The Effect of Operational Complexity, Operating Cash Flow, and Time Interest on Earnings After Tax

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ABSTRACT

Operational complexity is a factor that can affect the efficiency of production activities and cost structure. The cash flow operating variable describes a company's ability to generate operational cash flow, while time interest earned reflects the company's capacity to meet interest expenses. The quantitative research method uses panel data regression analysis of the annual financial statements of sample companies. The results show that company operational complexity has no significant effect on earnings after tax. Cash flow operating has a significant positive effect on earnings after tax. Time interest earned has a significant positive effect on earnings after tax. These findings provide implications for understanding internal factors that influence financial performance in sectors with high volatility.

Keywords: Company Operational Complexity; Cash Flow Operating; Time Interest Earned; Earning After Tax

Pengaruh Kompleksitas Operasional Perusahaan, Arus Kas Operasi dan Rasio Perolehan Bunga terhadap Laba Setelah Pajak

ABSTRAK

Penelitian ini bertujuan menganalisis pengaruh kompleksitas operasional perusahaan, arus kas operasi, dan time interest earned terhadap earning after tax pada perusahaan batubara di BEI periode 2021–2024. Populasi sebanyak 47 perusahaan dengan sampel 20 perusahaan melalui purposive sampling. Metode analisis menggunakan regresi data panel dengan uji asumsi klasik, Chow, Hausman, dan Lagrange Multiplier. Hasil penelitian menunjukkan bahwa arus kas operasi dan time interest earned berpengaruh signifikan terhadap earning after tax, sedangkan kompleksitas operasional tidak signifikan. Secara simultan variabel berpengaruh signifikan. Disimpulkan bahwa likuiditas operasional dan kemampuan membayar bunga menjadi faktor utama dalam meningkatkan laba setelah pajak bagi investor dan manajemen perusahaan.

Kata Kunci: *Kompleksitas Operasional; Arus Kas; Time Interest Earned; Earning After Tax*

e-ISSN 2302-8556

Vol. 36 No. 4
Denpasar, 30 April 2026
Hal. 950-965

DOI:
10.24843/EJA.2026.v36.i04.p06

PENGUTIPAN:
Firmansyah, R. A., & Melzatia, S. (2026). The Effect of Operational Complexity, Operating Cash Flow, and Time Interest on Earnings After Tax. *E-Jurnal Akuntansi*, 36(4), 950-965

RIWAYAT ARTIKEL:
Artikel Masuk:
19 Februari 2026
Artikel Diterima:
21 April 2026

Artikel dapat diakses : https://ejournal1.unud.ac.id/index.php/Akuntansi/index

INTRODUCTION

Financial performance can be assessed through a company's activities in presenting and disclosing financial reports, one of which is earnings information. The earnings information presented and disclosed in a company's financial reports does not guarantee high-quality earnings. However, high-quality earnings, as reflected in a company's financial reports, can help investors understand the company's financial performance, thus impacting its value (Andesto & Wibisono, 2023). Earnings information bias is caused by, among other things, the presentation of financial reports and earnings management practices, as well as the need for further disclosure of information in financial reports. If reported earnings have responsiveness, they can be considered high-quality (Oktris et al., 2024).

Earnings After Tax (EAT) reflects a company's final financial performance and is a key indicator for investors and analysts. Earnings After Tax (EAT) is the final figure on the income statement, showing a company's net profit after deducting operating expenses, interest expense, depreciation (amortization), and income taxes. Given its importance, analyzing EAT within specific industry contexts becomes essential to understand how sectoral characteristics influence profitability. One sector with highly dynamic profit patterns is the coal industry, which is strongly affected by global commodity price fluctuations and capital-intensive operations. The Indonesian coal industry plays a crucial role in the national economy, with seven major coal companies posting a combined net profit of US$8.4 billion in 2022 and another US$4.3 billion in 2023, despite declining coal prices (Peh, 2024). This surge in profits has encouraged companies to expand production capacity and diversify their businesses. Therefore, understanding the key determinant of EAT, namely revenue, will help investors, management, and regulators evaluate the performance and sustainability of coal companies in Indonesia.

To further explain the volatility of these earnings, it is important to consider the influence of global market dynamics on coal prices and demand.Global coal prices experienced a sharp spike in 2021–2022 due to the European energy crisis and increasing demand from Asia, leading to a surge in after-tax earnings for coal companies. Indonesia's share of global coal reserves is also quite large compared to other countries, at 3.7%, on a par with India and Germany (Hakim, 2023), thus still allowing coal companies to generate profits in the future. However, the dependence of after-tax earnings on external factors poses risks to the sustainability of profitability. Although coal companies' aggregate EAT (Earnings-to-Earnings Return on Assets) has increased, there are significant differences across issuers.

Research over the past decade has shown that the influence of operating cash flow, operational complexity, and the interest earned ratio on profit after tax is not simple and tends to be contextual. A study by Nallareddy et al. (2020) confirmed that operating cash flow has a stronger ability to predict earnings quality and sustainability than accrual components, so companies with stable cash flows tend to generate more persistent profits. Furthermore, research by Noury et al. (2020) shows that governance factors and internal company characteristics, including operational complexity, can moderate the relationship between financial

performance and achieved results, where complexity can be a source of efficiency or inefficiency depending on the quality of management. Meanwhile, Ahmed et al. (2024) found that capital structure and a company's ability to meet interest obligations, as reflected in the interest earned ratio, significantly influence financial performance, including profit after tax, although suboptimal leverage levels can create a trade-off between risk and profitability. Thus, these three variables play an important role in explaining profit after tax, but the relationship between them is not always linear and is highly dependent on internal conditions and company management strategies.

Operating cash flow (cash flow from operating activities) also reflects a company's ability to generate cash from its core business activities. Healthy cash flow demonstrates operational efficiency and resilience to external pressures. In the context of mining companies, revenue fluctuations due to changes in commodity prices require careful cash management to meet short-term obligations and fund investments. Strong operating cash flow demonstrates operational efficiency and resilience to external pressures. Previous research has shown a positive relationship between operating cash flow and profitability and business continuity or going concern (Amalia & Firmansyah, 2021). With rising total debt, coal companies face significant interest expense pressure. The IEEFA reported an increase in debt for several coal companies between 2021 and 2023. This suggests that interest coverage ratios, such as the interest rate to interest rate (TIE), are important metrics for assessing a company's profitability and ability to cover interest expenses. Business growth supported by sound funding can ultimately increase a company's net profit (EAT) (Sarmo et al., 2019).

Based on empirical data, the Interest Coverage Ratio (ICR), or the ratio used to measure time interest earnings, has a positive and significant effect on profitability indicators, thus supporting the argument that ICR impacts net income, including EAT (Arhinful & Radmehr, 2023). The development of retained earnings in coal companies during the 2020–2024 period, with a trend of increasing from approximately USD 120 million in 2020 to over USD 500 million in 2024. Descriptively, this pattern illustrates the accumulation of retained earnings that continues to grow throughout the observation period. Overall, the data shows that profit retention in coal companies experienced a significant increase during 2020–2024. This trend is likely driven by a combination of external factors such as rising commodity prices and internal policies related to retained earnings management. However, to conclude the long-term performance or financial stability of the company, this graph is insufficient, requiring a comprehensive analysis that includes company operational complexity, cash flow operations, and time interest earned.

A panel analysis of coal companies listed on the Indonesia Stock Exchange (IDX) during 2016–2018 by Mayliza et al., (2020) showed that EBIT or Interest (time interest earned) had a significant negative effect on the probability of bankruptcy, meaning that the higher the time interest earned, the lower the risk of default. Therefore, time interest earned is empirically associated with a reduced risk of bankruptcy. The surge in retained earnings and the improving TIE ratio illustrate the strengthening financial condition since 2020. Research by Noviyanti & Sari (2024) found that company operational complexity can significantly impact

Earnings After Tax (EAT) or Profit After Tax (PAT), using the debt-to-equity ratio. Operational complexity can also affect earnings after tax, primarily through its impact on tax costs and liabilities (Ayem & Titania, 2024). However, this study was limited to the property and real estate sector, so its generalizability to other sectors in Indonesia is still limited. In businesses with higher complexity, there is greater scope for legal tax planning and optimization, which ultimately has the potential to lower tax burdens and increase after-tax earnings (Handayani & Edhy, 2024a). This research does not cover various industry sectors and time periods to provide a more comprehensive picture of the relationships between variables.

Another factor, cash from operating activities, as reported in the cash flow statement, also has a significant impact on earnings after tax (and overall financial health). Although financing activities can impact a company's financial health, their impact on earnings after tax is still secondary (Fatmawatie, 2023). Secondary in this context means that the influence of financing is not a primary factor in determining the Earnings After Tax (EAT), but the claim is conditional, not a general rule. Nurmalina (2023) concluded that cash from operations (operating cash flow) has an impact on earnings after tax. When a company experiences a decline in operating value, the resulting cash flow value is low, indicating the opposite effect, where an increase in operating cash flow value does not necessarily affect practices across various industrial sectors. Another study by Triwulandaria et al., (2025) found that positive cash flow from operations has a positive effect on earnings after tax. This study analyzed that efficient management of operating expenses can create better conditions for utilizing liquidity and managing debt effectively.

The research findings of Utama et al., (2023) show that although the TIE ratio does not directly affect Earnings After Tax (EAT), this ratio provides insight into a company's financial health, which can indirectly affect EAT. This study, contextualized in the banking industry, urges caution against overgeneralization across sectors. Arhinful & Radmehr (2023) finding that the Interest Coverage Ratio (ICR), a ratio used to measure time interest earnings, has a positive and significant effect on profitability indicators, supports the argument that ICR impacts net income (including EAT). The study included five control variables: company size, age, the COVID-19 pandemic, EPUJ, and GEPU. Although the literature has examined the effect of operational complexity, operating cash flow, and interest payment indicators on profitability, there is a lack of empirical studies that simultaneously integrate these three variables in the context of the post-pandemic Indonesian coal industry (2021–2024).

This study focuses on explaining the effect of independent variables: company operational complexity, operating cash flow, and time interest earned on the dependent variable, Earnings After Tax (EAT). Previous studies have shown that these variables influence EAT, however, the results are still inconsistent, limited to certain sectors, and use relatively narrow observation periods. In addition, macroeconomic dynamics, firm size, and leverage variations have not been comprehensively integrated into a robust empirical model. Therefore, this study aims to fill this gap by examining the effect of operational complexity, operating cash flow, and time interest earned on Earnings After Tax in coal companies listed

on the Indonesia Stock Exchange during the 2021–2024 period, as a sector characterized by high operational complexity and exposure to external volatility.

Recent literature shows that the MM concept remains the primary foundation of capital structure theory, but many studies have expanded it to consider real-world market conditions. Brusov et al. (2023) conducted a review of capital structure, demonstrating that MM theory, despite its limitations, remains the initial basis for the evolution of capital structure theory. They highlight that MM was further developed to reflect real-world market conditions, including the finite-lifetime nature of firms. The study of theoretical trends also shows MM as a starting point for many modifications to Trade-Off Theory, Pecking Order Theory, and other hybrid theories due to the realities of markets with taxes, bankruptcy costs, and information asymmetry.

Static trade-offs do not emphasize long-term adjustment processes (unlike dynamic trade-offs). Literature studies position STOT as a normative framework, not a pure description of real behavior, and acknowledge that real markets cause deviations from the optimal point. STOT is used as a theoretical benchmark and expanded with implicit bankruptcy costs, macroeconomic risk, income uncertainty, and industry characteristics (capital intensive). Brusov et al. (2023) conducted research on Capital Structure Theory: Past, Present, Future in the journal Mathematics (MDPI), which considers STOT as a central pillar of capital structure theory but needs to be adjusted to include finite firm life, real taxes, and actual bankruptcy risk.

The choice of the optimal capital structure increases the requirements for financial analysis and the use of mathematical methods (Brusov et al., 2023). The Trade-Off Theory in corporate finance explains how companies balance the costs and benefits of using debt in their capital structure. Higher debt (as long as it's not too risky) can increase the return on equity (EAT) due to lower taxes. However, if debt is too high, interest costs and the risk of bankruptcy can lower the return on equity (EAT). Partial adjustment to target leverage is often studied empirically as a key implication for testing trade-off theory. Using a basic trade-off model, Chen & Frank (2023) demonstrate that this dynamic process is not a generally accurate implication of the theory. First, in the model, firms have a capital target, not a leverage target. A company's income statement, which displays sources of revenue and expenses as revenue expenditures, provides information about the amount of profit or loss. A company generates a profit when its revenues exceed its expenses (Harrington et al., 2024).

Company operational complexity refers to the difficulty and complexity in managing day-to-day business operations (Sitorus & Yusuf, 2022). Operational complexity arises from a company's structure, including the number of subsidiaries, intercompany transactions, and specialized departments, all of which can impact the audit process (Muna & Lisiantara, 2021). Companies with multiple subsidiaries require auditors to consolidate financial statements from multiple entities, increasing the time required for review. Operational complexity can also result in increased scrutiny of intercompany transactions and compliance with reporting standards, further extending audit delays. Recent studies on operational complexity in the context of globalization and technological advancements can provide additional insights into how complexity evolves and impacts audit

schedules (Apriyustiono & Aris, 2024). Operating cash flow determines whether a company's operational activities generate cash to sustain operations, pay expenses and loans, and pay dividends to shareholders (Feanie & Dillak, 2021). Operating cash flow is used to support the company's operations to maximize profits.

TIE is a financial indicator used to assess a company's capacity to meet its interest payments by measuring the number of times the company can do so. A company's capability is assessed by measuring its EBITDA (Farah et al., 2021). A higher TIE indicates a company's increased capacity to meet its interest payment commitments and a greater likelihood of obtaining future loans, thus optimizing its profitability. Companies with a high interest coverage ratio (TIE) are more likely to obtain loans at more favorable interest rates. Conversely, companies with a low TIE ratio may have difficulty obtaining new loans or may be subject to higher interest rates. The TIE ratio can also serve as a tool to evaluate and compare the financial performance of different companies operating in the same industry. The use of financial leverage has the potential to yield beneficial results in terms of increased profitability during periods of favorable economic conditions (Utama et al., 2023).

Research by Noviyanti & Sari (2024) found that company operational complexity can have a significant positive impact on Earnings After Tax (EAT) or Profit After Tax (PAT). Research by Ayem & Titania (2024) found that operational complexity can impact earnings after tax, primarily through its impact on tax costs and liabilities. More complex businesses may have more opportunities for tax planning and optimization, potentially minimizing the legal tax burden and increasing after-tax earnings (Handayani & Edhy, 2024a).

H_1 : There is a positive influence of Company Operational Complexity (COC) on Earning After Tax (EAT).

Fatmawatie (2023) research found that cash from operating activities, as reported in the cash flow statement, has a significant positive effect on earnings after tax (and overall financial health). Nurmalina (2023) found that cash from operations (also called operating cash flow) influences Earnings After Tax (EAT). Another study by Triwulandaria et al. (2025) found that positive cash flow from operations has a positive effect on earnings after tax.

H_2 : There is a positive influence of Cash Flow Operating (CFO) on Earning After Tax (EAT).

The research results of Utama et al. (2023) show that although the TIE ratio does not directly affect Earnings After Tax (EAT), this ratio provides insight into a company's financial health, which can indirectly affect EAT.

H_3: There is a positive influence of Time Interest Earned (TIE) on Earning After Tax (EAT).

RESEARCH METHODS

Quantitative research type with descriptive and associative approach. Descriptive aims to describe or describe the characteristics of the research variables: Company Operational Complexity, Cash Flow Operating, Time Interest Earned, and Earning After Tax in a coal company. Associative aims to determine the relationship and influence between independent variables on the dependent variable. With this approach, researchers attempt to determine whether there is a statistically

significant relationship between each independent variable and the dependent variable, both partially and simultaneously. To measure Earning After Tax (EAT) in the context of the Company's financial statements is obtained directly from the annual comprehensive income statement in the financial summary or financial performance section. The higher the earnings after tax, the greater the net profit available to shareholders. Earning after tax reflects the company's final performance after all costs and taxes are charged.

COC is measured based on the number of operating segments or business segments or Operating Segments in the annual report. Business segments are typically reported by product type, geographic region, and primary activity. If a company does not explicitly report business segments, it is assumed to have only one business segment. Cash Flow from Operating Activities (CFO) is obtained from the cash flow statement. Total Assets are obtained from the balance sheet for the same period. The results of this ratio indicate operational liquidity efficiency: how much cash from primary activities is generated per unit of assets. To measure Time Interest Earned (TIE) in the context of a company's financial statements, EBIT is divided by interest expense (Lestari & Suprihadi, 2022). EBIT (Earnings Before Interest and Taxes) is profit before interest and taxes, usually found on the income statement. Interest Expense is the total interest expense on loans, also found on the income statement. The TIE ratio indicates how many times a company's operating profit is able to cover interest expenses. The higher the value, the greater the company's ability to pay interest obligations.

The population in this study is all coal mining sub-sector companies listed on the Indonesia Stock Exchange (IDX) during the period 2021 to 2024, totaling 47 companies. Seventeen coal companies were not listed consecutively on the Indonesia Stock Exchange during the 2021-2024 period, and 10 companies had a negative TIE. This study used a purposive sampling technique, a sampling method based on certain criteria determined by the researcher according to the research objectives. Data analysis was carried out using classical assumption tests (normality, multicollinearity, and heteroscedasticity), panel data regression (common effect, fixed effect model, random effect model). Model selection tests were carried out using the Chow Test, Lagrange Multiplier Test, and Hausman Test. Hypothesis testing was carried out using the t-test, supported by the F-test and the correlation-determination test.

RESULTS AND DISCUSSION

Coal companies have operational complexities and financial structures that vary significantly across entities. Company characteristics influence these factors, including vertical integration, mine life, exports, and domestic demand. The panel data model was chosen due to the combination of time (2021–2024) and entity (coal companies). It is highly suitable for the coal industry because reserve quality, mine locations, and basic organizational structures are relatively stable during 2021–2024. Operational complexity is likely correlated with internal company characteristics. The FEM is theoretically robust and the most defensible model for mining sector research. In practice, it is difficult to justify the uncorrelated nature of operational complexity, financing structure, and interest-paying capacity with a company's internal characteristics. This assumption has been empirically rejected

in the coal sector. The REM is only valid if the Hausman test is insignificant and logically defensible.

The coal industry is highly heterogeneous (reserves, coal quality, mine life). It would be unrealistic to treat large and small companies' COCs equally. The CEM is theoretically weak for this study and is used only as an initial comparison model, not a final one. The selection of panel data regression models is based on assumptions regarding the existence of heterogeneity between companies. The Common Effect Model assumes no differences in characteristics between companies, while the Fixed Effect Model accommodates company-specific differences that are fixed and potentially correlated with the independent variables. The Random Effect Model assumes that these differences are random and uncorrelated with the explanatory variables. Given the heterogeneous and complex characteristics of the coal industry, the Fixed Effect Model assumption is theoretically more relevant to describe the relationship between Company Operational Complexity, Cash Flow Operating, Time Interest Earned, and Earnings After Tax. The Chow Test or Likelihood Ratio Test is conducted to determine whether the Common Effect Model (CEM) or Fixed Effect Model (FEM) is more appropriate to use.

Table 1. Redundant Fixed Effect Test

Effects Test	Statistic	d.f.	Prob.
Cross-section F	1.210	(19.57)	0.282
Cross-section Chi-square	27.110	19	0.211

Source: Research data, 2024

Based on the results of the Chow test, a probability value of 0.2111 was obtained which is greater than 0.05, thus the more appropriate model to use is the Common Effect Model (CEM). The Lagrange Multiplier (LM) test is used if the Chow Test results show that the Common Effect Model is better than the Fixed Effect Model, to compare whether the Random Effect Model (REM) is more appropriate than the CEM.

Tabel 2. Lagrange Multiplier Tests for Random Effects

	Test Hypothesis		
	Cross-section	Time	Both
Breusch-Pagan	0.013	0.518	0.519
	(0.006)	(0.471)	(0.470)

Source: Research data, 2024

Based on the results of the Lagrange Multiplier test, a probability value of 0.0006 was obtained which is smaller than 0.05 so that the most appropriate model to use is the Random Effect Model (REM) compared to the Common Effect Model (CEM). The Hausman test is used to determine the best model between Fixed Effect (FEM) and Random Effect (REM) by considering the correlation between the independent variables and the individual company effects.

Tabel 3. Correlated Random Effects - Hausman Test

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	4.228	3	0.069

Source: Research data, 2024

Based on the results of the Hausman test, the probability value obtained was 0.0069 which is smaller than 0.05, therefore, the most appropriate model to use is the Fixed Effect Model (FEM) compared to the Random Effect Model (REM). The normal distribution can be tested analytically (statistical tests) or graphically. In all these tests, the null hypothesis is that the frequency distribution of the data is normally distributed. To reject or not reject the null hypothesis, all these tests provide a p-value. The p-value can be less than or greater than 0.05.

Tabel 4. Data Normality Test

Series: Standardized Residuals Sample 2021 2024 Observations 80	
Jarque-Bera	0.834
Probability	0.658

Source: Research data, 2024

In Table 4, the equation variables have a probability level greater than 0.05, each with a probability level of 0.659. This concludes that the dependent and independent variable data are normally distributed (> α value). In regression analysis, multicollinearity occurs when two or more predictor variables (independent variables) show a high correlation.

Tabel 5. Correlation Matrix between Independent Variables

	X1	X2	X3
X_1	1	0.204	0.004
X_2	0.204	1	0.401
X_3	0.004	0.401	1

Source: Research data, 2024

The correlation coefficient of X_1 and X_2 (0.204024 < 0.85), the correlation of X_1 and X_3 (0.0004234 < 0.85), the correlation of X_2 and X_3 (0.401264 < 0.85). So it can be concluded that the data is free from multicollinearity. Heteroscedasticity is a specific pattern in the residuals of a model, where for some subsets of residuals, the amount of variability is consistently greater than for other subsets.

Tabel 6. the Heteroscedasticity Test of the Glejser Method on the Panel Model

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.964	0.182	5.273	0.00
X_1	0.026	0.074	0.360	0.719
X_2	0.346	0.397	0.872	0.385
X_3	0.034	0.065	0.523	0.601

Source: Research data, 2024

Based on the results of the heteroscedasticity test using the Glejser method as shown in Table 6, the probability values (Prob.) for all independent variables are above the 0.05 significance level. Thus, the regression model does not contain symptoms of heteroscedasticity. In statistics, the squared correlation is used as a

coefficient of determination or a measure of the percentage of variance explained. The use of this correlation coefficient requires the adoption of a model and its associated assumptions.

Tabel 7. Panel Data Regression Coefficient Test

R-squared	0,444
Adjusted R-squared	0.356
S.E. of regression	0.657

Source: Research data, 2024

The low R-squared value indicates that Earning After Tax in coal companies is influenced by various factors other than this research model, such as fluctuations in world coal prices (coal benchmark price), government policies related to DMO, production cost policies and depreciation of mining equipment, fluctuations in coal export demand, and global macroeconomic conditions during the 2021–2024 research period. The results of the F-test (simultaneous) from the panel data regression are the final stage of the overall significance test which can be seen in Table 8 as follows:

Tabel 8. F-test (simultaneous) panel data regression

Sum squared resid	5.180
Log likelihood	-13.681
F-statistic	65.423
Prob(F-statistic)	0.000

Source: Research data, 2024

Simultaneously, the variables Company Operational Complexity, Cash Flow Operating, and Time Interest Earned significantly influence Earning After Tax. However, the relatively low coefficient of determination indicates that the significant effect is statistical, while the model's ability to explain the overall variation in EAT is still limited. Thus, the F-test results confirm the simultaneous significance of the model, but still indicate the need for additional variables to increase the model's explanatory power. The log likelihood value of -13.68143 is relatively high (closer to zero), indicating that the combination of the variables Company Operational Complexity, Cash Flow Operating, and Time Interest Earned is able to adequately explain the pattern of Earning After Tax data. This improved fit is also in line with the R-squared value of 0.470 and the significant F-statistic, so the model is considered reliable in describing the relationship between the research variables.

The t-test is used to measure the difference between exactly two mean values. The focus is on the same numerical data variable, not on the number or correlation between multiple variables. If the average of a sample of measurements is taken, the t-test is the method used to evaluate the data.

Tabel 9. Partial T-Test Output from Panel Data Regression Model

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	2.403	0.622	1.970	0.072
X_1	0.132	0.551	0.439	0.414
X_2	0.427	1.635	2.766	0.002
X_3	0.342	0.256	2.376	0.007

Source: Research data, 2024

Based on the results in Table 9, there is no significant effect of Company Operational Complexity on Earnings After Tax. If the value of the Company Operational Complexity variable increases, Earnings After Tax also increases. Based on the results of the t-test, the Cash Flow Operating (CFO) variable has a t-statistic value of 2.766968 with a significance level of 0.0002 <0.05, so H2 is accepted, meaning there is a significant effect of Cash Flow Operating on Earnings After Tax. There is a significant effect of Time Interest Earned on Earnings After Tax. If the value of the Time Interest Earned variable increases, Earnings After Tax also increases.

Overall, the results of this study confirm that in the Indonesian coal industry for the 2021–2024 period, operational complexity is not a primary determinant of Earnings After Tax (ETP). This finding strengthens the argument that organizational complexity should be understood as a structural characteristic of a company, not as an automatic indicator of improved profit performance, particularly in commodity-based industries that are heavily influenced by external factors. The study's findings differ, or at least are inconsistent with, several relevant literature and previous research findings in general. A previous study by Hapsari & Kuntadi (2023) found that variables related to operational costs or complexity did not always have a significant effect on certain financial aspects. A study by Handayani & Edhy (2024) found that operational costs did not affect income tax expense. These findings suggest that under certain conditions, the relationship between operational complexity and earnings (after tax) can be weak or even statistically undetectable.

The results of the second hypothesis study indicate a significant effect of Cash Flow Operating (CFO) on Earnings After Tax (EAT). Research by Sopian & Nuryani (2025) found various performance variables or company value, which indirectly support a close relationship with profit. These results tend to reinforce the research finding a significant relationship between operating cash flow and financial performance (EAT), particularly in the specific context of post-pandemic coal companies. Cash flow operating activities reflect the cash generated or used by a company's core business activities, and this directly impacts company profitability and, ultimately, earnings after tax (Fatmawatie, 2023). Positive cash flow from operating activities has a positive effect on earnings after tax (Triwulandaria et al., 2025). Cash flow from operating activities is a key determinant of a company's resilience to price fluctuations and market conditions. Research in the mining sector shows that operational cash flow has a significant impact on profitability, while also influencing a company's market value (Liandu et al., 2023).

According to Christina & Schmollinger (2025), almost all coal companies had positive operating cash in 2019 with a stable benchmark price (US$77.9/ton), indicating that operating cash flow was the foundation of the sector's financial health before the pandemic. Coal companies urged the government to postpone the royalty increase in March 2025 due to rising operating costs and tight cash flow pressures. Research shows that operating cash flow and cash holdings are important buffers against volatility and external pressures. Operating cash flow (cash flow from operating activities) also reflects a company's ability to generate cash from its core business activities. Healthy cash flow demonstrates operational efficiency and resilience to external pressures. In the context of mining companies, revenue fluctuations due to changes in commodity prices require careful cash management to meet short-term obligations and fund investments.

Strong operating cash flow demonstrates operational efficiency and resilience to external pressures. Previous research has shown a positive relationship between operating cash flow and profitability and business continuity/going concern (Amalia & Firmansyah, 2021). Operating cash flow is not only relevant but also superior in predictive terms to traditional financial ratios. Operational Cash Flow (FCF and cash-positive data) reinforces the crucial role of cash flow in measuring the financial resilience and efficiency of coal companies. Historical data demonstrating free cash flow and a positive cash position further confirms that operating cash flow has a significant impact on Earnings After Tax (Nurmalina, 2023).

The results of this study confirm that Time Interest Earned can be an important indicator for management in maintaining the company's ability to pay interest obligations. The potential increase in agency costs can be compensated by management's ability to manage cash flow and interest expenses efficiently. Meanwhile, from a signaling theory perspective, high Cash Flow Operating and Time Interest Earned will generate sustainable profits. The optimal capital structure in the use of debt and bankruptcy risk ultimately has an impact on increasing profit after tax. In addition, the consistency of these findings with pecking order theory indicates that operating cash flow performance is a major factor in profit formation, because companies tend to rely on internal funds before conducting external financing. Thus, the simultaneous relationship between the three independent variables confirms that operational efficiency, internal liquidity, and the ability to bear interest expenses are important determinants in increasing Earning After Tax, especially in the coal sector which has high cost and revenue dynamics. In maintaining the profitability of coal companies, besides cash flow, debt position is also crucial. Inability to pay loan interest can increase the risk of bankruptcy and directly impact net profit after tax (Earnings After Tax). A company's ability to cover interest expenses from its operating income is indicated by the Time Interest Earned (TIE) ratio. Although revenue is not directly affected by the c-ratio, it can indirectly impact earnings after tax by influencing the company's ability to manage its debt and potentially impacting its profitability and tax burden (Utama et al., 2023).

CONCLUSION

Company Operational Complexity has no significant effect on Earnings After Tax. This indicates that the level of a company's operational complexity, such as the diversity of business lines, production scale, and number of subsidiaries, does not directly affect the amount of net profit after tax. This condition may be caused by the company's ability to standardize operational processes and manage efficiency amidst complexity, so that variations in complexity do not become a dominant factor in profit formation. Second, Cash Flow Operating has a significant effect on Earnings After Tax, which confirms that the strength of cash flow from operational activities is the main source of the company's net profit formation. Companies with stable operating cash flow demonstrate the ability to generate sustainable income from core activities without relying on external funding. Third, Time Interest Earned has a significant effect on Earnings After Tax, which means the company's ability to cover interest expenses with its operating profit plays a crucial role in increasing profitability. A high TIE ratio indicates efficient debt management, low bankruptcy risk, and an optimal balance between the use of equity and debt. This finding is in line with the Trade-Off Theory, which states that companies will seek to balance the benefits of using debt with financial risks to maximize net profit.

This study has several limitations that should be considered when interpreting the results. First, the research is limited to coal companies listed on the Indonesia Stock Exchange during the 2021–2024 period, so the findings may not be generalizable to other sectors or longer time horizons. Second, the model only includes three independent variables—operational complexity, operating cash flow, and time interest earned—while Earnings After Tax is also influenced by other factors such as coal price fluctuations, government policies, exchange rates, and macroeconomic conditions that are not incorporated in the model. Third, the measurement of operational complexity using the number of business segments may not fully capture the actual complexity of company operations. Fourth, the relatively low coefficient of determination indicates that a substantial portion of variation in EAT is explained by variables outside the model. Therefore, future research is recommended to include additional variables, broader sectors, and longer observation periods to obtain more comprehensive results.

Policy should focus on transparency of operating cash flow and financial risks, particularly regarding a company's ability to meet interest obligations and maintain sustainable after-tax profits. Encourage standardization of cash flow and financial expense disclosures so that investors and creditors can assess earnings quality more objectively, rather than simply looking at accounting profits. Using these results as a basis for evaluating the effectiveness of coal sector regulations, it is clear that increased organizational complexity due to regulatory compliance does not always have a positive impact on a company's earnings performance. Creditors can utilize time interest earned (TIE) as a key indicator in creditworthiness analyses, as this ratio directly reflects a company's ability to cover interest expenses from operating profits. Strengthen assessments based on operating cash flow, rather than solely accounting profits, to minimize the risk of default due to coal price volatility. Be wary of companies with high COC but low TIE, as this condition indicates a risk of financial distress, even if the company appears large and complex.

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