



The effect of leverage, growth, and company size on earnings management in mining companies listed on the Indonesia Stock Exchange from 2020 to 2024

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ABSTRACT

Financial statements play a crucial role in reflecting a company's financial health; however, they are often subject to manipulation through earnings management to meet stakeholder expectations. This study aims to analyze the effect of leverage, company growth, and company size on earnings management in mining companies listed on the Indonesia Stock Exchange (IDX) during 2020–2024. The study employs a quantitative causal research design using secondary data from 19 mining companies selected through purposive sampling, resulting in 95 firm-year observations. Earnings management is measured using discretionary accruals calculated with the Modified Jones Model (MJM). Data were analyzed using multiple linear regression with classical assumption tests, including normality, multicollinearity, autocorrelation, and heteroscedasticity tests. The results show that leverage and company growth have a significant positive effect on earnings management, while company size has no significant effect. These findings suggest that higher debt ratios and rapid company expansion encourage managerial tendencies to manipulate earnings to maintain financial stability and investor confidence. Conversely, firm size does not influence such practices, possibly due to stricter oversight and higher transparency requirements in larger firms. The study provides empirical support for agency theory, emphasizing the role of financial pressure in shaping managerial behavior. Practically, it highlights the importance of improving governance mechanisms and monitoring systems to minimize opportunistic financial reporting practices in the mining sector.

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INTRODUCTION

Financial statements are a tool used as a medium to communicate, inform, or describe a company's financial data to stakeholders (Osadchy et al., 2018; Pelekh et al., 2020). Financial statements connect information between companies and stakeholders to determine the financial health of the company. Among the various information presented, data on company profits is the main focus (Hájek et al., 2014). Profit is considered a crucial component in financial statements because it has high informational value, both for internal

parties such as management and external parties such as investors and creditors (Hasanaj & Kuqi, 2019; Peterson & Fabozzi, 1999).

Company financial reports do not always show the true condition of the company's performance. This can be caused by profit management or manipulation by management. Given the importance of profit information for a company, data manipulation may occur to attract investors to invest their shares in the company. Earnings management is an important topic in the world of finance, especially in understanding how companies manage their financial statements to achieve certain objectives, such as increasing investment attractiveness, maintaining profit stability, or meeting performance targets. In an economic situation full of pressure and uncertainty, this practice often becomes a strategy used by companies to remain competitive and relevant in the market (Courtney et al., 1997; Page, 1984; Pogodina et al., 2020).

One of the sectors most affected by these economic dynamics is the mining industry. Mining companies listed on the Indonesia Stock Exchange (IDX) are highly dependent on global commodity prices, such as coal, nickel and gold, which are greatly influenced by international trade policies and geopolitical tensions. Sharp and unpredictable price fluctuations put significant pressure on company revenues, creating a challenging situation for them to meet shareholder expectations (Hartzmark & Solomon, 2022; Petrello, n.d.).

From the data Indonesia's Mining Sector GDP, it can be seen that there has been a decline in the mining sector in Indonesia. The GDP of the mining sector declined in the first quarter of 2024, from IDR 240,379.10 billion in the fourth quarter of 2023 to IDR 234,230.90 billion. This decline reflects the impact of various factors, including global commodity price fluctuations and international economic uncertainty.

During the period from 2020 to 2024, the mining sector in Indonesia experienced significant GDP fluctuations, as seen in the graph showing an upward and downward pattern. These unstable economic conditions could affect how companies prepare their financial reports, especially to maintain a good image in the eyes of investors and external parties. In situations like this, profit management practices may be employed as a strategy to keep financial performance looking positive. Therefore, it is interesting to examine how mining companies listed on the Indonesia Stock Exchange use accounting flexibility to manage profits, especially when facing pressures such as changes in commodity prices, environmental regulations, and market demands.

There are many factors that motivate managers to engage in earnings management, including leverage, company growth, and company size (Ghofir & Yusuf, 2020; Siekelova et al., 2020). Leverage is a ratio between a company's long-term debt and its capital or assets (Sukma et al., 2022). This ratio measures the extent to which a company can guarantee its long-term obligations through its assets and capital. Increasing leverage will make the company more likely to engage in earnings management. If debt is high, the company will experience a higher rate of return on equity for shareholders. As a result, creditors and investors will not be interested in lending their funds or investing in the company, so managers will attempt to engage in earnings management practices (Prahendratno et al., 2023; Ramadhan & Siti Rahmawati, 2024).

Company growth can be defined as the growth that occurs within the company. The higher the company's growth, which also means that the company's growth opportunities are higher, the greater the need for the necessary resources. Fast-growing companies tend to use debt rather than issuing securities (Danila et al., 2020). Low growth will result in poor company performance, so by implementing earnings management, it is hoped that the company will continue to obtain funding from investors and will grow.

Company size is an indicator used to assess the size of a business entity. This size is generally determined based on the total assets owned by the company. Larger companies tend to apply profit management practices more frequently. This is due to the size of their resources, which enable companies to have and operate greater capacity to manage and generate profits (Dias et al., 2019; Tamulevičienė & Androniceanu, 2020).

Several previous studies have produced inconsistent findings regarding the effect of leverage, company growth, and company size on earnings management. For instance, Sukma et al. (2022) and Prahendratno et al. (2023) found that leverage positively influences earnings management, as high debt levels encourage managers to manipulate profits to meet debt covenants. However, other studies such as Siekelova et al. (2020) reported no significant relationship between leverage and earnings management, suggesting that managerial discretion may be influenced more by other internal factors. Similarly, the impact of company growth on earnings management remains debatable—Danila et al. (2020) emphasized a positive relationship due to funding needs, while Ghofir and Yusuf (2020) found that rapid growth may instead reduce earnings manipulation because of stronger market scrutiny. Regarding company size, Tamulevičienė and Androniceanu (2020) argued that larger companies have greater flexibility to engage in earnings management, whereas Dias et al. (2019) suggested that larger firms are more transparent due to stricter external oversight. These inconsistencies highlight a research gap that warrants further empirical investigation, particularly within Indonesia's mining sector, which is characterized by high market volatility and external pressure. Therefore, this study aims to analyze the effect of leverage, company growth, and company size on earnings management in mining companies listed on the Indonesia Stock Exchange for the period 2020–2024. Specifically, this research seeks to answer the following questions: (1) Does leverage significantly affect earnings management?

(2) Does company growth influence earnings management practices? and (3) Does company size play a significant role in determining the extent of earnings management?

RESEARCH METHOD

Based on the above explanations, the conceptual framework used in this study is as follows:

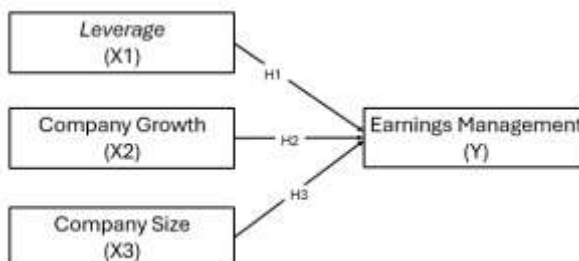


Figure 1. Conceptual Framework

This research was conducted from April to June 2025. The mining company data used in this study is secondary data obtained from www.idx.co.id. This research is quantitative in nature. The research design used is causal research. Causality research aims to determine cause-and-effect relationships by testing hypotheses that link the influence of several independent variables (X) to dependent variables (Y). This study uses several independent variables, namely *Leverage*, Company Growth, and Company Size. The dependent variable used is Profit Management.

The population used in this study is mining companies listed on the Indonesia Stock Exchange from 2020 to 2024. The sample used in this study is mining companies listed on the Indonesia Stock Exchange as of 31 December 2020 to 2024. The sampling technique used is , which was conducted using purposive sampling. The criteria for determining the sample in this study are as follows:

Table 1. Research Sample Criteria

No.	Sample Qualification	Amount
1	Mining companies listed on the Indonesia Stock Exchange	75
2	Companies that have conducted an Initial Public Offering (IPO) on 2020-2024	(25)
3	Mining companies that did not publish annual financial reports on the Indonesia Stock Exchange during 2020 - 2024	(9)
4	Mining companies that suffered losses	(22)
5	Number of companies selected for sampling	19
Total Research Sample		19 x 5 = 95 Sample

Source: IDX data processed (2025)

The following is a list of companies used as research samples:

Table 2. List of Companies Selected as Samples

ADRO	Adaro Energy Indonesia Tbk	16/07/2008
ANTM	Aneka Tambang Tbk.	27/11/1997
BSSR	Baramulti Suksessarana Tbk	08/11/2012
BYAN	Bayan Resources Tbk	12/08/2008
CITA	Cita Mineral Investindo Tbk	20/03/2002
ELSA	Elnusa Tbk	06/02/2008
ENRG	Energi Mega Persada Tbk	07/06/2004
GEMS	Golden Energy Mines Tbk	17/11/2011
HRUM	Harum Energy Tbk	06/10/2010
IFSH	PT Ifishdeco Tbk.	05/12/2019
INCO	Vale Indonesia Tbk	16/05/1990
ITMG	Indo Tambangraya Megah Tbk	18/12/2007
MBAP	PT Mitrabara Adiperdana Tbk	10/07/2014
MITI	Mitra Investindo Tbk	16/07/1997
MYOH	Samindo Resources Tbk	27/07/2000
PTBA	Bukit Asam Tbk	23/12/2002
PTRO	Petrosea Tbk	21/05/1990
RUIS	Radiant Utama Interinsco Tbk	12/07/2006
TOBA	PT TBS Energi Utama Tbk	06/07/2012

Source: www.idx.co.id

In this study, earnings management is proxied using discretionary accruals (DA) calculated with the Modified Jones Model (MJM) developed by Dechow et al. in 1995. Discretionary accruals have several stages in their determination, namely:

Determining the total accrual value (TA) using the following formula:

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

Explanation:

TA_{it} = Total accruals of company i in period t .

NI_{it} = Net profit of company i in period t .

CFO_{it} = Operating cash flow of company i in period t

$$TA_{it}/A_{it-1} = \alpha_1(1/A_{it-1}) + \alpha_2(\Delta Rev_{it}/A_{it-1}) + \alpha_3(PPE_{it}/A_{it-1}) + \varepsilon_{it}$$

Explanation:

TA_{it} = Total accruals of company i in period t .

A_{it-1} = Total assets of company i in period $t-1$.

ΔRev_{it} = Change in net sales of company i in period t .

PPE_{it} = Property, plant, and equipment of company i in period t .

$\alpha_1, \alpha_2, \alpha_3$ = Parameters obtained from the regression equation.

ε_{it} = Error term for company i in period t .

Calculate the value of non-discretionary accruals (NDA) using the following formula:

$$NDA_{it} = \alpha_1(1/A_{it-1}) + \alpha_2(\Delta Rev_{it}/A_{it-1} - \Delta Rec_{it}/A_{it-1}) + \alpha_3(PPE_{it}/A_{it-1})$$

Explanation:

NDA_{it} = Non-discretionary accruals of company i in period t .

A_{it-1} = Total assets of company i in period $t-1$.

ΔRev_{it} = Change in net sales of company i in period t .

ΔRec_{it} = Change in accounts receivable for company i in period t .

PPE_{it} = *Property, plant, and equipment* of company i in period t .

$\alpha_1, \alpha_2, \alpha_3$ = Parameters obtained from the regression equation.

Non-discretionary accruals are accruals that can change not because of management policy or considerations, such as significant changes in accounts receivable due to significant additional sales.

Determining the value of discretionary accruals, which are indicators of accrual profit management, by calculating total accruals with non-discretionary accruals, using the following formula:

$$DA_{it} = TA_{it}/A_{it-1} - NDA_{it}$$

Explanation:

DA_{it} = Discretionary accruals of company i in period t .

TA_{it} = Total accruals of company i in period t .

A_{it-1} = Total assets of company i in period $t-1$.

NDA_{it} = Non-discretionary accruals of company i in period t .

The proxies used to measure *leverage* according to Ahadiyah et al. (2023) and previous researchers are:

$$DAR = \frac{\text{Total Liabilities}}{\text{Total Aset}}$$

The proxies used to measure company growth according to Wardoyo et al. (2022) and previous researchers are:

$$Growth = \frac{\text{Total Aset } t - \text{Total Aset } - 1}{\text{Total Aset}}$$

The proxies used according to Ahadiyah et al. (2023) and previous researchers are:

$$\ln(\text{Total Aset})$$

This study uses classical assumption tests that must be met in multiple linear regression analysis based on ordinary least squares (OLS). There are at least four classical assumption tests, namely normality, multicollinearity, autocorrelation, and heteroscedasticity tests. Then, multiple linear regression analysis and hypothesis testing are conducted using the t-test, ANOVA test, and R2 test.

RESULTS AND DISCUSSIONS

Descriptive Test Results

Table 3. Descriptive Test Results
Descriptive Statistics

	N	Minimum	Maximum	Mean	Standard Deviation
Dar	95	4	75	35.93	17,720
Growth	95	-36	75	13,93	31,101
Size	95	2087	3145	2,729.33	273,729
Manlab	95	-87	74	-7.37	31.873
Valid N (Listwise)	95				

Source: Processed data (2025)

1. The results of descriptive testing with a sample of 95 studies show that the minimum (lowest) *Leverage* value is 0.04 or 4% with a maximum (highest) value of 0.75 or 75%. This indicates that the *Leverage* value ranges from 0.04 to 0.75 with an average (mean) value of 0.35 or 35% and a standard deviation value of 0.17 or 17%. When viewed from the standard deviation value, which is smaller or less than the mean value, this means that the company's *leverage* level is in a relatively stable and controlled condition. This may reflect managerial prudence in determining a balanced capital structure between debt and assets, so that financial risk remains at a level that can be effectively managed by the company.
2. The results of descriptive testing with a sample of 95 studies show that the minimum (lowest) value of Company Growth is -0.36 or -36% with a maximum (highest) value of 0.75 or 75%. This indicates that the Company Growth value ranges from -0.99 to 0.75 with an average (mean) value of 0.12 or 12% and a standard deviation value of 0.22 or 22%. When viewed from the standard deviation value, which is greater than or above the mean value, this indicates that some companies experienced rapid asset growth, while others experienced a decline, even a negative one. The high standard deviation reflects the disparity in expansion strategies and asset utilisation efficiency between companies, which can be influenced by differences in business models and the internal conditions of each entity.
3. The results of descriptive testing with a sample of 95 studies show that the minimum (lowest) Company Size value is 20.87 with a maximum (highest) value of 31.45. This indicates that the Company Size value ranges from 20.87 to 31.45 with an average (mean) value of 27.29 and a standard deviation value of 27.37. When viewed from the standard deviation value, which is greater than the average (mean) value, this means that there is a significant level of difference in the characteristics of company size. This shows that the scale of operations, resources, and asset capacity between companies vary greatly, reflecting diversity in organisational structure and business strategy.
4. The results of descriptive testing with a sample of 95 studies show that the minimum (lowest) value of Earnings Management is -0.87 or -87% with a maximum (highest) value of 0.74 or 74%. This indicates that the Profit Management value ranges from -0.87 to 0.74 with a mean value of -0.7 and a standard deviation of 0.31. When viewed from the standard deviation value, which is greater than the mean value, it means that profit management practices are carried out with varying intensities and different strategies among companies, thus reflecting differences in accounting policies, performance pressures, and supervisory mechanisms.

Classical Assumption Test Normality Test

Table 4. Results of the Kolmogorov-Smirnov Test
One-Sample Kolmogorov-Smirnov Test

		Unstandardiser Residual
N		95
Normal parameters ^{a,b}	Mean	.000000
	Standard Deviation	22.38984531
Most Extreme Differences	Absolute	0.081
	Positive	0.081
	Negative	-.043
Test Statistic		0.081
Asymp. Sig. (two-tailed)		.149
Test distribution is normal		
Calculated from data		
Lillefors Significance Corection		

Source: Processed data (2025)

From the table, it can be seen that the Asymp. Sig. (2-tailed) value of 0.149 is greater than 0.05. This proves that the data is normally distributed. Therefore, the normality test has a significant impact on the research.

Multicollinearity Test

Table 5. Multicollinearity Test Results
Coefficients^a

Model	Collinearity Statistics	Coefficients ^a	
		Tolerance	VIF
1	Dar	,909	1,100
	Growth	,900	1,111
	Size	,988	1,012

a. Dependent Variable: MANLAB

Sumber: Data diolah (2025)

It can be concluded that in this study, leverage, company growth, and company size have a tolerance >0.10 and a VIF value <10, so there is no multicollinearity in the data.

Heteroscedasticity Test

Table 6. Results of Heteroscedasticity Test
Coefficients^a

Model	Unstandardized Coefficients		Standardized Coefficients		t	Sig.	Collinearity Statistics	
	B	Std. Error	Beta				Tolerance	VIF
1 (Constant)	21,182	6,669			3,176	,002		
Dar	-,015	,061	-,026	-,240	,811		,909	1,100
Growth	-,009	,058	-,017	-,153	,879		,900	1,111
Size	-,001	,003	-,044	-,419	,676		,988	1,012

a. Dependent Variable: ABS_RES

Source: Processed data (2025)

Based on the SPSS output above, it is known that the significance value (Sig.) for all variables above is 0.05, so the conclusion is that there is no heteroscedasticity in the regression model.

Autocorrelation Test

Table 7. Autocorrelation Test Results

Model Summary ^b					
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	,712 ^a	,507	,490	22,756	1,797

a. Predictors: (Constant), Size, Dar, Growth

b. Dependent Variable: MANLAB

Source: Processed data (2025)

Based on the table above, it shows that with a sample size (n) of 95 and a number of independent variables (k) of 3, a DW value of 1.797 is obtained. Then, in the D-W table, the dU value is 1.7316 and the dL value is 1.6015, so that 4-dU is 2.2684. The result of the autocorrelation test with a DW value of 1.794 lies between the dU limit of 1.7316 and the upper limit of 4-dU of 2.2684 or (1.7361<1.797<2.2684), so it can be concluded that the above data does not indicate any signs of autocorrelation.

Multiple Regression Test

Table 8. Multiple Regression Test Results

Coefficients ^a						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	33,882	11,286		3,002	,003
	Dar	,770	,103	,575	7,441	,000
	Growth	,345	,097	,274	3,536	,001
	Size	,004	,005	,064	,861	,392

a. Dependent Variable: MANLAB

Source: Processed data (2025)

Based on the above test results, the following multiple linear regression equation is obtained:

$$\text{MANLAB} = 33.88 + 0.770 \text{ DAR} + 0.345 \text{ GROWTH} + 0.004 \text{ SIZE}$$

Based on this equation, the following interpretation can be made:

- The constant value of 33.88% indicates that if the variables of Leverage, Company Growth, and Company Size are 0, then Earnings Management is 33.88%.
- The Leverage regression coefficient of 77% with a positive value indicates that if there is a 77% increase in Leverage, then Earnings Management increases by 77%.
- The Company Growth regression coefficient of 34.5% with a positive value indicates that if there is a 34.5% increase in company growth, Profit Management will increase by 34.5%.
- The regression coefficient for Company Size is 0.4% with a positive value, indicating that if there is a 0.4% increase in Company Size, Profit Management will increase by 0.4%.

Hypothesis Testing

T-Test (Partial)

Table 9. T-Test Results

Model		Coefficients ^a				
		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	33,882	11,286		3,002	,003
	Dar	,770	,103	,575	7,441	,000
	Growth	,345	,097	,274	3,536	,001
	Size	,004	,005	,064	,861	,392

a. Dependent Variable: MANLAB

Source: Processed data (2025)

- Significance of Leverage $0.000 < 0.05$, therefore reject $H(0)$ and accept $H(1)$, which means that Leverage has a significant effect on Profit Management.
- The significance of Company Growth is $0.001 < 0.05$, so reject $H(0)$ and accept $H(1)$, which means that Company Growth has a significant effect on Profit Management.
- The significance of Company Size is $0.392 > 0.05$, so we accept $H(0)$ and reject $H(1)$, meaning that Company Size does not affect Profit Management.

F Test (Partial)

Table 10. F Test Results

Model		ANOVA ^a				Sig.
		Sum of Squares	df	Mean Square	F	
1	Regression	48369,419	3	16123,140	31,136	,000 ^b
	Residual	47122,686	91	517,832		
	Total	95492,105	94			

a. Dependent Variable: MANLAB

b. Predictors: (Constant), Size, Dar, Growth

Source: Processed data (2025)

Based on the table above, it is known that the significance value is 0.000. This indicates that the significance is less than 0.05 ($0.000 < 0.05$), so it can be concluded that Leverage, Company Growth, and Company Size have a significant effect on Profit Management simultaneously.

Determination Coefficient Test (R^2)

Table 11. Results of the Coefficient of Determination Test (R^2)

Model Summary ^b					
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	,712 ^a	,507	,490	22,756	1,797

a. Predictors: (Constant), Size, Dar, Growth

b. Dependent Variable: MANLAB

Source: Processed data (2025)

This illustrates that variations in Leverage, Company Growth and Company Size explain 50.7% of the variation in Earnings Management, while the remaining 49.3% is explained by other variables not used in this study.

Discussion

The results of this study prove that leverage, proxied by the Debt to Total Assets Ratio, has a positive effect on earnings management in companies listed on the IDX from 2020 to 2024. A high level of leverage in a company can be a driving factor for management to engage in earnings management. This occurs because high debt ratios can cause concern among investors and creditors, which in turn can reduce their confidence in providing funds or loans. To avoid possible violations of the debt agreement, managers tend to make adjustments in financial reports through profit management practices (Dyrenge et al., 2022). The results of this study are in line with research conducted by Ahadiyah et al. (2023), which shows that leverage has a significant effect on profit management practices in mining companies listed on the Indonesia Stock Exchange. This is also in line with the research Butt, Umar (2020) with the same findings that leverage has an effect on profit management. Furthermore, Ghofir, Ade, and Yusuf (2020) identified the same thing, that leverage has a positive effect on earnings management.

The results of this study prove that company growth has a positive effect on earnings management in mining companies listed on the Indonesia Stock Exchange during the 2020-2024 period. Company growth, especially asset growth, reflects the company's ability to guarantee debt payments to third parties and investors. If a company's assets continue to increase from year to year, investors will be more confident in investing their capital because the company is considered to have stability and low liquidation risk. To maintain a consistent growth image and show positive performance, companies are often driven to engage in earnings management. (Baskaran et al., 2020). This is in line with the research by , which states that the Company Growth variable has a positive influence on Profit Management, namely when a company grows rapidly, expectations for financial performance also increase. Managers may be encouraged to maintain a positive trend by manipulating profits to remain consistent. Furthermore, different research results conducted by Huang, Hsueh-Li, et al (2021) state that Company Growth has a significant negative effect on earnings management, which means that low growth can create the impression that the company is inefficient or in trouble. To maintain its reputation, management may present higher profit figures than the actual situation.

The results of this study prove that company size does not affect earnings management for mining companies on the IDX during 2020-2024. Company size still does not fully reflect signs of earnings management practices. Both large and small companies have relatively similar opportunities for earnings management. However, large companies usually attract more attention from investors because they are considered to have a more significant influence than small companies. This makes large companies more cautious and transparent in providing their financial reports. Therefore, the possibility of profitability management by large companies is quite lower than that of small companies (Ahadiyah et al., 2023). This is in line with the research by Fathihani & Haris Nasution (2021), which states that the Company Size variable has no effect on Profit Management. Similar results are also shown in the research conducted by Ahadiyah (2023), which states that company size has no effect on profit management. These results also support the research by Rahmawati (2023), which found that company size has no effect on profit management.

CONCLUSION

Based on the results of this study, it can be concluded that leverage and company growth have a significant positive effect on earnings management, while company size has no significant effect on earnings management in mining companies listed on the Indonesia Stock Exchange during 2020–2024. These findings reinforce agency theory, which posits that information asymmetry between managers and shareholders creates incentives for managerial opportunism—particularly when financial pressure from debt and growth expectations intensifies. From a practical perspective, the results suggest that company management and regulators should strengthen internal control systems and disclosure transparency to minimize the tendency of earnings manipulation, especially in highly leveraged and fast-growing firms. However, this study is limited by its focus on a single sector and its reliance on secondary quantitative data, which may not fully capture managerial behavior or contextual variables influencing earnings management. Future research is recommended to incorporate qualitative approaches or comparative studies across sectors and extend the model by including variables such as corporate governance, audit quality, and ownership structure to provide a more comprehensive understanding of the determinants of earnings management practices.

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