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企業社會責任績效與年報可讀性關聯性之研究

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摘要

本研究旨在探討企業社會責任績效是否與公司年報可讀性有所關聯。實證結果顯示：企業社會責任表現較高的公司所提供的年報可讀性較低，特別是在「合併財務報表附註」(Notes)部分，而非「管理層討論與分析」(MD&A)部分。此外，本研究進一步發現企業社會責任表現與年報可讀性的關係主要透過財務績效及財務槓桿此兩項渠道，這支持了股東理論(Friedman 1962)和稅盾考量的觀點。同時，本研究亦發現，不同的從事企業社會責任活動之動機會導致這些渠道有所差異。最後，在次貸危機期間，企業社會責任表現與 Notes 部分可讀性之負向關係將顯著減弱。

關鍵詞：企業社會責任、年報可讀性、合併財務報表附註、股東理論、稅盾

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Corporate Social Responsibility Performance and Readability of Annual Reports

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Abstract

We examine whether and how corporate social responsibility (CSR) performance affects annual report readability. We find that firms with higher CSR performance provide less readable annual reports, especially in the 'Notes to consolidated financial statements' (Notes) section rather than the 'Management Discussion and Analysis' (MD&A) section. The CSR performance effect on annual report readability is mainly through the channels of firm performance and financial leverage, supporting shareholder theory (Friedman 1962) and tax shield concern. Meanwhile, we also find that the channels vary with the different motivations for conducting CSR activities. Finally, the CSR performance effect on Notes readability

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becomes weaker during the financial crisis period.

Keywords: Corporate social responsibility (CSR); Annual report readability; Notes to consolidated financial statements; Shareholder theory; Tax shields

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1. Introduction

Many studies have documented the importance of annual report readability in finance and accounting fields (e.g. Li 2008; Biddle et al. 2009; Lehavy et al. 2011; Lo et al. 2017). A firm's annual report readability is generally viewed as an outcome of managers' strategically textual reporting in the annual report, which is driven by the firm's management reporting policies. Previous research shows that a firm's operating performance motivates managers to strategically present information that highlights their firm's strengths, aiming to positively influence its market value (Schrand and Walther 2000). That is, managers may strategically obfuscate negative information through less readable textual disclosures in case of poor performance (management obfuscation hypothesis; Bloomfield 2002).[1] Given that few studies have explored the impact of corporate social responsibility (CSR) performance on annual report readability, this study aims to examine whether CSR performance (Freeman 1984; Friedman 1962), which plays a crucial role in shaping a firm's operating performance, also influences managers' strategic decisions on the readability of annual reports.

In recent years, CSR activities have become one of the important corporate activities in the United States. For example, over 43 billion were invested in corporate sustainable development and charity events in 2010. While engaging in CSR offers several advantages, such as enhancing firm reputation, employee relations, sales, and market share (Barnett and Salomon 2006; Weber 2008), it also involves potential drawbacks, such as resource misallocation and negative impacts on shareholders' interests, which could result in lower financial performance (Baird et al. 2012; Peng and Yang 2014). Moreover, CSR performance can significantly influence financial leverage. Harjoto (2017) indicates that CSR activities reduce the need for firms to rely on debt as a tax shield, leading to lower financial leverage. Given that CSR performance influences both firm performance and financial leverage, and these two factors, in turn, affect managers' strategic reporting

[1] The disclosure theory used in this paper is the management obfuscation hypothesis (Bloomfield 2002), which posits that managers may deliberately make financial disclosures complex and difficult to understand to conceal unfavorable information or inappropriate behavior, thereby reducing investors' ability to detect and focus on potential issues within the firm. Consequently, outside investors may not fully understand all disclosed information when interpreting financial reports. Instead, they often rely on more understandable and apparent information. Therefore, when financial reports become more complex or less readable, important information may be ignored or underestimated (incomplete revelation hypothesis).

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decisions, this study proposes that CSR performance may impact the readability of annual reports through its effects on firm performance and financial leverage.

This study proposes that CSR performance can either enhance or reduce a firm's annual report readability. First, according to stakeholder theory (Freeman 1984; Jones 1995), the potential benefits of engaging in CSR activities for firms include: (1) positive effects on firm reputation and employee relations; (2) increases in sales and market share; and (3) reductions in costs and CSR-related risks. This theory suggests that firms should consider the interests of a broader group of stakeholders, not just shareholders, which can positively impact firm performance. Furthermore, Li (2008) demonstrates that managers are more likely to disclose more readable annual reports when the firm has higher current earnings or more consistent positive earnings. Subramanian et al. (1993) also find that the annual reports of more profitable firms are significantly easier to read. Therefore, CSR performance may improve a firm's performance, reducing managers' incentives to manipulate readability, thereby resulting in a positive relationship between CSR performance and annual report readability.

Second, and in contrast, according to shareholder theory (Friedman 1962), the potential costs of engaging CSR activities for firms include resource misallocations and harm to shareholders' interests, which can lead to lower financial performance (e.g. Baird et al. 2012; Peng and Yang 2014). This may increase managers' incentives to manipulate readability, thereby resulting in a negative relationship between CSR performance and annual report readability.

Third, Harjoto (2017) shows that CSR performance is negatively related to financial leverage because CSR activities reduce the need for companies to use debt to lower their tax burden (tax shield concern), thereby leading to lower financial leverage.[2] Furthermore, Arya and Glover (1998) suggest that as debt levels decrease, the incumbent manager's advantage over a new manager diminishes, increasing their job risk and discouraging further disclosure.[3] Therefore, CSR performance may decrease a firm's financial leverage, increasing managers' incentives to manipulate readability, thereby resulting in a negative relationship between CSR performance and annual report readability.

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[2] Harjoto (2017) demonstrates that engaging CSR activities with concerns (strengths) are positively (negatively) related to financial leverage.

[3] Beyer and Dye (2021) also provide the theoretical discussions about the association between debts and equilibrium voluntary disclosures under different types of managers' compensations contracts.

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Based upon the above discussions, we summarize that (1) CSR performance positively relates to financial performance under the stakeholder theory (Freeman 1984) holds, which can lead to higher annual report readability (Li 2008); (2) CSR performance negatively relates to financial performance under the shareholder theory (Friedman 1962) holds, which can result in lower annual report readability (Li, 2008); (3) engaging CSR activities (with more strengths or less concerns) are negatively related to financial leverage (Harjoto 2017), which can also lead to lower annual report readability (Arya and Glover 1998). Therefore, this study reasonably hypothesizes that CSR performance is positively related to annual report readability from the stakeholder theory perspective, while has an opposite effect from the perspectives of shareholder theory and financial leverage.

This study investigates whether a firm's CSR performance affects annual report readability by employing 16,851 American firm observations from 2001 to 2013. The empirical results of this study show that the CSR performance score, measured by CSR net strengths(*CSR_NET*), is significantly and negatively related to the readability of the entire annual report and the Notes to consolidated financial statements (Notes) section, while it has an insignificant impact on the readability of the Management Discussion and Analysis (MD&A) section.[4] We also find that firms with better CSR performance have lower readability in the Notes section than in MD&A readability. This indicates that firms with greater CSR net strengths are more likely to engage in strategically textual reporting in their 10-K filings with less readable text, particularly in the Notes section. Furthermore, this study follows Crifo and Forget (2015) to classify CSR activities into three categories (according to the motivations for engaging in CSR activities), including market failure, imperfect competition, and imperfect contracts. The results show that CSR performance scores of the three categories, measured by CSR net strengths, are all significantly and negatively related to readability in the entire annual report and Notes section.

This study also presents how a firm's CSR performance affects annual report readability from the perspectives of firm performance and financial leverage. Empirical findings are that (1) the effect of CSR performance on annual report readability is mainly through the channels of firm performance and financial leverage, supporting shareholder theory (Friedman 1962; Li 2008) and tax shield

[4] *CSR_NET* is calculated by the net balance of total standardized scores of CSR strengths and those of CSR concerns of these seven dimensions, including environment protection, community engagement, human rights, workforce diversity, product quality, employee treatment, and corporate governance.

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concern (Harjoto 2017; Arya and Glover 1998). Moreover, the study finds that the negative effect of CSR performance on the Notes readability significantly becomes weaker during the financial crisis period. Furthermore, the coexistence of strength and concern in CSR activities significantly and negatively relates to the Notes readability, especially for the activities of human rights and employee treatment. Finally, to mitigate the endogeneity concern, this study employs two-stage regressions with instrument variables of CSR performance. The negative effects of CSR performance remain hold when considering endogeneity issues.

This study contributes to the literature in the following aspects. First, our study extends the CSR literature by introducing CSR performance into the research issue of annual report readability. Most previous studies explore the economic consequence of CSR activities performance from the following perspectives: financial performance, firm credit risk (Menz 2010; Oikonomou et al. 2014; Ge and Liu 2015), operating and financial leverage (Harjoto 2017), and so on. However, its economic consequence on annual report readability has rarely been discussed in the CSR literature, which is one of the contributions of this study. Second, this study extends the literature on annual report readability by showing that CSR performance still explains the variations of annual report readability when controlling for other well-known determinant variables. This research provides the new insight into how CSR activities affect annual report readability from the viewpoints of shareholder theory (Friedman 1962; Li 2008) and tax shield concern (Harjoto 2017; Arya and Glover 1998).

Finally, our results have some important practical implications: (1) Engaging CSR activities motivated by imperfect contracts and market failure are the main sources for the CSR strength effect on annual report readability while those motivated by imperfect contracts and imperfect competition are the main sources for the CSR concern effect; (2) When a firm simultaneously conducts CSR activities with strengths and concerns (especially for human rights and employee treatment dimensions), managers have stronger incentives to engage strategically textual reporting in Notes section; (3) The effects of CSR net strength and CSR concern on Notes readability significantly become weaker during the financial crisis period. Our findings could help outside investors understand the potential impacts of conducting CSR activities on the incentives of managers' strategically textual reporting in annual reports.

The remainder of this paper is organized as follows. Section II introduces the measures of annual report readability and CSR performance. Section III presents the

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hypotheses. Section IV presents the data and summarizes other major variables used in the empirical examinations. Section V presents and analyzes empirical results. Finally, section VI provides concluding remarks.

2. Main measures

This section introduces the main measures of CSR performance and those of annual report readability used in this study. First, this study follows the previous studies (e.g. Li 2008) to employ the Fog variable (Gunning 1952) as the main measure of the annual report readability. Second, following the definitions of MSCI ESG KLD STATS database, this study follows the definitions of MSCI ESG KLD STATS database to employ the strength, concern, and net strength of CSR activities as the measurements of CSR performance and also classifies CSR activities in seven dimensions, covering environment protection (*ENV*), community engagement (*COM*), human rights (*HUM*), employee treatment (*EMP*), workforce diversity (*DIV*), product quality (*PRO*), and corporate governance (*CGOV*) dimensions. The study develops the aggregate CSR performance variables from the above CSR dimensions. In addition, this study follows Crifo and Forget (2015) to classify CSR activities into three categories according to the motivations for engaging in CSR activities, including market failure (*MF*), imperfect competition (*IMP*), and imperfect contracts (*IMT*).

2.1 Measures of annual report readability

Since the Notes and MD&A sections of annual reports provide detailed disclosures on financial and non-financial matters, which may include important CSR-related information, this study considers the readability of the entire annual report, as well as the specific readability of the Notes and MD&A sections. This study follows Li (2008) to employ the Fog index (Gunning 1952) as the main measure to describe the readability of all items in the annual report, that of the Notes section, and that of the MD&A section, which are respectively denoted as *All_Fog*, *Note_Fog*, and *MDA_Fog*. In the computational linguistics literature, the Fog index is a well-known and common readability measure (Gunning 1952), which describes text complexity as a function of the number of words per sentence and the number of syllables per word. The definition of the Fog index is stated as Eq. (1). In Eq. (1),*word_PS* and *P_Cwords* indicate the words per sentence and the percent of complex words (the words with three syllables or more), respectively.

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$$Fog = 0.4 \times (words_PS + P_Cwords) \quad (1)$$

The Fog index indicates the number of years of education that a reader supposedly needs to read the text once and understand the text content. Therefore, the higher the Fog index, the lower the text readability is. The relation between text readability and the Fog index is demonstrated as follows: unreadable ($Fog \geq 18$); difficult ($18 > Fog \geq 14$); ideal ($14 > Fog \geq 12$); acceptable ($12 > Fog \geq 10$); and childish ($10 > Fog \geq 8$).

Besides the Fog index, there are some other readability measures, such as the Flesch–Kincaid grade level (Flesch 1948), SMOG index (McLaughlin 1969), and 10-K document file size (Loughran and Mcdonald 2014). This study employs the Fog index as the main readability proxy to implement the empirical analysis and uses other readability measures as robustness checks. This study summarizes the definitions of various readability variables in the appendix.

2.2 Measures of CSR performance

This study follows the definitions of the MSCI ESG KLD STATS database to employ the strength, concern, and net strength as the proxies of CSR performance, denoted as *CSR_STR*, *CSR_CON*, and *CSR_NET*, respectively. *CSR_STR* (*CSR_CON*) is defined as the sum of the standardized scores of CSR strengths (concerns) of these seven dimensions. *CSR_NET* is defined as the net balance of total standardized scores of CSR strengths and those of CSR concerns. Higher values of *CSR_STR* and *CSR_NET*, along with a lower value of *CSR_CON*, indicate better CSR performance. In addition, this study follows previous studies (e.g. Chen 2018) to divide CSR activities into seven dimensions, including environment protection (*ENV*), community engagement(*COM*), human rights (*HUM*), workforce diversity (*DIV*), product quality (*PRO*), employee treatment (*EMP*), and corporate governance (*CGOV*). The standardized scores of CSR strengths (*concerns*) in these seven dimensions are denoted as *ENV_STR* (*ENV_CON*), *COM_STR* (*COM_CON*), *HUM_STR* (*HUM_CON*), *DIV_STR* (*DIV_CON*), *PRO_STR* (*PRO_CON*), *EMP_STR* (*EMP_CON*), and *CGOV_STR* (*CGOV_CON*), respectively. Similarly, the standardized scores of CSR net strengths are labeled as *ENV_NET*, *COM_NET*, *HUM_NET*, *EMP_NET*, *DIV_NET*, *PRO_NET*, and *CGOV_NET*, respectively. The standardized score of CSR strengths (concerns) in each dimension is defined as the sum of all strength (concerns) rating scores in this dimension, scaled by the highest value of all firms in a given year. The reason why using the standardized CSR score

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is to mitigate the concern that the number of all strength (concerns) ratings for each dimension may be inconsistent year by year.

To understand which motivated CSR activities affect managers' incentives to engage in strategically textual reporting, this study follows Crifo and Forget (2015) to classify the above seven CSR dimensions into three categories with different motivations, including market failure (MF), imperfect competition (IMP), and imperfect contracts (IMT). The MF category includes ENV and COM dimensions, which belong to the topics of externality, public goods, and altruism; the IMP category covers HUM, DIV, and PRO dimensions, which are about the issues of product differentiation, customer heterogeneity, reputation-stealing effect, and greenwashing (Delmas and Cuerel Burbano 2011); the IMT category contains EMP and CGOV dimensions, which are associated with the delegated responsibility of directors, employee, and shareholders.

In this study, *MF_STR* (*MF_CON*) stands for the standardized scores of MF strengths (concerns), defined as the sum of *ENV_STR* (*ENV_CON*) and *COM_STR* (*COM_CON*); *IMP_STR* (*IMP _CON*) stands for the standardized scores of IMP strengths (concerns), defined as the sum of *HUM_STR* (*HUM_CON*), *DIV_STR* (*DIV_CON*) and *PRO_STR* (*PRO_CON*); *IMT_STR* (*IMT _CON*) stands for the standardized scores of IMT strengths (concerns), defined as the sum of *EMP_STR* (*EMP_CON*) and *CGOV_STR* (*CGOV_CON*). *MF_NET*, *IMP_NET*, and *IMT_NET* represent the standardized score of MF net strength, that of IMP net strength, and that of IMT net strength, respectively. This study employs these three-category CSR variables to examine whether CSR activities driven by different motivations have different impacts on managers' strategical textual reporting (namely annual report readability). This study summarizes the definitions of CSR performance variables in the appendix.

3. Literature review and hypotheses developments

3.1. Literature review on annual report readability

The determinants of annual report readability are widely discussed in previous literature, such as operating performance (Li 2008), future earnings persistence (Li 2008), and earnings management (Lo et al. 2017; Chen and Tseng 2015). Li (2008) finds that firms with lower current earnings or lower future earnings persistence both have lower annual report readability, indicating that managers have more incentives to obfuscate information with bad operating performance (namely 'management

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obfuscation hypothesis'; Bloomfield 2002). Some non-strategic determinants of annual report readability are also mentioned in Li (2008), including firm size, market-to-book ratio, firm age, special items, volatility of business or operations, complexity of operations, financial complexity, firm events, and incorporation state. In addition, Lo et al. (2017) document that firms with a higher likelihood of engaging earnings management to beat the prior year's earnings have more complex descriptions in the 'Management Discussion and Analysis' (hereafter denoted as MD&A) section. Moreover, Chen and Tseng (2021) also find that the readability of the 'Notes to consolidated financial statements' (hereafter denoted as Notes) section plays an important role in determining firm credit risk. The Notes section presents (1) the adopted accounting policies; (2) the assumptions and explanations for the amounts and the changes made to important accounting items in the financial statements; and (3) the descriptions of changes in the accounting policies and assumptions.[5] In addition, the accounting information disclosed in the Notes section is highly regulated by the Statements of Financial and Accounting Standards (hereafter denoted as SFAS). However, compared to the Notes section, the disclosure in the MD&A section is less regulated. Since the MD&A and Notes sections are the two most important ones in a firm's annual report, this study addresses this issue by investigating the effect of CSR performance on the readability of all items in the annual report, that of the MD&A section, and that of the Notes section.

3.2. Hypotheses development

This section proposes the hypotheses regarding the effects of CSR performance on managers' strategic textual reporting (namely annual report readability). The theoretical foundations of hypotheses development include: (1) the effects of engaging in CSR activities on financial performance, covering the benefits (stakeholder theory; Freeman 1984) and costs (shareholder theory; Friedman 1962); (2) the effects of engaging CSR activities on financial leverage (Harjoto 2017); (3) the effects of current earnings, future earnings persistence and financial leverage on annual report readability. That is, this study conjectures the effect of CSR performance on annual report readability from the perspectives of financial

[5] The Notes section presents relevant and detailed financial information, such as descriptions of the firm's debt covenants, investment instruments, mergers and acquisitions, contingencies, lease obligations, employee benefits, tax expenses and any other financial concerns outsiders may have about a company.

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performance and financial leverage. The detailed inference process is demonstrated in the following.

First, regarding the effect of engaging in CSR activities on financial performance, previous studies address the issue from the perspectives of stakeholder theory (Freeman 1984; Jones 1995) and shareholder theory (Friedman 1962). According to stakeholder theory (Freeman 1984), engaging in CSR activities brings firms some benefits, covering (1) the increases in firm reputation, employee relations, sales and market share; (2) the decreases in costs and CSR-related risk. The studies supporting stakeholder theory include Barnett and Salomon (2006) and Weber (2008). On the contrary, based on shareholder theory (Friedman 1962), engaging in CSR activities brings potential costs for firms, such as resource misallocations and damages to shareholders' interests (e.g. Baird et al. 2012; Peng and Yang 2014). Hence, engaging in CSR activities is positively related to financial performance according to stakeholder theory while having an opposite effect based on shareholder theory. Furthermore, Li (2008) documents that when firms perform well, managers have less incentive to obscure information and can afford to present clearer and more transparent disclosures. Consequently, higher financial performance is associated with simpler and more readable annual reports, as there is no need to hide unfavorable information. Therefore, current earnings (financial performance) are positively related to annual report readability.

According to the above discussions, this study hypothesizes that CSR performance is positively related to annual report readability from the perspective of stakeholder theory, as improved CSR performance can enhance a firm's reputation and stakeholder relations, leading to clearer and more transparent reporting. Conversely, from the perspective of shareholder theory, CSR performance may be negatively related to annual report readability, as the associated costs and potential conflicts with shareholder interests could result in less straightforward disclosures to obscure these negative impacts.

Second, this study examines the impact of CSR performance on annual report readability from the perspective of financial leverage. According to Harjoto (2017), CSR performance is negatively associated with financial leverage. This is because CSR activities reduce the necessity for companies to use debt to achieve tax benefits, which results in lower financial leverage. Meanwhile, Arya and Glover (1998) suggest that as debt levels decrease, the advantage of incumbent managers over potential new managers diminishes, which increases job risk and may discourage transparency. Consequently, lower financial leverage, resulting from higher CSR

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performance, could lead to increased managerial incentives to reduce annual report readability. Thus, this study hypothesizes a negative relationship between CSR performance and annual report readability from the financial leverage perspective.

Based on the above discussions, this study hypothesizes that CSR performance is negatively related to annual report readability (namely positively related to *All_Fog* variable) from the perspectives of shareholder theory and financial leverage while has an opposite effect from the perspective of stakeholder theory, shown as Hypothesis 1a and Hypothesis 1b.

Hypothesis 1: A firm's CSR activities affect managers' strategically textual reporting behaviors in 10-K.

Hypothesis 1a: A firm's CSR performance is negatively associated with annual report readability from the perspectives of shareholder theory and financial leverage.

Hypothesis 1b: A firm's CSR performance is positively associated with annual report readability from the perspective of stakeholder theory.

This study further discusses which section of the annual report is primarily manipulated by managers for engaging in CSR activities. The Notes section of the annual report provides key information about a firm's financial position. This is because most of the accounting information disclosure regulated by the Statement of Financial Accounting Standards (hereafter referred to as SFAS) is presented in this section. In addition, the Notes section presents relevant and detailed financial information, such as the firm's debt covenants, investment instruments, mergers and acquisitions, contingencies, lease obligations, employee benefits, tax expenses, and any other financial concerns outsiders may have. These value-relevant disclosures in the Notes section provide critical financial information that influences outsiders' perceptions of the firm. Managers may want to present a more favorable financial position, especially if the firm faces negative financial performance. By affecting the readability of these disclosures in the Notes section, managers can obscure unfavorable details, thereby influencing investor and creditor decisions (e.g. Chen and Tseng 2021; Abernathy et al. 2019; Aldahray 2024). Therefore, managers have stronger incentives to manipulate the reporting quality of the Notes section.

Further, because the disclosure in the Notes section is strongly mandated by the

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SFAS, the increased regulation limits managers' discretion over what to disclose.[6] Notably, the textual presentation style (e.g., readability, tone) is not as strictly defined by the SFAS. Given that many disclosures are required and cannot be omitted, managers may choose to present this information in less readable text. By doing so, managers can comply with regulatory requirements while obscuring outsiders' understanding of the firm's financial performance. Therefore, within the limited discretion they have over the content of the Notes section, managers are more likely to reduce its readability to obscure adverse information. That is, narrative disclosure readability and tones in the Notes section may be viewed as a tool for managers' strategic reporting in the Notes section since disclosure of most quantitative financial information is required.

In addition to the Notes section, the MD&A section is another important section in an annual report, which covers some value-relevant but less regulated accounting information. Therefore, this study also examines the association between CSR performance and MD&A readability. Since the disclosure in the MD&A section is less regulated, managers have more discretion over the content they disclose. This discretion allows them to choose how to present information without being overly concerned about strict disclosure requirements. Therefore, managers may feel less need to engage in strategic textual reporting because they already have the flexibility to convey the information they want to share. Thus, compared to more heavily regulated sections, managers are likely to have less incentive to engage in strategic textual reporting in the MD&A section.

In conclusion, this study predicts that since CSR activities are closely related to financial performance and financial leverage, CSR-related information is more likely to be required in the Notes section. For instance, if a firm invests in CSR activities, it may lead to an increase in its current expenses or non-current assets, which must be disclosed in the Notes section. Meanwhile, if the investments in CSR activities require additional debt or equity financing, this information should also be included in the Notes section to provide stakeholders with a clear understanding of the financial implications of these activities. Moreover, CSR investments may crowd out other investment opportunities, leading to shifts in the allocation of financial resources, which could impact areas like capital expenditures or research and development. These changes in investment priorities may alter the firm's financing behavior. Since any resulting adjustments in key accounting items, such as debt

[6] It should be noted that addressing the readability of the more mandated disclosures in the report, such as the Notes section, can mitigate the concerns of self-selection bias in the reported con tents.

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levels or capital investment, need to be disclosed in the Notes section to reflect the impact of CSR activities on the firm's financial reports, CSR related information is more likely to be required to disclose in the Notes section.

Therefore, managers have greater incentives to engage strategically in textual reporting for CSR activities in the Notes section. In contrast, in the MD&A section, managers can choose not to disclose CSR-related information they wish to withhold, reducing the need to manipulate readability as a strategy. Thus, managers have more (less) incentive to engage in strategic textual reporting for information disclosed in the Notes (MD&A) section, as stated in Hypothesis 2.

Hypothesis 2: A firm's CSR activities affect managers' strategical textual reporting in the Notes section.

4. Data and methodology

Due to the purpose of this study is to explore annual report readability determinants from the CSR performance perspective, this section introduces the sample selection procedures and data sources.

4.1. Sample selection and data source

Regarding the calculation of annual report readability, this study collects the 10-K report documents from the SEC online Edgar system and thereby selects the annual report text. Following Li (2008), the procedure of screened text is as follows: First, firms without matching CIK (Central Index Key) are deleted. Second, the firm-year annual report that does not have electronic 10-K filings on Edgar is also dropped. Third, for each 10-K file, heading items, tables, figures, financial statements, and all the paragraphs that have less than one line, are removed. Last, the 10-K file that has less than 100 lines or 3,000 words of remaining text is also excluded. The calculation of the annual report readability is based on the remaining text. Similarly, the calculation of the readability of the Notes (MD&A) section in the annual report is based on the remaining text in the Notes (MD&A) section. The sample of this study includes only those firms whose annual report textual data are available in SEC. Furthermore, the current study excludes those sample observations without CSR performance and firm characteristics data. After the above screening criteria, there are a total 16,851 firm-year sample observations during the sample period, covering the pre- and post-subprime periods from the year 2001 to 2013. Table 1 shows the sample distribution of 16,851 annual firm observations and industry subsamples are sorted by SIC code for each year. Approximately, 50.72% of the entire samples belong to the manufacturing industry.

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Table 1 Sample Distribution

Industry/ Year	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	Total
Agriculture, Forestry, And Fishing	0	1	6	7	6	5	6	7	7	7	7	8	6	73
Mining	22	22	49	51	52	50	64	68	77	81	83	83	79	781
Construction	6	6	21	18	15	14	21	25	26	27	27	29	28	263
Manufacturing	270	288	734	723	641	541	694	725	789	807	824	811	700	8547
Transportation, Communications, Electric, Gas, And Sanitary Services	78	87	156	153	132	143	161	168	168	182	192	185	170	1975
Wholesale Trade	16	19	49	43	45	40	50	53	54	53	56	52	54	584
Retail Trade	44	57	109	111	104	94	119	116	126	136	131	134	129	1410
Services	82	78	260	262	241	210	262	279	295	311	313	305	273	3171
Public Administration	2	2	5	2	1	2	3	5	6	7	5	4	3	47
Total	520	560	1389	1370	1237	1099	1380	1446	1548	1611	1638	1611	1442	16851

The sample period is yearly between 2001 and 2013. There are totally 16,851 annual firm observations with available data of corporate social responsibility (CSR) performance and annual report text files. Table 1 reports the numbers of pooled observations for firms in the given years and industries. The industry subsamples are sorted by SIC classification.

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Concerning the data source of CSR performance variables, this study obtains CSR strengths and concerns data in MSCI ESG KLD STATS (hereafter denoted as STATS) database. The definitions of CSR performance variables have been detailed in section II. Moreover, since STATS (Universe C dataset) maintains data for MSCI KLD 400 Social Index component firms and Russel top 1000 firms from 2001 to 2013, the sample period in this study is using from 2001 to 2013.[7] In addition, this study controls for other well-known annual report readability determinant variables related to firm characteristics in the empirical investigations. The data sources of these variables are from the *COMPUSTAT* database.

4.2. Control variables

For the control variables of annual report readability, this study follows Li (2008) and Biddle et al. (2009) to introduce some firm characteristics variables, such as firm size (*SIZE*), market to book value ratio (*MTB*), firm age (*Fage*), special item per asset value (*SPI*), return on assets (*ROA*), ROA volatility (*ROAV*), Delaware state dummy (*DLW*), operating cash flow volatility (*OCFV*), the ratio of fixed assets (plant, property, and equipment; *PPE*) to total assets (*FE_TA*), leverage ratio (*LEV*), K-structure (*K_STR*), financial slack (*Slack*), and dividend dummy (*DVT_D*). Among these control variables, *SIZE* is measured by the natural logarithm of asset value; *MTB* is the ratio of asset market value to asset book value; *Fage* is the number of years since the firm appeared on *COMPUSTAT*; *SPI* is the ratio of the amount of special items to asset book value; *ROA* is defined as the ratio of earnings before interest and tax (EBIT) to total assets; *ROAV* (*OCFV*) is ROA (*OCF*; operating cash flow per unit asset) volatility, defined as the standard deviation of ROA (*OCF*) over the previous five-year ROA (OCF) data; *DLW_D* equals to one if a firm is headquartered in Delaware state and zero if not; *FE_TA* is the ratio of PPE to total assets; *LEV* refers to firm leverage ratio; *K_STR* is a measure of market leverage computed as the ratio of long-term debt to the sum of long-term debt to the market value of equity; *Slack* is defined as the ratio of cash to fixed assets; *DVT_D* equals to one if a firm has a dividend payout in the year and zero if not. To mitigate the extreme value concern, this study winsorizes all control variables at the upper and bottom 1%. This study summarizes the definitions of various control variables in the appendix.

[7] Before 2000, STATS only covers S&P 500 and Domini 400 firms. Russell top 1000 firms are included in 2001 and Russel bottom 2000 firms are included in 2003. Moreover, Universe C dataset in STATS database (MSCI KLD 400 Social Index + 1000 Largest US Companies) has been discontinued since 2014.

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Table 2 presents the summary statistics of annual report readability variables, CSR performance variables, and control variables used in the empirical analyses. On average, *All_Fog* is 12.53, *Note_Fog* is 14.23, and *MDA_Fog* is 13.51. The results reveal that the Note section in the annual report is generally difficult to read (based on the Fog criteria). In addition, the averages of *CSR_NET*, *ENV_NET*, *COM_NET*, *HUM_NET*, *DIV_NET*, *PRO_NET*, *EMP_NET*, *CGOV_NET*, *MF_NET*, *IMP_NET*, and *IMT_NET* are -0.0217, 0.0142, 0.0000, -0.0104, -0.1452, -0.0159, -0.0356, -0.0388, 0.0052, -0.0286, and -0.0379, respectively. The results indicate: (1) Firms on average engage in more CSR activities with concerns than those with strengths; (2) Among these seven CSR dimensions, firms on average engage more CSR activities with strengths in the ENV dimension while engage more CSR activities with concerns in the rest six dimensions, especially for the DIV dimension; (3) Firms on average engage more CSR activities with strengths motivated from market failure while engage more CSR activities with concerns motivated from imperfect competition and imperfect contract.

Table 2 Summary Statistics of Major Variables

Variable	Mean	Median	Std. Dev.	Min	Max
Panel A. Annual report readability variables					
All_Fog	12.5308	12.5320	0.9799	8.5760	18.8660
Note_Fog	14.2297	14.1930	1.4527	4.7630	34.0000
MDA_Fog	13.5142	13.3320	2.0376	7.3690	47.0530
Panel B.1. CSR performance measures-net					
CSR_NET	-0.0217	-0.0400	0.1027	-0.5260	0.7157
ENV_NET	0.0142	0.0000	0.1741	-1.0000	1.0000
COM_NET	0.0000	0.0000	0.1732	-1.0000	1.0000
HUM_NET	-0.0104	0.0000	0.1312	-1.0000	1.0000
DIV_NET	-0.1452	0.0000	0.3459	-1.0000	1.0000
PRO_NET	-0.0159	0.0000	0.1764	-1.0000	1.0000
EMP_NET	-0.0356	0.0000	0.2095	-1.0000	1.0000
CGOV_NET	-0.0388	0.0000	0.2639	-1.0000	1.0000
MF_NET	0.0052	0.0000	0.1341	-0.8571	0.8889
IMP_NET	-0.0286	0.0000	0.1466	-0.5556	0.8000
IMT_NET	-0.0379	0.0000	0.1619	-0.7500	0.8889
Panel B.2. CSR performance measures-strength					
CSR_STR	0.0611	0.0370	0.0991	0.0000	0.8462
ENV_STR	0.0608	0.0000	0.1614	0.0000	1.0000
COM_STR	0.0356	0.0000	0.1203	0.0000	1.0000
HUM_STR	0.0120	0.0000	0.1042	0.0000	1.0000
DIV_STR	0.0852	0.0000	0.1644	0.0000	1.0000
PRO_STR	0.0367	0.0000	0.1353	0.0000	1.0000
EMP_STR	0.0679	0.0000	0.1479	0.0000	1.0000
CGOV_STR	0.0727	0.0000	0.1977	0.0000	1.0000
MF_STR	0.0477	0.0000	0.1175	0.0000	1.0000
IMP_STR	0.0648	0.0000	0.1175	0.0000	0.9000
IMT_STR	0.0687	0.0000	0.1233	0.0000	1.0000

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Table 2 Summary Statistics of Major Variables (Continued)

Panel B.3. CSR performance measures-concern					
CSR_CON	0.0827	0.0800	0.0809	0.0000	0.7143
ENV_CON	0.0465	0.0000	0.1338	0.0000	1.0000
COM_CON	0.0356	0.0000	0.1555	0.0000	1.0000
HUM_CON	0.0224	0.0000	0.1018	0.0000	1.0000
DIV_CON	0.2304	0.0000	0.2686	0.0000	1.0000
PRO_CON	0.0526	0.0000	0.1376	0.0000	1.0000
EMP_CON	0.1035	0.0000	0.1674	0.0000	1.0000
CGOV_CON	0.1115	0.0000	0.1659	0.0000	1.0000
MF_CON	0.0425	0.0000	0.1185	0.0000	1.0000
IMP_CON	0.0934	0.1111	0.1016	0.0000	0.7778
IMT_CON	0.1066	0.1250	0.1260	0.0000	0.7500
Panel C. Control variables					
SIZE	7.1118	6.9654	1.6629	3.8243	11.9656
MTB	2.0495	1.6108	1.3119	0.6609	8.0779
Fage	24.1947	18.0110	16.8600	2.0027	62.0438
SPI	-0.0149	-0.0018	0.0440	-0.2838	0.0478
ROA	0.0175	0.0451	0.1472	-0.7051	0.2768
ROAV	0.0784	0.0378	0.1108	0.0024	0.6534
DLW	0.0000	0.0000	0.0000	0.0000	0.0000
OCFV	0.0584	0.0397	0.0615	0.0017	0.3681
FE_TA	0.5066	0.4023	0.3729	0.0011	1.5335
LEV	0.1868	0.1268	0.2022	0.0000	0.9991
K_STR	0.3417	0.1200	0.6889	0.0000	5.3510
Slack	0.8482	0.2234	2.1719	0.0000	19.5339
DVT_D	0.4689	0.0000	0.4990	0.0000	1.0000

This table presents the mean, median standard deviation (S.D.), minimum, and maximum of major variables used in empirical analyses. In panel A, *All_Fog*, *Note_Fog*, and *MDA_Fog* represent the readability (measured by Fog variable) of all items, Notes item (Notes to Consolidated Financial Statements section), and MD&A (Management's Discussion and Analysis section) item in a firm's complete annual report (10-K), respectively. A higher value of Fog variable represents a lower readability. In panel B, *CSR_STR*, *CSR_CON*, and *CSR_NET* represent a firm's standardized aggregate strengths, concerns, and net strengths in CSR activities. CSR activities cover environment protection (*ENV*), community engagement (*COM*), human rights (*HUM*), employee treatment (*EMP*), workforce diversity (*DIV*), product quality (*PRO*), and corporate governance (*CGOV*) dimensions. CSR strengths (concerns/ net strengths) in each dimension are denoted as *ENV_STR*, *COM_STR*, *HUM_STR*, *EMP_STR*, *DIV_STR*, *PRO_STR*, and *CGOV_STR* (*ENV_CON*, *COM_CON*, *HUM_CON*, *EMP_CON*, *DIV_CON*, *PRO_CON*, and *CGOV_CON*/ *ENV_NET*, *COM_NET*, *HUM_NET*, *EMP_NET*, *DIV_NET*, *PRO_NET*, and *CGOV_NET*), respectively. *MF_STR* (*MF_CON*/ *MF_NET*) stands for the CSR strengths (concerns/ net strengths) related to market failure, which covers ENV and COM dimensions. *IM_COMP_STR* (*IM_COMP_CON*/ *IM_COMP_NET*) stands for the CSR strengths (concerns/ net strengths) related to imperfect competition, which covers HUM, DIV, and PRO dimensions. *IM_CONT_STR* (*IM_CONT_CON*/ *IM_CONT_NET*) stands for the CSR strengths (concerns/ net strengths) related to imperfect contracts, which covers EMP and CGOV dimensions. Panel C show control variables of annual report readability, including firm size (*SIZE*), market to book value ratio (*MTB*), firm age (*Fage*), special item per asset value (*SPI*), return on assets (*ROA*), ROA volatility (*ROAV*), Delaware state dummy (*DLW*), operating cash flow volatility (*OCFV*), the ratio of fixed assets (plant, property, and equipment) to total assets (*FE_TA*), leverage ratio (*LEV*), K-structure (*K_STR*), financial slack (*Slack*), and dividend dummy (*DVT_D*). Among these control variables, SIZE stands for firm size, measured by the natural logarithm of asset value; Fage is the number of years since the firm appeared on *COMPUSTAT*; *ROA* is defined as the ratio of earnings before interest and tax (*EBIT*) to total assets; *ROAV* (*OCFV*) is ROA (operating cash flow per unit asset; OCF) volatility, defined as the standard deviation of ROA (OCF) over the previous five-year ROA (OCF) data; *DLW_D* equals to one if a firm is headquartered in Delaware state and zero if not. LEV refers to firm leverage ratio; *K_STR* is a measure of market leverage computed as the ratio of long-term debt to the sum of long-term debt to the market value of equity; Slack is defined as the ratio of cash to fixed assets; *DVT_D* equals to one if a firm has a dividend payout in the year and zero if not. To mitigate the extreme value concern, we winsorize all control variables at the upper and bottom 1%.

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Table 3 shows the correlation matrix of annual report readability variables, CSR variables, and other firm characteristics variables. The results of Table 3 demonstrate that all CSR variables are lowly correlated with other control variables, which mitigates the possible collinearity concerns. In addition, the coefficient of correlation between *CSR_NET* and *All_Fog* is positive (0.117), suggesting that firms with higher CSR performance are likely to have less communicative (readable) annual reports. Moreover, the coefficient of correlation between *CSR_NET* and *LEV* is negative (-0.090), consistent with Harjoto (2017). The above results provide preliminary evidence for the implications of CSR performance.

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Table 3 Correlation Matrix of Major Variables

	All_Fog	Note_Fog	MDA_Fo	CSR_NET	MF_NET	IMP_NET	IMT_NET	CSR_STR	MF_STR	IMP_STR	IMT_STR	CSR_CON	MF_CON	IMP_CON	IMT_CON	SIZE	MTB	Fage	SPI	ROA	ROAV	OCFV	FE_TA	LEV	K_STR	Slack	DVT_D
All_Fog	1.000																										
Note_Fog	0.725	1.000																									
MDA_Fog	0.615	0.273	1.000																								
CSR_NET	0.117	0.058	0.088	1.000																							
MF_NET	0.104	0.055	0.034	0.638	1.000																						
IMP_NET	0.003	-0.047	0.056	0.739	0.268	1.000																					
IMT_NET	0.150	0.127	0.084	0.660	0.181	0.160	1.000																				
CSR_STR	0.039	-0.036	0.123	0.679	0.430	0.576	0.359	1.000																			
MF_STR	0.025	-0.042	0.101	0.527	0.563	0.341	0.200	0.836	1.000																		
IMP_STR	0.004	-0.058	0.089	0.563	0.297	0.725	0.084	0.842	0.575	1.000																	
IMT_STR	0.068	0.013	0.113	0.568	0.200	0.311	0.640	0.776	0.507	0.449	1.000																
CSR_CON	-0.102	-0.119	0.038	-0.438	-0.284	-0.233	-0.399	0.362	0.356	0.317	0.229	1.000															
MF_CON	-0.093	-0.104	0.062	-0.200	-0.574	0.034	-0.007	0.342	0.355	0.235	0.276	0.673	1.000														
IMP_CON	0.001	0.001	0.022	-0.415	-0.044	-0.605	-0.134	0.143	0.174	0.110	0.072	0.702	0.222	1.000													
IMT_CON	-0.127	-0.150	0.004	-0.293	-0.037	0.098	-0.659	0.298	0.239	0.332	0.157	0.737	0.279	0.242	1.000												
SIZE	-0.181	-0.213	0.033	0.155	0.040	0.242	-0.011	0.554	0.510	0.476	0.370	0.482	0.460	0.201	0.376	1.000											
MTB	0.203	0.146	0.107	0.081	0.075	0.036	0.068	-0.008	-0.049	0.016	0.012	-0.113	-0.134	-0.034	-0.076	-0.275	1.000										
Fage	-0.061	-0.058	0.087	0.125	0.017	0.162	0.047	0.369	0.379	0.293	0.241	0.292	0.356	0.105	0.175	0.498	-0.221	1.000									
SPI	0.061	0.075	0.027	0.006	-0.008	-0.023	0.046	0.010	0.031	-0.012	0.010	0.004	0.039	0.019	-0.050	0.052	0.058	0.064	1.000								
ROA	-0.028	0.052	-0.040	0.074	0.043	0.051	0.056	0.121	0.112	0.096	0.090	0.055	0.062	0.038	0.017	0.259	-0.045	0.169	0.477	1.000							
ROAV	0.042	-0.018	0.023	-0.064	-0.010	-0.070	-0.039	-0.124	-0.127	-0.100	-0.079	-0.070	-0.115	-0.014	-0.027	-0.350	0.246	-0.264	-0.233	-0.452	1.000						
OCFV	0.121	0.064	0.062	-0.060	-0.025	-0.079	-0.006	-0.155	-0.158	-0.129	-0.092	-0.114	-0.129	-0.035	-0.082	-0.433	0.377	-0.276	-0.052	-0.406	0.658	1.000					
FE_TA	-0.116	-0.052	-0.029	-0.038	-0.136	-0.003	0.030	0.081	0.097	0.020	0.094	0.147	0.250	0.028	0.053	0.209	-0.229	0.235	0.050	0.064	-0.164	-0.219	1.000				
LEV	-0.260	-0.238	-0.102	-0.090	-0.114	-0.013	-0.080	0.051	0.085	0.026	0.016	0.177	0.213	0.049	0.119	0.390	-0.431	0.203	-0.095	-0.110	-0.114	-0.224	0.314	1.000			
K_STR	-0.161	-0.156	-0.067	-0.091	-0.088	-0.033	-0.077	0.009	0.030	-0.004	-0.002	0.127	0.129	0.044	0.097	0.237	-0.276	0.080	-0.097	-0.119	-0.037	-0.140	0.222	0.831	1.000		
Slack	0.111	0.046	0.067	-0.030	0.014	-0.046	-0.013	-0.092	-0.090	-0.065	-0.072	-0.075	-0.104	-0.009	-0.054	-0.244	0.278	-0.190	0.005	-0.196	0.297	0.421	-0.367	-0.189	-0.111	1.000	
DVT_D	-0.095	-0.058	0.013	0.084	-0.014	0.120	0.040	0.247	0.251	0.191	0.171	0.196	0.264	0.048	0.116	0.394	-0.154	0.478	0.092	0.218	-0.279	-0.265	0.267	0.145	0.040	-0.191	1.000

This table presents the correlation matrix of major variables used in empirical analyses. *All_Fog*, *Note_Fog*, and *MDA_Fog* represent the readability (measured by Fog variable) of all items, *Notes* item (Notes to Consolidated Financial Statements section), and *MD&A* (Management's Discussion and Analysis section) item in a firm's complete annual report (10-K), respectively. A higher value of Fog variable represents a lower readability. *CSR_STR*, *CSR_CON*, and *CSR_NET* represent a firm's standardized aggregate strengths, concerns, and net strengths in CSR activities. CSR activities cover environment protection (ENV), community engagement (*COM*), human rights (*HUM*), employee treatment *(EMP*), workforce diversity (*DIV*), product quality (*PRO*), and corporate governance (*CGOV*) dimensions. CSR strengths (concerns/ net strengths) in each dimension are denoted as *ENV_STR*, *COM_STR*, *HUM_STR*, *EMP_STR*, *DIV_STR*, *PRO_STR*, and *CGOV_STR* (*ENV_CON*, *COM_CON*, *HUM_CON*, *EMP_CON*, *DIV_CON*, *PRO_CON*, and *CGOV_CON*/ *ENV_NET*, *COM_NET*, *HUM_NET*, *EMP_NET*, *DIV_NET*, *PRO_NET*, and *CGOV_NET*), respectively. *MF_STR* (MF_CON/ MF_NET) stands for the CSR strengths (concerns/ net strengths) related to market failure, which covers ENV and COM dimensions. *IM_COMP_STR* (IM_COMP_CON/ IM_COMP_NET) stands for the CSR strengths (concerns/ net strengths) related to imperfect competition, which covers *HUM*, *DIV*, and *PRO* dimensions. *IM_CONT_STR* (IM_CONT_CON/ IM_CONT_NET) stands for the CSR strengths (concerns/ net strengths) related to imperfect contracts, which covers EMP and CGOV dimensions. Control variables of annual report readability include firm size (*SIZE*), market to book value ratio (*MTB*), firm age (*Fage*), special item per asset value (*SPI*), return on assets (*ROA*), ROA volatility (*ROAV*), Delaware state dummy (*DLW*), operating cash flow volatility (*OCFV*), the ratio of fixed assets (plant, property, and equipment) to total assets (*FE_TA*), leverage ratio (*LEV*), K-structure (*K_STR*), financial slack (*Slack*), and dividend dummy (*DVT_D*).

5. Empirical analysis

5.1. Examinations on the relation between CSR performance and annual report readability

This section proposes the methodologies to examine the above hypotheses. For hypothesis 1, this study employs panel data regressions to investigate the effects of CSR performance variables on annual report readability when controlling for other well-known variables stated in the literature and the firm- and year-fixed effects. In addition, we also consider the firm-level clustered standard errors (Petersen 2009) in evaluating the effectiveness of regression coefficient estimates. Equations (2), (3), and (4) show the model specifications to examine the hypothesis 1 and 2.

$$All_Fog_{it} = \alpha + \beta_1 CSR_P_{it} + \sum_{j=1} \beta_j CV_{j,it} + \varepsilon_{it} \quad (2)$$

$$Note_Fog_{it} = \alpha + \beta_1 CSR_P_{it} + \sum_{j=1} \beta_j CV_{j,it} + \varepsilon_{it} \quad (3)$$

$$MDA_Fog_{it} = \alpha + \beta_1 CSR_P_{it} + \sum_{j=1} \beta_j CV_{j,it} + \varepsilon_{it} \quad (4)$$

In Eq. (2), (3), and (4), *CSR_P* stands for the strength, concern, and net strength of each CSR dimension (*DIM_STR*, *DIM_CON*, *DIM_NET*; *DIM=ENV*, *COM*, *HUM*, *DIV*, *PRO*, *EMP*, *CGOV*) and those of aggregate CSR dimension (*CSR_STR*, *CSR_CON*, *CSR_NET*). Control variables (CV) include *SIZE*, *MTB*, *Fage*, *SPI*, *ROA*, *ROAV*, *DLW*, *OCFV*, *FE_TA*, *LEV*, *K_STR*, *Slack*, and *DVT_D*. The detailed descriptions are shown in section IV.2.

Table 4 presents the empirical results of Eq.(2) for the entire sample period. Panel A of Table 4 shows that *CSR_NET* is significantly and positively related to *All_Fog* when controlling for other well-known variables, suggesting that engaging CSR activities with net strengths decreases the annual report readability (namely increases the incentives of managers' strategically textual reporting). In addition, all *DIM_NET* variables are significantly and positively related to *All_Fog* except the *COM_NET* variable, especially for the *CGOV* dimension. The coefficients of *CSR_NET*, *ENV_NET*, *HUM_NET*, *DIV_NET*, *PRO_NET*, *EMP_NET*, and *CGOV_NET* are all significantly positive (0.6086, 0.1579, 0.1290, 0.0667, 0.0957, 0.0983, 0.1968), indicating that the required education years of readers to read and understand a firm's annual report once increase 0.0625 years (0.1027×0.6086), 0.0275 years (0.1741×0.1579), 0.0170 years (0.1312×0.1290), 0.0231 years (0.3459×0.0667), 0.0169 years (0.1764×0.0957), 0.0206 years (0.2095×0.0983), and 0.0519 years (0.2639×0.1968) per standard deviation increase in the firm's *CSR_NET*, *ENV_NET*, *HUM_NET*, *DIV_NET*, *PRO_NET*, *EMP_NET*, and *CGOV_NET*, respectively. The results suggest that engaging CSR

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activities with net strengths in *CGOV* dimension has relative large impacts on annual report readability. The above results also reveal that CSR net strengths may lead to resource misallocations and damages to shareholders' interests (e.g. Baird et al. 2012; Peng and Yang 2014) and a decrease in financial leverage (e.g. Harjoto 2017), which both increase the incentive of reporting less communicative (or readable) texts in the annual report (Li 2008; Arya and Glover 1998).

Panel B (Panel C) of Table 4 presents that CSR_STR (*CSR_CON*) is significantly and positively (negatively) related to *All_Fog*, revealing that engaging CSR activities with strengths (concerns) decreases (increases) the annual report readability. In addition, Panel B of Table 4 also shows that all *DIM_STR* variables are significantly and positively related to *All_Fog* except the *DIV_STR* and *PRO_STR*, implying that CSR activities with strengths motivated by market failure or imperfect contract increase the incentives of managers' strategically textual reporting. On the contrary, Panel C of Table 4 posits that only *DIV_CON* and *CGOV_CON* variables are significantly and negatively related to *All_Fog*, indicating that managers have fewer incentives to engage strategically textual reporting when engaging in CSR activities with concerns related to diversity (*DIV*) and corporate government (*CGOV*). The above results suggest that Hypothesis 1 and Hypothesis 1a are empirically supported.

Table 4 The Effects of CSR Activities Performance on Annual Report Readability (All Items in Complete 10-K)

Panel A. The effect of CSR net strengths on annual report readability (*All_Fog*)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	All_Fog	*All_Fog*	*All_Fog*	*All_Fog*	*All_Fog*	*All_Fog*	*All_Fog*	*All_Fog*
CSR_NET	0.6086***							
	(5.3800)							
ENV_NET		0.1579**						
		(2.4700)						
COM_NET			0.0710					
			(1.2800)					
HUM_NET				0.1290*				
				(1.8000)				
DIV_NET					0.0667**			
					(2.1500)			
PRO_NET						0.0957*		
						(1.6700)		
EMP_NET							0.0983**	
							(2.0200)	
CGOV_NET								0.1968***
								(6.1200)
Controls (Table 2)	YES	YES	YES	YES	YES	YES	YES	YES
Firm-fixed effect	YES	YES	YES	YES	YES	YES	YES	YES
Year-fixed effect	YES	YES	YES	YES	YES	YES	YES	YES
Observations	16851	16851	16851	16851	16851	16851	16851	16851
Adjusted R^2	0.7094	0.7079	0.7075	0.7077	0.7077	0.7076	0.7077	0.7094

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Table 4 The Effects of CSR Activities Performance on Annual Report Readability (All Items in Complete 10-K) (Continued)

Panel B. The effect of CSR strengths on annual report readability (*All_Fog*)								
	(1) *All_Fog*	(2) *All_Fog*	(3) *All_Fog*	(4) *All_Fog*	(5) *All_Fog*	(6) *All_Fog*	(7) *All_Fog*	(8) *All_Fog*
CSR_STR	0.6449***							
	(4.1800)							
ENV_STR		0.1807**						
		(2.4700)						
COM_STR			0.2995***					
			(3.6300)					
HUM_STR				0.1886**				
				(2.1600)				
DIV_STR					-0.0409			
					(-0.4500)			
PRO_STR						0.0804		
						(1.1800)		
EMP_STR							0.2033***	
							(2.7300)	
CGOV_STR								0.1814***
								(4.5900)
Controls (Table 2)	YES	YES	YES	YES	YES	YES	YES	YES
Firm-fixed effect	YES	YES	YES	YES	YES	YES	YES	YES
Year-fixed effect	YES	YES	YES	YES	YES	YES	YES	YES
Observations	16851	16851	16851	16851	16851	16851	16851	16851
Adjusted R^2	0.7086	0.7079	0.7081	0.7078	0.7075	0.7075	0.7079	0.7084
Panel C. The effect of CSR concerns on annual report readability (*All_Fog*)								
	(1) *All_Fog*	(2) *All_Fog*	(3) *All_Fog*	(4) *All_Fog*	(5) *All_Fog*	(6) *All_Fog*	(7) *All_Fog*	(8) *All_Fog*
CSR_CON	-0.6339***							
	(-3.9000)							
ENV_CON		-0.0715						
		(-0.5700)						
COM_CON			0.0579					
			(0.8700)					
HUM_CON				-0.0463				
				(-0.4200)				
DIV_CON					-0.1003***			
					(-2.8900)			
PRO_CON						-0.1188		
						(-1.2000)		
EMP_CON							-0.0153	
							(-0.2500)	
CGOV_CON								-0.2957***
								(-4.8800)
Controls (Table 2)	YES	YES	YES	YES	YES	YES	YES	YES
Firm-fixed effect	YES	YES	YES	YES	YES	YES	YES	YES
Year-fixed effect	YES	YES	YES	YES	YES	YES	YES	YES
Observations	16851	16851	16851	16851	16851	16851	16851	16851
Adjusted R^2	0.7083	0.7075	0.7075	0.7075	0.7078	0.7075	0.7075	0.7089

This table shows the results whether CSR activities performance (measured by net strengths, strengths, and concerns) relates to annual report readability of all items in a firm's complete 10-K. *CSR_STR*, *CSR_CON*, and *CSR_NET* represent a firm's standardized aggregate strengths, concerns, and net strengths in CSR activities. CSR activities cover environment protection (*ENV*), community engagement (*COM*), human rights (*HUM*), employee treatment (*EMP*),

workforce diversity (*DIV*), product quality (*PRO*), and corporate governance (*CGOV*) dimensions. CSR strengths (concerns/ net strengths) in each dimension are denoted as *ENV_STR*, *COM_STR*, *HUM_STR*, *EMP_STR*, *DIV_STR*, *PRO_STR*, and *CGOV_STR* (*ENV_CON*, *COM_CON*, *HUM_CON*, *EMP_CON*, *DIV_CON*, *PRO_CON*, and *CGOV_CON*/ *ENV_NET*, *COM_NET*, *HUM_NET*, *EMP_NET*, *DIV_NET*, *PRO_NET*, and *CGOV_NET*), respectively. Control variables of annual report readability include firm size (*SIZE*), market to book value ratio (*MTB*), firm age (Fage), special item per asset value (*SPI*), return on assets (*ROA*), ROA volatility (*ROAV*), Delaware state dummy (*DLW*), operating cash flow volatility (*OCFV*), the ratio of fixed assets (plant, property, and equipment) to total assets (*FE_TA*), leverage ratio (*LEV*), K-structure (*K_STR*), financial slack (*Slack*), and dividend dummy (*DVT_D*). The fixed effects (firm and year) and cluster issues are considered in these results. This table presents the regression coefficients and adjusted R-squared. The t-statistics calculated by firm-level clustered standard errors (Petersen 2009) for each coefficient appears immediately underneath. The signs of "*, **, ***" represent the significance of 10%, 5%, and 1%, respectively.

Table 5 and Table 6 present the empirical results of Eq.(3) and Eq.(4) for the entire sample period, respectively. Panel A of Table 5 shows that *CSR_NET* is significantly and positively related to *Note_Fog* when controlling for other well-known variables, especially for the *ENV*, *HUM*, *PRO*, and *CGOV* dimensions. In addition, Panel B of Table 5 shows that *CSR_STR* and most of *DIM_STR* variables (except *DIV_STR*) are all significantly and positively related to *Note_Fog*. The coefficients of *CSR_STR*, *ENV_STR*, *COM_STR*, *HUM_STR*, *PRO_STR*, *EMP_STR*, and *CGOV_STR* are 0.8835, 0.2710, 0.2478, 0.3256, 0.1978, 0.2232, and 0.2338, respectively, indicating that the required education years of readers to read and understand a firm's annual report once increase 0.0876 years (0.0991×0.8835), 0.0437 years (0.1614×0.2710), 0.0298 years (0.1203×0.2478), 0.0339 years (0.1042×0.3256), 0.0268 years (0.1353×0.1978), 0.0330 years (0.1479×0.2232), and 0.0462 years (0.1977×0.2338) per standard deviation increase in the firm's *CSR_STR*, *ENV_STR*, *COM_STR*, *HUM_STR*, *PRO_STR*, *EMP_STR*, and *CGOV_STR*, respectively. The results suggest that engaging CSR activities with strengths in *ENV* and *CGOV* dimensions has relative large impacts on the Notes readability. Moreover, Panel C of Table 5 shows that *CSR_CON*, *DIV_CON*, and *CGOV_CON* are significantly and negatively related to *Note_Fog*, similar with finding of the effects of CSR concerns on *All_Fog*. The above results suggest that Hypothesis 2 is empirically supported.

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Table 5 The Effects of CSR Activities Performance on Annual Report Readability (Notes Item in Complete 10-K)

Panel A. The effect of CSR net strengths on annual report readability of Notes item (*Note_Fog*)								
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Note_Fog	*Note_Fog*	*Note_Fog*	*Note_Fog*	*Note_Fog*	*Note_Fog*	*Note_Fog*	*Note_Fog*
CSR_NET	0.7819***							
	(4.8200)							
ENV_NET		0.2260**						
		(2.3400)						
COM_NET			0.0847					
			(1.0000)					
HUM_NET				0.2093**				
				(2.1200)				
DIV_NET					0.0689			
					(1.4600)			
PRO_NET						0.1833**		
						(2.2100)		
EMP_NET							0.0860	
							(1.2000)	
CGOV_NET								0.2575***
								(5.0000)
Controls (Table 2)	YES	YES	YES	YES	YES	YES	YES	YES
Firm-fixed effect	YES	YES	YES	YES	YES	YES	YES	YES
Year-fixed effect	YES	YES	YES	YES	YES	YES	YES	YES
Observations	16851	16851	16851	16851	16851	16851	16851	16851
Adjusted R^2	0.5778	0.5768	0.5764	0.5767	0.5765	0.5767	0.5765	0.5779
Panel B. The effect of CSR strengths on annual report readability of Notes item (*Note_Fog*)								
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Note_Fog	*Note_Fog*	*Note_Fog*	*Note_Fog*	*Note_Fog*	*Note_Fog*	*Note_Fog*	*Note_Fog*
CSR_STR	0.8835***							
	(3.9100)							
ENV_STR		0.2701**						
		(2.3900)						
COM_STR			0.2478**					
			(2.0500)					
HUM_STR				0.3256***				
				(2.6700)				
DIV_STR					-0.0083			
					(-0.0700)			
PRO_STR						0.1978**		
						(1.9900)		
EMP_STR							0.2232**	
							(2.0500)	
CGOV_STR								0.2338***
								(3.4000)
Controls (Table 2)	YES	YES	YES	YES	YES	YES	YES	YES
Firm-fixed effect	YES	YES	YES	YES	YES	YES	YES	YES
Year-fixed effect	YES	YES	YES	YES	YES	YES	YES	YES
Observations	16851	16851	16851	16851	16851	16851	16851	16851
Adjusted R^2	0.5774	0.5768	0.5766	0.5768	0.5764	0.5766	0.5766	0.5771

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Table 5 The Effects of CSR Activities Performance on Annual Report Readability (Notes Item in Complete 10-K) (Continued)

Panel C. The effect of CSR concerns on annual report readability of Notes item (*Note_Fog*)

	(1) *Note_Fog*	(2) *Note_Fog*	(3) *Note_Fog*	(4) *Note_Fog*	(5) *Note_Fog*	(6) *Note_Fog*	(7) *Note_Fog*	(8) *Note_Fog*
CSR_CON	-0.7423***							
	(-3.1500)							
ENV_CON		-0.0732						
		(-0.3900)						
COM_CON			0.0111					
			(0.1100)					
HUM_CON				-0.0456				
				(-0.2800)				
DIV_CON					-0.0956*			
					(-1.7700)			
PRO_CON						-0.1514		
						(-1.0400)		
EMP_CON							0.0204	
							(0.2200)	
CGOV_CON								-0.3937***
								(-4.7000)
Controls (Table 2)	YES	YES	YES	YES	YES	YES	YES	YES
Firm-fixed effect	YES	YES	YES	YES	YES	YES	YES	YES
Year-fixed effect	YES	YES	YES	YES	YES	YES	YES	YES
Observations	16851	16851	16851	16851	16851	16851	16851	16851
Adjusted R^2	0.5769	0.5764	0.5764	0.5764	0.5765	0.5764	0.5764	0.5775

This table shows the results whether CSR activities performance (measured by net strengths, strengths, and concerns) relates to annual report readability of Notes item (Notes to Consolidated Financial Statements section) in a firm's complete 10-K. *CSR_STR*, *CSR_CON*, and *CSR_NET* represent a firm's standardized aggregate strengths, concerns, and net strengths in CSR activities. CSR activities cover environment protection (*ENV*), community engagement (*COM*), human rights (*HUM*), employee treatment (*EMP*), workforce diversity (*DIV*), product quality (*PRO*), and corporate governance (*CGOV*) dimensions. CSR strengths (concerns/ net strengths) in each dimension are denoted as *ENV_STR*, *COM_STR*, *HUM_STR*, *EMP_STR*, *DIV_STR*, *PRO_STR*, and *CGOV_STR* (*ENV_CON*, *COM_CON*, *HUM_CON*, *EMP_CON*, *DIV_CON*, *PRO_CON*, and *CGOV_CON*/ *ENV_NET*, *COM_NET*, *HUM_NET*, *EMP_NET*, *DIV_NET*, *PRO_NET*, and *CGOV_NET*), respectively. Control variables of annual report readability include firm size (SIZE), market to book value ratio (*MTB*), firm age (*Fage*), special item per asset value (*SPI*), return on assets (*ROA*), ROA volatility (*ROAV*), Delaware state dummy (*DLW*), operating cash flow volatility (*OCFV*), the ratio of fixed assets (plant, property, and equipment) to total assets (*FE_TA*), leverage ratio (*LEV*), K-structure (*K_STR*), financial slack (*Slack*), and dividend dummy (*DVT_D*). The fixed effects (firm and year) and cluster issues are considered in these results. This table presents the regression coefficients and adjusted R-squared. The t-statistics calculated by firm-level clustered standard errors (Petersen 2009) for each coefficient appears immediately underneath. The signs of "*, **, ***" represent the significance of 10%, 5%, and 1%, respectively.

Panel A, B, and C of Table 6 present the results that *CSR_NET*, *CSR_STR*, and *CSR_CON* are all insignificantly related to the MD&A readability (*MDA_Fog*). In addition, regarding the results of the relation between CSR performance in each dimension and the MD&A readability, all CSR performance in each dimension are also insignificantly related to *MDA_Fog* except the *DIV_CON* variable. The results suggest that managers are likely to engage in strategically textual reporting in the Notes section for CSR activities rather than in the MD&A section. This aligns with Chen and Tseng (2021), who argue that because the disclosure in the MD&A section is less regulated, managers have more discretion over the content they disclose. This discretion allows them to choose how to present information without being overly concerned about strict

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disclosure requirements. Therefore, managers may feel less need to engage in strategic textual reporting because they already have the flexibility to convey the information they want to share. Thus, compared to more heavily regulated sections, managers are likely to have less incentive to engage in strategic textual reporting in the MD&A section.

Table 6 The Effects of CSR Activities Performance on Annual Report Readability (MD&A Item in Complete 10-K)

Panel A. The effect of CSR net strengths on annual report readability of MD&A item (*MDA_Fog*)								
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	MDA_Fog	*MDA_Fog*	*MDA_Fog*	*MDA_Fog*	*MDA_Fog*	*MDA_Fog*	*MDA_Fog*	*MDA_Fog*
CSR_NET	0.4706							
	(1.4600)							
ENV_NET		0.1097						
		(0.6600)						
COM_NET			0.1594					
			(1.0400)					
HUM_NET				0.1488				
				(0.6800)				
DIV_NET					0.1040			
					(1.3400)			
PRO_NET						-0.0308		
						(-0.1900)		
EMP_NET							0.0755	
							(0.6600)	
CGOV_NET								0.0940
								(1.1500)
Controls (Table 2)	YES	YES	YES	YES	YES	YES	YES	YES
Firm-fixed effect	YES	YES	YES	YES	YES	YES	YES	YES
Year-fixed effect	YES	YES	YES	YES	YES	YES	YES	YES
Observations	16851	16851	16851	16851	16851	16851	16851	16851
Adjusted R^2	0.4735	0.4733	0.4734	0.4733	0.4734	0.4733	0.4733	0.4734
Panel B. The effect of CSR strengths on annual report readability of MD&A item (*MDA_Fog*)								
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	MDA_Fog	*MDA_Fog*	*MDA_Fog*	*MDA_Fog*	*MDA_Fog*	*MDA_Fog*	*MDA_Fog*	*MDA_Fog*
CSR_STR	0.4900							
	(1.0600)							
ENV_STR		0.1073						
		(0.5300)						
COM_STR			0.2641					
			(1.0100)					
HUM_STR				0.3227				
				(1.1600)				
DIV_STR					-0.0275			
					(-0.1000)			
PRO_STR						-0.1418		
						(-0.7400)		
EMP_STR							0.2311	
							(1.0900)	
CGOV_STR								0.1349
								(1.3500)
Controls (Table 2)	YES	YES	YES	YES	YES	YES	YES	YES
Firm-fixed effect	YES	YES	YES	YES	YES	YES	YES	YES
Year-fixed effect	YES	YES	YES	YES	YES	YES	YES	YES
Observations	16851	16851	16851	16851	16851	16851	16851	16851
Adjusted R^2	0.4734	0.4733	0.4734	0.4735	0.4733	0.4733	0.4734	0.4734

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Table 6 The Effects of CSR Activities Performance on Annual Report Readability (MD&A Item in Complete 10-K) (Continued)

Panel C. The effect of CSR concerns on annual report readability of MD&A item (*MDA_Fog*)

	(1) *MDA_Fog*	(2) *MDA_Fog*	(3) *MDA_Fog*	(4) *MDA_Fog*	(5) *MDA_Fog*	(6) *MDA_Fog*	(7) *MDA_Fog*	(8) *MDA_Fog*
CSR_CON	-0.5015							
	(-1.2800)							
ENV_CON		-0.0951						
		(-0.3200)						
COM_CON			-0.0861					
			(-0.5500)					
HUM_CON				0.1058				
				(0.3500)				
DIV_CON					-0.1478*			
					(-1.8400)			
PRO_CON						-0.1629		
						(-0.6400)		
EMP_CON							0.0441	
							(0.3100)	
CGOV_CON								-0.0531
								(-0.3500)
Controls (Table 2)	YES	YES	YES	YES	YES	YES	YES	YES
Firm-fixed effect	YES	YES	YES	YES	YES	YES	YES	YES
Year-fixed effect	YES	YES	YES	YES	YES	YES	YES	YES
Observations	16851	16851	16851	16851	16851	16851	16851	16851
Adjusted R^2	0.4734	0.4733	0.4733	0.4733	0.4734	0.4733	0.4733	0.4733

This table shows the results whether CSR activities performance (measured by net strengths, strengths, and concerns) relates to annual report readability of *MD&A* (Management's Discussion and Analysis section) in a firm's complete 10-K. *CSR_STR*, *CSR_CON*, and *CSR_NET* represent a firm's standardized aggregate strengths, concerns, and net strengths in CSR activities. CSR activities cover environment protection (*ENV*), community engagement (*COM*), human rights (*HUM*), employee treatment (*EMP*), workforce diversity (*DIV*), product quality (*PRO*), and corporate governance (*CGOV*) dimensions. CSR strengths (concerns/ net strengths) in each dimension are denoted as *ENV_STR*, *COM_STR*, *HUM_STR*, *EMP_STR*, *DIV_STR*, *PRO_STR*, and *CGOV_STR* (*ENV_CON*, *COM_CON*, *HUM_CON*, *EMP_CON*, *DIV_CON*, *PRO_CON*, and *CGOV_CON*/ *ENV_NET*, *COM_NET*, *HUM_NET*, *EMP_NET*, *DIV_NET*, *PRO_NET*, and *CGOV_NET*), respectively. Control variables of annual report readability include firm size (*SIZE*), market to book value ratio (*MTB*), firm age (*Fage*), special item per asset value (*SPI*), return on assets (*ROA*), ROA volatility (*ROAV*), Delaware state dummy (*DLW*), operating cash flow volatility (*OCFV*), the ratio of fixed assets (plant, property, and equipment) to total assets (*FE_TA*), leverage ratio (*LEV*), K-structure (*K_STR*), financial slack (*Slack*), and dividend dummy (*DVT_D*). The fixed effects (firm and year) and cluster issues are considered in these results. This table presents the regression coefficients and adjusted R-squared. The t-statistics calculated by firm-level clustered standard errors (Petersen 2009) for each coefficient appears immediately underneath. The signs of "*, **, ***" represent the significance of 10%, 5%, and 1%, respectively.

In addition, to further understand whether CSR activities with different motivations have different impacts on annual report readability, this study follows Crifo and Forget (2015) to employ three categories of CSR variables, including market failure (*MF*), imperfect competition (*IMP*), and imperfect contracts (*IMT*), to investigate the effect of CSR performance on annual report readability. Empirical results of Table 7 show that *MF_NET*, *IMP_NET*, and *IMT_NET* are all significantly and positively related to *All_Fog* and *Note_Fog*. Meanwhile, *IMT_STR* and *MF_STR* (*IMT_CON* and *IMP_CON*) are significantly and positively (negatively) related to *All_Fog* and *Note_Fog*; however, *MF_CON* and *IMP_STR* have no significant impacts. The above results suggest that (1)

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engaging (good and bad) CSR activities motivated by imperfect contracts significantly affects managers' strategically textual reporting in annual reports; (2) engaging in good CSR activities motivated by market failure or bad CSR activities motivated by imperfect competition significantly affect managers' strategically textual reporting in annual report; (3) engaging bad CSR activities motivated by market failure or good CSR activities motivated by imperfect competition have no significant impacts on managers' strategically textual reporting in annual report. Based on the above discussion, we can conclude that the CSR activities motivated by imperfect contracts are important for determining annual report readability and Notes readability.

Table 7 The Effects of CSR Activities Performance on Annual Report Readability: Different Motivation Perspective

Panel A. The effect of CSR performance on annual report readability of all items (*All_Fog*)									
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	All_Fog	*All_Fog*	*All_Fog*	*All_Fog*	*All_Fog*	*All_Fog*	*All_Fog*	*All_Fog*	*All_Fog*
MF_NET	0.3071***								
	(3.5300)								
IMP_NET		0.1726**							
		(2.2800)							
IMT_NET			0.3427***						
			(5.5600)						
MF_STR				0.4454***					
				(4.3100)					
IMP_STR					0.0261				
					(0.2100)				
IMT_STR						0.4154***			
						(4.7500)			
MF_CON							-0.0509		
							(-0.3300)		
IMP_CON								-0.3283***	
								(-3.0800)	
IMT_CON									-0.2855***
									(-3.4800)
Controls (Table 2)	YES	YES	YES	YES	YES	YES	YES	YES	YES
Firm-fixed effect	YES	YES	YES	YES	YES	YES	YES	YES	YES
Year-fixed effect	YES	YES	YES	YES	YES	YES	YES	YES	YES
Observations	16851	16851	16851	16851	16851	16851	16851	16851	16851
Adjusted R^2	0.7082	0.7077	0.7093	0.7085	0.7074	0.7088	0.7075	0.7080	0.7081

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Table 7 The Effects of CSR Activities Performance on Annual Report Readability: Different Motivation Perspective (Continued)

Panel B. The effect of CSR performance on annual report readability of Notes items (*Note_Fog*)

	(1) *Note_Fog*	(2) *Note_Fog*	(3) *Note_Fog*	(4) *Note_Fog*	(5) *Note_Fog*	(6) *Note_Fog*	(7) *Note_Fog*	(8) *Note_Fog*	(9) *Note_Fog*
MF_NET	0.3947***								
	(3.0900)								
IMP_NET		0.2728**							
		(2.4500)							
IMT_NET			0.3870***						
			(4.2200)						
MF_STR				0.5218***					
				(3.2300)					
IMP_STR					0.2531				
					(1.4400)				
IMT_STR						0.4588***			
						(3.5800)			
MF_CON							-0.1400		
							(-0.6400)		
IMP_CON								-0.3341**	
								(-2.0700)	
IMT_CON									-0.3333***
									(-2.6700)
Controls (Table 2)	YES	YES	YES	YES	YES	YES	YES	YES	YES
Firm-fixed effect	YES	YES	YES	YES	YES	YES	YES	YES	YES
Year-fixed effect	YES	YES	YES	YES	YES	YES	YES	YES	YES
Observations	16851	16851	16851	16851	16851	16851	16851	16851	16851
Adjusted R^2	0.5770	0.5767	0.5774	0.5770	0.5765	0.5771	0.5764	0.5766	0.5767

Panel C. The effect of CSR performance on annual report readability of MD&A item (*MDA_Fog*)

	(1) *MDA_Fog*	(2) *MDA_Fog*	(3) *MDA_Fog*	(4) *MDA_Fog*	(5) *MDA_Fog*	(6) *MDA_Fog*	(7) *MDA_Fog*	(8) *MDA_Fog*	(9) *MDA_Fog*
MF_NET	0.3339								
	(1.3900)								
IMP_NET		0.1080							
		(0.5600)							
IMT_NET			0.2157						
			(1.3500)						
MF_STR				0.4230					
				(1.3700)					
IMP_STR					-0.2712				
					(-0.8000)				
IMT_STR						0.4323*			
						(1.7000)			
MF_CON							-0.1456		
							(-0.4200)		
IMP_CON								-0.4564*	
								(-1.8000)	
IMT_CON									-0.0004
									(-0.0000)
Controls (Table 2)	YES	YES	YES	YES	YES	YES	YES	YES	YES
Firm-fixed effect	YES	YES	YES	YES	YES	YES	YES	YES	YES
Year-fixed effect	YES	YES	YES	YES	YES	YES	YES	YES	YES
Observations	16851	16851	16851	16851	16851	16851	16851	16851	16851
Adjusted R^2	0.4735	0.4733	0.4734	0.4735	0.4733	0.4736	0.4733	0.4735	0.4733

This table shows the results whether CSR activities performance (measured by net strengths, strengths, and concerns) relates to annual report readability of all items, that of Notes item (Notes to Consolidated Financial Statements section), and that of *MD&A* (Management's Discussion and Analysis section) item in a firm's complete annual report (10-K), respectively. *CSR_STR*, *CSR_CON*, and *CSR_NET* represent a firm's standardized aggregate strengths, concerns, and

net strengths in CSR activities. *MF_STR* (*MF_CON*/ *MF_NET*) stands for the CSR strengths (concerns/ net strengths) related to market failure, which covers *ENV* and *COM* dimensions. *IMP_STR* (*IMP_CON*/ *IMP_NET*) stands for the CSR strengths (concerns/ net strengths) related to imperfect competition, which covers *HUM*, *DIV*, and *PRO* dimensions. *IMT_STR* (*IMT_CON*/ *IMT_NET*) stands for the CSR strengths (concerns/ net strengths) related to imperfect contracts, which covers *EMP* and *CGOV* dimensions. Control variables of annual report readability include firm size (*SIZE*), market to book value ratio (*MTB*), firm age (*Fage*), special item per asset value (*SPI*), return on assets (*ROA*), ROA volatility (*ROAV*), Delaware state dummy (*DLW*), operating cash flow volatility (*OCFV*), the ratio of fixed assets (plant, property, and equipment) to total assets (*FE_TA*), leverage ratio (*LEV*), K-structure (*K_STR*), financial slack (*Slack*), and dividend dummy (*DVT_D*). The fixed effects (firm and year) and cluster issues are considered in these results. This table presents the regression coefficients and adjusted R-squared. The t-statistics calculated by firm-level clustered standard errors (Petersen, 2009) for each coefficient appears immediately underneath. The signs of "*, **, ***" represent the significance of 10%, 5%, and 1%, respectively.

5.2. Endogeneity issue of the relation between CSR performance and annual report readability

In this section, we address the endogeneity issue, especially for the concern of omitted variables and reverse causality. Our previous results may be biased due to the endogeneity problem arising from unobserved variables that affect both CSR performance variables and annual report readability. Since the firm-fixed effect has been included in the model settings of our main results (Tables 4, 5, 6, and 7), the endogeneity problem stemming from time-invariant omitted firm characteristics can be alleviated. To eliminate the endogenous concerns deriving from a time-variant omitted variable or reverse causality, this study therefore uses the instrumental variable (IV) regression models.

In the first-stage regression model, this study employs the average CSR performance variables of a firm's neighboring ones (*Geo_CSR*, neighboring firms in the same three-digit ZIP area in a given year) as the instrument variables of the firm's CSR performance variables.[8] Jiraporn et al. (2014) and Chen (2018) also show that *Geo_CSR* variables satisfy the criteria of good instrument variables, namely, the relevance condition and the exclusion condition.

Table 8 presents the results of two-stage least square regressions. In the first stage, we regress each CSR performance variable (*CSR_NET*, *MF_NET*, *IMP_NET*, *IMT_NET*) against its corresponding instrument variable (*Geo_CSR*; *CSR*= *CSR_NET*, *MF_NET*, *IMP_NET*, *IMT_NET*) and all other control variables in Table 2. The results of (1a), (1b), (1c), and (1d) show that *Geo_CSR* variables are significantly and positively related to CSR performance, indicating that there exists a positive association between a firm's CSR performance and the average CSR performance of its neighboring firms. Moreover,

[8] The results are robust for the following settings when calculating the instrument variables: (1) requiring at least three neighboring firms; (2) considering all neighboring firms in the same state or in the same two-digit zip area.

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Table 8 also reports the Cragg and Donald (1993) F-statistics and the corresponding p-values. The results reveal that the null hypothesis that the instrument variables are weak is rejected, consistent with our conjectures.

Then, in the second stage, we regress annual report readability against the fitted values of the first stage and other control variables. Empirical results of Table 8 show that the predicted *CSR_NET*, *MF_NET*, and *IMT_NET* are all significantly and positively related to *All_Fog* and *Note_Fog*, respectively, while *IMP_NET* has insignificant impacts. The above results are mostly consistent with our conjectures. That is, the results provide further support for the findings of Table 4, 5, 6, and 7 that there exist the significant association between CSR performance variables and annual report readability. Based on the above results, this study therefore concludes that our previous results are robust after controlling for potential endogeneity problems.

This study also includes robust tests for weak instruments in our endogeneity discussions. Results shown in Table 8 reveal that the regression coefficients of the instrumental variables (namely *Geo_CSR_NET*, *Geo_MF_NET*, *Geo_IMP_NET*, *Geo_IMT_NET*) are all significant. Furthermore, the p-values of the Kleibergen-Paap rk LM statistics are all less than 0.001, rejecting the null hypothesis that the two-stage regression model is under-identified. In addition, the weak identification test in Table 8 (the test for the weak instrument problem) shows that the Kleibergen-Paap rk Wald F statistics are 569.922, 265.185, 742.621, and 1064.785, respectively, all of which exceed the critical values for weak identification tests (Stock and Yogo 2005). This indicates that the two-stage regression model is unlikely to suffer from the weak instrument problem. Therefore, the results from the Kleibergen-Paap rk LM statistics and Kleibergen-Paap rk Wald F statistics confirm that the instrumental variables meet the relevance condition. Moreover, the p-value of the Hansen J statistic is not significant, suggesting that there is less concern about endogeneity issues related to the instrumental variables.

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Table 8 Endogeneity Discussions in the Relation between CSR Performance and Annual Report Readability

Panel A. Instrumental variable regressions: *CSR_NET* v.s. Annual report readability				
	(1a) First stage *CSR_NET*	(2a) Second stage *All_Fog*	(3a) Second stage *Note_Fog*	(4a) Second stage *MDA_Fog*
Geo_CSR_NET	0.8105***			
	(21.9400)			
CSR_NET		0.8304***	1.4102***	1.5140
		(2.9000)	(3.1700)	(1.4600)
Controls (Table 2)	YES	YES	YES	YES
Firm-fixed effect	YES	YES	YES	YES
Year-fixed effect	YES	YES	YES	YES
Observations	16713	16713	16713	16713
Adjusted R^2	0.5820	0.7079	0.5778	0.4746
Partial F Statistics	481.4700			
	(p-value<0.00)			
Underidentification test				
Kleibergen-Paap rk LM statistics	155.8320			
(p-value)	(0.000)			
Weak identification test				
Kleibergen-Paap rk Wald F statistics	569.9220			
Overidentification test of all instruments				
Hansen J statistics	0.0000			
Panel B. Instrumental variable regressions: *MF_NET* v.s. Annual report readability				
	(1b) First stage *MF_NET*	(2b) Second stage *All_Fog*	(3b) Second stage *Note_Fog*	(4b) Second stage *MDA_Fog*
Geo_MF_NET	0.7690***			
	(14.8800)			
MF_NET		0.5165**	0.8366**	1.3803*
		(2.1500)	(2.3300)	(1.8900)
Controls (Table 2)	YES	YES	YES	YES
Firm-fixed effect	YES	YES	YES	YES
Year-fixed effect	YES	YES	YES	YES
Observations	16713	16713	16713	16713
Adjusted R^2	0.6078	0.7077	0.5776	0.4747
Partial F Statistics	221.5300			
	(p-value<0.00)			
Underidentification test				
Kleibergen-Paap rk LM statistics	97.9070			
(p-value)	(0.000)			
Weak identification test				
Kleibergen-Paap rk Wald F statistics	265.1850			
Overidentification test of all instruments				
Hansen J statistics	0.0000			

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Table 8 Endogeneity Discussions in the Relation between CSR Performance and Annual Report Readability (Continued)

Panel C. Instrumental variable regressions: *IMP_NET* v.s. Annual report readability				
	(1c) First stage *IMP_NET*	(2c) Second stage *All_Fog*	(3c) Second stage *Note_Fog*	(4c) Second stage *MDA_Fog*
Geo_IMP_NET	0.7793***			
	(24.9100)			
IMP_NET		0.0076	0.1382	0.1557
		(0.0400)	(0.4500)	(0.2900)
Controls (Table 2)	YES	YES	YES	YES
Firm-fixed effect	YES	YES	YES	YES
Year-fixed effect	YES	YES	YES	YES
Observations	16713	16713	16713	16713
Adjusted R^2	0.6013	0.7074	0.5773	0.4743
Partial F Statistics	620.5600 (p-value<0.00)			
Underidentification test				
Kleibergen-Paap rk LM statistics	218.4870			
(p-value)	(0.000)			
Weak identification test				
Kleibergen-Paap rk Wald F statistics	742.6210			
Overidentification test of all instruments				
Hansen J statistics	0.0000			
Panel D. Instrumental variable regressions: *IMT_NET* v.s. Annual report readability				
	(1d) First stage *IMT_NET*	(2d) Second stage *All_Fog*	(3d) Second stage *Note_Fog*	(4d) Second stage *MDA_Fog*
Geo_IMT_NET	0.8660***			
	(30.0700)			
IMT_NET		0.4847***	0.7013***	0.5635
		(3.2400)	(2.9100)	(1.1200)
Controls (Table 2)	YES	YES	YES	YES
Firm-fixed effect	YES	YES	YES	YES
Year-fixed effect	YES	YES	YES	YES
Observations	16713	16713	16713	16713
Adjusted R^2	0.5021	0.7080	0.5778	0.4744
Partial F Statistics	904.1900 (p-value<0.00)			
Underidentification test				
Kleibergen-Paap rk LM statistics	185.8600			
(p-value)	(0.000)			
Weak identification test				
Kleibergen-Paap rk Wald F statistics	1064.7850			
Overidentification test of all instruments				
Hansen J statistics	0.0000			

This table shows the estimates of two-stage least squares regressions for the relation between each CSR performance (*CSR_NET*/ *MF_NET*/ *IMP_NET*/ *IMT_NET*) and annual report readability (*All_Fog*, *Note_Fog*, *MDA_Fog*). In the first stage, we regress each CSR performance variable on the average CSR performance of all neighboring firms in the same three-digit zip code and all other control variables in Table 2. In the second stage, we regress annual report

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readability (*All_Fog*, *Note_Fog*, *MDA_Fog*) against the predicted value of CSR performance measures from the first stage and other control variables. All settings include firm- and year-fixed effects. The t-statistics calculated by firm-level clustered standard errors for each coefficient appears immediately underneath. The signs of "*, **, ***" represent the significance of 10%, 5%, and 1%, respectively.

5.3. Channel analyses for the effects of CSR performance on annual report readability: Current earnings and financial leverage perspectives

The above empirical results support the hypotheses that the effect of CSR performance on annual report readability from the perspectives of shareholder theory and debt tax shields. To further examine whether the effect of CSR performance on annual report readability is through the channels of shareholder theory and financial leverage, this study regresses firm performance (Earnings) and financial leverage (*LEV*) on the measures of CSR performance and year- and firm-fixed effects. Earnings is net income scaled by asset book value and *LEV* is financial leverage (the ratio of total debt to asset value).

Empirical results of Panel A in Table 9 show that CSR net strengths (*CSR_NET*) are negatively but insignificantly related to firm performance. However, the *CSR_NET* effect on firm performance may vary with the motivations for engaging in CSR activities. Following Crifo and Forget (2015), this study divides *CSR_NET* into three categories, including market failure (*MF*), imperfect competition (*IMP*), and imperfect contracts (*IMT*). Columns (2) to (4) in Panel A present that *MF* net strengths (*MF_NET*) and IMP net strengths (*IMP_NET*) are both negatively and significantly related to firm performance while IMT net strengths (*IMT_NET*) have an opposite effect, indicating that the better performance of CSR activities motivated from market failure and imperfect competition decreases the firm performance while that motivated from imperfect contracts increases the firm performance. That is, *MF_NET* and *IMP_NET* support shareholder theory while *IMT_NET* supports stakeholder theory. In addition, this study further finds that *CSR_STR*, *MF_STR*, and *IMP_STR* are all significantly and negatively related to firm performance while *IMP_CON* has the opposite impact, suggesting that CSR activities motivated by imperfect competition play an important role in reducing the firm performance. The above findings provide the related evidence that the negative effect of CSR performance on annual report readability is through the channel of firm performance for the CSR activities motivated by market failure and imperfect competition. These results also provide additional evidence for why the CSR effect on financial performance has two opposite outcomes (negative or positive), resulting from different motivations for engaging in CSR activities.

Empirical results of Panel B in Table 9 show that CSR net strengths (*CSR_NET*) is

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negatively and significantly related to financial leverage. Among the three categories of CSR activities, only *IMT_NET* is negatively and significantly related to financial leverage while *MF_NET* and *IMP_NET* have the insignificant effect

In addition, we further find that *CSR_CON*, *MF_CON*, and *IMT_CON* are positively and significantly related to financial leverage, indicating that firms without engaging in CSR activities (especially for those motivated by imperfect contracts, IMT) have no corresponding tax shields and thereby enhance the incentive of increasing financial leverage to earn the tax shields (Huseynov and Klamm 2012; Davis et al. 2016; Harjoto 2017).[9] The above results support that the negative effect of CSR performance on annual report readability is through the channel of financial leverage, especially for CSR activities motivated by imperfect contracts.

Based on the above discussions, we can summarize that (1) the *CSR_NET* effect is mainly through the channel of financial leverage; (2) the *MF_NET* and *IMP_NET* effects are mainly through the channel of firm performance (shareholder theory); (3) the *IMT_NET* effect is mainly through the channels of firm performance (stakeholder theory) and financial leverage; (4) the *IMT_NET* effect through the channel of financial leverage dominates that through the channel of firm performance, which lead a negative effect of *IMT_NET* on annual report readability. These findings provide evidence for how a firm's CSR performance affects annual report readability from the perspectives of firm performance and financial leverage.

[9] Huseynov and Klamm (2012) show that firms engage in CSR activities due to the purpose of tax avoidance or earning tax shield. Davis et al. (2016) demonstrate that CSR and tax payments act as substitutes, suggesting that engaging CSR activities can earn tax shield. Since interest expense is another source of earning tax shield, it is reasonably conjectured that financial leverage and CSR activities also act as substitutes.

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Table 9 Channels through Which Better CSR Performance Reduces Annual Report Readability

Panel A. Channel analysis for the relation between CSR performance and annual report readability: Earnings channel

	(1) *Earnings*	(2) *Earnings*	(3) *Earnings*	(4) *Earnings*	(5) *Earnings*	(6) *Earnings*	(7) *Earnings*	(8) *Earnings*	(9) *Earnings*	(10) *Earnings*	(11) *Earnings*	(12) *Earnings*
CSR_NET	-0.0160											
	(-1.1500)											
MF_NET		**-0.0130***										
		(-1.7300)										
IMP_NET			**-0.0257****									
			(-2.4600)									
IMT_NET				**0.0160****								
				(2.0600)								
CSR_STR					**-0.0345****							
					(-2.0400)							
MF_STR						**-0.0369*****						
						(-3.5600)						
IMP_STR							**-0.0298***					
							(-1.8300)					
IMT_STR								0.0124				
								(1.3500)				
CSR_CON									-0.0062			
									(-0.2700)			
MF_CON										-0.0241		
										(-1.4300)		
IMP_CON											**0.0257***	
											(1.8700)	
IMT_CON												-0.0206
												(-1.5200)
Constant	0.0184***	0.0185***	0.0171***	0.0169***	0.0207***	0.0205***	0.0199***	0.0169***	0.0185***	0.0189***	0.0156***	0.0185***
	(5.1600)	(5.1100)	(4.7100)	(4.6400)	(5.8600)	(5.9100)	(5.9200)	(4.5300)	(5.2000)	(5.6300)	(4.2600)	(5.1800)
Firm-fixed effect	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Year-fixed effect	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Observations	16273	16273	16273	16273	16273	16273	16273	16273	16273	16273	16273	16273
Adjusted R^2	0.5527	0.5527	0.5528	0.5527	0.5527	0.5528	0.5527	0.5527	0.5526	0.5527	0.5527	0.5527

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Table 9 Channels through Which Better CSR Performance Reduces Annual Report Readability (Continued)

Panel B. Channel analysis for the relation between CSR performance and annual report readability: Financial leverage channel

	(1) *LEV*	(2) *LEV*	(3) *LEV*	(4) *LEV*	(5) *LEV*	(6) *LEV*	(7) *LEV*	(8) *LEV*	(9) *LEV*	(10) *LEV*	(11) *LEV*	(12) *LEV*
CSR_NET	**-0.0418*****											
	(-3.7400)											
MF_NET		-0.0115										
		(-1.3300)										
IMP_NET			-0.0087									
			(-1.0500)									
IMT_NET				**-0.0234*****								
				(-3.6400)								
CSR_STR					-0.0029							
					(-0.2000)							
MF_STR						**0.0185***						
						(1.7700)						
IMP_STR							-0.0071					
							(-0.5700)					
IMT_STR								-0.0026				
								(-0.2900)				
CSR_CON									**0.0949*****			
									(5.3100)			
MF_CON										**0.0531*****		
										(3.9600)		
IMP_CON											0.0113	
											(0.9400)	
IMT_CON												**0.0461*****
												(4.7600)
Constant	0.3081***	0.3076***	0.3069***	0.3091***	0.3075***	0.3061***	0.3077***	0.3075***	0.3021***	0.3056***	0.3061***	0.3064***
	(107.3000)	(106.8600)	(106.4700)	(106.6700)	(100.7400)	(104.3400)	(103.9100)	(103.6300)	(100.5700)	(105.9800)	(98.8200)	(107.0000)
Firm-fixed effect	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Year-fixed effect	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Observations	16851	16851	16851	16851	16851	16851	16851	16851	16851	16851	16851	16851
Adjusted R^2	0.8125	0.8123	0.8123	0.8125	0.8123	0.8124	0.8123	0.8123	0.8127	0.8125	0.8123	0.8126

This table shows the channel analyses how CSR activities performance (measured by net strengths, strengths, and concerns) reduces annual report readability from two perspectives of current earnings and financial leverage. *CSR_STR*, *CSR_CON*, and *CSR_NET* represent a firm's standardized aggregate strengths, concerns, and net strengths in CSR activities. *MF_STR* (*MF_CON*/ *MF_NET*) stands for the CSR strengths (concerns/ net strengths) related to market failure, which covers *ENV* and *COM* dimensions. *IMP_STR* (*IMP_CON*/ *IMP_NET*) stands for the CSR strengths (concerns/ net strengths) related to imperfect competition, which covers *HUM*, *DIV*, and PRO dimensions. *IMT_STR* (*IMT_CON*/ *IMT_NET*) stands for the CSR strengths (concerns/ net strengths) related to imperfect contracts, which covers *EMP* and *CGOV* dimensions. The fixed effects (firm and year) and cluster issues are considered in these results. This table presents the regression coefficients and adjusted R-squared. The t-statistics calculated by firm-level clustered standard errors (Petersen 2009) for each coefficient appears immediately underneath. The signs of "*, **, ***" represent the significance of 10%, 5%, and 1%, respectively

5.4. The effects of CSR performance on annual report readability: The moderating role of financial crisis period

This study also discusses whether the occurrence of a financial crisis changes the effects of CSR performance on annual report readability. We add the interaction terms of financial crisis period dummy variable and CSR performance into Eq. (2) to (4). The financial crisis period dummy variable equals to one if the observation is during the financial crisis period (2008-2009) and equals to zero if not.

Untabulated results show that the interaction term of *CSR_NET* and financial crisis dummy variable is significantly and negatively related to *Note_Fog* while the interaction term of *CSR_CON* and financial crisis dummy variable has an opposite effect on *Note_Fog*, indicating that the negative effect of CSR performance on Notes readability becomes weaker during the financial crisis period. The above results imply that outside investors become to care less about good CSR performance information when the financial market is fragile, which lead to a decrease on the incentives of managers' strategically textual reporting about describing the CSR performance.

5.5. The effect of the coexistence of CSR strengths and concerns on annual report readability

This section explores whether the coexistence of CSR strength and concern (*CoSC_CSR*) affects annual report readability. Untabulated results show that *CoSC_Agg*, *CoSC_HUM*, and *CoSC_EMP* variables are significantly and positively related to *Note_Fog*, suggesting that the coexistence of CSR activities with strengths and concerns increases the managers' incentives of engaging strategically textual reporting in the Notes section, especially for the dimensions of HUM and EMP. The possible explanation is that outside investors require firms with *CoSC_CSR* to disclose more accounting (quantitative) information (Chen 2018), which enhances the managers' incentives to engage strategically textual reporting in the annual report, especially for the Notes section.

In addition, we find that the *CoSC_EMP* and *CoSC_CGOV* are significantly and positively related to *All_Fog*. Moreover, the *CoSC_HUM* variable is significantly and positively related to *All_Fog*, *Note_Fog*, and *MDA_Fog*, implying that the *CoSC_CSR* in HUM dimension plays an important role in annual report readability, Notes readability, and MD&A readability.

5.6. Robustness works

To provide more robust evidence for our conclusions, this study also replaces Fog

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index by other readability measures, including Flesch–Kincaid grade level (Flesch 1948), SMOG index (McLaughlin 1969), and so on. The untabulated results show that our findings are robust for the setting of using other readability measures.

6. Concluding remarks

Different from previous studies related to annual report readability determinants, this study addresses the issue from the perspective of CSR performance by employing 16,851 American firm observation from 2001 to 2013. Empirical results of this study show that a firm's CSR net strength significantly and negatively relates to annual report readability and Notes readability while having an insignificant impact on MD&A readability when controlling for other determinant variables of annual report readability, especially for the CSR dimensions of environment protection, human rights, employee treatment, and corporate governance. These results support the conjecture from the perspectives of shareholder theory (Friedman 1962; Li 2008) and debt tax shield (Harjoto 2017; Arya and Glover 1998). We also provide some evidences that the *CSR_NET* effect is mainly through the channels of firm performance and financial leverage, which vary with the different motivations for engaging in CSR activities. In addition, we also find that CSR activities motivated by imperfect contracts are important for determining annual report readability and Notes readability.

Moreover, this study also finds that the occurrence of a financial crisis enhances the managers' incentives to engage strategically textual reporting about describing bad CSR performance. This is mainly because outside investors become to care more about bad firm-specific (e.g. CSR performance) information when the financial market is fragile. Furthermore, the coexistence of strength and concern in CSR activities significantly and negatively relates to the Notes readability, especially for the HUM and EMP dimensions. Finally, our results remain hold when the endogeneity concern is included.

This paper contributes to the literature from three dimensions. First, this study extends the CSR literature by introducing CSR performance into the research issue of managers' strategically textual reporting behaviors in annual reports. Second, the paper provides a new insight into how CSR information drives the managers' strategically textual reporting behaviors and contributes to the literature on annual report readability. In addition, this study further explores that the Notes section is the main section with managers' strategically textual reporting for engaging in CSR activities. Finally, we provide some important practical implications, such as (1)

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managers have stronger incentives to conduct strategically textual reporting in Notes section when a firm simultaneously conducts CSR activities with strengths and concerns; (2) CSR performance is very relevant for the incentives of managers' strategically textual reporting behaviors in annual report, especially for the Notes section; (3) this study provides a new insight how CSR activities affects the managers' incentives of engaging strategically textual reporting; (4) the motivations of engaging CSR activities affect the channels how CSR performance affects managers' strategically textual reporting in 10-K. Based on the above discussions, we add this line of literature by addressing the economic consequences of CSR information and the determinants of annual report readability.

Finally, according to Armstrong et al. (2022), the predominant method for causal inference in the accounting literature is currently the Difference-in-Difference (DID) approach (78%), followed by instrumental variable regression models (17%) and Regression Discontinuity Design (RDD) models (5%). Given that the sample period of this study spans from 2001 to 2013, during which there were no suitable purely exogenous events affecting changes in CSR performance, this study employs an instrumental variable regression model for the primary discussion of endogeneity issues. Future accounting research could benefit from incorporating both DID and instrumental variable regression model analyses when addressing endogeneity concerns. Further, since this study focuses on CSR performance, future research could explore the informational value of CSR through qualitative assessments, such as interviews, case studies, or anecdotal evidence, to provide richer insights. Also, future research could address specific topics related to employees, customers, and communities (e.g., satisfaction) to provide a more comprehensive exploration.

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Appendix: Variable Definitions

Variables	Definitions
Panel A. Readability Measures	
All_Fog	The readability of the entire annual report, measured by the Fog index (Gunning 1952).
Note_Fog	The readability of the Notes section, measured by the Fog index (Gunning 1952).
MDA_Fog	The readability of the MD&A section, measured by the Fog index (Gunning 1952).
Panel B. CSR Performance Measures	
CSR_STR	The sum of the standardized scores of CSR strengths of these seven dimensions, including environment protection (*ENV_STR)*, community engagement (*COM_STR*), human rights (*HUM_STR*), workforce diversity (*DIV_STR*), product quality (*PRO_STR*), employee treatment (*EMP_STR*), and corporate governance (*CGOV_STR*).
CSR_CON	The sum of the standardized scores of CSR concerns of these seven dimensions, including environment protection (*ENV_CON*), community engagement (*COM_CON*), human rights (*HUM_CON*), workforce diversity (*DIV_CON*), product quality (*PRO_CON*), employee treatment (*EMP_CON*), and corporate governance (*CGOV_CON*).
CSR_NET	The net balance of total standardized scores of CSR strengths and those of CSR concerns of these seven dimensions, including environment protection (*ENV_NET*), community engagement (*COM_NET*), human rights (*HUM_NET*), workforce diversity (*DIV_NET*), product quality (*PRO_NET*), employee treatment (*EMP_NET*), and corporate governance (*CGOV_NET*).
MF_STR	The CSR strength score of market failure, defined as the sum of *ENV_STR* and *COM_STR*.
MF_CON	The CSR concern score of market failure, defined as the standardized scores of MF concerns, defined as the sum of *ENV_CON* and *COM_CON*.
MF_NET	The CSR net score of market failure, defined as the standardized scores of MF concerns, defined as the sum of *ENV_NET* and *COM_NET*.
IMP_STR	The CSR strength score of imperfect competition, defined as the sum of *HUM_STR*, *DIV_STR*, and *PRO_STR*.
IMP_CON	The CSR concern score of imperfect competition, defined as the sum of *HUM_CON*, *DIV_CON* and *PRO_CON*.
IMP_NET	The CSR concern score of imperfect competition, defined as the sum of *HUM_NET*, *DIV_NET* and *PRO_NET*.

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IMT_STR	The CSR strength score of imperfect contracts, defined as the sum of *EMP_STR* and *CGOV_STR*.
IMT_CON	The CSR concern score of imperfect contracts, defined as the sum of *EMP_CON* and *CGOV_CON*.
IMT_NET	The CSR concern score of imperfect contracts, defined as the sum of *EMP_CON* and *CGOV_CON*.
Panel C. Control Variables	
SIZE	The natural logarithm of asset value.
MTB	The market-to-book ratio, defined as the ratio of asset market value to asset book value.
Fage	The number of years since the firm appeared on *COMPUSTAT*.
SPI	The ratio of the amount of special items to asset book value.
ROA	The ratio of earnings before interest and tax (EBIT) to total assets.
ROAV	The ROA volatility, defined as the standard deviation of ROA over the previous five-year ROA data.
DLW	A dummy variable equals one if a firm is headquartered in Delaware state and zero if not.
OCFV	The OCF volatility (OCF; operating cash flow per unit asset), defined as the standard deviation of OCF over the previous five-year OCF data.
FE_TA	The ratio of plant, property, and equipment (PPE) to total assets.
LEV	A firm's leverage ratio, measured by the ratio of debt book value to the sum of debt book value and equity market value.
K_STR	A measure of market leverage computed as the ratio of long-term debt to the sum of long-term debt to the market value of equity.
Slack	The ratio of cash to fixed assets.
DVT_D	A dummy variable equals to one if a firm has a dividend payout in the year and zero if not.

This table presents the main variables used in this study. Detailed definitions of these variables are provided below.

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References

Abernathy, J. L., F. Guo, T. R. Kubick, and A. Masli. 2019. Financial statement footnote readability and corporate audit outcomes. *Auditing: A Journal of Practice & Theory 38* (2): 1-26.

Aldahray, A. 2024. Notes readability and discretionary accruals. *Revista de Contabilidad (Spanish Accounting Review)* 27 (2): 229-238.

Armstrong, C., J. D. Kepler, D. Samuels, and D. Taylor. 2022. Causality redux: The evolution of empirical methods in accounting research and the growth of quasi-experiments. *Journal of Accounting and Economics* 74 (2-3): 101521.

Arya, A., and J. Glover. 1998. Debt and voluntary disclosure. Working Paper, Ohio State University, and Carnegie Mellon University.

Barnett, M. L., and R. M. Salomon. 2006. Beyond dichotomy: The curvilinear relationship between social responsibility and financial performance. *Strategic Management Journal* 27 (11): 1101–1122

Baird, P. L., P. C. Geylani, and J. A. Roberts. 2012. Corporate social and financial performance re-examined: Industry effects in a linear mixed model analysis. *Journal of Business Ethics* 109: 367–388.

Beyer, A., R. A. Dye. 2021. Debt and voluntary disclosure. *The Accounting Review* 96 (4): 111–130.

Biddle, G. C., G. Hilary, and R. S. Verdi. 2009. How does financial reporting quality relate to investment efficiency?. *Journal of Accounting and Economics* 48 (2-3): 112–131.

Bloomfield, R. J., 2002. The ‘‘incomplete revelation hypothesis’’ and financial reporting. *Accounting Horizons* 16 (3): 233–243.

Chen, T. K., and Tseng, Y. 2015. Earnings management and annual report readability: Discussions in the Business, MD&A, and Notes sections. Working paper, National Yang Ming Chiao Tung University, and Fu Jen Catholic University.

Chen, T. K., and Y. Tseng. 2021. Readability of notes to consolidated financial statements and corporate bond yield spread. *European Accounting Review* 30 (1): 83–113.

Chen, T. K. 2018. Corporate social responsibility and corporate credit risk: A new perspective of the coexistence of strength and concern. Working paper, National Yang Ming Chiao Tung University.

Cragg, J. G., and S. G. Donald. 1993. Testing identifiability and specification in instrumental variable models. *Econometric Theory* 9 (2): 222–240.

Crifo, P., and V. D. Forget. 2015. The economics of corporate social responsibility: A firm-level Perspective Survey. *Journal of Economic Surveys* 29 (1): 112–130.

Davis, A. K., D. A. Guenther, L. K. Krull, and B. M. Williams. 2016. Do socially responsible firms pay more taxes?. *The Accounting Review* 91: 47–68.

Delmas, M. A., and V. C. Burbano. 2011. The drivers of greenwashing. *California Management Review* 54 (1): 64–87.

Flesch, R. 1948. A new readability yardstick. *Journal of Applied Psychology* 32 (3): 221–233.

Freeman, R. E. 1984. *Strategic Management: A Stakeholder Approach*. Boston, MA: Pitman.

Friedman, M. 1962. *Capitalism and Freedom*. Chicago. IL: University of Chicago Press.

Ge, W., and M. Liu. 2015. Corporate social responsibility and the cost of corporate bonds. *Journal of Accounting and Public Policy* 34 (6): 597–624.

Gunning, R. 1952. *The Technique of Clear Writing*. New York, NY: McGraw-Hill

臺灣上市櫃公司資訊

International Book Co.
Harjoto, M. A. 2017. Corporate social responsibility and degrees of operating and financial leverage. *Review of Quantitative Finance and Accounting* 49: 487–513.
Huseynov, F., and B. K. Klamm. 2012. Tax avoidance, tax management and corporate social responsibility. *Journal of Corporate Finance* 18 (4): 804–827.
Jiraporn, P., N. Jiraporn, A. Boeprasert, and K. Chang. 2014. Does corporate social responsibility (CSR) improve credit ratings? Evidence from geographic identification. *Financial Management* 43 (3): 505–531.
Jones, T. M. 1995. Instrumental stakeholder theory: A synthesis of ethics and economics. *Academy of Management Review* 20 (2): 404–437.
Lehavy, R., F. Li, and K. Merkley. 2011. The effect of annual report readability on analyst following and the properties of their earnings forecasts. *The Accounting Review* 86 (3): 1087–1115.
Li, F. 2008. Annual report readability, current earnings, and earnings persistence. *Journal of Accounting and Economics* 45 (2-3): 221–247.
Lo, K., F. Ramos, and F. Rogo, 2017. Earnings management and annual report readability. *Journal of Accounting and Economics* 63 (1): 1–25.
Loughran, T., and B. Mcdonald. 2014. Measuring readability in financial disclosures. *The Journal of Finance* 69 (4): 1643–1671.
McLaughlin, G. H. 1969. SMOG grading — A new readability formula. *Journal of Reading* 12 (8): 639–646.
Menz, K. M. 2010. Corporate social responsibility: Is it rewarded by the corporate bond market? A critical note. *Journal Business Ethics* 96 (1): 117–134.
Oikonomou, I., C. Brooks, and S. Pavelin, 2014. The effects of corporate social performance on the cost of corporate debt and credit ratings. *Financial Review* 49 (1): 49–75.
Peng, C. W., and M. L. Yang, 2014. The effect of corporate social performance on financial performance: The moderating effect of ownership concentration. *Journal of Business Ethics* 123 (1): 171–182.
Petersen, M. A. 2009. Estimating standard errors in finance panel data sets: Comparing approaches. *The Review of Financial Studies* 22 (1): 435–480.
Schrand, C. M., and B.R. Walther. 2000. Strategic benchmarks in earnings announcement: The selective disclosure of prior-period earnings components. *The Accounting Review* 75 (2): 151–177.
Stock, J. H., and M. Yogo. 2005. *Testing for Weak Instruments in Linear IV Regression. In: Andrews DWK Identification and Inference for Econometric Models*. Cambridge, UK: Cambridge University Press.
Subramanian, R., R. G. Insley, and R. D. Blackwell. 1993. Performance and readability: A comparison of annual reports of profitable and unprofitable corporations. *The Journal of Business Communication* 30 (1): 49-61.
Weber, M. 2008. The business case for corporate social responsibility: A company-level measurement approach for CSR. *European Management Journal* 26 (4): 247–261.

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