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Discretionary Accruals under Positive Accounting Theory: The Role of Sustainability Disclosure and Ownership Governance in Indonesian Basic and Chemical Industry Firms

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Abstract

This study examines signed discretionary accruals as accounting choice behavior within the Positive Accounting Theory (PAT) framework in Indonesian basic and chemical industry firms. Using balanced panel data from 58 firms during 2021–2024 (232 firm-year observations), discretionary accruals are measured using the Modified Jones Model, while the analysis employs a cross-section fixed effects model selected through Chow and Hausman tests. The findings provide partial and conditional support for PAT. Profitability shows a weak negative association with signed discretionary accruals, indicating limited support for the bonus-plan hypothesis. Leverage is negatively and significantly associated with signed discretionary accruals, suggesting that debt-contracting pressure encourages more income-decreasing or less income-increasing accrual choices. Firm size demonstrates the strongest negative association, indicating that political costs represent the most robust PAT mechanism in this sector. Sustainability disclosure significantly moderates the relationships between profitability, leverage, firm size, and signed discretionary accruals. Institutional ownership also moderates the profitability and leverage channels but does not influence the firm-size channel. In contrast, managerial ownership does not significantly moderate any of the tested relationships. Overall, the findings suggest that accounting choice behavior in Indonesian basic and chemical industry firms is better explained by a conditional PAT perspective, where political costs and sustainability disclosure are more influential than bonus-plan incentives, while ownership governance operates selectively through institutional ownership.

KEYWORDS

discretionary accruals; institutional ownership; managerial ownership; positive accounting theory; sustainability disclosure.

Introduction

Financial statements, particularly accounting earnings, remain a primary basis for evaluating corporate performance and future prospects. Nevertheless, reported earnings do not always fully represent a firm's underlying economic performance because accounting standards allow managerial judgment and estimation in revenue recognition, expense matching, and accrual determination (Alsharairi et al., 2020; Cugova & Cug, 2021; Odoemelam et al., 2019). This flexibility creates room for discretionary accrual choices that affect reported earnings and is therefore widely used in the literature as an important proxy for earnings management and reporting discretion (Hong et al., 2022a; C. P. Nguyen & Pham, 2025).

From the perspective of Positive Accounting Theory (PAT), discretionary accruals are viewed as a rational outcome of managerial accounting choices rather than merely opportunistic deviations or manipulative practices. PAT posits that managers behave rationally to maximize their utility while operating under contractual arrangements and

economic pressures faced by the firm. The theory highlights three key mechanisms that shape managerial reporting behavior: (1) performance-based incentives embedded in earnings-linked compensation arrangements (bonus plans), (2) contractual pressures arising from debt agreements, typically reflected through debt covenant constraints, and (3) political costs associated with public visibility and regulatory scrutiny. Accordingly, discretionary accruals are positioned as a reporting tool that managers may use to adjust financial outcomes in response to incentives, contractual constraints, and external pressures (Ardiansyah, 2022; Khalil & Simon, 2014; Li et al., 2020).

Empirical evidence indicates that firm-specific characteristics play a significant role in explaining variations in discretionary accruals. Within the Positive Accounting Theory framework, performance incentives articulated in the bonus plan hypothesis are commonly proxied by profitability, as earnings levels reflect managerial pressure to achieve performance targets embedded in earnings-based compensation schemes. When profitability declines or approaches certain thresholds, managers may be more inclined to use discretionary accruals to adjust reported earnings. Moreover, contractual debt pressures described by the debt contracting hypothesis are typically proxied by leverage, as greater reliance on debt financing increases a firm's exposure to debt covenant constraints and the likelihood of covenant violations. Higher leverage therefore intensifies managerial incentives to adopt accounting choices aimed at improving contract-related financial ratios (Barua et al., 2019; Jamadar et al., 2022; Lazzem & Jilani, 2018; McNichols & Stubben, 2018). In contrast, political costs emphasized in the political cost hypothesis are commonly proxied by firm size, since larger firms tend to attract greater public visibility and heightened scrutiny from regulators, governments, and broader stakeholders (Belz et al., 2019; Jung, 2024).

However, managerial accounting choices do not occur in an institutional vacuum. The extent to which profitability, leverage, and firm size translate into discretionary accrual behavior may depend on the monitoring mechanisms and transparency practices adopted by the firm. In this regard, sustainability disclosure and good corporate governance (GCG) may play important moderating roles in shaping the relationship between firm characteristics and discretionary accruals. Sustainability disclosure commonly assessed using GRI-based indicators reflects a firm's commitment to transparency, accountability, and long-term value creation. Higher sustainability disclosure increases information availability and strengthens stakeholder monitoring, thereby potentially constraining managerial discretion in financial reporting (Barik & Mohapatra, 2025a; Perello-Marin et al., 2022a). Within the Positive Accounting Theory (PAT) framework, enhanced sustainability disclosure may reduce opportunistic discretionary accruals by increasing political visibility as well as reputational and compliance costs, particularly for large and highly leveraged firms.

Within the PAT framework, empirical proxies must correspond to the contracting mechanism being represented. ROE is used as the main profitability proxy because it captures earnings performance relative to shareholders' equity, a metric closely linked to performance evaluation and compensation assessment. DER represents debt-contracting pressure because it reflects the extent to which firms rely on liabilities relative to equity and therefore the intensity of creditor monitoring and covenant-related pressure. Firm size, measured as the natural logarithm of total assets, is used as the political-cost proxy because larger firms are typically more visible to regulators, policymakers, and external stakeholders. Accordingly, ROE, DER, and SIZE provide theory-consistent operationalizations of the bonus-plan, debt-covenant, and political-cost channels in PAT.

Similarly, GCG represents an internal monitoring mechanism that can mitigate managerial incentives arising from contractual pressures. Governance attributes such as board independence, audit committees, and ownership structures enhance oversight and reduce information asymmetry between managers and stakeholders(Alonso-Paulí, 2022; Talawa & Badwan, 2024). Strong governance is therefore expected to limit the extent to which managers exploit accounting flexibility to pursue private benefits under bonus plan incentives or to avoid debt covenant violations . From a PAT perspective, GCG does not eliminate accounting choice behavior; rather, it alters the cost benefit trade-off by increasing the likelihood of detection and sanction. The relevance of these moderating mechanisms is particularly pronounced in the basic and chemical industry sector, which is characterized by complex operational processes, capital-intensive production structures, and heightened exposure to macroeconomic fluctuations and regulatory intervention. Firms operating in this sector typically face stronger debt contracting pressures due to substantial financing needs, while simultaneously bearing higher political costs stemming from greater public visibility and stricter environmental and safety regulations. Consequently, sustainability disclosure and corporate governance practices represent critical contextual mechanisms that shape how managers respond to contractual constraints and political incentives in their financial reporting decisions, particularly in the use of discretionary accruals.

Despite the extensive earnings management literature, empirical evidence on discretionary accruals remains theoretically fragmented. Most studies continue to interpret accrual discretion primarily as opportunistic manipulation rather than as rational accounting choice behavior predicted by Positive Accounting Theory (PAT). Profitability, leverage, and firm size are frequently modeled as generic determinants or control variables without explicitly linking them to bonus-plan incentives, debt-contracting pressure, and political costs. In addition, prior evidence is dominated by cross-industry designs and pays limited attention to capital-intensive and regulation-sensitive sectors such as the basic and chemical industry in emerging markets. These limitations leave unresolved whether discretionary accrual variation in this sector reflects PAT-consistent responses to contracting and political incentives and whether sustainability disclosure and ownership governance condition those relationships.

This study contributes to the literature in three important ways. First, it reconceptualizes discretionary accruals as rational accounting choice behavior within the Positive Accounting Theory framework rather than solely as opportunistic earnings management. Second, it integrates sustainability disclosure and ownership-based corporate governance into the PAT contracting framework to examine how transparency and monitoring mechanisms moderate the relationship between profitability, leverage, firm size, and discretionary accruals. Third, by focusing on the basic and chemical industry in an emerging market context, this study provides sector-specific evidence that strengthens the empirical relevance of PAT in contemporary financial reporting environments. Accordingly, the objective of this study is to examine the effects of profitability, leverage, and firm size on discretionary accruals and to assess whether sustainability disclosure and ownership-based governance mechanisms condition these relationships.

Literature Review

Positive Accounting Theory (PAT)

Positive Accounting Theory (PAT) explains why managers choose particular accounting methods under contractual and political incentives. PAT posits that managers act rationally to maximize utility under compensation contracts, debt

agreements, and political exposure (Avelé, 2014; Srivastava & Baag, 2020; Utari et al., 2023; Zhafir & Subroto, 2024). Under the bonus plan hypothesis, managers have incentives to report earnings in ways that support compensation outcomes; under the debt covenant hypothesis, accounting choices may be used to reduce the probability or cost of covenant violations; and under the political cost hypothesis, firms facing greater public visibility may prefer accounting choices that reduce scrutiny and intervention. Empirically, PAT mechanisms are commonly operationalized through firm characteristics that capture these underlying pressures: profitability serves as a proxy for performance-based incentives because earnings outcomes influence compensation schemes and reputational considerations; leverage reflects exposure to debt contracts and creditor monitoring, implying stronger incentives to manage accounting-based ratios when firms operate close to covenant thresholds; and firm size represents political visibility and regulatory attention, particularly in environmentally sensitive industries, where larger firms may face higher political costs. Accordingly, profitability, leverage, and firm size provide coherent proxies to explain cross-firm variation in discretionary accrual behavior within the PAT framework.

Sustainability Disclosure

Sustainability disclosure refers to the extent to which a firm communicates environmental, social, and governance-related information through annual reports, sustainability reports, or integrated reports (Kumar & Firoz, 2022; Shaikh, 2021). In empirical studies, such disclosure is commonly assessed using GRI-based indicators because they provide a structured and comparable reporting framework. Higher sustainability disclosure expands transparency, reduces information asymmetry, and may strengthen stakeholder monitoring, thereby increasing the reputational and compliance costs of aggressive reporting behavior (Barik & Mohapatra, 2025b; Perello-Marin et al., 2022b). Sustainability disclosure is intended to enhance corporate transparency and accountability by expanding the informational content available to stakeholders beyond traditional financial reporting. From a theoretical perspective, sustainability disclosure is closely linked to stakeholder theory and legitimacy theory, which argue that firms disclose sustainability information to respond to stakeholder expectations and to maintain social acceptance, especially in industries with high environmental exposure. Higher sustainability disclosure reduces information asymmetry and strengthens stakeholder oversight, potentially constraining managerial opportunism in financial reporting. Within the Positive Accounting Theory (PAT) framework, sustainability disclosure can be viewed as an external monitoring mechanism that reshapes managers' cost–benefit trade-offs in accounting choices. When sustainability transparency is high, managers face greater reputational risks, stronger external scrutiny, and higher expected costs of aggressive reporting behavior. Consequently, sustainability disclosure is expected to influence and condition the extent to which managers use discretionary accruals as part of accrual-based reporting decisions, particularly under bonus-related incentives, debt contracting pressures, and political cost exposure.

Ownership-Based Corporate Governance (GCG): Institutional and Managerial Ownership

Corporate governance provides monitoring mechanisms that help align managerial behavior with shareholder interests and improve accountability in decision-making (García-Sánchez & García-Meca, 2018; Refakar & Ravaonorohanta, 2020). In this study, governance is operationalized through institutional ownership and managerial ownership. Institutional investors generally possess greater monitoring capacity and stronger incentives to discipline managers, whereas managerial ownership may generate either alignment effects or entrenchment effects depending on the level and structure of ownership (Nel et al., 2025; Peerbhai et al., 2021).. From a PAT perspective, stronger institutional monitoring increases the likelihood that aggressive accrual choices will be detected and penalized, thereby affecting managers' incentives under performance-based compensation and debt contracting pressures. Managerial ownership, in contrast, may generate alignment effects by linking managerial wealth to firm value; however, managerial ownership may also create entrenchment effects if ownership concentration strengthens managerial power and reduces external discipline. Accordingly, institutional and managerial ownership represent distinct governance channels that may differentially moderate how profitability, leverage, and firm size influence discretionary accrual decisions.

Hypothesis Development

Based on the theoretical framework and the proposed hypotheses, the conceptual framework of this study is presented in Figure 1.

Profitability and Discretionary Accruals (Bonus Plan Hypothesis)

Under the bonus plan hypothesis, managers are incentivized to report accounting outcomes that help them achieve performance benchmarks embedded in compensation contracts (Loyola & Portilla, 2020; Rousseau et al., 2023; Suhardjo et al., 2022). Profitability reflects the level of reported earnings and is therefore commonly used as an empirical proxy for performance-based incentives. When profitability weakens or approaches performance thresholds, managers may face stronger incentives to adjust reported earnings through discretionary accruals. Conversely, when profitability is already high, managers may also have incentives to defer part of current earnings for smoothing purposes(Chauhan & Jaiswall, 2023; Nasution et al., 2020a). Accordingly, profitability is expected to influence discretionary accrual choices, consistent with the bonus plan mechanism proposed by Positive Accounting Theory (PAT).

H1: Profitability has a significant effect on discretionary accruals.

Leverage and Discretionary Accruals (Debt Covenant Hypothesis)

Positive Accounting Theory (PAT) posits that debt contracts impose accounting- based constraints that discipline managerial behavior. Debt covenants typically specify limits based on accounting metrics such as leverage ratios, interest coverage, and net worth. Accordingly, leverage serves as an empirical indicator of a firm's exposure to covenant violation risk and lender monitoring intensity. When leverage is high, firms are closer to covenant thresholds and face greater pressure to report favorable financial ratios. Managers may therefore rely on income increasing discretionary accruals to enhance profitability measures, strengthen balance sheet positions, and reduce the likelihood of technical default (Anagnostopoulou & Tsekrekos, 2017; Khanh & Thu, 2019). Even in the absence of actual covenant violations, the expected costs associated with potential violations including renegotiation, restricted access to external financing, and reputational damage may incentivize managers to engage in accrual-based accounting choices. Consequently, leverage is expected to be positively associated with discretionary accrual behavior as a rational response to debt contracting pressures.

H2: Leverage has a significant effect on discretionary accruals.

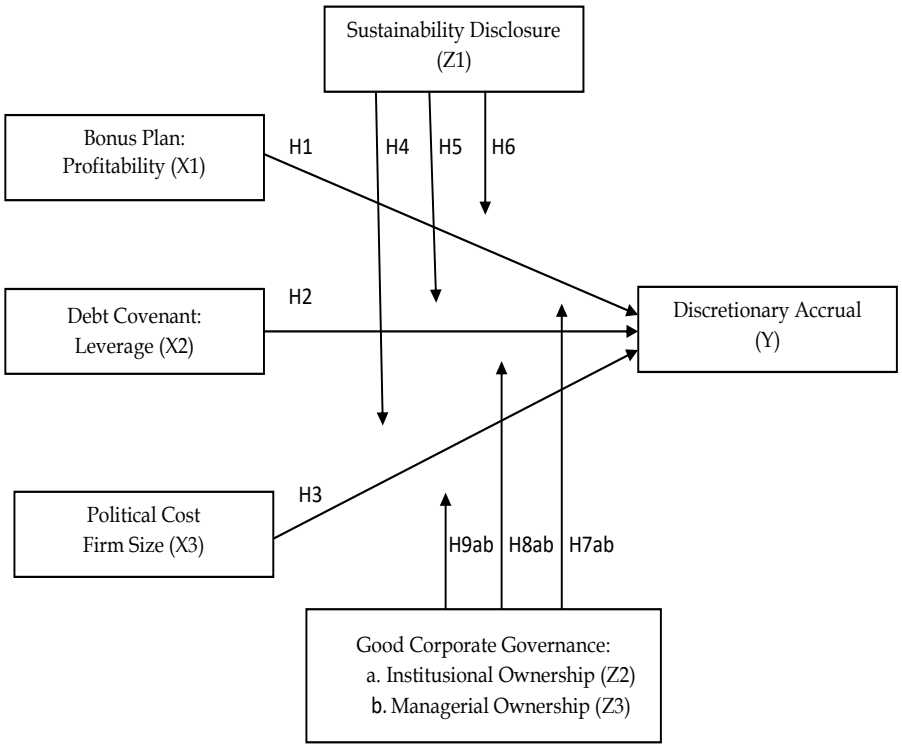

Figure 1. Framework

Firm Size and Discretionary Accruals (Political Cost Hypothesis)

The political cost hypothesis suggests that firms with greater public visibility are more likely to attract scrutiny from regulators, governments, labor unions, consumers, and broader society. Firm size captures public visibility and regulatory exposure; these conditions may motivate managers to adopt discretionary accrual choices that reduce political costs, for example by avoiding unusually high reported profits that could trigger public criticism, taxation pressure, or regulatory intervention. At the same time, larger firms are subject to stronger external monitoring and broader disclosure expectations. Accordingly, the relationship between firm size and signed discretionary accruals remains an empirical issue, although PAT predicts that firm size is an important determinant of accounting choices due to differential political and regulatory exposure.

H3: Firm size has a significant effect on discretionary accruals.

The Moderating Role of Sustainability Disclosure

Sustainability Disclosure reflects the extent to which firms communicate their environmental, social, and sustainability-related practices and impacts to stakeholders, commonly guided by GRI-based reporting standards. Stakeholder theory and legitimacy perspectives suggest that sustainability reporting enhances transparency and strengthens stakeholder monitoring, thereby reducing information asymmetry between managers and external parties (Nasution et al., 2020b). From a Positive Accounting Theory (PAT) perspective, Sustainability Disclosure may reshape managers' cost benefit assessments associated with accrual-based accounting choices. Firms that provide extensive sustainability disclosure are likely to face greater reputational exposure and stronger public evaluation. As a result, opportunistic accrual behavior may become more costly due to a higher likelihood of detection, stakeholder backlash, and credibility loss, particularly in industries that are environmentally and socially sensitive (Hong et al., 2022b). Moreover, Sustainability Disclosure may interact with PAT mechanisms. Under the bonus plan hypothesis, managers in firms with stronger disclosure practices may have less flexibility to adjust reported earnings, as enhanced transparency imposes reputational discipline. Under debt contracting pressures, extensive disclosure may improve creditor confidence and reduce incentives to rely on income-increasing accruals as a short-term contractual strategy. Under political cost considerations, sustainability reporting may increase scrutiny for large firms while simultaneously providing legitimacy benefits; thus, disclosure intensity is expected to condition how firm size influences discretionary accrual decisions. Accordingly, Sustainability Disclosure is predicted to moderate the relationships between profitability, leverage, firm size, and discretionary accruals.

H4: Sustainability Disclosure moderates the effect of profitability on discretionary accruals.

H5: Sustainability Disclosure moderates the effect of leverage on discretionary accruals.

H6: Sustainability Disclosure moderates the effect of firm size on discretionary accruals.

The Moderating Role of Good Corporate Governance (GCG)

Good Corporate Governance (GCG) represents a set of mechanisms designed to align managerial behavior with shareholders' interests and ensure accountability in corporate decision-making (Sakawa & Watanabel, 2020). In this study, GCG is operationalized through ownership-based governance mechanisms, namely institutional ownership and managerial ownership, which are widely recognized as effective monitoring devices for mitigating agency problems. Institutional ownership strengthens external monitoring because institutional investors typically possess superior resources, expertise, and incentives to discipline managers, thereby constraining opportunistic financial reporting decisions. Meanwhile, managerial ownership may reduce agency conflicts through an alignment effect, as managers who hold equity stakes are more likely to internalize the consequences of reporting quality and firm value; however, it may also generate entrenchment incentives when ownership concentration increases managerial power (P. Nguyen et al., 2024). Within the Positive Accounting Theory

(PAT) framework, governance does not necessarily eliminate incentives arising from bonus contracts, debt covenants, or political exposure; rather, it reshapes the feasibility and expected payoff of discretionary accrual choices by increasing monitoring intensity and raising the expected costs of opportunistic accounting behavior (Habib et al., 2023). In the bonus plan context, stronger ownership monitoring may limit managers' propensity to use discretionary accruals to meet compensation thresholds (Mlawu et al., 2025). Under debt contracting pressures, effective ownership governance may reduce reliance on accrual manipulation as a short-term response to covenant constraints. Regarding political costs, ownership-based governance can enhance compliance and reporting credibility, thereby restricting the extent to which large firms strategically adjust reported earnings to manage political visibility (Gupta et al., 2025; Huang et al., 2024). Accordingly, institutional ownership and managerial ownership are expected to moderate the relationships between profitability, leverage, firm size, and discretionary accruals.

H7a: Institutional ownership moderates the effect of profitability on discretionary accruals.
H7b: Managerial ownership moderates the effect of profitability on discretionary accruals.
H8a: Institutional ownership moderates the effect of leverage on discretionary accruals.
H8b: Managerial ownership moderates the effect of leverage on discretionary accruals.
H9a: Institutional ownership moderates the effect of firm size on discretionary accruals.
H9b: Managerial ownership moderates the effect of firm size on discretionary accruals.

Methods

This study employs a quantitative explanatory design using balanced panel data to examine discretionary accruals as accounting choice behavior under the Positive Accounting Theory (PAT) framework. The analysis is based on secondary data obtained from annual reports, audited financial statements, shareholding disclosures, and sustainability reports of firms listed on the Indonesia Stock Exchange (IDX). The population consists of firms classified in the Indonesian basic and chemical industry sector. Purposive sampling was used to select firms that (1) remained listed during 2021–2024, (2) published annual reports and financial statements for each year of observation, and (3) provided sufficient information to operationalize all variables in the model. The final sample comprises 58 firms observed over four years, resulting in 232 balanced firm-year observations.

The dependent variable is signed discretionary accruals (DA), estimated using the Modified Jones Model. Total accruals are first scaled by lagged total assets and regressed on the standard Modified Jones components. The residual term from this estimation is retained as signed DA, meaning that positive values indicate income-increasing accrual choices and negative values indicate income-decreasing accrual choices. Because the study uses signed DA rather than absolute DA, the coefficients are interpreted as the direction of accrual choice rather than the magnitude of earnings management. Model selection was conducted sequentially. The Chow test rejected the common effect model (F = 6.4838; p = 0.0000), and the Hausman test rejected the random effect model (χ^2 = 90.8475; p = 0.0000), so the final estimator is the cross-section fixed effects model. The correlation matrix indicates no serious multicollinearity among the main regressors, the Glejser test does not indicate heteroskedasticity at the 5 percent level, and a supplementary proxy-sensitivity test was performed by replacing ROE with ROA.

For statistical inference, the fixed-effects regressions are estimated with firm-level clustered robust standard errors to account for within-firm serial correlation and heteroskedasticity over time. To assess the appropriateness of the inference procedure, serial correlation was examined using a panel autocorrelation test and cross-sectional dependence was examined using a Pesaran CD-type test. Because the sample consists of many firms observed over a relatively short period, firm-clustered robust inference is used as the main specification, while the results are interpreted cautiously with respect to possible contemporaneous cross-sectional dependence.

Variable Measurement

This study operationalizes the variables explicitly to ensure objective, replicable, and theory-consistent measurement.

Dependent Variable: Signed Discretionary Accruals (DA)

The dependent variable is signed Discretionary Accruals (DA), measured using the Modified Jones Model. The measurement procedure consists of three steps.

Step 1: Calculating Total Accruals (TAC)

Total Accruals represent the difference between accounting earnings and operating cash flows and are calculated as:

$$TAC_{it} = NI_{it} - CFO_{it}$$

Where:
TAC_{it} = Total Accruals of firm *i* in year *t*
NI_{it} = Net Income of firm *i* in year *t*
CFO_{it} = Operating Cash Flow of firm *i* in year *t*

To reduce heteroscedasticity, total accruals are scaled by lagged total assets:

$$\frac{TAC_{it}}{A_{i,t-1}}$$

Where $A_{i,t-1}$ is total assets in the previous period.

Step 2: Estimating Non-Discretionary Accruals (NDA)

Non-Discretionary Accruals represent normal accruals driven by firm economic conditions and are estimated using the Modified Jones regression model:

$$\frac{TAC_{it}}{A_{i,t-1}} = \alpha_1\left(\frac{1}{A_{i,t-1}}\right) + \alpha_2\left(\frac{\Delta REV_{it} - \Delta REC_{it}}{A_{i,t-1}}\right) + \alpha_3\left(\frac{PPE_{it}}{A_{i,t-1}}\right) + \varepsilon_{it}$$

Where:
ΔREV_{it} = Change in revenue
ΔREC_{it} = Change in receivables
PPE_{it} = Property, Plant, and Equipment
$\alpha_1, \alpha_2, \alpha_3$ = Regression coefficients
ε_{it} = Error term

The estimated coefficients from this regression are then used to compute expected (normal) accruals:

$$NDA_{it} = \hat{\alpha}_1\left(\frac{1}{A_{i,t-1}}\right) + \hat{\alpha}_2\left(\frac{\Delta REV_{it} - \Delta REC_{it}}{A_{i,t-1}}\right) + \hat{\alpha}_3\left(\frac{PPE_{it}}{A_{i,t-1}}\right)$$

Step 3: Calculating Discretionary Accruals (DA)

Discretionary Accruals represent the portion of accruals influenced by managerial judgment and are obtained as the residual between total accruals and non-discretionary accruals:

$$DA_{it} = \frac{TAC_{it}}{A_{i,t-1}} - NDA_{it}$$

Table 1. Research Variables

Variable	Code	Measurement / Formula
Profitability	ROE	ROE = Net Income / Total Equity
Leverage	DER	DER = Total Liabilities / Total Equity
Firm Size	SIZE	SIZE = ln (Total Assets)
Sustainability Disclosure	SD	SD = Disclosed Items / Applicable Items × 100%
Institutional Ownership	INST	INST = Institutional Shares / Total Outstanding Shares
Managerial Ownership	MAN	MAN = Managerial Shares / Total Outstanding Shares

Because DA is retained as the signed residual from the Modified Jones Model, positive values indicate income-increasing accrual choices and negative values indicate income-decreasing accrual choices.

The independent and moderating variables are measured as follows: ROE = Net Income / Total Equity; DER = Total Liabilities / Total Equity; SIZE = ln (Total Assets); INST = Institutional Shares / Total Outstanding Shares; MAN = Managerial Shares / Total Outstanding Shares; and SD = (Σ disclosed items / total applicable items) × 100%, using binary 1/0 scoring for applicable GRI-based disclosure items (see Table 1).

ROE is measured as net income divided by year-end total equity, and DER is measured as total liabilities divided by year-end total equity, consistent with the balance-sheet position reported in each firm's annual report. Institutional ownership (INST) and managerial ownership (MAN) are measured using year-end direct ownership percentages disclosed in the annual report and shareholder composition notes. Sustainability disclosure (SD) is constructed as an unweighted disclosure index based on GRI-referenced items. The index uses binary scoring, where a score of 1 is assigned if an item is disclosed and 0 otherwise. The final SD score is calculated as disclosed items divided by total applicable items. Items deemed not applicable to a firm's operational characteristics are excluded from the denominator so that the index reflects disclosure intensity conditional on item relevance.

Hierarchical Moderated Regression Model

The regression analysis is estimated with cross-section fixed effects. A baseline model is first estimated using the main PAT proxies, followed by separate interaction models for each PAT channel to evaluate whether sustainability disclosure, institutional ownership, and managerial ownership condition the direction of signed discretionary accrual choices.

Model 1: Baseline Fixed-Effects Model

$$DA_{it} = \beta0 + \beta1ROE_{it} + \beta2DER_{it} + \beta3SIZE_{it} + \mu_i + \varepsilon_{it}$$

Model 2: Profitability Interaction Model

$$DA_{it} = \beta0 + \beta1ROE_{it} + \beta2(ROE\times SD)_{it} + \beta3(ROE\times INST)_{it} + \beta4(ROE\times MAN)_{it} + \mu_i + \varepsilon_{it}$$

Model 3: Leverage Interaction Model

$$DA_{it} = \beta0 + \beta1DER_{it} + \beta2(DER\times SD)_{it} + \beta3(DER\times INST)_{it} + \beta4(DER\times MAN)_{it} + \mu_i + \varepsilon_{it}$$

Model 4: Firm-Size Interaction Model

$$DA_{it} = \beta0 + \beta1SIZE_{it} + \beta2(SIZE\times SD)_{it} + \beta3(SIZE\times INST)_{it} + \beta4(SIZE\times MAN)_{it} + \mu_i + \varepsilon_{it}$$

Result and Discussion

This section reports the empirical findings on signed discretionary accruals as accounting choice behavior under the Positive Accounting Theory (PAT) framework in Indonesian basic and chemical industry firms. The sample consists of 232 firm-year observations from 58 firms over the 2021–2024 period. Because the dependent variable is signed DA, the interpretation focuses on whether firm characteristics are associated with more income-decreasing or more income-increasing accrual choices, rather than with the absolute magnitude of accrual discretion.

Table 2 reports descriptive statistics for 232 firm-year observations from 58 firms during 2021–2024. The mean ROE is 0.0416, although its relatively large dispersion shows that profitability differs widely across observations. The mean DER of 0.9051 suggests that debt financing remains important in the sector, while the average SIZE of 26.3223 indicates that the sample is dominated by medium- to large-scale firms. The mean SD value of 0.3139 suggests moderate sustainability disclosure intensity, whereas the average INST and MAN values of 0.6772 and 0.6267 show that ownership concentration is relatively high in the observed firms. The signed DA variable has a mean of 219.2450 and a wide standard deviation, indicating notable cross-firm variation in the direction and scale of accrual-based accounting choices.

Although signed discretionary accruals are scaled by lagged total assets, the distribution remains wide. This occurs because the residual-based measure retains the direction of accrual choice and is sensitive to extreme observations in firms with very small lagged asset denominators, volatile earnings, or unusually large working-capital adjustments. Accordingly, the analysis focuses on coefficient signs and statistical significance rather than on the raw scale of the DA mean itself.

The Chow test (Redundant Fixed Effects Test) is conducted to determine whether the Fixed Effects Model (FEM) is preferable to the Pooled OLS/Common Effect Model (CEM) the results are presented in Table 3 by testing the null hypothesis that cross-section effects are not needed. The results show that both the Cross-section F (6.483755; p = 0.0000) and Cross-section Chi-square (267.024581; p = 0.0000) are statistically significant. Thus, the null hypothesis is rejected, indicating significant firm-specific effects. Therefore, the Fixed Effects Model (FEM) is more appropriate than the pooled/common effect model for this study (see table 4).

The result shows that the Chi-square statistic is 90.84748 with df = 3 and p-value = 0.0000, indicating statistical significance. Therefore, the null hypothesis is rejected, suggesting that cross-section effects are correlated with the explanatory variables. Hence, the Fixed Effects Model (FEM) is more appropriate than the Random Effects Model for this study.

Direct Effects

Based on Table 5, the direct-effects model provides partial support for PAT. Firm size shows a strong negative association with signed discretionary accruals (β = -2249.235; p < 0.01), indicating that larger firms tend to adopt more income-decreasing or less income-increasing accrual choices. Profitability also shows a negative association (ROE: β = -1551.711; p = 0.0790), while leverage is negatively associated (DER: β = -464.582; p = 0.0337).

Moderation Effects

Sustainability disclosure significantly moderates all three PAT channels: profitability (ROE×SD, β = 1372.713; p = 0.0278), leverage (DER×SD, β = -961.424; p = 0.0029), and firm size (SIZE×SD, β = -668.568; p = 0.0115). Institutional ownership significantly moderates profitability (ROE×INST, β = -3609.634; p = 0.0023) and leverage (DER×INST, β = 2438.822; p = 0.0005), but not firm size (SIZE×INST, p = 0.8704). Managerial ownership does not significantly moderate any channel.

The empirical results provide partial support for Positive

Table 2. Descriptive Statistics

Variable	Obs.	Mean	Std. Dev.	Min	Median	Max
ROE	232	0.0416	0.3158	-3.9570	0.0635	1.0073
DER	232	0.9051	1.3450	-7.7317	0.6656	8.1215
SIZE	232	26.3223	4.0191	14.6548	27.6285	32.0494
DA (signed)	232	219.2450	3296.7465	-23284.8224	-0.0621	22431.9507
SD	232	0.3139	0.1302	0.0899	0.3595	0.5843
INST	232	0.6772	0.2859	0.2041	0.7786	0.9978
MAN	232	0.6267	0.1338	0.4391	0.5950	0.9756

Source: Processed Data

Table 3. Chow test

Effects Test	Statistic	d.f.	Prob.
Cross-section F	6.483755	(57,171)	0.0000
Cross-section Chi-square	267.02581	57	0.0000

Source: Processed Data

Table 4. Hausman Test

Test cross-section random effects			
Test Summary	**Chi-Sq. Statistic**	**Chi-Sq. d.f.**	**Prob.**
Cross-section random	90.84748	3	0.0000

Source: Processed Data

Table 5. Hypothesis Test Results

Hypothesis	Relationship	Coefficient	p-value	Decision
H1	ROE → DA	-1551.711	0.0790	Supported at 10% only
H2	DER → DA	-464.582	0.0337	Supported
H3	SIZE → DA	-2249.235	0.0000	Supported
H4	ROE × SD → DA	1372.713	0.0278	Supported
H5	DER × SD → DA	-961.424	0.0029	Supported
H6	SIZE × SD → DA	-668.568	0.0115	Supported
H7a	ROE × INST → DA	-3609.634	0.0023	Supported
H7b	ROE × MAN → DA	-484.282	0.9408	Not supported
H8a	DER × INST → DA	2438.822	0.0005	Supported
H8b	DER × MAN → DA	1304.299	0.3500	Not supported
H9a	SIZE × INST → DA	6.778	0.8704	Not supported
H9b	SIZE × MAN → DA	24.917	0.7758	Not supported

Significance levels: *** p < 0.01, ** p < 0.05, * p < 0.10. Signed DA: negative coefficient → income-decreasing or less income-increasing accruals.

Accounting Theory (PAT), highlighting heterogeneous effects across the three proposed channels: bonus-plan (profitability), debt-covenant (leverage), and political-cost (firm size).

Political-Cost Channel (Firm Size):

The most robust evidence emerges from the political-cost channel. Firm size exhibits a strong negative and highly significant coefficient (β = -2249.235; p < 0.001), indicating that larger firms tend to adopt income-decreasing or less income-increasing discretionary accruals. This aligns with the political-cost hypothesis, which suggests that firms with greater public visibility intentionally report conservative earnings to mitigate regulatory, taxation, and stakeholder scrutiny. These findings confirm that firm size consistently drives accrual choices in response to political and reputational pressures.

Bonus-Plan Channel (Profitability):

Profitability, measured by ROE, shows a negative association with signed discretionary accruals (β = -1551.711; p = 0.0790), but the effect is significant only at the 10% level, indicating weaker support for the bonus-plan hypothesis. This suggests that more profitable firms may opt for conservative accrual choices, consistent with earnings smoothing behavior rather than aggressive accrual management. When ROE is replaced with ROA as a robustness check, the effect remains negative but loses significance (β = -1275.963; p = 0.5909), demonstrating proxy sensitivity and the limited robustness of this channel in the current sample.

Debt-Covenant Channel (Leverage):

Leverage (DER) exhibits a negative and significant effect on DA (β = -464.582; p = 0.0337), which contrasts with the classical expectation that high leverage induces income-increasing accruals to avoid covenant violations. Instead, the result suggests that firms under debt scrutiny may adopt conservative accrual reporting to reduce the risk of covenant breaches. Moderation analysis shows that sustainability disclosure strengthens the negative DER-DA relationship (β = -961.424; p = 0.0029), indicating that higher transparency discourages aggressive accruals in leveraged firms. Additionally, institutional ownership moderates this relationship positively (β = 2438.822; p = 0.0005), suggesting that institutional monitoring may reduce the conservative effect of leverage by providing oversight that mitigates accrual adjustments. Managerial ownership, in contrast, shows no significant moderation, implying a limited disciplining effect in this sample.

Moderation Effects of Sustainability Disclosure and Governance:

Sustainability disclosure consistently strengthens the political-cost and leverage channels, reinforcing conservative accrual practices under high transparency. Institutional ownership plays a selective moderating role for profitability and leverage but not firm size, highlighting the nuanced influence of ownership-based monitoring. Managerial ownership exhibits no significant moderating effects across all channels, suggesting limited effectiveness in constraining accrual discretion in the observed firms.

Overall Interpretation:

While the political-cost mechanism emerges as the most robust driver of discretionary accrual choices, the bonus-plan and debt-covenant mechanisms are more context-dependent and sensitive to measurement proxies and moderating factors. These findings emphasize that PAT mechanisms are

not universally consistent across all channels and highlight the importance of transparency and institutional monitoring in shaping managerial accounting decisions.

Conclusion

This study revisits discretionary accruals within the Positive Accounting Theory (PAT) framework, focusing on Indonesian basic and chemical industry firms over 2021–2024. Based on the final model output in Table 5, the results are interpreted in terms of signed discretionary accruals, emphasizing the direction of accrual choice rather than the absolute magnitude of earnings management.

The strongest and most consistent finding is the negative relationship between firm size and signed discretionary accruals (β = -2249.235; $p < 0.01$), confirming that larger firms tend to adopt income-decreasing or less income-increasing accrual choices, consistent with the political-cost hypothesis. Profitability (ROE) also shows a negative association (β = -1551.711; $p = 0.0790$), but the effect is weaker, and leverage (DER) is negatively associated (β = -464.582; $p = 0.0337$), indicating that both bonus-plan and debt-covenant channels influence accrual choice direction but with less robustness compared to firm size.

Moderation analysis demonstrates that sustainability disclosure and institutional ownership shape the direction of discretionary accrual choices. Sustainability disclosure strengthens the negative association for profitability, leverage, and firm size channels, indicating that higher transparency encourages more conservative accrual choices. Institutional ownership significantly moderates the profitability and leverage channels, partially reinforcing or offsetting directional accrual behavior. Managerial ownership, in contrast, does not exhibit any significant moderating effect across the channels, highlighting its limited role in constraining accrual choices.

Overall, these findings underscore that PAT mechanisms are heterogeneous and context-dependent. The political-cost mechanism (via firm size) is the most stable driver of directional accrual choices, while profitability and leverage effects are conditional, sensitive to transparency, and governance context. The study contributes to the literature by illustrating that signed DA reflects managerial accounting choice behavior in response to contracting, political, and monitoring pressures, reinforcing the importance of interpreting results in terms of accrual direction rather than magnitude. Future research could expand sector coverage, incorporate alternative earnings management proxies, and explore additional governance mechanisms to enhance the generalizability and robustness of PAT analyses.

Author contributions

Denny Putri Hapsari conceptualized the study, conducted data collection and analysis, and drafted the manuscript. Denny Kurnia contributed to the methodology, performed statistical modeling and EViews analysis, and assisted with manuscript revisions. Both authors reviewed and approved the final version of the manuscript.

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