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The Impact of Mandatory Corporate Social Responsibility Disclosure on Enterprise Risk-Taking: Facilitative or Constraining?

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Abstract: Using Chinese A-share listed companies from 2006 to 2013 as the research sample, this paper empirically examines the impact and mechanism of the mandatory CSR disclosure policy on Chinese firms' risk-taking by combining the difference-in-differences (DID) approach. This study finds that the implementation of the policy increases firms' operating costs and leads to an increase in their financing constraints, which ultimately creates a disincentive for firms to take risks. Second, we also find that, relative to firms that do not disclose CSR reports, the sales revenues, R&D investment and investment levels of firms subject to CSR disclosure are significantly reduced, which may be the result of firms' tendency to operate conservatively. In addition, heterogeneity analyses suggest that the dampening effect of mandatory CSR disclosure policies on risk-taking is stronger for firms with higher financing costs and for non-state-owned firms. This study further explores the mechanism of the impact of mandatory CSR disclosure on firms' risk-taking, which will help the government to formulate and improve the information disclosure policy regarding driving the transformation of corporate development in the future.

Keywords: mandatory CSR disclosure; risk-taking; financial constraints; agency costs

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1. Introduction

Making investment decisions involving risk is an inevitable aspect of the growth trajectory of every enterprise. Consequently, within the domain of corporate management, assuming risk has long been recognized as a pivotal facet of strategic management. Managers often find themselves compelled to judiciously navigate risk exposure in order to enhance their enterprises' competitive advantage and performance [1]. On the one hand, judiciously increasing risk exposure within reasonable bounds and actively pursuing high-return investment opportunities serves to optimize the efficiency of the capital allocation within an enterprise [2,3] while also fostering innovative vitality within the organization [4]. Such endeavors bear significant implications for elevating the quality of economic development [5]. Conversely, an excessive inclination toward assuming risk may precipitate blind expansion by the enterprise, resulting not only in the squandering of resources but also in potentially perilously nudging the enterprise toward the brink of bankruptcy, thus evidently undermining its long-term, robust development. Consequently, amidst an increasingly intricate economic and environmental backdrop, the calibration and management of an enterprise's risk exposure throughout its lifecycle emerge as imperatives.

In comparison to developed nations, the overall management proficiency of Chinese enterprises remains notably lagging, with a conspicuous feature being the frequent mismatch between enterprise risk undertakings and the exigencies of economic development [6]. On the one hand, certain state-owned enterprises, which command substantial

resources, have consistently exhibited a diminished willingness to assume risk. However, this diminished appetite for risk not only impedes the overall R&D innovation endeavors of enterprises [7] but also undermines their investment efficiency [8], a misalignment with the concept espoused by the Chinese government in recent years, emphasizing innovation-driven economic development. On the other hand, the rapid momentum of past economic development in China, coupled with optimistic sentiments, has engendered an issue of excessively high risk preference in certain sectors, such as real estate and steel. The rampant expansion of the production capacity in these industries has engendered latent risks of overcapacity, thereby impeding macroeconomic development. Consequently, for China, an economy presently in transition, guiding enterprises to reassess and adjust their risk undertakings has remained a focal point of inquiry within both the investment and academic realms.

Concurrently, against the backdrop of escalating global attention toward sustainable development, enterprises, as microcosmic agents of economic operation, are mandated to incorporate the holistic welfare of the society, environment, and economy into the purview of any prospective economic endeavors. Particularly pertinent to China, which is currently grappling with economic developmental bottlenecks, the legacy issues of resource wastage and environmental pollution stemming from past aggressive and rudimentary developmental models incessantly undermine the potential for economic advancement. Against this backdrop, the transformation of enterprise production patterns assumes paramount significance. Consequently, in recent years, the Chinese government has sequentially promulgated a series of policies pertaining to CSR disclosure, aiming to compel enterprises to alter their developmental paradigms in both the ideological and practical dimensions. Diverging from the predominantly voluntary disclosure approach adopted by Western nations, since 2008, the Chinese government has enforced mandatory CSR disclosure guidelines for select enterprises. Specifically, in December 2008, the government issued the Notice on the Annual Report Work of Listed Companies for 2008 (hereinafter referred to as the "Notice"), mandating that enterprises annually disclose CSR reports, with the initial scope of this mandate encompassing over 20% of listed enterprises. Hence, the issuance of this policy can be deemed the formal initiation of CSR disclosure in China [7].

Research indicates that enterprise risk-taking is typically influenced by multiple factors, including the external institutional environments and internal governance levels [9–11]. According to the disclosure requirements outlined in the Notice, enterprises are mandated to qualitatively or quantitatively disclose information across as many as 10 dimensions, encompassing shareholder relations, creditor relations, employee relations, supplier relations, customer relations, environmental protection, public relations, charitable activities, corporate social responsibility policies, working conditions, and inadequate CSR performance. Consequently, the release of CSR reports is poised to elicit scrutiny and attention from regulatory authorities, investors, and other stakeholders [7,8,12], which is likely to impact enterprise risk-taking to some extent. However, regrettably, despite the extensive literature exploring the impact of mandatory CSR disclosure on the economic consequences for enterprises in China, much of it is approached from the perspective of information asymmetry [13–15]. For instance, Wang et al. (2018) [13] examined the relationship between the quality of mandatory CSR information and earnings management, while Liu and Tian [8] explored the relationship between improved corporate transparency and efficiency. Yet, risk-taking differs, being subject to various factors, such as external financing constraints and internal management efficiency [16,17], many of which are coincidentally found to be closely related to CSR disclosure in numerous seminal works [12]. Therefore, considering the current dearth of exploration of the corresponding channels through which mandatory CSR disclosure may influence risk-taking, this paper employs the Notice as an exogenous shock to construct a DID model and utilizes it to examine the potential causal relationships mentioned above.

The innovation and marginal contribution of this paper may lie in the following. (1) Unlike many studies focusing on examining the economic consequences of the "Notice" for enterprises from the perspective of information disclosure [7,8,13], this paper explores the impact of the "Notice" on enterprise development from the perspectives of resource allocation and operating costs, thus expanding the pathways through which mandatory CSR policies influence risk-taking by Chinese enterprises. (2) By examining the specific dominant mechanisms of the "Notice" affecting enterprise risk-taking, our study further explores the influencing factors of risk-taking by Chinese enterprises and provides direct empirical evidence of how non-financial information disclosure can intervene in enterprise risk strategies. (3) In contrast to the policy in Western countries encouraging voluntary CSR information disclosure by enterprises, mandatory CSR information disclosure policies represent a significant attempt by the Chinese government to align with the country's development status. Consequently, the economic consequences triggered by this policy can serve as better benchmarks for other developing countries to emulate [18]. Through examining the channels through which mandatory CSR information disclosure affects enterprise risk-taking, this paper can offer new perspectives and references for exploring how CSR concepts can guide the transformation of production behavior in enterprises in developing countries.

2. Review of the Literature

2.1. Factors Influencing Firm's Risk-Taking

Existing research suggests that firms' risk-taking is typically influenced by several factors, including the external financing environment [19,20], internal governance levels within the firm [21], and managerial characteristics (Fu, 2024) [9]. For example, studies by Xiong et al. [22] suggest that the relaxation of interest rate controls on loans in China significantly improves the external financing environment for private firms, thereby increasing their risk-taking. From an internal governance perspective, Faccio et al. [23] find that agency conflicts reduce managerial efficiency and inhibit firms' risk-taking. Similarly, a study by Pan et al. [24], which examines executive compensation incentives, finds an inverse relationship between the concentration of wealth in the hands of actual controllers and firm risk-taking, while Coles et al. [25], who examine the impact of managerial compensation structure on investment and debt decisions, find a positive correlation between the sensitivity of executive compensation to stock prices and firms' risk-taking. Furthermore, a minority of studies from the perspective of behavioral finance suggest that managerial personality traits significantly influence enterprise risk preferences [26]. Thus, it is clear that enterprise risk-taking results from the combined effects of multiple factors and may vary with changes in the business environment and stages of firm development. Consequently, the study of enterprise risk-taking requires not only the consideration of the influence of different stakeholders [12] but also the adoption of a dynamic perspective for analysis.

2.2. Mandatory CSR Information Disclosure and Firms' Risk-Taking

With the increasing societal attention paid to the environment, social responsibility and governance, scholars have also begun to conduct diverse research on the impact of CSR activities. In terms of the research direction, the existing literature on the economic impact of CSR on firms can be broadly classified into two main streams. One stream mainly focuses on investigating the relationship between CSR performance and firms' economic outcomes, while the other stream focuses on investigating the influence of the quality of CSR information disclosure on firms' decision-making behavior [13]. Regarding the research on the relationship between CSR performance and firms' risk-taking, most of the current literature is based on reputation information theory and principal–agent theory [12]. For example, Dunbar et al. [27] find that high levels of CSR performance can enhance a firm's social responsibility status. To maintain this status, firms may further adjust their CEO compensation contracts to incentivize risk-taking behavior. In addition, scholars have disaggregated and refined social responsibility by focusing solely on the impact of specific

types of CSR performance on firms' risk-taking. For example, Christen et al. [12] highlight that firms that emphasize employee welfare tend to have lower levels of debt. In other words, CSR performance in the employee relations dimension is negatively correlated with firms' risk-taking.

On the other hand, with regard to the impact of CSR information disclosure on firms' risk-taking, previous scholars have mainly examined this issue based on theories of information asymmetry and principal–agent theory. For example, Yoon [28], based on a study of operational data from US firms, finds that CSR information disclosure could reduce firms' risk-taking by mitigating conflicts between shareholders and debt holders and facilitating managerial learning. Similarly, Ban and Zhu [29] find that CSR information disclosure could affect a firm's financing ability and debt level, leading to deliberation in risk decisions such as innovation investment due to fluctuations in financing. Furthermore, based on market pressure theory and from the perspective of corporate reputation effects, some scholars find that the quality of CSR information disclosure is directly proportional to managers' willingness to maintain reputation [14] and inversely proportional to firms' risk-taking [30]. In general, the aforementioned studies mostly use samples from developed economies or are based on regulations for non-mandatory disclosure of CSR information, which differs significantly from the mandatory nature of the Notice and the sample of firms covered. Therefore, there is reason to believe that the pathways and consequences of the impact of the Notice on the risk-taking of disclosing firms may be markedly different [18]. In the next section, we analyze the relevant theories of mandatory CSR information disclosure and propose corresponding hypotheses.

3. Theoretical Analysis and Research Hypothesis

Entrepreneurial risk-taking encompasses both an organization's risk response capacity and its managers' willingness to take risks. Synthesizing the existing theoretical research on corporate risk-taking, external financial constraints and internal risk-taking propensity emerge as two primary determinants [31,32]. The former plays a pivotal role at the financial level, either facilitating or constraining the operational development of firms, as the adequacy of financing directly influences the completion of planned investment endeavors [33], especially those with increased resource dependence, such as innovative R&D [14]. The latter is closely related to firms' investment choices and determines the proactive stance toward risky ventures at the decision-making level, thereby implicating the governance standards of the firm. For example, empirical evidence suggests that higher governance standards and reduced agency conflicts are correlated with a reduced likelihood of managerial self-interest-driven risk aversion [34]. Given the bidirectional impact of mandatory CSR disclosure on the above factors, it is expected that the adoption of the Notice may have either a catalyzing or a constraining effect on firms' risk-taking.

On the one hand, in the field of corporate finance, principal–agent theory suggests that when the internal controls within a company are relatively lax, there is an inability to effectively constrain senior management. As a result, senior management is inclined to engage in adverse selection and moral hazard behavior. Therefore, during periods of firm operational instability, senior management often deflects responsibility for deteriorating conditions to prevailing environmental factors and adopts conservative business strategies to maintain the status quo or preserve personal reputations [35]. Mandatory CSR disclosure requires firms to engage with external stakeholders, thereby increasing the efficiency of external monitoring and raising corporate governance standards [13]. Consequently, it can effectively mitigate managers' risk aversion [34]. Second, signaling theory suggests that in imperfect markets, there is an information asymmetry between internal managers and external shareholders within a firm, which leads to frictions in operational ideologies and constrains the firm's productive activities. Therefore, based on signaling theory, some scholars argue that robust CSR disclosure can improve a firm's risk-rating and facilitate access to bank support for debt financing [29]. Similarly, high-quality CSR disclosure can reduce the information asymmetry between firms and investors [12] and lower the barriers

for firms to acquire external resources [36]. Thorough CSR disclosure is perceived as a manifestation of corporate social responsibility, which helps to attract R&D personnel with similar values and stimulates managers' risk preferences, thereby enhancing confidence in managing R&D risks [37]. Consequently, it is expected that the issuance of the Notice may stimulate firms' risk-taking based on the aforementioned rationales.

On the other hand, stakeholder theory argues that the existence of a company inevitably involves a series of contracts with various stakeholders and that the development of a company is the result of negotiations and transactions with these stakeholders. Therefore, the objective of a corporation is to pursue the collective interests of stakeholders, which requires that corporate decisions take into account the interests of stakeholders and respect their constraints [38]. With the issuance of the Notice, the environmental information of enterprises becomes more transparent, allowing stakeholders with long-term interests to more accurately assess the environmental performance of an enterprise and thus exert pressure on its management [39]. As a result, under external pressure, firms may undergo hasty transformations, resulting in expenditures on environmental or other CSR projects that impose burdensome costs and crowd out R&D resources [40,41], which may limit firms' risk-taking and undermine their value [42]. Second, given that the majority of Chinese firms' CSR reports are currently not rigorously audited, some scholars raise concerns about the quality of the disclosed CSR information, citing the potential for masking effects that hide operational issues from external investors, exacerbating information asymmetry and agency conflicts [35], thereby making conservative management strategies of firm managers more resistant to change. Consequently, it is expected that the issuance of the Notice may curb firms' risk-taking on the basis of the aforementioned reasons.

Based on the above analysis, we find that the issuance of the Notice may have bidirectional effects on firms' risk taking. Consequently, we propose the following competitive hypotheses, denoted as H1 and H2:

H1: *Mandatory CSR disclosure will significantly increase the risk-taking of compliant firms relative to non-disclosing firms*.

H2: *Mandatory CSR disclosure will significantly reduce the risk-taking of compliant firms compared to non-disclosing firms*.

4. Research Design

4.1. Sample Selection

The initial sample for this study included all the companies listed on the Shanghai and Shenzhen stock exchanges from 2006 to 2013. Initially, financial and insurance companies were excluded, as well as companies flagged for potential delisting (ST and ST*) or awaiting delisting (PT). Furthermore, in order to reduce the endogeneity problems, we also excluded companies that voluntarily disclosed CSR information during the sample period and focused on only examining the differences in risk-taking between firms that disclosed CSR information before and after the Notice (experimental group) and those that did not disclose CSR information (control group). Finally, we excluded companies with missing financial data from the sample. Through these procedures, we obtained a final sample of 9100 observations, consisting of 2264 observations in the experimental group and 6836 observations in the control group. It is worth noting that the scope of the Notice covers firms included in both the Shanghai Corporate Governance Index and the SZSE 100 Index. Until 2008, the Shanghai Corporate Governance Index comprised 230 listed firms that are characterized by relatively high governance standards and typically have a large market capitalization. Similarly, the SZSE 100 Index represents the top 100 A-share listed firms ranked by the total market capitalization, free float market capitalization and stock turnover rate. As a result, our experimental group may not have been selected at random. To address this issue, we used propensity score matching (PSM) to process the sample.

Following the approach of Chen et al. [40], this study utilized pre-Notice firm data, i.e., data from the period 2006–2008, employing a 1:4 nearest neighbor matching method to match the experimental and control groups. Concretely, the enterprise market capitalization (Mv), operating revenue (lnSale), return on equity (Roe), cash holdings (Cash), and leverage (Lev) were selected as covariates for the PSM. Subsequently, 6651 observations were obtained, with 2164 belonging to the experimental group and 4487 to the control group. The matched sample was utilized for robustness testing.

4.2. Model Design

The application of the DID methodology can mitigate macroeconomic shocks that may affect firms' risk-taking propensity independently of the issuance of the policy in 2008. Therefore, this study constructs the following model to examine the impact of the mandatory CSR information disclosure policy on the risk-taking of listed firms in China:

$$RISK_{i,t} = \beta_0 + \beta_1 Treated_i * Post_t + \theta' X_{i,t} + \alpha_i + \gamma_t + \varepsilon_{it} \quad (1)$$

In Equation (1), t and i represent the year and firm, respectively. $Treated_i$ represents the grouping dummy variable, taking the value of 1 for firms in the experimental group and 0 otherwise [40]. $Post_t$ represents the time dummy variable, taking 1 for the year after the issuance of the Notice, i.e., 2009 and thereafter, and 0 otherwise. $X_{i,t}$ represents a set of control variables that can have an impact on RISK. Furthermore, the model incorporates individual and time fixed effects, where α_i denotes an individual fixed effect to account for the impact that omitted firm characteristics that remain constant over time but are unobserved, and to control for time trends and macro shocks, we introduce time fixed effects, denoted by γ_t. $\varepsilon_{i,t}$ is the error term. Of interest in Equation (1) is the coefficient β_1 on $Treated_i * Post_t$, which examines the change in RISK of firms belonging to the experimental group versus those belonging to the control group before and after the issuance of the Notice.

4.3. Variable Measure and Data Source

4.3.1. Measuring Corporate Risk-Taking (RISK)

Regarding the measurement of the dependent variable, risk-taking (RISK), existing studies primarily gauge it using two methods: the level of annual performance volatility [23] and the level of stock return volatility [25]. Compared to the former method, measuring firms' risk-taking using stock returns allows for freedom from financial statement constraints and better reflects a firm's risk tolerance. Therefore, following the approach of Coles et al. [25], we respectively measure corporate risk-taking using the annual volatility of daily stock returns (RISK1) and the annual volatility of weekly stock returns (RISK2). The specific calculation formulas are as follows:

$$\mathrm{RISK_{i,t,j}} = \ln\left[\sqrt{\frac{1}{\mathrm{T}}\sum_{\mathrm{j}=1}^{\mathrm{T}}\left(\mathrm{E_{i,t,j}} - \frac{1}{\mathrm{T}}\sum_{\mathrm{j}=1}^{\mathrm{T}}\mathrm{E_{i,t,j}}\right)^2}\right] \quad (2)$$

In Equation (2), $E_{i,t,j}$ represents the stock return of firm i on the jth day (week) of the year t, and T denotes the total number of days (weeks) within each fiscal year. It implies higher risk-taking by the firm due to the larger $RISK_{i,t,j}$.

4.3.2. Control Variables

In light of the existing literature [14], a set of control variables is chosen to account for factors that may be associated with the enterprise risk-taking level. These include the enterprise size (Size), debt level (Lev), growth rate of sales (Gsales), enterprise age (Age), return on assets (Roa), amount of cash holdings (Cash), opportunity to invest (TobinQ) and ownership concentration (Top1).

4.3.3. Data Source

The data for this study were primarily firms' three components. Firstly, concerning the dependent variable, risk-taking (RISK), this indicator can be computed using the financial data or stock returns data of enterprises obtained from the CSMAR database and the Wind database [23]. The calculation process will be elaborated upon in subsequent sections. Secondly, the list of firms disclosing CSR information was sourced from the RKS database, which includes information on both voluntary and mandatory disclosures. Additionally, other firm-level financial data were sourced from the CSMAR database. Lastly, all the continuous variables underwent Winsorization, where extreme values were replaced with the values at the 1st and 99th percentiles, to mitigate the influence of outliers. Definitions of all the variables are provided in Table 1.

Table 1. Definitions of variables.

Variable	Symbol	Definition
Corporate risk-taking	RISK1	Natural logarithm of the annual standard deviation of daily stock returns
Corporate risk-taking	RISK2	Natural logarithm of the annual standard deviation of weekly stock returns
Time dummy variable	Post	Post = 1 (sample period in 2009–2013), Post = 0 (sample period in 2006–2008)
Subgroup dummy variable	Treated	Treated = 1 (experimental group firms), Treated = 0 (control group firms)
Enterprise scale	Size	The logarithm of total assets plus 1
Asset–liability ratio	Lev	The ratio of total debt to total assets
Profitability	Roa	The net profit divided by total assets
Sales growth rate	Gsales	Year-end sales/prior year-end sales
Listed years	Age	The logarithm of the company's listing years plus 1
Cash ratio	Cash	Cash and cash equivalent/total asset
Opportunity to invest	TobinQ	(Total Liabilities + Market Value of Outstanding Shares + Net Assets per Share × Number of Non-Circulating Shares)/Total Assets
Major shareholders	Top1	The fraction of shares held by the largest shareholders

5. Test Results

5.1. Descriptive Statistics

Table 2 presents the descriptive statistics findings. In the sample of 9100 firms from 2006 to 2013, the mean value of the corporate risk-taking level RISK1 (RISK2), calculated as the annual volatility of daily (weekly) stock returns, is −3.495 (−2.748), the maximum value is −2.053 (−1.895), and the minimum is −4.347 (−3.708), while the standard deviation is 0.301 (0.324), indicating variation in the risk-taking level among different corporates. The mean (median) of the control variable enterprise size (Size) is 21.801 (21.645), with a maximum of 26.285 and a minimum value of 19.027, which indicates that the majority of firms in the sample are medium to large-sized firms. The mean (median) of the control variable return on assets (Roa) is 0.038 (0.035), with a maximum value of 0.212 and a minimum value of −0.249, indicating that Chinese listed companies' overall profitability is not high. The mean (median) of the control variable sales growth rate (Gsales) is 0.200 (0.129), while the standard deviation is 0.470, indicating that the revenue growth of Chinese listed companies is higher, but there is considerable variation between different enterprises. The statistical values of the variables remaining are in reasonable ranges, and thus, further elaboration is not required.

Table 2. Summary statistics.

Variable	N	Mean	Min	Median	Max	SD
RISK1	9100	−3.495	−4.347	−3.510	−2.053	0.301
RISK2	9100	−2.748	−3.708	−2.756	−1.895	0.324
Post	9100	0.688	0.000	1.000	1.000	0.463
Treated	9100	0.244	0.000	0.000	1.000	0.429
Size	9100	21.801	19.027	21.645	26.285	1.278
Lev	9100	0.503	0.064	0.509	1.211	0.203
Roa	9100	0.038	−0.249	0.035	0.212	0.203
Top1	9100	36.571	8.800	34.945	75.000	14.671
Age	9100	2.188	0.000	2.398	3.178	0.694
Cash	9100	0.174	0.009	0.141	0.632	0.123
TobinQ	9100	1.905	0.871	1.553	9.306	1.101
Gsales	9100	0.200	−0.689	0.129	5.580	0.470

5.2. Preliminary Regression Results

The regression outcomes for Equation (1) are provided in Table 3. In particular, the explanatory variable for the regressions in columns (1) and (2) is RISK1, and the explanatory variable for the regressions described in column (3) and column (4) is RISK2. It can be observed that in column (1), the regression coefficient of the interaction term Treated* Post is −0.031, which is significantly negative at the 1% level when only the year fixed effect is included. In column (2), the regression coefficient of the interaction term Treated* Post is −0.034, which is also significantly negative at the 1% level when including both the individual and year fixed effects. The regression results in the first two columns indicate a significant decline in the firms' risk-taking within the experimental group subject to the Notice compared to firms in the control group (RISK1). Similarly, in columns (3) and (4), the regression coefficients of the interaction terms Treated*Post are −0.033 and −0.024, respectively, and both are significantly negative, suggesting that the issuance of the Notice significantly reduces the risk-taking of experimental firms compared to control firms (RISK2), whether under a time fixed effect or two-way fixed effects. In conclusion, the outcomes in Table 3 demonstrate that the issuance of the Notice has the effect of inhibiting firms' risk-taking in general, thereby supporting hypothesis H2.

Table 3. Benchmark regression.

	(1)	(2)	(3)	(4)
	RISK1	**RISK1**	**RISK2**	**RISK2**
Treated × Post	−0.031 *** (−5.64)	−0.034 *** (−3.33)	−0.033 *** (−4.69)	−0.024 ** (−2.21)
Size	−0.032 *** (−13.91)	−0.029 *** (4.72)	−0.031 *** (−11.79)	−0.022 *** (2.93)
Lev	0.098 *** (7.56)	0.102 *** (8.10)	0.149 *** (9.75)	0.072 ** (2.52)
Roa	−0.203 *** (−4.49)	−0.050 (−0.92)	−0.287 *** (−5.23)	−0.033 (−0.50)
Top1	0.000 (0.69)	0.000 (0.63)	0.000 (1.29)	0.000 (0.12)
Age	−0.009 ** (−2.19)	−0.041 ** (−2.23)	0.011 *** (2.69)	0.074 *** (4.64)
Cash	0.056 *** (3.17)	0.006 (0.24)	0.072 *** (3.35)	0.010 (0.31)

Table 3. *Cont.*

	(1)	(2)	(3)	(4)
	RISK1	**RISK1**	**RISK2**	**RISK2**
TobinQ	0.021 *** (7.39)	0.047 *** (13.91)	0.040 *** (12.44)	0.064 *** (15.36)
Gsales	0.027 *** (6.18)	0.005 (1.32)	0.030 *** (5.93)	0.004 (0.75)
Constant	−2.892 *** (−59.84)	−4.146 *** (−31.83)	−2.254 *** (−40.01)	−3.568 *** (−22.09)
Year effect	Yes	Yes	Yes	Yes
Firm effect	No	Yes	No	Yes
N	9100	9100	9100	9100
Adj. R^2	0.099	0.038	0.097	0.049

Note: Values within parentheses denote t-values; significance levels are denoted by *** and **, representing statistical significance at the 1% and 5% levels, respectively.

Furthermore, the control variables Tobin's Q and Lev are significantly positively related to firms' risk-taking, while Size is significantly inversely related, indicating that firms with better investment opportunities and higher leverage have a greater propensity for risk-taking. Conversely, larger firms tend to adopt more conservative management strategies.

5.3. Robustness Test

5.3.1. Dynamic Trending and Placebo Testing

To further explore the dynamic effect of the issuance of the Notice on firms' risk-taking, with reference to Zhang [7], we replace the interaction term Treated * Post in Equation (1). Specifically, we construct several year dummy variables, namely, $Year_{-1}$, $Year_0$, $Year_{+1}$, $Year_{+2}$, $Year_{+3}$, $Year_{+4}$ and $Year_{+5}$, which correspond to the year before the issuance of the Notice, the year of the issuance, the year after the issuance, two years after the issuance, three years after the issuance, four years after the issuance, and five years after the issuance. Subsequently, we constructed the following regression model by multiplying the year dummy variables $Year_t$ with the group dummy variables $Treated_i$ to obtain the interaction terms $Treated_i * Year_t$:

$$\begin{aligned} \mathrm{RISK}_{i,t+1} = {} & \beta_0 + \beta_1 \mathrm{Treated}_i * \mathrm{Year}_{-1} + \beta_2 \mathrm{Treated}_i * \mathrm{Year}_0 + \beta_3 \mathrm{Treated}_i * \mathrm{Year}_{+1} + \beta_4 \mathrm{Treated}_i * \mathrm{Year}_{+2} \\ & + \beta_5 \mathrm{Treated}_i * \mathrm{Year}_{+3} + \beta_6 \mathrm{Treated}_i * \mathrm{Year}_{+4} + \beta_7 \mathrm{Treated}_i * \mathrm{Year}_{+5} + \theta \prime X_{i,t} + \alpha_i + \gamma_t + \varepsilon_{i,t+1} \end{aligned} \quad (3)$$

The regression results for Equation (3) are presented in the first two columns of Table 4 as (1) and (2). In both columns of the estimated regression results, the coefficients of $Treated_i * Year_{-1}$ and $Treated_i * Year_0$ are both insignificant, while the coefficients of $Treated_i * Year_{+1}$,$Treated_i * Year_{+2}$,$Treated_i * Year_{+3}$, $Treated_i * Year_{+4}$ and $Treated_i * Year_{+5}$ are all significantly negative. This indicates that prior to the implementation of the Notice, there was no significant difference in the variation of risk-taking between the two groups of firms. However, within the five years following the implementation of the Notice, the experimental group firms exhibited a significant downward trend in risk-taking relative to the control group firms each year. Therefore, the premise of DID estimation is largely met by the results of the dynamic trend test above.

Table 4. Dynamic trend test and placebo test.

	(1)	(2)	(3)	(4)
	Dynamic Trend Test		**Placebo Test (2006–2008)**	
	RISK1	**RISK2**	**RISK1**	**RISK2**
Treated × Post			−0.008 (−0.67)	0.011 (0.73)
Year −1 × Treated	−0.011 (−0.65)	−0.024 (−0.89)		
Current × Treated	−0.053 (−1.01)	−0.032 (−0.93)		
Year + 1 × Treated	−0.054 *** (−3.25)	−0.075 *** (−2.80)		
Year + 2 × Treated	−0.090 *** (−5.44)	−0.101 *** (−3.78)		
Year + 3 × Treated	−0.037 ** (−2.25)	−0.033 *** (−2.87)		
Year + 4 × Treated	−0.017 *** (−2.88)	−0.021 *** (−2.95)		
Year + 5 × Treated	−0.027 ** (−2.07)	−0.022 ** (−2.05)		
Size	−0.004 (−0.84)	0.006 (0.77)	0.001 (0.10)	−0.018 (−1.01)
Lev	−0.002 (−1.06)	−0.001 (−0.40)	−0.007 (−0.55)	−0.004 (−0.27)
Roa	−0.001 (−0.94)	−0.001 (−0.51)	−0.044 * (−1.70)	−0.032 (−0.88)
Top1	0.001 * (1.84)	0.001 (0.91)	0.001 (1.48)	0.002 (1.51)
Age	0.053 *** (4.30)	0.067 *** (3.40)	0.022 (0.35)	0.380 *** (7.14)
Cash	−0.012 (−0.48)	−0.020 (−0.51)	−0.016 (−0.21)	−0.118 (−1.57)
TobinQ	−0.000 (−0.24)	−0.000 (−0.55)	0.002 (0.47)	0.010 ** (2.07)
Gsales	0.000 (0.38)	−0.000 (−0.05)	−0.000 * (−1.84)	−0.000 (−1.04)
Constant	−3.591 *** (−34.50)	−3.082 *** (−18.32)	−3.388 *** (−10.45)	−2.988 *** (−7.96)
Year and Firm effect	Yes	Yes	Yes	Yes
N	8105	8105	3008	3008
Adj. R2	0.010	0.007	0.003	0.004

Note: Values within parentheses denote t-values; significance levels are denoted by ***, **, and *, representing statistical significance at the 1%, 5%, and 10% levels, respectively.

In addition, in order to establish an accounting standard system converging with the International Financial Reporting Standards (IFRS), the Ministry of Finance of China issued new "Enterprise Accounting Standards" in 2007, requiring listed companies to disclose

accounting information in accordance with these new standards. Given the significant changes in the accounting recognition, measurement and reporting rules brought about by these new standards, they could directly affect the quality of information disclosure by listed companies in China and lead to a series of complex economic consequences. Therefore, our sample companies may be affected by this policy, making the pre-promulgation experimental and control groups unable to satisfy the trend consistency assumption. In order to address these concerns, and following the approach of Chen et al. [40], in this study, we assume that 2007 is the year of the occurrence of the exogenous shock and conduct placebo tests using the sample of firms from 2006 to 2008. The results, as shown in columns (3) and (4) of Table 4, indicate that the regression coefficients of the two interaction terms are insignificant. Thus, there is no evidence that the risk-taking behavior of firms in the experimental group changed significantly around 2007 compared to the control group, suggesting that our research results are not driven by the implementation of the new accounting standards in 2007.

5.3.2. Other Robustness Tests

To assess the robustness of the baseline regression results, we conducted robustness tests by redefining the regression samples and incorporating lagged dependent variables. Specifically, (1) as mentioned above, we used the PSM method to process the sample, which allowed for better comparability between the experimental and control group companies prior to the issuance of the Notice [40]; (2) firms that voluntarily disclosed CSR reports during the sample period were included in the control group to examine whether the additional information contained in voluntarily disclosed CSR reports also affects firms' risk-taking [13]; and (3) as policy transmission typically takes time, the effect of the Notice on corporate risk-taking may have a time lag. Therefore, we regressed the dependent variable in the baseline regression with a lag of one period.

Table 5 reports the results of the robustness tests mentioned above. In columns (1) and (2) of Table 5, the coefficients of the two interaction terms are 0.029 and 0.027, respectively, both significantly negative at the 1% and 5% levels, indicating that the regression results remain robust after processing the sample using the PSM method. In columns (3) and (4), after adding 142 companies that voluntarily disclosed CSR reports to the control group, we observe that the coefficients of the two interaction terms remain significantly negative. The coefficients are also not significantly different from those in columns (2) and (4) of Table 3, suggesting that the impact of voluntarily disclosed CSR information on firms' risk-taking is negligible. This may be due to the low quality of voluntarily disclosed CSR information, which does little to mitigate the information asymmetry problem [13]. In columns (5) and (6), after regressing the dependent variable with a one-year lag, we find that the coefficients of the two interaction terms are significantly negative at the 1% level, indicating that our regression results remain robust even in the presence of temporal policy transmission.

Table 5. Further robustness testing.

	(1)	(2)	(3)	(4)	(5)	(6)
	PSM		**Add Voluntary Disclosure**		**RISK (T + 1)**	
	RISK1	**RISK2**	**RISK1**	**RISK2**	**RISK1**	**RISK2**
Treated × Post	−0.029 ***	−0.027 **	−0.027 ***	−0.029 **	−0.034 ***	−0.029 ***
	(−2.83)	(−2.05)	(−2.66)	(−2.33)	(−4.24)	(−2.59)
Size	0.007	−0.002	0.031 ***	0.023 ***	−0.007	−0.023 ***
	(0.92)	(−0.20)	(5.07)	(3.17)	(−1.36)	(−2.97)
Lev	0.036	0.123 ***	0.001	0.061 **	−0.012	0.040
	(1.24)	(3.48)	(0.06)	(2.18)	(−0.55)	(1.34)

Table 5. *Cont.*

	(1)	(2)	(3)	(4)	(5)	(6)
	PSM		Add Voluntary Disclosure		RISK (T + 1)	
	RISK1	RISK2	RISK1	RISK2	RISK1	RISK2
Roa	0.024 (0.37)	0.073 (0.91)	−0.032 (−0.59)	−0.019 (−0.30)	−0.007 (−0.13)	−0.078 (−1.15)
Top1	0.000 (0.76)	0.000 (0.51)	−0.000 (−0.70)	−0.000 (−0.74)	0.000 (1.05)	0.000 (0.15)
Age	0.013 (0.57)	0.110 *** (4.92)	−0.133 *** (−6.75)	0.087 *** (6.18)	0.042 *** (3.73)	0.050 *** (3.19)
Cash	−0.003 (−0.10)	−0.004 (−0.09)	−0.006 (−0.22)	−0.013 (−0.40)	−0.020 (−0.79)	−0.021 (−0.59)
TobinQ	0.045 *** (10.06)	0.054 *** (9.65)	0.049 *** (14.60)	0.063 *** (16.44)	0.005 * (1.68)	0.003 (0.86)
Gsales	0.004 (0.98)	−0.000 *** (−3.34)	0.002 (0.81)	0.001 (0.31)	0.003 (0.75)	0.002 (0.37)
Constant	−3.798 *** (−23.89)	−3.139 *** (−15.76)	−3.973 *** (−30.58)	−3.583 *** (−23.61)	−3.489 *** (−30.54)	−2.420 *** (−14.82)
Year and Firm effect	Yes	Yes	Yes	Yes	Yes	Yes
N	6615	6615	10,025	10,025	9100	9100
Adj. R2	0.035	0.045	0.049	0.051	0.006	0.005

Note: Values within parentheses denote t-values; significance levels are denoted by ***, **, and *, representing statistical significance at the 1%, 5%, and 10% levels, respectively.

6. Mechanism Testing and Heterogeneity Analysis

6.1. Mechanism Test

In the second section of the theoretical analysis, we have discussed the potential mechanisms through which the issuance of the Notice may affect firms' risk-taking. Some studies have found that mandatory CSR reporting not only ameliorates firms' agency conflicts by reducing information asymmetry but also helps firms obtain support from governments and banks for debt financing, thereby partially alleviating their financing constraints. However, some scholars have pointed out that in the period following the issuance of the Notice, the quality of information disclosed by firms remains relatively low, making it difficult to improve their information environment. In addition, the issuance of the Notice increases the public and regulatory pressure on mandatory reporting enterprises, which may cause firms to allocate excessive resources to CSR activities, thereby constraining their daily productive activities and inhibiting their financing, as mentioned by Chen et al. [40]. Therefore, the increase in unproductive expenditures caused by the implementation of the Notice will also inhibit firms' risk taking.

From the above analysis, it is clear that agency costs and funding constraints are important pathways through which the Notice affects firms' risk-taking. To examine the impact of these factors on firms' risk-taking, we first refer to the study by Ban and Zhu [29] and construct a mediation model using agency costs (AC) and financing constraints (KZ) as intermediate variables to conduct mechanism testing.

$$AC_{i,t} = \beta_0 + \beta_1 Treated_i * Post_t + \theta' X_{i,t} + \alpha_i + \gamma_t + \varepsilon_{it} \quad (4)$$

$$RISK_{i,t} = \beta_0 + \beta_1 Treated_i * Post_t + \beta_1 AC_{i,t} + \theta' X_{i,t} + \alpha_i + \gamma_t + \varepsilon_{it} \quad (5)$$

$$KZ_{i,t} = \beta_0 + \beta_1 Treated_i * Post_t + \theta' X_{i,t} + \alpha_i + \gamma_t + \varepsilon_{it} \quad (6)$$

$$RISK_{i,t} = \beta_0 + \beta_1 Treated_i * Post_t + \beta_1 KZ_{i,t} + \theta' X_{i,t} + \alpha_i + \gamma_t + \varepsilon_{it} \quad (7)$$

In Equations (4) and (5), Ac represents the firm's overhead ratio in year t, which is calculated as the ratio of the firm's overhead expenses to its operating revenue [14], and a higher value of Ac indicates an increased agency cost within the firm. In Equations (6) and (7), the financing constraint (KZ) is quantified by the KZ index of firm i in year t, as developed by Kaplan and Zingales [43], and derived from a set of financial metrics that includes the level of cash holdings, operating cash flow, debt level, Tobin's Q value and cash payout level, which serves as a widely accepted indicator of financing constraints. A higher KZ index value reflects heightened financing constraints faced by the firm.

The results of the tests are presented in Table 6. The first column of Table 6 reports the regression results of Equation (4), showing that the coefficient of the interaction term is significantly negative at the 5% level, suggesting that the implementation of the Notice effectively reduces firms' agency costs. Columns 2 and 3 of Table 6 report the regression results of Equation (5), which show that the coefficients of the intermediate variable AC are significantly negative in both columns. Therefore, this result indicates that although the Notice effectively reduces firms' agency costs, the reduction in agency costs does not significantly increase firms' risk-taking. Column 4 reports the regression results of Equation (6), which shows that the coefficient of the interaction term in column 4 is significantly positive at the 1% level, indicating that the issuance of the Notice exacerbates the financing constraints of reporting firms relative to those that do not disclose CSR information. Columns 5 and 6 report the regression results of Equation (7), which show that the coefficients of the intermediate variable KZ are significantly negative in both columns, while the coefficients of the interaction term are significant at the 1% and 5% levels, respectively. Therefore, this result suggests that the Notice exacerbates firms' financing constraints, and the exacerbation of financing constraints significantly reduces firms' risk taking. Thus, based on the signs and significance of the coefficients in the last three columns of Table 6, it can be inferred that the tightening of financing constraints is an important channel through which the Notice suppresses firms' risk-taking.

Table 6. Mechanism test.

	(1)	(2)	(3)	(4)	(5)	(6)
	AC	**RISK1**	**RISK2**	**KZ**	**RISK1**	**RISK2**
Treated × Post	−0.086 **	−0.033 ***	−0.027 *	0.201 ***	−0.041 ***	−0.026 **
	(2.38)	(−2.66)	(−1.77)	(3.01)	(−4.14)	(−2.04)
AC		−0.020 ***	−0.019 ***			
		(4.40)	(3.35)			
KZ					−0.040 **	−0.041 *
					(−2.02)	(−1.78)
Size	0.552 ***	0.001	−0.016	−0.284 ***	0.008	0.014 *
	(20.68)	(0.13)	(−1.37)	(−4.42)	(1.35)	(1.73)
Lev	−0.524 ***	0.069 **	0.135 ***	4.136 ***	0.085 ***	0.141 ***
	(−5.17)	(2.22)	(3.47)	(21.33)	(3.31)	(4.12)
Roa	2.319 ***	−0.198 ***	−0.228 **	−8.693 ***	0.017	−0.001
	(9.20)	(−2.81)	(−2.52)	(−18.67)	(0.32)	(−0.01)
Top1	−0.005 ***	−0.000	−0.000	−0.011 ***	0.000	−0.000
	(−3.51)	(−0.77)	(−0.67)	(−2.79)	(0.44)	(−0.68)

Table 6. *Cont.*

	(1)	(2)	(3)	(4)	(5)	(6)
	AC	**RISK1**	**RISK2**	**KZ**	**RISK1**	**RISK2**
Age	−0.344 ***	−0.029	0.074 ***	−0.475 ***	0.069 ***	0.070 ***
	(−8.74)	(−1.28)	(3.97)	(−5.21)	(5.24)	(3.93)
Cash	−0.035	−0.036	−0.013	−9.998 ***	−0.038	−0.046
	(−0.33)	(−1.12)	(−0.32)	(−41.16)	(−1.22)	(−1.08)
TobinQ	0.138 ***	0.039 ***	0.052 ***	0.420 ***	0.049 ***	0.069 ***
	(12.00)	(9.07)	(10.13)	(17.70)	(13.69)	(14.72)
Gsales		0.009 **	0.015 **		0.003	−0.001
		(1.99)	(2.16)		(0.89)	(−0.09)
Constant	−9.424 ***	−3.604 ***	−2.763 ***	7.974 ***	−3.973 ***	−3.401 ***
	(−16.24)	(−18.91)	(−11.34)	(5.73)	(−30.40)	(−19.43)
Year and Firm effect	Yes	Yes	Yes	Yes	Yes	Yes
N	9100	9100	9100	9100	9100	9100
Adj. R2	0.158	0.036	0.046	0.471	0.056	0.053

Note: Values within parentheses denote t-values; significance levels are denoted by ***, **, and *, representing statistical significance at the 1%, 5%, and 10% levels, respectively.

To further test the possibility that the Notice may lead to an increase in firms' operating costs, thereby suppressing their risk-taking, we examined the changes in sales revenues, R&D expenditures, and investment levels before and after the issuance of the Notice. We constructed the following equations for testing:

$$Sale_{i,t} = \beta_0 + \beta_1 Treated_i * Post_t + \theta' X_{i,t} + \alpha_i + \gamma_t + \varepsilon_{it} \quad (8)$$

$$Rd_{i,t} = \beta_0 + \beta_1 Treated_i * Post_t + \theta' X_{i,t} + \alpha_i + \gamma_t + \varepsilon_{it} \quad (9)$$

$$Invest_{i,t} = \beta_0 + \beta_1 Treated_i * Post_t + \theta' X_{i,t} + \alpha_i + \gamma_t + \varepsilon_{it} \quad (10)$$

In the above equations, "Sales" represents the natural logarithm of the firm's sales revenue, which to some extent reflects the firm's willingness to expand or contract production [40]. "Rd" denotes the firm's investment in research and development (R&D), calculated as the ratio of R&D expenditure to sales revenue. R&D projects typically involve large financial investments and have long payback periods [14], thus reflecting the firm's risk preference to some extent. "Invest" represents the investment level of the firm, defined as the natural logarithm of the investment amount related to the company's main business activities, which also reflects the impact of non-operating expenses caused by the Notice on the firm's investment. The other variables used are consistent with Equation (1). Table 7 presents the regression results of the above equation. The results in columns (1) to (3) indicate that the issuance of the Notice leads to a decrease in sales revenues, R&D expenditures, and investment levels for the experimental group firms relative to the control group firms. We interpret these results as evidence of reduced risk-taking by firms, indicating that firms respond to their reduced risk preferences by closing some production facilities (reflected in the decrease in Sales) and reducing the amount of R&D investment and investment (reflected in the decrease in Rd and Invest).

Table 7. Further mechanism test.

	(1)	(2)	(3)
	Sale	**Rd**	**Invest**
Treated × Post	−0.028 ** (0.78)	−0.036 *** (−3.41)	−0.034 ** (0.69)
Size	0.030 * (1.66)	0.010 (1.43)	0.013 (0.61)
Lev	−0.033 (−0.59)	0.081 *** (3.02)	−0.016 (−0.25)
Roa	−0.129 (−1.09)	0.075 (1.26)	−0.272 ** (−2.11)
Top1	−0.002 (−1.26)	0.000 (0.06)	−0.003 ** (−2.19)
Age	−0.168 *** (−3.71)	−0.024 (−1.00)	0.057 * (1.67)
Cash	−0.140 ** (−2.03)	0.012 (0.41)	−0.100 (−1.35)
TobinQ	0.034 *** (5.44)	0.049 *** (11.74)	0.053 *** (7.47)
Gsales	0.007 (0.73)	0.005 (1.20)	0.013 (1.12)
Constant	−3.799 *** (−10.12)	−3.800 *** (−25.67)	−3.086 *** (−6.84)
Year and Firm effect	Yes	Yes	Yes
N	1756	7163	1756
Adj. R2	0.043	0.044	0.053

Note: Values within parentheses denote t-values; significance levels are denoted by ***, **, and *, representing statistical significance at the 1%, 5%, and 10% levels, respectively.

6.2. Heterogeneity Analysis

6.2.1. Corporate Financing Costs

In the theoretical analysis section, we argue that the mandatory disclosure of CSR information under the Notice leads to increased operating costs for firms due to the allocation of funds. Consequently, it reduces their risk-taking. Therefore, it is reasonable to assume that firms with easier access to external funding would be less affected by the Notice, as ample funding undoubtedly provides a basis for undertaking risky projects. To test this hypothesis, we divide the full sample of firms into subgroups based on the median of their financing costs (Cost) and conduct a comparative regression analysis. Cost is defined as the ratio of interest expenses to total current and non-current liabilities.

The regression results are presented in Table 8, where the dependent variables are RISK1 in the first two columns and RISK2 in the last two columns. In the first column, the regression coefficient of the interaction term is not significant for the subgroup with lower financing costs, while in the second column, the regression coefficient of the interaction term is significantly negative at the 1% level for the subgroup with higher financing costs. Bootstrap tests show a significant difference in the coefficients between the two groups at the 1% level (empirical p-value = 0.003). Similarly, in the third column, for the subgroup with lower financing costs, the regression coefficient of the interaction term is not significant, while in the fourth column, for the subgroup with higher financing costs, the regression coefficient of the interaction term is significantly negative at the 5% level and the difference in the coefficients between the two groups is significant at the 1% level (empirical p-value = 0.001). Therefore, the results in Table 8 indicate that the inhibitory effect of the Notice on firms' risk-taking is more pronounced for firms with higher financing

costs, which indirectly confirms the hypothesis that mandatory CSR disclosure increases firms' operating costs.

Table 8. Heterogeneity of financing costs.

	(1)	(2)	(3)	(4)
	Low Financing Costs	**High Financing Costs**	**Low Financing Costs**	**High Financing Costs**
	RISK1	**RISK1**	**RISK2**	**RISK2**
Treated × Post	0.028 (0.78)	−0.036 *** (−3.41)	0.034 (0.69)	−0.028 ** (−2.06)
Size	0.030 * (1.66)	0.010 (1.43)	0.013 (0.61)	0.014 (1.57)
Lev	−0.033 (−0.59)	0.081 *** (3.02)	−0.016 (−0.25)	0.138 *** (3.97)
Roa	−0.129 (−1.09)	0.075 (1.26)	−0.272 ** (−2.11)	0.098 (1.25)
Top1	−0.002 (−1.26)	0.000 (0.06)	−0.003 ** (−2.19)	−0.000 (−0.35)
Age	−0.168 *** (−3.71)	−0.024 (−1.00)	0.057 * (1.67)	0.069 *** (3.17)
Cash	−0.140 ** (−2.03)	0.012 (0.41)	−0.100 (−1.35)	0.007 (0.17)
TobinQ	0.034 *** (5.44)	0.049 *** (11.74)	0.053 *** (7.47)	0.068 *** (12.53)
Gsales	0.007 (0.73)	0.005 (1.20)	0.013 (1.12)	−0.001 (−0.23)
Constant	−3.799 *** (−10.12)	−3.800 *** (−25.67)	−3.086 *** (−6.84)	−3.423 *** (−17.58)
Year and Firm effect	Yes	Yes	Yes	Yes
N	1756	7163	1756	7163
Adj. R2	0.043	0.044	0.053	0.048
Empirical *p*-value	0.003		0.001	

Note: Values within parentheses denote t-values; significance levels are denoted by ***, **, and *, representing statistical significance at the 1%, 5%, and 10% levels, respectively. "Empirical *p*-value" is employed to assess the differences in the Slant coefficients between groups and was obtained by autosampling (bootstrap) 500 times.

6.2.2. State-Owned versus Non-State-Owned Firms

In China, differences in property rights are a typical feature of listed firms. From the perspective of financing constraints, state-owned enterprises (SOEs), which are supported and favored by government policies, find it easier to raise funds from the credit market than non-state-owned enterprises [29]. Therefore, if the tightening of financing constraints is an important mechanism through which mandatory CSR disclosure inhibits corporate risk-taking, then the inhibitory effect of the "Notice" on risk-taking by non-state-owned enterprises should be more pronounced. To test this hypothesis, we divided the sample into subgroups based on the ownership of the firms, namely SOEs and non-SOEs, and ran separate regressions.

The regression results are presented in Table 9, where the dependent variables are RISK1 in the first two columns and RISK2 in the last two columns. In the first column, for the SOE subgroup, the regression coefficient of the interaction term is not significant, while in the second column, for the non-SOE subgroup, the regression coefficient of the interaction term is significantly negative at the 1% level, and the difference in the coefficients between the two columns is significant at the 1% level. Similarly, in the third column for

the SOE subgroup, the regression coefficient of the interaction term is not significant, while in the fourth column for the non-SOE subgroup, the coefficient of the interaction term is significantly negative, and again the difference in the coefficients between the two columns is significant at the 1% level. Overall, the results in Table 9 suggest that the inhibitory effect of the Notice on risk-taking is more pronounced for non-SOEs.

Table 9. Heterogeneity analysis of firm ownership.

	(1)	(2)	(3)	(4)
	SOEs	**NSOEs**	**SOEs**	**NSOEs**
	RISK1	**RISK1**	**RISK2**	**RISK2**
Treated × Post	−0.006 (−0.22)	−0.033 *** (−2.96)	0.001 (0.01)	−0.024 * (−1.65)
Size	0.032 *** (3.27)	0.014 (1.61)	0.024 ** (2.03)	0.012 (1.06)
Lev	0.028 (0.79)	0.007 (0.22)	0.076 * (1.71)	0.101 ** (2.49)
Roa	−0.202 ** (−2.24)	−0.011 (−0.16)	−0.132 (−1.22)	0.009 (0.10)
Top1	0.001 (0.83)	−0.000 (−0.74)	0.000 (0.40)	−0.000 (−0.63)
Age	−0.035 (−1.22)	−0.064 ** (−2.32)	0.118 *** (5.33)	0.018 (0.73)
Cash	0.004 (0.09)	0.026 (0.73)	0.061 (1.20)	−0.007 (−0.16)
TobinQ	0.044 *** (9.15)	0.055 *** (10.86)	0.060 *** (9.55)	0.073 *** (11.69)
Gsales	0.014 ** (2.21)	−0.001 (−0.18)	0.014 (1.62)	−0.002 (−0.31)
Constant	−4.240 *** (−21.33)	−3.753 *** (−19.68)	−3.690 *** (−15.01)	−3.213 *** (−13.72)
Year and Firm effect	Yes	Yes	Yes	Yes
N	3454	5569	3454	5569
Adj. R2	0.037	0.048	0.062	0.045
Empirical *p*-value	0.001		0.003	

Note: Values within parentheses denote t-values; significance levels are denoted by ***, **, and *, representing statistical significance at the 1%, 5%, and 10% levels, respectively. "Empirical *p*-value" is employed to assess the differences in the Slant coefficients between groups and was obtained by autosampling (bootstrap) 500 times.

7. Discussion

Although many studies have discussed the role of mandatory CSR information disclosure in corporate development, the conclusions drawn are not consistent. On the one hand, some research confirms the contribution of mandatory CSR information disclosure to corporate information transparency, investment efficiency and R&D innovation [7,8,13]. However, other scholars have found inhibitory effects of mandatory CSR information disclosure on firm value and financial performance [40,44,45]. In addition, scholars have observed that the economic impact of mandatory CSR information disclosure may vary across countries, possibly correlated with a country's cultural background and economic development stage [18,21]. In this paper, we examine the impact of mandatory CSR information disclosure on risk-taking from the perspective of firms' operating costs and financing constraints, and we find that the mandatory disclosure requirements of the Notice will increase firms' operating external costs and inhibit their risk-taking in the coming

years. Although we also observe a reduction in agency conflicts, this is not the primary factor influencing Chinese firms' risk-taking in the coming years as a result of the CSR disclosure requirements. Perhaps, over a longer period of time, this policy could facilitate the comprehensive progress of enterprises by changing their overall development models and philosophies, thus driving their progress [46,47].

In addition, this study has certain limitations that future research could address to improve it. First, the measure of firms' risk-taking used in this study is somewhat limited as it relies solely on calculations based on financial data. Although this method is widely used, it obviously has certain limitations, such as not considering the factors of firms' risk-taking beyond financial indicators. Therefore, in addition to referring to the methods used by Faccio et al. [23] and Coles et al. [25], which are based on the level of fluctuations in corporate performance and stock returns, to calculate enterprise risk-taking, future research could explore other approaches to assess enterprise risk appetite. Second, apart from operating costs, enterprise risk-taking may also be influenced by factors such as the managerial characteristics [20] and the market environment in which the firm operates [19]. Future research could further explore how changes in external factors, such as industry competitive pressures and environmental performance pressures, affect firms' risk taking. Third, over a longer time horizon, after firms have overcome the operational pain caused by short-term cost increases, the issuance of the Notice may eventually play a positive role in firms' risk-taking [21]. However, the samples used in this study are derived from corporate data from between 2006 and 2013, making it difficult to test firms' risk-taking over a longer period. Subsequent research could consider complementing and extending the study based on a longer time frame, while ensuring that the impact of other policies during the period is taken into account.

8. Conclusions and Implications

Our research shows that the mandatory disclosure of CSR information significantly constrains the risk-taking of Chinese listed companies. This phenomenon is primarily due to the inevitable escalation of various operational externalities that arise during the compliance process, thereby exacerbating financing constraints. Further investigation reveals that firms that comply with CSR reporting requirements experience significant declines in sales revenues, research and development expenditures, and investment levels compared to firms that refrain from CSR reporting. This tangentially supports the contention that the issuance of the Notice causes compliant firms to pivot toward conservative operating paradigms. In addition, our analysis suggests that the Notice has an increased dampening effect on risk-taking by firms facing higher financing costs.

The policy implications of the findings of this study are as follows. First, a nuanced perspective on the role of CSR disclosure is warranted. The previous literature generally assumes that proactive engagement in CSR activities by firms leads to positive outcomes, including increases in firm value and reputation, as well as benefits for societal welfare and the external environmental milieu. However, our research suggests that while the adoption of the Notice may provide incentives for firms to undertake CSR transformations, it may also force them to allocate excessive resources to CSR, thereby creating crowding-out effects on other productive activities. Whether such sacrifices will ultimately contribute to the quality transformation of the Chinese economy remains to be seen. Second, private firms in China, unlike state-owned enterprises, have the characteristics of high production efficiency and growth potential and serve as important employers. However, amid the slowdown in China's economic growth, private firms face a number of challenges, mainly related to financing constraints. Further refinement of CSR information disclosure policies to include granular social responsibility metrics tailored to each firm's unique characteristics and strengths promises to improve the quality and efficiency of the fulfillment of CSR obligations while reducing the resources and energy that companies devote to CSR efforts, thereby improving the efficiency of resource allocation.

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