. Econ. 123 (2), 251–272.
Pitta, D.A., Wood, V.R., Franzak, F.J., 2008. Nurturing an effective creative culture within a marketing organization. J. Consum. Mark. 25, 137–148.
Runco, M.A., 2004. Creativity. Annu. Rev. Psychol. 55, 657–687.
Simeth, M., Cincera, M., 2016. Corporate science, innovation, and firm value. Manage. Sci. 62 (7), 1970–1981.
Stock, J.H., Yogo, M, 2005. Testing for weak instruments in linear IV regression. In: Andrews, D.W.K., Stock, J.H. (Eds.), Identification and Inference For Econometric Models: Essays in Honor of Thomas Rothenberg. Cambridge University Press, New York, pp. 80–108.
Ucar, E., 2018. Local creative culture and corporate innovation. J. Bus. Res. 91, 60–70.
Ucar, E., 2019. Creative culture, risk-taking, and corporate financial decisions. Eur. Financ. Manag. 25 (3), 684–717.
Ucar, E., Staer, A., 2018. Local creative culture and dividend policy. Financ. Serv. Rev. 27 (4).
Villalonga, B., Amit, R, 2006. How do family ownership, control and management affect firm value? J. Financ. Econ. 80 (2), 385–417.
Wooldridge, J.M., 2006. Introductory Econometrics: A Modern Approach. Cengage learning.