Venture capital and corporate social responsibility

Cheng Cheng [a,1], Yongqiang Chu [b], Zijie Deng [c], Bo Huang [d,*]

[a] College of Finance and Statistics, Hunan University, 2 Lushan S Rd, Yuelu District, Changsha, Hunan, China
[b] Department of Finance and the Childress Klein Center for Real Estate, Belk College of Business, University of North Carolina at Charlotte, 9201 University City Blvd, Charlotte, NC 28223, United States of America
[c] Department of Land Economy, University of Cambridge, 19 Silver Street, Cambridge CB3 9EP, United Kingdom
[d] School of Finance and China Financial Policy Center, Renmin University of China, 59 Zhongguancun Street, Haidian District, Beijing 100872, China

ARTICLE INFO

ABSTRACT

We examine the impact of venture capital (VC) on corporate social responsibility (CSR) performance in China. Exploiting the timing of VC exit, we find that the CSR performance of VC-backed companies improves after the exit of VC. Using the age of VC funds as an instrument for VC exit, we find that the effect is likely to be causal. Further analyses suggest that the effect is largely driven by inexperienced, badly performing, and less reputable VCs.

1. Introduction

Venture capital (VC) plays an important role in shaping portfolio companies' policies and eventual successes, as shown by most existing literature (Sahlman, 1990; Lerner, 1995; Hellmann and Puri, 2002; Bottazzi et al., 2008; and Puri and Zarutskie, 2012). The literature, however, has focused mostly on economic outcomes and ignored the impact of VCs on their portfolio companies' social performance. As argued by Zingales (2015) in his presidential address to the American Finance Association, understanding the social impact of finance is an equally important, if not a more important, task. Along this line, the recent literature shows that other types of institutional investors affect corporate social performance (Dyck et al., 2019; Hartzmark and Sussman, 2019; Chen et al., 2020; and Krueger et al., 2020). Compared with other types of institutional investors, VCs are more actively involved in their portfolio companies, yet their investment horizon is often shorter. As such, VCs could have different preferences and incentives than other institutional investors, and thus have a different impact on the social performance of their portfolio companies.

VC involvement and monitoring can negatively affect corporate social responsibility (CSR) performance if VCs pursue financial returns at the expense of society. VCs could pressure their portfolio firms to maximize shareholder value while creating negative social

---

and environmental impacts. In particular, compared with other institutional investors, VCs have shorter investment horizons, and hence may not care about the long term welfare of other stakeholders (Chemmanur et al., 2011). On the other hand, VCs, like other institutional investors, could be concerned with social norms and motivated by social returns (Dyck et al., 2019; Chen et al., 2020). Furthermore, VCs may value the benefits brought by better CSR performance, such as product market differentiation and insurance against negative outcomes, more than other investors (Servaes and Tamayo, 2013; Lins et al., 2017; Albuquerque et al., 2019; and Hong et al., 2019). In particular, the social performance of VC firms may affect their ability to raise money from their investors (Hartzmark and Sussman, 2019). As such, VCs may push for better CSR performance of their portfolio companies. It is therefore unclear *ex ante* how VC involvement and monitoring could affect their portfolio companies' CSR performance.

We examine the effect of VC involvement and monitoring on CSR performance using data from China. One challenge in studying the relationship between VC and CSR is that VCs are involved in mostly private and newly public companies; however, most CSR databases, such as the MSCI KLD index and Thomson Reuters' ASSET4 ratings, cover mostly large and mature companies. Several unique features of the Chinese VC industry and the CSR rating data enable us to overcome this challenge. First, the CSR rating data, provided by Hexun.com, cover all publicly traded companies in China and allow us to examine the impact of VCs on CSR performance of newly public companies.[2] Second, VCs in China often remain involved in their portfolio companies and influence the operation and governance of those companies long after IPO (Barry et al., 1990; Hochberg, 2012; Wongsunwai, 2013; and Iliev and Lowry, 2021). According to Zero2IPO's data, over 52.86% of VCs in China held shares of their portfolio companies more than three years after the IPO during 2008–2015. In our sample, the median VC also remains in their portfolio companies three years after the IPO. Third, Chinese VCs hold significant stakes in their portfolio companies after IPO. In our sample, conditional on VCs remaining in their portfolio companies after the IPO, VCs hold an average of 6.78% of the total shares of the portfolio companies. VCs therefore remain as one of the largest, if not the largest, shareholder of their portfolio companies even after IPOs in China.[3] This provides us with a unique opportunity to examine the effect of VC on their portfolio companies' CSR performance.

Examining newly public companies also makes it easier to deal with the selection problem common in the VC literature (Sørensen, 2007 and Da Rin et al., 2013) because we do not use the variation in which companies receive VC funding. Instead, we exploit the variation generated by VC exit. In particular, the securities law in China mandates that VCs, along with other investors who also hold shares before the IPO, disclose all their selling transactions after the IPO. We are therefore able to identify the exact dates of final VC exits after the IPO. Focusing on newly public firms in China, we first conduct a stacked difference-in-differences (DID) analysis of the impact of VC exit on their portfolio companies' CSR performance. In this setting, we exploit the changes in VC involvement generated by VC exit; as such, we suffer less from the selection issue. The remaining endogeneity concern is the timing of VC exit, which we address later.[4]

With the stacked DID, we find that the CSR performance of VC-backed companies improves after the exit of VC. In particular, VC involvement is negatively associated with portfolio companies' responsibility toward employees, suppliers and customers, and the environment. In sharp contrast, VC involvement is positively associated with portfolio companies' responsibility toward shareholders and other measures of shareholder value, suggesting that VCs pressure their portfolio companies to maximize shareholder value at the expense of other stakeholders and the environment.[5] To trace the timing of the negative effect of VC on CSR, we find that the positive effect of VC exit on CSR performance appears only after, but not before, the exit of VCs, thereby suggesting that the results are unlikely to be driven by VCs' reaction to changes in firm fundamentals.

The VC exit decisions are certainly not random (Gompers and Lerner, 1998; Lin and Smith, 1998; and Paeglis and Veeren, 2013), which could bias the stacked DID results. To mitigate this concern, we use the age of the VC funds as an instrumental variable for VC exit decisions. Most VC funds are organized as limited partnerships and have a limited lifetime. VCs are more likely to exit from their portfolio companies when approaching the end of their lifetime. As such, the VC fund age is likely to satisfy the relevance condition. To satisfy the exclusion condition, the age of VC funds can only affect their portfolio companies' CSR performance through its impact on exit timing. However, as documented in Kandel et al. (2011) and Barrot (2017), the age of VC funds can affect investment choices. If the choices are correlated with CSR performance, the exclusion condition will be violated. To mitigate this concern, we show that the age of VC funds has no effect on CSR performance or changes in CSR performance before the exit of VCs, thereby suggesting that the fund age is unlikely to directly impact CSR performance. Using this instrument, we find similar results from the two-stage least square (2SLS) regressions, suggesting that the negative effect of VC on CSR performance is likely to be causal.

Next, we proceed to examine the heterogeneity of the effect of VC on CSR performance. First, we distinguish between VCs that sit on the board of directors of their portfolio companies and those that do not. Consistent with the fact that VCs on the board can monitor more effectively, we find that the negative impact of VC on CSR performance concentrates on VCs that are on the board of directors. Second, we explore the heterogeneity in VC experience, performance, and reputation. We construct three proxies, namely the total amount of historical investment, the total numbers of firms brought to IPOs, and the share of the total market value of companies brought to IPOs, as measures of VC experience, performance, and reputation. Using these proxies, we find that the negative effect of VC

---

[2] We are, however, unable to examine the impact of VCs on private companies because no CSR data for private companies are available.

[3] Compared with US firms, the percentage of shares of Chinese companies owned by other institutional investors is much smaller. The average share held by other institutional investors is only about 6%.

[4] One downside of examining public companies is that we are only able to examine the effect of VC on their portfolio companies that eventually went public, which are likely to be the most successful portfolio companies. Our paper is unable to assess how VCs affect the CSR performance of companies that did not go IPO.

[5] We are not making any welfare statement regarding whether this is socially optimal.

on CSR performance is driven mostly by less experienced, badly performing, or less reputable VCs. This result suggests that the negative impact may disappear as VCs become more mature and care more about their reputation. Because domestic VCs in China are relatively young and less experienced, what we document in this paper may not be generalizable to more developed countries, in which VCs are more mature and more experienced.

Finally, we explore the heterogeneity in the types of VC sponsors. Specifically, we categorize VCs into three groups, those sponsored by domestic private institutions (PVC), those sponsored by local governments (GVC), and those sponsored by foreign institutions (FVC). Interestingly, both PVCs and GVCs have a strong negative impact on their portfolio companies' CSR performance. However, FVCs have no negative impact on CSR performance. The results again suggest that the negative impact of VCs on CSR performance may be limited to Chinese domestic VCs.

Our paper contributes to the literature on the impact of VCs on their portfolio companies. The early literature shows that VCs are actively involved in their portfolio companies. VCs often sit on the board of directors, help to raise capital, and mentor company founders (Sahlman, 1990; Lerner, 1994; Lerner, 1995; Hellmann and Puri, 2000). Hellmann and Puri (2002) find that VCs improve professionalization of their portfolio companies. Wasserman (2006) and Kaplan et al. (2012) both find that VCs are involved in CEO replacement. Bottazzi et al. (2008) measure VCs' value adding services by looking at specific actions VCs take in their portfolio companies. Bernstein et al. (2016) identify the causal effect of VC monitoring by exploiting exogenous variation in VC monitoring intensity generated by the introduction of new airline routes between VCs and their portfolio companies. Most papers in this literature examine the impact of VCs on operation, innovation, and successful exit (IPO or merger). Our paper contributes to the literature by instead studying the impact of VC on portfolio companies' social performance.

In this regard, our paper is closest to Alakent et al. (2020) and Li et al. (2021). Alakent et al. (2020) find that US firms backed by VCs before IPOs have worse CSR performance. Instead, Li et al. (2021) find that VC-backed Chinese firms have better CSR performance. Our paper differs from these two papers along the following dimensions. First, both papers examine the impact of VC backing during the pre-IPO period on CSR performance after IPO; therefore, it is unclear why the impact of VC could last long after IPO. We instead identify the impact of actual VC involvement on CSR performance. Second, both papers rely only on cross-sectional variation in VC-backing, while we only rely on time series variation in VC involvement. The time-series variation allows us to better mitigate the selection bias. Furthermore, we are able to use the age of VC funds to generate plausibly exogenous variation in VC exits and hence are able to further mitigate endogeneity concerns.[6]

Our paper also contributes to the literature on the causes and consequences of CSR performance. Ferrell et al. (2016) find that well-governed firms with less severe agency problems engage more in CSR. Dyck et al. (2019) and Chen et al. (2020) find that institutional investors promote CSR. Dai et al. (2020) and Schiller (2020) find that corporate customers shape their suppliers' CSR practices. Houston and Shan (2021) find that banks can influence their borrowers' CSR practices. Other papers in the literature examine the effect of CSR on firm value (Servaes and Tamayo, 2013; Flammer, 2015), knowledge spillover (Flammer and Kacperczyk, 2019), disaster insurance (Lins et al., 2017; Hong et al., 2019), and access to finance (Cheng et al., 2014). Our paper contributes to the literature by studying the impact of VC on CSR performance. Given the critical importance of VC in promoting innovation and economic growth, understanding their social impact can inform better public policy.

The rest of the paper is organized as follows. Section 2 describes the data and the sample construction process; Section 3 presents the baseline results of the effect of VC on CSR performance; Section 4 presents the results on cross-sectional heterogeneity of the impact of VC on CSR performance; Section 5 provides some additional robustness test results; and Section 6 concludes the paper.

2. Data and summary statistics

2.1. Sample construction

We start with all public firms in China. We obtain CSR measures from Hexun.com, the leading CSR rating system in China. We obtain VC information from the Zero2IPO database. We collect financial statement data and other firm-level information on listed firms from the China Stock Market & Accounting Research (CSMAR) database. We then apply the following filters to the data. First, we exclude all financial firms; second, we exclude firms without VC at IPO; third, we exclude specially treated (ST or ST*) stocks; and finally, we drop firms that went IPO before 2006 for two reasons. First, VCs only affect newly public companies; second, in 2006, the Chinese government implemented a massive accounting reform, causing differences in accounting items between firms that went public before and after 2006. Our final baseline sample consists of 2678 firm-year observations.

2.2. Measuring CSR

Hexun.com, which was founded in 1996, was the first vertical financial portal and one of the largest financial and securities information service providers in China. Hexun.com began to provide CSR scores and ranking data for all listed companies in China in 2010. The measures are based on firms' annual CSR reports and annual reports published by the Shanghai Stock Exchange (SHSE) and

---

[6] Alakent et al. (2020) address endogeneity concerns with the Heckman selection model. However, their identification relies on imposing arbitrary exclusion conditions, and is hence unlikely to be robust (LaLonde, 1986). Li et al. (2021) use a propensity score matching approach to address the endogeneity concerns. However, the matching procedure they used is unlikely to completely address the selection problem, especially selection on unobservables.

the Shenzhen Stock Exchange (SZSE). In December 2008, the SHSE mandates that firms listed on its "Corporate Governance Sector" (230 firms with the best governance practices at the time) issue a CSR report with their annual report beginning in the 2008 reporting year. Similarly, also in December 2008, the SZSE mandated listed firms on its "Shenzhen 100 Index" to issue a CSR report (top 100 listed firms ranked by total market capitalization). In addition to companies mandated by the stock exchanges, an increasing number of companies voluntarily issue CSR reports. In our robustness checks, we show that the results are not driven by the self-selection of firms voluntarily issuing CSR reports.

In addition to the CSR reports issued by these companies, Hexun evaluates the CSR activities of other companies based on their annual reports and other proprietary information. Most companies in our sample, those that went public after 2006 are not among those mandated by the SHSE or the SZSE, because the companies in our sample are relatively young and small. We provide a comparison between our sample and the universe of all public companies listed on SHSE and SZSE in Table 1. Over our sample period, the number of public companies in China increased from 2661 in 2011 to 3626 in 2017. The number of firms issuing CSR reports increased from 519 in 2011 to 795 in 2017. On the other hand, the total number of firms in our sample increased from 210 in 2011 to 577 in 2010, among which 22 firms issued a CSR report in 2011 and 67 firms issued a CSR report in 2017.

One major advantage of using Hexun CSR rating data is that it covers all listed companies, and hence, our analysis is less subject to selection bias. Other CSR ratings for Chinese companies, such as the RKS rating, cover only firms that issue annual CSR reports. Furthermore, those firms are mostly mature firms and have very little VC involvement. One concern is that the Hexun CSR ratings may be constructed differently for firms with a CSR report and firms without a CSR report. To mitigate this concern, we control for whether a firm publishes a CSR report in one of our robustness tests, and still find similar results.

Hexun.com evaluates the performance of listed firms along five dimensions: responsibility toward shareholders (*SR*), responsibility toward employees (*ER*), responsibility toward suppliers, consumers and customers (*SCCR*), responsibility toward the environment (EVR), and responsibility toward government (*GR*). In this paper, we focus on the three dimensions related to CSR, *ER*, *SCCR*, and *EVR*.

While Hexun mostly applies a unified rating scheme, it adjusts the rating slightly for several specific industries. We first describe the rating scheme for most industries. Responsibility toward employees (*ER*) is evaluated based on employee income and training opportunities (5 points), safety (5 points), and caring for employees (5 points). The maximum possible score for *ER* is 15 points. Responsibility toward suppliers, consumers and customers (*SCCR*) is evaluated based on product quality (7 points), customer satisfaction (3 points), and supply chain integrity (5 points). The maximum possible score for *SCCR* is 15 points. Responsibility toward the environment (*EVR*) is evaluated based on environmental awareness (2 points), certificates of environmental management systems (3 points), investment in environmental protection (5 points), pollutant emissions (5 points), and energy conservation (5 points). The maximum possible score for *EVR* is 20 points. We then calculate the total CSR score, *CSR*, as the sum of the scores of the three subcomponents.

Hexun makes the following industry adjustments. For consumer product industries, the maximum score of responsibility toward employees is rescaled to 10 points, and the maximum score of responsibility toward suppliers, consumers and customers is rescaled to 20 points. For manufacturing industries, the maximum score for responsibility toward the environment is rescaled to 30 points. For service industries, the maximum scores of responsibility toward the environment are rescaled to 10 points.

Hexun does not disclose the exact algorithm it uses to generate the ratings. To better understand its algorithm, we conduct a detailed analysis of some subcomponents for which the data can be obtained from annual reports. For example, one tertiary component of responsibility toward shareholders is the return on assets (ROA, 2 points). Each year, Hexun ranks ROA of all public firms, and the ROA rating for the firms is a monotonic transformation of the rankings of ROA. We provide the mapping for the ratings for which we can find the values of the original ranking variables in Appendix B. In general, the ratings are monotonic step functions of the rankings of the underlying variable.

2.3. VC variables

We collect VC data from the Zero2IPO database, which also provides information on VCs' portfolio firms. We exclude firms that do not have VC investment at the time of IPO. We define the variable, *VC*, as a dummy variable that equals one if there is at least one VC fund holding the shares of the firm during that year, and zero otherwise. We then decompose *VC* into VCs sponsored by domestic private institutions (*PVC*), VCs sponsored by local governments (*GVC*), and VCs sponsored by foreign institutions (*FVC*). To further

Table 1
CSR reporting and sample distribution.

| Year | All public firms | | Sample firms | |
	All	With CSR report	Sample firm	With CSR report
2011	2661	519	210	22
2012	2847	583	296	31
2013	3142	644	345	40
2014	3512	681	365	48
2015	3595	709	398	54
2016	3633	776	487	62
2017	3626	795	577	67
Total	23,016	4707	2678	324

This table reports the distribution of all public companies, public companies with CSR reports in China during our sample period from 2011 to 2017.

examine the influence of VC directors, we manually collect data on VC directors from directors' resume data provided by CSMAR. If the resume shows that the director works in the VCs that invested in the same company, we record him or her as a VC director, and define *VC_Board* as one if the firm has at least one VC director on board, and zero otherwise. *VC_Share* is defined as the percentage of VC shareholdings.

Table 2
Summary statistics.

Panel A: Original sample						
Variable	N	Mean	SD	P25	Median	P75
CSR	2678	4.47	10.14	0.84	1.49	2.71
ER	2678	2.30	2.62	0.84	1.49	2.71
SCCR	2678	1.08	3.88	0.00	0.00	0.00
EVR	2678	1.09	4.15	0.00	0.00	0.00
VC	2678	0.38	0.48	0.00	0.00	1.00
VC Share	2678	3.63	5.19	0.00	1.01	5.47
Log Age	2678	2.52	0.41	2.30	2.56	2.77
Size	2678	21.39	0.86	20.75	21.30	21.90
ROA	2678	0.05	0.04	0.02	0.05	0.07
Leverage	2678	0.32	0.18	0.18	0.30	0.44
Cash Holding	2678	0.24	0.18	0.10	0.18	0.34
Dual	2678	0.44	0.50	0.00	0.00	1.00
Big 4	2678	0.02	0.13	0.00	0.00	0.00
Indep	2678	0.37	0.05	0.33	0.33	0.43
Inst Own	2678	6.91	7.41	1.20	4.62	10.27
VC_Board	2678	0.40	0.49	0.00	0.00	1.00
PVC	2678	0.21	0.41	0.00	0.00	0.00
FVC	2678	0.05	0.22	0.00	0.00	0.00
GVC	2678	0.17	0.37	0.00	0.00	0.00
RKS CSR	357	38.30	9.01	31.98	37.23	42.64
M	357	13.68	3.26	11.25	13.36	15.94
C	357	16.16	4.78	13.36	15.64	18.63
T	357	6.89	1.51	5.92	6.63	7.80
I	356	1.58	1.32	0.63	1.25	2.20

Panel B: Stacked sample						
Variable	N	Mean	SD	P25	Median	P75
CSR	6378	4.65	10.41	0.80	1.44	2.73
ER	6378	2.33	2.76	0.80	1.44	2.73
SCCR	6378	1.15	3.92	0.00	0.00	0.00
EVR	6378	1.17	4.25	0.00	0.00	0.00
VC	6378	0.65	0.48	0.00	1.00	1.00
VC0	6378	1.00	0.00	1.00	1.00	1.00
VC Share	6378	6.04	5.67	1.47	4.38	9.23
Log Age	6378	2.48	0.43	2.20	2.56	2.77
Size	6378	21.20	0.83	20.63	21.08	21.66
ROA	6378	0.06	0.04	0.03	0.05	0.08
Leverage	6378	0.29	0.17	0.15	0.27	0.41
Cash Holdig	6378	0.28	0.20	0.12	0.24	0.41
Dual	6378	0.46	0.50	0.00	0.00	1.00
Big 4	6378	0.02	0.15	0.00	0.00	0.00
Indep	6378	0.37	0.05	0.33	0.33	0.43
Inst Own	6378	5.84	6.89	0.81	3.46	8.77
VC_Board	6378	0.56	0.50	0.00	1.00	1.00
PVC	6378	0.36	0.48	0.00	0.00	1.00
FVC	6378	0.09	0.28	0.00	0.00	0.00
GVC	6378	0.29	0.45	0.00	0.00	1.00
RKS CSR	804	37.60	9.91	30.85	35.92	41.64
M	804	13.39	3.48	10.78	12.89	15.70
C	804	16.08	5.29	13.31	15.37	18.00
T	804	6.62	1.56	5.53	6.32	7.40
I	800	1.51	1.33	0.50	1.25	2.12

This table reports summary statistics of variables used in the paper. *CSR* is the overall corporate social responsibility score. The components of CSR are Responsibility toward employees (*ER*), Responsibility toward suppliers, consumers and customers (*SCCR*), and responsibility toward the environment (*EVR*). *VC* equals one if VCs hold shares of the firm, and zero otherwise. Other variable definitions are presented in Appendix A. All continuous variables are winsorized at the 1st and 99th percentiles.

2.4. Control variables

We include a broad set of control variables in various specifications. We include firm characteristics, such as the natural logarithm of firm age (*Log Age*), the natural logarithm of total assets (*Size*), return on assets (*ROA*), leverage (*Leverage*), cash holding scaled by total assets (*Cash*) as control variables. Moreover, we control for corporate governance factors, such as whether the firm's CEO is also the chairman of the board (*Dual*), whether financial reports are audited by a big four accounting firm (*Big 4*), the percentage of the independent directors on the board of directors (*Indep*), and the percent of shares held by other institutional investors (*Inst Own*). We provide the definitions of all variables used in the paper in the appendix.

2.5. Summary statistics

Panel A of Table 2 reports the summary statistics of our main variables. The average total CSR score is 4.47 with a standard deviation of 10.04, indicating that there is significant variation in CSR performance among listed companies. The mean of *ER* is 2.30/15, *SCCR* is 1.08/15, and *EVR* is 1.09/20. The percentage of firms with at least one VC shareholder in a specific year (*VC*) is only 38%. Although the average percentage of shares owned by VCs is only about 3.63, suggesting that most VCs continue to be a large, if not the largest shareholder, even after the company goes public.

The average firm size (the natural logarithm of the total assets) is 21.39. The average leverage (*Leverage*) and annual ROA are 0.32 and 0.05, respectively. Different from US public companies, the percentage of shares owned by institutional investors other than VC is very small (about 6.91%).

2.6. CSR patterns of VC-backed and non-VC-backed firms

To better understand the dynamics of the CSR performance of IPO firms, in particular, how CSR performance changes after IPO, we plot the average CSR scores of IPO firms without VC-backing with respect to years since the IPO in Panel A of Fig. 1. First, there is no particular pattern in CSR after the IPO. If anything, CSR gradually increases after the IPO. We then plot the CSR dynamics for firms with VC backing with respect to the years to VC exit in Panel B of Fig. 1. Two observations stand out. First, CSR performance barely changes before VC exits. Second, CSR performance increases after VC exits, providing preliminary evidence that VC involvement could lead to worse CSR performance.

3. VC and CSR performance

3.1. Stacked difference-in-differences

Given the staggered nature of VC exit, a generalized difference-in-differences analysis is likely to be biased (Callaway and Sant'Anna, 2021; Goodman-Bacon, 2021; Baker et al., 2022). To mitigate this concern, we instead estimate a stacked difference-in-differences specification. In particular, we use the following procedure to create a stacked sample. First, we group treated firms by the VC exit year. For example, firms whose VC exited in 2012 will be in the 2012 exit group, which we call a cohort. For cohort t, we include the observations from $t-2$ to $t+2$ for these treated firms. We then choose firms whose VC exited in years greater than $t+2$ or whose VC never exited during our sample period as control firms for cohort t. We also include the observations from $t-2$ to $t+2$ for these control firms. This procedure ensures that we include only either yet-to-be treated firms or never treated firms as control firms, thereby eliminating the bias in the standard staggered difference-in-differences specification. We then stack all cohorts to form the stacked sample. We provide the summary statistics of the stacked sample in Panel B of Table 2.

We examine the effect of VC involvement on the CSR performance of their portfolio firms using the following stacked DID specification,

$$CSR_{i,t,c} = \alpha_{i,c} + \alpha_{t,c} + \beta VC_{i,t-1,c} + \gamma X_{i,t-1,c} + \varepsilon_{i,t,c}, \tag{1}$$

where i indexes firm, t indexes year, and c indexes the exit year or cohort; the dependent variables are the total CSR score (*CSR*) and subcomponents (*ER*, *SCCR*, and *EVR*) of firm i in year t; the independent variable $VC_{i,\,t-1,\,c}$ is the VC existence dummy variable of firm i in year $t-1$; $X_{i,\,t-1,\,c}$ is a set of firm-level control variables measured in year $t-1$, and $\alpha_{t,\,c}$ and $\alpha_{i,\,c}$ are cohort-year and cohort-firm fixed effects. All continuous variables are winsorized at the 1st and 99th percentiles. Standard errors are clustered by firm. With the cohort-year and cohort-firm fixed effects, we are using only the within firm variation in the existence of VC shareholders, that is, we are identifying the changes in CSR driven by the exit of VCs.

3.2. Baseline results

We report the results in Table 3. We present the estimation results both with and without the control variables to mitigate the concern that some of these control variables may be endogenous. In Columns (1) and (2) for the aggregate CSR measure, the coefficient estimates on *VC* are negative and statistically significant, suggesting that VC involvement is negatively associated with CSR performance. Compared with the average CSR performance in our sample, the CSR scores of listed firms become 24% (1.074/4.47) higher after VCs exit the firms. We then present the results for the three subcomponents in Columns (3)–(8). Firms show a 10% (0.23/2.30)

Panel A: Firms without VC backing
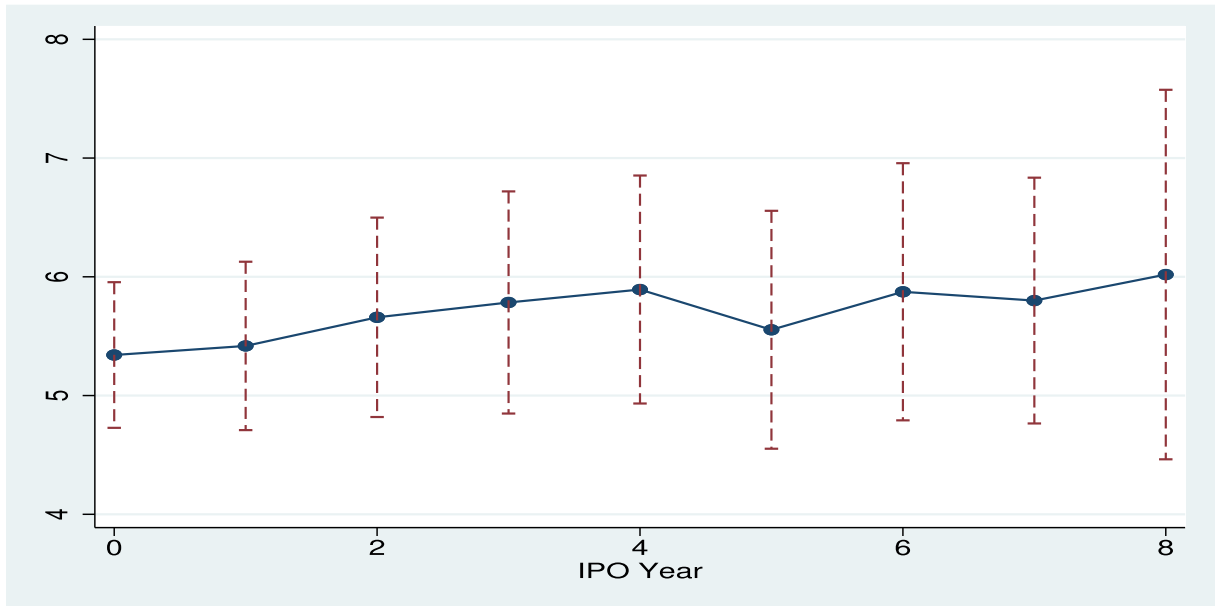
Panel B: Firms with VC backing
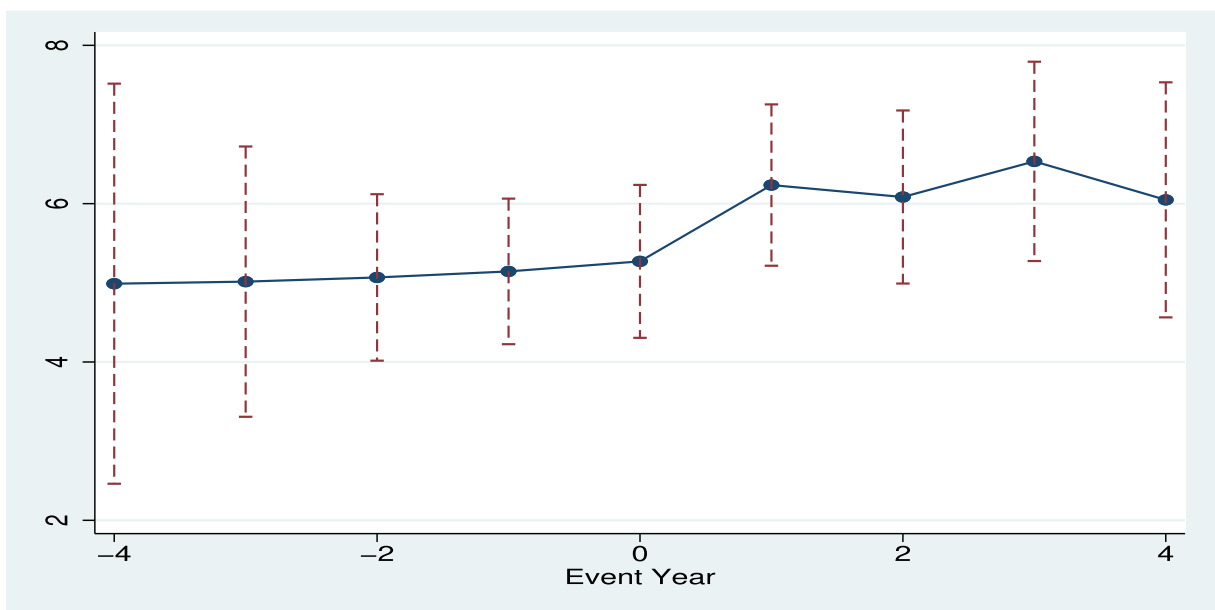
Fig. 1. CSR dynamics.
This figure plots the average CSR of firms without VC backing (Panel A) and firms with VC backing (Panel B).

higher score of responsibility toward employees (*ER*), a 39% (0.393/1.08) higher score of responsibility toward suppliers, consumers, and customers (*SCCR*), and 41% (0.450/1.09) higher score of responsibility toward the environment (*EVR*) after VCs exit the firms. The coefficient estimates with and without controls are very similar, suggesting that VCs' exit decisions are not highly correlated with these firm characteristics.

Large firms and profitable firms tend to have better CSR performance. Consistent with the findings in Dyck et al. (2019) and Chen et al. (2020), institutional ownership is positively associated with CSR performance. In particular, one concern of the baseline results is that when VCs exit their portfolio companies, other institutional investors fill in and then lead to better CSR performance. By including institutional ownership as a control variable, we mitigate that concern.

Overall, the results suggest that VC may pressure firms to maximize shareholder welfare at the expense of other stakeholders and

Table 3

VC and CSR.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	CSR		ER		SCCR		EVR	
VC	−1.051*	−1.074**	−0.216	−0.230*	−0.383*	−0.393*	−0.452*	−0.450**
	(0.560)	(0.548)	(0.137)	(0.134)	(0.216)	(0.211)	(0.231)	(0.227)
Log Age		−1.276		−0.830		0.007		−0.453
		(3.314)		(0.889)		(1.216)		(1.373)
Size		1.758**		0.507**		0.599**		0.652**
		(0.745)		(0.205)		(0.284)		(0.295)
ROA		7.812		1.454		2.907		3.451
		(6.251)		(1.968)		(2.414)		(2.346)
Leverage		2.110		0.478		0.484		1.148
		(2.550)		(0.575)		(1.033)		(1.068)
Cash Holding		−2.003		−0.398		−0.586		−1.019
		(1.636)		(0.442)		(0.649)		(0.636)
Dual		0.349		−0.040		0.254		0.135
		(0.656)		(0.162)		(0.260)		(0.266)
Big 4		1.432		−0.292		0.903		0.821
		(1.849)		(0.382)		(1.077)		(1.023)
Indep		5.236		0.706		1.327		3.202
		(4.807)		(1.203)		(1.752)		(2.037)
Inst Own		0.057*		0.014		0.018		0.025**
		(0.031)		(0.009)		(0.013)		(0.011)
Observations	6313	6313	6313	6313	6313	6313	6313	6313
Adjusted R-squared	0.640	0.642	0.690	0.692	0.628	0.630	0.626	0.630
Cohort-Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cohort-Firm Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

This table presents the baseline results on the effect of VC on the CSR performance of their portfolio companies from estimating $CSR_{i,t,c} = \alpha_{i,c} + \alpha_{t,c} + \beta VC_{i,t-1,c} + \gamma X_{i,t-1,c} + \varepsilon_{i,t,c}$. The dependent variable *CSR* is the total CSR score. The subcomponents of CSR are responsibility toward employees (*ER*), responsibility toward suppliers, consumers and customers (*SCCR*), and responsibility toward the environment (*EVR*). *VC* equals one if VCs hold shares of the firm, and zero otherwise. Variable definitions are presented in Appendix A. All continuous variables are winsorized at the 1st and 99th percentiles. Standard errors are clustered at the firm level. Significance at the 1%, 5%, and 10% levels is indicated by ***, **, and *, respectively.

the environment, thus creating negative externalities to society. This result is contrary to the effect of other institutional investors, which, as shown by Dyck et al. (2019) and Chen et al. (2020), are often associated with better CSR performance. The difference can be driven by either the different nature of VC or our focus on Chinese VCs.

3.3. The timing of the effect of VC exit

One concern for the baseline specification above is that the results may be driven by endogenous VC exit decisions and the changing CSR performance of portfolio companies even before VC exit. As a first step to mitigate this concern, we examine the timing of the effect of VC exit on CSR performance. In particular, we first expand our stacked sample to include observations from $t − 3$ to $t + 3$ for cohort t and then estimate the following,

$$CSR_{i,t,c} = \alpha_{i,c} + \alpha_{t,c} + \sum_{\tau=-2}^{3} \beta_\tau Exit_{\tau,c} + \gamma X_{i,t-1,c} + \varepsilon_{i,t,c}, \tag{2}$$
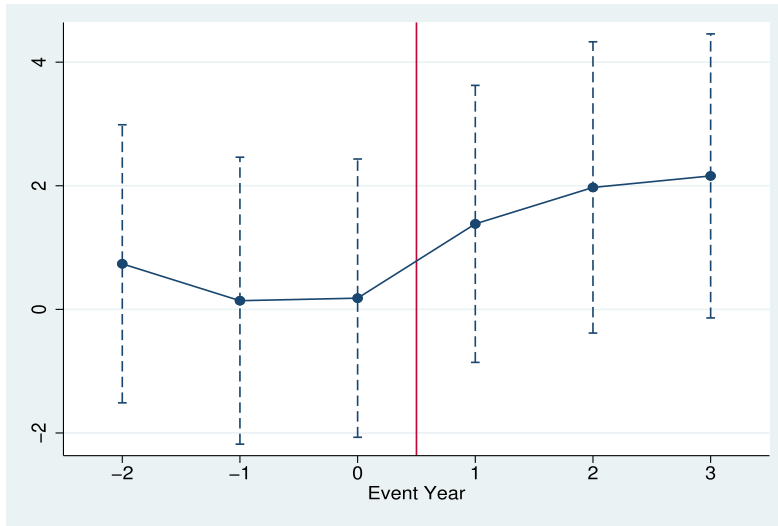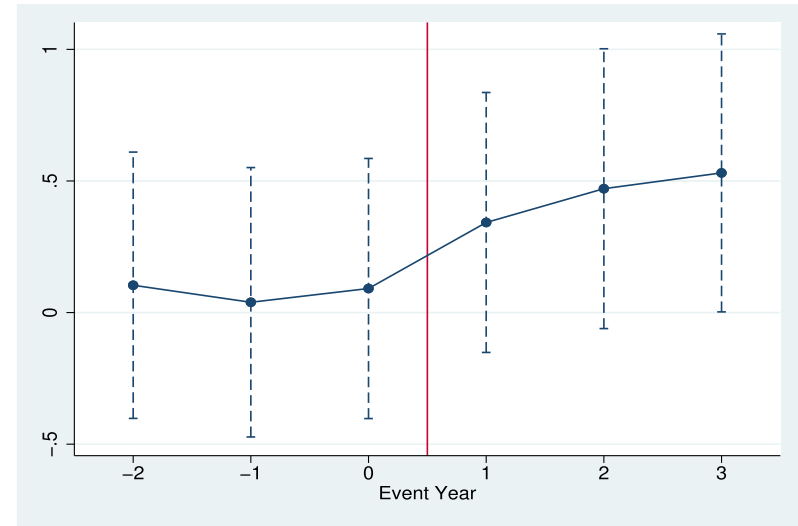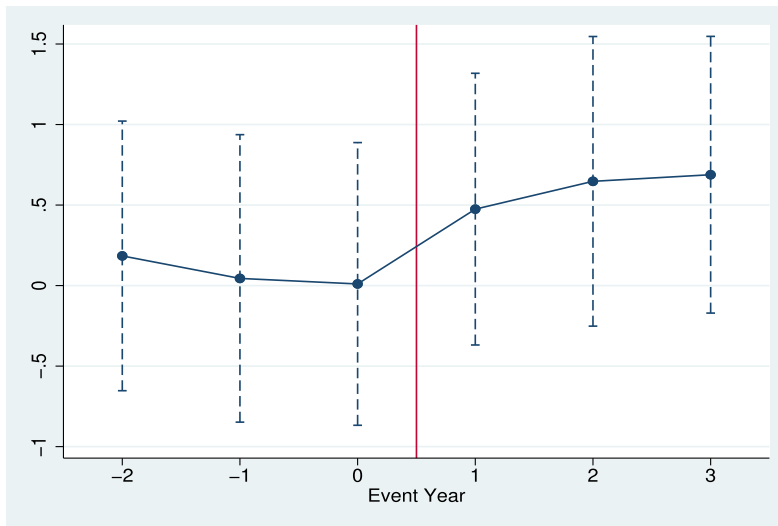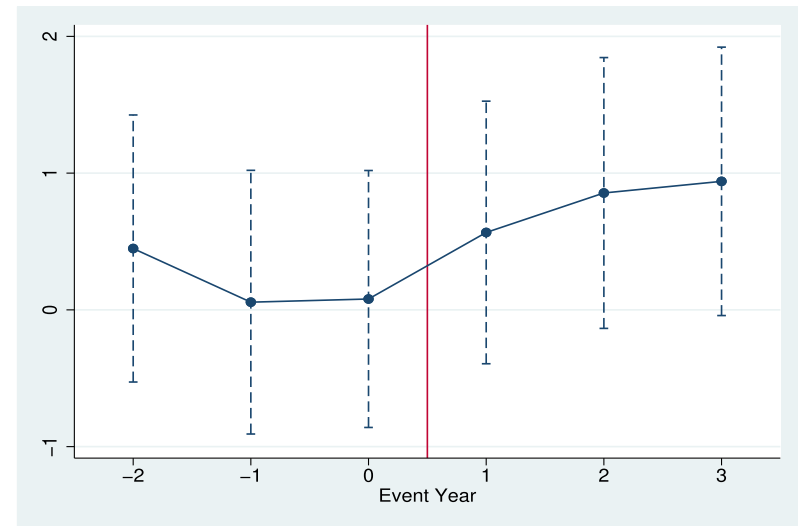
where $Exit_\tau = 1$ if the observation is in τ years after ($−\tau$ years before if $\tau < 0$) VC exit; in particular, $Exit_0 = 1$ if the observation is in the first year without VC; year $t − 3$ is the benchmark year. Under this specification, β_τ's should be close to zero for all $\tau < 0$ if the baseline results are not driven by pre-existing trends.

We estimate Eq. (2) for the total CSR score (*CSR*) and its subcomponents. We plot the coefficient estimates of β_τ's and their confidence intervals, and the results are presented in Fig. 2. Panel A plots the coefficient estimates for the total CSR score. The coefficient estimates are all small and statistically insignificant for $\tau \leq 0$. In contrast, the coefficient estimates are greater and become statistically significant for $\tau > 0$. We then focus on the coefficient estimates for *ER*, *SCCR*, and *EVR* in Panels B-D, which all show a similar pattern as in Panel A. These results suggest that CSR performance improves only after, but not before, VC exits and that the effects of VC exit on these CSR performance measures are unlikely to be driven by pre-existing trends.

3.4. Addressing endogeneity concerns

Our baseline results may be subject to endogeneity concerns. First, VC involvement and exit can be endogenous. For example, if VCs are more likely to exit through IPOs (instead of through mergers and acquisitions) from firms with worse CSR performance, public firms with VC backing are likely to perform worse in CSR. Although our method does not rely on this cross-sectional variation in VC backing, it remains a concern. Furthermore, VC exit decisions are certainly not random, and could be correlated with unobservable

Fig. 2. The timing of the effect of VC exit on CSR performance.

This figure plots the coefficient estimates of β_τ's and their 95% confidence intervals from estimating $CSR_{i,t,c} = \alpha_{i,c} + \alpha_{t,c} + \sum_{\tau=-2}^{3}\beta_\tau Exit_{\tau,c} + \gamma X_{i,t-1,c} + \varepsilon_{i,t,c}$, where $Exit_\tau = 1$ if the observation is in τ years after if the observation is in τ years after ($-\tau$ years before if $\tau < 0$); in particular, $Exit_0 = 1$ if the observation is in the first year without VC.

firm characteristics. In particular, VCs may stay in weaker firms longer and exit only when the firms can sustain themselves (Bottazzi et al., 2008), causing selection bias in generalized DID estimates. To ensure that the effect is causal and is driven by VC monitoring, we use an instrumental variable approach to isolate the exogenous variation in VC exit timing.

Specifically, we use the age of the VC funds to instrument for VC exit. Most VC funds are organized as limited partnerships and have a limited lifetime (typically 5–10 years). As such, VCs may be forced to exit their portfolio firms when they are getting close to the end of their lifetime. As such, the age of VC funds is likely to be correlated with VC exit decisions. For identification, we also need the exclusion condition, which requires that the VC fund age only affects CSR performance through its impact on VC exit timing. However, Barrot (2017) shows that the age of VC funds affects VCs' choice of investment projects. He shows that older VC funds are more likely to invest in mature firms. In this case, if mature firms also experience more improvement in CSR performance over time, the exclusion condition will be violated. To mitigate this concern, we first conduct several diagnostic tests. In particular, we examine whether fund age is associated with the CSR performance of portfolio companies before the exit of VCs. If VC fund age directly impacts the CSR performance, it should affect CSR performance before exit. On the other hand, if the VC fund age can only affect CSR performance through its impact on VC exit, it should have no effect on CSR performance before exit.

First, we try to examine whether the age of VC funds is correlated with the CSR of companies during the first reporting year after the IPO. We calculate the age of each VC fund as the current year minus the starting year of the fund. We choose to focus on the first reporting year after the IPO because we do not have CSR scores for private firms. We present the cross-sectional regression results in Panel A of Table 4. The results show that the VC fund age has no effect on the CSR performance of their portfolio companies at IPOs.

Next, we examine whether the VC fund age may affect the dynamics of the CSR of their portfolio companies after the IPO. For example, if older VC funds invest in mature firms and the CSR performance of mature firms may improve less than that of younger firms, then the age of VC funds can directly affect the dynamics of CSR. In this case, we first calculate the changes in CSR score during the first two years after the IPO, and then regress the changes in CSR on the age of the VC funds. The results are presented in Panel B of Table 4. Again, the age of VC funds has no effect on the changes in the CSR performance of their portfolio companies. The results in Table 4 therefore suggest that the age of VC funds is unlikely to directly affect the CSR performance of their portfolio companies. As such, the exclusion condition is likely to be satisfied.[7]

We then proceed to conduct instrumental variable estimation. In particular, we use the natural logarithm of one plus the age of the VC fund as the instrument (*Log_Fund_Age*) and the two-stage least squares (2SLS) to estimate the instrumental variable specification, again on the stacked sample. The results are presented in Table 5. We show the first-stage regression results in Column (1). The coefficient estimate on the instrument, *Log_Fund_Age*, is negative and statistically significant, suggesting that older VC funds are more likely to exit their portfolio firms. The F-statistic of the first stage regression is 45.23, suggesting that the instrument is strong. The second-stage regression results are presented in Columns (2)–(5). The IV coefficient estimates continue to be negative and statistically significant. In fact, the magnitudes of the IV estimates are greater than the OLS estimates in Table 3. VC involvement reduces the overall CSR score. For the subcomponents, VC involvement also reduces responsibility toward employees (*ER*), suppliers and customers (*SCCR*), and the environment (*EVR*).

3.5. Mechanism

We hypothesize that VCs try to maximize shareholder value at the expense of other stakeholders. In this subsection, we examine whether VCs indeed improve shareholder value. To measure shareholder value, we first use the Hexun score on responsibility toward shareholders (*SR*). Responsibility toward shareholders is evaluated based on firm profitability (10 points), solvency (3 points), payout (8 points), penalties and enforcement actions issued by regulators (5 points), and innovation (4 points). The highest possible score for *SR* is 30 points. We also complement the shareholder responsibility score with the annual stock return (*Return*), return on assets (*ROA*, profit margin (*Profit Margin*), and payout ratio (*Payout*). Because VC exit decisions are likely to be affected by operating performance and stock returns, the OLS regression results can be severely biased by reverse causality. Therefore, we again use the age of VC funds as an instrument for VC exit timing, and present the second stage results in Table 6. The coefficient estimates on *VC* are all positive and two are statistically significant, suggesting that, to some extent, the presence of VC improves shareholder value. In particular, VCs are associated with a 2.6 percentage points higher stock return and 0.9 percentage points higher payout ratio. These results suggest that VCs may pressure their portfolio companies to minimize cost and to pay out more to shareholders, which then causes the firms to underinvest in CSR.

4. VC heterogeneity

VCs may differ in ownership structure, investment experience, profitability, and authority in portfolio companies. The heterogeneity of VCs may affect VCs' incentives, and hence their impact on their portfolio companies. In this section, we explore the cross-sectional heterogeneity of the impact of VC on the CSR performance of their portfolio companies.

---

[7] The results in Table 4 are not the reduced-form regression because we are only focusing on CSR performance before VC exits.

Table 4
The age of VC fund as an instrument: diagnostic tests.

Panel A: VC fund age and CSR at IPO							
	(1)		(2)		(3)		(4)
	CSR		ER		SCCR		EVR
Fund Age	−0.054		−0.021		−0.012		−0.021
	(0.051)		(0.018)		(0.017)		(0.021)
Observations	474		474		474		474
Adjusted R-squared	0.009		0.007		0.014		0.018
Control Variables	Yes		Yes		Yes		Yes
Year Fixed Effects	Yes		Yes		Yes		Yes

Panel B: VC fund age and changes in CSR after IPO							
	(1)		(2)		(3)		(4)
	Change in CSR		Change in ER		Change in SCCR		Change in EVR
Fund Age	0.060		0.026		0.032		0.003
	(0.073)		(0.022)		(0.036)		(0.020)
Observations	473		473		473		473
Adjusted R-squared	0.021		0.020		0.021		0.022
Control Variables	Yes		Yes		Yes		Yes
Year Fixed Effects	Yes		Yes		Yes		Yes

This table presents the results of two diagnostic tests regarding the use of VC fund age as an instrumental variable for VC exit. In Panel A, the dependent variables are the CSR scores of the firms at the IPO. In Panel B, the dependent variables are the changes in CSR scores immediately after the IPO. The key independent variable is the minimum age of all VCs invested in the firms. Variable definitions are presented in Appendix A. The regressions also include the same set of control variables and the year fixed effects. Robust standard errors are presented in parentheses below the coefficient estimates. Significance at the 1%, 5%, and 10% levels is indicated by ***, **, and *, respectively.

Table 5
Instrumental variable estimation results.

	(1)	(2)	(3)	(4)	(5)
	VC	CSR	ER	SCCR	EVR
Log_Fund_Age	−0.666***				
	(0.148)				
VC		−9.998**	−2.147**	−3.907*	−3.944**
		(4.743)	(1.092)	(2.036)	(1.798)
Observations	5975	5975	5975	5975	5975
Adjusted R-squared	0.468				
Control Variables	Yes	Yes	Yes	Yes	Yes
Cohort-Year Fixed Effects	Yes	Yes	Yes	Yes	Yes
Cohort-Firm Fixed Effects	Yes	Yes	Yes	Yes	Yes
F-Statistics of the First Stage	45.23				

This table presents 2SLS regression estimations of the effect of VC on CSR. The dependent variable CSR is the overall corporate social responsibility score. The subcomponents of CSR are responsibility toward employees (ER), responsibility toward suppliers, consumers and customers (SCCR), and responsibility toward the environment (EVR). The instrumental variable, Log_Fund_Age, is the natural logarithm of one plus the age of the youngest VC fund ever involved in the firm. VC equals one if VCs hold shares of the firm, and zero otherwise. Variable definitions are presented in Appendix A. All continuous variables are winsorized at the 1st and 99th percentiles. Standard errors are clustered at the firm level. Significance at the 1%, 5%, and 10% levels is indicated by ***, **, and *, respectively.

4.1. VCs on the board

The extent to which VCs can effectively monitor their portfolio companies may depend on whether VCs sit on the board of directors. Holding directorships in portfolio firms can give VCs more power and convenience to actively pursue their own interests in the portfolio companies. In our sample, about 79.71% of VCs hold the directorship position in their portfolio companies. These VCs are not only skilled in capital management but are also experts in corporate operations and entrepreneurship in certain areas. They help portfolio companies recruit and monitor key managers, work with suppliers and consumers, become involved in tactics and strategy establishment, raise capital, and help with M&As. In some cases, they can appoint key members of the top management team to gain direct control or take over day-to-day business and operations, both before and after going public (Barry et al., 1990; Sahlman, 1990; Lerner, 1995; Hellmann and Puri, 2002).

As such, we expect that the effect of VC on CSR will be stronger when VCs are on the board of directors and are more able to monitor their portfolio companies. To see if that is the case, we estimate the following,

Table 6
VC and shareholder value.

	(1)	(2)	(3)	(4)	(5)
	SR	*Return*	*ROA*	*Profit margin*	*Payout ratio*
VC	4.155	2.592**	0.024	8.118	0.903*
	(3.128)	(1.223)	(0.025)	(14.241)	(0.539)
Observations	5954	5723	5954	5667	5954
R-squared	−0.142	−0.228	−0.089	−0.062	−0.127
Control Variables	Yes	Yes	Yes	Yes	Yes
Cohort-Year Fixed Effects	Yes	Yes	Yes	Yes	Yes
Cohort-Firm Fixed Effects	Yes	Yes	Yes	Yes	Yes

This table presents 2SLS regression estimations of the effect of VC on shareholder value. The dependent variables are *SR*, the responsibility toward shareholder score, *Return*, annual stock return, *ROA*, return on assets, *Profit Margin*, the profit margin, and *Payout*, the payout ratio. The instrumental variable, *Log_Fund_Age*, is the natural logarithm of one plus the age of the youngest VC fund ever involved in the firm. *VC* equals one if VCs hold shares of the firm, and zero otherwise. Variable definitions are presented in Appendix A. All continuous variables are winsorized at the 1st and 99th percentiles. Standard errors are clustered at the firm level. Significance at the 1%, 5%, and 10% levels is indicated by ***, **, and *, respectively.

$$CSR_{i,t,c} = \alpha_{i,c} + \alpha_{t,c} + \beta_1 VC\_Board_{i,t-1,c} + \beta_2 VC\_Other_{i,t-1,c} + \gamma X_{i,t-1,c} + \varepsilon_{i,t,c}, \tag{3}$$

where *VC_Board* equals one if a VC sits on the board of directors, *VC_Other* equals one if VCs hold other positions or no positions, and zero otherwise; and *VC_Board* and *VC_Other* both equal zero after all VCs exit the firm.

Table 7 presents the results of estimating Eq. (3) using the stacked sample. The coefficient estimates on *VC_Board* are all negative and statistically significant. In contrast, the coefficients on *VC_Other* are all much smaller and statistically insignificant. These results suggest that the baseline results are driven by VCs on the board of directors, who can better monitor their portfolio companies.

4.2. VC experience

Next, we examine whether VC experience changes the effect of VC monitoring on CSR performance. To this end, we follow the literature to measure VC experience using several different measures (Lerner, 1994; Gompers, 1996; Nahata, 2008; and Chemmanur et al., 2011). In particular, using data from Zero2IPO, we calculate the total number of historical investment rounds made by the VC (*VC_Rounds*), the number of firms brought to the IPO by the VC (*VC_IPO*), and total investment by the VC divided by the total investments by all VCs (*VC_Share*) to measure VC experience, performance, and reputation.[8] We calculate these measures at the start of our sample period (2010) and we then define two dummy variables, *High* and *Low*. *High* equals one if the measures of the VCs involved in the firm are above the sample median and zero otherwise; *Low* equals one if the measures of the VCs involved in the firm are below the sample median and zero otherwise; and *High* and *Low* both equal zero if all VCs have exited from the firm. We then estimate the following,

$$CSR_{i,t,c} = \alpha_{i,c} + \alpha_{t,c} + \beta_1 High_{i,t-1,c} + \beta_2 Low_{i,t-1,c} + \gamma X_{i,t-1,c} + \varepsilon_{i,t,c}. \tag{4}$$

The results are presented in Table 8. In Panel A, the two dummy variables, *High* and *Low* are defined based on whether the total number of investment rounds by the VC is above or below the sample median. The coefficient estimates on *High* are all small or statistically insignificant. In contrast, the coefficient estimates on *Low* are similar to those coefficients on *VC* in Table 3, suggesting that the baseline results are mostly driven by relatively inexperienced VCs.

In Panel B, the two dummy variables are defined based on the number of firms brought to IPO by the VC. The pattern is similar to Panel A. The coefficient estimates on *High* are small or statistically insignificant, except for responsibility toward employees (*ER*). The coefficient estimates on *Low* are again similar to those in Table 3, suggesting that the baseline results are mostly driven by poorly performing VCs.

Finally in Panel C, we define the two dummy variables based on total investment by the VC scaled by the total investment by all VCs, the VC reputation measure as in Nahata (2008). In this case, the coefficient estimates on *High* and *Low* are again similar to those in Panels A and B. Overall, the results in Table 8 suggest that the negative effect of VC on CSR performance is driven mostly by inexperienced VCs.

4.3. VC types

Next, we examine whether the different types of sponsors of VCs impact their portfolio companies' CSR performance differently. In particular, we categorize VCs into three categories, sponsored by a domestic private institution (PVC), sponsored by local governments (GVC), and sponsored by a foreign institution (FVC). Distinguished between domestic and foreign VCs could help answer the following question: Whether the effect is mostly driven by foreign VCc who would have less or no interest in the social welfare. Distinguishing

---

[8] We also tried the total amount of VC investment, the historical VC IRR, and the historical VC investment multiplier as alternative measures, and find similar results.

Table 7
VCs on the board of directors and CSR performance.

	(1)	(2)	(3)	(4)
	CSR	ER	SCCR	EVR
VC_Board	−1.869**	−0.459***	−0.698**	−0.712**
	(0.767)	(0.176)	(0.291)	(0.328)
VC_Other	−0.475	−0.138	−0.126	−0.211
	(0.793)	(0.343)	(0.256)	(0.291)
Observations	6212	6212	6212	6212
Adjusted R-squared	0.635	0.689	0.623	0.621
Control Variables	Yes	Yes	Yes	Yes
Cohort-Year Fixed Effects	Yes	Yes	Yes	Yes
Cohort-Firm Fixed Effects	Yes	Yes	Yes	Yes

This table presents the results of the effect of whether VCs sit on the board of directors on CSR performance. The dependent variable *CSR* is the overall corporate social responsibility score. The subcomponents of CSR are responsibility toward employees (*ER*), responsibility toward suppliers, consumers and customers (*SCCR*), and responsibility toward the environment (*EVR*). *VC_Board* equals one if VCs sit on the board of directors, and zero otherwise. *VC_Other* equals one if VCs hold other positions or no positions, and zero otherwise. Variable definitions are presented in Appendix A. All continuous variables are winsorized at the 1st and 99th percentiles. Standard errors are clustered at the firm level. Significance at the 1%, 5%, and 10% levels is indicated by ***, **, and *, respectively.

between private and government sponsored VCs could help us better understand the incentives of the VCs. In particular, we expect government sponsored VCs to have a positive or a less negative impact on CSR because governments should care more about social welfare.

We then estimate the following,

$$CSR_{i,t,c} = \alpha_{i,c} + \alpha_{t,c} + \beta_1 PVC_{i,t-1,c} + \beta_2 GVC_{i,t-1,c} + \beta_3 FVC_{i,t-1,c} + \gamma X_{i,t-1,c} + \varepsilon_{i,t,c}, \tag{5}$$

The results are presented in Table 9. The coefficient estimates on *PVC* and *GVC* are qualitatively similar to the coefficient estimates on *VC* in Table 3. In contrast, all the coefficient estimates on *FVC* have the opposite signs, suggesting that the baseline results are driven entirely by domestic VCs, and that foreign VCs do not have a negative impact on portfolio firms' CSR performance. Furthermore, interestingly, government-backed VCs reduce their portfolio companies' CSR performance. These results suggest that Chinese domestic VCc, especially those sponsored by local governments, are more likely to pursue short-term monetary returns at the expense of social welfare.

5. Additional results

5.1. VC shareholding

In the analysis, we examine the effect of VC using the dummy variable of whether a VC holds shares of the company. In this subsection, we instead examine the effect of VCs' shareholding. In particular, we calculate the percentage of firm shares owned by VCs as *VC_Share* and estimate the following,

$$CSR_{i,t,c} = \alpha_{i,c} + \alpha_{t,c} + \beta VC\_Share_{i,t-1,c} + \gamma X_{i,t-1,c} + \varepsilon_{i,t,c}, \tag{6}$$

The results are presented in Table 10. Similar to our baseline results, the coefficient estimates on *VC_Share* are all negative and statistically significant.

5.2. VC firm fixed effects

One VC firm often has multiple VC funds with different expiration times. The VC firm can therefore choose a particular fund to invest or divest from certain types of projects, which could introduce selection bias to our estimates. To mitigate this concern, we include VC firm fixed effects to our baseline specification for firms with VC backing. The results are presented in Table 11. The coefficient estimates on *VC* are again all negative and three of them are statistically significant. The reduced statistical significance is likely to be driven by the the large number of fixed effects. These results suggest that the effect of VC on CSR is unlikely to be driven by VC firm selection issues.

5.3. CSR reports

Hexun rates firms' CSR performance based on information from CSR reports and annual reports. In addition to firms listed on the "Corporate Governance Sector" of the SHSE and those in the "Shenzhen 100" index that are required to publish CSR reports, some firms also voluntarily issue CSR reports. Because CSR reports are likely to contain more detailed information regarding firms' CSR performance, the ratings based only on annual reports and those based on both annual reports and CSR reports may be different. To mitigate this concern, we include a dummy variable, *CSR Report*, which equals one if the firm publishes a CSR report in that year, to our

Table 8

VC reputation and CSR performance.

Panel A: The number of investment rounds

	(1)	(2)	(3)	(4)
	CSR	ER	SCCR	EVR
High	0.077	−0.046	0.139	−0.016
	(0.728)	(0.169)	(0.309)	(0.284)
Low	−1.451*	−0.269	−0.612**	−0.569*
	(0.761)	(0.178)	(0.293)	(0.317)
Observations	6212	6212	6212	6212
Adjusted R-squared	0.634	0.688	0.622	0.620
Control Variables	Yes	Yes	Yes	Yes
Cohort-Year Fixed Effects	Yes	Yes	Yes	Yes
Cohort-Firm Fixed Effects	Yes	Yes	Yes	Yes

Panel B: The number of firms brought to IPO

	(1)	(2)	(3)	(4)
	CSR	ER	SCCR	EVR
High	0.046	−0.079	0.137	−0.012
	(0.791)	(0.186)	(0.317)	(0.319)
Low	−1.578**	−0.254*	−0.691**	−0.633**
	(0.660)	(0.149)	(0.269)	(0.272)
Observations	6212	6212	6212	6212
Adjusted R-squared	0.634	0.688	0.622	0.620
Control Variables	Yes	Yes	Yes	Yes
Cohort-Year Fixed Effects	Yes	Yes	Yes	Yes
Cohort-Firm Fixed Effects	Yes	Yes	Yes	Yes

Panel C: The shares of total investment

	(1)	(2)	(3)	(4)
	CSR	ER	SCCR	EVR
High	0.028	−0.067	0.126	−0.031
	(0.721)	(0.168)	(0.306)	(0.282)
Low	−1.435*	−0.253	−0.616**	−0.566*
	(0.768)	(0.179)	(0.295)	(0.320)
Observations	6212	6212	6212	6212
Adjusted R-squared	0.634	0.688	0.622	0.620
Control Variables	Yes	Yes	Yes	Yes
Cohort-Year Fixed Effects	Yes	Yes	Yes	Yes
Cohort-Firm Fixed Effects	Yes	Yes	Yes	Yes

The table presents the results on the effect of VCs with different experience, performance, and reputation levels on portfolio firms' CSR performance. We use the total number of historical investment rounds made by the VC (*VC_Rounds*), the number of firms brought to the IPO by the VC (*VC_IPO*), and total investment of the VC divided by total investments by all VCs (*VC_Share*) to measure VC experience, performance, and reputation. We calculate these measures at the start of the sample period (2010) and we then define two dummy variables, *High* and *Low*. *High* equals one if the measures are above the sample median and zero otherwise; *Low* equals one if the measures are below the sample median and zero otherwise; and *High* and *Low* both equal to zero if the firm has no VCs involved. The dependent variable *CSR* is the overall corporate social responsibility score. The subcomponents of CSR are responsibility toward employees (*ER*), responsibility toward suppliers, consumers and customers (*SCCR*), and responsibility toward the environment (*EVR*). Variable definitions are presented in Appendix A. All continuous variables are winsorized at the 1st and 99th percentiles. Standard errors are clustered at the firm level. Significance at the 1%, 5%, and 10% levels is indicated by ***, **, and *, respectively.

baseline regression.[9] The results are presented in Table 12. The coefficient estimates on *VC* remain qualitatively and quantitatively similar to those in the baseline results, suggesting that (1) our baseline results are not biased by whether the firm publishes a CSR report; and (2) the decision to publish a CSR report is not highly correlated with VC exit.

5.4. Zero ratings

One concern about the Hexun CSR data is that there are many zero ratings on the subcomponents. In particular, only about 20% of

---

[9] We do not control for *CSR Report* in our baseline specifications because *CSR Report* can be endogenous to VC involvement.

Table 9
VC types and CSR performance.

	(1)	(2)	(3)	(4)
	CSR	ER	SCCR	EVR
PVC	−1.010*	−0.275*	−0.367*	−0.368
	(0.573)	(0.147)	(0.221)	(0.235)
FVC	0.923	0.282	0.210	0.431
	(1.418)	(0.357)	(0.448)	(0.658)
GVC	−2.080***	−0.367**	−0.769***	−0.944***
	(0.686)	(0.151)	(0.268)	(0.294)
Observations	6212	6212	6212	6212
Adjusted R-squared	0.636	0.689	0.623	0.622
Control Variables	Yes	Yes	Yes	Yes
Cohort-Year Fixed Effects	Yes	Yes	Yes	Yes
Cohort-Firm Fixed Effects	Yes	Yes	Yes	Yes

This table presents the results on the effect of different types of VC on the CRS of portfolio firms. The dependent variable *CSR* is the overall corporate social responsibility score. The subcomponents of CSR are responsibility toward employees (*ER*), responsibility toward suppliers, consumers and customers (*SCCR*), and responsibility toward the environment (*EVR*). *PVC* equals one if a domestic private VC holds shares of the firm, and zero otherwise. *FVC* equals one if a foreign VC holds shares of the firm, and zero otherwise. *GVC* equals one if a government-backed VC holds shares of the firm, and 0 otherwise. Variable definitions are presented in Appendix A. All continuous variables are winsorized at the 1st and 99th percentiles. Standard errors are clustered at the firm level. Significance at the 1%, 5%, and 10% levels is indicated by ***, **, and *, respectively.

Table 10
VC shareholding and CSR performance.

	(1)	(2)	(3)	(4)
	CSR	ER	SCCR	EVR
VC_Share	−0.272***	−0.055***	−0.095***	−0.122***
	(0.071)	(0.017)	(0.028)	(0.030)
Observations	6212	6212	6212	6212
Adjusted R-squared	0.637	0.689	0.624	0.623
Control Variables	Yes	Yes	Yes	Yes
Cohort-Year Fixed Effects	Yes	Yes	Yes	Yes
Cohort-Firm Fixed Effects	Yes	Yes	Yes	Yes

This table presents the results on the effect of VC shareholdings on CSR performance of portfolio companies. The dependent variable *CSR* is the overall corporate social responsibility score. The subcomponents of CSR are responsibility toward employees (*ER*), responsibility toward suppliers, consumers and customers (*SCCR*), and responsibility toward the environment (*EVR*). The independent variable of interest, *VC_Share*, is the percentage of shares owned by VCs. Variable definitions are presented in Appendix A. All continuous variables are winsorized at the 1st and 99th percentiles. Standard errors are clustered at the firm level. Significance at the 1%, 5%, and 10% levels is indicated by ***, **, and *, respectively.

Table 11
VC fixed effects.

	(1)	(2)	(3)	(4)
	CSR	ER	SCCR	EVR
VC	−1.360*	−0.423*	−0.116	−0.821*
	(0.804)	(0.227)	(0.433)	(0.451)
Observations	6313	6313	6313	6313
Adjusted R-squared	0.666	0.715	0.651	0.658
Control Variables	Yes	Yes	Yes	Yes
Cohort-Year Fixed Effects	Yes	Yes	Yes	Yes
Cohort-Firm Fixed Effects	Yes	Yes	Yes	Yes
VC Fixed Effects	Yes	Yes	Yes	Yes

This table reports the results after controlling for VC firm fixed effects. The dependent variable *CSR* is the overall CSR score. The subcomponents of CSR are responsibility toward employees (*ER*), responsibility toward suppliers, consumers and customers (*SCCR*), and responsibility toward the environment (*EVR*). *VC* equals one if VCs hold shares of the firm, and zero otherwise. Variable definitions are presented in Appendix A. All continuous variables are winsorized at the 1st and 99th percentiles. Standard errors are clustered at the firm level. Significance at the 1%, 5%, and 10% levels is indicated by ***, **, and *, respectively.

firm-year observations have non-zero ratings for *SCCR* and *EVR*, although only about 1.2% of the observations have zero ratings for *ER*. This raises the concern of whether these zero ratings are accurate. To mitigate this concern, we remove all zero ratings from our sample and rerun our baseline specification. The results are presented in Table 13. The numbers of observations with zero overall CSR ratings or employee ratings are small (100), and hence the results remain similar to those in Table 3. However, the number of observations

Table 12

Controlling for whether the firm publishes CSR reports.

	(1)	(2)	(3)	(4)
	CSR	ER	SCCR	EVR
VC	−1.067**	−0.229*	−0.392*	−0.446**
	(0.532)	(0.130)	(0.204)	(0.223)
CSR Report	−3.295	−1.035**	−0.858	−1.402
	(2.096)	(0.507)	(0.762)	(0.992)
Observations	6313	6313	6313	6313
Adjusted R-squared	0.644	0.694	0.630	0.631
Control Variables	Yes	Yes	Yes	Yes
Cohort-Year Fixed Effects	Yes	Yes	Yes	Yes
Cohort-Firm Fixed Effects	Yes	Yes	Yes	Yes

This table reports the results after controlling for whether the firm publishes a CSR report in that year. The dependent variable CSR is the overall CSR score. The subcomponents of CSR are responsibility toward employees (ER), responsibility toward suppliers, consumers and customers (SCCR), and responsibility toward the environment (EVR). VC equals one if VCs hold shares of the firm, and zero otherwise. Variable definitions are presented in Appendix A. All continuous variables are winsorized at the 1st and 99th percentiles. Standard errors are clustered at the firm level. Significance at the 1%, 5%, and 10% levels is indicated by ***, **, and *, respectively.

Table 13

Removing zero ratings.

	(1)	(2)	(3)	(4)
	CSR	ER	SCCR	EVR
VC	−1.105**	−0.241*	−0.361	−1.451*
	(0.547)	(0.134)	(0.626)	(0.825)
Observations	6245	6245	512	512
Adjusted R-squared	0.645	0.692	0.744	0.884
Control Variables	Yes	Yes	Yes	Yes
Cohort-Year Fixed Effects	Yes	Yes	Yes	Yes
Cohort-Firm Fixed Effects	Yes	Yes	Yes	Yes

This table reports the results after removing observations with zero CSR ratings. The dependent variable CSR is the overall CSR score. The subcomponents of CSR are responsibility toward employees (ER), responsibility toward suppliers, consumers and customers (SCCR), and responsibility toward the environment (EVR). VC equals one if VCs hold shares of the firm, and zero otherwise. Variable definitions are presented in Appendix A. All continuous variables are winsorized at the 1st and 99th percentiles. Standard errors are clustered at the firm level. Significance at the 1%, 5%, and 10% levels is indicated by ***, **, and *, respectively.

with non-zero ratings of SCCR and EVR is much smaller. Nonetheless, the coefficient estimates on VC remain negative. The decline in statistical significance is likely driven by the dramatic decreases in sample size.

5.5. Adjusted CSR measures

One concern is that all our CSR scores, similar to the MSCI KLD measure, are rescaled every year. In this subsection, we therefore follow the CSR literature to scale the raw measures by the difference between the maximum scores and the minimum scores of the year. We then replace the dependent variables in Eq. (1) with these adjusted CSR measures. The results, as presented in Panel A of Table 14, are qualitatively similar to those in Table 3.

As described earlier, Hexun also assigns different weights of the subcomponents to different industries. To ensure that our results are not driven by the different weights, we readjust the weight to be the same across all industries. The results with these adjusted ratings are presented in Panel B, and are similar to the results based on unadjusted ratings.

5.6. RKS CSR measures

Although we argue that the Hexun.com rating provides the most accurate and comprehensive coverage, we want to show that our results are robust using other measures. In this section, we examine whether our results hold using the RKS rating. Different from Hexun.com, the RKS rating relies exclusively on the CSR reports firms issued by the firms, and hence the coverage is much smaller. The RKS rating also has four subcomponents, namely, the macrosom (M), content (C), technology (T), and industry (I). We present the results using the RKS rating in Table 15. Similar to the results in Table 3, the coefficient estimates on VC are all negative and mostly statistically significant, suggesting that our baseline results are robust to alternative CSR ratings.

6. Conclusion

We examine the effect of VC on CSR performance of newly public companies in China. We find that portfolio companies' CSR

Table 14

Adjusted CSR performance measures.

Panel A: Annual adjustment

	(1)	(2)	(3)	(4)
	Adj1 CSR	*Adj1 ER*	*Adj1 SCCR*	*Adj1 EVR*
VC	−0.050**	−0.015*	−0.019*	−0.015**
	(0.025)	(0.009)	(0.010)	(0.007)
Observations	6307	6307	6307	6307
Adjusted R-squared	0.647	0.692	0.631	0.630
Control Variables	Yes	Yes	Yes	Yes
Cohort-Year Fixed Effects	Yes	Yes	Yes	Yes
Cohort-Firm Fixed Effects	Yes	Yes	Yes	Yes

Panel B: Industry adjustment

	(1)	(2)	(3)	(4)
	Adj2 CSR	*Adj2 ER*	*Adj2 SCCR*	*Adj2 EVR*
VC	−0.982**	−0.240*	−0.348*	−0.393**
	(0.498)	(0.137)	(0.183)	(0.198)
Observations	6313	6313	6313	6313
Adjusted R-squared	0.642	0.688	0.620	0.633
Control Variables	Yes	Yes	Yes	Yes
Cohort-Year Fixed Effects	Yes	Yes	Yes	Yes
Cohort-Firm Fixed Effects	Yes	Yes	Yes	Yes
VC Fixed Effects	Yes	Yes	Yes	Yes

This table presents the results on the effect of VC on the CSR performance of their portfolio companies with adjusted CSR performance measures. In Panel A, The dependent variable *Adj1 CSR* is the overall CSR score scaled by the annual maximum CSR score. The subcomponents of CSR are responsibility toward employees (*Adj1 ER*), responsibility toward suppliers, consumers and customers (*Adj1 SCCR*), and responsibility toward the environment (*Adj1 EVR*), scaled by the annual maximum. In Panel B, we adjust all the CSR measures so that the weights are equal across all industries, which we label as *Adj2 CSR*, *Adj2 ER*, *Adj2 SCCR*, and *Adj2 EVR*. *VC* equals one if VCs hold shares of the firm, and zero otherwise. Variable definitions are presented in Appendix A. All continuous variables are winsorized at the 1st and 99th percentiles. Standard errors are clustered at the firm level. Significance at the 1%, 5%, and 10% levels is indicated by ***, **, and *, respectively.

Table 15

Robustness with RKS CSR ratings.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
	RKS CSR		*M*		*C*		*T*		*I*	
VC	−2.434***	−3.218***	−1.063***	−1.310***	−0.375	−0.630	−0.954***	−1.124***	−0.020	−0.033
	(0.837)	(0.917)	(0.371)	(0.347)	(0.471)	(0.543)	(0.203)	(0.170)	(0.185)	(0.194)
Observations	783	783	783	783	783	783	783	783	779	779
Adjusted R-squared	0.887	0.897	0.843	0.852	0.864	0.876	0.811	0.836	0.694	0.716
Cohort-Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cohort-Firm Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Control Variables		Yes		Yes		Yes		Yes		Yes

This table presents the baseline results using RKS CSR ratings. The dependent variable *RKS CSR* is the total RKS CSR score. The sub-indexes of CSR are Macrosom (*M*), Content (*C*), Technology (*T*), and Industry (*I*). All continuous variables are winsorized at the 1st and 99th percentiles. *VC* equals one if VCs hold shares of the firm, and zero otherwise. Variable definitions are presented in Appendix A. Standard errors are clustered at the firm level. Significance at the 1%, 5%, and 10% levels is indicated by ***, **, and *, respectively.

performance improves after VCs exit the companies. Using the age of VC funds as an instrument for VC exit decisions, we find that the negative effect of VC on CSR performance is likely to be causal. We also find that the negative effect of VC on CSR performance is mostly driven by VCs on the board of directors, relatively inexperienced, bad performing, and less reputable VCs.

Our results are different from those in the existing literature, most of which documents that institutional investors lead to better CSR performance of their portfolio companies (e.g. Dyck et al., 2019; Chen et al., 2020), suggesting that VCs may have different incentives than other types of institutional investors. We also acknowledge that our results may not generalizable to other countries, therefore, our paper calls for more research in understanding more generally how VCs may impact social welfare.
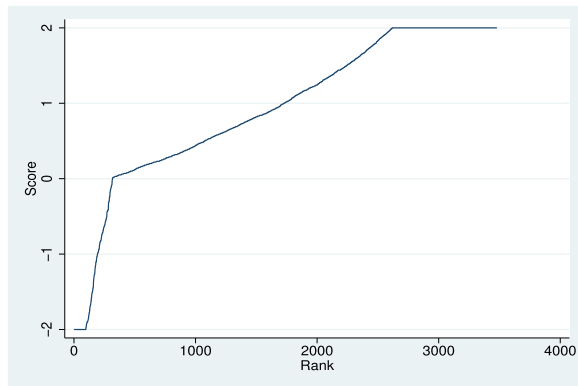
Appendix A: Variable definitions.

Variables	Definition	Source
CSR	The overall corporate social responsibility score	hexun.com

(*continued*)

Variables	Definition	Source
SR	Responsibility toward shareholders	hexun.com
ER	Responsibility toward employees	hexun.com
SCCR	Responsibility toward suppliers, consumers and customers	hexun.com
EVR	Responsibility toward the environment	hexun.com
VC	A dummy variable; equals 1 if VC involves, and 0 otherwise	Zero2IPO
PVC	A dummy variable; equals1 if domestic private VC involves, and 0 otherwise	Zero2IPO
GVC	A dummy variable; equals 1 if government VC involves, and 0 otherwise	Zero2IPO
FVC	A dummy variable; equals 1 if foreign VC involves, and 0 otherwise	Zero2IPO
VC_Board	A dummy variable equals 1 if a firm has at least one VC director, and 0 otherwise	Hand-collected
VC_Share	Percentage of VC shareholdings	Hand-Collected
Log_Fund_Age	The natural logarithm of the number of years since the firm was founded	CSMRA
Size	The natural logarithm of the total assets of the firm at the end of the year	CSMRA
ROA	The return on assets, net income divided by total assets	CSMRA
Leverage	The book value of leverage scaled by total assets	CSMRA
Cash	cash and cash equivalence scaled by total assets	CSMRA
Inst_Own	The percentage of ownership by institutional investors other than VC	CSMRA
Dual	A dummy variable; equals 1 if the CEO is also the chairman of the board, and 0 otherwise	CSMRA
Big4	A dummy variable; equals 1 if audited by the Big Four accounting firms	CSMRA
Indep	The proportion of independent directors on the board of directors	CSMRA
RKS_CSR	The overall RKS corporate social responsibility score	RKS
M	The RKS macrosom score	RKS
C	The RKS content score	RKS
T	The RKS technology score	RKS
I	The RKS industry score	RKS
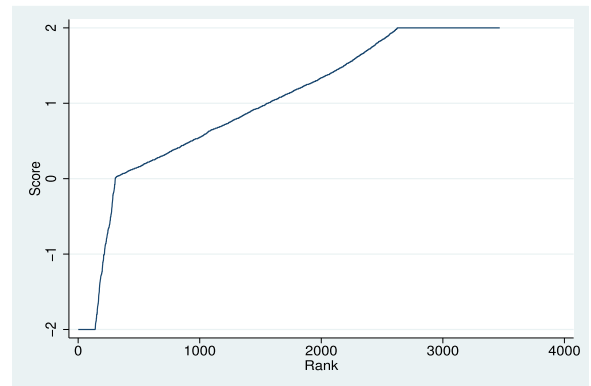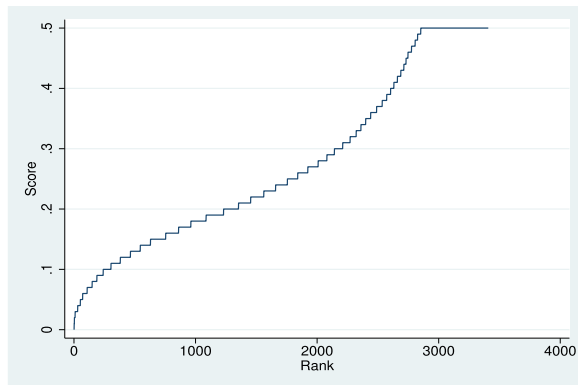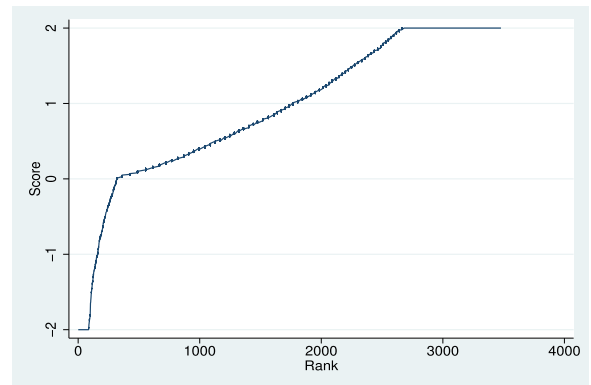
Appendix B: Hexun scores.

This appendix plots the relationship between the rankings of the original variable and the scores provided by Hexun in 2015. The rankings of the original variable in 2015 is represented on the x-axis, and the ratings in 2015 are represented on the y-axis.

References

Alakent, Ekin, Sinan Goktan, M., Khoury, Theodore A., 2020. Is venture capital socially responsible? Exploring the imprinting effect of VC funding on CSR practices. J. Bus. Ventur. 35, 106005.

Albuquerque, Rui, Koskinen, Yrjö, Zhang, Chendi, 2019. Corporate social responsibility and firm risk: theory and empirical evidence. Manag. Sci. 65, 4451–4469.

Baker, Andrew C., Larcker, David F., Wang, Charles C.Y., 2022. How much should we trust staggered difference-in-differences estimates? J. Financ. Econ. 144, 370–395.

Barrot, Jean-Noël, 2017. Investor horizon and the life cycle of innovative firms: evidence from venture capital. Manag. Sci. 63, 3021–3043.

Barry, Christopher B., Muscarella, Chris J., Peavy III, John W., Vetsuypens, Michael R., 1990. The role of venture capital in the creation of public companies: evidence from the going-public process. J. Financ. Econ. 27, 447–471.

Bernstein, Shai, Giroud, Xavier, Townsend, Richard R., 2016. The impact of venture capital monitoring. J. Financ. 71, 1591–1622.

Bottazzi, Laura, Da Rin, Marco, Hellmann, Thomas, 2008. Who are the active investors? Evidence from venture capital. J. Financ. Econ. 89, 488–512.

Callaway, Brantly, Sant'Anna, Pedro H.C., 2021. Difference-in-differences with multiple time periods. J. Econ. 225, 200–230.

Chemmanur, Thomas J., Krishnan, Karthik, Nandy, Debarshi K., 2011. How does venture capital financing improve efficiency in private firms? A look beneath the surface. Rev. Financ. Stud. 24, 4037–4090.

Chen, Tao, Dong, Hui, Lin, Chen, 2020. Institutional shareholders and corporate social responsibility. J. Financ. Econ. 135, 483–504.

Cheng, Beiting, Ioannou, Ioannis, Serafeim, George, 2014. Corporate social responsibility and access to finance. Strateg. Manag. J. 35, 1–23.

Dai, Rui, Liang, Hao, Ng, Lilian, 2020. Socially responsible corporate customers, forthcoming. J. Financ. Econ.

Dyck, Alexander, Lins, Karl V., Roth, Lukas, Wagner, Hannes F., 2019. Do institutional investors drive corporate social responsibility? International evidence. J. Financ. Econ. 131, 693–714.

Ferrell, Allen, Liang, Hao, Renneboog, Luc, 2016. Socially responsible firms. J. Financ. Econ. 122, 585–606.

Flammer, Caroline, 2015. Does corporate social responsibility lead to superior financial performance? A regression discontinuity approach. Manag. Sci. 61, 2549–2568.

Flammer, Caroline, Kacperczyk, Aleksandra, 2019. Corporate social responsibility as a defense against knowledge spillovers: evidence from the inevitable disclosure doctrine. Strateg. Manag. J. 40, 1243–1267.

Gompers, Paul A., 1996. Grandstanding in the venture capital industry. J. Financ. Econ. 42, 133–156.

Gompers, Paul, Lerner, Joshua, 1998. Venture capital distributions: short-run and long-run reactions. J. Financ. 53, 2161–2183.

Goodman-Bacon, Andrew, 2021. Difference-in-differences with variation in treatment timing. J. Econ. 225, 254–277.

Hartzmark, Samuel M., Sussman, Abigail B., 2019. Do investors value sustainability? A natural experiment examining ranking and fund flows. J. Financ. 74, 2789–2837.

Hellmann, Thomas, Puri, Manju, 2000. The interaction between product market and financing strategy: the role of venture capital. Rev. Financ. Stud. 13, 959–984.

Hellmann, Thomas, Puri, Manju, 2002. Venture capital and the professionalization of start-up firms: empirical evidence. J. Financ. 57, 169–197.

Hochberg, Yael V., 2012. Venture capital and corporate governance in the newly public firm. Rev. Financ. 16, 429–480.

Hong, Harrison G., Kubik, Jeffrey D., Liskovich, Inessa, Scheinkman, José, 2019. Crime, Punishment and the Value of Corporate Social Responsibility. Working Paper, Columbia University.

Houston, Joel F., Shan, Hongyu Derek, 2021. Corporate ESG profiles and banking relationships, forthcoming. Rev. Financ. Stud.

Iliev, Peter, Lowry, Michelle, 2021. Venturing beyond the IPO: financing of newly public firms by venture capitalists. J. Financ. 2020, 1527–1577.

Kandel, Eugene, Leshchinskii, Dima, Yuklea, Harry, 2011. VC funds: Aging brings myopia. J. Financ. Quant. Anal. 46, 431–457.

Kaplan, Steven N., Klebanov, Mark M., Sorensen, Morten, 2012. Which CEO characteristics and abilities matter? J. Financ. 67, 973–1007.

Krueger, Philipp, Sautner, Zacharias, Starks, Laura T., 2020. The importance of climate risks for institutional investors. Rev. Financ. Stud. 33, 1067–1111.

LaLonde, Robert J., 1986. Evaluating the econometric evaluations of training programs with experimental data. Am. Econ. Rev. 76, 604–620.

Lerner, Joshua, 1994. Venture capitalists and the decision to go public. J. Financ. Econ. 35, 293–316.

Lerner, Josh, 1995. Venture capitalists and the oversight of private firms. J. Financ. 50, 301–318.

Li, Jiu-Jin, Chang, Xu, Fung, Hung-Gay, Chan, Kam C., 2021. Do venture capital firms promote corporate social responsibility? Int. Rev. Econ. Financ. 71, 718–732.

Lin, Timothy H., Smith, Richard L., 1998. Insider reputation and selling decisions: the unwinding of venture capital investments during equity IPOs. J. Corp. Finan. 4, 241–263.

Lins, Karl V., Servaes, Henri, Tamayo, Ane, 2017. Social capital, trust, and firm performance: the value of corporate social responsibility during the financial crisis. J. Financ. 72, 1785–1824.

Nahata, Rajarishi, 2008. Venture capital reputation and investment performance. J. Financ. Econ. 90, 127–151.

Paeglis, Imants, Veeren, Parianen, 2013. Speed and consequences of venture capitalist post-IPO exit. J. Corp. Finan. 22, 104–123.

Puri, Manju, Zarutskie, Rebecca, 2012. On the life cycle dynamics of venture-capital-and non-venture-capital-financed firms. J. Financ. 67, 2247–2293.

Rin, Da, Marco, Thomas Hellmann, Puri, Manju, 2013. A survey of venture capital research. In: Handbook of the Economics of Finance, 2. Elsevier, pp. 573–648.

Sahlman, William A., 1990. The structure and governance of venture-capital organizations. J. Financ. Econ. 27, 473–521.

Schiller, Christoph, 2020. Global Supply-Chain Networks and Corporate Social Responsibility, Working Paper. Arizona State University.

Servaes, Henri, Tamayo, Ane, 2013. The impact of corporate social responsibility on firm value: the role of customer awareness. Manag. Sci. 59, 1045–1061.

Sørensen, Morten, 2007. How smart is smart money? A two-sided matching model of venture capital. J. Financ. 62, 2725–2762.

Wasserman, Noam, 2006. Stewards, agents, and the founder discount: executive compensation in new ventures. Acad. Manag. J. 49, 960–976.

Wongsunwai, Wan, 2013. The effect of external monitoring on accrual-based and real earnings management: evidence from venture-backed initial public offerings. Contemp. Account. Res. 30, 296–324.

Zingales, Luigi, 2015. Presidential address: does finance benefit society? J. Financ. 70, 1327–1363.