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Financial Distress and Earnings Management An Empirical Study of Non-Financial Firms Listed on the Indonesia Stock Exchange

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Abstract

This study examines the relationship between financial distress and earnings management among non-financial companies listed on the Indonesia Stock Exchange during the period 2018–2022. This study uses a quantitative approach using the modified Jones model to measure discretionary accruals, with leverage, firm size, and profitability included as control variables. Data from 342 companies are analyzed to determine whether companies facing financial distress are more likely to engage in earnings management as a strategy to improve their financial performance.

The findings reveal that profitability has the strongest positive effect on earnings management, indicating that firms with higher profitability are more likely to manipulate earnings to improve financial results and meet market expectations. In contrast, leverage shows a significant negative effect, indicating that firms with higher debt levels are less likely to engage in earnings manipulation due to increased creditor monitoring and financial discipline. Meanwhile, financial distress and firm size have minimal impacts, with their coefficients showing no significant effect on discretionary accruals.

These results highlight the importance of profitability and leverage as key drivers of earnings management while suggesting that financial distress and firm size play a smaller role in this context. This study acknowledges limitations, including its focus on non-financial firms in Indonesia, the five-year observation period, and the exclusion of additional factors such as governance and macroeconomic conditions. Future research could address these limitations by expanding the data set, incorporating more variables, and exploring other emerging markets.

1 Introduction

In recent decades, the issue of financial distress has become a major concern in the global business world. This phenomenon is increasingly significant along with the increasing dynamics of the global economy, changes in economic policies, and crises that hit various industrial sectors Abu S, (2018);

Kousenidis et al, (2013)At the international level, various studies have shown that financial distress is often the main trigger for revenue management practices that can affect the transparency and accountability of financial reports (Agrawal & Chatterjee, 2015); Caramanis & Lennox, 2008).

Specifically, in Indonesia, financial distress in non-financial companies listed on the Indonesia Stock Exchange (IDX) is an important issue, especially in the context of corporate governance which is still developing. Previous studies have shown that the role of independent commissioners and revenue management practices in Indonesia are closely related to the financial condition of companies (Agatha R et al., 2021). In addition, fluctuating economic policies and the impact of the COVID-19 pandemic have further exacerbated the financial distress of companies in Indonesia (Aljughaiman et al., 2023).

The urgency of this research lies in the significant impact of financial distress on business sustainability. Unethical earnings management practices can damage investor confidence and hinder overall economic growth (Bergstresser & Philippon,2006); Muljono & Suk, 2018). Therefore, a deeper understanding of the relationship between financial distress and earnings management is important to identify effective mitigation measures.

Literature review shows that the Altman Z-Score model is one of the tools often used to predict corporate financial distress (Boďa & Úradníček, 2016). However, several studies emphasize the need to adapt this model in the context of companies in Indonesia, considering the differences in market structure and regulations (Fachrudin, 2020; Li et al, 2020). In addition, previous studies also revealed that leverage, profitability, and corporate governance are the main factors that influence earnings management practices (Lazzem & Jilani, 2018; Prihastomo & Khafid, 2018).

This study aims to investigate the relationship between financial distress and earnings management practices in non-financial companies listed on the IDX during the period 2018–2022. This study also aims to provide insights that can help companies, regulators, and other stakeholders in improving financial transparency and accountability. By referring to the existing literature, this study will contribute to the understanding of the dynamics of financial distress and earnings management, as well as their implications for the stability of the Indonesian financial market (Sayidah et al., 2020; Zhang, 2015).

2 Materials and Method

This study uses a quantitative research method, which is well suited to achieving precision and objectivity in data analysis. The quantitative approach allows for the systematic collection and analysis of numerical data, allowing for reliable and accurate evidence-based conclusions. By combining statistical calculations and structured methodology, this study seeks to uncover the relationship between financial distress and income management practices in a transparent, replicable, and empirically based manner. Furthermore, the quantitative approach is expected to produce results that are not only reliable but also verifiable, ensuring that the findings can be generalized to a wider population while maintaining statistical rigor.

The dataset used in this study is derived from a comprehensive sample of 342 companies operating in the non-financial sector, all of which are listed on the Indonesia Stock Exchange. The selected data spans a five-year period, from 2018 to 2022, providing a robust temporal framework for analyzing trends and patterns. This time frame allows the study to capture variations in financial distress and earnings management practices across different economic conditions, ensuring a more nuanced understanding of the dynamics at play. The decision to focus on non-financial companies was made to minimize the potential confounding effects of financial sector-specific regulations and practices, which may differ significantly from other industries.

Through the application of systematic statistical analysis, this study aims to rigorously evaluate the relationship between financial distress and earnings management, while considering the influence of control variables such as leverage, firm size, and profitability. These control variables are included to

account for additional factors that may influence the observed relationship, thereby increasing the completeness and validity of the analysis. Overall, the methodological approach adopted in this study is designed to provide clear and actionable insights into how financial distress affects earnings management practices, especially in the context of an emerging market such as Indonesia.

Revenue Management Measurement

In earnings management, discretionary accruals are commonly used, assuming that non-discretionary accruals are determined by the company's operational conditions, while discretionary accruals are determined by managers exercising discretion over the accounting policies and estimates prevailing in a company (Luu Thu, 2023).

To measure earnings management, this study uses discretionary accruals derived from the calculation method introduced in Dechow's study, specifically using the Modified Jones Model. The Modified Jones Model is recognized for its robustness and wide application in academic and practical research as a reliable method for isolating the discretionary component from total accruals. This model adjusts for changes in earnings and property, plant, and equipment to control for normal accrual activity, allowing for proper identification of earnings manipulation.

The calculation of discretionary accruals using the Modified Jones Model involves the following equation:

$$Total\ Accruals_{i,t} = Net\ Income_{i,t} - Cash\ Flow\ From\ Operations_{i,t}$$

Total accrual value is measured using the following multiple regression equation:

$$Total\ Accrual_{i,t} / A_{i,t-1} = \alpha 1(1/A_{i,t-1}) + \alpha 2\ (\Delta REV_{i,t} / A_{i,t-1}) + \alpha 3\ (APD_{i,t} / A_{i,t-1}) + \varepsilon$$

Non-discretionary accruals are calculated using the following formula:

$$NDA_{i,t} = \alpha_1 (1/A_{i,t-1}) + \alpha 2\ (\Delta REVi,t / A_{i,t-1} - \Delta REC_{i,t} / A_{i,t-1}) + \alpha 3\ (APD_{i,t} / A_{i,t-1})$$

Next, discretionary accruals can be calculated as follows:

$$DA_{i,t} = (Total\ Accruals_{i,t} / A_{i,t-1}) - NDA_{i,t}$$

With the following definition:

Total Accruals (TAC $_{i,t}$) = Total accruals of the company $_{(i)}$ in year $_{(t)}$
Net Profit $_{i,t}$ = Net profit of the company $_{(i)}$ in year $_{(t)}$
Cash flow from operations = Cash from operating activities of the company $_{(i)}$ in year $_{(t)}$
$A_{i,t-1}$ = *Total assets of the company* $_{(i)}$ in the previous year $_{(t)}$
Δ *WARNING* = Change in Company *revenue* $_{(i)}$ in year $_{(t)}$
$\Delta REC_{,t}$ = Change in Company *receivables* $_{(i)}$ in year $_{(t)}$
PPE $_{i,t}$ = *Property, Plant and Equipment* of the Company $_{(i)}$ in year $_{(t)}$

By applying this model, this study aims to provide insights into the extent and patterns of earnings management among financially distressed firms, as well as how these practices vary with factors such as leverage, firm size, and profitability.

Financial Distress Measurement

In this study, financial difficulties will be assessed using the Altman Z-Score method, which is recognized as a reliable tool for evaluating financial health (Zainudin et al., 2023). The Altman Z-Score is calculated using the following formula:

$$Z\text{-}score = 1.2A + 1.4B + 3.3C + 0.6D + 1.0E$$

Z-Score = *Financial Distress*
A = Working Capital / Total Assets
B = Retained Earnings / Total Assets
C = EBIT / Total Assets
D = Market Value of Equity / Total Liabilities
E = Sales / Total Assets

Control Variable Measurement

To ensure a comprehensive analysis, this study incorporates several control variables known to influence earnings management: profitability, leverage, and firm size. These variables are critical to capturing the broader financial and operational context in which earnings management practices occur. The methods used to measure these control variables are as follows:

Profitability

Profitability is an important indicator of a company's financial performance and its ability to generate returns from its assets. In this study, profitability is measured using the Return on Assets (ROA) ratio, which is calculated as:

$$Return\ on\ Assets_{i,t} = Net\ Income_{i,t} / Total\ Assets_{i,t}$$

This ratio reflects the efficiency with which a company utilizes its total assets to generate net income. A higher ROA indicates better financial performance, potentially reducing the need for earnings management. Conversely, companies with lower profitability may be more likely to manipulate earnings to improve their financial appearance.

Leverage

Leverage represents the extent to which a company relies on debt to finance its operations. This is measured using the Debt to Asset Ratio, which is calculated as:

$$Debt\ to\ asset\ ratio_{i,t} = Total\ liabilities_{i,t} / Total\ assets_{i,t}$$

This ratio shows the proportion of a company's assets that are financed through liabilities. Companies with higher leverage may face greater financial pressures, increasing the likelihood of engaging in earnings management to meet debt covenants or reassure creditors.

Company Size

Firm size is another important control variable, as larger firms often have greater resources and a more established reputation, which can influence their financial reporting behavior. Firm size is measured using the logarithm of total assets, calculated as:

$$Company\ size_{i,t} = \text{Log}\ (\ Total\ Assets_{i,t}\ )$$

Larger firms may have greater regulatory oversight and greater stakeholder scrutiny, potentially reducing their propensity to engage in earnings management compared to smaller firms.

Data Analysis Techniques

This study uses Microsoft Excel and STATA version 17 MP Parallel Edition for data analysis. Microsoft Excel will be used for initial data preparation, cleaning, and basic descriptive statistics, ensuring the data set is ready for further analysis. STATA, known for its robust statistical capabilities, will handle the regression analysis, estimate discretionary accruals using the Modified Jones Model, and examine

relationships between variables. The combination of these tools ensures efficient, accurate, and comprehensive data analysis, supporting the study's goal of producing reliable, evidence-based conclusions.

Descriptive Statistics

This study uses descriptive analysis to summarize the characteristics of the research sample, which is representative of the population. Key statistical measures, including mean, standard deviation, minimum, and maximum, are analyzed to provide insight into data distribution, variability, and range. These measures help identify patterns, trends, and anomalies, serve as a basis for further statistical analysis and ensure the data set aligns with the research assumptions. Descriptive analysis offers a clear overview of the data, facilitates transparency and prepares for more advanced techniques.

Regression Model Feasibility Testing

Panel data analysis is a statistical method that accounts for variation in data across two dimensions: cross-sections, representing different entities, and time series, representing observations over multiple time periods. This dual-dimensional approach allows for a more nuanced understanding of the relationships among variables by capturing both inter-entity and intra-entity variation. To determine the most appropriate model to analyze panel data, several diagnostic tests will be performed. These include the Chow test, which evaluates whether a fixed effects model is more appropriate than a pooled ordinary least squares (OLS) model by testing for significant differences in intercepts across entities. In addition, the Hausman test will be applied to compare fixed effects and random effects models, helping to identify the best model based on the exogeneity and consistency assumptions. The Lagrange Multiplier (LM) test will also be performed to assess whether a random effects model is preferable to a pooled OLS model. By conducting these tests, this study ensures the selection of a statistically robust and appropriate model to analyze the relationships between financial distress, earnings management, and control variables, while accounting for the complex structure of the panel data set.

Chow Test

The Chow Test is performed to determine whether a common effects model or a fixed effects model is most appropriate to analyze a data set. This test evaluates the F-probability value to assess whether the fixed effects model provides a significantly better fit than the common effects model by examining the difference in intercepts across entities. The hypothesis for the Chow Test is as follows:

H_0 : *common effect model* (prob. > 0.05)
H_1 : *fixed effects model* (prob. < 0.05)

Hausman test

The Hausman test is used to choose between a fixed effects model and a random effects model by examining the relationship between the predictors and individual effects. This test determines whether the individual-specific effects are correlated with the independent variable. The hypothesis for the Hausman test is:

H 0 : random effects model (prob. > 0.05)
H 1 : fixed effect model (prob.0.05)

Lagrange Multiplier Test

The Lagrange Multiplier Test is performed to decide between a common effects model and a random effects model based on the residual variance. It evaluates whether the random effects contribute significantly to explaining the variability in the data. The hypothesis for this test is:

H 0 : general effect model (prob. value > 0.05)
H 1 : random effects model (prob. value < 0.05)

Classical Assumption Test

Multicollinearity Test

Multicollinearity is tested using the Variance Inflation Factor (VIF). If the VIF value is less than 10, multicollinearity is absent. If the VIF value exceeds 10, multicollinearity is present among the variables.

Heteroscedasticity Test

The heteroscedasticity test checks whether the error variance is constant across observations. If the p-value > 0.05, there is no heteroscedasticity. If the p-value < 0.05, heteroscedasticity is present.

Hypothesis Testing

F-Statistic Test (Simultaneous Test)

This test measures the collective effect of independent variables on the dependent variable. If the calculated F-value > F-table or p-value < 0.05, the null hypothesis (H0) is rejected and the alternative hypothesis (Ha) is accepted, indicating that the independent variables collectively have a significant effect on the dependent variable.

Coefficient of Determination (R^2)

This measure indicates the ability of the independent variable to explain the variance in the dependent variable. An R^2 value close to 1 indicates that the independent variable provides almost all the information needed to predict the variance in the dependent variable.

T Statistic Test (Partial Test)

The t-test assesses the individual effect of each independent variable on the dependent variable. If the calculated t-value > t-table or p-value < 0.05, the null hypothesis (H0) is rejected, and the alternative hypothesis (Ha) is accepted, indicating that the independent variables have significant individual effects on the dependent variable. If the t-value < t-table or p-value > 0.05, the null hypothesis is accepted, indicating that the independent variables do not have significant individual effects on the dependent variable.

Regression Analysis

The regression analysis technique used in this study is designed to test the research hypothesis by evaluating the relationship between financial distress and earnings management, while taking into account the influence of control variables such as profitability, leverage, and firm size. The model is represented by the following equation:

$$EMi,t = \alpha + \beta 1FDi,t + \beta 2LEVi,t + \beta 3SIZEi,t + \beta 4PROFi,t + \varepsilon$$

EM i,t	= Earnings Management
FD i,t	= Financial Distress
LEV i,t	= Benefit
SIZE i,t	= Company size
PROF i,t	= Profitability

α = Constant
β1, β2, β3, β4, β5 = Regression Coefficients
ε = estimated error

3 Results and Discussion

Chow Test

```
Fixed-effects (within) regression               Number of obs      =      1,709
Group variable: id                              Number of groups   =        342

R-squared:                                      Obs per group:
     Within  = 0.1923                                         min =          4
     Between = 0.4866                                         avg =        5.0
     Overall = 0.3387                                         max =          5

                                                F(4,1363)          =      81.14
corr(u_i, Xb) = -0.3599                         Prob > F           =     0.0000
```

mod_jones_dac	Coefficient	Std. err.	t	P>|t|	[95% conf.	interval]
z_score	.0016516	.000598	2.76	0.006	.0004785	.0028248
debt_to_asset_ratio	-.0185554	.003259	-5.69	0.000	-.0249485	-.0121622
firm_size	-.0289389	.0162192	-1.78	0.075	-.0607562	.0028784
roa	.2169164	.0227103	9.55	0.000	.1723654	.2614674
_cons	.392691	.2140221	1.83	0.067	-.0271574	.8125393
sigma_u	.13993339					
sigma_e	.17312595					
rho	.39515224	(fraction of variance due to u_i)				

```
F test that all u_i=0: F(341, 1363) = 0.86                     Prob > F = 0.9577
```

The Chow test result shows a probability value of 0.9577, which is greater than the significance level of 0.05. This indicates that there is no significant difference in the intercept across the entities being analyzed. Consequently, the common effects model is determined as the most appropriate model to analyze the panel data in this study. The common effects model assumes that all entities share the same intercept, simplifying the analysis by treating the data set as homogeneous without entity-specific effects.

Hausman test

	Coefficients (b) fe	(B) re	(b-B) Difference	sqrt(diag(V_b-V_B)) Std. err.
z_score	.0016516	.0000816	.00157	.0004587
debt_to_as~o	-.0185554	-.0316403	.0130849	.0027179
firm_size	-.0289389	.0003914	-.0293303	.0161851
roa	.2169164	.1503039	.0666125	.0128632

```
                b = Consistent under H0 and Ha; obtained from xtreg.
 B = Inconsistent under Ha, efficient under H0; obtained from xtreg.

Test of H0: Difference in coefficients not systematic

    chi2(4) = (b-B)'[(V_b-V_B)^(-1)](b-B)
            =  50.14
Prob > chi2 = 0.0000
```

The Hausman test result shows a probability value of 0.000, which is less than the significance threshold of 0.05. This implies that there is a statistically significant difference between the fixed effects and random effects models. Consequently, the fixed effects model is considered the most appropriate model for the analysis. The fixed effects model takes into account entity-specific characteristics that do not vary over time, ensuring that unobservable factors unique to each entity are controlled, leading to more reliable and robust results in the context of this study.

Lagrange Multiplier Test

```
Breusch and Pagan Lagrangian multiplier test for random effects

mod_jones_dac[id,t] = Xb + u[id] + e[id,t]

Estimated results:
                    |       Var     SD = sqrt(Var)
--------------------+-----------------------------
       mod_jon~c    |    .0618831       .2487631
               e    |    .0299726       .1731259
               u    |          0             0

Test: Var(u) = 0
                          chibar2(01) =     0.00
                       Prob > chibar2 =   1.0000
```

The Lagrange Multiplier (LM) test results show a probability value of 1, which is significantly greater than the significance threshold of 0.05. This indicates that the random effects model is not appropriate, as there is no evidence to suggest that the random effects model provides a better fit than the pooled ordinary least squares (OLS) model. Therefore, the common effects model is chosen as the most appropriate model to analyze panel data in this context. The common effects model assumes uniformity across entities, treating all observations as homogeneous without taking into account entity-specific effects.

Classical Assumption Testing
Multicollinearity Test

Variable	VIF	1/VIF
debt_to_as~o	3.39	0.294594
roa	2.71	0.369150
z_score	1.87	0.533855
firm_size	1.01	0.993516
Mean VIF	2.25	

The results of the multicollinearity test revealed a Variance Inflation Factor (VIF) value of 2.25, which is well below the threshold of 10. This indicates that there is no significant multicollinearity among the independent variables in the regression model. A low VIF value indicates that the predictor variables are not highly correlated with each other, ensuring that the regression coefficients are stable and reliable. This confirms that multicollinearity is not a concern in this study, allowing for accurate interpretation of the relationships between variables.

Heteroscedasticity Test

```
Breusch-Pagan/Cook-Weisberg test for heteroskedasticity
Assumption: Normal error terms
Variable: Fitted values of mod_jones_dac

H0: Constant variance

    chi2(1) = 77567.62
Prob > chi2 =   0.0000
```

The heteroscedasticity test results show a Prob value > chi2 of 0.000, which is less than the threshold of 0.05. This indicates the presence of heteroscedasticity in the regression model, meaning that the

residual variance is not constant across observations. To address this issue, a corrective action is applied using robust standard errors, which adjusts the standard errors of the coefficients to remain consistent even in the presence of heteroscedasticity. By applying this adjustment, the reliability of the p-values and confidence intervals is maintained, ensuring accurate statistical inference even when heteroscedasticity is detected.

Linear regression

Number of obs	1,709
F(4, 1704)	5.02
Prob > F	0.0005
R-squared	0.5304
Root MSE	.17067

mod_jones_dac	Coefficient	Robust std. err.	t	P>|t|	[95% conf.	interval]
z_score	.0000816	.0006802	0.12	0.905	-.0012526	.0014158
debt_to_asset_ratio	-.0316403	.0197508	-1.60	0.109	-.0703786	.0070981
firm_size	.0003914	.0006204	0.63	0.528	-.0008255	.0016083
roa	.1503039	.1691668	0.89	0.374	-.1814926	.4821003
_cons	.0205058	.0172342	1.19	0.234	-.0132967	.0543082

Hypothesis Testing

F-Statistic Test (Simultaneous Test)

Source	SS	df	MS
Model	56.060004	4	14.015001
Residual	49.6362927	1,704	.02912928
Total	105.696297	1,708	.061883078

Number of obs	1,709
F(4, 1704)	481.13
Prob > F	0.0000
R-squared	0.5304
Adj R-squared	0.5293
Root MSE	.17067

mod_jones_dac	Coefficient	Std. err.	t	P>|t|	[95% conf.	interval]
z_score	.0000816	.0003838	0.21	0.832	-.0006711	.0008343
debt_to_asset_ratio	-.0316403	.0017984	-17.59	0.000	-.0351675	-.028113
firm_size	.0003914	.001051	0.37	0.710	-.0016699	.0024527
roa	.1503039	.0187162	8.03	0.000	.1135947	.1870131
_cons	.0205058	.0145446	1.41	0.159	-.0080214	.0490329

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F-Statistic Value: The F-statistic is 481.13.

Prob > F: The p-value associated with the F-statistic is 0.0000.

The F-statistic test is used to determine whether all independent variables included in the regression model collectively have a statistically significant effect on the dependent variable. In this study, the results of the F-statistic test show an F-statistic value of 481.13 with a related p-value (Prob > F) of 0.0000. Since the p-value is significantly lower than the standard significance threshold of 0.05, the null hypothesis (H_0) is rejected. The rejection of the null hypothesis implies that the independent variables—financial distress, leverage, firm size, and profitability—have a significant simultaneous impact on the dependent variable, earnings management.

These results highlight the importance of these independent variables in influencing earnings management practices. They suggest that variation in the level of earnings management cannot be adequately explained by a single independent variable alone but instead results from the combined effects of financial distress, leverage, firm size, and profitability. The statistical significance of the F-statistic further validates the overall fit of the regression model, confirming that the included independent variables provide meaningful insights into the determinants of earnings management.

By demonstrating the simultaneous influence of these variables, these findings underscore the importance of considering a multidimensional approach in understanding earnings management practices. These conclusions support the theoretical framework of the study and provide a strong basis for further

analysis of the individual contributions of each independent variable through additional tests, such as t-tests for individual significance.

Coefficient of Determination (R^2)

Source	SS	df	MS	Number of obs	=	1,709
				F(4, 1704)	=	481.13
Model	56.060004	4	14.015001	Prob > F	=	0.0000
Residual	49.6362927	1,704	.02912928	R-squared	=	0.5304

R-squared: The R-squared value is 0.5304.
Adjusted R-squared: The Adjusted R-squared value is 0.5293.

The determination coefficient R-squared of 0.5304 (53.04%) indicates that this model explains most of the variability in the dependent variable. In other words, 53.04% of the variability in the dependent variable, accrual earnings management, can be explained by the independent variables: financial distress, leverage, firm size, and profitability. This indicates that this model has substantial explanatory power, as it captures more than half of the variability in earnings management. The slightly lower adjusted R-squared of 52.93% indicates that the results remain similar even after adjusting for the number of predictor variables in the model.

Overall, the model has moderate explanatory power as it captures about half of the variability in the dependent variable. Although these results indicate a fairly good fit, there is still some unexplained variability, suggesting that the model could be further improved or that other factors may influence accrual earnings management. The remaining 46.96% of unexplained variability suggests that other factors, not included in the model, may also influence accrual earnings management. This opens up the possibility for further refinement of the model or exploration of additional variables that may improve its predictive accuracy.

T Statistic Test (Partial Test)

Source	SS	df	MS	Number of obs	=	1,709
				F(4, 1704)	=	481.13
Model	56.060004	4	14.015001	Prob > F	=	0.0000
Residual	49.6362927	1,704	.02912928	R-squared	=	0.5304
				Adj R-squared	=	0.5293
Total	105.696297	1,708	.061883078	Root MSE	=	.17067

mod_jones_dac	Coefficient	Std. err.	t	P>|t|	[95% conf.	interval]
z_score	.0000816	.0003838	0.21	0.832	-.0006711	.0008343
debt_to_asset_ratio	-.0316403	.0017984	-17.59	0.000	-.0351675	-.028113
firm_size	.0003914	.001051	0.37	0.710	-.0016699	.0024527
roa	.1503039	.0187162	8.03	0.000	.1135947	.1870131
_cons	.0205058	.0145446	1.41	0.159	-.0080214	.0490329

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The t-statistic test is used to assess the individual significance of each independent variable in explaining the dependent variable, earnings management, in the regression model. The results for each variable are as follows:

Altman Z Score

The p-value for Altman Z Score is 0.832, which is greater than the significance threshold of 0.05. Therefore, we fail to reject the null hypothesis (H0) indicating that financial distress has no statistically significant effect on earnings management. This suggests that financial distress, as measured by Altman Z Score, is not a key factor influencing earnings management in this model.

Leverage

The t-statistic test result for leverage shows a p-value of 0.000, which is significantly below the threshold of 0.05. This leads to the rejection of the null hypothesis (H0), which indicates that leverage has a statistically significant negative effect on mod_jones_dac (modified Jones discretionary accruals). This finding implies that as a firm's leverage (measured by the debt-to-asset ratio) increases, the level of earnings management, as represented by discretionary accruals, tends to decrease. The negative relationship can be attributed to the fact that higher leverage often subjects firms to greater scrutiny from creditors and investors, thereby limiting management's ability to manipulate earnings. This increased scrutiny can discourage opportunistic accounting practices, promoting more transparent financial reporting.

The results of this study underline the role of leverage as an important factor influencing managerial behavior in financial reporting, especially in companies where debt obligations play an important role in their capital structure.

Company Size

The t-statistic test result for firm size shows a p-value of 0.710, which is greater than the significance threshold of 0.05. Consequently, we fail to reject the null hypothesis (H0), concluding that firm size does not have a statistically significant effect on earnings management. This finding suggests that firm size, as measured by the logarithm of total assets, does not play a significant role in influencing the extent of earnings management practices in this study. Larger firms are typically subject to higher levels of regulatory oversight and stakeholder scrutiny, which may deter earnings manipulation, while smaller firms may have less oversight but potentially lower capacity for complex earnings management techniques. However, this result suggests that in this context, firm size alone is not a determining factor in explaining variations in discretionary accruals.

This insignificant relationship may also imply that other factors, such as industry-specific characteristics, market conditions, or internal governance practices, may have a more direct influence on earnings management than firm size. Further investigation into these variables may provide additional insights into the drivers of discretionary accruals.

Profitability

The t-statistic test result for profitability reveals a p-value of 0.000, which is significantly less than the threshold of 0.05. Therefore, we reject the null hypothesis (H0), concluding that profitability has a statistically significant positive effect on earnings management.

These findings suggest that as profitability, as measured by profitability, increases, so does the level of earnings management through discretionary accruals. This positive relationship suggests that managers of more profitable firms may have stronger incentives to engage in earnings manipulation to further improve reported financial performance. High profitability may create pressure to maintain or exceed market expectations, leading to the use of discretionary accruals to smooth earnings or present a more favorable financial position.

These results underscore the role of profitability as an important determinant of earnings management. It highlights the importance of closely monitoring accounting practices in highly profitable firms to ensure that financial statements accurately reflect their true economic performance, reducing the risk of misleading stakeholders.

Regression Analysis

mod_jones_dac	Coefficient	Std. err.	t	P>|t|	[95% conf.	interval]
z_score	.0000816	.0003838	0.21	0.832	-.0006711	.0008343
debt_to_asset_ratio	-.0316403	.0017984	-17.59	0.000	-.0351675	-.028113
firm_size	.0003914	.001051	0.37	0.710	-.0016699	.0024527
roa	.1503039	.0187162	8.03	0.000	.1135947	.1870131
_cons	.0205058	.0145446	1.41	0.159	-.0080214	.0490329

EMi,t =0.0205058 +0.0000816 FDi,t – 0.0316403 LEVi,t+0.0003914 SIZEi,t+0.1503039 PROFi,t

Financial Difficulties:

Coefficient: 0.0000816

Interpretation: A one-unit increase in financial distress results in a minimal increase of 0.0000816 in earnings management, assuming all other variables are held constant. This very small positive effect suggests that financial distress, as measured by the Altman Z Score, has a very small impact on earnings management.

Leverage:

Coefficient: -0.0316403

Interpretation: A one-unit increase in leverage is associated with a 0.0316403 decrease in earnings management, holding other factors constant. This negative relationship suggests that higher leverage reduces earnings management activity, potentially due to increased creditor scrutiny or tighter financial discipline.

Company Size:

Coefficient: 0.0003914

Interpretation: A one-unit increase in firm size causes a very small increase of 0.0003914 in earnings management, holding other variables constant. This indicates a negligible positive relationship between firm size and earnings management, indicating that firm size has little or no practical effect on earnings management in this model.

Profitability:

Coefficient: 0.150339

Interpretation: A one-unit increase in ROA is associated with a 0.1503039 increase in earnings management, assuming other variables are held constant. This strong positive coefficient suggests that higher profitability significantly increases earnings management activity, likely reflecting managerial incentives to improve reported financial performance.

4 Conclusion

This study provides an in-depth exploration of the factors influencing earnings management, with a particular focus on discretionary accruals as measured using the modified Jones model. The findings highlight important insights into the role of profitability, leverage, financial distress, and firm size in shaping earnings management practices. Among these variables, profitability and leverage stand out as the most significant drivers, while financial distress and firm size exhibit minimal impact.

Based on these findings, the study recommends that companies facing financial distress focus on improving transparency and accountability in their financial reporting. Implementing a stronger oversight system, including the active role of independent auditors and strengthening corporate governance, can help reduce incentives for earnings management practices. In addition, companies are advised to optimize their capital structure to reduce the pressure from financial distress, while maintaining the trust of

investors and other stakeholders. In doing so, companies can achieve better financial stability while maintaining the integrity of their financial statements.

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