

**The Effect of Directors' and Officers' Liabilities Insurance on Corporate Social Responsibility
Evidence from China**

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Abstract

Using the sample of Chinese publicly listed companies from 2008-2018, we find that the firms whose managers are covered by Directors' and Officers' Liabilities Insurance (D&O insurance) are more likely to have better performance in their corporate social responsibility (CSR) activities. The effect of D&O insurance on CSR is more pronounced when the surrounding insurance industry is more active and when the corporate governance measured both internally and externally is weaker. Moreover, when D&O insurance is at presence, CSR activities can affect the firm's operating performance more effectively and positively. Overall, our results suggest that D&O insurance can be positively aligned with the shareholders' interests to promote CSR.

Keywords: Corporate Social Responsibility; Directors' and Officers' Liabilities Insurance; Information Disclosure

Introduction

Corporate social responsibility (CSR) has been gaining increasing attention over the past few decades. The concept of CSR refers to a company's voluntary commitment to contribute to the economic, social, and environmental well-being beyond its immediate financial interests. CSR initiatives not only earn the companies a reputation of good citizens in the society (Kim 2019; Saxton et al., 2019; Zhang et al., 2021), but also help the companies in various ways such as promotion of consumer goodwill (Tian et al. 2011), lower cost of capital (Attig et al., 2013; Ye and Zhang 2011; Gong et al., 2021), better operating performance (Torugsa et al., 2013; Jo and Harjoto, 2012; Rodgers et al., 2013; Tsai and Wu 2022), and eventually enhancement of shareholders' interest (Harjoto and Jo, 2011; Harjoto and Laksmana, 2018; Bouslah et al., 2022).

While the CSR initiatives are expected to be beneficial for shareholders, the success of a CSR strategy largely depends on the firm's quality of corporate governance (Chan et al., 2014; Hong et al., 2016), which covers the areas of ownership structure (Li and Zhang, 2010; Padgett and Galan, 2010), board features and structure (Liao et al., 2018; Lau et al., 2016; Chang et al., 2017; Katmon et al., 2019), CEO background (Meier and Schier, 2021; Bose et al., 2022; Zhang et al., 2022; Xu and Ma, 2022), etc. In this paper, we explore a new factor that could affect the companies' CSR activities, namely, Directors' and Officers' Liabilities Insurance (D&O insurance). The insurance provides financial protection to the managers in the events that they are sued for wrongful acts committed in the course of their duties. Since many of the lawsuits against the managers come from the failures and inadequacies of fulfilling CSR¹, we argue that D&O insurance, as a monitoring force to prevent managerial wrongdoings, can strongly affect CSR.

The D&O insurance providers have a strong motivation to ensure the managers' behaviors in the alignment of CSR initiatives. The providers would force the managers to provide the information about their CSR activities so the risk can be better appraised. If the companies have serious hazards in their CSR tasks, the providers may threaten to increase the policy premiums and even cease the insurance contract, which poses pressure onto the managers. As such, the actual CSR practices would be improved, and the CSR reporting would be more transparent. Therefore, we develop our main hypothesis named *Monitoring Hypothesis* that predicts a positive relationship between the presence of D&O insurance and CSR success, as a result of effective insurance monitoring on the managers. This hypothesis is consistent with many

¹ For examples, Vale S.A. a Brazilian mining company had its Córrego do Feijão iron ore mine collapsed in January 2019, killing over 250 people and causing significant environmental damage. The incident led to legal action against the company by investors who held shares in the company. In the case of BP and the Deepwater Horizon oil spill in 2010, BP consequently faced legal action from a range of stakeholders, including investors who alleged that the company had failed to adequately disclose the risks associated with deepwater drilling and had misled investors about the safety of its operations.

studies that support the monitoring incentives of D&O insurance (Holderness, 1990; Zou et al. 2008; Yuan et al. 2016; Jia et al. 2019).

A strand of literature, however, suggests a negative role played by D&O insurance on the performance of covered managers. They argue that the financial protection by the insurance induces the managers' moral hazard, leading to poor corporate decisions (Core, 1997; Chalmers et al., 2002; Boubakri et al., 2008; Lin et al., 2011; Rees et al., 2011; Lin et al., 2013; Li and Liao, 2014; Boyer and Tennyson, 2015; Chang and Chen, 2018). One important reason for this is that in the US and Canada, the decision to purchase D&O insurance is made by managers, and not approved by shareholders, which may lead to a conflict of interest and moral hazard among managers (Core, 1997). In such a situation, the managers who value their autonomy are more likely to avoid the monitoring component within the insurance and only obtain the financial protection terms. In response, the D&O insurance providers even purposefully insure companies with higher litigation risk, so they can charge higher fees and premiums (Baker and Griffith, 2007). Based on this line of literature, we develop a competing hypothesis called *Spoiling Hypothesis*. It predicts a negative relationship between the presence of D&O insurance and CSR success.

We tested our hypotheses using the universe of publicly traded companies in China. China's market is an interesting case to explore because it is the second-largest economy and financial market in the world, but its development of environmental protections and stakeholder awareness is relatively backward. According to the 2020 Environmental Performance Index (EPI) report, China ranked 120th out of 180 countries (Wendling et al., 2020). Moreover, the process of purchasing D&O insurance in China is distinct from that of other countries. According to the "Guidelines for Corporate Governance of Public Companies" issued by the Chinese Securities Regulatory Committee (CSRC) in 2002, the purchase of D&O insurance must be approved by the shareholders at their annual meetings and not solely by the management. Typically, the controlling shareholders, who will be covered by the insurance, are exempt from voting, and the decision lies with the remaining shareholders. In some cases, minority shareholders have even collectively vetoed the purchase of insurance². Therefore, in the Chinese context, shareholders can expect their interests to be more aligned with the insurance than with the managers. While governance issues are more severe in the country, shareholders can rely more on the monitoring element of D&O insurance to prevent managers from engaging in value-destroying activities, including failures in CSR. Hence, the insurance's monitoring

² For instances, at the shareholders' general meeting of Beijing Shuzhi Technology Co on May 20, 2022, the managers proposed the purchase of liability insurance for directors and executives, but the minority shareholders voted against it, resulting in the proposal's failure. Similarly, at its shareholder meeting on June 20, 2022, Pinlive Foods Co., Ltd. proposed the purchase of liability insurance, but the controlling shareholders, who were also the managers to be covered by the insurance, recused themselves from voting. The remaining minority shareholders voted against the proposal, leading to its rejection.

effect can be more evident in the Chinese setting, as suggested by previous literature (Zou et al. 2008; Yuan et al. 2016; Jia et al. 2019).

Our empirical analysis indicates a strong positive relationship between the presence of D&O insurance and the performance of CSR measured in various dimensions such as level of CSR disclosure, ESG ranking, and the degree of CSR fulfillment. In particular, the insurance can promote CSR by 9 points, when the average CSR score is 39 points. This result remains statistically significant after controlling for the firms' financial characteristics such as firm size, leverage ratio, Tobin's Q, stock returns, as well as the firms' governance factors such as institutional ownership, CEO duality, and board structure, etc. Moreover, the impact of D&O insurance is more powerful when the insurance industry surrounding the firm headquarter is more active and when more of the firm's shares are held by insurance companies.

To support the notion that D&O insurance takes effect through improving governance, we test the moderating effect of corporate governance on our main result. If the D&O insurance functions as an effective monitoring factor, then its effect would be more pronounced in a weak environment where no effective corporate governance is in place and hence better governance is much needed by the shareholders. In our moderation analysis, as expected, the positive effect of D&O insurance on CSR is stronger at the presence of CEO duality, fewer outside board directors, higher managerial expense ratios, and higher fees paid to auditors, all indicating a weak internal governance structure. We also find the insurance effect is stronger when the institutional ownership is lower and when the local legal environment is less healthy. In contrast, the D&O insurance effect is weaker when the firm is cross listed overseas and subject to more scrutiny by regulators, an indicator of strong governance.

D&O insurance also has a stronger effect on promoting CSR when managers are under mandatory disclosure or negative media scrutiny, as it induces an incentive for them to improve their reputation. In such cases, CSR initiatives may not necessarily be driven by genuine motivation, but rather by the desire to restore their reputation. The governing role of D&O insurance is hence more effective in this situation. On the other hand, in firms with voluntary disclosure and no negative reports, CSR activities are likely to reflect honest managerial effort, and the effect of D&O insurance is relatively marginal.

It is also possible that D&O insurance induces managers to take more risks pursuing CSR, but we do not find evidence supporting this notion. In particular, we segment our sample based on the level of legal risks faced by the managers. If D&O insurance shields the managers from the risks, then its effect should be more pronounced for firms with higher levels of risk, which is not supported by our empirical result. Moreover, we found that D&O insurance has a positive moderating effect on the connection between CSR performance and operating performance. Companies with D&O insurance coverage can effectively avoid legal costs associated with pursuing CSR activities, which in turn helps them generate more operating

profits. Therefore, D&O insurance can be seen as a facilitator for CSR, especially in situations where managers are under pressure to improve their reputation.

Our study is the first to connect D&O insurance and CSR performance. We show that D&O insurance can promote a company's CSR performance through better governance. We add this new determinant of CSR performance to the literature, in addition to a variety of financial factors and corporate factors. While CSR is important for the sustainability of our society, incorporating D&O insurance can not only protect the managers from the risks pursuing the CSR goals, but also better monitor the managers and reduce the legal costs associated with CSR failures. We also add evidence to the debate over the role of D&O insurance. Two opposite views have been established in the literature. One supports the monitoring role of the insurance and its positive effect on governance in the context that the purchase of the insurance is determined by shareholders instead of the managers to be covered by the insurance.

The rest of this paper is organized as the following: Section 2 reviews the literature and develops our hypotheses. Section 3 introduces the data and major variables. Section 4 shows our empirical results. Section 5 presents the result of robustness check. Section 6 concludes the paper.

2. Literature review and hypothesis development

As our society develops, the goal of the corporation has evolved from maximizing shareholder interests to including the interests of all stakeholders, including suppliers, employees, the environment, and the general public. Studies show that CSR activities can reduce the degree of information asymmetry and ease the conflict of interests between shareholders and other stakeholders (Freeman, 1994; Jensen, 2010; Harjoto and Jo, 2011). Additionally, CSR can be converted into long-term operating performance for the company itself and increase its corporate value for the shareholders (Jamali and Mirshak, 2007; Du et al., 2010). The implementation of CSR can be determined by many governance factors, such as CEO morals and values (Godos-Díez et al., 2011), firm reputation (Chan et al., 2014), analyst tracking (Harjoto and Jo, 2011), foreign consumers or investors' supervision (Chapple and Moon, 2005; McGuinness et al., 2017; Kao et al., 2018), media supervision (Xu and Huang, 2015), board of directors with higher independence (Harjoto and Jo, 2011), higher internal control quality (Peng and Chen, 2015; Li and Zhang, 2017).

A strand of literature recommends D&O insurance as an effective governance factor. D&O insurance providers actively participate in the process of pre-approval, in-process supervision, and post-investigation during the underwriting process (Bhagat et al., 1987; Holderness, 1990; O'Sullivan, 1997; Chi et al., 2013) and hence play an active corporate governance role (Chen and Chang, 2011). The purchase of D&O insurance can better retain independent directors (Gardner and Fulton, 2007; MacMinn et al., 2012), promote their supervision of management, and increase corporate value (Priest, 1987; Holderness, 1990;

O'Sullivan, 1997). However, another line of studies suggests the opposite, as the insurance offers protection to managers and hence induces their moral hazard reflected in poor corporate decisions (Core, 1997; Chalmers et al., 2002; Boubakri et al., 2008; Lin et al., 2011; Rees et al., 2011; Lin et al., 2013; Li and Liao, 2014; Boyer and Tennyson, 2015; Chang and Chen, 2018). Some studies also find that D&O insurance is usually purchased by companies with poor financial conditions (Boyer, 2007), inadequate profitability (Cao and Narayanamoorthy, 2014), and high litigation risks (Zou et al., 2008). In such cases, the insurance companies have the motivation and ability to identify companies with high litigation risks and demand higher premiums or supervise management in order to reduce their future financial losses (Core, 1997; Chalmers et al., 2002).

Based on the existing literature, we build a connection between D&O insurance and CSR performance. We develop two opposing hypotheses for the relationship between the two. On one hand, the introduction of D&O insurance in the area of CSR can improve the motivation and performance of internal personnel in CSR and strengthen the disclosure of CSR information, thereby reducing the degree of information asymmetry inside and outside the company, alleviating conflicts of interest between shareholders and other stakeholders. On the other hand, D&O insurance can make the managers immune from litigation risks related to CSR failures and reduce the managers' potential costs of harming the interests of other stakeholders. Hence, D&O insurance may increase the moral hazard behavior of management and reduce CSR performance. Put together, the two hypotheses are developed as the following:

H1a: D&O insurance will increase CSR disclosure and engagement.

H1b: D&O insurance will reduce CSR disclosure and engagement.

Moreover, since D&O insurance affect CSR through a better governance effect, propose that the insurance effect shall be more pronounced when the insurance industry is more active and when the covered firm has a weaker governance. Thus, we develop the following hypotheses:

H2a. The effect of D&O insurance on CSR is more pronounced when the insurance industry is more active.

H3a. The effect of D&O insurance on CSR is more pronounced when the corporate governance of the covered firm is weaker.

3. Data, Variables, and Methodology

Referring to the existing research (McGuinness et al., 2017; Razaee et al. 2020), we use the data from Rankins Global (*RKS*) on the disclosure and performance of social responsibilities of publicly listed

companies to measure CRS performance. The lower the score of this indicator, the lower the level of social responsibility of the company, indicating a higher degree of conflict of interest between the company and other stakeholders. Our main regression analysis uses CSR performance as the dependent variable. We use the Chinese publicly listed firms from 2008 to 2018 as our initial sample³. The data for corporate governance factors, and financial information of the firms, as well as the trading records of their stocks come from the China Stock Market and Accounting Research database (CSMAR). The data of D&O insurance coverage are from the Chinese Research Data Services platform (CNRDS). The sample is sifted after a number of data-filtering steps. In particular, we exclude firms in the financial industry, firms that lack sufficient financial data, firms under special treatment by the securities regulator, and firms with a total debt ratio greater than 1 or less than 0. Due to the limited availability of CSR reports, the primary regression sample size is small with 6,104 firm-year observations.

<Insert Table 1 Here>

Table 1 shows the descriptive statistics of our major variables, while the definitions of the variables are in Appendix A. *Rks* is the CSR rating provided by Rankins Global. It has an average of 39.280. The rating agency also gives CSR ratings in four dimensions of holistic governance, content completeness, industry-adjusted level, and technology. *Csr* is the variable social responsibility performance with a mean value of 1.003, indicating that for every one yuan increase in total operating revenue, the company pays 1.003 yuan more in cash to its stakeholders. The ESG rating published by SynTao Green Finance has an average value of 3.104, corresponding to a rating between B- (assigned a value of 3) and B (assigned a value of 4). The independent variable *Insured* indicates whether the company purchased or renewed D&O insurance that year. Its mean value shows that 12.1% of the sample have made the purchase.

Based on the data, we run our testing model as the following:

$$Rks_{i,t} = \beta_0 + \beta_1 D\&O\ Insured_{i,t} + \beta_2 Controls_{i,t} + \sum Year_{i,t} + \sum Ind_{i,t} + \sum Prov_{i,t} + \xi_{it} \quad (1)$$

Where *Rks* is the proxy for CSR. *Insured* is the dummy variable for D&O insurance. The model controls for various factors such as company size, leverage, Tobin's Q, return, number of directors, proportion of independent directors, duality, separation, top shareholder ownership, cash flow, cash,

³ Rankins issued CSR ratings for the period of 2008-2018 and then replace it with ESG ratings starting in 2019. We also use ESG scores from 2015-2020 released by SynTao Green Finance Corporation for a later robustness check.

company age, ROE, turnover, institutional shareholder ownership, and firm auditor status. The regression model controls for the fixed effects of year, industry, and province and clusters the standard errors of all regression coefficients at the firm level. The specific definitions of these variables are shown in Appendix A. We focus on the regression coefficient β_1 for Insured. If β_1 is significantly negative, it supports the hypothesis that the purchase of D&O insurance increases the moral hazard of insiders, reducing CSR performance. If β_1 is significantly positive, it supports the hypothesis that D&O insurance plays a monitoring role, improving CSR performance.

If the above analysis can confirm that D&O insurance improves the motivation for social responsibility disclosure and enhances corporate social responsibility, then we will further investigate the insurance effect on long-term corporate performance. Specifically, we use the increment of return on assets (ΔRoa) and the return on equity (ΔRoe) to measure the long-term performance of companies. Model (2) is constructed to examine the long-term performance of companies after the introduction of director and officer liability insurance to improve corporate social responsibility:

$$\Delta Roa_{i,t} = \beta_0 + \beta_1 Rks_high_{i,t} + \beta_2 Control\ Variables_{i,t} + \sum Year_{i,t} + \sum Ind_{i,t} + \sum Prov_{i,t} + \xi_{it} \quad (2)$$

The variable Rks_high is a dummy variable that indicates whether firm I is above the median of CSR scores by “industry-year” categories. Upon the model, we compare the group of companies with D&O insurance coverage with the group of companies without. If the regression coefficient β_1 is significantly positive in the group that has insurance coverage and passes the inter-group coefficient difference test, it indicates that D&O insurance can promote the positive CSR and is beneficial to the long-term development of companies. Whether or not the company purchased D&O insurance is used as the grouping variable in the analysis.

4. Empirical Results

4.1 Main results

Table 2 shows the main results of our study. It shows that companies whose managers are covered with D&O insurance tend to have higher CSR scores, indicating better disclosure and performance of corporate social responsibility. On average, companies with the D&O insurance coverage have a CSR score that is 2.8565 points higher than that of companies without coverage.

<Insert Table 2 Here>

To further understand how D&O insurance could affect CSR performance, we conduct a regression analysis of Eq. (1) based on the influence of insurance industry on the relationship between D&O insurance and CSR. In particular, we segment our sample based on the level of influence of insurance industry and run group tests on the influence of insurance industry, which is measured by the local insurance revenue scaled by local GDP (*InsPre/GDP*), the proportion of ownership by insurance companies (*SthInscomp*), and the number of insurance companies within a certain distance from the company (*InsuNum*). The first six columns of Table 3 present the results of this analysis.

<Insert Table 3 Here>

The coefficients of D&O insurance are significantly positive in the provinces with high insurance revenue in Column (1) and more insurance companies in Column (3) and when more ownership of the company is possessed by insurance companies in Column (5), whereas for companies under weak influence in Column (2), (4) and (6), D&O insurance does not appear to significantly affect their CSR performances. This result suggests that D&O insurance has a stronger promoting effect on CSR performance when the firm is operating in a better insurance environment, where insurance companies have greater influence and higher monitoring ability on the locally listed firms.

4.2 Moderating Effect of Corporate Governance

Since D&O insurance promotes CSR performance through better governance mechanism, we further test the moderating effect of corporate governance on the effectiveness of D&O insurance. To measure the level of governance, we use the following proxies: CEO duality (*Dual*), the proportion of independent directors (*Outdir*), agency costs (*Fee*), audit fees (*AuditFee*), the proportion of institutional investors holding shares excluding insurance companies (*Insthold*), the legal environment score (*LegalEnv*), and dummy for cross-listing (*Crosslist*). The established theories suggest that for companies with a separation of CEO and chairman roles, a higher proportion of independent directors, lower agency costs and audit fees, a higher proportion of institutional investors, and operating in regions with a better legal environment usually have better performance in CSR (Chapple and Moon, 2005; McGuinness et al., 2017). If D&O insurance can indeed strengthen the role of internal and external supervisory governance, then in groups better governance, the role of D&O insurance in improving CSR should be stronger.

<Insert Table 4 Here>

If the regression coefficient of the main explanatory variable is significantly positive and the inter-group coefficient difference test is passed, it indicates that D&O insurance can strengthen internal and external supervisory governance, and thereby improve CSR. Table 4 shows the results of group testing with the sample firms segmented by CEO duality in Column (1) and (2), the ratio of independent directors in Column (3) and (4), management fee for agency cost in Column (5) and (6) and auditing fee in Column (7) and (8). The strong effect of D&O insurance on CSR performance is mainly driven by the firms with dual CEOs, less independent directors, high agency costs, and high auditing fees in Column (1), (4), (5), and (7), all indicating a weak governance structure. The Chi-squares are also statistically significant in the four group difference tests. These results support the notion that D&O insurance can function as an effective governance tool when strong internal governance is not available.

<Insert Table 5 Here>

In the same spirit, we test the moderating effect of external governance on the relationship between D&O insurance and CSR performance. Table 5 shows our main regression results for samples segmented by the level of external governance factors. These factors include institutional ownership, the quality of legal environment, and cross-listing for stock trading. The underlying rationale is that the firm governance is weaker when institutional ownership is low, the legal environment is inadequate, and no approval by foreign stock exchanges. As expected, the effect of D&O insurance on CSR performance is more pronounced when those external factors have a weak impact on the firm governance, as the coefficients of D&O insurance in Column (2), (4), and (6) are significant. In stark contrast, the coefficients of D&O insurance in other columns are insignificant, suggesting the effect of D&O insurance is marginal in the presence of strong governance. It is also worth mentioning that the type of institutional ownership offers different mechanisms. From the last two columns in Table 3, one can see that high ownership by insurance companies can promote the effect of D&O insurance, whereas the last two columns in Table 5 show that high ownership by non-insurance institutions can diminish the effect of D&O insurance.

4.3 Moderating Effect of Managerial Motivation

In this section, we test whether D&O insurance promotes CSR performance by encouraging more public disclosure of the companies. If the disclosure is enforced, either by the pressure of authority mandate or by the motivation to recover damaged reputation, then the disclosure would have a weaker effect on CSR performance. For example, mandatory disclosure can change corporate behaviors and hurt shareholder

interests (Chen et al., 2018), so the social responsibility taken by the shareholders is unlikely to be a long-term strategic plan. Moreover, the managers who are reported negatively by the media have a motivation to recoup their reputation through more public disclosure and more CSR activities, but there could be false information release and the effect may backfire (Yoon et al., 2006). The disclosure under such circumstances cannot truly promote transparency and cannot promote CSR performance. In this case, D&O insurance can function as a complementary tool to improve the CSR, so the effect of D&O insurance on CSR performance should be stronger. On the other hand, if the disclosure is voluntary, then it indicates the firm itself takes greater initiatives to promote its CSR and the role played by D&O insurance would be limited.

To perform the test, we segment our samples based on disclosure motivation. As shown in Table 6, the motivation would be legitimate when the disclosure is voluntary in Column (1) and when there are no negative reports about the firm's CEO so no need to recover the damaged reputation in Column (4). The coefficients of D&O insurance are insignificant in these columns, indicating weak influence of D&O insurance when the firm's disclosure motivation is legit. In contrary, Column (2) and (3) show a strong and significant effect of D&O insurance when the disclosure motivation is driven by authority mandate and reputation restoration. The chi-square for the group difference testing is also strong, indicating that disclosure motivation plays a strong moderating role in the relationship between D&O insurance and CSR performance.

<Insert Table 6 Here>

4.4 Economic Effect

Studies show that CSR performance can promote firms' financial and operating performance (Orlitzky et al., 2003; Luo et al., 2006). Table 7 shows that among the Chinese firms, CRS ranking is positively associated with operating performance, proxied by the change of ROA and ROE, but only when D&O insurance is at presence in Column (1) and (3). If a firm's CSR ranking is above the median, then the ROA (ROE) is expected to be 1.06% (2.64%) higher. For most of the sample firms uncovered by D&O insurance, however, the relationship between CSR and operating performance is insignificant, as shown by the coefficients of the insurance dummy in Column (2) and (4). The result shows that D&O insurance can strengthen the link between CSR and operating performance. It supports the notion that D&O insurance provides an effective governance component that makes the efforts in CSR more aligned with the shareholders' long-term interests.

<Insert Table 7 Here>

5. Robustness Check

5.1 Propensity Score Matching

Several rounds of robustness tests further verify our main result. Column (1) of Table 8 shows the regression result with a fixed effect at the firm level instead of the industry and province levels before. Column (2) shows the regression result based on the propensity score matching method. The treatment firms are those with D&O insurance coverage and the control firms are filtered through 1-to-1 match on the dimensions of size, leverage, etc. Please see Appendix B for the details of the propensity score matching. Column (3) and (4) shows the results from Heckman two-stage analysis. Since many companies miss CSR reports for certain years, it may cause sample bias based on missing dependent variables. In the first stage, a Probit estimation is conducted using independent variables and controlled variables to predict whether CSR reports are disclosed, and the estimated inverse Mills ratio (IMR) is used to correct sample bias in the second-stage regression. Our main result stays robust.

<Insert Table 8 Here>

5.2 Various Metrics for CSR

We also use other metrics to measure CSR performance. In Column 1 of Table 9, the dependent variable is the dummy variable Rks_D to indicate whether CSR reports are disclosed. In Column 2-4 we use separate regression models for estimation: OLS, FE, and Tobit (left-censored at 0). In Column 5-8, the dependent variable is replaced with CSR report sub-scores (comprehensiveness (M)), technicality (T), and industry specificity (I)) (Rks_M, Rks_C, Rks_T, Rks_I). Moreover, we calculate CSR performance as (cash paid for dividends or profits + operating expenses + cash paid for interest + cash paid to and for employees + cash paid for goods and services + actual payment of taxes) / net revenue. This CSR variable is constructed based on the cash spending on all related stakeholders including the shareholders. In Column 10, we use another ranking agency's data called Syntao Green Finance ESG rating for CSR measurement. The main results remain significant.

<Insert Table 9 Here>

6. Conclusion

This research shows that companies with D&O insurance tend to perform better in terms of corporate social responsibility CSR activities. The positive effect of D&O insurance on CSR is particularly strong when the insurance industry is more active, and internal and external corporate governance measures are weaker. Additionally, when D&O insurance is present, CSR activities can have a more positive impact on a firm's operating performance. Our findings suggest that D&O insurance can be beneficially aligned with shareholders' interests in promoting CSR.

Our study is the first to establish a link between D&O insurance and CSR performance. We demonstrate that D&O insurance can enhance a company's CSR performance through improved governance, providing a new determinant of CSR performance in addition to the financial and governance factors in previous studies. While CSR is important for the sustainability of society, the inclusion of D&O insurance can protect managers from risks associated with pursuing CSR goals and facilitate better monitoring of managers, ultimately reducing legal costs resulting from CSR failures.

Furthermore, our research contributes to the ongoing debate regarding the role of D&O insurance. The literature contains two opposing views, with one suggesting that insurance can play a monitoring role and have a positive impact on governance, while the other emphasizes the moral hazard effect of insurance and its adverse impact on governance. Our results support the former perspective, in the sense that the purchase of insurance is determined by shareholders, rather than the managers who are to be covered by it.

Compliance with Ethical Standards

Conflict of interest: All authors declare that they have no conflict of interest.

Animal Research: This article does not contain any studies with animals performed by any of the authors.

Ethical Approval: All procedures performed in this research involving human participants were in accordance with the ethical standards of the institutional research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards.

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Table 1. Summary Statistics

This table presents the summary statistics of all the variables used in this study. All variable definitions are in Appendix A.

<i>Variable</i>	<i>Mean</i>	<i>Sd</i>	<i>P50</i>	<i>Max</i>	<i>Min</i>	<i>N</i>
<i>Rks</i>	39.280	12.190	36.770	75.450	18.550	6104
<i>Rks_high</i>	0.480	0.500	0.000	1.000	0.000	6104
<i>ΔRoa</i>	-0.008	0.049	-0.004	0.154	-0.222	6104
<i>ΔRoe</i>	-0.017	0.109	-0.006	0.367	-0.540	6104
<i>Rks_D</i>	0.275	0.447	0.000	1.000	0.000	22186
<i>Rks_rob</i>	10.807	18.672	0.000	75.450	0.000	22186
<i>Rks_M</i>	13.648	4.270	13.130	24.610	5.630	5616
<i>Rks_C</i>	17.365	5.848	16.500	34.630	6.190	5615
<i>Rks_I</i>	7.246	1.892	7.010	13.520	3.860	5615
<i>Rks_T</i>	1.813	1.573	1.460	7.140	0.000	5604
<i>Csr</i>	1.003	0.250	0.999	2.224	0.449	6104
<i>Esg</i>	3.104	0.954	3.000	5.000	1.000	2820
<i>Insured</i>	0.121	0.327	0.000	1.000	0.000	6104
<i>InsPre/GDP</i>	3.762	1.099	3.500	6.801	2.122	6104
<i>InsuNum</i>	80.883	72.693	68.000	379.000	0.000	6104
<i>SthInscomp</i>	0.571	1.446	0.000	9.360	0.000	6104
<i>InsuLen</i>	0.776	2.416	0.000	11.000	0.000	6104
<i>Fee</i>	0.078	0.058	0.065	0.351	0.009	6104
<i>AuditFee</i>	0.000	0.001	0.000	0.008	0.000	5994
<i>Insthold</i>	0.411	0.227	0.434	0.866	0.007	6104
<i>LegalEnv</i>	0.320	0.466	0.000	1.000	0.000	6104
<i>Export</i>	0.473	0.499	0.000	1.000	0.000	6104
<i>Crosslist</i>	0.133	0.339	0.000	1.000	0.000	6104
<i>Voluntary</i>	0.412	0.492	0.000	1.000	0.000	6104
<i>Reputation</i>	0.371	0.483	0.000	1.000	0.000	6104
<i>Soe</i>	0.627	0.484	1.000	1.000	0.000	6104
<i>Size</i>	23.040	1.389	22.930	26.060	19.640	6104
<i>Lev</i>	0.492	0.197	0.504	0.893	0.052	6104
<i>Dirnum</i>	9.246	1.947	9.000	15.000	5.000	6104
<i>Outdir</i>	0.374	0.055	0.364	0.571	0.333	6104
<i>Separate</i>	5.613	8.284	0.000	29.320	0.000	6104
<i>Lsh</i>	38.080	15.890	37.710	74.980	8.773	6104
<i>Dual</i>	0.163	0.370	0.000	1.000	0.000	6104
<i>Cf</i>	0.054	0.070	0.052	0.248	-0.174	6104
<i>Cash</i>	0.148	0.110	0.118	0.618	0.010	6104
<i>Inst</i>	0.416	0.227	0.442	0.831	0.001	6104
<i>Big4</i>	0.149	0.356	0.000	1.000	0.000	6104
<i>Age</i>	2.814	0.341	2.890	3.434	1.609	6104
<i>Roe</i>	0.081	0.111	0.083	0.335	-0.668	6104
<i>Turnover</i>	0.764	0.578	0.622	3.712	0.072	6104

<i>Ret</i>	0.092	0.550	-0.051	2.587	-0.718	6104
<i>Tq</i>	1.843	1.166	1.453	8.735	0.896	6104

Table 2. The Effect of D&O Insurance on CSR Performance

This paper reports the impact of D&O insurance on CSR performance of the firm. The dependent variable *Rks* is the firm's CSR score rated by Rankins Global (RKS) on the disclosure and performance of social responsibilities of publicly listed companies to measure CRS performance. *Insured* equals 1 if the firm has purchased D&O insurance in the year, and 0 otherwise. Definitions of other variables are presented in Appendix A. Year, industry, and province fixed effects are excluded in Column (1) and (2) and included in Column (3). T-statistics are in parentheses with standard errors clustered at the firm level. ***, **, and * indicate 1%, 5%, and 10% significance levels, respectively.

<i>VARIABLES</i>	(1) <i>Rks</i>	(2) <i>Rks</i>	(3) <i>Rks</i>
<i>Insured</i>	8.8924*** (6.3339)	3.2499*** (2.8873)	2.8565** (2.5687)
<i>Size</i>		4.1064*** (12.3696)	3.1048*** (8.6847)
<i>Lev</i>		-8.3759*** (-4.4195)	-1.8198 (-0.8858)
<i>Dirnum</i>		0.1161 (0.6326)	0.4301** (2.5152)
<i>Outdir</i>		-0.2296 (-0.0433)	0.2248 (0.0450)
<i>Separate</i>		-0.0378 (-0.9616)	-0.0410 (-1.1283)
<i>Lsh</i>		0.0059 (0.2727)	0.0209 (1.0251)
<i>Dual</i>		-0.0056 (-0.0092)	-0.8249 (-1.5349)
<i>Cf</i>		6.8455** (2.1271)	5.9407** (2.0610)
<i>Cash</i>		-1.6952 (-0.6456)	1.1388 (0.4310)
<i>Inst</i>		2.9019** (2.2048)	0.5085 (0.4119)
<i>Big4</i>		3.5589*** (2.6839)	3.7976*** (3.0082)
<i>Age</i>		1.4177 (1.4429)	-2.4812** (-2.3347)
<i>Roe</i>		-5.5771*** (-2.7673)	-0.0870 (-0.0464)
<i>Turnover</i>		1.0185* (1.9434)	0.7351 (1.4324)
<i>Ret</i>		-0.2957 (-1.2927)	0.5822** (2.2401)
<i>Tq</i>		0.5318** (2.1215)	-0.0342 (-0.1372)
<i>Constant</i>	38.2021*** (101.3030)	-59.7447*** (-8.1645)	-38.1591*** (-4.6458)
<i>Year&Ind&Pro</i>	No	No	Yes
<i>Observations</i>	6,104	6,104	6,104
<i>R-squared</i>	0.057	0.271	0.412

Table 3. The Effect of D&O Insurance on CSR Performance by Access to Insurance Providers

This table presents the effect of D&O insurance on CSR performance based on the access to insurance providers. In Column (1) and (2), the sample firms are segmented based on the income of the insurance industry in the province of the firm scaled by the province's GDP. In Column (3) and (4) the samples are segmented by the number of insurance companies surrounding the firm. In Column (5) and (6) the samples are segmented by the ownership of the firm held by insurance companies. The dependent variable *Rks* is the firm's CSR score rated by Rankins Global (RKS) on the disclosure and performance of social responsibilities. *Insured* equals 1 if the firm has purchased D&O insurance in the year, and 0 otherwise. Definitions of other variables are presented in Appendix A. Year, industry and province fixed effects are controlled. T-statistics are in parentheses with standard errors clustered at the firm level. ***, **, and * indicate 1%, 5%, and 10% significance levels, respectively.

<i>VARIABLES</i>	(1) <i>Rks</i>	(2) <i>Rks</i>	(3) <i>Rks</i>	(4) <i>Rks</i>	(5) <i>Rks</i>	(6) <i>Rks</i>
	<i>Insurance Premium / GDP</i>		<i>Number of insurance companies (<50km)</i>		<i>Shareholdings of insurance companies</i>	
	<i>High</i>	<i>Low</i>	<i>High</i>	<i>Low</i>	<i>High</i>	<i>Low</i>
<i>Insured</i>	3.2029** (2.3385)	0.6885 (0.4014)	3.4499** (2.4228)	1.8013 (1.1582)	4.7556*** (2.8761)	1.9388 (1.6351)
<i>Size</i>	2.9571*** (6.5294)	3.1319*** (6.0255)	2.5636*** (4.7482)	3.4601*** (7.7532)	3.8028*** (6.6415)	3.0011*** (7.8316)
<i>Lev</i>	-1.4437 (-0.5750)	-1.4310 (-0.5195)	0.5525 (0.1786)	-3.3500 (-1.4558)	-3.5426 (-1.0938)	-1.9436 (-0.9117)
<i>Dirnum</i>	0.4878** (2.2200)	0.3451 (1.5832)	0.3070 (1.0992)	0.5649*** (2.8865)	-0.0548 (-0.2059)	0.5741*** (3.2051)
<i>Outdir</i>	2.5912 (0.3594)	-6.8324 (-1.2503)	5.8852 (0.7301)	-2.5307 (-0.4620)	-2.3770 (-0.2974)	0.1916 (0.0360)
<i>Separate</i>	-0.0747 (-1.4936)	0.0181 (0.3926)	-0.0908* (-1.6723)	-0.0167 (-0.3715)	-0.0185 (-0.3288)	-0.0520 (-1.4078)
<i>Lsh</i>	0.0343 (1.2830)	0.0052 (0.1913)	0.0365 (1.0879)	0.0174 (0.7259)	0.0466 (1.2830)	0.0110 (0.5548)
<i>Dual</i>	-0.9770 (-1.3832)	-0.5900 (-0.8114)	-1.7121** (-2.1992)	-0.3636 (-0.5038)	-0.6108 (-0.5893)	-0.7802 (-1.4101)
<i>Cf</i>	5.9918 (1.4699)	5.8251* (1.7398)	9.4164** (2.0285)	1.8627 (0.5830)	2.7001 (0.4818)	7.8506*** (2.6593)
<i>Cash</i>	-2.6299 (-0.8204)	6.0354 (1.5331)	-5.0512 (-1.3581)	7.8552** (2.4081)	0.6730 (0.1487)	1.5109 (0.5671)
<i>Inst</i>	0.4824 (0.2956)	-0.3321 (-0.2031)	1.2952 (0.6414)	-0.4489 (-0.3228)	-1.4525 (-0.6797)	1.7647 (1.4096)
<i>Big4</i>	5.0542*** (3.2999)	1.3169 (0.6589)	4.9279*** (2.9361)	2.3237 (1.3697)	6.1395*** (3.5970)	2.8982** (2.1269)
<i>Age</i>	-2.6074* (-1.8815)	-1.3937 (-0.9677)	-1.7392 (-1.1586)	-3.1429** (-2.2980)	-1.2302 (-0.6881)	-2.4243** (-2.2406)
<i>Roe</i>	2.2869 (0.9340)	-0.6697 (-0.2880)	2.5047 (0.7809)	-2.5472 (-1.1425)	0.5531 (0.1372)	-0.2389 (-0.1281)
<i>Turnover</i>	0.1954 (0.2745)	0.8954 (1.3708)	-0.9616 (-1.1612)	1.6595*** (2.7462)	0.7922 (0.7815)	0.5802 (1.1891)
<i>Ret</i>	1.0123*** (2.5922)	0.1284 (0.3705)	0.5163 (1.1707)	0.3702 (1.1294)	0.0189 (0.0278)	0.7931** (2.5343)
<i>Tq</i>	0.0043 (0.0135)	-0.1072 (-0.3120)	-0.4296 (-1.0962)	0.3609 (1.1857)	0.2851 (0.6653)	-0.0917 (-0.3570)
<i>Constant</i>	-36.1612*** (-3.2980)	-37.6854*** (-3.3018)	-27.3609** (-2.1615)	-49.3873*** (-4.8996)	-51.5315*** (-3.7282)	-37.2479*** (-4.2866)
<i>Year&Ind&Pro</i>	Yes	Yes	Yes	Yes	Yes	Yes
<i>Observations</i>	3,436	2,668	2,802	3,302	1,659	4,445
<i>R-squared</i>	0.449	0.406	0.442	0.424	0.455	0.417

Chi2

6.14**

2.95*

7.00***

Preprint not peer reviewed

Table 4. The Effect of D&O Insurance on CSR Performance Based on Corporate Governance

This table presents the effect of D&O insurance on CSR performance by the level of internal corporate governance. The dependent variable *Rks* is the firm's CSR score rated by Rankins Global (RKS) on the disclosure and performance of social responsibilities. The samples are segmented based on CEO duality in Column (1) and (2), the ratio of outside directors on the board in Column (3) and (4), the level of managerial expenses in Column (5) and (6) and the level of auditing fees in Column (7) and (8). *Insured* equals 1 if the firm has purchased D&O insurance in the year, and 0 otherwise. Definitions of other variables are presented in Appendix A. Year, industry and province fixed effects are controlled. T-statistics are in parentheses with standard errors clustered at the firm level. ***, **, and * indicate 1%, 5%, and 10% significance levels, respectively.

<i>VARIABLES</i>	(1) <i>Rks</i>	(2) <i>Rks</i>	(3) <i>Rks</i>	(4) <i>Rks</i>	(5) <i>Rks</i>	(6) <i>Rks</i>	(7) <i>Rks</i>	(8) <i>Rks</i>
	<i>Dual</i>		<i>Outdir</i>		<i>Fee</i>		<i>AuditFee</i>	
	<i>Yes</i>	<i>No</i>	<i>High</i>	<i>Low</i>	<i>High</i>	<i>Low</i>	<i>High</i>	<i>Low</i>
<i>Insured</i>	6.2927*** (3.0400)	2.5280** (2.1908)	1.7563 (1.2761)	3.6099*** (2.8139)	3.8773*** (2.7161)	1.8225 (1.3516)	3.6278*** (2.6517)	1.7410 (1.1827)
<i>Size</i>	2.2999*** (4.0136)	3.1230*** (7.9301)	2.9118*** (7.1515)	3.2439*** (6.9187)	3.5144*** (7.3187)	3.0446*** (6.9784)	2.5969*** (4.9326)	4.2154*** (7.4988)
<i>Lev</i>	-2.2313 (-0.6183)	-1.4699 (-0.6580)	-1.0842 (-0.4088)	-3.1278 (-1.2855)	-2.0809 (-0.9009)	-1.0865 (-0.3751)	0.7515 (0.3629)	-1.6894 (-0.4946)
<i>Dirnum</i>	0.8195*** (3.1754)	0.3724* (1.9405)	0.6005*** (3.1335)	0.2623 (1.0892)	0.3960* (1.8420)	0.4816** (2.1061)	0.2861 (1.4992)	0.4888** (2.0527)
<i>Outdir</i>	23.9688*** (2.9382)	-2.4903 (-0.4576)	8.8189 (1.3996)	12.8593 (0.9405)	-1.3283 (-0.2153)	-1.8101 (-0.2775)	4.5979 (0.8020)	-8.6117 (-1.2177)
<i>Separate</i>	0.0165 (0.2828)	-0.0541 (-1.3676)	-0.0596 (-1.1968)	-0.0346 (-0.8360)	-0.0453 (-0.9477)	-0.0603 (-1.3584)	-0.0025 (-0.0536)	-0.0432 (-0.9013)
<i>Lsh</i>	0.0042 (0.1455)	0.0264 (1.1343)	0.0469** (2.0213)	0.0031 (0.1136)	0.0216 (0.9254)	0.0377 (1.3523)	-0.0039 (-0.1731)	0.0392 (1.3020)
<i>Dual</i>			-0.7376 (-1.0533)	-0.6467 (-0.9186)	-1.1141 (-1.5724)	-0.6909 (-0.9715)	-1.3022** (-2.1132)	-1.0108 (-1.1885)
<i>Cf</i>	4.3612 (0.9134)	5.7894* (1.7723)	6.6660* (1.6970)	5.9399* (1.7230)	4.5825 (1.2178)	6.6573* (1.8474)	5.2198 (1.4706)	5.3052 (1.2514)
<i>Cash</i>	3.4083 (0.8684)	0.3760 (0.1250)	2.5908 (0.7497)	0.9784 (0.3099)	2.4518 (0.8298)	0.9471 (0.2727)	-0.4084 (-0.1180)	3.6144 (0.8900)
<i>Inst</i>	1.7335 (0.9619)	0.0141 (0.0102)	-0.4585 (-0.2895)	1.4016 (0.9426)	-1.9067 (-1.2744)	2.7883 (1.5801)	-0.1804 (-0.1303)	-0.0500 (-0.0277)
<i>Big4</i>	1.0627 (0.5965)	4.1840*** (3.1258)	4.8462*** (3.3526)	3.4709** (2.1701)	1.5790 (0.9773)	5.5294*** (3.6596)	3.2842** (1.9942)	4.4549** (2.4778)
<i>Age</i>	-3.1147* (-1.9582)	-2.1761* (-1.7901)	-4.9778*** (-3.5917)	-0.4547 (-0.3584)	-0.5387 (-0.4099)	-4.3625*** (-3.2604)	-2.4820** (-2.1278)	-1.7606 (-1.0747)
<i>Roe</i>	4.8891 (1.3169)	-0.4763 (-0.2356)	-0.9123 (-0.3641)	0.5487 (0.2337)	0.1025 (0.0494)	-0.3114 (-0.1113)	1.7018 (0.7670)	-2.2836 (-0.7904)

<i>Turnover</i>	-0.0891 (-0.0945)	0.7344 (1.3326)	-0.4409 (-0.6084)	1.3479** (2.2568)	1.8118** (2.1313)	1.1125* (1.8901)	-0.1389 (-0.1622)	0.9825 (1.6173)
<i>Ret</i>	0.3721 (0.5457)	0.6954** (2.1940)	0.2650 (0.6332)	0.6668* (1.8666)	0.3831 (0.9770)	0.3333 (0.8697)	0.6144* (1.6561)	0.2186 (0.5467)
<i>Tq</i>	-0.5287 (-1.4239)	0.0660 (0.2345)	0.0918 (0.2751)	-0.2116 (-0.7082)	0.0021 (0.0074)	0.1235 (0.3320)	-0.0742 (-0.2660)	0.4499 (0.9540)
<i>Constant</i>	-31.1059** (-2.5123)	-38.5337*** (-4.2334)	-32.6567*** (-3.4899)	-49.3996*** (-4.3018)	-51.5204*** (-4.9724)	-35.4693*** (-3.3134)	-28.8500** (-2.5020)	-63.3895*** (-4.7384)
<i>Year&Ind&Pro</i>	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
<i>Observations</i>	998	5,106	2,454	3,650	2,931	3,173	3,043	2,951
<i>R-squared</i>	0.462	0.425	0.479	0.414	0.421	0.457	0.377	0.458
<i>Chi2</i>		5.41**		3.61*		4.50**		3.75*

Table 5. The Effect of D&O Insurance on CSR Performance Based on External Governance Factors

This table presents the effect of D&O insurance on CSR performance by the level of institutional monitoring. The dependent variable *Rks* is the firm's CSR score rated by Rankins Global (RKS) on the disclosure and performance of social responsibilities. *Insured* equals 1 if the firm has purchased D&O insurance in the year, and 0 otherwise. Column (1) and (2) present the results for the samples with institutional ownership and without, respectively. Column (3) and (4) present the results for the sample firms in a province with higher scores for legal environment and lower scores, respectively. Column (5) and (6) present the results for the sample firms cross listed overseas and only listed domestically, respectively. Definitions of other variables are presented in Appendix A. Year, industry and province fixed effects are controlled. T-statistics are in parentheses with standard errors clustered at the firm level. ***, **, and * indicate 1%, 5%, and 10% significance levels, respectively.

<i>VARIABLES</i>	(1) <i>Rks</i>	(2) <i>Rks</i>	(3) <i>Rks</i>	(4) <i>Rks</i>	(5) <i>Rks</i>	(6) <i>Rks</i>
	<i>Insthold</i>		<i>LegalEnv</i>		<i>Crosslist</i>	
	<i>High</i>	<i>Low</i>	<i>High</i>	<i>Low</i>	<i>Yes</i>	<i>No</i>
<i>Insured</i>	1.9101 (1.3033)	3.6416*** (2.7765)	1.1756 (0.7060)	3.9084*** (3.3848)	0.1828 (0.0898)	2.4562* (1.9529)
<i>Size</i>	3.3425*** (6.8112)	2.8747*** (7.3444)	3.1294*** (4.7164)	3.0626*** (9.3369)	4.2257*** (3.6495)	2.7161*** (7.1464)
<i>Lev</i>	-2.0858 (-0.6903)	-0.9014 (-0.4354)	0.4115 (0.1161)	-2.0826 (-1.0368)	15.8628*** (2.6669)	-4.0657** (-1.9698)
<i>Dirnum</i>	0.1858 (0.7767)	0.6440*** (3.3319)	0.3122 (0.9683)	0.4788*** (2.7506)	0.9306* (1.8122)	0.2954* (1.6513)
<i>Outdir</i>	-7.8958 (-1.1944)	5.0812 (0.9328)	-8.7923 (-0.9870)	2.4180 (0.4998)	-13.5752 (-0.9823)	-0.6928 (-0.1291)
<i>Separate</i>	-0.0333 (-0.7783)	-0.0497 (-1.0161)	-0.0964 (-1.4909)	-0.0123 (-0.3346)	-0.2561** (-2.0151)	-0.0060 (-0.1675)
<i>Lsh</i>	0.0060 (0.1904)	0.0039 (0.1684)	0.0377 (1.1119)	0.0158 (0.7818)	0.0458 (0.6358)	0.0315 (1.5267)
<i>Dual</i>	-0.0966 (-0.1209)	-1.1357* (-1.8455)	-0.9185 (-1.0349)	-0.7090 (-1.2316)	-1.4962 (-0.8705)	-0.7885 (-1.4817)
<i>Cf</i>	6.9489* (1.8490)	5.8487* (1.6802)	6.3679 (1.3465)	5.3345* (1.7172)	22.3431** (2.2532)	4.1771 (1.4700)
<i>Cash</i>	-1.1643 (-0.2977)	3.7569 (1.3565)	-2.9243 (-0.6702)	3.6908 (1.3673)	0.3274 (0.0292)	0.0685 (0.0280)
<i>Inst</i>	4.0228 (1.3941)	-1.3743 (-0.6586)	1.5299 (0.7125)	-0.2454 (-0.1965)	2.7390 (0.7461)	0.7875 (0.6456)
<i>Big4</i>	3.7080** (2.3196)	3.7650** (2.4377)	4.9413** (2.5668)	2.8405** (2.2463)	1.3702 (0.5335)	2.9506* (1.7132)
<i>Age</i>	-2.5026 (-1.5636)	-2.0391* (-1.8566)	-1.9435 (-1.1206)	-2.6613** (-2.4281)	0.2555 (0.0629)	-1.7814 (-1.6332)
<i>Roe</i>	-3.7877	1.8804	-3.1298	0.5125	5.9222	-0.3924

	(-1.3458)	(0.8543)	(-0.7884)	(0.2771)	(1.1056)	(-0.2046)
<i>Turnover</i>	1.7543**	-0.0761	-0.3588	1.3644**	-1.5735	0.8715*
	(2.4111)	(-0.1247)	(-0.4283)	(2.5170)	(-0.8976)	(1.7213)
<i>Ret</i>	0.6266	0.6197	0.1509	0.6968**	-0.3005	0.6809**
	(1.5733)	(1.5387)	(0.3440)	(2.0224)	(-0.3646)	(2.5552)
<i>Tq</i>	-0.1226	0.1126	0.1830	-0.0374	-1.2451	-0.1362
	(-0.3756)	(0.3761)	(0.4538)	(-0.1359)	(-0.7997)	(-0.5633)
<i>Constant</i>	-38.2083***	-38.4799***	-39.4091***	-36.2809***	-93.5910***	-29.3309***
	(-3.3017)	(-4.2880)	(-2.6283)	(-4.7060)	(-2.9400)	(-3.5755)
<i>Year&Ind&Pro</i>	Yes	Yes	Yes	Yes	Yes	Yes
<i>Observations</i>	2,931	3,173	1,951	4,153	811	5,293
<i>R-squared</i>	0.454	0.423	0.468	0.414	0.632	0.369
<i>Chi2</i>		3.18*		7.39***		3.67*

Table 6. The Moderating Effect of Managerial Motivation

This table presents the effect of D&O insurance on CSR performance based on the legitimacy of managers' motivation to promote CSR. The dependent variable *Rks* is the firm's CSR score rated by Rankins Global (RKS) on the disclosure and performance of social responsibilities. *Insured* equals 1 if the firm has purchased D&O insurance in the year, and 0 otherwise. Definitions of other variables are presented in Appendix A. Column (1) shows the result when the CSR disclosure is voluntary, and Column (2) shows the results when the disclosure is negative. Column (3) shows the result when the firm CEO is covered by negative news reports and Column (4) shows the result of no negative reports. Year, industry, and province fixed effects are controlled in all specifications. T-statistics are in parentheses with standard errors clustered at the firm level. ***, **, and * indicate 1%, 5%, and 10% significance levels, respectively.

VARIABLES	(1) <i>Rks</i>	(2) <i>Rks</i>	(3) <i>Rks</i>	(4) <i>Rks</i>
	<i>Voluntary disclosure</i>		<i>Negative reports</i>	
	<i>Yes</i>	<i>No</i>	<i>Yes</i>	<i>No</i>
<i>Insured</i>	-0.3052 (-0.2527)	3.8542*** (2.7476)	4.3584*** (2.9774)	1.6850 (1.5626)
<i>Size</i>	2.3835*** (5.1635)	3.6676*** (7.2714)	3.5054*** (7.5908)	2.5690*** (6.8465)
<i>Lev</i>	-3.5337* (-1.6613)	0.1459 (0.0474)	-2.0895 (-0.7162)	-0.6431 (-0.3119)
<i>Dirnum</i>	0.4375** (2.2084)	0.3541 (1.5509)	0.4363* (1.7668)	0.4089** (2.2639)
<i>Outdir</i>	2.1116 (0.3492)	-2.3631 (-0.3517)	-6.8826 (-1.1042)	4.2834 (0.8061)
<i>Separate</i>	-0.0358 (-0.8473)	-0.0273 (-0.5422)	-0.0359 (-0.6959)	-0.0345 (-0.9401)
<i>Lsh</i>	0.0236 (1.1712)	0.0318 (0.9936)	0.0221 (0.7582)	0.0210 (1.0120)
<i>Dual</i>	-1.0614* (-1.7222)	-0.5325 (-0.6480)	-1.0820 (-1.3303)	-0.7924 (-1.4100)
<i>Cf</i>	5.8406 (1.5927)	4.8940 (1.2446)	8.4663** (2.0565)	3.2781 (1.0557)
<i>Cash</i>	-0.2595 (-0.0945)	0.9486 (0.2439)	2.0134 (0.5676)	2.2736 (0.8385)
<i>Inst</i>	1.4994 (1.0997)	0.6040 (0.3317)	0.7606 (0.4233)	0.4136 (0.3156)
<i>Big4</i>	1.7584 (0.9038)	3.6877** (2.5253)	3.8512** (2.4694)	3.2337** (2.3219)
<i>Age</i>	-1.6265 (-1.6131)	-1.7195 (-0.9439)	-2.6942* (-1.8814)	-1.6987* (-1.6805)
<i>Roe</i>	0.8502 (0.4397)	-0.0608 (-0.0199)	-3.4939 (-1.2514)	3.4572* (1.7488)
<i>Turnover</i>	0.7876 (1.2935)	0.4887 (0.6642)	0.9529 (1.3861)	0.2655 (0.4841)
<i>Ret</i>	0.6689 (1.5694)	0.4306 (1.2709)	0.4494 (1.0002)	0.5173 (1.3798)
<i>Tq</i>	0.1933 (0.6320)	-0.2505 (-0.6705)	0.0810 (0.2198)	-0.1090 (-0.4279)
<i>Constant</i>	-25.8198** (-2.5364)	-50.9013*** (-4.0390)	-45.3766*** (-4.2041)	-30.2482*** (-3.5189)
<i>Year&Ind&Pro</i>	Yes	Yes	Yes	Yes
<i>Observations</i>	2,513	3,591	2,262	3,842
<i>R-squared</i>	0.378	0.485	0.473	0.386
<i>Chi2</i>	20.19***		7.20***	

Table 7. The Effect of CSR Performance on Economic Performance by D&O Insurance Coverage

This table presents the effect of CSR performance on the operating performance of the firm. The dependent variables are the change of return on assets ΔRoa in Column (1) and (2) and the change of return on equity ΔRoe in Column (3) and (4). The explanatory variable is the dummy variable that equals to 1 if the CSR is above the median and 0 otherwise. Column (1) and (3) are for the sample firms with D&O insurance coverage and the other two columns are for the samples without the insurance. Definitions of other variables are presented in Appendix A. Year, industry and province fixed effects are controlled. T-statistics are in parentheses with standard errors clustered at the firm level. ***, **, and * indicate 1%, 5%, and 10% significance levels, respectively.

<i>VARIABLES</i>	(1) ΔRoa (<i>Insured=1</i>)	(2) ΔRoa (<i>Insured=0</i>)	(3) ΔRoe (<i>Insured=1</i>)	(4) ΔRoe (<i>Insured=0</i>)
<i>Rks_high</i>	0.0106** (2.4120)	-0.0005 (-0.3689)	0.0264** (2.5525)	-0.0007 (-0.2503)
<i>Size</i>	-0.0032 (-1.1820)	-0.0041*** (-5.0795)	-0.0088 (-1.4770)	-0.0066*** (-3.5856)
<i>Lev</i>	0.0402** (2.0812)	0.0331*** (5.8367)	0.0451 (0.9862)	0.0340*** (2.6656)
<i>Dirnum</i>	0.0002 (0.1581)	0.0001 (0.1452)	0.0001 (0.0496)	0.0001 (0.0863)
<i>Outdir</i>	0.0028 (0.0722)	-0.0294* (-1.9216)	0.0004 (0.0051)	-0.0734** (-2.0353)
<i>Separate</i>	0.0003 (0.9860)	-0.0001 (-1.0995)	0.0007 (1.1999)	-0.0001 (-0.3943)
<i>Lsh</i>	-0.0002 (-1.0360)	0.0002*** (3.3778)	-0.0004 (-1.3157)	0.0003*** (3.1045)
<i>Dual</i>	0.0103 (1.3462)	-0.0021 (-1.0369)	0.0164 (0.9963)	-0.0062 (-1.4379)
<i>Cf</i>	0.0933*** (2.9336)	0.0888*** (6.6963)	0.3113*** (3.5639)	0.1611*** (5.4989)
<i>Cash</i>	-0.0242 (-0.8064)	0.0043 (0.5804)	-0.0486 (-0.7676)	0.0210 (1.4238)
<i>Inst</i>	0.0013 (0.0946)	0.0029 (0.8519)	-0.0096 (-0.4415)	0.0067 (0.8846)
<i>Big4</i>	0.0028 (0.6610)	0.0036* (1.8191)	0.0054 (0.6595)	0.0096** (2.0865)
<i>Age</i>	-0.0072 (-0.8929)	0.0019 (0.7998)	-0.0212 (-1.0223)	0.0011 (0.2174)
<i>Roe</i>	0.0109 (0.4941)	-0.0016 (-0.1758)	-0.1340 (-1.5299)	-0.0340 (-1.4275)
<i>Turnover</i>	0.0022 (0.6881)	0.0003 (0.1450)	0.0087 (1.0377)	-0.0041 (-0.9102)
<i>Ret</i>	0.0108** (2.0342)	0.0264*** (13.4725)	0.0240** (2.1527)	0.0495*** (11.4673)
<i>Tq</i>	0.0005 (0.1691)	-0.0025** (-2.4560)	0.0018 (0.2554)	-0.0047** (-2.5463)
<i>Constant</i>	-0.0260 (-0.4506)	0.0637*** (3.0303)	0.1536 (1.0699)	0.1284*** (2.5853)
<i>Year&Ind&Pro</i>	Yes	Yes	Yes	Yes
<i>Observations</i>	741	5,363	741	5,363
<i>R-squared</i>	0.189	0.113	0.177	0.082
<i>Chi2</i>		5.03**		6.02**

Table 8. Robustness Check for the Effect of D&O Insurance on CSR Performance

This table shows the effect of D&O insurance on CSR performance in various specifications. The dependent variable *Rks* is the firm's CSR score rated by Rankins Global (RKS). *Insured* equals 1 if the firm has purchased D&O insurance in the year, and 0 otherwise. Definitions of other variables are presented in Appendix A. Firm, year, industry, and province fixed effects are included in Column (1). The result based on propensity score matching is in Column (2). The results of the first stage and the second stage of the Heckman test are presented in Column (3) and (4) respectively. T-statistics are in parentheses with standard errors clustered at the firm level. ***, **, and * indicate 1%, 5%, and 10% significance levels, respectively.

<i>VARIABLES</i>	(1) <i>Rks</i>	(2) <i>Rks</i>	(3) <i>Rks D</i>	(4) <i>Rks</i>
	<i>FE</i>	<i>PSM</i>	<i>Heckman-first stage</i>	<i>Heckman-second stage</i>
<i>Insured</i>	3.2154*** (3.1029)	2.6945** (2.2209)	3.8112*** (7.4910)	0.2241*** (4.9448)
<i>Size</i>	1.3710*** (3.0607)	4.8033*** (6.0409)	6.7129*** (14.9377)	0.6184*** (44.1664)
<i>Lev</i>	0.5775 (0.3697)	1.8059 (0.4512)	-5.9192*** (-5.2240)	-0.6954*** (-9.4084)
<i>Dirnum</i>	0.1641 (1.1682)	0.5096 (1.3880)	0.6914*** (7.5347)	0.0444*** (6.2237)
<i>Outdir</i>	-0.0778 (-0.0191)	-11.9852 (-1.1095)	4.3415 (1.5075)	0.7804*** (3.4641)
<i>Separate</i>	0.0009 (0.0375)	-0.1251 (-1.5822)	-0.0168 (-0.9357)	0.0016 (1.1544)
<i>Lsh</i>	0.0104 (0.4925)	0.0184 (0.3647)	-0.0052 (-0.4767)	-0.0046*** (-5.8596)
<i>Dual</i>	-0.5394 (-1.3211)	0.7507 (0.5785)	-1.2871*** (-3.3782)	-0.0763*** (-2.8066)
<i>Cf</i>	2.3800 (1.5519)	7.1686 (0.9530)	8.9064*** (3.8951)	0.6503*** (3.9418)
<i>Cash</i>	0.0952 (0.0540)	12.2749* (1.6528)	0.7388 (0.5064)	-0.1520 (-1.4587)
<i>Inst</i>	0.7927 (1.1117)	-0.6365 (-0.2385)	5.4851*** (5.9062)	0.7794*** (14.2519)
<i>Big4</i>	2.7545** (2.5669)	3.8812** (2.4464)	4.3881*** (8.7103)	0.2344*** (4.9521)
<i>Age</i>	-1.6421 (-0.6512)	-1.1538 (-0.4368)	-0.8772* (-1.6625)	0.1675*** (4.6006)
<i>Roe</i>	1.9459* (1.8133)	-0.3744 (-0.0915)	2.7692* (1.8666)	0.3675*** (3.4851)
<i>Turnover</i>	0.0329 (0.0927)	0.1953 (0.1860)	0.2225 (0.7301)	-0.0926*** (-4.3063)
<i>Ret</i>	0.1381 (0.7215)	-0.1399 (-0.2150)	-0.5351 (-1.3329)	-0.1880*** (-6.5204)
<i>Tq</i>	-0.1541 (-0.9741)	1.4300* (1.9099)	0.4679*** (2.6833)	0.0949*** (8.0793)
<i>Lambda</i>				10.3386*** (8.9581)
<i>Constant</i>	-0.6827 (-0.0579)	-84.6380*** (-3.9266)	-137.6362*** (-11.3166)	-15.1910*** (-45.0396)
<i>Year&Ind&Pro</i>		Yes	Yes	Yes
<i>Year&Firm</i>	Yes			
<i>Observations</i>	6,104	1,482	22,186	22,186
<i>R-squared</i>	0.378	0.493		
<i>Number of Firms</i>	909			

Table 9. D&O Insurance and CSR Performance Measured with Alternative Metrics

This table shows the effect of D&O insurance on CSR performance measured in other variables. The definitions of these variables are presented in Appendix A. Column (1) presents the result from Profit regression with the dependent variable as a dummy for CSR score reporting. Column (2) and (4) present the results from OLS and Tobit estimation with the dependent variable as the CSR score. Column (3) present the result with a fixed effect at the firm-year level, while the year, industry, and province fixed effects are included in all other columns. The results in Column 5-10 are from OLS estimation. T-statistics are in parentheses with standard errors clustered at the firm level. ***, **, and * indicate 1%, 5%, and 10% significance levels, respectively.

<i>VARIABLES</i>	(1) <i>Rks D</i> <i>Probit</i>	(2) <i>Rks rob</i> <i>Ols</i>	(3) <i>Rks rob</i> <i>FE</i>	(4) <i>Rks rob</i> <i>Tobit</i>	(5) <i>Rks M</i>	(6) <i>Rks C</i>	(7) <i>Rks T</i>	(8) <i>Rks I</i>	(9) <i>Csr</i>	(10) <i>Esg</i>
<i>Insured</i>	0.2241** (2.1558)	5.0798*** (3.9633)	4.6491*** (3.7818)	6.4198*** (4.7408)	0.6853* (1.7357)	1.6606*** (3.1373)	0.3079** (1.9685)	0.4117*** (3.3134)	0.0273* (1.6543)	0.2942*** (3.6161)
<i>Size</i>	0.6184*** (17.9441)	7.3872*** (22.0645)	3.0743*** (8.1017)	20.8051*** (46.0149)	0.9939*** (7.6193)	1.4473*** (8.2717)	0.4200*** (8.0000)	0.2923*** (7.5654)	0.0199*** (3.4772)	0.0905** (2.4682)
<i>Lev</i>	-0.6954*** (-4.4209)	-6.6871*** (-4.7702)	-3.1074*** (-2.6793)	-22.4316*** (-9.0968)	-0.5085 (-0.6853)	-1.1038 (-1.1237)	-0.2910 (-0.9945)	-0.0250 (-0.1159)	0.0467 (1.2216)	0.0341 (0.1718)
<i>Dirnum</i>	0.0444*** (2.7293)	0.6333*** (3.5758)	-0.1148 (-0.7939)	1.5932*** (7.0139)	0.1642*** (2.6920)	0.2050** (2.4626)	0.0699*** (2.7877)	0.0353* (1.8417)	-0.0032 (-0.9328)	0.0270 (1.6250)
<i>Outdir</i>	0.7804* (1.6656)	12.3265*** (2.6235)	-1.4865 (-0.4291)	22.0942*** (3.0269)	0.9391 (0.5309)	0.2452 (0.0994)	0.3723 (0.4913)	0.1778 (0.3166)	0.0209 (0.2395)	1.1382** (2.3645)
<i>Separate</i>	0.0016 (0.4877)	-0.0160 (-0.4764)	0.0010 (0.0402)	0.0909** (2.0175)	-0.0190 (-1.4183)	-0.0083 (-0.4750)	-0.0091* (-1.7486)	-0.0020 (-0.5653)	0.0010 (1.5733)	0.0001 (0.0165)
<i>Lsh</i>	-0.0046** (-2.5356)	-0.0155 (-0.8662)	-0.0068 (-0.3366)	-0.1374*** (-5.2938)	0.0076 (1.0794)	0.0085 (0.8094)	0.0012 (0.4111)	0.0005 (0.2340)	0.0009** (2.1737)	0.0033* (1.7427)
<i>Dual</i>	-0.0763 (-1.4301)	-0.4991 (-1.0761)	-0.2854 (-0.8829)	-3.2730*** (-3.5819)	-0.1763 (-0.8780)	-0.4162 (-1.4894)	-0.0995 (-1.3250)	-0.1683*** (-2.8934)	0.0096 (0.8352)	-0.2450*** (-3.9437)
<i>Cf</i>	0.6503*** (2.7004)	5.6284** (2.5130)	1.8680 (1.5844)	23.2956*** (4.2117)	1.1924 (1.1082)	3.3129** (2.1829)	0.9569** (2.1821)	0.8095** (2.3893)	-1.2083*** (-14.4464)	0.1357 (0.3859)
<i>Cash</i>	-0.1520 (-0.7699)	-0.1719 (-0.0987)	1.1865 (1.0511)	-2.9224 (-0.8400)	0.3936 (0.4159)	0.5284 (0.4037)	0.1772 (0.4711)	0.2857 (0.9630)	0.1969*** (4.2076)	0.1806 (0.6911)
<i>Inst</i>	0.7794*** (7.9534)	6.8493*** (6.3756)	1.6857** (2.5600)	27.0315*** (14.8764)	-0.1671 (-0.3743)	0.7117 (1.1587)	-0.0019 (-0.0104)	0.1972 (1.4109)	0.0228 (1.0686)	-0.1433 (-1.2537)
<i>Big4</i>	0.2344** (2.1741)	7.4953*** (4.9890)	2.9361** (2.2943)	5.4891*** (3.9712)	1.0447** (2.3891)	1.8481*** (3.1053)	0.5715*** (3.0067)	0.3934*** (3.1388)	0.0341** (1.9680)	0.3204*** (3.7284)
<i>Age</i>	0.1675* (1.8750)	0.9971 (1.2231)	-1.5752 (-0.7780)	5.8008*** (4.7988)	-0.8079** (-2.1129)	-1.1997** (-2.3112)	-0.4510*** (-2.8311)	-0.2956*** (-2.8233)	0.0288 (1.5787)	0.1271 (1.2004)
<i>Roe</i>	0.3675** (2.5459)	1.8472 (1.6145)	-0.2511 (-0.3733)	13.2556*** (3.7489)	-0.9026 (-1.2929)	0.6389 (0.6824)	-0.0987 (-0.3773)	-0.0202 (-0.0920)	-0.1543*** (-3.6356)	0.0216 (0.1390)

<i>Turnover</i>	-0.0926** (-2.1986)	-0.8715** (-2.1514)	-1.2090*** (-3.6771)	-2.5085*** (-3.4976)	0.2095 (1.1442)	0.4047 (1.5718)	0.0036 (0.0488)	0.1130* (1.9131)	-0.0087 (-0.9066)	-0.1108* (-1.7349)
<i>Ret</i>	-0.1880*** (-7.1267)	-1.6030*** (-7.0877)	-0.4756*** (-2.7859)	-5.5901*** (-5.9281)	0.1030 (0.9721)	0.3583** (2.4510)	0.0483 (0.9226)	0.0889** (2.1865)	-0.0203*** (-2.6985)	0.1099** (2.5431)
<i>Tq</i>	0.0949*** (4.0183)	1.3784*** (6.8128)	0.0065 (0.0509)	2.7743*** (7.0399)	0.1167 (1.2933)	-0.1612 (-1.2881)	0.0422 (1.1956)	-0.0231 (-0.7942)	0.0179*** (3.2328)	-0.0018 (-0.1037)
<i>Constant</i>	-15.1910*** (-17.8956)	-165.0559*** (-21.1083)	-56.1699*** (-5.8061)	-512.9911*** (-45.9657)	-10.5170*** (-3.4649)	-15.0081*** (-3.7308)	-2.9603** (-2.5736)	-6.2916*** (-7.2268)	0.5683*** (4.1152)	0.0212 (0.0234)
<i>Year&Ind&Pro</i>	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes	Yes
<i>Year&Firm</i>			Yes							
<i>Observations</i>	22,110	22,186	22,186	22,186	5,616	5,615	5,615	5,604	6,104	2,820
<i>R-squared</i>	0.2784	0.358	0.149		0.385	0.353	0.450	0.427	0.343	0.274
<i>Number of Firms</i>			3,190							

Appendix A. Variable definitions

<i>Variable Name</i>	<i>Variable definition</i>
<i>Rks</i>	Rankins ESG Ranking Score
<i>Rks_high</i>	A dummy variable that equals 1 if RKS is above the median and 0 if below
<i>ΔRoa</i>	The change of return on assets from year t-1 to year t
<i>ΔRoe</i>	The change of return on equity from year t-1 to year t
<i>Rks_D</i>	A dummy variable that equals 1 if CSR is reported in Rankins and 0 otherwise
<i>Rks_rob</i>	CSR score for the company
<i>Rks_M</i>	CSR overall score
<i>Rks_C</i>	CSR score based on content
<i>Rks_I</i>	CSR score based on industry
<i>Rks_T</i>	CSR score based on technology
<i>Csr</i>	Cash paid to shareholders, creditors, employees, suppliers, and government scaled by net revenue
<i>Esg</i>	ESG score by SynTao Green Finance
<i>Insured</i>	A dummy variable that equals 1 if the company's managers are covered by Directors' and Officers' Liability Insurance and 0 otherwise
<i>InsPre/GDP</i>	Total insurance premium income scaled by the GDP at the province level
<i>InsuNum</i>	The number of insurance companies within a 50km radius of the firm's headquarter
<i>SthInscomp</i>	Percentage ownership by insurance companies
<i>InsuLen</i>	The number of years a firm has purchased D&O insurance
<i>Fee</i>	The ratio of expenses incurred by managers
<i>AuditFee</i>	Auditing fee scaled by total revenue
<i>Insthold</i>	Percentage ownership by institutional investors excluding insurance companies
<i>LegalEnv</i>	The score of economic marketizations for the province of the firm
<i>Export</i>	A dummy that equals 1 if the firm receives income from exporting and 0 otherwise
<i>Crosslist</i>	A dummy that equals 1 if the firm is cross listed overseas
<i>Voluntary</i>	A dummy that equals 1 if the CSR disclosure is voluntary and 0 if mandatory
<i>Reputation</i>	A dummy that equals 1 if the CEO is covered by negative news and 0 otherwise
<i>Size</i>	The natural logarithm of total assets
<i>Lev</i>	Total liabilities scaled by total assets
<i>Dirnum</i>	Number of board members
<i>Outdir</i>	The ratio of independent directors in the board
<i>Separate</i>	Ultimate controlling right minus cash claim right
<i>Lsh</i>	The ownership percentage of the largest shareholder
<i>Dual</i>	Equals 1 if the CEO is the firm's chairperson at the same time, and 0 otherwise
<i>Cf</i>	Operating cash flows divided by total assets
<i>Cash</i>	Cash and equivalents divided by total assets
<i>Inst</i>	Percentage ownership by institutional investors
<i>Big4</i>	A dummy that equals 1 if the auditor is a Big Four accounting firm and 0 otherwise
<i>Age</i>	The natural logarithm of the current year minus the IPO year
<i>Roe</i>	Return on Equities
<i>Turnover</i>	Revenue divided by total assets
<i>Ret</i>	Stock return of the year including dividends
<i>Tq</i>	The market value of a company divided by its assets' replacement cost

Appendix B. Propensity Score Analysis for the Correction of Selection Bias

Panel A. Balance test: Mean comparison of covariates before matching

<i>Variable</i>	<i>Treated</i>	<i>Controls</i>	<i>Difference</i>	<i>S.E.</i>	<i>T-stat</i>
<i>Size</i>	24.088	22.870	1.218	0.053	23.15***
<i>Lev</i>	0.567	0.477	0.090	0.008	11.67***
<i>Dirnum</i>	9.833	9.106	0.727	0.075	9.72***
<i>Outdir</i>	0.375	0.374	0.001	0.002	0.43
<i>Separate</i>	4.949	5.562	-0.612	0.327	-1.87**
<i>Lsh</i>	40.535	37.578	2.957	0.626	4.73***
<i>Dual</i>	0.082	0.183	-0.101	0.015	-6.83***
<i>Cf</i>	0.057	0.053	0.004	0.003	1.47
<i>Cash</i>	0.125	0.153	-0.027	0.004	-6.35***
<i>Inst</i>	0.441	0.407	0.034	0.009	3.80***
<i>Big4</i>	0.478	0.109	0.368	0.014	27.04***
<i>Age</i>	2.893	2.808	0.084	0.013	6.30***
<i>Roe</i>	0.081	0.083	-0.002	0.004	-0.46
<i>Turnover</i>	0.766	0.778	-0.012	0.023	-0.52
<i>Ret</i>	0.075	0.098	-0.023	0.022	-1.06
<i>Tq</i>	1.400	1.909	-0.509	0.044	-11.44***

Panel B. Balance test: Mean comparison of covariates after matching

<i>Variable</i>	<i>Treated</i>	<i>Controls</i>	<i>Difference</i>	<i>S.E.</i>	<i>T-stat</i>
<i>Size</i>	24.088	24.032	0.056	0.071	0.79
<i>Lev</i>	0.567	0.556	0.011	0.009	1.16
<i>Dirnum</i>	9.833	9.667	0.166	0.111	1.49
<i>Outdir</i>	0.375	0.374	0.001	0.003	0.34
<i>Separate</i>	4.949	4.662	0.288	0.419	0.69
<i>Lsh</i>	40.535	41.319	-0.784	0.850	-0.92
<i>Dual</i>	0.082	0.088	-0.005	0.014	-0.37
<i>Cf</i>	0.057	0.059	-0.002	0.003	-0.59
<i>Cash</i>	0.125	0.123	0.002	0.005	0.44
<i>Inst</i>	0.441	0.447	-0.006	0.011	-0.49
<i>Big4</i>	0.478	0.449	0.028	0.026	1.09
<i>Age</i>	2.893	2.868	0.025	0.018	1.40
<i>Roe</i>	0.081	0.080	0.001	0.006	0.23
<i>Turnover</i>	0.766	0.764	0.003	0.032	0.09
<i>Ret</i>	0.075	0.093	-0.019	0.028	-0.68
<i>Tq</i>	1.400	1.420	-0.020	0.036	-0.57