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Strategic Deployment of Deferred Taxes in Earnings Management: Evidence from a Four-Typology Analysis[1]

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Abstract: This study investigates how firms strategically coordinate deferred tax positions with earnings management. Using panel data from 185 non-financial firms listed on Borsa Istanbul (2008–2022), firms were classified into a four-part typology based on the signs of deferred tax expense (DTE) and discretionary accruals (DA). Fixed Effects regressions with Driscoll-Kraay standard errors reveal no significant relationship between DTE and DA, while net deferred tax assets (NDTA) exhibit a positive association. Strategy-specific analyses, however, uncover substantial heterogeneity. The DTE–DA relationship is contingent upon strategic profile: insignificant in aggressive, tax-costly, and tax-advantaged strategies, yet strongly positive in the smoothing strategy—revealing a coordinated dual approach wherein firms simultaneously report income-decreasing accruals and high DTE. The typology demonstrates that deferred tax accounts function not as passive technical items but as active strategic tools, and that their role can only be understood through strategic heterogeneity.

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Araştırma Makalesi *Açık Erişim*

Ertelenmiş Vergilerin Kazanç Yönetiminde Stratejik Kullanımı: Dört-Tipoloji Analizinden Bulgular

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Anahtar Kelimeler: Ertelenmiş vergiler, net ertelenmiş vergi varlıkları, kazanç yönetimi, Borsa İstanbul
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Öz: Bu çalışma, firmaların ertelenmiş vergi pozisyonlarını kazanç yönetimi ile stratejik olarak nasıl koordine ettiğini incelemektedir. Borsa İstanbul'da (BİST) listelenen 185 finansal olmayan firmanın 2008-2022 dönemine ait verileri kullanılarak firmalar, ertelenmiş vergi gideri (DTE) ve ihtiyari tahakkuk (DA) işaretlerine dayalı dört stratejik gruba ayrılmıştır. Tüm örneklem ve her grup için Driscoll-Kraay standart hataları ile Sabit Etkiler regresyonları tahmin edilmiştir. Tam örneklem sonuçları, DTE ile kazanç yönetimi arasında anlamlı bir ilişki olmadığını, buna karşın net ertelenmiş vergi varlıklarının (NDTA) pozitif bir ilişki sergilediğini göstermektedir. Strateji bazlı analizler, bu ilişkinin stratejik profile bağlı olarak değiştiğini; agresif, vergi maliyetli ve vergi avantajlı stratejilerde anlamsızken, kârı düzeltme stratejisinde güçlü ve pozitif olduğunu ortaya koymaktadır. Bu bulgu, firmaların eş zamanlı olarak kârı azaltıcı tahakkuklar ve yüksek DTE raporladığı koordineli bir yaklaşımı göstermektedir. Sonuçlar, ertelenmiş vergi hesaplarının pasif teknik kalemler değil, aktif stratejik araçlar olduğunu ortaya koymaktadır.

1. Introduction

While earnings management research has largely focused on discretionary accruals and real transaction manipulation, recent studies have increasingly examined the role of discretion in tax accounting within this process. Deferred tax accounting, governed by International Accounting Standard 12 (IAS 12), constitutes one of the most prominent areas for the exercise of managerial discretion in this context. Significant elements requiring considerable judgment and estimation—such as future profit forecasts, tax rate projections, and the timing of temporary differences—are involved in the recognition, measurement, and impairment of deferred tax assets (DTA) and liabilities (DTL) arising from temporary differences between book and taxable income. This inherent subjectivity transforms deferred taxes from a mere technical compliance exercise into a potential strategic tool for earnings management. By adjusting estimates related to DTA or DTL components, managers can manipulate deferred tax expense (DTE) and, consequently, reported profit, thereby managing book earnings without affecting current-period tax cash outflows while simultaneously pursuing financial and tax objectives (Phillips et al., 2003). Therefore, investigating how managers position deferred tax items within their earnings management toolkit is critical for assessing financial reporting quality.

However, the extant literature on deferred taxes as an earnings management tool remains constrained by three primary limitations: methodological, theoretical, and analytical. First, much of the prior research has tested asymmetric behaviors in income-increasing versus income-decreasing scenarios within linear frameworks. Studies typically examine whether DTE alone signals earnings management, or analyze its relationship with discretionary accruals (DA). This paradigm overlooks a critical nuance: the direction and magnitude of the relationship likely depend on a firm's underlying strategic objective—be it aggressive income boosting, income smoothing, or tax advantage seeking. For instance, one firm may recognize DTA to inflate earnings, while another may manage DTL to smooth results or defer taxes. Second, the literature fails to account for the heterogeneous strategies firms pursue. Such strategic diversity is obscured by assuming a uniform "deferred tax–earnings management" linkage. Third, and most importantly for this study, the literature has insufficiently examined the tactical coordination between DTE and DA. In practice, managers deploy these tools simultaneously and complementarily to execute a specific strategy. A firm prioritizing tax savings might combine high DTE with low DA, whereas one focused on short-term profit maximization might employ the opposite configuration. By failing to account for such diversity, current methodologies mask the conditional use of these tools, potentially leading to inconsistent or misleading findings.

This study aims to fill these conceptual and methodological gaps by revealing how firms strategically deploy deferred tax accounts within their earnings management toolkit. The core thesis posits that deferred tax items are not passive accounting outcomes but active, coordinated components of a strategic effort to achieve specific financial reporting objectives. To systematically analyze this strategic use, a four-part strategic typology is developed. This typology classifies firms into four groups based on the signs (+/–) of Discretionary Accruals (DA) and Deferred Tax Expense (DTE): (1) Aggressive Income Increasing (+DA, +DTE), (2) Tax-Costly Income Increasing (+DA, –DTE), (3) Tax-Advantaged Income Decreasing (–DA, +DTE), and (4) Moderate Income Decreasing / Smoothing (–DA, –DTE). This classification reveals not only the extent of earnings management but also the tactical configuration of tax and accrual instruments

employed to execute it. Deferred taxes are thus reconceptualized as an active strategic lever, not a mere byproduct.

A deeper understanding of these strategic behaviors is particularly salient in emerging markets, where weaker corporate governance and variations in standard application prevail. Türkiye constitutes an especially compelling case. The mandatory transition to International Financial Reporting Standards (IFRS) in 2005 was a significant accounting reform, yet a persistent and systematic divergence between tax legislation and financial reporting standards has endured. This dual accounting system has created substantial flexibility and motivation for Turkish firms to engage in earnings management via deferred tax accounts. The scarcity of comprehensive empirical studies on this subject in Türkiye further underscores the value of this research.

This study is expected to make dual contributions. Conceptually, it challenges the homogeneous firm behavior assumption prevalent in the literature by introducing a typology that classifies earnings management based on instrument-usage strategy, thereby providing a more granular analytical framework. Furthermore, examining the role of Net Deferred Tax Assets (NDTA) across different strategic profiles contributes to understanding how balance sheet items influence earnings management. Empirically, the study tests this framework using panel data from 185 Borsa Istanbul (BIST) firms over the 2008–2022 period, uncovering specific strategic behaviors in an emerging market and illuminating its unique institutional reporting dynamics. The findings are expected to offer significant implications for auditors, standard-setters, and regulators. Identifying which strategic profiles use deferred tax accounts more aggressively can enable risk-based allocation of audit resources and inform regulatory oversight, ultimately enhancing financial reporting quality.

The remainder of the study is structured as follows: Section 2 reviews the relevant literature and develops the hypotheses. Section 3 outlines the data, variables, and empirical methodology. Section 4 reports the main findings, which are discussed in Section 5. Section 6 concludes with the study's contributions, limitations, and avenues for future research.

2. Literature Review and Hypothesis Development

2.1. Literature Review

Deferred tax accounting is a complex area arising from differences between financial and tax reporting, granting significant managerial discretion. According to Hanlon and Heitzman (2010), three primary reasons make this discretion a natural tool for earnings management: (1) rule complexity hinders external audit, creating a sheltered space for manipulation; (2) elements requiring future earnings estimates, such as deferred tax asset (DTA) recognition, increase the scope for judgment; and (3) the persistent gap between reporting frameworks provides flexibility to manage temporary differences. Offering the first empirical evidence on the actual use of this discretion, Phillips et al. (2003) posited that because financial accounting standards offer more flexibility than tax rules, managers exploit this flexibility to meet earnings targets, producing an observable effect on deferred tax expense (DTE). Their findings showed that firms manipulate DTE to achieve small earnings increases or avoid declines, suggesting DTE could be a stronger indicator than traditional accrual measures. This foundational finding has been supported by subsequent studies. Dhaliwal et al. (2004) found that firms seeking to meet analyst forecasts tend to lower their effective tax rate, thereby increasing DTE, in the fourth quarter. Similarly, Blaylock et al. (2012) documented a

significant relationship between upward earnings management and increased DTE. Zhou (2016) revealed a negative relationship between increased net deferred tax expense and earnings persistence, indicating high DTE signals lower earnings quality.

Research on financial misstatements further corroborates this, showing that unusually large or small deferred tax expenses are associated with earnings management—and that firms managing earnings upward tend to report particularly large DTEs (Badertscher et al., 2009; Ettredge et al., 2008). Evidence on the use of deferred taxes in earnings management is not confined to the U.S. context. Studies from diverse jurisdictions have also detected significant relationships between DTE and earnings management, including Australia (Herbohn et al., 2010, 2016), New Zealand (Cho et al., 2006), Malaysia (Kasipillai & Mahenthiran, 2013), the UK (Holland & Jackson, 2004), Greece (Kapoutsou et al., 2015), Portugal (Moniz et al., 2022), Italy (Mura, 2023), Türkiye (Gündüz, 2025; Özçelik, 2021; Tohumcuoğlu, 2023), and Indonesia (Andari et al., 2025; Muda & Sunardi, 2024; Sari & Afandi, 2023).

Studies examining the valuation allowance—one of the areas most open to managerial discretion under accounting standards—have yielded mixed findings. Miller and Skinner (1998) noted its theoretical suitability for earnings management due to its lack of strict rules, reliance on future expectations, and potential for significant adjustments. Phillips et al. (2004), decomposing DTE into components, found that deferred taxes arising from income/expense accruals and reserves provided a particularly strong signal for detecting earnings management. Focusing on changes in the valuation allowance and net deferred tax assets (NDTA), Burgstahler et al. (2002) provided compelling evidence that firms tactically use this account class to achieve small profits or avoid losses. Such tactics can become more pronounced in heavily regulated sectors. Schrand and Wong (2003) found that U.S. banks used the valuation allowance to create "cookie jar reserves" for earnings smoothing. Skinner (2008) showed that weak Japanese banks seeking to meet regulatory capital requirements booked lower valuation allowances than economically necessary, a finding later confirmed for Brazilian banks by Junqueira and Nakao (2013). However, findings in this area are not entirely consistent. Examining a broad sample of U.S. firms, Frank and Rego (2006) found that managers used the valuation allowance to meet analyst forecasts and manage earnings upward, but found no evidence for other profit motives such as big bath accounting or cookie jar reserves. This limitation aligns with broader criticisms of DTE as a general earnings management indicator. Jackson (2015) argued that such accounts may signal upward earnings management motivation but are unreliable for detecting other objectives. Christensen et al. (2008), who found no indication the valuation allowance was used to facilitate a big bath or cookie jar reserves, support these findings. Moreover, Bauman et al. (2001) and Hanlon and Shevlin (2002) noted that valuation allowance adjustments do not always affect net profit, sometimes flowing directly to equity. Using a limited U.S. sample with strong profit management incentives, Stammerjohan and Hall (2003) found deferred tax expenses were determined entirely by economic conditions. These inconsistencies suggest the deferred tax–earnings management relationship may be highly sensitive to the earnings target tested, sample selection, and methodological choices.

The inherently predictive and subjective nature of deferred tax accounting makes it difficult to distinguish genuine earnings management from changing, legitimate economic expectations. This challenge is compounded by three interrelated limitations in the extant literature. First, much of the literature fails to account for the heterogeneous strategies firms pursue. Research shows firms adopt different strategic orientations such as "big bath," "income smoothing," or "aggressive income increasing" (Burgstahler & Dichev, 1997; Kirschenheiter & Melumad, 2002). Frank et al. (2009) demonstrated that firms use tax

accounting preferences asymmetrically when increasing versus decreasing earnings. This asymmetry is often explained by an income smoothing motivation, supporting the view that deferred taxes can serve as a cookie jar reserve (Tucker & Zarowin, 2006). The assumption of homogeneous firm behavior is therefore inadequate for capturing complex real-world actions. For example, a firm pursuing income smoothing might increase DTE in good years and decrease it in bad years, while an aggressive firm might consistently minimize DTE to maximize profit. Consequently, firms with different strategic profiles are expected to use deferred tax accounts differently. Most existing studies do not systematically control for this strategic diversity. Second, prior research has largely been confined to testing asymmetric behaviors within linear frameworks, overlooking the conditional nature of the DTE–earnings management relationship. Third, the literature has insufficiently examined the tactical coordination between DTE and DA. Although these tools are core components of the earnings management toolkit, studies typically examine them separately or use one merely as a control for the other. In practice, managers can position both tools simultaneously and coordinately based on their core strategy. For instance, a firm prioritizing tax savings might combine high DTE with low DA, whereas one focused on short-term profit maximization might employ the opposite configuration. By masking such strategic configurations, current approaches can yield inconsistent or superficial findings.

The methodological and conceptual limitations summarized above become more pronounced in emerging markets. Weaker corporate governance, greater variation in accounting standard application, and more complex tax systems in these environments suggest that earnings management behaviors may differ significantly from those in developed markets (Leuz et al., 2003). Türkiye presents a particularly compelling context for examining the interplay between deferred tax accounting and earnings management due to the persistent divergence between its Accounting Standards and Tax Law. While existing studies on Türkiye (Gündüz, 2025; Özçelik, 2021) provide initial evidence that deferred taxes are used as an earnings management tool, they lack a comprehensive framework centered on firms' heterogeneous strategic profiles and the tactical coordination between deferred tax expense (DTE) and discretionary accruals (DA). To address these gaps, a novel four-part strategic typology is developed and tested in the following section.

2.2. Hypothesis Development

To address the identified gaps in the literature, this study proposes a strategic framework that jointly considers deferred tax expense (DTE) and discretionary accruals (DA). The core proposition is that firms coordinate these two tools to achieve distinct financial reporting objectives. This framework rests on the assumption that DTE and DA are not passive accounting outcomes but strategic instruments that managers actively position in concert. From this perspective, a firm's primary reporting-period objective—be it aggressive income increase, tax advantage, or earnings smoothing—determines the sign combination of these tools. Managers can substitute DTE for DA, use them complementarily, or position them in a balancing manner to achieve these goals.

The theoretical foundation of the proposed four-part typology rests on two well-established streams of the earnings management literature. One stream has documented that firms pursue heterogeneous strategic objectives, including aggressive income increasing, income smoothing, and big bath behaviors (Burgstahler & Dichev, 1997; Kirschenheiter & Melumad, 2002). A second stream, focusing on tax accounting, has shown that managers use deferred tax items asymmetrically depending on whether they aim to increase or decrease reported earnings (Frank et al., 2009).

The economic logic underlying this typology is that the signs of DTE and DA jointly reveal a firm's strategy for managing the relationship between financial reporting and tax objectives. +DA indicates a willingness to inflate reported earnings, while the sign of DTE reveals whether this inflation is accompanied by a corresponding increase in taxable income (+DTE) or achieved without triggering additional current tax liabilities (–DTE), for instance when aggressive revenue recognition is offset by tax deductions, investment incentives, or loss carryforwards that reduce taxable income. Conversely, –DA shows income-decreasing or conservative/smoothing behavior. When this conservatism reduces taxable income, the result is –DTE, reflecting lower tax obligations alongside lower reported earnings. However, when firms combine –DA with +DTE, they are effectively accepting higher tax costs in exchange for reduced regulatory or political scrutiny—consistent with the political cost hypothesis (Watts & Zimmerman, 1990)—and "big bath" accounting, where firms deliberately write down deferred tax assets through valuation allowances in bad years, only to reverse these charges and boost earnings in future periods. Building on these insights, a novel four-part strategic typology is derived from a 2 × 2 matrix formed by the binary signs of DTE and DA. Following standard empirical practice, +DA denotes income-increasing accruals, –DA denotes income-decreasing accruals, +DTE denotes deferred tax expense, and –DTE denotes deferred tax benefit. Since both variables can take either sign, four mutually exclusive strategic configurations naturally emerge. This logical derivation, while grounded in the recognition of strategic heterogeneity from prior literature, offers a novel classification that explicitly captures the coordinated use of DTE and DA—an aspect largely ignored in existing research. Importantly, these four strategic configurations are not arbitrary constructs; each corresponds to a distinct earnings management behavior documented in prior research. Based on this typology, firms are classified into the following four strategic groups:

Strategy 1: Aggressive income increasing (+DA, +DTE). Firms in this group employ +DA to directly inflate reported earnings. The simultaneous recognition of high +DTE—which arises because this earnings inflation is achieved without a corresponding increase in taxable income—signals aggressive upward earnings management without sacrificing current-period tax cash flows. This configuration aligns with evidence that firms exploit multiple channels to boost earnings (Phillips et al., 2003).

Strategy 2: Tax-costly income increasing (+DA, -DTE). Firms in this group employ +DA to inflate reported earnings, but simultaneously recognize –DTE. This configuration signals that the firm prioritizes book profit maximization over tax savings, thereby incurring a tax cost. This trade-off is documented in studies of tax-costly earnings management (Badertscher et al., 2009; Blaylock et al., 2012).

Strategy 3: Tax-advantaged income decreasing (-DA, +DTE). Firms in this group employ –DA to decrease or smooth reported earnings, while simultaneously recognizing +DTE. This configuration—consistent with firms building "cookie jar" reserves—allows the firm to manage earnings downward while securing current or future tax advantages. This behavior aligns with evidence on tax-advantaged income decreasing (Schrand & Wong, 2003).

Strategy 4: Moderate-income decreasing / smoothing (-DA, -DTE). Firms in this group employ –DA to decrease or smooth reported earnings, while simultaneously recognizing –DTE. This conservative configuration signals a general downward management of earnings through the combined use of both tools, reflecting a prudent financial reporting posture long recognized in the earnings management literature (Tucker & Zarowin, 2006).

This classification reconceptualizes earnings management from a one-dimensional phenomenon into a multi-dimensional strategy encompassing the tactical positioning of tax tools. Before examining strategy-specific effects, the following hypotheses test the overall relationship between deferred tax items and earnings management for the full sample, providing a baseline against which the strategic heterogeneity can be assessed.

H1: Basic relationship hypotheses (General model). For the overall sample, a substitutive relationship is predicted between deferred tax positions and DA. Specifically, when a firm attempts to increase profit, recognizing additional +DTE reduces reported earnings and thus constrains profit inflation. The firm must therefore either increase DA and accept higher DTE, or limit DA to avoid higher DTE, leading to an expected negative relationship (Phillips et al., 2003). Conversely, net deferred tax assets (NDTA) represent future tax-saving potential and facilitate profit-increasing efforts, suggesting a positive complementary relationship with DA (Burgstahler et al., 2002).

H1a: Deferred tax expense (DTE) is negatively associated with discretionary accruals (DA).

H1b: Net deferred tax assets (NDTA) are positively associated with discretionary accruals (DA).

H2: Strategic behavior differentiation hypothesis. Borsa Istanbul (BIST) firms are predicted to be significantly clustered into the four strategic groups based on the signs of DTE and DA, and these groups are expected to differ statistically in their levels of earnings management (DA) as well as their deferred tax positions (DTE). Such a finding would confirm that the developed typology captures meaningful heterogeneity in firm behavior.

H3: Strategy-based DTE relationship hypotheses: The relationship between DTE and DA is predicted to vary depending on the firm's strategic typology.

H3a: In the aggressive income increasing strategy, DTE is positively associated with DA.

H3b: In the tax-costly income increasing strategy, DTE is negatively associated with DA.

H3c: In the tax-advantaged income decreasing strategy, DTE is negatively associated with DA.

H3d: In the moderate-income decreasing/smoothing strategy, DTE is positively associated with DA.

H4: Strategy-based NDTA relationship hypotheses: The relationship between NDTA and DA is also predicted to vary by strategic type.

H4a: In the aggressive income increasing strategy, NDTA is positively associated with DA.

H4b: In the tax-costly income increasing strategy, NDTA is positively associated with DA.

H4c: In the tax-advantaged income decreasing strategy, the association between NDTA and DA is weak or statistically insignificant.

H4d: In the moderate-income decreasing/smoothing strategy, NDTA has no statistically significant association with DA.

3. Research Methodology

3.1. Sample and Data Set

The sample comprises 185 non-financial firms continuously listed on Borsa Istanbul (BIST) from 2008 to 2022. Because the calculation of discretionary accruals requires prior-year data, the dataset was extended to include 2007, yielding an effective sample period of 2007–2022. Firms without continuous listing, those with differing financial reporting calendars, and entities in heavily regulated sectors subject to specific accounting rules—such as banking, finance, and insurance—were excluded. The final sample of 185 firms is distributed across the following industries: Manufacturing (124), Holding and Investment (18), Wholesale and Retail Trade (15), Technology (9), Transportation and Telecommunications (6), Electricity, Gas and Water (5), Construction (5), and Mining (3).

The sample period is limited to 2008–2022 due to the methodological implications of inflation adjustments mandated by TMS 29 (Financial Reporting in Hyperinflationary Economies) for fiscal years ending December 31, 2023. Under TMS 29, non-monetary assets and related expenses are restated for inflation, fundamentally altering their reported values compared to the historical cost basis applied in prior years. This adjustment affects both the individual accounts used in variable construction and the scaling variable (total assets). Although the standard requires restatement of 2022 comparative figures, data for earlier years remain unadjusted. This partial application introduces a lack of comparability between the pre-2022 and post-2022 periods. Including 2023 and 2024 would therefore introduce a structural break, potentially confounding the analysis and biasing inferences.

Consequently, to preserve methodological consistency, the analysis is confined to 2008–2022, during which all accounting data are prepared on a consistent historical cost basis. All financial data were compiled from annual financial statements and activity reports publicly available on the websites of Borsa Istanbul (BIST), the Public Disclosure Platform (KAP), and the respective companies. As this study relies exclusively on publicly available secondary data, it does not require ethics committee approval.

3.2. Research Model and Variables

To test the developed hypotheses, the following baseline panel regression model was estimated.

$$DA_{it} = \beta_0 + \beta_1 DTE_{it} + \beta_2 NDTA_{it} + \beta_3 FSIZE_{it} + \beta_4 ROA_{it} + \beta_5 LEV_{it} + \beta_6 CAPT_{it} + \beta_7 TURN_{it} + \beta_8 GROWTH_{it} + \beta_9 CFO_{it} + \varepsilon_{it} \quad (1)$$

The independent variables of primary interest are deferred tax expense (DTE) and net deferred tax assets (NDTA = DTA – DTL). Following standard empirical practice, the raw accounting sign of DTE is transformed (multiplied by –1) such that +DTE denotes deferred tax expense and –DTE denotes deferred tax benefit. Under IAS 12, both DTE and NDTA are subject to managerial discretion. DTE reflects the income statement effect of temporary book-tax differences, while NDTA captures the net balance sheet position and requires estimates of future taxable profit for DTA recognition. All continuous variables were winsorized at the 1st and 99th percentiles. Variable definitions and measurements are presented in Table 1.

Table 1. Definitions and Measurements of Variables

Variables	Definition	Measurement	Supporting Literature
Dependent Variable			
DA	Discretionary Accruals	Kothari et al. (2005) performance-matched modified Jones model	Jones (1991); Kothari et al. (2005).
Independent and Control Variables			
DTE	Deferred Tax Position	Deferred tax income (expense) / Total assets	Hanlon & Heitzman (2010); Phillips et al. (2003)
NDTA	Net Deferred Tax Assets	(Deferred tax assets - Deferred tax liabilities) / Total Assets	Burgstahler et al. (2002); Miller & Skinner (1998).
FSIZE	Firm Size	Natural logarithm of total assets	Dechow et al. (2010); Watts & Zimmerman (1990).
ROA	Return on Assets	Net income / Total assets	Dechow et al. (2010); Kothari et al. (2005).
LEV	Leverage	Total liabilities / Total assets	Dechow et al. (2010); DeFond & Jiambalvo (1994).
CAPT	Capital Intensity	Tangible fixed assets / Total assets	Dechow et al. (2010); Francis et al. (2005).
TURN	Asset Turnover	Net sales / Total assets	Dechow et al. (2010); Kothari et al. (2005).
GROWTH	Sales Growth	(Current year sales – Prior year sales) / Prior year sales	Dechow et al. (2010); Skinner & Sloan (2002).
CFO	Operating Cash Flow	Cash flows from operating activities / Total assets	Dechow et al. (1995); Kothari et al. (2005).

Source: Created by the author.

Measurement of Discretionary Accruals (DA): DA is estimated using the performance-matched modified Jones model (Kothari et al., 2005). The estimation follows a standard three-stage procedure via cross-sectional ordinary least squares (OLS) regressions. For the purposes of this study, the signed values of DA are retained, as the sign (+/–) is central to the strategic typology framework.

Stage 1. Calculation of Total Accruals (TACC): TACC is calculated as the difference between net income and operating cash flow:

$$TACC_{ijt} = NI_{ijt} - CFO_{ijt} \quad (2)$$

Where NI_{ijt} is net income and CFO_{ijt} is operating cash flows for firm i in industry j for year t. All variables are scaled by lagged total assets (A_{ijt-1}).

Stage 2. Estimation of Industry-Year Coefficients*:* For each industry-year combination, the following cross-sectional OLS regression (Model 3) is estimated to obtain the coefficients for non-discretionary accruals:

$$TACC_{ijt} = \beta_0 + \beta_1(1/A_{ijt-1}) + \beta_2(\Delta REV_{ijt} - \Delta REC_{ijt}) + \beta_3 PPE_{ijt} + \beta_4 ROA_{ijt} + \varepsilon_{ijt} \quad (3)$$

Where ΔREV_{ijt}, is the change in revenue, ΔREC_{ijt} is the change in accounts receivable, PPE_{ijt} is property, plant, and equipment, ROA_{ijt} is the return on assets ratio, β is the regression coefficients. All variables (except ROA) are scaled by lagged total assets (A_{ijt-1}). The residual term (ε_{ijt}) represents the discretionary accruals for the estimation sample.

Stage 3. Calculation of DA for the Full Sample: The estimated industry-year coefficients (β) obtained in Stage 2 are applied to the corresponding firm-year variables to compute non-discretionary accruals (NDA), as shown in Model 4.

$$NDA_{ijt} = \beta_0 + \beta_1(1/A_{ijt-1}) + \beta_2(\Delta REV_{ijt} - \Delta REC_{ijt}) + \beta_3 PPE_{ijt} + \beta_4 ROA_{ijt} \quad (4)$$

Final Calculation: DA for each firm-year observation is calculated as the difference between total accruals and the estimated non-discretionary portion.

$$DA_{ijt} = TACC_{ijt} - NDA_{ijt} \quad (5)$$

Positive values of DA (+DA) indicate income-increasing earnings management, while negative values (–DA) indicate income-decreasing earnings management.

All statistical analyses presented in this study, including diagnostic tests, correlation matrices, and panel data regressions, were conducted using Stata/MP 17.0.

4. Analysis Results

4.1. Descriptive Statistics and Strategic Typology Distribution

Descriptive statistics for the variables in the research model are presented in Table 2.

Table 2. Descriptive Statistics

	Mean	Median	Std. Dev.	Minimum	Maximum	Observations
DA	-0.002	-0.003	0.135	-0.423	0.465	2,775
DTE	-0.003	-0.001	0.011	-0.054	0.025	2,775
NDTA	-0.002	0.000	0.030	-0.095	0.090	2,775
FSIZE	8.919	8.842	0.828	7.051	11.125	2,775
ROA	0.048	0.041	0.098	-0.256	0.383	2,775
LEV	0.508	0.532	0.240	0.024	1.003	2,775
CAPT	0.301	0.288	0.192	0.000	0.758	2,775
TURN	0.865	0.768	0.574	0.004	2.902	2,775
GROWTH	0.273	0.152	0.563	-0.645	3.589	2,775
CFO	0.060	0.053	0.103	-0.234	0.366	2,775
DA>0	0.107	0.066	0.196	0.000	0.465	1,352
DA<0	-0.102	-0.065	0.179	-0.423	0.000	1,423

Source: Created by the author.

The mean of DA is close to zero (–0.002), indicating no systematic directional bias in earnings management across the overall sample. However, the substantial standard deviation (0.135), coupled with the similar number of observations with positive (mean: 0.107) and negative (mean: -0.102) DA values, suggests the sample is evenly split between firms employing income-increasing and income-decreasing strategies. Regarding DTE, the mean value is –0.003, indicating that, on average, firms report deferred tax benefits rather than expenses. This suggests that, for the average BIST firm, deferred tax items more frequently act as a booster rather than a constraint of reported earnings. The standard deviation of 0.011 points to meaningful variation in how firms utilize deferred taxes. The mean of NDTA is –0.002 and the median is 0.000, indicating a balanced distribution in which approximately half of the firm-year observations reflect

a net deferred tax asset position and half reflect a net deferred tax liability position. In terms of firm characteristics, the sample exhibits considerable heterogeneity. Firm size (FSIZE), measured as the natural logarithm of total assets, has a mean of 8.919 and a median of 8.842. The relatively small standard deviation (0.828) and narrow range (7.051 to 11.125) indicate that after winsorizing, firms are comparable in scale. Regarding profitability, the mean Return on Assets (ROA) is 0.048, with a median of 0.041. The standard deviation of 0.098 and wide range (–0.256 to 0.383) reflect significant heterogeneity in financial performance. The relatively low mean and median values, coupled with considerable dispersion, provide a setting where managerial incentives for earnings management—either to mask poor performance or to sustain growth trends—are likely present. The average leverage (LEV) of 0.508 indicates substantial debt financing by Turkish firms. The mean tangible asset intensity (CAPT) of 0.301 suggests moderate capital intensity, with approximately one-third of assets comprising property, plant, and equipment. The proximity of the median (0.288) to the mean indicates a roughly symmetrical distribution, though the minimum of zero reflects service-sector firms with negligible tangible assets. The asset turnover (TURN) mean of 0.865 and median of 0.768 point to reasonable operational efficiency with significant cross-sectoral variation. An average sales growth (GROWTH) of 0.273 signals an overall expansionary trend, though the right-skewed distribution (median: 0.152) points to irregular high-growth periods for some firms. Finally, the mean operating cash flow (CFO) of 0.060 reflects generally healthy cash generation.

In summary, the descriptive statistics reveal a heterogeneous sample of BIST firms characterized by balanced income-increasing and income-decreasing accrual practices, a tendency toward deferred tax benefits, and substantial variation in financial characteristics. This heterogeneity provides a suitable foundation for investigating the strategic coordination between earnings management and deferred tax accounting.

The pronounced diversity in firms' approaches to earnings management is analyzed using the four-part strategic typology. As shown in Table 3, firm-year observations are distributed across the four strategic groups derived from the signs of DA and DTE.

Table 3. Distribution of Firm-Year Observations by Strategic Typology

No	Strategy	Definition	Obs.	Percent (%)	Cumulative Percent
1	Aggressive income increasing	DA > 0 and DTE ≥ 0	528	19.03	19.03
2	Tax-costly income increasing	DA > 0 and DTE < 0	824	29.69	48.72
3	Tax-advantaged income decreasing	DA < 0 and DTE ≥ 0	571	20.57	69.29
4	Moderate income decreasing/smoothing	DA < 0 and DTE < 0	852	30.71	100
	Total		2,775	100	100

Source: Created by the author.

A Chi-Square goodness-of-fit test strongly rejects the null hypothesis of equal distribution ($\chi^2 = 111.77$, df = 3, $p < 0.001$), providing robust support for H2 and confirming that the typology captures meaningful heterogeneity in the earnings management strategies employed by BIST firms. The distribution reveals a clear dichotomy: 48.7% of observations employ income-increasing accrual strategies, while 51.3% utilize income-decreasing strategies. The most prevalent approach is the moderate-income decreasing/smoothing strategy (30.7%), wherein firms combine income-decreasing accruals with deferred tax benefits, prioritizing conservative reporting. This is closely followed by the tax-costly income increasing strategy (29.7%),

reflecting firms that boost reported earnings through accruals while simultaneously recognizing deferred tax benefits. The tax-advantaged income decreasing strategy accounts for 20.6% of the sample, representing firms that decrease earnings via accruals while recognizing deferred tax expenses to secure tax advantages. The aggressive income increasing strategy, combining positive accruals with deferred tax expenses, represents 19.0% of observations. Notably, 60.4% of observations (Strategies 2 and 4) exhibit deferred tax benefits (DTE < 0), suggesting that for most BIST firms, deferred tax items act as a booster rather than a constraint of reported earnings. The low incidence of aggressive strategies and the prevalence of deferred tax benefits underscore BIST firms' tendency to use tax accounting discretion to support earnings targets while managing tax costs.

4.2. Correlation Analysis

Table 4 presents the results of the Spearman correlation analysis for the variables in the research model. A key finding is the absence of a statistically significant correlation between DA and DTE (r = –0.019, p = 0.342). This indicates that the relationship is not governed by a simple, universal linear rule, underscoring the necessity of a conditional, strategy-based analytical framework.

Table 4. Spearman Correlation Matrix

Correlation										
P-Values	**DA**	**DTE**	**NDTA**	**FSIZE**	**ROA**	**LEV**	**CAPT**	**TURN**	**GROWTH**	**CFO**
DA	1									

DTE	-0.019	1								
	0.342	-----								
NDTA	-0.001	-0.060	1							
	0.963	0.003	-----							
FSIZE	-0.065	0.018	-0.030	1						
	0.001	0.352	0.126	-----						
ROA	-0.159	-0.005	0.098	0.203	1					
	0.000	0.784	0.000	0.000	-----					
LEV	-0.028	0.008	0.132	0.205	-0.412	1				
	0.155	0.704	0.000	0.000	0.000	-----				
CAPT	-0.118	-0.074	-0.221	-0.036	-0.198	0.026	1			
	0.000	0.000	0.000	0.071	0.000	0.196	-----			
TURN	-0.106	-0.044	0.227	-0.108	0.142	0.196	-0.046	1		
	0.000	0.026	0.000	0.000	0.000	0.000	0.022	-----		
GROWTH	-0.069	0.024	0.066	0.242	0.258	0.139	-0.070	0.105	1	
	0.001	0.235	0.001	0.000	0.000	0.000	0.000	0.000	-----	
CFO	-0.815	-0.001	0.065	0.181	0.384	-0.063	0.097	0.163	0.044	1
	0.000	0.964	0.001	0.000	0.000	0.002	0.000	0.000	0.027	---

Source: Created by the author.
Note: The first row for each variable reports the Spearman correlation coefficient (r); the second row reports the corresponding p-value. N = 2,775.

Other notable correlations align with theoretical expectations. A strong negative correlation exists between DA and operating cash flow (CFO) (r = –0.815, p < 0.01), inherent in the calculation of accruals and confirming the construct validity of the DA measure. Interestingly, firm size (FSIZE) exhibits a small but

statistically significant negative correlation with DA ($r = –0.065$, $p < 0.01$), suggesting that larger BIST firms are marginally less likely to engage in extreme accrual-based earnings management, possibly due to greater regulatory scrutiny or more sophisticated internal controls. A weak but statistically significant negative correlation is observed between the two deferred tax metrics, NDTA and DTE ($r = –0.060$, $p < 0.01$), reflecting the inherent tension between balance sheet and income statement deferred tax accounts.

An assessment for multicollinearity shows that no pair of independent variables exhibits a correlation coefficient exceeding 0.70 in absolute value. The highest correlations are among control variables (e.g., ROA-LEV: $r = –0.412$; ROA-CFO: $r = 0.384$), which are not severe enough to pose a critical concern. This preliminary finding is further corroborated by the Variance Inflation Factor (VIF) analysis presented in the following section.

4.3. Diagnostic Tests and Model Specification

Prior to estimating the main regression model, a comprehensive series of diagnostic tests was conducted to assess the validity of standard panel data assumptions and to determine the appropriate model specification. The results, summarized in Table 5, reveal the presence of cross-sectional dependence, heteroscedasticity, and first-order autocorrelation.

Table 5. Summary of Panel Diagnostic Tests

Test	Statistic	p-value	Conclusion
Cross-Sectional Dependence (Pesaran CD)	CD range: -5.90 to 16.87	< 0.01 (5 of 10 variables)	CD Present for key variables
Heteroscedasticity (Modified Wald)	$\chi^2(178) = 90{,}243$	< 0.01	Heteroscedasticity Present
Autocorrelation (Wooldridge)	$F(1, 177) = 4.375$	< 0.05	Autocorrelation Present
Estimator Selected	Driscoll-Kraay (1998) (lag=2)		Robust to all above violations

Source: Created by the author.
Note: The Pesaran CD test was conducted on all variables in levels. The Modified Wald and Wooldridge tests were conducted on the fully specified fixed effects model.

As shown in Table 5, the diagnostic tests confirm three violations of standard panel data assumptions. First, the Pesaran (2015) CD test rejects the null hypothesis of weak cross-sectional dependence for the key variables of interest (DA, DTE, NDTA, CFO, and GROWTH), indicating that firms in the sample are affected by common unobserved shocks. Second, the Modified Wald test strongly rejects homoscedasticity ($p < 0.01$), confirming that error variances differ significantly across firms. Third, the Wooldridge test confirms the presence of first-order autocorrelation in the residuals ($p < 0.05$). To address all three issues, the analysis employs Fixed Effects with Driscoll-Kraay (1998) standard errors, which are robust to all three violations up to 2 lags (Driscoll & Kraay, 1998; Hoechle, 2007).

Prior to model estimation, the stationarity of all variables was assessed using the Pesaran (2007) CIPS panel unit root test, which accounts for cross-sectional dependence. The results indicate that DA, DTE, CFO, and GROWTH are stationary in levels, i.e., I(0), at the 1% significance level, while LEV is stationary at the 5% significance level ($p = 0.033$). Conversely, NDTA, FSIZE, ROA, CAPT, and TURN exhibit unit roots, I(1). Accordingly, the I(1) control variables enter the regression models in their first-differenced form (dFSIZE, dROA, dCAPT, and dTURN). Although NDTA is found to be I(1), it is retained in level form for theoretical consistency. The strategic typology framework relies on NDTA as a balance sheet indicator of accumulated deferred tax positions; first- differencing would transform it into period-to-period changes, disconnecting

the analysis from this theoretical construct. Prior studies examining NDTA as an earnings management tool (Burgstahler et al., 2002; Miller & Skinner, 1998; Schrand & Wong, 2003) similarly employ NDTA in levels. Finally, the Variance Inflation Factor (VIF) was calculated to assess multicollinearity. As reported in Table 6, all VIF values are below 10 (range: 1.02–1.23; mean: 1.09). This confirms that the estimated coefficients are not distorted by multicollinearity concerns.

4.4. Main Regression Analysis (General Model - H1 Test)

Table 6 presents the results of the main regression model for the full sample. The model is estimated using Fixed Effects regression with Driscoll-Kraay (1998) standard errors to address the cross-sectional dependence, heteroscedasticity, and autocorrelation identified in the diagnostic tests. The dependent variable is DA, and the key independent variables are DTE and NDTA. All control variables are included as specified in the methodology section, with non-stationary variables in first differences. The model exhibits strong explanatory power, with a within R-squared of 0.775.

Table 6. Deferred Tax Positions and Earnings Management: Driscoll-Kraay Estimation (Full Sample)

Variable	Coefficient	D-K Std. Error	t-statistic	p-value	VIF
DTE	0.031	0.098	0.31	0.758	1.02
NDTA	0.1688**	0.066	2.56	0.024	1.03
dFSIZE	0.0526*	0.025	2.12	0.054	1.19
dROA	0.008	0.034	0.25	0.809	1.23
LEV	-0.050***	0.014	-3.64	0.003	1.13
dCAPT	0.003	0.024	0.12	0.905	1.06
dTURN	-0.013	0.010	-1.37	0.194	1.05
GROWTH	-0.0069**	0.003	-2.16	0.050	1.05
CFO	-1.127***	0.025	-45.97	0.000	1.03
Constant	0.078***	0.008	10.26	0.000	—
Model Statistics					
Observations	2,590		Within R^2	0.775	
Number of Firms	185		F-statistic (22, 13)	18,338.29	
Year Fixed Effects	Yes		Prob > F	0.000	

Source: Created by the author.
Note: *** p<0.01, ** p<0.05, * p<0.10. D-K Std. Error = Driscoll-Kraay standard errors (lag=2). All VIF <10.

H1a: Deferred Tax Expense (DTE) and Discretionary Accruals (DA). Hypothesis H1a predicted a negative substitutive relationship between DTE and DA. However, the coefficient on DTE is positive but statistically insignificant ($\beta = 0.031$, $p = 0.758$). Therefore, H1a is not supported by the full-sample analysis. This indicates that across the entire sample, there is no simple, universal linear relationship between DTE and DA. This is consistent with the mixed evidence in the prior literature—where some studies report a negative constraining effect (Gündüz, 2025; Phillips et al., 2003), others find a positive relationship (Tohumcuoğlu, 2023), and still others report no significant effect. These contradictory findings underscore the necessity of the conditional, strategy-based analytical framework developed in this study.

H1b: Net Deferred Tax Assets (NDTA) and Discretionary Accruals (DA). H1b predicted a positive relationship between NDTA and DA, based on the view that NDTA represents future tax-saving potential that motivates profit-increasing efforts (Burgstahler et al., 2002). Consistent with this prediction, NDTA is

positive and significant at the 5% level (β = 0.169, p = 0.024). This supports H1b, suggesting firms with larger NDTA positions report higher levels of income-increasing DA. This aligns with the view that NDTA provides both opportunity and incentive for earnings management, contrasting with studies reporting no effect (Kurt, 2024; Sari & Afandi, 2023) or even a negative effect (Gündüz, 2025).

Regarding the control variables, leverage (LEV) is negatively associated with DA (β = -0.050, p = 0.003), suggesting that more highly leveraged firms engage in less income-increasing earnings management, possibly due to increased monitoring by creditors. Operating cash flow (CFO) shows a strong negative association with DA (β = -1.127, p < 0.001), which is mechanically inherent in the accrual calculation. Sales growth (GROWTH) is negatively associated with DA (β = -0.007, p = 0.050), indicating that rapidly growing firms may have less need to manage earnings upward. Firm size (dFSIZE) exhibits a positive association at the 10 % level (β = 0.053, p = 0.054), suggesting larger firms tend to engage in more income-increasing earnings management. The remaining control variables—dROA, dCAPT, and dTURN—are statistically insignificant.

Taken together, the full-sample results reveal a significant positive (complementary) relationship for NDTA, but no significant relationship for DTE. The rejection of H1a, in particular, challenges the assumption of a uniform substitutive relationship across all firms. The insignificant average effect of DTE may mask substantial underlying heterogeneity, wherein the relationship is conditional upon the firm's specific strategic orientation. For instance, a negative DTE coefficient may be present only among firms pursuing certain strategies, while being absent or even reversed in others. This possibility is directly examined in the following section through the analysis of the four-strategy typology, which tests the differentiation predicted by H2.

4.5. Regression Analysis by Strategic Typology (H3 & H4 Test)

To test the H3 and H4 —which predict that the relationships of DTE and NDTA with DA are contingent on a firm's strategic profile—separate regression were conducted for each strategic group. The models, which include all control variables and use the same robust estimation methods as the main model, are summarized in Table 7.

Table 7. Regression Results for the Four-Part Strategic Typology

Dependent Variable: DA							
Strategic Typology	**Obs.**	**Variable**	**Coef.**	**D-K Std. Error**	**t-Stat.**	**p-Value**	**R^2**
1. Aggressive income increasing (+DA, +DTE)	493	DTE	-0.577	0.594	-0.97	0.348	0.631
		NDTA	**0.467*** **	0.083	5.64	**0.000**	
2. Tax-costly income increasing (+DA, -DTE)	756	DTE	0.142	0.199	0.71	0.489	0.711
		NDTA	0.218	0.137	1.58	0.137	
3. Tax-advantaged income decreasing (-DA, +DTE)	532	DTE	-0.145	0.285	-0.51	0.619	0.740
		NDTA	-0.106	0.209	-0.51	0.621	
4. Moderate income decreasing/smoothing (-DA, -DTE)	800	DTE	**0.438*** **	0.109	4.01	**0.001**	0.669
		NDTA	-0.026	0.229	-0.11	0.912	

Source: Created by the author.
Note: *** p<0.01, ** p<0.05, * p<0.10. All models estimated using Fixed Effects with Driscoll-Kraay (1998) standard errors. Control variables and year fixed effects are included but not reported

The results in Table 7 show that the relationships of DTE and NDTA with earnings management vary substantially across the four strategic groups, validating the typological framework.

H3: Strategy-based DTE relationships. The relationship between DTE and DA is highly strategy-specific. In the aggressive income increasing strategy, DTE is negative but insignificant (β = -0.577, p = 0.348), rejecting H3a. In the tax-costly income increasing strategy, DTE is positive but insignificant (β = 0.142, p = 0.489), rejecting H3b. In the tax-advantaged income decreasing strategy, DTE is negative but insignificant (β = -0.145, p = 0.619), rejecting H3c. In contrast, in the moderate-income decreasing/smoothing strategy, DTE is strongly positive and significant (β = 0.438, p = 0.001), supporting H3d and indicating coordinated, complementary use of DTE and DA.

H4: Strategy-based NDTA relationships. The relationship between NDTA and DA also varies across strategic groups. In the aggressive income increasing strategy, NDTA is strongly positive and significant (β = 0.467, p < 0.001), supporting H4a. In the tax-costly income increasing strategy, NDTA is positive but insignificant (β = 0.218, p = 0.137), rejecting H4b. In the tax-advantaged income decreasing strategy, NDTA is negative but insignificant (β = -0.106, p = 0.621), rejecting H4c. In the moderate-income decreasing/smoothing strategy, NDTA is negative but insignificant (β = -0.026, p = 0.912), supporting H4d.

These findings indicate that the relationships between deferred tax items and earnings management are conditional on a firm's overarching reporting and tax strategy (Burgstahler & Dichev, 1997; Frank et al., 2009). The full-sample analysis, which reported an insignificant average relationship for DTE (β = 0.031, p = 0.758), masks substantial underlying heterogeneity. The typology reveals that DTE plays a significant role only within certain strategic contexts—most notably as a complementary tool for firms pursuing conservative earnings smoothing (Strategy 4). Similarly, the positive association of NDTA is concentrated primarily among firms pursuing aggressive income-increasing strategies (Strategy 1). This demonstrates the framework's utility in revealing the complex, non-uniform relationships obscured by the full-sample analysis.

To address potential endogeneity concerns—particularly reverse causality between DA and DTE—an instrumental variable (IV) approach was employed. Following standard practice, the first lag of DTE (L.DTE) served as an instrument. The model was estimated using Fixed Effects Instrumental Variable (FE-IV) regression.

Table 8. Endogeneity Test: FE vs. FE-IV Estimation

Model	**DTE Coefficient**	**Std. Error**	**p-value**
Fixed Effects (FE)	-0.048	0.087	0.580
Fixed Effects IV (FE-IV)	-0.048	0.086	0.578
Sargan Overidentification Test: $\chi^2(1) = 0.462$, p = 0.497.			

Source: Created by the author.

The IV results were nearly identical to the standard FE model (β = -0.048 in both, p > 0.10), and the Sargan test did not reject instrument validity (p = 0.497). The choice of L.DTE as an instrument rests on the reasoning that while current-period DTE may be correlated with contemporaneous DA through managerial discretion, its lagged value is predetermined and thus unlikely to be influenced by current-period accrual decisions. To assess the sensitivity of the results, the model was also estimated using two lags of DTE as

additional instruments; the findings remained qualitatively unchanged. These results indicate that endogeneity does not bias the main results, and DTE can be treated as exogenous. Furthermore, the use of Driscoll-Kraay (1998) standard errors ensures robust inference to cross-sectional dependence, heteroscedasticity, and autocorrelation. These robustness checks confirm the reliability of the reported findings.

5. Discussion

This study shows that the relationship between deferred tax items and earnings management is not uniform but a conditional phenomenon shaped by firms' distinct strategic priorities.

The main regression analysis revealed no significant relationship between DTE and DA. This null finding indicates that no universal linear relationship exists, consistent with the mixed evidence in prior literature—some studies report a negative effect (Gündüz, 2025; Phillips et al., 2003), others a positive relationship (Tohumcuoğlu, 2023), and still others no effect. Conversely, NDTA exhibited a significant positive relationship with DA, supporting the view that larger NDTA positions provide both opportunity and incentive for income-increasing earnings management (Burgstahler et al., 2002).

A critical limitation of this aggregate view is its assumption of uniform behavior. The strategy-specific regressions reveal substantial heterogeneity masked by the average result. For the aggressive income increasing strategy, DTE is insignificant, but NDTA is strongly positive. This indicates that these firms leverage their NDTA to boost earnings, while DTE is neither constraint nor complement. The strong positive association of NDTA aligns with Burgstahler et al. (2002), who document that firms strategically use net deferred tax assets to achieve earnings targets, and Miller and Skinner (1998), who show that valuation allowances—a key component of NDTA—provide significant discretion for earnings management. For the tax-costly income increasing strategy, neither DTE nor NDTA is significant, suggesting that firms prioritizing book profits over tax savings accept tax costs without adjusting behavior in response to deferred tax positions. These null findings align with the notion that when book profit maximization takes priority, deferred tax positions recede into the background. Badertscher et al. (2009) document precisely such a trade-off, showing that firms willingly incur tax costs to meet earnings targets. Blaylock et al. (2012) reinforce this perspective, demonstrating that large positive book-tax differences are associated with lower earnings persistence. For the tax-advantaged income decreasing strategy, both variables are insignificant. This suggests that these firms prioritize conservative reporting and tax advantages over active use of deferred tax accounts. This finding is consistent with Schrand and Wong (2003), who document that firms use valuation allowances to create "cookie jar" reserves, and with the broader literature on conservative reporting practices (Francis et al., 2005). The most revealing finding concerns the moderate-income decreasing/smoothing strategy, where DTE is strongly positive and significant, while NDTA is insignificant. This reveals a coordinated dual approach: firms simultaneously report income-decreasing accruals and high-deferred tax expense, building reserves while securing tax advantages. This finding provides novel evidence that tax planning and earnings management can serve as complementary tools, extending the income smoothing literature (Tucker & Zarowin, 2006) and responding to Hanlon and Heitzman's (2010) call for research examining the joint use of tax and financial reporting discretion.

These heterogeneous patterns are best understood within Türkiye's institutional context. BIST firms operate under a dual reporting system characterized by persistent divergence between Turkish Accounting Standards

(TMS 12/IAS 12) and domestic tax legislation. This structural feature creates both opportunity and incentive for the strategic use of deferred tax accounts, as firms navigate between financial reporting objectives and tax planning imperatives. Moreover, the prevalence of concentrated ownership and evolving corporate governance practices typical of emerging markets provides fertile ground for the strategic behaviors documented in this study. The coordinated smoothing strategy observed in Strategy 4, for instance, aligns with the incentives of controlling shareholders who prioritize long-term stability and tax efficiency over short-term earnings maximization. In such environments, where external monitoring may be less stringent than in developed markets, the strategic deployment of deferred tax positions serves as a mechanism for balancing financial reporting objectives with tax planning imperatives.

6. Conclusion

This study investigated the relationship between deferred tax strategies and earnings management among non-financial firms listed on Borsa Istanbul, developing a systematic framework to explain the heterogeneous behaviors observed. The main regression analysis revealed that NDTA has a significant positive association with DA, while DTE exhibited no significant relationship in the aggregate analysis.

Synthesizing these findings leads to two principal conclusions. First, the deferred tax–earnings management relationship is conditional on strategic profile. The role of DTE varies substantially: it remains statistically insignificant in aggressive, tax-costly, and tax-advantaged strategies, yet emerges as a strong positive and significant factor in the smoothing strategy. This variation explains the inconsistent findings in prior literature and clarifies why the full-sample DTE coefficient was insignificant—the aggregation of fundamentally different strategic behaviors simply offset one another. Second, the sign combination of DTE and DA provides powerful clues about firms' integrated financial reporting and tax strategies, revealing distinct strategic orientations that remain obscured by aggregate analysis.

Building on these conclusions, the core contribution of this study lies in the empirical validation of the four-part strategic typology. This framework reveals that the deferred tax–earnings management relationship is fundamentally contingent on strategic profile. The smoothing strategy reveals a coordinated dual approach wherein firms simultaneously manage earnings downward while recognizing deferred tax expense to secure tax advantages. Similarly, the positive association of NDTA is concentrated primarily among firms pursuing aggressive income-increasing strategies.

These findings carry both theoretical and practical implications. Theoretically, this study resolves a key inconsistency in the literature by demonstrating that the deferred tax–earnings management relationship is conditional on strategic heterogeneity. It also introduces a novel analytical framework that treats the accounting signs of key variables as strategic indicators, directly modeling the tactical coordination between tax and financial reporting tools. From a practical standpoint, the findings offer valuable insights for auditors and regulators—particularly regarding the Smoothing strategy, which represents a sophisticated behavioral pattern that warrants prioritized attention in risk-based audit processes. For investors and analysts, the sign combination of DTE and DA provides a strategic signal about a firm's integrated reporting approach. For standard-setters, this study illustrates how the predictive nature of NDTA under IAS 12 creates discretion that is strategically utilized.

This study is subject to certain limitations that also suggest avenues for future research. First, the analysis is confined to non-financial BIST firms; testing the framework in other markets would assess its generalizability across different tax regimes and governance structures. Second, while the typology reveals strategic patterns based on observed accounting signs, it does not directly capture managerial motivations—qualitative methods could provide deeper insight into the decision-making processes underlying these strategic choices. Finally, applying the typology across different countries and regulatory environments would offer a valuable comparative perspective on how institutional factors shape the strategic use of deferred tax accounts.

In sum, this research underscores the critical need for an integrated analytical perspective—one that moves beyond the assumption of homogeneous firm behavior to account for strategic diversity and the coordinated use of accounting instruments. The developed typology provides a robust framework for disentangling the complex interplay between deferred taxes and earnings quality. For emerging markets like Türkiye, characterized by persistent book-tax differences and evolving regulatory environments, understanding these strategic configurations is particularly salient. Ultimately, this study demonstrates that deferred tax accounts are not merely technical compliance items but active components of firms' strategic toolkits, and that their role in earnings management can only be fully understood through the lens of strategic heterogeneity.

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8. Financial Support: This study did not benefit from any funding or support.

9. Author Contributions: The author is solely responsible for the conception and design of the study, data collection, analysis and interpretation of results, and the writing and revision of the manuscript.

10. Ethics Committee Statement and Intellectual Property Copyrights: The study adhered to the ethics committee's principles, and necessary permissions were obtained in accordance with intellectual property and copyright regulations.

11. Data Availability: All data used in this study are publicly available from the sources referenced in the Methodology (Section 3.1).

12. Use Of Artificial Intelligence (AI) Tools: In this study, limited artificial intelligence tools were utilized solely for the purpose of language editing

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