CEO Overconfidence and Voluntary Tax Disclosures in Sustainability Reports

마흐사 베흐남라드(주저자) · 정금아(공저자) · 조재희(교신저자)
Mahsa Behnamrad(First Author) · Keumah Jung(Co-Author) · Jaehee Jo(Corresponding Author)

서울대학교 경영대학 Seoul National University(*behnamrad@snu.ac.kr*)
서울대학교 경영대학 Seoul National University(*kajung@snu.ac.kr*)
숭실대학교 경영대학 Soongsil University(*jaeheejo@ssu.ac.kr*)

We examine how CEO overconfidence influences firms' tax disclosures in sustainability reports. Using an option-based measure of overconfidence, we find that firms led by overconfident CEOs are more likely to disclose tax-related information. These disclosures also tend to include more optimistic language, suggesting that overconfident CEOs use them as impression management tools to enhance stakeholder perceptions of corporate tax practices. The effect of CEO overconfidence on tax disclosure is more pronounced for firms that engage in greater tax avoidance, as overconfident CEOs use tax disclosures to legitimize their aggressive tax strategies. The effect is also stronger for firms with higher foreign income, reflecting overconfident CEOs' efforts to project competence in managing complex international tax matters. Additionally, overconfident CEOs with longer tenure are more likely to include tax-related information in sustainability reports, as they perceive tax disclosures as a means to preserve their legacy and signal a long-term commitment to tax transparency. Overall, our study sheds light on the interplay between CEO overconfidence and voluntary tax disclosures, offering valuable insights for policymakers and readers of sustainability reports.

Keyword: CEO Overconfidence, Voluntary Tax Disclosures, Sustainability Reporting, Textual Analysis

Ⅰ. Introduction

Interest in corporate tax transparency has grown significantly in recent years (Muller et al., 2020; Hardeck et al., 2024), leading to a global wave of policies that either require or encourage firms to disclose tax-related information (Hoopes et al., 2023). Firms can proactively address these expectations by voluntarily disclosing tax-related information. Notably, an increasing number of firms use

Submission Date: 09. 30. 2025 Revised Date: (1st: 12. 14. 2025) Accepted Date: 12. 20. 2025

channels such as corporate social responsibility (CSR), environmental, social, and governance (ESG), or sustainability reports for such disclosures.[1)]

Sustainability reporting has become an integral part of managers' communication strategies (Podnar, 2008; Du et al., 2010; Levy et al., 2010; Russo Spena and De Chiara, 2012). It reflects a voluntary effort by managers to position their firms as socially responsible (Gossling and Vocht, 2007), highlighting their tax payments as evidence of contributions to social welfare. Recognizing this trend, numerous international institutions and organizations have underscored the importance of transparent tax reporting within sustainability frameworks. Efforts are underway to establish standards and guidelines for disclosing tax-related information in sustainability reporting. For example, the Global Reporting Initiative (GRI), a leading standard-setter for sustainability reporting, introduced GRI 207: Tax, its first tax disclosure standard, effective for reports published from January 1, 2021.[2)] Similarly, financial institutions and accounting firms have highlighted the increasing importance of integrating tax transparency into CSR strategies (Britton, 2021; KPMG, 2021).

Despite growing investor and regulatory attention to tax transparency and the potential risks of misrepresenting a firm's CSR efforts, research on how managerial characteristics influence tax disclosure practices remains limited. This study addresses that gap by investigating the impact of CEO overconfidence on voluntary tax disclosures in sustainability reports. Corporate taxation is an atypical sustainability reporting issue (Mio et al., 2025). Unlike other CSR domains, tax payment is often met with social aversion and not always perceived as socially responsible (Marques et al., 2024).[3)] Additionally, tax disclosure, covering areas such as tax strategy, governance, and risk management, has been increasingly promoted within sustainability reporting. It directly reflects a firm's societal contributions and offers insight into its tax risk management, an important aspect of overall firm risk (Drake et al., 2019).

1) Throughout this paper, we use the term sustainability reporting as an umbrella term that encompasses CSR, ESG, and sustainability reporting.

2) The disclosure of taxes under GRI 207 is voluntary (GRI 2019). If a firm adopts the GRI framework and identifies taxes as a material topic, it should disclose information on its management approach and other relevant details outlined in GRI 207-1 to 207-4, including corporate approach to tax (GRI 207-1), tax governance, control, and risk management (GRI 207-2), stakeholder engagement and the management of tax-related concerns (GRI 207-3), and country-by-country reporting (GRI 207-4).

3) The payment of corporate taxes supports the financing of public goods and the nation's long-term economic vitality. Thus, a shortfall in corporate tax revenue can impose substantial costs on society (Lanis and Richardson, 2012). However, some argue that high corporate tax rates discourage innovation and investment and may ultimately hinder job creation (Davis et al., 2016).

As a voluntary practice, the inclusion of tax information in sustainability reports draws the attention of a wide range of stakeholders (Kao and Liao, 2021; Hardeck et al., 2024).

Given that overconfidence is a common managerial trait (Malmendier and Tate, 2008; Hirshleifer et al., 2012), understanding how CEO overconfidence affects voluntary tax disclosure decisions is particularly important in the CSR context. First, overconfident CEOs can overestimate their ability to manage tax-related uncertainties. When tax outcomes fall short of expectations, they may increase tax disclosures to preserve a positive public image as socially responsible leaders. This phenomenon, known as CSR decoupling, involves symbolic disclosures that mask underlying tax-aggressive practices (Sauerwald and Su, 2019). Second, overconfident CEOs may use tax disclosures to legitimize their aggressive tax avoidance (Hsieh et al., 2018; Chyz et al., 2019).[4] By including more tax-related information in sustainability reports, they aim to enhance stakeholder perceptions of the firm's tax practices. However, this can further widen the gap between CSR narratives and actual behavior, suggesting that such disclosures may serve as impression management tools than as genuine efforts toward tax transparency.

While CEO overconfidence may influence voluntary tax disclosures in sustainability reporting, its impact remains uncertain due to two competing scenarios. On one hand, CEO overconfidence may increase the level of tax disclosure. According to upper echelons theory, organizational outcomes reflect the personal characteristics of top executives (Nam and Choi, 2022). Overconfidence—defined as the tendency to overestimate one's abilities, judgment, or the likelihood of favorable outcomes (Langer, 1975; March and Shapira, 1987; Hirshleifer et al., 2012)—can influence how CEOs approach sustainability reporting. As the primary decision-makers in the firm's overall direction and operations (Jory, 2025), overconfident CEOs may perceive their firms' tax strategies as ethical and aligned with CSR objectives. Confident that these strategies will produce favorable outcomes and complement broader CSR efforts, they may disclose more tax-related information to position their firms as socially responsible taxpayers. Overconfident CEOs may also underestimate the risks associated with tax disclosure. As with other types of

4) Prior research suggests that overconfident CEOs are more inclined to engage in tax avoidance (Hsieh et al., 2018; Chyz et al., 2019). Chyz et al.(2019) argue that overconfident managers tend to overestimate the benefits or underestimate the risks associated with tax avoidance, resulting in higher levels of tax avoidance. Similarly, Hsieh et al.(2018) find that overconfident CEOs are more likely to promote tax avoidance as a means of earnings management. In this context, tax avoidance can help firms meet earnings targets, reduce tax liabilities, and enhance cash flows (Desai and Dharmapala, 2009).

voluntary disclosures, tax disclosure carries potential costs, including concerns about revealing sensitive tax information or creating perceptions of inconsistency between disclosure and actual tax practices (Marques et al., 2024). Such CSR decoupling can harm a firm's reputation. However, overconfident CEOs may discount these risks and focus instead on the perceived benefits of disclosure, crafting a CSR image consistent with their inflated self-image.

On the other hand, CEO overconfidence may decrease tax disclosure. Overconfident CEOs may overvalue their tax strategies and fear that voluntary disclosure could reveal strategic information about the firm's tax positions. To safeguard what they perceive as an informational advantage, they may refrain from including tax-related details in sustainability reports. Additionally, overconfident CEOs may discount stakeholder pressure, believing they can shape or manage perceptions of tax transparency without providing extensive disclosure. Confident that potential criticism is unlikely or inconsequential, they may perceive little value in providing additional explanations or granular tax details.

To examine the relation between CEO overconfidence and voluntary tax disclosures, we identify overconfident CEOs based on their option-exercising behavior. Specifically, given that CEOs' wealth is under-diversified, it is typically optimal for them to exercise stock options early when they are in the money (Hall and Murphy, 2002). If CEOs hold fully vested, in-the-money stock options, it is likely they are overconfident about either the firm's future returns or their own ability to influence those returns. Following prior research (Campbell et al., 2011; Kim et al., 2016; Rawson, 2022), we classify CEOs as overconfident if they hold options with average moneyness of at least 67 percent more than once during our sample period.

The sample consists of 2,381 firm-year observations from U.S. firms between 2002 and 2023. Using the stand-alone sustainability reports, we find that firms with overconfident CEOs are more likely to include tax-related information in their sustainability reports.[5] Additionally, these disclosures tend to exhibit a more positive tone, suggesting that overconfident CEOs use sustainability reporting as a communication tool to maintain their favorable public image as socially responsible leaders. These findings are consistent with prior research indicating that

5) We classify information as tax-related if it includes any of the following terms (Balakrishnan et al., 2019): "captive REIT, passive, intercompany, offshore, transfer prices, transfer pricing, tax, taxes, taxation, shifting, intellectual property, intangible, intangibles, withholding, royalty, royalties, management fee, taxable, taxpayer, taxpayers, taxed, taxing, non-taxable, tax-exempt, management fees, pretax, pre-tax, after-tax, tax-deferred, tax-deductible, tax-free, post-tax, tax-included."

CEO overconfidence can bias corporate voluntary disclosures (Gong, 2023). Our main results remain robust when using entropy balancing and propensity score matching (PSM), Heckman two-stage model, and additional control variables.

Next, we conduct several subsample analyses to better understand the conditions under which CEO overconfidence has a greater or lesser impact on tax disclosures. First, the effect of CEO overconfidence on tax disclosures is more pronounced for firms engaging in greater tax avoidance, indicating that overconfident CEOs use tax disclosures to legitimize tax-aggressive strategies and maintain an inflated self-image as socially responsible, consistent with legitimacy theory (Kao and Liao, 2021). Second, the effect is stronger for firms with higher foreign income, which reflects overconfident CEOs' efforts to portray themselves as effectively managing tax-related issues in a complex international tax environment. Third, firms with long-tenured CEOs are more likely to disclose tax-related information in sustainability reports, indicating that these CEOs may be motivated to protect or enhance their legacy (Matta and Beamish, 2008) by using voluntary tax disclosures to signal a long-term commitment to tax transparency. Lastly, late-career CEOs are more likely to provide tax disclosures, consistent with the horizon problem (Mitra et al., 2020), as departing CEOs have greater incentives to manage stakeholder perceptions and preserve their reputation.

This study provides several key contributions to the existing body of literature. First, it advances research on how individual psychology influences corporate decision-making. Prior studies suggest that overconfident CEOs are more acquisitive and tend to overinvest in projects they perceive as less risky, which can reduce firm value over time (Malmendier and Tate, 2008). Schrand and Zechman(2012) link CEO overconfidence to greater financial misreporting. In contrast, Hirshleifer et al.(2012) highlight a positive aspect, showing that overconfident CEOs are more likely to invest in risky projects that lead to greater innovation. We add to this literature by providing evidence that managers' cognitive biases (i.e., overconfidence) also influence voluntary tax disclosure decisions.[6)]

Second, we extend the CSR literature by documenting that CEO overconfidence is associated with greater tax disclosure in sustainability reports. While earlier research has primarily focused on environmental (Clarkson

6) CEO overconfidence is a cognitive bias in which managers overestimate their abilities and the likelihood of favorable outcomes. In contrast, gambling attitude reflects a preference for high-risk, high-return choices and stems from risk-seeking tendencies rather than miscalibrated beliefs (Alharbi et al., 2022). Our study focuses on overconfidence as the judgment-based bias shaping voluntary tax disclosure.

et al., 2008; Matsumura et al., 2014; Plumlee et al., 2015) and general CSR disclosures (Lanis and Richardson, 2012; Muslu et al., 2019), more recent studies have begun to explore tax disclosures (Kao and Liao, 2021; Adams et al., 2024; Hardeck et al., 2024). Our findings suggest that overconfident CEOs not only disclose more tax-related information but also adopt a more positive tone to enhance stakeholder perceptions. We contribute to this emerging area by exploring both the quantity and tone of tax disclosures in sustainability reporting.

Lastly, our findings have policy and practical implications by showing that firms with overconfident CEOs increase the level of tax disclosures in sustainability reports to signal a strong commitment to corporate tax responsibility. However, for such disclosures to support public accountability, the reported information should be transparent and verifiable. For users of sustainability reports and stakeholders more broadly, our results indicate the existing pressures and voluntary disclosure mechanisms are insufficient to ensure meaningful tax transparency, particularly when managerial cognitive biases are present. The prevalence of current tax disclosure practices also lends support to recent regulatory efforts to increase mandatory tax reporting. These insights underscore the need for formal intervention rather than reliance on voluntary reporting alone, especially in firms led by overconfident CEOs. Accordingly, stakeholders should critically assess tax information in sustainability reports, recognizing that overconfident CEOs may use these disclosures to craft a favorable CSR image, rather than as an expression of genuine corporate tax responsibility.

Ⅱ. Related Literature and Hypothesis Development

Our research builds on two main streams of literature. First, we review the literature on CEO overconfidence and its evolution within the context of corporate voluntary disclosure. We then briefly discuss the literature on voluntary tax disclosures, followed by our hypothesis.

2.1 Literature on CEO Overconfidence

Overconfidence is a managerial trait that has been widely examined in accounting and finance research (Park et al., 2013; Lee and Hong, 2018). It refers to a cognitive bias where individuals overestimate their abilities, knowledge, or control (Rawson, 2022). Prior studies show that overconfident CEOs differ from their peers in decision-making. They are more likely to pursue acquisitions and overinvest (Malmendier and Tate, 2008), undertake riskier innovation projects (Hirshleifer

et al., 2012), and engage in aggressive tax avoidance (Chyz et al., 2019). These findings suggest that overconfident CEOs tend to underestimate risks and overestimate expected outcomes. CEO overconfidence also affects financial reporting. Overconfident CEOs often accelerate the recognition of gains while delaying the recognition of losses, adopting less conservative accounting methods (Ahmed and Duellman, 2013), postponing goodwill impairment recognition (Chung and Hribar, 2021), and exhibiting a higher likelihood of financial misstatements (Schrand and Zechman, 2012).

Recognizing financial reporting as a form of corporate disclosure, prior research has broadened its scope to examine voluntary disclosure practices. For example, Hilary and Hsu(2011) find that managers who recently issued accurate earnings forecasts may become overconfident and subsequently provide less accurate forecasts. Hribar and Yang (2016) show that overconfident CEOs issue forecasts that are more frequent, optimistic, and precise, reflecting their inflated confidence in forecasting ability. Extending to non-financial disclosures, Rawson(2022) finds that overconfident CEOs perceive proprietary costs as lower and thus disclose more R&D information.

Several studies examine the linguistic characteristics of disclosure, documenting that CEO overconfidence is associated with more optimistic language. Gong(2022) finds that overconfident CEOs use a more positive tone in press releases, particularly when firm performance is strong and the news is investment-related. Similarly, Jory et al.(2025) show that overconfident CEOs use less pessimistic language when discussing their firms' COVID-19 exposure. Overall, these studies show that CEO overconfidence influences disclosure behavior across multiple dimensions, including its frequency, quantity, and tone.

2.2 Literature on Voluntary Tax Disclosures

Firms weigh the costs and benefits of disclosing tax-related information beyond mandatory requirements (Kao and Liao, 2021). Prior studies suggest that firms with more aggressive tax avoidance or holding complex tax positions tend to increase voluntary tax disclosure to reduce information asymmetry (Schwab, 2009; Balakrishnan et al., 2019). For example, firms engaging in greater tax avoidance tend to discuss tax in earnings announcements (Schwab, 2009) and annual reports (Balakrishnan et al., 2019). Similarly, firms provide voluntary effective tax rates forecasts when tax complexity is high (Chen et al., 2023).

Beyond informational purposes, tax disclosure is also an important component of CSR. Many firms incorporate tax reporting into CSR frameworks to signal their commit-

ment to responsible tax practices (Hardeck et al., 2024) and to legitimize their tax-aggressive strategies (Kao and Liao, 2021). Consistent with this approach, firms voluntarily issue supplementary tax reports or provide more granular detail in response to regulatory changes or stakeholder pressures. For example, Kays(2022) finds that Australian firms provide additional tax information to mitigate reputational risk when mandatory disclosures reveal unexpectedly low tax payments.

However, expanding tax disclosures can draw regulatory scrutiny and increase the risk of enforcement actions. Bozanic et al.(2017) show that tax authorities use tax disclosure (i.e., FIN 48 reports) to identify and challenge uncertain or aggressive tax strategies. This enforcement can influence corporate disclosure practices: firms with less aggressive tax strategies are more likely to provide voluntary supplemental disclosures, while firms with aggressive strategies often withhold tax information to avoid regulatory attention (Kays, 2022). Taken together, these findings suggest that firms weigh the benefits and costs of voluntary tax disclosures.

Nevertheless, most empirical studies adopt a firm-level perspective, paying limited attention to how managerial traits influence tax disclosure practices. While prior research shows that managers weigh the trade-offs between the benefits and costs of tax disclosure, little is known about how these decisions are affected by individual cognitive biases or psychological characteristics. This study addresses that gap by examining managerial factors, focusing on the role of CEO overconfidence in voluntary tax disclosure.

2.3 Hypothesis Development

CEO overconfidence leads managers to overestimate their abilities and the likelihood of favorable outcomes, prompting them to disclose more information while underestimating risks. In the context of voluntary tax disclosure, CEO overconfidence may influence the level of tax disclosure in sustainability reports in two opposing ways.

First, overconfident CEOs may increase tax disclosure. These CEOs are likely to view their tax strategies as effective and ethically aligned with CSR objectives. To signal a strong commitment to corporate tax responsibility, they may highlight tax-related information in sustainability reports, thereby enhancing stakeholders' perceptions of tax transparency. Moreover, firms led by overconfident CEOs tend to overinvest and pursue aggressive growth strategies or high-risk projects (Malmendier and Tate, 2005). Because such initiatives require strong stakeholder support, these CEOs may use tax disclosure to convey superior sustainability performance and to strengthen stakeholder relationships and engagement (Hörisch et al., 2020).

As with all forms of voluntary disclosure, there are potential costs associated with tax disclosures. In the tax domain, these concerns often involve maintaining the confidentiality of tax information or the risk that stakeholders may perceive the firm as misleading when disclosed information deviates from actual tax behavior (Marques et al., 2024). Such CSR decoupling can impose significant reputational costs. Nevertheless, overconfident CEOs may underestimate these risks, making them more willing to disclose tax information to project a CSR image consistent with their inflated self-image. Although prior research suggests that firms typically increase tax disclosure when reputational risk is high (Kays, 2022), overconfident CEOs may downplay such threats and instead perceive greater benefit in providing additional explanations to portray their firms as socially responsible taxpayers.

Conversely, overconfident CEOs may decrease tax disclosure. These CEOs may view tax strategies as crucial to maintaining competitive advantage. As such, they may consider voluntary tax disclosure as exposing sensitive insights about the firm's financial structure or tax positions. To protect what they perceive as an informational edge, they may be reluctant to disclose tax information in sustainability reports (Mio et al., 2025). Overconfident CEOs may also discount stakeholder pressure, believing they can shape or control perceptions of tax transparency without offering more disclosure. Confident that potential criticism is unlikely or inconsequential, they may perceive little value in providing additional explanations or granular tax details, even in situations where other managers would choose to expand disclosure. Given these competing perspectives, we propose the following null hypothesis:

Hypothesis 1 (H1):
CEO overconfidence is not associated with the level of tax disclosure in sustainability reports.

Ⅲ. Sample Selection and Research Design

3.1 Sample Selection

To test our hypothesis, we manually collect stand-alone sustainability reports issued by U.S. firms from two publicly available databases that serve as leading repositories of global sustainability disclosures (Dhaliwal et al., 2011; Chen et al., 2016; Muslu et al., 2019; Ryou et al., 2022).[7] Focusing on stand-

7) The two websites are: www.responsibilityreports.com and www.sustainabilityreports.com.

〈Table 1〉 Sample selection

	# of obs.
All U.S. public firms from 2002 to 2023 that issued standalone sustainability reports, which are available on two repository websites and are readable using Python	7,913
Less: Observations in financial and utility industries	(2,084)
Less: Observations with missing values on CEO overconfidence	(2,811)
Less: Observations with missing values on control variables	(637)
Final Sample	2,381

Note: This table presents the sample selection procedures.

〈Table 2〉 Sample distribution

Panel A. Sample distribution by year

Year	N	# of tax-related sentences	# of tax-related words
2002	4	19	32
2003	10	22	69
2004	9	35	81
2005	11	31	68
2006	18	71	160
2007	24	61	162
2008	27	58	148
2009	37	131	320
2010	53	116	322
2011	67	156	400
2012	67	202	412
2013	79	236	562
2014	93	226	582
2015	98	175	484
2016	112	169	514
2017	122	202	563
2018	183	345	983
2019	209	300	884
2020	228	410	1,172
2021	304	753	2,078
2022	340	812	2,116
2023	286	680	1,925

Panel B. Sample distribution by industry

SIC two-digit	Description	N	# of tax-related sentences	# of tax-related words
0−9	Agriculture, Forestry, Fishing	1	6	24
10−14	Mining	105	1,021	2,238
15−17	Construction	46	76	153
20−39	Manufacturing	1,456	2,734	7,998
40−49	Transportation and Public Utility	154	381	1,061
50−51	Wholesale Trade	86	76	158
52−59	Retail Trade	187	255	721
70−89	Services	333	563	1,409
91−99	Public Administration	13	98	275

Note: This table summarizes the sample distribution. Panel A shows the number of observations, tax related sentences, and words by year. Panel B presents the same distribution by two-digit SIC industry classification. Variable definitions are presented in the Appendix.

alone sustainability reports allows a more precise examination of firms' tax-related information within the broader sustainability narrative, minimizing potential confounding effects from financial reporting. These reports reflect a firm's explicit commitment to transparency and long-term risk management, as they typically offer a more comprehensive discussion of sustainability issues than the brief sections included in annual reports (Dhaliwal et al., 2011).

We begin with 7,913 firm-year observations for publicly listed U.S. firms between 2002 and 2023. Financial and market data are sourced from Compustat and CRSP. We construct an option-based proxy for CEO overconfidence from ExecuComp option holdings and exercise data. We exclude firms in the financial (SIC codes 6000-6999) and utilities (SIC codes 4900-4999) industries. Observations with missing values for CEO overconfidence and control variables are also excluded. Our final sample consists of 2,381 firm-year observations from 589 firms with stand-alone sustainability reports. Table 1 presents the sample selection process.

In Panel A of Table 2, we report the sample distribution by year, along with trends in tax disclosures. The number of stand-alone CSR reports increases over time, reflecting the increased availability and adoption of sustainability. The extent of tax-related disclosures has also expanded over time. For example, the total number of tax-related sentences increased from 19 in 2002 to 680 in 2023, while tax-related words rose from just 32 to 1,925. These patterns indicate a steady increase in tax-related disclosure over time. Panel B reports the sample distribution by two-digit SIC industry. Tax disclosure intensity varies substantially across industries, with Manufacturing comprising the largest share of the sample, followed by Services and Retail Trade.

3.2 Research Design

To examine the relation between CEO overconfidence and tax disclosures in sustainability reports, we employ the following ordinary least squares (OLS) model:

$$\begin{aligned} TAXDISC_{it} = {} & \beta_0 + \beta_1 OVERCONF_{it} + \beta_2 TAXAVOID_{it} \\ & + \beta_3 GROWTH_{it} + \beta_4 BTD_{it} + \beta_5 SALEVOL_{it} \\ & + \beta_6 EARNVOL_{it} + \beta_7 ROA_{it} + \beta_8 LEVERAGE_{it} + \beta_9 SIZE_{it} \\ & + \beta_{10} MTB_{it} + \beta_{11} LOSS_{it} + \beta_{12} INCENOPT_{it} \\ & + \beta_{13} INCENSTK_{it} + \beta_{14} CEOTENURE_{it} \\ & + \beta_{15} CEOAGE_{it} + \beta_{16} FEMALECEO_{it} \\ & + \beta_{17} CSRDISC_{it} + Industry\ fixed\ effects \\ & + Year\ fixed\ effects + \varepsilon_{it} \end{aligned} \quad (1)$$

where i and t denote firms and years, respectively. The dependent variable, *TAXDISC*, represents the proportion of tax-related information in sustainability reports. Specifically, *TAXDISC* is measured as either the number of tax-related sentences (*TAXSen*) or tax-re-

lated words (*TAXWords*) divided by the total number of sentences or words in the report, respectively. The variable of interest, *OVERCONF*, is an indicator equal to one if the CEO retains unexercised stock options despite substantial increases in the firm's stock price, capturing managerial incentives to delay option exercise.

We include control variables to account for other factors influencing tax disclosures in sustainability reports. Specifically, we include *TAXAVOID*, as firms engaging in greater tax avoidance may disclose more tax-related information in sustainability reports for legitimacy purposes (Kao and Liao, 2021). We also control for sales growth (*GROWTH*), book-tax differences (*BTD*) to capture aggressive tax avoidance (Adams et al., 2024), and sales volatility (*SALEVOL*), which serves as a proxy for uncertainty in the firm's operating environment. Additionally, we control for earnings volatility (*EARNVOL*), return on assets (*ROA*), leverage (*LEVERAGE*), firm size (*SIZE*), and the market-to-book ratio (*MTB*), consistent with prior research on corporate disclosure (Hasan, 2018; Yuan et al., 2019; Muslu et al., 2019). We include a loss indicator (*LOSS*) to account for information asymmetry, which is linked to greater voluntary disclosure (Healy and Palepu, 2001).

To account for potential manager-shareholder agency conflicts, we follow Kim et al. (2016) and incorporate CEO incentive variables. These include the strength of CEO option incentives (*INCENOPT*) and stock incentives (*INCENSTK*) (Bergstresser and Philippon, 2006), as well as CEO-specific characteristics such as tenure (*CEOTENURE*), age (*CEOAGE*), and a gender indicator equal to one if the CEO is female (*FEMALECEO*).

Recognizing that longer sustainability reports may inherently provide more tax-related information (Kao and Liao, 2021; Brown et al., 2024), we control for report length (*CSRDISC*), measured as the natural logarithm of either the total number of sentences (*CSRSen*) or the total number of words (*CSRWords*) in the report. To account for unobservable industry- and time-specific factors, we include industry and year fixed effects in the model. All continuous variables are winsorized at the 1st and 99th percentiles. Appendix provides detailed variable definitions.

Ⅳ. Empirical Results

4.1 Descriptive Statistics

Table 3 provides the descriptive statistics for the variables used in the main analysis. The mean proportion of tax-related sentences (*TAXSen*) and tax-related words (*TAXWords*) is 0.272 and 0.024, respectively, indicating a non-trivial level of tax disclosure in sustain-

〈Table 3〉 Descriptive statistics

(N=2,381)

Variable	Mean	STD	Q1	Median	Q3
TAXSen	0.272	0.429	0.000	0.119	0.356
TAXWords	0.024	0.032	0.000	0.014	0.032
OVERCONF	0.518	0.500	0.000	1.000	1.000
TAXAVOID	-0.215	0.138	-0.272	-0.207	-0.137
GROWTH	2.267	1.836	1.110	1.688	2.701
BTD	0.056	0.066	0.015	0.034	0.071
SALEVOL	6.851	1.444	5.804	6.777	7.811
EARNVOL	0.038	0.039	0.015	0.026	0.046
ROA	0.117	0.082	0.058	0.098	0.154
LEVERAGE	0.308	0.171	0.187	0.295	0.410
SIZE	9.244	1.388	8.193	9.199	10.177
MTB	1.955	1.848	0.793	1.392	2.397
LOSS	0.088	0.284	0.000	0.000	0.000
INCENOPT	0.247	0.204	0.081	0.196	0.367
INCENSTK	0.217	0.227	0.067	0.140	0.270
CEOTENURE	1.583	0.857	1.099	1.609	2.197
CEOAGE	4.046	0.102	3.989	4.060	4.111
FEMALECEO	0.061	0.240	0.000	0.000	0.000
CSRSen	6.239	0.741	5.793	6.290	6.743
CSRWords	9.686	0.747	9.213	9.736	10.210

Note: This table presents the descriptive statistics of the main variables used for empirical analyses. Variable definitions are presented in the Appendix.

ability reports. The key independent variable, *OVERCONF*, has a mean of 0.518, suggesting that overconfident CEOs are present in approximately half of the sample.

4.2 CEO Overconfidence and Voluntary Tax Disclosures

Table 4 presents the main results on the relation between CEO overconfidence and voluntary tax disclosures in sustainability reports. Column (1) uses the proportion of tax-related sentences (*TAXSen*) as the dependent variable, and column (2) uses the proportion of tax-related words (*TAXWords*). In all columns, the coefficients on *OVERCONF* are positive and significant at the 5% level (0.057, t-value = 2.38; 0.004, t-value = 2.09), indicating that firms with overconfident CEOs include more tax-related information in sustainability reports. These results support that overconfident CEOs, due to their inflated beliefs in decision-making abilities, are more likely to use tax disclosures as a way to position their firms as leaders in tax transparency.

The results for the control variables are largely in line with prior studies. Specifically, tax disclosure is negatively associated with *TAXAVOID*, consistent with the signaling theory, as well as sales volatility (*SALEVOL*), financial leverage (*LEVERAGE*), stock option incentives (*INCENOPT*), and the indicator for female CEOs (*FEMALECEO*). Conversely, tax disclosure is positively associated with

SIZE, suggesting that larger firms disclose more tax information, potentially due to increased external scrutiny. It is also positively associated with *LOSS*, implying that loss-making firms may seek to offset performance concerns through voluntary disclosure, and with the length of the sustainability report (*CSRSen* or *CSRWords*), consistent with our expectations.

Overall, the results presented in Table 4

〈Table 4〉 CEO overconfidence and tax disclosures in sustainability reports

Dep. variable =	*TAXSen* (1)	*TAXWords* (2)
OVERCONF	**0.057****	**0.004****
	(2.38)	**(2.09)**
TAXAVOID	-0.212**	-0.007
	(-2.31)	(-1.00)
GROWTH	0.097	0.012
	(1.26)	(1.24)
BTD	-0.141	-0.002
	(-0.93)	(-0.17)
SALEVOL	-0.026	-0.004**
	(-1.41)	(-2.40)
EARNVOL	0.063	0.017
	(0.20)	(0.73)
ROA	-0.116	-0.010
	(-0.81)	(-0.83)
LEVERAGE	-0.225*	-0.016
	(-1.95)	(-1.32)
SIZE	0.057**	0.006***
	(2.27)	(2.71)
MTB	-0.086	-0.010
	(-1.09)	(-1.06)
LOSS	0.061	0.007**
	(1.56)	(2.46)
INCENOPT	-0.074	-0.013**
	(-1.10)	(-2.28)
INCENSTK	-0.060	-0.002
	(-0.92)	(-0.30)
CEOTENURE	-0.016	-0.000
	(-0.97)	(-0.17)
CEOAGE	0.095	-0.004
	(0.74)	(-0.36)
FEMALECEO	-0.110***	-0.007***
	(-3.84)	(-2.98)
CSRSen (Words)	0.046**	0.005**
	(2.19)	(2.54)
Industry FE	Yes	Yes
Year FE	Yes	Yes
Observations	2,381	2,381
Adjusted R^2	0.201	0.211

Note: This table presents the results from estimating Equation (1) to examine the relation between CEO overconfidence and voluntary tax disclosures in sustainability reports. The *t*-statistics reported in parentheses are based on standard errors clustered at the firm level. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels, respectively. Variable definitions are presented in the Appendix.

suggest that CEO overconfidence leads to greater tax disclosure in sustainability reports, supporting the notion that managerial cognitive biases can influence voluntary disclosure decisions, particularly in tax reporting where managerial discretion is high and stakeholder perceptions are salient.

4.3 Use of Positive Language in Sustainability Reports

The results so far suggest that firms with overconfident CEOs tend to include more tax-related information in sustainability reports to position their firms as a leader of tax transparency. This raises an important question: to what extent do these CEOs use optimistic words in sustainability reports?

To address this, we identify the optimistic tone of sustainability reports via textual analysis (Arslan-Ayaydin et al., 2016; Sauerwald and Su, 2019). The optimistic tone is defined as the difference between the number of positive and negative words in tax-related sentences, divided either by the total number of tax-related sentences (*TONE_TAX1*)[8] or by the sum of positive and negative words plus one (*TONE_TAX2*). This approach is based on language classification developed by Loughran and McDonald(2011).[9]

Table 5 presents the results. We find a positive and significant association between *OVERCONF* and both measures of positive language. This suggests that overconfident CEOs are more likely to use positive language in sustainability reports, consistent with impression management motives where overconfident CEOs seek to reinforce a socially responsible image and mitigate potential stakeholder concerns about their tax strategies. These findings align with the CSR decoupling perspective, suggesting that overconfident managers may strategically use tone to present tax practices more favorably than the underlying actions warrant.

4.4 Subsample Analyses

In this subsection, we conduct three subsample analyses to investigate how the impact of CEO overconfidence on tax disclosures in sustainability reports varies. Specifically, we examine whether our baseline findings differ based on firm-level tax avoidance, the extent of foreign income, and CEO tenure.

8) For the *TONE_TAX1* analysis, the sample size is reduced to 1,311 after excluding observations without any tax- related sentences.

9) Loughran and McDonald(2011) propose five additional word lists: positive, uncertainty, litigious, strong modal, and weak modal words. The positive word list contains 353 words (e.g., leadership, outstanding, successful, winning), substantially fewer words than the negative word list. All these lists are available in the Internet Appendix on the *Journal of Finance* at http://www.afajof.org/supplements.asp.

〈Table 5〉 The use of positive language in sustainability reports

Dep. variable =	*TONE_TAX1* (1)	*TONE_TAX2* (2)
OVERCONF	**0.084****	**0.025***
	(2.16)	**(1.78)**
TAXAVOID	-0.043	0.011
	(-0.44)	(0.27)
GROWTH	-0.186	-0.072
	(-0.96)	(-1.28)
BTD	-0.064	0.002
	(-0.26)	(0.02)
SALEVOL	-0.017	0.000
	(-0.61)	(0.01)
EARNVOL	0.116	-0.005
	(0.24)	(-0.03)
ROA	0.288	0.148
	(1.07)	(1.59)
LEVERAGE	0.217	0.118
	(0.87)	(1.49)
SIZE	0.031	0.005
	(0.94)	(0.48)
MTB	0.215	0.081
	(1.10)	(1.44)
LOSS	-0.023	-0.005
	(-0.41)	(-0.26)
INCENOPT	-0.023	-0.027
	(-0.20)	(-0.65)
INCENSTK	-0.178*	-0.060*
	(-1.79)	(-1.66)
CEOTENURE	0.024	0.012
	(0.86)	(1.21)
CEOAGE	-0.202	-0.026
	(-0.88)	(-0.35)
FEMALECEO	0.058	0.016
	(0.69)	(0.68)
CSRSen (Words)	-0.067*	-0.032***
	(-1.90)	(-3.05)
Industry FE	Yes	Yes
Year FE	Yes	Yes
Observations	1,311	2,381
Adjusted R^2	0.087	0.075

Note: This table presents the regression results examining the effect of CEO overconfidence on the use of positive language in sustainability reports. The *t*-statistics reported in parentheses are based on standard errors clustered at the firm level. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels, respectively. Variable definitions are presented in the Appendix.

4.4.1 Tax Avoidance

Kao and Liao(2021) show that firms engaging in greater tax avoidance tend to include tax-related information in sustainability reports. Building on legitimacy theory, overconfident CEOs who are more inclined toward aggressive tax strategies may have incentives to justify these actions and maintain their inflated self-image as socially responsible leaders (Hsieh et al., 2018). Conversely, overconfident CEOs may underestimate the likelihood of adverse outcomes such as regulatory scrutiny, detection of aggressive tax positions, or penalties (Kim et al., 2016), which could reduce the need to justify their behavior via tax disclosure. To test this, we divide the sample into high and low groups based on the sample median of tax avoidance (*TAXAVOID*).

Panel A of Table 6 presents the results. The coefficients on *OVERCONF* are positive and significant for firms with higher tax avoidance, while they are insignificant for firms with lower tax avoidance. Although the difference in coefficients between the two groups is not statistically significant (0.043, *chi-square* = 1.21; 0.001, *chi-square* = 0.37), these patterns suggest that overconfident CEOs tend to disclose more tax disclosures in sustainability reports to legitimize their tax strategies when they engage in greater tax avoidance, consistent with legitimacy theory.

4.4.2 Foreign Income

We expect that the effect of CEO overconfidence on tax disclosures is stronger for firms with higher levels of foreign income. Operating across multiple jurisdictions exposes firms to complex and heterogeneous international tax regulations. In such settings, overconfident CEOs—who tend to overestimate their ability to overcome challenges—may view these complexities as opportunities to demonstrate their competence. By providing more tax disclosures, they can portray themselves as skilled at managing tax-related issues, signaling to stakeholders that the firm's tax practices and risk management are well-controlled. To test this, we divide the sample into high and low groups based on the sample median of foreign income (*FORINC*).

Panel B of Table 6 presents the results. The coefficients on *OVERCONF* are positive and significant for firms with higher foreign income, but insignificant for firms with lower foreign income. However, the difference across the two groups does not reach statistical significance (0.031, *chi-square* = 0.50; 0.005, *chi-square* = 2.19). These findings suggest that overconfident CEOs tend to provide more tax disclosures when operating in complex cross-border tax environments, where tax disclosures may signal their competence in managing tax-related uncertainties.

4.4.3 CEO Tenure

Matta and Beamish(2008) argue that experienced leaders are often driven to protect or enhance how they are remembered both within their organizations and in the broader market. Longer-tenured CEOs, having shaped the firm's strategic direction and corporate culture over time, tend to be more closely associated with its reputation and long-term legacy. In this context, including tax information in sustainability reports can serve as a strategic signal of the firm's commitment to tax transparency and ethical tax practices, potentially solidifying the CEO's legacy as a leader who values enduring relationships with stakeholders. To test this, we divide the sample into high and low groups based on the sample median of CEO tenure (*CEOTENURE*).

Panel C of Table 6 presents the results. The coefficients on *OVERCONF* are positive and significant for firms with long-tenured CEOs, but insignificant for firms with short-tenured CEOs. However, the difference in coefficients between the two groups is not statistically significant (0.057, *chi-square* = 1.55; 0.002, *chi-square* = 0.32). These findings suggest that longer-tenured, overconfident CEOs may perceive tax transparency as a legacy-building tool, using tax disclosure to reinforce their long-term CSR commitment.

4.4.4 CEO Late Career

Mitra et al.(2020) find that auditors charge higher fees in the later years of a CEO's tenure, consistent with the horizon problem that departing CEOs have stronger incentives for earnings management. Building on this literature, we examine whether the effect of CEO overconfidence on tax disclosure varies with a CEO's career stage. We classify CEOs as late-career if they are within three years before exit and define *LATECAREER* equal to one for these CEOs and zero otherwise.

Panel D of Table 6 presents the results. The coefficient on *OVERCONF* is positive and significant for late-career CEOs, indicating that overconfident CEOs approaching departure tend to provide more tax disclosures. Although the difference between late-career and non-late-career CEOs is not statistically significant (0.055, *chi-square* = 1.43; −0.004, *chi-square* = 0.76), the pattern is consistent with the horizon problem, suggesting that late-career CEOs may have stronger incentives to manage stakeholder perceptions through voluntary tax disclosure.

Overall, the results presented in Table 6 suggest that overconfident CEOs are more likely to provide tax disclosure when their legitimacy is at stake and incentives for impression management are heightened.

〈Table 6〉 Subsample analyses

Panel A. Tax avoidance

Dep. variable =	*TAXSen*		*TAXWords*	
	High	Low	High	Low
	TAXAVOID (1)	*TAXAVOID* (2)	*TAXAVOID* (3)	*TAXAVOID* (4)
OVERCONF	0.069**	0.026	0.004*	0.003
	(2.37)	(0.77)	(1.80)	(1.02)
Controls	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
Observations	1,190	1,191	1,190	1,191
Adjusted R^2	0.163	0.226	0.201	0.220

Panel B. Foreign income

Dep. variable =	*TAXSen*		*TAXWords*	
	High	Low	High	Low
	FORINC (1)	*FORINC* (2)	*FORINC* (3)	*FORINC* (4)
OVERCONF	0.077***	0.046	0.007***	0.002
	(2.74)	(1.27)	(2.65)	(0.83)
Controls	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
Observations	1,191	1,190	1,191	1,190
Adjusted R^2	0.339	0.135	0.292	0.211

Panel C. CEO tenure

Dep. variable =	*TAXSen*		*TAXWords*	
	High	Low	High	Low
	CEOTENURE (1)	*CEOTENURE* (2)	*CEOTENURE* (3)	*CEOTENURE* (4)
OVERCONF	0.087**	0.030	0.005**	0.003
	(2.39)	(0.94)	(2.16)	(1.13)
Controls	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
Observations	1,149	1,232	1,149	1,232
Adjusted R^2	0.282	0.128	0.289	0.148

Panel D. CEO late career

Dep. variable =	*TAXSen*		*TAXWords*	
	LATECAREER = 1	*LATECAREER* = 0	*LATECAREER* = 1	*LATECAREER* = 0
	(1)	(2)	(3)	(4)
OVERCONF	0.068**	0.013	0.002	0.006
	(2.26)	(0.36)	(1.08)	(1.54)
Controls	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
Observations	1,585	796	1,585	796
Adjusted R^2	0.193	0.238	0.220	0.229

Note: This table presents the results of subsample analyses. In Panels A and B, we examine the effects of tax avoidance and foreign income, respectively. Panel C reports the results for the effect of CEO tenure. Panel D reports the results for the effect of CEOs' late career. The *t*-statistics reported in parentheses are based on standard errors clustered at the firm level. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels, respectively. Variable definitions are presented in the Appendix.

4.5 Addressing Endogeneity and Robustness Tests

4.5.1 Propensity Score Matching

To address concerns that differences in firm characteristics between the treatment group (i.e., firms with overconfident CEOs) and the control group (i.e., firms without overconfident CEOs) may drive our results, we match treatment and control firms using propensity score matching (PSM). First, we run a probit model to estimate the likelihood of a firm having an overconfident CEO, using all control variables in Equation (1).[10] Next, we conduct a matched-sample analysis based on the estimated propensity scores, using a caliper distance of 0.05 and matching without replacement. This approach successfully matches 540 observations in the treatment group with 540 observations in the control group.

Panel A of Table 7 presents the mean differences in independent variables between the treatment and control groups, both before and after PSM. Before matching, we find several differences between the two groups. However, after matching, none of these firm characteristics differ significantly between the treatment and control firms, suggesting that our matching is effective. Panel B presents the results using the matched sample. In all columns, the coefficients on *OVERCONF* are positive and significant, consistent with our main findings. This alleviates concerns that our main inferences are the result of underlying systematic differences in firm characteristics.

4.5.2 Entropy Balancing

Entropy balancing is particularly well-suited for our study because it assigns continuous weights to all control sample observations, thereby equalizing the distribution of covariates between the treatment and control samples while maintaining weights as close as possible to equal. Additionally, using balanced samples reduces the influence of methodological choices on the resulting estimates (McMullin and Schonberger, 2020). We estimate Equation (1) after applying entropy balancing to reweight the sample. Specifically, we balance the covariates of treatment firms against those of control firms up to the third moment.[11]

Panel C of Table 7 presents the results us-

10) Specifically, we regress *OVERCONF* on the control variables included in Equation (1), which capture firms' tax behavior (*TAXAVOID, BTD*), growth opportunities (*GROWTH, MTB*), performance volatility (*SALEVOL, EARNVOL*), profitability and financial condition (*ROA, LEVERAGE, SIZE, LOSS*), CEO characteristics (*INCENOPT, INCENSTK, CEOTENURE, CEOAGE, FEMALECEO*), and CSR disclosure length (*CSRDISC*).

11) The entropy balancing diagnostics (untabulated) indicate large weight ratios (1,382,386 for *TAXSen*; 1,354,073 for *TAXWords*) due to a few near-zero minimum weights. However, the maximum weights remain moderate (63.9 for *TAXSen*; 64.5 for *TAXWords*) and comparable to those reported in McMullin and Schonberger(2022).

ing the entropy-balanced sample. In all columns, the coefficients on *OVERCONF* are positive and significant, consistent with our main findings that firms with overconfident CEOs include more tax-related information in sustainability reports.

4.5.3 Heckman two-stage estimation

To address potential selection bias, we employ a Heckman two-stage estimation (2SLS) procedure. In the first stage, we estimate a probit selection model predicting the likelihood of a firm being led by an overconfident CEO, using all control variables in Equation (1) and the turnover from a non-overconfident to an overconfident CEO as an exclusion restriction variable. This turnover variable serves as the instrumental variable because CEO transitions are generally driven by succession planning, retirement, or board decisions rather than by firms' disclosure strategies, providing exogenous variation in the likelihood of having an overconfident CEO. From this model, we obtain the Inverse Mills Ratio (IMR), which captures potential selection effects associated with CEO overconfidence. In the second stage, we include the estimated IMR in the main regression to correct for selection bias and assess the causal effect of managerial overconfidence on tax disclosures.

Panel D of Table 7 presents the results of the Heckman two-stage estimation. The results remain consistent with our main findings, providing assurance that the observed relation is unlikely to be driven by selection bias.[12)]

4.5.4 Additional control variables

To enhance the robustness of our findings, we include several additional control variables in the main model. First, although our findings indicate that the positive relation between CEO overconfidence and tax disclosures is driven by managers' effort to craft a CSR image, an alternative explanation is that disclosure strategies may be influenced by board governance. To account for this, we control for the presence of a CSR or sustainability committee, CEO - chairman duality, board gender diversity, and the firm's overall corporate governance score. Second, since our results may be confounded by CEO's risk-taking incentives, we include *VEGA*, measured as the natural logarithm of the dollar change in the value of an executive's option holdings resulting from a 1% increase in the firm's stock return volatility (Core and

12) To mitigate potential reverse causality concerns (i.e., the possibility that tax disclosure influences CEO overconfidence), we lag all the independent variables by one year. Untabulated results indicate that our main inference remains unchanged.

〈Table 7〉 Robustness tests

Panel A. Differences in firm characteristics between the treatment and control firms

Variable	Unmatched sample			PSM sample		
	Treatment sample (N=1,234) Mean	Control sample (N=1,147) Mean	Mean diff.	Treatment sample (N=540) Mean	Control sample (N=540) Mean	Mean diff.
TAXAVOID	-0.211	-0.220	0.009***	-0.219	-0.215	0.004
GROWTH	2.722	1.781	0.942***	1.959	2.001	-0.042
BTD	0.058	0.054	0.004***	0.055	0.053	0.002
SALEVOL	6.798	6.907	-0.109***	6.892	6.812	0.080
EARNVOL	0.039	0.037	0.003***	0.036	0.036	0.000
ROA	0.128	0.105	0.023***	0.106	0.110	-0.004
LEVERAGE	0.309	0.307	0.002***	0.316	0.309	0.007
SIZE	9.140	9.356	-0.214***	9.292	9.219	0.073
MTB	2.408	1.471	0.936***	1.639	1.689	-0.050
LOSS	0.058	0.120	-0.062***	0.080	0.076	0.004
INCENOPT	0.309	0.180	0.129***	0.232	0.226	0.006
INCENSTK	0.295	0.133	0.162***	0.191	0.177	0.014
CEOTENURE	1.941	1.198	0.743***	1.617	1.577	0.040
CEOAGE	4.064	4.027	0.037***	4.048	4.043	0.005
FEMALECEO	0.071	0.051	0.019***	0.067	0.065	0.002
CSRSen	6.187	6.294	-0.107***	6.263	6.224	0.039

Panel B. Tests with the PSM sample

Dep. variable =	*TAXSen* (1)	*TAXWords* (2)
OVERCONF	0.075***	0.005**
	(2.74)	(2.34)
Controls	Yes	Yes
Industry FE	Yes	Yes
Year FE	Yes	Yes
Observations	1,080	1,080
Adjusted R^2	0.215	0.230

Panel C. Tests with the entropy-balanced sample

Dep. variable =	*TAXSen* (1)	*TAXWords* (2)
OVERCONF	0.094***	0.004**
	(3.94)	(2.07)
Controls	Yes	Yes
Industry FE	Yes	Yes
Year FE	Yes	Yes
Observations	2,381	2,381
Adjusted R^2	0.258	0.256

〈Table 7〉 Robustness tests(continued)

Panel D. Heckman two-stage estimation

Dep. variable =	*TAXSen* (1)	*TAXWords* (2)
OVERCONF	0.052**	0.004**
	(2.07)	(1.97)
IMR	-0.023	-0.001
	(-1.05)	(-0.62)
Controls	Yes	Yes
Industry FE	Yes	Yes
Year FE	Yes	Yes
Observations	2,249	2,249
Adjusted R^2	0.21	0.209

Note: This table presents the results addressing endogeneity concerns. Panel A shows the mean differences in the independent variables between the treatment and control groups, both before and after propensity score matching (PSM). Panels B and C report the results of estimating Equation (1) using the matched sample through PSM and entropy balancing, respectively. Panel D reports the results of the Heckman two-stage estimation. The *t*-statistics reported in parentheses are based on standard errors clustered at the firm level. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels, respectively. Variable definitions are presented in the Appendix.

Guay, 2002). Although untabulated, our results remain robust after including these additional control variables.

Ⅴ. Conclusion

This study investigates whether CEO overconfidence influences voluntary tax disclosures in sustainability reports. The results show that firms with overconfident CEOs are more likely to include tax-related information and use a more positive tone in sustainability reports. The effect is more pronounced for firms with greater tax avoidance, substantial foreign income, long-tenured CEOs, and late-career CEOs implying that overconfident CEOs may use sustainability reporting as a communication tool to maintain their favorable public image as socially responsible leaders. These findings are consistent with the notion that CEO overconfidence can bias corporate voluntary disclosures.

Our study is subject to some caveats. First, despite our use of fixed-effects and a PSM model to address endogeneity concerns, we cannot completely rule out the possibility that unobserved factors may affect the relation between CEO overconfidence and tax disclosures in sustainability reports, as firms' disclosure decisions are endogenously determined. Second, we acknowledge that our finding may not be generalizable to non-US settings. An important avenue for future research is to explore how international institutional fac-

tors, such as disclosure enforcement and investor protection regimes, interact with CEO overconfidence to shape managers' disclosure decisions.

Nonetheless, our study has policy and practical implications by providing the evidence that CEO overconfidence can shape tax disclosures as a form of impression management. The strategic use of tax disclosures by overconfident CEOs highlights the limitations of voluntary tax reporting and the need for stronger regulatory oversight and enhanced tax transparency. Therefore, stakeholders should critically evaluate the narrative content of sustainability reports, recognizing that tax disclosure may not reflect a genuine commitment to social responsibility.

References

Adams, J. R., Demers, E., and Klassen, K. J.(2024), "Tax Aggressive Behavior and Voluntary Tax Disclosure: Evidence from Corporate Sustainability Reporting," *Working Paper*. Available at SSRN: https://ssrn.com/abstract=4284813

Ahmed, A. S. and Duellman, S.(2013), "Managerial Overconfidence and Accounting Conservatism," *Journal of Accounting Research*, 51(1), pp.1-30.

Alharbi, S., Atawnah, N., Al Mamun, M., and Ali, M. J.(2022), "Local Culture and Tax Avoidance: Evidence from Gambling Preference Behavior," *Global Finance Journal*, 52, pp.100585.

Arslan-Ayaydin, Ö., Boudt, K., and Thewissen, J.(2016), "Managers Set the Tone: Equity Incentives and the Tone of Earnings Press Releases," *Journal of Banking & Finance*, 72, pp.S132-S147.

Baker, M. and Wurgler, J.(2012), Behavioral Corporate Finance: A Current Survey. In G. M. Constantinides, M. Harris, & R. M. Stulz (Eds.), *Handbook of the Economics of Finance* (pp. 1-103). New York, NY: Elsevier/North-Holland.

Balakrishnan, K., Blouin, J. L., and Guay, W. R.(2019), "Tax Aggressiveness and Corporate Transparency," *The Accounting Review*, 94(1), pp.45-69.

Bergstresser, D. and Philippon, T.(2006), "CEO Incentives and Earnings Management," *Journal of Financial Economics*, 80(3), pp.511-529.

Blouin, J. L., Collins, J. H., and Shackelford, D. A.(2005), "Does Acquisition by Non-U.S. Shareholders Cause U.S. Firms to Pay Less Tax?" *The Journal of the American Taxation Association*, 27(1), pp.25-38.

Bozanic, Z., Hoopes, J. L., Thornock, J. R., and Williams, B. M.(2017), "IRS Attention," *Journal of Accounting Research*, 55(1), pp.79-114.

Britton, N., "What is ESG and Why Corporate Tax Departments Should Care?" Thomson Reuters, https://www.thomsonreuters.com/en-us/posts/tax-and-accounting/esg-corporate-tax-departments/

Brown, S. V., Hinson, L. A., and Tucker, J. W.(2024), "Financial Statement Adequacy and Firms' MD&A Disclosures," *Contemporary*

Accounting Research, 41(1), pp.126-162.

Campbell, T. C., Gallmeyer, M., Johnson, S., Rutherford, J., and Stanley, B.(2011), "CEO Optimism and Forced Turnover," *Journal of Financial Economics*, 101(3), pp.695-712.

Chen, L., Liao, C. H., Tsang, A., and Yu, L.(2023), "CEO Career Concerns in Early Tenure and Corporate Social Responsibility Reporting," *Contemporary Accounting Research*, 40(3), pp.1545-1575.

Chen, W., Liang, S., and Zhang, L.(2024), "Tax Uncertainty and Corporate Innovation Output: Evidence from China," *The European Journal of Finance*, 30(10), pp.1127-1163.

Chung, B. H. and Hribar, P.(2021), "CEO Overconfidence and the Timeliness of Goodwill Impairments," *The Accounting Review*, 96(3), pp.221-259.

Chyz, J. A., Gaertner, F. B., Kausar, A., and Watson, L.(2019), "Overconfidence and Corporate Tax Policy," *Review of Accounting Studies*, 24(3), pp.1114-1145.

Clarkson, P. M., Li, Y., Richardson, G. D., and Vasvari, F. P.(2008), "Revisiting the Relation between Environmental Performance and Environmental Disclosure: An Empirical Analysis," *Accounting, Organizations and Society*, 33(4-5), pp.303-327.

Core, J. and Guay, W.(2002), "Estimating the Value of Employee Stock Option Portfolios and their Sensitivities to Price and Volatility," *Journal of Accounting Research*, 40, pp.613-630.

Davis, A., Guenther, D., Krull, L., and Williams, B.(2016), "Do Socially Responsible Firms Pay More Taxes?" *The Accounting Review*, 91(1), pp.47-68.

Desai, M. A. and Dharmapala, D.(2009), "Earnings Management, Corporate Tax Shelters, and Book-Tax Alignment," *National Tax Journal*, 62(1), pp.169-186.

Dhaliwal, D. S., Li, O. Z., Tsang, A., and Yang, Y. G.(2011), "Voluntary Nonfinancial Disclosure and the Cost of Equity Capital: The Initiation of Corporate Social Responsibility Reporting," *The Accounting Review*, 86(1), pp.59-100.

Drake, K., Lusch, S., and Stekelberg, J.(2019), "Does Tax Risk Affect Investor Valuation of Tax Avoidance?" *Journal of Accounting, Auditing & Finance*, 34(1), pp. 151-176.

Du, S., Bhattacharya, C. B., and Sen, S.(2010), "Maximizing Business Returns to Corporate Social Responsibility (CSR): The Role of CSR Communication," *International Journal of Management Reviews*, 12(1), pp.8-19.

Gong, R.(2023), "CEO Overconfidence and the Tone of Press Release," *Accounting & Finance*, 63(2), pp.2081-2108.

Gossling, T. and Vocht, C.(2007), "Social Role Conceptions and CSR Policy Success," *Journal of Business Ethics*, 74(4), pp.363-372.

Hall, B. and Murphy, K.(2002), "Stock Options for Undiversified Executives," *Journal of Accounting and Economics*, 33(1), pp.3-42.

Hardeck, I., Inger, K. K., Moore, R. D., and Schneider, J.(2024), "The Impact of Tax Avoidance and Environmental Performance on Tax Disclosure in CSR Reports," *Journal of the American Taxation Association*, 46(1), pp.83-111.

Hasan, M. M.(2018), "Organization Capital and Firm Life Cycle," *Journal of Corporate Finance*, 48, pp.556-578.

Healy, P. M. and Palepu, K. G.(2001), "Information

Asymmetry, Corporate Disclosure, and the Capital Markets: A Review of the Empirical Disclosure Literature," *Journal of Accounting and Economics*, 31(1-3), pp.405-440.

Hilary, G. and Hsu, C.(2011), "Endogenous Overconfidence in Managerial Forecasts," *Journal of Accounting and Economics*, 51(3), pp.300-313.

Hirshleifer, D., Low, A., and Teoh, S. H.(2012), "Are Overconfident CEOs Better Innovators?" *The Journal of Finance*, 67(4), pp.1457-1498.

Hoopes, J. L., Robinson, L., and Slemrod, J. (2023), "Corporate Tax Disclosure (No. w31467)," *National Bureau of Economic Research*.

Hörisch, J., Schaltegger, S., and Freeman, R.(2020), "Integrating Stakeholder Theory and Sustainability Accounting: A Conceptual Synthesis," *Journal of Cleaner Production*, 275, pp.124097.

Hribar, P. and Yang, H.(2016), "CEO Overconfidence and Management Forecasting," *Contemporary Accounting Research*, 33(1), pp.204-227.

Hsieh, T., Wang, Z., and Demirkan, S.(2018), "Overconfidence and Tax Avoidance: The Role of CEO and CFO Interaction," *Journal of Accounting and Public Policy*, 37(3), pp.241-253.

Jory, S., Ngo, T., and Susnjara, J.(2025), "The Effect of CEO Overconfidence on Corporate Disclosures Amid a Pervasive Shock: Evidence from the COVID-19 Pandemic," *Journal of Business Finance & Accounting*, 52(3), pp.1431-1462.

Kao, W. C. and Liao, C. H.(2021), "Tax Avoidance and Tax Disclosures in Corporate Social Responsibility Reports in the United Kingdom," *Journal of International Accounting Research*, 20(3), pp.59-80.

Kays, A.(2022), "Voluntary Disclosure Responses to Mandated Disclosure: Evidence from Australian Corporate Tax Transparency," *The Accounting Review*, 97(4), pp.317-344.

Kim, J. B., Wang, Z., and Zhang, L.(2016), "CEO Overconfidence and Stock Price Crash Risk, *Contemporary Accounting Research*, 33(4), pp.1720-1749.

KPMG(2021), ESG and Tax: Increasing Importance to Institutional Investors.

Langer, E. J.(1975), "The Illusion of Control," *Journal of Personality and Social Psychology*, 32(2), pp.311-328.

Lanis, R. and Richardson, G.(2012), "Corporate Social Responsibility and Tax Aggressiveness: An Empirical Analysis," *Journal of Accounting and Public Policy*, 31(1), pp.86-108.

Lee, H. and Hong, C.(2018), "Management Overconfidence and Stock Price Informativeness," *Korean Management Review*, 47(5), pp.1201-1230. [printed in Korean]

Levy, D. L., Brown, H. S., and de Jong, M.(2010), "The Contested Politics of Corporate Governance: The Case of the Global Reporting Initiative," *Business & Society*, 49(1), pp.88-115.

Loughran, T. and Mcdonald, B.(2011), "When is a Liability Not a Liability? Textual Analysis, Dictionaries, and 10-Ks," *The Journal of Finance*, 66(1), pp.35-65.

Malmendier, U. and Tate, G.(2005), "CEO Overconfidence and Corporate Investment," *The Journal of Finance*, 60(6), pp.2661-2700.

Malmendier, U. and Tate, G.(2008), "Who Makes Acquisitions? CEO Overconfidence and the Market's Reaction," *Journal of Financial Economics*, 89(1), pp.20-43.

March, J. G. and Shapira, Z.(1987), "Managerial Perspectives on Risk and Risk Taking," *Management Science*, 33(11), pp.1404-1418.

Marques, M., Montenegro, T., and Brás, F.(2024), "Tax Avoidance and Corporate Social Responsibility: A Meta Analysis," *Journal of the American Taxation Association*, 46(1): pp.137-156.

Matsumura, E. M., Prakash, R., and Vera-Muñoz, S. C.(2014), "Firm-Value Effects of Carbon Emissions and Carbon Disclosures," *The Accounting Review*, 89(2), pp.695-724.

Matta, E. and Beamish, P. W.(2008), "The Accentuated CEO Career Horizon Problem: Evidence from International Acquisitions," *Strategic Management Journal*, 29(7), pp.683-700.

McMullin, J. and Schonberger, B.(2022), "When Good Balance Goes Bad: A Discussion of Common Pitfalls When Using Entropy Balancing," *Journal of Financial Reporting*, 7(1), pp.167-196.

Mio, C., Scarpa, F., and Signori, S.(2025), "Corporate Tax Disclosure Strategies in Sustainability Reporting," *Accounting Horizons*, forthcoming.

Mitra, S., Song, H., Lee, S. M., and Kwon, S. H.(2020), "CEO Tenure and Audit Pricing," *Review of Quantitative Finance and Accounting*, 55(2), pp.427-459.

Muller, R., Spengel, C., and Vay, H.(2020), "On the Determinants and Effects of Corporate Tax Transparency: Review of an Emerging Literature," *TRR 266 Accounting for Transparency Working Paper Series*, 43, pp.1-44.

Muslu, V., Mutlu, S., Radhakrishnan, S., and Tsang, A.(2019), "Corporate Social Responsibility Report Narratives and Analyst Forecast Accuracy," *Journal of Business Ethics*, 154(4), pp.1119-1142.

Nam, J. and Choi, J.(2022), "The Moderating Effect of CSR Consistency and CEO Ability on CSR-CFP Relation," *Korean Management Review*, 51(3), pp.643-679. [printed in Korean]

Park, J. H., Sung, Y. D., and Kim, C.(2013), "The CEO Hubris and Firm Performance: The Moderating Role of Board Independence and Chaebol Affiliation," *Korean Management Review*, 42(3), pp.673-697. [printed in Korean]

Plumlee, M., Brown, D., Hayes, R. M., and Marshall, R. S.(2015), "Voluntary Environ- mental Disclosure Quality and Firm Value: Further Evidence," *Journal of Accounting and Public Policy*, 34(4), pp.336-361.

Podnar, K.(2008), "Communicating Corporate Social Responsibility," *Journal of Marketing Communications*, 14(2), pp.75-81.

Prior, D., Surroca, J., and Tribó, J. A.(2008), "Are Socially Responsible Managers Really Ethical? Exploring the Relationship between Earnings Management and Corporate Social Responsibility," *Corporate Governance: An International Review*, 16(3), pp.160-177.

Rawson, C.(2022), "Manager Perception and Proprietary Investment Disclosure," *Review of Accounting Studies*, 27(4), pp.1493-1525.

Russo Spena, T., and De Chiara, A.(2012), "CSR, Innovation Strategy and Supply Chain Management: Toward an Integrated Perspective," *International Journal of Technology Management*, 58(1/2), pp.83-108.

Sauerwald, S. and Su, W.(2019), "CEO Over-

confidence and CSR Decoupling," *Corporate Governance: An International Review*, 27(4), pp.241-259.

Schrand, C. M. and Zechman, S. L.(2012), "Executive Overconfidence and the Slippery Slope to Financial Misreporting," *Journal of Accounting and Economics*, 53(1-2), pp.311-329.

Schwab, C.(2009), "The Determinants and Effects of Voluntary Book-Tax Difference Disclosures: Evidence from Earnings Press Releases," *Working paper*. The University of Texas at Austin.

Yuan, Y., Tian, G., Lu, L. Y., and Yu, Y.(2019), "CEO Ability and Corporate Social Responsibility," *Journal of Business Ethics*, 157(2), pp.391-411.

• The author Mahsa Behnamrad is a Ph.D. candidate in the College of Business Administration at Seoul National University. She received her bachelor's and master's degrees in accounting from Ferdowsi University of Mashhad, Iran. Her research interests are ESG, financial and non-financial disclosures, and machine learning.

• The author Keumah Jung is a Ph.D. candidate in the College of Business Administration at Seoul National University. She received her master's degree in data science from Indiana University Bloomington. Her research interests are financial accounting and corporate decision-making.

• The author Jaehee Jo is an assistant professor in the College of Business Administration at Soongsil University. She received her Ph.D. in business administration from Seoul National University. Her research interests are financial and tax accounting.

Appendix

Variable definitions

Variable		Definition
TAXSen	=	The number of tax-related sentences divided by the total number of sentences in the sustainability report, multiplied by 100;
TAXWords	=	The number of tax-related words divided by the total number of words in the report, multiplied by 100;
OVERCONF	=	An indicator variable equal to one if the CEO holds options despite a 67 percent increase in stock price (or more) at least twice, beginning in the first year the CEO exhibits this behavior;
TAXAVOID	=	The measure of tax avoidance, calculated as cash taxes paid divided by pre-tax income before special items in year t. *TAXAVOID* is set to missing when the denominator is zero or negative. To enhance interpretation, we multiplied it by (-1);
GROWTH	=	The sum of the market value of equity, the book value of preferred stock, and total debts, divided by total assets;
BTD	=	The absolute value of the book-tax difference, defined as pre-tax income minus taxable income (Adams et al., 2024);
SALEVOL	=	The standard deviation of the natural logarithm of total sales from year $t-4$ to year t;
EARNVOL	=	The standard deviation of income before extraordinary items divided by total assets from year $t-4$ to year t;
ROA	=	Income before extraordinary items divided by total assets;
LEVERAGE	=	Total liabilities divided by total assets;
SIZE	=	The natural logarithm of total equity;
MTB	=	The market value of equity divided by the book value of equity;
LOSS	=	An indicator variable equal to one if the firm reports negative income before extraordinary items, and zero otherwise;
INCENOPT	=	The incentive ratio for executive option holdings;
INCENSTK	=	The incentive ratio for executive stock holdings;
CEOTENURE	=	The natural logarithm of the number of consecutive years the CEO has held their position in the firm in year t;
CEOAGE	=	The natural logarithm of the CEO age;
FEMALECEO	=	An indicator variable equal to one if the CEO is female, and zero otherwise;
CSRSen	=	The natural logarithm of the number of sentences in sustainability reports;
CSRWords	=	The natural logarithm of the number of words in sustainability reports;
TONE_TAX1	=	The difference between the positive and negative tax-related sentences divided by the total number of tax-related sentences;
TONE_TAX2	=	The difference between the positive and negative tax-related sentences divided by the sum of the positive and negative tax-related sentences plus one;
FORINC	=	Foreign income divided by total assets;
LATECAREER	=	An indicator variable equal to one if the CEO is within three years before exit.