

The Dynamics of Real Earnings Management: Analyzing the Effects of ROA, Company Size, and Leverage in Indonesia's Manufacturing Sector



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ABSTRACT: The objective of this research is to examine the impact of ROA, company size, and leverage on REM practices in Indonesia's manufacturing business sector from 2017 to 2021. This research examines financial report data from companies listed on the Indonesia Stock Exchange using a quantitative method with panel data analysis and multiple regression. According to the findings, the only variable that significantly affects REM is the leverage variable. However, there is no evidence that ROA or SIZE significantly affect REM. According to these results, REM practices are driven more by debt obligation pressure than by financial performance indicators or firm size within the earnings management environment. This research adds to the existing body of knowledge on earnings management strategies within the setting of Indonesian manufacturing organizations and deepens our understanding of the factors that impact REM. The research findings highlight the importance of financial strategy planning and earnings management in considering the impact of leverage. It also highlights that REM decisions are influenced by more complicated internal and external factors than just firm size and ROA.

KEYWORDS: Real Earnings Management (REM), Return on Assets (ROA), Company Size, Leverage, Indonesian Manufacturing Sector

I. INTRODUCTION

Understanding Real Earnings Management (REM) techniques is critical in company financial management to ensure openness and uphold ethical standards in financial reports. The primary financial indicators commonly employed to evaluate firm performance are return on assets (ROA), firm size, and leverage. Return on assets measures the effectiveness of utilizing assets to generate profits. Size indicates the magnitude of activities and the organization's potential impact. Meanwhile, leverage defines the company's capital structure and financial risk (Irawan et al., 2022; Masri, 2018; Rombe & Susanti, 2023). REM practices, which include ways that companies try to make more money by using methods that might not accurately show how the economy is doing, can affect the accuracy of financial reports and affect how stakeholders make decisions (Masri, 2018).

The primary goal of this study is to address the lack of comprehensive research on the impact of ROA, firm size, and leverage on REM in the Indonesian manufacturing industry. While existing literature has established a notable correlation between return on assets (ROA), company size, and leverage with regards to earnings management practices in general (Irawan et al., 2022; Rombe & Susanti, 2023), there is still a scarcity of research specifically examining the influence of these factors on earnings management in the context of manufacturing companies in Indonesia. Prior studies predominantly examined firms in other nations or diverse industrial domains, underscoring the necessity for more targeted and context-specific investigations pertaining to the manufacturing sector in Indonesia (Masri, 2018; Rombe & Susanti, 2023).

The hypothesis of this research, based on the literature review, posits that ROA, firm size, and leverage exert a substantial influence on REM practices in Indonesian manufacturing organizations. The objective of this study is to establish the correlation between these three variables and REM in order to gain fresh perspectives on enhancing transparency and efficacy in earnings management within the manufacturing industry (Irawan et al., 2022; Masri, 2018). The focus of this research is on publicly traded companies on the Indonesia Stock Exchange (BEI) from 2017 to 2021. This research aims to enhance the current body of knowledge and offer practical suggestions to companies and regulators for enhancing earnings management procedures (Rombe & Susanti, 2023).

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II. THEORY & HYPOTHESIS DEVELOPMENT

A. Agency Theory

Agency theory can offer valuable insights in studies on the impact of return on assets (ROA), company size, and leverage on real earnings management (REM). Agency theory emphasizes the divergence of interests between capital owners and managers, wherein managers may employ earnings management techniques, such as manipulating real activities or accrual management, to accomplish certain objectives (Gunny, 2010; Zang, 2011). Within this particular framework, the manipulation of profits can be seen as a reaction to the need to achieve profit goals or satisfy market predictions. This manipulation can manifest through the manipulation of real business activities and the manipulation of accruals (Al-Haddad & Whittington, 2019; Barth et al., 2017). Furthermore, prior studies have demonstrated that variables such as corporate governance and financial leverage can influence and moderate the practices of earnings management, including REM. This highlights the intricate nature of the relationship between these factors within the context of earnings management (J. Chen & Zhang, 2012; Martens et al., 2020).

An understanding of the relationship between ROA, SIZE, LEV, and REM in the context of agency theory is crucial for determining how earnings management practices can impact company performance and the clarity of financial information (Anagnostopoulou & Tsekrekos, 2016; Vaklifard & Mortazavi, 2016). By comprehending the interplay of these aspects, stakeholders can enhance their awareness of potential earnings manipulation that might impact investment decisions and assessment of company performance (Abubakar, 2021; Uwuigbe et al., 2015). Furthermore, doing thorough research on the correlation between return on assets, firm size, leverage, and real earnings management (REM) can offer useful insights to regulators and decision makers. This study can aid in the development of regulations that promote openness and accountability in corporate financial reporting, as evidenced by studies conducted by (Khanh & Thu, 2019; Tran & None, 2022). Therefore, gaining a more comprehensive comprehension of the components that impact REM can enhance the caliber of financial data and reduce the hazards linked to unethical earnings management techniques (Almashaqbeh et al., 2019; Tanveer et al., 2022).

B. Hypothesis Development

Return on assets (ROA), leverage, and business size have distinct roles in shaping real earnings management practices. ROA's influence on real earnings management behavior stems from its role as a primary indicator of the effectiveness of utilizing firm assets to generate profits. This is of utmost importance to investors and managers when assessing the financial success of a company. If the ROA falls short of expectations or performance targets, management may resort to implementing real earnings management strategies in order to enhance the ROA numbers and the overall presentation of their financial reports. (Wibawa, 2019) defines genuine earnings management as deliberate measures that differ from typical company practices in order to meet profit targets, such as manipulating cash flow or postponing expenses. (Ningsih, 2017) further elucidates that the implementation of real earnings management techniques can directly influence a company's performance by decreasing discretionary spending and effectively managing cash flow derived from activities. Put simply, when ROA falls short of the desired goal, managers may engage in real earnings management to enhance reported performance and meet market expectations. As a result, ROA becomes a significant motivator for this behavior.

Leverage has varying effects on real earnings management. The use of leverage can have an impact on real earnings management practices, as organizations with high debt levels are under significant pressure to fulfill financial obligations and adhere to strict debt covenants. This pressure motivates them to actively manipulate financial statements, presenting performance that exceeds actual achievements. Excessive debt provides motivation for management to engage in legitimate manipulation of financial statements, such as recognizing revenue earlier or postponing expenses, in order to achieve the financial goals specified in debt contracts and prevent any breaches of those contracts. This also enhances their ability to negotiate lower loan costs. According to (Vaklifard & Mortazavi, 2016), leverage significantly influences both accrual-based and real earnings management. High leverage may motivate a company to engage in earnings management practices to meet financial obligations and maintain its reputation among creditors and shareholders. In addition, (Fargher et al., 2001) emphasize that early breaches of debt covenants can impact a company's risk and financial stability, leading corporations to engage in financial statement manipulation in order to uphold anticipated performance. Therefore, a significant amount of leverage might induce actual manipulation of earnings in a company's attempt to meet financial obligations and sustain relationships with creditors.

A lack of resources may make real earnings management more difficult for smaller businesses to implement than for larger corporations. (Purnama, 2017) studies reveal that the size of the organization significantly influences earnings management. (Purnama, 2017) found that smaller companies are less able to implement earnings management strategies compared to larger ones. Large corporations, on the other hand, can strategically alter expenses or profits thanks to their sophisticated internal monitoring and control systems. According to studies (Nasir et al., 2018), bigger corporations can hire accountants and advisors

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with more experience, allowing them to strategically manage their earnings. Companies with more resources may be able to engage in real earnings management to a greater extent than smaller ones, but larger ones can more easily manipulate their revenues and costs through elaborate internal control systems.

The previous rationale about ROA, leverage, and company size and their impact on real earnings management leads to the formulation of the following hypothesis:

H₁: ROA has a significant influence on real earnings management.

H₂: Leverage has a significant influence on real earnings management.

H₃: Firm size has a significant influence on real earnings management.

III. RESEARCH METHODS

This study employs a qualitative methodology that centers on causality analysis to investigate the correlation between real earnings management and independent factors, including return on assets (ROA), leverage, and business size. This study utilizes a quantitative research methodology employing panel data analysis spanning from 2017 to 2021. The research subjects consist of organizations that are registered in the manufacturing industry sector. These companies were chosen using a purposive sampling strategy, which involves picking samples based on specific criteria, such as the presence of comprehensive data in financial reports. The primary data source is derived from financial reports obtained from the website <https://emiten.kontan.co.id/> or the official website of the company. Descriptive statistics are employed to examine the data and acquire a comprehensive overview, whereas inferential statistics are utilized to evaluate hypotheses and make informed study choices. The data analysis was conducted using multiple regression on panel data, which was processed using Python software. The variables ROA, leverage, firm size, and real earnings management are assessed using measurements conducted by (Akbar et al., 2024; Barus et al., 2019; Tanveer et al., 2022).

The linear regression results obtained were validated by a multi-stage regression model analysis. To begin, it is necessary to assess the fundamental assumptions of linear regression, namely normality, heteroscedasticity, and autocorrelation tests. The Shapiro-Wilk Test was employed to conduct the normality test, yielding p-values less than 0.05 for all variables. This suggests that the data does not follow a normal distribution. Subsequently, the Breusch-Pagan Test was employed to examine the existence of heteroscedasticity in the model. The findings revealed a p-value below 0.05, signifying the presence of heteroscedasticity. Next, the Durbin-Watson Test was conducted to assess autocorrelation. The Durbin-Watson Test Statistics yielded a result of 0.3900, which is in close proximity to 0. This indicates the presence of significant positive autocorrelation in the model. Conversely, the multicollinearity test indicates that there is no significant correlation between the independent variables, with the maximum correlation value being -0.25. The outcomes of the normality, heteroscedasticity, and autocorrelation tests indicate that the fundamental assumptions of linear regression are not entirely satisfied. In order to address violations of these assumptions and get more precise estimates, a robust regression estimation technique called Huber's T approach is employed. This approach enhances the accuracy of estimates in linear regression by making them more resilient to measurement error, resulting in more precise predictions from the model (Menezes et al., 2021). Following the use of Huber's T approach, the regression model was further analyzed to make conclusions about the relationship between the variables in this study.

IV. RESULTS AND DISCUSSION

A. Description of Research Data

The descriptive statistical analysis of the variables in this study reveals substantial variances in the practices of real earnings management (REM) and return on assets (ROA). The mean value of real earnings management (REM) is -14.8617, with a significantly high standard deviation of 129.6821. This suggests that there are substantial differences in real earnings management techniques across the organizations that were examined. The range of the REM value spans from -1293.76 to 16.82, with a median of 0.6870. This suggests that while the majority of the REM data is concentrated around positive values, there are few outliers that indicate the presence of extreme earnings management strategies. Meanwhile, the Return on Assets (ROA) exhibits a significantly high mean of 47.7574 and a considerably big standard deviation of 450.2196, indicating substantial volatility in the returns of assets across different organizations. The wide spectrum of Return on Assets (ROA), ranging from -0.9481 to 5493.8940, with a relatively low median of 0.0634, suggests that although the average ROA is high, the majority of enterprises see little or negative returns on their assets.

However, the company's size (SIZE) has a more limited range and a smaller standard deviation in comparison to REM and ROA. The sample of companies in this study exhibits a reasonably stable size, as indicated by a mean of 28.7031 and a standard deviation of 1.7214. The median, which is nearly identical to the mean at 28.4706, further supports this observation. This suggests that the size of the firm does not undergo significant fluctuations in this particular sample. Leverage (LEV), which has a mean of 0.4503 and

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a standard deviation of 0.2639, has noticeable variance, but it is not as substantial as that of REM and ROA. The range of debt-to-equity values ranging from 0.0630 to 2.8210, with a median of 0.4265, suggests that while there are differences in debt levels among organizations, the distribution of leverage tends to be within a reasonable range. In general, these descriptive findings emphasize the presence of significant diversity in earnings manipulation strategies and return on assets, while also indicating a rather stable pattern in terms of company size and leverage levels across the companies included in this research sample. The descriptive statistical findings are presented in the following table:

Table 1. Descriptive Statistics Results

	REM	ROA	SIZE	LEV
Count	400	400	400	400
Mean	-14.8617	47.75737	28.70315	0.450251
Std	129.6821	450.2196	1.721417	0.263878
Min	-1293.76	-0.94813	25.21557	0.063029
25%	-0.0548	0.019642	27.44648	0.28627
50%	0.686975	0.063352	28.47062	0.426525
75%	1.282806	0.104265	29.80279	0.578622
Max	16.82469	5493.894	33.53723	2.821041

B. Inferential Statistics Results

The regression analysis reveals that only the variable "leverage" has a statistically significant impact on Real Earnings Management (REM) at a significance level of $\alpha = 0.10$. The research results indicate that the model intercept, characterized by a coefficient of 0.9620 and a p-value of 0.310, lacks statistical significance. Consequently, the intercept point does not offer valuable insights on REM. In addition, the variable Return on Assets (ROA) with a p-value of 0.984, and the variable company size (SIZE) with a p-value of 0.602, do not have a significant impact on REM in this model. However, the variable for leverage (LEV) has a p-value of 0.076, indicating that leverage has a notable impact on the variable for real earnings management (REM). In summary, the results of the study suggest that among the models examined, only LEV has a notable impact on REM, whilst ROA and SIZE do not have a substantial effect. The results of the t test are displayed in the table below:

Table 2. Inferential Statistics Results

	coef	std err	z	P> z
Intercept	0.962	0.948	1.015	0.31
ROA	-2.52E-06	0.000	-0.02	0.984
SIZE	-0.0171	0.033	-0.522	0.602
LEV	0.3763	0.212	1.776	0.076

C. The Influence of ROA on REM

The results of the regression study show that return on assets does not significantly affect Real Earnings Management (REM), as indicated by the p-value of 0.984. The results show that there is no correlation between ROA and REM levels. If this is the case, managers may not see the need to actively manipulate profitability in response to changes in ROA. Reason being, managers would prefer concentrate on accrual earnings management than real earnings management, the former of which is easier to spot and distinguish from ideal company decisions (Adryanti, 2019). To add to this, managers should think about the pros and drawbacks of actual profit management, which involves calculating how production expenses and discretionary costs affect the COGS (Sanjaya, 2016).

Furthermore, agency theory emphasizes that managers are incentivized to engage in earnings management activities; nevertheless, managers' decisions between accrual and real earnings management are conditional on the company's financial status (Chen and Sihombing 2023). Real earnings management is also more likely to occur when managers are allowed some leeway to prepare for the unexpected and safeguard the business and its affiliates (Octavia et al., 2015). (Anagnostopoulou & Tsekrekos, 2016) postulate that, compared to one another, real earnings management (REM) and accrual earnings management (AEM) might be considered as having a replacement impact. This finding is consistent with this idea. Based on the expenses of

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each strategy, managers may choose to prioritize one kind of earnings management over another. If the correlation between ROA and REM is small, it could mean that the advantages and disadvantages of real earnings management aren't proportional to the changes in ROA.

The intricacy of profits management strategies has been previously studied. In order to maximize their profits impact, managers employ both REM and accrual earnings management simultaneously, according to a study that examined the impact of corporate governance procedures on both activities (Al-Haddad and Whittington 2019). As a result, several factors outside financial performance measures like ROA play a role in the decision-making process surrounding earnings management. Thus, the data demonstrating that ROA does not significantly impact REM emphasizes how intricate earnings management decisions can be. Managers may take into account more than just return on assets (ROA) when making decisions to implement earnings management approaches. This emphasizes the importance of conducting more research to understand the intricate dynamics of these strategies.

D. The influence of firm size on REM

There is no statistically significant relationship between firm size and Real Earnings Management (REM), according to regression analysis ($p = 0.602$). This suggests that the size of the company does not play a significant role in determining the levels of REM. Instead of basing their decision to engage in real earnings management on firm size alone, managers may take into account issues like market forces, laws, or industry conditions. According to (Sanjaya, 2016), managers may be incentivized or constrained in their ability to manipulate real earnings by external forces like market pressure and legislation. This demonstrates that in deciding on actual profits management strategies, managers should think about the external environment in which the company operates.

Managers' decisions to engage in real earnings management strategies are influenced more by factors like firm structure, ownership, or business strategy than by company size, which is just one of these external factors. According to (Yolanda et al., 2019), actual earnings management methods can be impacted by aspects within a firm, including its ownership structure and corporate governance. What this means is that managers' propensity to engage in actual profits management tactics is heavily influenced by factors inside the organization as well. The idea that managers' motivations for profit management vary according to the nature of the agency relationships inside an organization lends credence to this claim (Kesaulya et al., 2023). Instead of letting firm size be the sole determinant, managers in this environment need to think about all the internal and external aspects that can affect actual profits management methods. Instead of basing their decisions to participate in real earnings management methods only on the size of the firm, managers now take a more nuanced look at a variety of internal and external elements.

E. The Effect of Leverage on REM

Leverage significantly affects Real Earnings Management (REM), according to the study's findings ($p = 0.076$). This shows that an organization's actual earnings management strategies are highly sensitive to changes in its leverage level. Managers dealing with high leverage are likely to engage in real earnings management tactics in order to portray a better performance and keep investor confidence, while firms with large amounts of debt may feel forced to manipulate real earnings in reaction to the pressure of rising debt repayments.

When managers confront large levels of debt, they are more likely to resort to actual earnings management strategies, according to research by (Ivanka & Yanti, 2022) that looks at the elements that impact earnings management in manufacturing firms. Managers' efforts to cut expenses and boost profits through actual earnings management demonstrate their commitment to the company's creditworthiness and their desire to meet their financial obligations to creditors (Anagnostopoulou & Tsekrekos, 2016). That aside, several studies that look at how leverage affects earnings management also back up this claim (Thaaf & Munandar, 2023). (Al-Haddad and Whittington 2019) discovered that organizations with high debt are more likely to engage in real earnings management compared to accrual earnings management, therefore this aligns with their findings. This means that managers may resort to real profit management strategies, particularly in highly leveraged organizations, in order to satisfy their increased debt service commitments.

V. CONCLUSION

Leverage is the sole variable that significantly affects real earnings management (REM), according to the regression analysis. The evidence suggests that managers' decisions to participate in REM are unaffected by ROA. This might be because managers prefer accrual earnings management to real earnings management (REM) because the former has simpler and more obvious costs and advantages. REM is a subset of earnings management, which is itself sophisticated. Based on expenses and the company's financial status, managers have the option to select between REM and accrual earnings management, according to the research

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results that support agency theory. Previous studies have shown that ROA is not the sole determinant in real earnings management decisions; other factors can also impact these decisions.

However, the size of the firm does not have a substantial impact on REM, suggesting that it is not the primary determinant of REM practices. Both internal factors, such as ownership structure and corporate governance, and external factors, such as market pressure or legislation, have a greater impact on managers' decisions to implement REM, as shown in earlier studies. Companies with a lot of debt are more likely to utilize REM to boost their financial reports and pay off their debt, according to the study's findings, which suggest that leverage significantly affects REM in order. In order to maintain the company's financial credibility and meet commitments with creditors, managers may feel pressured to manipulate earnings using REM, as this research shows.

This study's scholarly contribution is an enhanced understanding of the elements that impact real earnings management (REM), particularly as it pertains to leverage, firm size (SIZE), and return on assets (ROA). Findings that ROA and firm size are not significantly related to REM shed light on the complexities of earnings management decisions, which are impacted more by external regulations and the internal structure of the company. These findings also support the idea that it is important to theoretically consider how REM interacts with profit accruals. Because debt obligations can put pressure on a company to use REM as a tool to keep its finances in order and ensure it complies with debt covenants, this study has important practical implications for managers and financial practitioners who are responsible for developing financial strategies and earnings management plans. Managers should weigh the pros and cons of REM against accrual earnings management, according to this study. It also stresses that ROA and firm size aren't the primary metrics for earnings management decisions, but rather that more intricate internal and external factors should be considered.

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