





# “The impact of CEO overconfidence on discretionary deferred tax assets: Evidence from Korea”

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# THE IMPACT OF CEO OVERCONFIDENCE ON DISCRETIONARY DEFERRED TAX ASSETS: EVIDENCE FROM KOREA

**Abstract**

This study examines the relationship between CEO overconfidence and discretionary deferred tax assets (DTAs) using a method that separates DTAs into discretionary and non-discretionary components. Based on data from publicly listed companies in South Korea between 2017 and 2021, the study analyzes how overconfident CEOs influence the recognition of DTAs. Under K-IFRS 1012, DTAs should be recognized only when there is sufficient future taxable income with a high probability; however, the lack of explicit guidelines on what constitutes "high probability" leaves room for subjective interpretation by management. Overconfident CEOs, driven by excessive optimism and upward-biased forecasts of future cash flows, may over-recognize DTAs. The main analysis, incorporating industry and year-fixed effects, reveals a positive relationship between CEO overconfidence and discretionary DTAs (coef = 0.003, p-value < 0.05). This tendency is more pronounced in firms with higher marginal tax rates compared to those with lower rates (coef = 0.004, p-value < 0.005) and in firms with lower levels of outside directors (coef = 0.002, p-value < 0.1). Additionally, analyses using alternative variables for CEO overconfidence and discretionary DTAs, as well as propensity score matching (PSM) models, yield consistent results. Overall, this study underscores the critical role of managerial characteristics in shaping accounting judgments and decisions. By providing empirical evidence on the impact of cognitive biases such as overconfidence on financial reporting quality, the findings contribute to the broader discourse on corporate governance and offer practical implications for policymakers, investors, and regulators.

**Keywords**

CEO overconfidence, deferred tax assets, corporate tax accounting

**JEL Classification**

M40, M41, M49, H25, H26

**INTRODUCTION**

Corporate financial reporting involves substantial managerial judgment, particularly in areas where accounting standards provide room for discretion. One such area is the recognition of deferred tax assets (DTAs), which represent future tax benefits arising from deductible temporary differences, unused tax losses, and tax credits. Under K-IFRS 1012<sup>1</sup>, DTAs should be recognized only when it is "probable" that sufficient taxable profit will be available to realize the deferred tax benefits. However, the term "probable" is subject to interpretation, granting managers considerable discretion in DTA recognition decisions. This discretion is particularly important because DTAs directly influence net income and financial position, making them a potential

1 The existence of unused tax losses serves as strong evidence that future taxable income may not materialize. Therefore, when a company has a recent history of tax losses, deferred tax assets arising from unused tax losses or tax credits are recognized only to the extent that there are sufficient taxable temporary differences or other convincing evidence that sufficient future taxable income will be available to utilize the unused tax losses or tax credits (K-IFRS 1012, Paragraph 35). Therefore, this study focuses on deferred tax assets arising from temporary differences.

tool for earnings management. The Financial Supervisory Service (FSS) in Korea highlighted deferred tax accounting as a critical issue in 2021, pointing out the incentive for firms to recognize DTAs to enhance financial metrics, even when future taxable income is uncertain.

Given the inherent subjectivity in DTA recognition, a key question arises: How do managerial characteristics, such as CEO overconfidence, affect discretionary DTA recognition? CEO overconfidence is a well-documented behavioral trait in corporate finance and accounting research. Overconfident CEOs tend to overestimate future firm performance, downplay risks, and make overly optimistic forecasts of future earnings and cash flows. Prior studies have shown that overconfident CEOs engage in aggressive investment, higher leverage financing, and lower accounting conservatism. Specifically, overconfidence has been linked to earnings management, delayed goodwill impairments, and riskier financial reporting choices. Since DTA recognition requires forward-looking estimates of taxable income, an overconfident CEO may be more likely to recognize discretionary DTAs based on optimistic assumptions about future profitability.

Prior literature has extensively examined the role of managerial discretion in deferred tax accounting. Studies have documented that DTAs can be used as an earnings management tool, particularly in firms facing financial distress or seeking to smooth earnings. However, much of this research has focused on U.S. firms, where Generally Accepted Accounting Principles (GAAP) require the use of valuation allowances to disclose unrealizable DTAs. Unlike US-GAAP, which employs a gross approach by recognizing all deductible differences and then applying valuation allowances for amounts unlikely to be realized, IFRS uses a net approach. In the net approach, only amounts deemed probable are recognized as DTAs. This distinction reduces transparency and increases managerial discretion, as the determination of what is “probable” can vary significantly between firms.

Although the link between earnings management and DTA recognition has been explored, the psychological characteristics of executives influencing these accounting choices remain underexplored. Behavioral finance research suggests that CEO overconfidence plays a crucial role in shaping corporate policies, financial decision-making, and disclosure practices. However, empirical evidence on how overconfident managers influence DTA recognition remains limited. Given that overconfident CEOs exhibit strong optimism regarding future firm performance, they may overstate the likelihood of generating taxable income, leading to higher discretionary DTA recognition. This study aims to bridge this gap by investigating the impact of CEO overconfidence on discretionary DTAs in the Korean corporate setting, where IFRS-based accounting standards allow for significant managerial judgment in tax-related accounting.

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## 1. LITERATURE REVIEW AND HYPOTHESIS

DTAs are recognized and measured differently under IFRS and US GAAP, reflecting distinct approaches to transparency, managerial discretion, and financial reporting practices. DTAs arise from deductible temporary differences, unused tax losses, or unused tax credits that are expected to reduce taxable income in the future. Under IFRS, particularly K-IFRS 1012, DTAs are recognized using a net approach, which means only amounts deemed “probable” – defined as having more than a 50% likelihood of realization – are in-

cluded in the financial statements. This approach requires significant judgment to assess the probability of generating sufficient future taxable income to utilize the deductible differences. The net approach simplifies reporting by focusing only on realizable amounts, but it introduces subjectivity, as “probable” remains an interpretative standard.

Conversely, US GAAP (ASC 740) adopts a gross approach, where all deductible temporary differences, unused tax losses, and tax credits are initially recognized as DTAs. Afterward, a valuation allowance is applied to reduce the recognized amounts to the extent that they are “more likely

than not” realizable. This explicit process of adjusting DTAs for uncertainty enhances transparency, as the valuation allowance is separately disclosed, showing stakeholders the assumptions and potential risks in recognizing DTAs. The gross approach ensures more visibility into unrealized tax benefits, offering greater insight into management’s judgment.

These differences in methodology significantly affect the level of managerial discretion and transparency in financial reporting. The IFRS net approach grants management more flexibility to determine the “probability” of realization, raising concerns about potential earnings management, as changes in DTAs directly influence reported net income without requiring explicit disclosure. On the other hand, US GAAP’s use of a valuation allowance imposes a structured process for addressing uncertainty, limiting discretion, and providing stakeholders with detailed insights into unrealized amounts. While both systems aim to achieve accurate financial reporting, their contrasting approaches reflect broader differences in regulatory philosophies: IFRS emphasizes streamlined presentation, while US GAAP prioritizes detailed disclosure.

Research on DTAs has primarily centered around valuation allowances, particularly in the United States, where the gross approach is applied. Early studies, such as Amir et al. (1997) and Miller and Skinner (1998), highlighted the role of valuation allowances in increasing the visibility of DTAs, making them more accessible for both practical and academic analysis. For instance, Miller and Skinner (1998) examined whether managers use valuation allowances as a tool for earnings management. Although their findings did not indicate significant evidence of such behavior, the study underscored the potential for managerial discretion in DTA adjustments. Similarly, Visvanathan (1998) explored the relationship between changes in valuation allowances and net income but also failed to identify strong links to earnings management.

In contrast, Bauman and Bauman (2002) took a situational approach and provided evidence that valuation allowances could be used to meet analysts’ earnings forecasts. This finding highlights

how DTA recognition can serve as a tool for profit manipulation when driven by managerial incentives (Hanifah et al., 2025; de Almeida & Montemor, 2024). Cowx et al. (2025) suggest that hedge fund activists strategically intervene in firms with significant valuation allowances for deferred tax assets, impacting their financial reporting strategies. Subsequent studies have built on this foundation, focusing on the interplay between managerial discretion, external auditing, and regulatory oversight. Axelson et al. (2025) demonstrated that auditor expertise enhances the predictive power of discretionary DTA adjustments for forecasting future earnings, suggesting that strong audit environments mitigate the risk of managerial bias. Bakke et al. (2023) found that the presence and changes in valuation allowances were positively associated with the likelihood of receiving a going concern opinion, illustrating the practical implications of DTA adjustments in financial assessments. Goldman et al. (2022) further emphasized the risks associated with subjective judgments in valuation allowances, showing their relationship with negative financial reporting outcomes. Collectively, these studies suggest that while valuation allowances provide necessary adjustments for financial reporting accuracy, they also introduce significant managerial discretion, which can be influenced by external oversight and governance mechanisms.

In Korea, where IFRS requires DTAs to be recognized net of valuation allowances, the analysis of DTAs presents unique challenges. Unlike the United States, where gross recognition provides detailed insights into managerial discretion, the lack of separate valuation allowances under IFRS limits the visibility of unrealized DTAs. This has resulted in relatively fewer studies on DTAs in Korea. Nevertheless, existing research has explored their role in earnings management (Son & Choi, 2012; Choi & Jang, 2006, 2007). Jeon and Park (2002) analyzed deferred tax disclosure information and identified earnings management behaviors associated with DTAs. Do et al. (2008) demonstrated a negative relationship between discretionary accruals and DTAs, indicating that managers might adjust DTAs to achieve desired financial outcomes. Kim et al. (2010) found that when faced with strong incentives for earnings management, managers tend to optimistically as-

ness DTA realizability, further highlighting the discretionary nature of DTA recognition. Ryu et al. (2020) confirmed that managerial discretion over DTA realizability has persisted since the adoption of K-IFRS, emphasizing the need for regulatory oversight. Additionally, Baik et al. (2023) provided evidence that overconfident managers are more likely to recognize higher levels of DTAs, adding a psychological dimension to managerial discretion. These findings suggest that, under K-IFRS, managerial discretion remains a key factor in DTA recognition, necessitating further investigation into the behavioral drivers behind these accounting choices.

The recognition of DTAs has significant implications for financial performance, particularly in its effect on net income. Changes in DTA amounts directly influence reported net profits, making DTAs a critical area of focus for regulators. Reflecting this, the Financial Supervisory Service (FSS) in Korea designated deferred tax accounting as a key issue for regulatory review in 2021. The FSS highlighted incentives for firms to recognize DTAs to improve financial metrics, such as reducing debt ratios, even when future taxable income remains uncertain. This regulatory scrutiny underscores the discretionary nature of DTA accounting and its potential misuse in financial reporting.

Managerial overconfidence, a psychological trait often found in Chief Executive Officers (CEOs), adds another layer of complexity to DTA recognition. Overconfidence is typically shaped by accumulated successes and reinforced by limited critical feedback. Prior research has demonstrated how overconfidence influences corporate decision-making. For example, Malmendier and Tate (2005, 2008) found that overconfident CEOs overestimate investment opportunities, leading to overinvestment and inefficient mergers and acquisitions. Similarly, Hribar and Yang (2016) showed that overconfident CEOs exhibit excessive optimism about future performance, resulting in frequent forecasting errors. These tendencies are linked to three cognitive biases: the Better-Than-Average Effect, where individuals overestimate

their abilities relative to others (Weinstein, 1980; Svenson, 1981); the Illusion of Control, where they believe they can influence uncontrollable outcomes (Langer, 1975); and Self-Attribution Bias, attributing successes to personal abilities and failures to external factors (Fitch, 1970). These cognitive biases, compounded by repeated successes, amplify overconfidence and influence discretionary decision-making. In the context of accounting, overconfidence has been linked to delayed recognition of goodwill impairment losses (Chung & Hribar, 2021), as overconfident managers are reluctant to acknowledge losses due to optimistic cash flow forecasts. Similar dynamics apply to DTA recognition, where realizability assessments require significant managerial judgment.

In summary, prior research has established that DTA recognition involves substantial managerial discretion, which can be influenced by financial incentives, external governance, and psychological traits. This study aims to examine the impact of CEO overconfidence on discretionary DTA recognition, highlighting how psychological biases shape financial reporting decisions. Based on this discussion, it is hypothesized that CEO overconfidence positively influences DTA recognition by making optimistic future projections:

*H: CEO overconfidence is positively associated with discretionary deferred tax assets.*

## 2. METHODS

The initial sample consists of publicly traded firms listed on the Korea Composite Stock Price Index (KOSPI) and the Korea Securities Dealers Automated Quotation (KOSDAQ) in South Korea for the period 2017 to 2021<sup>2</sup>. The primary dataset is obtained from TS2000, a database provided by the Korea Listed Companies Association (KLCA), which includes comprehensive information on audit firms, audit fees, and audit hours for each firm-year. This dataset is further merged with financial data sourced from KISVALUE, a database maintained by NICE Information Service, to con-

<sup>2</sup> Korea's corporate income tax rate was revised in 2022, resulting in a 1% reduction effective from 2023. Since deferred tax assets at the end of 2022 are calculated based on the revised tax rates applicable from 2023 onward, their data characteristics are inconsistent with those of deferred tax assets up to 2021. The statistical significance weakened when the post-2022 data was included, and the analysis was re-run. Therefore, we concluded that presenting the regression results without including the post-2022 data would be the most appropriate way to address the potential compounding effect in the measurement of deferred tax assets. Accordingly, we limited the analysis to data through 2021.

struct the final sample. The sample selection criteria are as follows: (1) Non-financial firms with a December fiscal year-end, (2) Firms that have adopted K-IFRS, and Firms for which data on deferred tax asset recognition and other relevant financial information are available. Following this sample selection process, the final dataset comprises 5,734 firm-year observations across 2,339 unique firms (excluding proxies for designated auditors) for the period 2013 to 2021. Table 1 provides a detailed summary of the sample selection process.

**Table 1.** Sample selection process

Criterion	Observations
Public firms listed on KOSPI or KOSDAQ between 2017 and 2021	17,727
Less: Observations with insufficient overconfidence data	(6,619)
Less: Observations with insufficient control variable data	(5,374)
<b>Final firm-year observations</b>	<b>5,734</b>

Son and Choi (2012) referenced the prior studies of Schrand and Wong (2003) to classify deferred tax assets as follows:

$$\begin{aligned} & \text{Deferred tax assets (DTA)} \\ & = \text{Non-discretionary DTA} \\ & + \text{Discretionary DTA} \end{aligned}$$

DTAs are categorized into amounts by managerial discretion and amounts that can be objectively verified. Based on this logic, Son and Choi (2012) used the residual component – the portion exceeding the objectively verifiable amount of DTAs – as a proxy for the discretionary deferred tax assets recognized by managers. Accordingly, this paper adopts the following empirical model used by Son and Choi (2012) to estimate discretionary deferred tax assets.

$$\begin{aligned} DTA_{i,t} = & \alpha_0 + \beta_1 HROA_{i,t} + \beta_2 ROA_{i,t} \\ & + \beta_3 FROA_{i,t} + \beta_4 MTB_{i,t} + \sum YEAR_{i,t} + \varepsilon_{i,t}, \end{aligned} \quad (1)$$

where  $DTA_{i,t}$  – Total amount of deferred tax assets for firm  $i$  in year  $t$  (before offsetting with deferred tax liabilities), standardized by the beginning total assets;  $HROA_{i,t}$  – Simple average

of pre-tax income for firm  $i$  from years  $t-1$  and  $t-2$ , standardized by the beginning total assets;  $ROA_{i,t}$  – Pre-tax income for firm  $i$  in year  $t$ , standardized by the beginning total assets;  $FROA_{i,t}$  – Pre-tax income for firm  $i$  in year  $t+1$ , standardized by the beginning total assets;  $MTB_{i,t}$  – Market capitalization of common equity for firm  $i$  at the end of year  $t$ , standardized by the adjusted net assets (net assets – deferred tax assets + deferred tax liabilities);  $\sum YEAR_{i,t}$  – Year fixed effects;  $\varepsilon_{i,t}$  – Residual term.

To measure CEO overconfidence, this study adopts the overconfidence metrics for CEOs established by prior literature (Cordeiro, 2009; Schrand & Zechman, 2012; Ben-David et al., 2012; Ahmed & Duellman, 2013) as a benchmark<sup>3</sup>. Five measures of overconfidence related to investment and financing activities are used, and if CEOs meet three or more of these criteria, they are classified as overconfident managers: (1) The sales growth rate exceeding the total asset growth rate ( $OVER\_IND1$ ). Schrand and Zechman (2012) mention that the higher the level of managerial overconfidence, the greater the amount of investment related to asset expansion compared to firms within the same industry group. (2) The debt ratio (total debt / total capital) exceeding the industry average debt ratio ( $OVER\_IND2$ ). Ben-David et al. (2012) find that overconfident CEOs aggressively invest using retained earnings and even increase debt levels to fund the investments. (3) Issuance of convertible bonds or preferred stock ( $OVER\_IND3$ ). Schrand and Zechman (2012) mention that preferred stock is a high-risk type of equity from the firm perspective, and thus, raising funds through this stock can be considered an indication of a higher level of CEO overconfidence. (4) A dividend payout ratio of zero ( $OVER\_IND4$ ). Cordeiro (2009) states that the higher the level of CEO overconfidence, the lower the level of dividends, as accumulated internal funds are used for new investments. (5) Capital expenditures exceeding industry median ( $OVER\_IND5$ ). Ahmed and Duellman (2013) find that higher capital expenditures, compared to those of the same industry can serve as evidence of overinvestment by overconfident CEOs.

<sup>3</sup> In this study, the CEO overconfidence (OVER) used is the same as the one employed in the authors' previous research (Oh & Kim, 2025). Additionally, while the observation years in our study differ, similar overconfidence measures have been used in prior literature in Korea (Koo & Yang, 2017; Lee et al., 2022).

To verify the Hypothesis, the following model (2) is formulated.

$$DDTA_{i,t} = \alpha_0 + \beta_1 OVER_{i,t} + \sum \beta_k Controls + \varepsilon_{i,t}, \quad (2)$$

where  $DDTA_{i,t}$  – Discretionary deferred tax assets recognized by firm  $i$  in year  $t$  are measured as the residual from equation (1);  $OVER_{i,t}$  – An indicator variable that equals 1 if a firm  $i$  in year  $t$  meets 3 or more of the 5 CEO overconfidence variables, and 0 otherwise;  $SIZE_{i,t}$  – Natural logarithm of total assets;  $LEV_{i,t}$  – Leverage ratio;  $LOSS_{i,t}$ : An indicator variable that equals 1 if a firm  $i$  in year  $t$  experiences a net loss, and 0 otherwise;  $CFO_{i,t}$  – Operating cash flow;  $BIG_{i,t}$  – An indicator variable that equals 1 if a firm  $i$  in year  $t$  is audited by one of the Big 4 accounting firms, and 0 otherwise;  $LNFEET_{i,t}$  – Natural logarithm of audit fees;  $LNHOUR_{i,t}$  – Natural logarithm of audit hour.

The other variables are described in the equation above.

The dependent variable is discretionary deferred tax assets ( $DDTA$ ) estimated from equation (1), and the interested variable is CEO overconfidence ( $OVER$ ). If the coefficient for  $\beta_1$  is statistically positive, this implies that overconfident CEOs tend to recognize discretionary deferred tax assets, consistent with the hypothesis. For control variables, firm size ( $SIZE$ ), the leverage ratio ( $LEV$ ), net loss dummy variable ( $LOSS$ ), market-to-book ratio ( $MTB$ ), returns on assets ( $ROA$ ), operating cash flow ( $CFO$ ), Big 4 accounting firms indicator variable ( $BIG$ ), and audit efforts ( $LNFEET$ ,  $LNHOUR$ ) have been employed, consistent with prior literature (Schrand & Wong, 2003; Kim & Paek, 2006; Son & Choi, 2012). Specifically, larger firms ( $SIZE$ ) are more likely to face higher political costs, which reduces their incentive to overstate deferred tax assets and inflate profits. Additionally, firms with higher debt ratios ( $LEV$ ) may overestimate the realizability of deferred tax assets to increase reported earnings, necessitating control for this factor. Similarly, when operating cash flows ( $CFO$ ) are high, it is expected that corporate tax burdens will also be significant, increasing the likelihood of excessive recognition of deferred tax assets. Furthermore, higher audit quality

( $BIG$ ,  $LNFEET$ ,  $LNHOUR$ ) is expected to reduce the discretionary recognition of deferred tax assets by managers, which is also taken into account as a control variable.

### 3. RESULTS

Table 2 presents the descriptive statistics for the sample used in the main analysis. The mean value of CEO overconfidence ( $OVER$ ) is 0.262, indicating that approximately 26.2% of CEOs meet the criteria for overconfidence. Furthermore, the average values of firm size ( $SIZE$ ) and leverage ratio ( $LEV$ ) are 19.524, and 0.429, respectively, which are consistent with those reported by Son and Choi (2012).

**Table 2.** Descriptive statistics (N = 5,734)

Variable	Mean	STD	Min	P25	Median	P75	Max
$OVER\_IND1$	0.298	0.457	0	0	0	1	1
$OVER\_IND2$	0.548	0.498	0	0	1	1	1
$OVER\_IND3$	0.458	0.498	0	0	0	1	1
$OVER\_IND4$	0.055	0.228	0	0	0	0	1
$OVER\_IND5$	0.490	0.500	0	0	0	1	1
$OVER$	0.262	0.440	0	0	0	1	1
$DDTA$	0.001	0.037	-1.787	-0.008	0.001	0.012	0.258
$SIZE$	19.52	1.536	15.96	18.47	19.18	20.26	26.59
$LEV$	0.429	0.202	0.015	0.265	0.433	0.584	1.977
$LOSS$	0.345	0.476	0	0	0	1	1
$MTB$	1.538	1.642	0.11	0.841	1.098	1.655	32.07
$ROA$	0.008	0.164	-4.059	-0.024	0.019	0.058	2.571
$CFO$	0.035	0.091	-0.628	-0.007	0.04	0.083	0.61
$BIG$	0.412	0.492	0	0	0	1	1
$LNFEET$	11.72	0.989	0	11.16	11.56	12.16	15.68
$LNHOUR$	7.335	0.826	0	6.854	7.162	7.652	11.14

Note: This table presents the descriptive statistics for variables used in the main analysis.

Table 3 displays the Pearson correlations among the main variables. As shown in the table, the variable ( $DDTA$ ), which represents deferred tax assets, has a significant association with most of the control variables, including firm size ( $SIZE$ ), market-to-book ratio ( $MTB$ ), operating cash flow ( $CFO$ ), and audit quality measures ( $BIG$ ,  $LNFEET$ ,  $LNHOUR$ ), highlighting the necessity to control for these factors.

**Table 3.** Pearson correlation (N = 5,734)

Variable	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
(1) OVER_IND1	1															
(2) OVER_IND2	0.053***	1														
(3) OVER_IND3	0.013	0.136***	1													
(4) OVER_IND4	-0.038***	0.052***	-0.176***	1												
(5) OVER_IND5	0.229***	-0.017	-0.070***	-0.025*	1											
(6) OVER	0.522***	0.401***	0.304***	0.089***	0.446***	1										
(7) DDTA	-0.020	-0.010	-0.114***	0.028**	0.011	-0.029**	1									
(8) SIZE	0.001	0.167***	-0.379***	0.382***	0.059***	0.000	0.135***	1								
(9) LEV	0.069***	0.763***	0.145***	0.089***	-0.008	0.330***	-0.001	0.244***	1							
(10) LOSS	-0.113***	0.192***	0.485***	-0.083***	-0.095***	0.114***	-0.060***	-0.245***	0.238***	1						
(11) MTB	0.084***	-0.067***	0.180***	-0.060***	0.079***	0.079***	-0.392***	-0.220***	-0.127***	0.109***	1					
(12) ROA	0.119***	-0.161***	-0.337***	0.035***	0.056***	-0.094***	0.066***	0.177***	-0.189***	-0.518***	-0.162***	1				
(13) CFO	0.008	-0.121***	-0.325***	0.045***	0.078***	-0.106***	0.095***	0.197***	-0.120***	-0.395***	-0.130***	0.479***	1			
(14) BIG	-0.036***	0.067***	-0.223***	0.174***	0.031**	-0.048***	0.075***	0.483***	0.091***	-0.124***	-0.074***	0.077***	0.096***	1		
(15) LNFEF	-0.034**	0.203***	-0.155***	0.325***	0.033**	0.050***	0.016	0.649***	0.221***	-0.087***	-0.070***	0.039***	0.065***	0.433***	1	
(16) LN HOUR	-0.041***	0.210***	-0.217***	0.362***	0.033**	0.029**	0.054***	0.765***	0.253***	-0.118***	-0.117***	0.060***	0.092***	0.518***	0.831***	1

Note: This table presents the results of the Pearson correlation matrix among variables. \*\*\* indicates significance at the 1% level, \*\* at the 5% level, and \* at the 10% level.

Table 4 presents the empirical findings for the Hypothesis, which examines the impact of CEO overconfidence on discretionary deferred tax assets. As shown in Column (1), there is a significantly positive association (coef = 0.003, t-value = 2.448) between CEO overconfidence and discretionary deferred tax assets. This suggests that overconfident CEOs are more likely to influence the treatment of deferred tax assets, which is highly susceptible to managerial discretion. Consistently, regardless of including year-fixed effects or industry-fixed effects, the positive relationship between CEO overconfidence and discretionary deferred tax assets remains robust, as shown in Columns (2), (3), and (4), respectively.

**Table 4.** CEO overconfidence and discretionary deferred tax assets

$$DDTA_{i,t} = \alpha_0 + \beta_1 OVER_{i,t} + \sum \beta_k Controls + \varepsilon_{i,t}$$

Variable	(1)	(2)	(3)	(4)
Intercept	0.001 (0.163)	1.709** (2.477)	-0.000 (-0.024)	1.699** (2.464)
OVER	<b>0.003**</b> <b>(2.448)</b>	<b>0.003**</b> <b>(2.469)</b>	<b>0.003**</b> <b>(2.422)</b>	<b>0.003**</b> <b>(2.443)</b>
SIZE	0.003*** (5.573)	0.003*** (5.293)	0.003*** (5.480)	0.003*** (5.202)
LEV	-0.014*** (-5.443)	-0.014*** (-5.533)	-0.014*** (-5.304)	-0.014*** (-5.393)
LOSS	0.001 (1.199)	0.001 (1.145)	0.001 (1.189)	0.001 (1.135)
MTB	-0.009*** (-30.384)	-0.009*** (-30.137)	-0.009*** (-30.508)	-0.009*** (-30.260)
ROA	-0.009** (-2.552)	-0.009** (-2.499)	-0.009** (-2.503)	-0.008** (-2.450)
CFO	0.018*** (3.155)	0.018*** (3.163)	0.019*** (3.212)	0.019*** (3.220)
BIG	0.003*** (3.063)	0.003** (2.491)	0.003*** (2.873)	0.003** (2.310)
LNFE	-0.002*** (-2.973)	-0.002** (-2.471)	-0.003*** (-3.050)	-0.002** (-2.549)
LNHOUR	-0.001 (-1.051)	-0.001 (-0.881)	-0.001 (-0.982)	-0.001 (-0.813)
Observations	5,734	5,734	5,734	5,734
Adj R-Sq	0.167	0.168	0.168	0.169
Industry FE	NO	NO	YES	YES
Year FE	NO	YES	NO	YES

Note: This table presents the results of estimating Eq. (2) to examine the impact of CEO overconfidence on discretionary deferred tax assets. Column (1) shows the results excluding both industry-fixed effects and year-fixed effects. Column (2) presents the findings with only year-fixed effects included, while Column (3) displays the results with only industry-fixed effects included. Lastly, Column (4) reports the findings with both industry-fixed effects and year-fixed effects included. \*\*\* indicates significance at the 1% level, \*\* at the 5% level, and \* at the 10% level.

In the main results, it was found that CEO overconfidence has a significantly positive effect on the recognition of discretionary deferred tax assets, and this effect is further intensified for firms with higher marginal tax rates. Recognizing greater amounts of discretionary deferred tax assets reduces corporate tax expenses, which in turn increases net income without directly affecting the firm's taxable income (Klassen, 1997; Mills & Newberry, 2001). This suggests that firms with higher marginal tax rates are more likely to adopt this approach to manage their tax expenses. Consequently, the observed effects are expected to be more pronounced in firms with higher marginal tax rates, whereas firms with lower marginal tax rates may exhibit less significant results. To validate these findings, a cross-sectional test should be performed by comparing firms with an effective tax rate (ETR, calculated as income tax expense divided by pre-tax income) over the past three years is higher or lower than the industry median. Panel A of Table 5 presents the results of cross-sectional tests based on marginal tax rates. In the group with high marginal tax rates, the positive effect of CEO overconfidence on discretionary deferred tax assets is amplified, consistent with our prediction.

Desai and Dharmapala (2006) suggest that corporate governance serves as a critical mechanism in determining the level of tax avoidance by managers. Their study indicates that weaker governance structures tend to enhance managers' pursuit of private benefits. Consequently, the positive effect of CEO overconfidence on discretionary deferred tax assets may be significantly mitigated when the ratio of outside directors is high, which serves as a proxy for a well-structured governance system. Accordingly, this study further conducts additional tests by dividing the sample into groups with weak and strong governance, based on tertiles of the proportion of outside directors. As shown in Panel B, when the ratio of outside directors is low, the positive relationship between CEO overconfidence and discretionary deferred tax assets becomes stronger. This suggests that in the absence of a robust governance structure, managerial discretion in recognizing deferred tax assets is further stimulated.

**Table 5.** Cross-sectional test**Panel A.** Cross-sectional test: Marginal tax rate

$$DDTA_{i,t} = \alpha_0 + \beta_1 OVER_{i,t} + \sum \beta_k Controls + \varepsilon_{i,t}$$

Variable	High marginal tax rate	Low marginal tax rate
Intercept	-0.024** (-2.073)	0.009 (0.847)
OVER	<b>0.004**</b> <b>(2.527)</b>	<b>0.000</b> <b>(0.225)</b>
SIZE	0.004*** (5.908)	0.002*** (3.034)
LEV	-0.016*** (-4.481)	-0.014*** (-4.163)
LOSS	0.004** (2.459)	0.006 (0.813)
MTB	-0.009*** (-20.973)	-0.008*** (-19.900)
ROA	-0.006 (-1.418)	-0.038*** (-6.426)
CFO	0.017** (2.128)	0.009 (1.306)
BIG	0.003** (2.039)	0.003* (1.907)
LNFEF	-0.002* (-1.652)	-0.002** (-2.150)
LNHOUR	-0.002 (-1.405)	-0.001 (-0.589)
Observations	3,872	1,862
Adj R-Sq	0.173	0.281
Industry FE	YES	YES
Year FE	YES	YES

Note: This table presents the results of a cross-sectional analysis estimating Eq. (2) to examine the impact of CEO overconfidence on discretionary deferred tax assets, considering the marginal tax rate. Columns (1) and (2) display the results for the high and low marginal tax rates group, respectively.\*\*\* indicates significance at the 1% level, \*\* at the 5% level, and \* at the 10% level.

**Panel B.** Cross-sectional test: Outside director

$$DDTA_{i,t} = \alpha_0 + \beta_1 OVER_{i,t} + \sum \beta_k Controls + \varepsilon_{i,t}$$

Variable	Outside director Q1	Outside director Q3
Intercept	-0.004 (-0.594)	-0.007 (-0.300)
OVER	<b>0.002*</b> <b>(1.857)</b>	<b>-0.002</b> <b>(-0.635)</b>
SIZE	0.002*** (3.593)	0.004** (2.558)
LEV	-0.014*** (-5.945)	-0.015* (-1.871)
LOSS	0.003*** (2.745)	0.007** (1.997)
MTB	-0.008*** (-28.513)	-0.010*** (-13.880)
ROA	0.002 (0.602)	0.001 (0.131)

Variable	Outside director Q1	Outside director Q3
CFO	0.006 (1.098)	0.046*** (3.130)
BIG	0.003*** (2.784)	0.000 (0.021)
LNFEF	-0.001 (-1.269)	-0.004* (-1.915)
LNHOUR	-0.000 (-0.212)	-0.000 (-0.178)
Observations	3,098	554
Adj R-Sq	0.306	0.497
Industry FE	YES	YES
Year FE	YES	YES

Note: This table presents the results of a cross-sectional analysis estimating Eq. (2) to examine the impact of CEO overconfidence on discretionary deferred tax assets, considering the outside director ratio. Columns (1) and (2) display the results for the quantiles 1 and 3 of the outside director ratio, respectively.\*\*\* indicates significance at the 1% level, \*\* at the 5% level, and \* at the 10% level.

In the main analysis, discretionary deferred tax assets have been measured by estimating the residual values of deferred tax assets following the model by Son and Choi (2012). To add more robustness, two alternative proxies have been employed. First, deferred tax assets scaled by the beginning total assets ( $G\_TAT$ ) are utilized. Furthermore, the study used the model proposed by Desai and Dharmapala (2006). The difference between pre-tax income and taxable income ( $BTD$ ) is influenced by increased tax avoidance or earnings management. They view the total accruals, calculated as net income minus operating cash flows, as a proxy for earnings management. By removing the effects of earnings management from the  $BTD$ , they estimate the remaining value as the amount of tax avoidance. The tax avoidance amount calculated method ( $AVOID$ ) is derived through the following equation, with the residual value from the equation serving as the proxy for tax avoidance.

$$BTD_{i,t} = \alpha_0 + \beta_1 TA_{i,t} + \varepsilon_{i,t}, \quad (3)$$

where  $BTD_{i,t}$  – Difference between accounting income and taxable income ((Pre-tax income – taxable income) / Beginning total assets) Here, taxable income = (Current income tax expense + deferred tax assets at the end of the period – deferred tax assets at the beginning of the period) – (deferred tax liabilities at the end of the period);  $TA_{i,t}$  – Total accruals ((Net income – Operating cash flows) / Beginning total assets);  $\varepsilon_{i,t}$  – Tax avoidance measure.

In the primary analysis, an indicator variable is used that equals 1 if a firm meets 3 or more of the 5 CEO overconfidence variables related to investment and financing activities. To enhance the robustness of our main findings, the following alternative CEO overconfidence measures are employed: (1) Aggregate measure of CEO overconfidence (*OVER\_ALL*). This measure combines the 5 indicator variables used in the main analysis. (2) Residual-based measure 1 (*OVER\_RESI1*). An indicator variable that equals 1 if the residual term estimated from the following equation for each year-industry is positive, and 0 otherwise.

$$INV_t = \alpha_0 + \alpha_1 Q_{t-1} + e_t, \tag{4}$$

where *INV<sub>t</sub>* – (Cash outflows from investment activities – Cash inflows from investment activities) / lagged tangible assets; *Q<sub>t-1</sub>* – (Market value of equity (common stock) + total assets – book value of equity (common stock)) / total assets;

(3) Residual-based measure 2 (*OVER\_RESI2*). An indicator variable that equals 1 if the residual term estimated from the following equation for each year-industry is positive, and 0 otherwise.

$$INV_t = \alpha_0 + \alpha_1 Q_{t-1} + \alpha_2 CFO_t + e_t, \tag{5}$$

where *CFO<sub>t</sub>* – Operating cash flows / lagged tangible assets;

(4) Residual-based measure 3 (*OVER\_RESI3*): An indicator variable that equals 1 if the residual term estimated from the following equation for each year-industry is positive, and 0 otherwise.

$$INV_t = \alpha_0 + \alpha_1 SalesGR_{t-1} + e_t, \tag{6}$$

where *SalesGR<sub>t-1</sub>* – Sales growth rate (*Sales<sub>t</sub> – sales<sub>t-1</sub> / sales<sub>t-1</sub>*) · 100.

Using the above CEO overconfidence measure, we estimate the following equation to re-verify the Hypothesis.

$$DDTA_{i,t} = \alpha_0 + \beta_1 OVER\_ALL(OVER1, OVER2, OVER3)_{i,t} + \sum \beta_k Controls + \varepsilon_{i,t}. \tag{7}$$

Table 6 displays the empirical findings for Hypothesis 1 using alternative proxies for both discretionary deferred tax assets and CEO overconfidence. As seen in Panel A and B, a consistent result is found that overconfident CEOs are more inclined to wield more discretion in recognizing deferred tax assets.

**Table 6.** Alternative proxies

**Panel A.** Alternative proxies for discretionary deferred tax assets

$$G\_TAT(AVOID)_{i,t} = \alpha_0 + \beta_1 OVER_{i,t} + \sum \beta_k Controls + \varepsilon_{i,t} \tag{8}$$

Variable	(1) <i>G_TAT</i>	(2) <i>AVOID</i>
<i>Intercept</i>	0.002 (0.547)	-0.027 (-1.152)
<i>OVER</i>	<b>0.001**</b> <b>(2.402)</b>	<b>0.011***</b> <b>(3.612)</b>
<i>SIZE</i>	0.000 (0.394)	0.002 (1.601)
<i>LEV</i>	0.007*** (5.438)	-0.054*** (-7.173)
<i>LOSS</i>	0.000 (0.467)	-0.031*** (-9.837)
<i>MTB</i>	0.000** (2.194)	-0.004*** (-4.318)
<i>ROA</i>	0.000 (0.548)	0.002** (2.394)
<i>CFO</i>	0.014*** (6.153)	0.594*** (43.766)
<i>BIG</i>	0.002*** (3.189)	-0.008** (-2.447)
<i>LNFFEE</i>	-0.000 (-0.954)	-0.007*** (-2.738)
<i>LNHOUR</i>	0.001* (1.661)	0.006* (1.798)
<i>Observations</i>	6,894	6,894
<i>Adj R-Sq</i>	0.107	0.340
<i>Industry FE</i>	YES	YES
<i>Year FE</i>	YES	YES

*Note:* This table presents the results of estimating Eq. (4) to examine the impact of CEO overconfidence on alternative discretionary deferred tax assets. Columns (1) and (2) report the findings for *G\_TAT* and *AVOID*, respectively. \*\*\* indicates significance at the 1% level, \*\* at the 5% level, and \* at the 10% level.

**Panel B.** Alternative proxies for CEO overconfidence

$$DDTA_{i,t} = \alpha_0 + \beta_1 OVER\_ALL \begin{pmatrix} OVER\_RES1, \\ OVER\_RES2, \\ OVER\_RES3 \end{pmatrix}_{i,t} + \sum \beta_k Controls + \varepsilon_{i,t} \quad (9)$$

Variable	(1)	(2)	(3)	(4)
Intercept	-0.011 (-1.322)	0.010 (1.042)	0.010 (1.042)	0.008 (0.895)
OVER_ALL	<b>0.001** (2.131)</b>			
OVER_RES1		<b>0.003** (2.304)</b>		
OVER_RES2			<b>0.002* (1.776)</b>	
OVER_RES3				<b>0.004*** (3.551)</b>
SIZE	0.003*** (6.600)	0.004*** (6.978)	0.004*** (6.956)	0.004*** (7.093)
LEV	-0.016*** (-5.580)	-0.012*** (-4.609)	-0.012*** (-4.605)	-0.012*** (-4.673)
LOSS	0.001 (1.167)	0.002 (1.520)	0.002 (1.505)	0.002 (1.519)
MTB	-0.009*** (-27.964)	-0.009*** (-27.685)	-0.009*** (-27.680)	-0.009*** (-27.964)
ROA	-0.010*** (-2.818)	-0.010*** (-2.738)	-0.010*** (-2.751)	-0.011*** (-2.893)
CFO	0.016*** (2.741)	0.016*** (2.750)	0.017*** (2.852)	0.016*** (2.755)
BIG	0.003** (2.570)	0.004*** (3.300)	0.004*** (3.296)	0.004*** (3.336)
LNFEES	-0.002*** (-2.779)	-0.007*** (-5.136)	-0.007*** (-5.130)	-0.007*** (-5.115)
LNHOURS	-0.002 (-1.463)	0.001 (0.318)	0.001 (0.315)	0.001 (0.287)
Observations	5,734	5,703	5,703	5,703
Adj R-Sq	0.183	0.188	0.188	0.189
Industry FE	YES	YES	YES	YES
Year FE	YES	YES	YES	YES

Note: This table presents the results of estimating Eq. (5) to examine the impact of alternative CEO overconfidence measures on discretionary deferred tax assets. Column (1) reports the findings for the aggregate CEO overconfidence measure (*OVER\_ALL*). Columns (2), (3), and (4) present the results for individual CEO overconfidence measures (*OVER1*, *OVER2*, *OVER3*), respectively. \*\*\* indicates significance at the 1% level, \*\* at the 5% level, and \* at the 10% level.

Since there may be potential sample differences between the CEO overconfidence sample and the non-overconfidence sample, we use Propensity Score Matching (PSM) to further mitigate the potential sample selection bias. As shown in Table 7,

even after conducting PSM, the results consistently show that overconfident CEOs are more inclined to recognize discretionary deferred tax assets.

**Table 7.** Propensity score matching

$$DDTA_{i,t} = \alpha_0 + \beta_1 OVER_{i,t} + \sum \beta_k Controls + \varepsilon_{i,t} \quad (2)$$

Variable	(1)	(2)	(3)	(4)
Intercept	0.003 (0.153)	-0.002 (-0.129)	-0.008 (-0.413)	-0.013 (-0.666)
OVER	<b>0.005** (2.372)</b>	<b>0.005** (2.114)</b>	<b>0.004** (2.009)</b>	<b>0.004* (1.769)</b>
SIZE	0.005*** (4.326)	0.005*** (4.005)	0.006*** (5.118)	0.006*** (4.783)
LEV	-0.018*** (-2.854)	-0.020*** (-3.124)	-0.020*** (-2.833)	-0.021*** (-3.079)
LOSS	0.001 (0.360)	0.001 (0.307)	0.002 (0.602)	0.001 (0.556)
MTB	-0.010*** (-17.518)	-0.010*** (-17.189)	-0.010*** (-16.113)	-0.010*** (-15.832)
ROA	-0.016** (-2.410)	-0.015** (-2.188)	-0.017** (-2.435)	-0.015** (-2.222)
CFO	0.023* (1.933)	0.021* (1.727)	0.021* (1.787)	0.019 (1.604)
BIG	0.002 (0.821)	0.001 (0.458)	0.003 (1.060)	0.002 (0.687)
LNFEES	-0.008*** (-3.659)	-0.007*** (-3.124)	-0.008*** (-3.745)	-0.007*** (-3.220)
LNHOURS	0.002 (0.623)	0.002 (0.725)	0.000 (0.070)	0.001 (0.187)
Observations	2,213	2,213	2,213	2,213
Adj R-Sq	0.160	0.163	0.174	0.177
Industry FE	no	no	YES	YES
Year FE	no	YES	no	YES

Note: This table presents the propensity score matching (PSM) results of estimating Eq. (2) to examine the impact of CEO overconfidence on discretionary deferred tax assets. Column (1) shows the results excluding both industry-fixed effects and year-fixed effects. Column (2) presents the findings with only year-fixed effects included, while Column (3) displays the results with only industry-fixed effects included. Lastly, Column (4) reports the findings with both industry-fixed effects and year-fixed effects included. \*\*\* indicates significance at the 1% level, \*\* at the 5% level, and \* at the 10% level.

## 4. DISCUSSION

The findings of this study provide meaningful insights into the relationship between CEO overconfidence and DTAs. By separating DTAs into discretionary and non-discretionary components, this study demonstrates that CEO overconfidence significantly influences the recognition of discretionary DTAs. Specifically, overconfident CEOs are more likely to assess the realizability of fu-

ture taxable income optimistically, leading to an inflated recognition of DTAs. These results align with behavioral finance literature, which suggests that overconfident managers tend to overestimate future financial performance and engage in riskier decision-making (Malmendier & Tate, 2005; Hribar & Yang, 2016).

Moreover, the findings indicate that the relationship between CEO overconfidence and discretionary DTAs is stronger in firms with higher marginal tax rates. Since recognizing discretionary DTAs can reduce corporate tax expenses and artificially enhance reported earnings, firms facing higher tax burdens may have stronger incentives to engage in such accounting practices (Klassen, 1997; Mills & Newberry, 2001). This suggests that overconfident CEOs, particularly in high-tax environments, may be more likely to strategically recognize DTAs to optimize reported financial performance. Additionally, the study finds that corporate governance plays a moderating role in this relationship. The positive effect of CEO overconfidence on discretionary DTA recognition is weaker in firms with stronger governance structures, particularly those with a higher proportion of independent directors. This supports the argument that effective governance mechanisms can

serve as a check on managerial discretion and mitigate the financial reporting risks associated with CEO overconfidence (Desai & Dharmapala, 2006).

The results of this study extend prior research in multiple ways. While previous studies have documented the use of valuation allowances in earnings management (Bauman & Bauman, 2002; Visvanathan, 1998), this study highlights the psychological dimension of managerial discretion in deferred tax accounting. Unlike prior research that focuses on GAAP's valuation allowances, this study examines the IFRS environment, where DTA realizability assessments are inherently more subjective due to the lack of explicit valuation allowances. Furthermore, these findings build on previous research on CEO overconfidence and financial reporting behavior. Prior studies have shown that overconfident CEOs delay goodwill impairments (Chung & Hribar, 2021), engage in riskier investments (Malmendier & Tate, 2005), and display excessive optimism in earnings forecasts (Hribar & Yang, 2016). This study adds to the literature by demonstrating that CEO overconfidence also affects tax-related accounting choices, particularly in the discretionary recognition of DTAs.

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## CONCLUSION

This study examines the impact of CEO overconfidence on discretionary deferred tax asset recognition, focusing on publicly listed firms in Korea. By analyzing a sample of 5,734 firms, the empirical findings confirm that CEO overconfidence is positively associated with discretionary DTA recognition, supporting the hypothesis that overconfident executives overestimate future taxable income and, consequently, recognize higher levels of DTAs. Furthermore, the study highlights that this effect is stronger in firms with higher marginal tax rates, suggesting that tax incentives may amplify the discretionary use of DTAs under overconfident leadership. Conversely, the presence of strong corporate governance mechanisms, particularly independent directors, mitigates the influence of CEO overconfidence on DTA recognition, reinforcing the role of governance in constraining managerial discretion in financial reporting.

These findings offer several important conclusions. First, they confirm that CEO behavioral traits influence accounting decisions, extending prior research on overconfidence beyond investment and financing choices to the domain of tax-related financial reporting. Second, the study underscores the importance of corporate governance in moderating managerial biases, highlighting that board independence plays a crucial role in ensuring accounting conservatism. Third, the findings have regulatory implications, as they suggest that the current IFRS-based approach to DTA recognition may leave room for earnings management through optimistic tax assumptions. Policymakers and standard-setters should consider whether enhanced disclosure requirements or more structured criteria for DTA realizability assessments could improve transparency in financial reporting.

To build upon these, several avenues for future research can be explored. Future studies could explore biometric, linguistic, or behavioral-based measures of overconfidence to complement traditional proxies based on investment and financing behavior. Moreover, they could analyze CEO career trajectories, examining whether prolonged overconfidence leads to persistent biases in tax accounting decisions over time. Additionally, as IFRS continues to evolve, future studies could examine how changes in tax accounting standards influence the relationship between CEO traits and financial reporting discretion.

## AUTHOR CONTRIBUTIONS

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