






“Examining the bonus mechanisms’ role in real earnings management dynamics in an Indonesian manufacturing company”

AUTHORS Taufiq Akbar  Ridarmelli  Inung Wijayanti  Septo Pramesworo  Hedwigis Esti Riwayati 


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Taufiq Akbar, Master, Senior Scientific Associate, Faculty of Economics and Business, Accounting Department, Perbanas Institute, Indonesia. (Corresponding author)

Ridarmelli, Master, Senior Scientific Associate, Faculty of Economics and Business, Accounting Department, Perbanas Institute, Indonesia.

Inung Wijayanti, Master, Associate Professor, Faculty of Economics and Business, Accounting Department, Perbanas Institute, Indonesia.

Septo Pramesworo, Master, Senior Scientific Associate, Faculty of Economics and Business, Management Department, Perbanas Institute, Indonesia.

Hedwigis Esti Riwayati, Doctor, Associate Professor, Faculty of Economics and Business, Management Department, Perbanas Institute, Indonesia.



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Taufiq Akbar (Indonesia), Ridarmelli (Indonesia), Inung Wijayanti (Indonesia), Septo Pramesworo (Indonesia), Hedwigis Esti Riwayati (Indonesia)

EXAMINING THE BONUS MECHANISMS' ROLE IN REAL EARNINGS MANAGEMENT DYNAMICS IN AN INDONESIAN MANUFACTURING COMPANY

Abstract

Real Earnings Management (REM) and financial success may have different relationships depending on how managers act. Bonus mechanisms are a significant factor that influences management behavior. The study seeks to examine the impact of bonus systems on the correlation between financial performance and REM practices in manufacturing companies in Indonesia. Moderated Regression Analysis (MRA) is employed to evaluate the influence of bonus mechanisms in moderating the association of financial performance on REM. The technique of purposive sampling was used to pick the sample. The study utilized data from manufacturing firms listed on the Indonesian Stock Exchange from 2017 to 2021, including a total of 400 observed data points. The research findings demonstrate that sales growth is the sole factor that significantly influences REM in manufacturing organizations, as indicated by a p-value below 10%. Other financial performance factors, on the other hand, with p-values for each variable above 10%, have not been shown to have a significant impact on REM. These factors include ROA, leverage, operating cash flow, and cash. The findings also demonstrate that, with a p-value for each variable above 10%, the bonus mechanism is a variable that modifies the effect of all financial performance variables on REM.

Keywords performance, practices, governance, behavior, operation, incentives, compensation, measurement

JEL Classification G40, M12, M20, M40

INTRODUCTION

Real earnings management (REM) is a tactical strategy that businesses use to manipulate their actual results in an effort to influence market and shareholder perceptions, which may result in fraudulent financial reporting. Fraudulent practices are more likely in manufacturing organizations due to their operational and transaction complexity, a common occurrence in some Indonesian manufacturing companies. Instances of financial manipulation can be seen in the 2017 financial report of PT Tiga Pilar Sejahtera Food Tbk, as documented by Soenarso (2021) on kontan.co.id, and in the alleged corrupt activities involving PT Krakatau Steel in 2019 regarding procurement of goods and services, as reported by Adharsyah (2019) on cnbcindonesia.com. Some of these fraudulent practices indicate the urgency of monitoring REM in Indonesia. Moreover, according to Transparency International Indonesia (2021), Indonesia has a high corruption perception index, ranking 102 out of 180 countries surveyed.

Previous studies have been unable to reliably clarify the connection between financial performance and REM habits. This mismatch is caused by the presence of bonuses, which influence the connection

between financial performance and REM. When managers encounter high bonus thresholds, they may be tempted to engage in earnings management to achieve the financial performance benchmarks necessary to receive a bonus. Therefore, when performance is tied directly to bonus systems, management is more inclined to take assertive measures to implement REM. However, REM tends to conceal information about a company's financial performance and is always able to present fair financial reports. This REM will harm investors as their decisions rely on false information about the company's performance.

1. LITERATURE REVIEW

The study is based on agency theory. Agency theory was used to understand the relationships between shareholders (principals) who hired managers (agents) to perform various tasks and delegated decision-making authority to managers in their best interests (Teichmann, 2019; Moloji & Marwala, 2020). Agency dynamics can cause moral hazard and agency conflict, especially when agents and shareholders have conflicting interests (Owusu-Manu et al., 2021). Corporate performance influences REM differentially depending on financial aspect behavior (Griffin et al., 2021). Profitability may drive management to deploy REM. Profitability is linked to shareholder interest in dividends and stock prices (Dang et al., 2019). A company with great profitability has a higher net profit and can pay higher dividends. So, managers might be incentivized to deliver maximum profitability to shareholders through their work overseeing the company's operations (Alarussi & Alhaderi, 2018; Huang & Bowblis, 2018). According to Cai et al. (2018), Harris et al. (2019), and Ghaleb et al. (2020), REM behaviors can be impacted by changes in profitability. This justification leads to the conclusion that management's actions during REM are motivated by a desire to maximize profitability. Poor profitability compels managers to conduct performance evaluations using REM.

Reiterating that sales growth is a key indicator of company performance. Higher sales rates represent the market's appraisal of business success and can drastically raise profitability, which boosts firm value and growth (Dang et al., 2019; Li et al., 2021; Tuan et al., 2023). Creditors, investors, and analysts consider sales growth as a key factor (Liu et al., 2021). Sales growth is seen as a sign of strength and is substantially connected with business management (Dang et al., 2019). The surge in sales may prompt management to employ REM

due to its importance to stakeholders and its role as a management indicator. Thus, corporations use REM to boost sales. Managers must use REM to fulfill goals due to unpredictable growth.

Assessing a company's financial health requires understanding its operational cash flow management. According to Alzoubi (2018), a CFO report helps better assess a company's cash flow management. A CFO is a key indicator of a company's capacity to meet financial obligations, support operations, distribute dividends, and invest without outside funding. Companies with inadequate CFOs use REM to maintain operations (Alzoubi, 2018; Marisetty & Moturi, 2023). This applies especially to internal and external operational costs. Management may engage in REM when the CFO is low (Griffin et al., 2021). Therefore, it is possible to argue that the CFO catalyzes REM activity. Due to operational finance requirements, managers use REM to maintain operation stability.

Having a solid understanding of cash management enables a business to preserve its liquidity and guarantee that there will always be enough money to cover its daily expenses. As per the definition put forth by (Huang et al., 2020), cash can be described as the remaining funds that a firm can distribute to its shareholders and creditors after investing in new products, fixed assets, and working capital to ensure uninterrupted operations. So, to increase the company's cash on hand, management will be prompted to control operational activities through REM (Shahab et al., 2018; Liu et al., 2023). Therefore, REM will be implemented when management faces a low level of cash that the company owns. Due to the limited amount of cash on hand, managers are compelled to utilize REM to provide cash for organizational operations.

In the realms of investment, risk management, and finance, an understanding of leverage is crit-

ical. A company's level of debt financing can be seen by evaluating its leverage ratio (Dang et al., 2019). According to Boubaker et al. (2018), when a corporation takes on excessive debt, it puts itself in danger because it enters the extreme leverage category, where it becomes ensnared in a high degree of debt and struggles to alleviate it. Moreover, a significant leverage value serves as an indicator that the company is at risk of default, signifying that it lacks the capability to meet its debt repayment commitments. The only way for the corporation to avoid this default circumstance is to lower its leverage ratio (Kalash, 2023). Increasing company equity can be done by increasing profits through REM practices. With REM, the leverage ratio decreases as equity increases. Therefore, management will participate in REM when the leverage value is large.

A company's financial performance – performances of profitability, sales growth, CFO, cash, and leverage – reflects the management team's effectiveness in running the business. Several researchers found that these four financial performances have a significant influence on REM practices (Ding et al., 2018; Ghafran et al., 2022; Griffin et al., 2021; Li et al., 2021; Li & Xia, 2021). However, the results were not consistent with the findings of Agyei-Mensah and Yeboah (2019), Alzoubi (2018), Demerjian et al. (2020), Huang et al. (2020), and Rajeevan and Ajward (2020), who found that those financial performances did not have a substantial impact on the REM. The reason behind these discrepancies could be that managers' actions determine the nature of the association between REM and financial performance (Theiri et al., 2022). Such management behavior can be driven by the presence of bonuses against management judged by financial performance (Bushman, 2021). Management can accomplish their objectives through REM by enhancing financial performance, as shown in financial reporting. As stated by Harris et al. (2019), Purwaningsih et al. (2019), and Saona et al. (2020), the relationship between financial performance, bonus mechanisms for management, and REM is often coherent. Thus, if managers' bonuses are tied to the company's financial results, REM behavior may rise substantially. Management will have to adopt REM procedures because of the increasing financial performance goals and bonus mechanisms that should be achieved.

The previous explanation shows that there is a discrepancy in how a company's financial performance affects REM, as mentioned by Tuan et al. (2023). The occurrence of these discrepancies can be attributed to the variability in the relationship between financial performance and REM, which is contingent upon the actions of managers (Theiri et al., 2022). When managers are faced with high bonus thresholds, they may be prone to engage in REM to meet the financial performance targets required to qualify for the bonus (Huang & Bownblis, 2018). So, the previous explanation proposes the incorporation of bonuses as a moderating component in the relationship between financial performance and REM practices. Therefore, this study attempts not only to show the direct impact of financial performance on REM but also to show the role of bonus mechanisms in the correlation of financial performance to REM behavior. The following hypotheses were developed for this study based on the preceding explanation:

H₁: A company's financial performance has an influence on REM practices.

H₂: The bonus mechanism can moderate the influence of a company's financial performance on REM practices.

2. METHODS

This study employed a quantitative approach based on causation. It used STATA 7 to do the inferential statistical analysis and the t-test's significance test to check the hypotheses. This study used data from www.idx.co.id to analyze the 2017–2021 annual financial reports of manufacturing companies listed on the Indonesia Stock Exchange (IDX). This study uses purposive sampling to collect data from IDX-listed manufacturing companies from 2017 to 2021. The sample included 80 companies and 400 data points across five years. There are three criteria used in sample selection, namely: First, manufacturing enterprises listed on IDX from 2017 to 2021 are studied; second, the sample was limited to businesses that reported their financials in rupiah to minimize the impact of foreign currency bias; and third, the companies that possess the necessary data for the variables under investigation are considered research subjects.

To explore the description of the data that would be used as supplementary information to draw conclusions, a descriptive statistical analysis was first performed. Meanwhile, the linear regression approach was employed to draw conclusions. When estimating linear regression, this study does not perform a normality test. This determination is predicated on the circumstance that the sample size surpasses one hundred observations, thereby permitting us to assume that the data adhere to a normal distribution, as recommended by Knief and Forstmeier (2021). Furthermore, to address potential issues related to heteroscedasticity and autocorrelation, a robust standard error was implemented, which is consistent with the approach suggested by Cattaneo et al. (2018). Subsequently, a multicollinearity test was conducted to tackle the problem of correlation among the variables.

To investigate panel data in a regression model, this study performed a regression analysis using a fixed effect model as applied by Griffin et al. (2021) and Ghafran et al. (2022). Similar to prior investigations (Ding et al., 2018; Griffin et al., 2021; Ghafran et al., 2022), this study mitigated the impact of bias by incorporating a number of control variables. To perform moderating variable analysis, two regression equations were formulated in the same manner as Hermando et al. (2023). Within this framework, the initial equation measures the precise influence that the independent variable has on the dependent variable. Then, the role of the moderating variable in influencing the effect of the independent variable on the dependent variable is evaluated by employing the second equation. The study classified moderating variables as either pure or quasi-moderating. A quasi-moderator is present when, in either the first or second model, the moderating variable has a direct effect on the dependent variable. A moderating variable is considered to be in pure moderation if its only effect is to interact with the second model's independent variables and not the first model's dependent variables (Meier & Schier, 2021).

The financial performance variables, bonus mechanism variables, and other control variables utilized in this study are detailed in Appendix A. The REM variable is measured using a more intricate equation. In accordance

with prior investigations that have constructed REM (Ding et al., 2018; Griffin et al., 2021; Ghafran et al., 2022). The attention is directed towards three distinct categories of REM activities: abnormal production costs (ACFO), abnormal cash flow operations (PROD), and abnormal discretionary (DISEXP) as described in the following equation:

$$\begin{aligned} ACFO_{it}/AT_{it-1} = & \alpha_0 + \alpha_1(1/AT_{it-1}) \\ & + \beta_1(S_{it}/AT_{it-1}) + \beta_2(\Delta S_{it}/AT_{it-1}) + \varepsilon_{it}, \end{aligned} \quad (1)$$

where $ACFO_{it}$ – abnormal cash flow operations in year t of company i , AT_{it-1} – lagged total assets, S_{it} – net sales in year t of firm i , and ΔS_{it} – change in net sales from the previous year.

$$\begin{aligned} PROD_{it}/AT_{it-1} = & \alpha_0 + \alpha_1(1/AT_{it-1}) \\ & + \beta_1(S_{it}/AT_{it-1}) + \beta_2(\Delta S_{it}/AT_{it-1}) \\ & + \beta_3(\Delta S_{it-1}/AT_{it-1}) + \varepsilon_{it}, \end{aligned} \quad (2)$$

where $PROD_{it} = COGS_{it} + \Delta INV_{it}$, $COGS_{it}$ – cost of goods sold in year t of company i , ΔINV_{it} – change in inventory in year t of company i , and other variables are defined as before. Abnormal production costs are the difference between actual production costs and normal production costs.

$$\begin{aligned} DISEXP_{it}/AT_{it-1} = & \alpha_0 + \alpha_1(1/AT_{it-1}) \\ & + \beta(S_{it-1}/AT_{it-1}) + \varepsilon_{it}, \end{aligned} \quad (3)$$

where $DISEXP_{it}$ actual – discretionary expenses are profit manipulation carried out through research and development costs, advertising costs, sales, administration, and general costs. Discretionary expenses for company i in year t are the sum of research and development, advertising and sales, and general and administrative costs.

As described by Ghafran et al. (2022) and Griffin et al. (2021), the formula that was used to define REM in order to incorporate the impact of REM as a single metric is REM_{it} is equal to $(-1) * (ACFO_{it} - PROD_{it} + DISEXP_{it})$. The REM value was multiplied by -1 to show that an increase in the REM value indicates an increase in REM activities carried out by management, and vice versa.

2.1. MRA (Moderated Regression Analysis) formulation

As previously stated, this study included multiple control variables in the regression model during analysis. The control variables encompass net operating assets, company size, auditor reputation, audit tenure, financial distress, and loss. The initial regression model is as follows:

$$\begin{aligned} REM = & \beta + \alpha_1 ROA_{i,t} + \alpha_2 LEV_{i,t} \\ & + \alpha_3 Growth_{i,t} + \alpha_4 CFO_{i,t} + \alpha_5 CASH_{i,t} \\ & + \alpha_6 BONUS_{i,t} + \alpha_7 NOA_{i,t} + \alpha_8 SIZE_{i,t} \\ & + \alpha_9 REP_{i,t} + \alpha_{10} TEN_{i,t} + \alpha_{11} ZSCORE_{i,t} \\ & + \alpha_{12} LOSS_{i,t} + \varepsilon_{i,t}. \end{aligned} \quad (4)$$

Furthermore, this second regression model was performed to examine the moderating variable's impact. The second regression model derived from this study is:

$$\begin{aligned} REM = & \beta + \alpha_1 ROA_{i,t} + \alpha_2 LEV_{i,t} \\ & + \alpha_3 Growth_{i,t} + \alpha_4 CFO_{i,t} + \alpha_5 CASH_{i,t} \\ & + \alpha_6 BONUS_{i,t} + \alpha_7 BROA_{i,t} \\ & + \alpha_8 BLEV_{i,t} + \alpha_9 B Growth_{i,t} + \alpha_{10} BCFO_{i,t} \\ & + \alpha_{11} BCASH_{i,t} + \alpha_{12} NOA_{i,t} + \alpha_{13} SIZE_{i,t} \\ & + \alpha_{14} REP_{i,t} + \alpha_{15} TEN_{i,t} \\ & + \alpha_{16} ZSCORE_{i,t} + \alpha_{17} LOSS_{i,t} + \varepsilon_{i,t}. \end{aligned} \quad (5)$$

Where *BROA* is the interaction between Bonus and ROA, *BLEV* is the interaction between Bonus and Leverage, *BGrowth* is the interaction between Bonus and Sales Growth, *BCFO* is the interaction between Bonus and CFO, and *CASH* is the interaction between Bonus and Cash. The research approach aims to complete the research objective, namely to find out whether the bonus system

functions as a moderator between the financial performance factors profitability, leverage, sales growth, CFO, and cash on REM practices.

3. RESULTS

When looking at financial performance and earnings management, there is some contradictory research in the past. This discrepancy in findings is attributable to the fact that several factors can either amplify or diminish the correlation between REM and financial success. To fill this knowledge vacuum, this section examines the function of bonus mechanisms as a moderator of the association between financial performance and REM. Part one involved using descriptive statistics to characterize the data that had been collected. Subsequently, the topic of inferential statistics is covered to arrive at statistical conclusions. Here are the descriptive statistics findings.

Using the information in Table 1, it can be deduced that the average REM is -0.421. The mean REM value is indicative of the prevailing trend among manufacturing companies to maintain relatively low levels of REM activity. This negative REM also shows that some businesses tend to be careful when using REM procedures. However, a high REM value suggests that certain companies might adopt a more assertive approach towards integrating REM. Positive value Bonus mechanisms serve as an indicator of management's capability to not only meet but also surpass pre-established objectives. The average bonus mechanism value of 5.20 indicates that the level of management performance achievement is moderate to relatively medium, according to the data collected.

To conduct inferential statistical analysis, one must develop a regression equation. The regression model testing was conducted following the

Table 1. Descriptive statistic results

Measurements	REM	ROA	LEV	GROWTH	CFO	CASH	BONUS
Mean	-0.0421	0.0670	0.4503	0.0597	0.0718	0.1116	5.20
Median	0.0164	0.0621	0.4265	0.0519	0.0604	0.0621	1.01
Std. Deviation	1.2699	0.1094	0.2639	0.2215	0.0989	0.1275	114.37
Min	-5.6276	-0.9481	0.0630	-0.9072	-0.2550	0.0006	-394.30
Max	3.9410	0.5027	2.8210	1.2730	0.5369	0.7597	2,248.56
Observation	400	400	400	400	400	400	400

Table 2. Multicollinearity test results

	ROA	LEV	Growth	OFC	Cash	Bonus	Size	Rep	Ten	Loss	NOA	ZSCORE
ROA	1											
LEV	-0.32	1										
Growth	0.31	-0.16	1									
OFC	0.61	-0.24	-0.04	1								
Cash	0.24	-0.35	0.03	0.31	1							
Bonus	0.07	0.00	0.09	-0.05	-0.01	1						
Size	0.25	-0.02	0.04	0.26	-0.08	-0.07	1					
Rep	0.27	-0.12	0.02	0.29	0.07	-0.28	0.53	1				
Ten	-0.04	-0.02	-0.03	-0.05	-0.05	-0.04	0.00	-0.05	1			
Loss	-0.52	0.24	-0.32	-0.31	-0.27	-0.06	-0.22	-0.08	-0.07	1		
NOA	0.00	0.11	-0.03	-0.02	0.00	0.00	-0.10	-0.15	0.00	0.00	1	
ZSCORE	0.00	0.04	0.03	-0.01	-0.05	0.00	0.13	0.14	-0.04	-0.05	0.00	1

completion of the classical assumption test, as previously described. Robust standard errors are employed in this model to address the issues of heteroscedasticity and autocorrelation. Given the observation of more than 100 data points, it may be inferred that the regression model has successfully passed the normality assumption. The findings of the multicollinearity test conducted for this investigation are presented in Table 2.

Table 2 reveals that none of the correlation values between variables exceeds 0.8. Therefore, one can infer that the model under investigation does not exhibit any signs of multicollinearity. Once it has been confirmed that the regression model has successfully met the requirements of the clas-

sical assumption, the subsequent action is to conduct a thorough study of the regression model. Subsequently, employing the MRA technique, an analysis of the two previously constructed models was conducted. The panel data regression equation's results are presented in Table 3.

The study observed that the ROA variable attained a mean value of 0.0670, which signifies a degree of profitability surpassing the average. According to Brogi and Lagasio (2019), the mean ROA for manufacturing firms is 0.04 percent, or 4%. An ROA surpassing the average for the industry suggests that the motivation of company management to adopt REM has diminished (Cai et al., 2018). This finding fits with earlier

Table 3. Regression results

Variable	Model 1		Model 2	
	Coefficient	P-Value	Coefficient	P-Value
ROA	1.0099	0.102	1.38707	0.017**
LEV	0.2146	0.394	0.31459	0.200
GROWTH	0.3146	0.082*	0.23220	0.245
CFO	-0.2439	0.720	-0.36726	0.604
CASH	-0.5638	0.580	-0.06773	0.944
BONUS	-0.0001	0.248	0.02283	0.002***
NOA	0.0051	0.071*	0.00586	0.020**
SIZE	0.1758	0.375	0.20753	0.302
REP	0.1274	0.249	0.12789	0.272
TEN	-0.0454	0.255	-0.05515	0.191
ZSCORE	0.0000	0.000***	0.00002	0.000***
LOSS	-0.0958	0.496	-0.18778	0.213
BROA			-0.05813	0.060*
BLEV			-0.04504	0.000***
BGROWTH			0.12222	0.000***
BCFO			0.05877	0.003***
BCASH			-0.21900	0.015**

Notes: ***, **, and * represent statistical significance at 1%, 5%, and 10%, respectively.

studies (Cai et al., 2018; Harris et al., 2019) that show businesses with ROA levels below 3% are more likely to use REM methods. On the contrary, companies that surpass this threshold in terms of ROA do not promote the adoption of REM by management (Huang et al., 2020). The findings from the hypothesis testing conducted in the initial model indicate that there is no statistically significant impact of individual ROA on REM. As of this moment, insufficient empirical evidence exists to establish a substantial correlation between ROA and REM. However, the p-value of 0.06 showed that the bonus mechanism's inclusion as a moderating component in the second model revealed a statistically significant correlation between ROA and REM.

It is determined from looking at the leverage variable within the context of this study that manufacturing companies have a mean debt level of 0.45. The average leverage value indicates that companies engaging in REM possess a moderate degree of debt. Consistent with the conclusions drawn by Ghaleb et al. (2020) and Griffin et al. (2021), the research findings indicate that firms characterized by leverage levels falling below 0.16 are more prone to implementing REM. On the contrary, companies that have leverage levels exceeding 0.72 are comparatively less inclined to implement REM (El-Helaly et al., 2018; Haga et al., 2018). Companies that have leverage between these two categories typically avoid REM (Alhadab et al., 2020; Huang et al., 2020). The current level of debt is moderate, which is consistent with the prudent administration of the debt framework. Hence, the outcomes of the hypothesis testing conducted in model 1 indicate that there is no statistically significant relationship between individual debt levels and REM ($p = 0.394$). Nevertheless, the inclusion of the moderation bonus mechanism in Model 2 demonstrates that leverage, in conjunction with the bonus mechanism's moderating effect, is a significant variable influencing REM, as indicated by the p-value of 0.000.

The examination of the sales growth variable in this study reveals that the mean sales growth for manufacturing companies is 0.0597. This indicates that the companies under investigation experienced a less rapid increase in sales

growth and that the level of sales growth was subject to controlled variability. The p-value of 0.082 in Model 1 indicates that despite the relatively low level of sales growth, individual sales growth has a statistically significant impact on REM. The results presented in Model 1 validate the conclusions drawn in prior studies (Li et al., 2020; Griffin et al., 2021) that earnings management practices are substantially influenced by sales growth. Nevertheless, by employing bonus mechanism moderation in Model 2, it becomes apparent that the bonus mechanism moderates sales growth in a substantial way, as indicated by a p-value of 0.000.

Based on the mean value of CFO, which was 0.0718, it can be concluded that the proportion of CFO to total assets held by manufacturing companies in the sample for this study is generally low. Within the parameters of Model 1, it is determined that the individual impact of CFO on REM is not statistically significant ($p = 0.720$). Companies with an average CFO score of 0.8 percent or less do not significantly impact REM, according to research (Alzoubi, 2018; Marisetty & Moturi, 2023). While the CFO does not appear to have a substantial effect on earnings management practices when considered individually, the inclusion of a bonus mechanism moderation in Model 2 demonstrates that the CFO does, in fact, have a substantial effect on REM ($p = 0.003$).

The analysis of the cash variable in this study shows an average value of 0.1116, reflecting the relatively small proportion of cash in the total assets of manufacturing companies in the research sample. A cash level below 0.16 signifies that the company is confronted with restricted financial resources, as stated by (Shahab et al., 2018; Liu et al., 2023). With this relatively small proportion of cash in the first model, individual cash does not show a significant influence on REM, with a p-value of 0.580. The results obtained from the initial model corroborate previous studies (Huang et al., 2020), which state that the ratio of cash to total assets does not have a substantial impact on REM. However, in the second model, the cash variable – which was mediated by the bonus mechanism – was discovered to significantly affect REM ($p\text{-value} = 0.015$).

4. DISCUSSION

The findings of this study validate that sales growth, in place of financial performance, has a substantial impact on the implementation of REM strategies within manufacturing firms. Despite being less dynamic, controlled growth nevertheless significantly influences the implementation of REM by management. The reason for this is the strong correlation between sales and operational operations (Abugharbia & Glavas, 2021). Consistent with the findings of Griffin et al. (2021) and Li et al. (2021), it has been established that Sales growth plays a crucial role in influencing profits through the operational activities of a firm. Based on the current study, only sales growth has a significant influence on REM compared to the other variables examined. According to Tuan et al. (2023), sales growth is an indicator of financial performance and is believed to enhance management incentives to manipulate earnings, which can significantly affect operational activities. So, these results provide strong evidence for the idea of agency theory when it comes to what makes managers act the way they do in REM methods in the manufacturing sector.

Sales growth has significant effects on REM, according to the study, whereas ROA, leverage, CFO, and cash have no significant effect. Several lines of reasoning can account for this occurrence. The high degree of profitability is beyond the average of comparable industries; hence, ROA does not significantly impact REM. Management may operate in a way that lacks its intention to use REM if the company's profitability is higher than normal (Huang et al., 2020). Managers may do this if they focus on income smoothing rather than short-term profit maximization (Demerjian et al., 2020). According to Agyei-Mensah and Yeboah (2019) and Alhadab and Clacher (2018), manufacturing corporate entities in the research sample may have moderate and controllable debt levels, suggesting that a well-managed debt structure does not create enough pressure to drive REM. In this situation, management may prefer a cautious approach to financial management that emphasizes long-term stability and sustainability rather than taking unnecessary risks (Demerjian et al., 2020). Hence, this study concludes that leverage does not exert a substantial impact on REM.

The results show that the CFO is not significantly involved in REM activity. The minimal value of CFOs in manufacturing companies in the research sample may indicate financial constraints to meet company operations, especially considering the proportion of CFOs not significantly impacting REM (Alzoubi, 2018). Management is advised to use caution when implementing REM procedures that could compromise operational continuity due to these restrictions (Harris et al., 2019; Griffin et al., 2021). In addition, the sample showed that there is a relatively small proportion of cash to total assets, as shown in previous studies (Shahab et al., 2018; Liu et al., 2023). According to Habib et al. (2020), during periods of limited cash, management exercises caution in its expenditure, prioritizing bills such as interest and principal debt payments and necessary operational costs. Hence, the management might be reluctant to adopt it in this particular scenario due to the increased risk associated with REM, which could result in questionable modifications to financial statements and a greater likelihood of financial distress. Thus, this study did not establish a substantial impact of cash on REM.

The bonus mechanism moderates all financial variables that are the subject of analysis in relation to REM, according to intriguing findings from this study. It is clear from the moderating effect of the bonus mechanism on ROA and sales growth that the bonus mechanism can bolster the correlation between ROA and sales growth with REM when a company meets its predefined sales growth and ROA goals. The fact that bonus mechanisms moderate the effects of leverage, CFO, and cash shows that these financial variables do not have direct control over REM, according to additional research. Nevertheless, the impact is amplified when applied to a bonus system. Despite not being the main cause of REM behaviors, these data show that when extra bonuses are included, financial stress or liquidity constraints may become more significant. According to agency theory, which supports this view, managers may act to manipulate profitability in pursuit of bonus targets when they have access to additional financial incentives (Tahir et al., 2019).

Practitioners, policymakers, and scholars can utilize these insights as a foundation of information to gain a deeper understanding of the intricacies

of financial performance on REM. Out of the several factors analyzed, only sales growth had a substantial individual impact on REM. Nevertheless, the magnitude of the impact will be amplified if the bonus system is implemented under the same circumstances. While the incentive system is not the primary factor influencing REM behavior, our analysis of the data reveals that when the bonus mechanism is considered a moderating variable, any financial performance that is combined with the bonus mechanism has a notable impact on REM. This corroborates the concept of agency theory, which posits that managers possess the ability to manipulate financial performance to achieve bonus targets when they are provided with supplementary financial incentives.

CONCLUSION, LIMITATIONS AND POTENTIAL FOR FURTHER RESEARCH

This study aims to provide answers to the issues posed about the variables influencing Real Earnings Management (REM) and factors that can moderate the impact of financial performance on REM, especially in manufacturing companies. To begin, it has been demonstrated that sales growth significantly affects REM. This suggests that sales growth, while not having progressive value, is still an important factor in management's judgments about manipulating earnings. These results show that while examining and controlling REM procedures in a manufacturing setting, sales growth should be considered an important component. These results add significantly to our knowledge of the elements affecting financial performance and their possible impact on REM. Practitioners, policymakers, and researchers can utilize these results as a foundation of knowledge to better comprehend the dynamics associated with profit management that stem from operational activities, particularly those that take place in manufacturing firms.

It becomes evident that not all financial performance indicators, such as ROA, leverage, OFC, and cash, substantially affect REM procedures when looking at them. There is a variety of underlying conditions that can cause this. Because the manufacturing companies in the research sample had a relatively high level of profitability, ROA did not play a key role in REM activities. As a result, management does not feel sufficiently encouraged to embrace REM activity. Also, there is not much pressure from moderate and controlled leverage to encourage REM practice. The small percentage of CFOs and the relatively low proportion of cash to total assets demonstrate the limited liquidity and financial resources, which further requires management to be cautious when implementing REM.

The results are in line with what we would expect from agency theory, which states that monetary incentives like bonus systems can enhance the correlation between REM and financial performance. Therefore, in REM, the bonus system can be seen as a control mechanism for managerial conduct. The fact that bonus mechanisms moderate the effect of financial variables on REM lends credence to the idea that monetary incentives might influence managers' actions pertaining to earnings manipulation. These results offer credence to the ideas put forward in agency theory by showing that bonus mechanisms can moderate the correlation between REM habits and financial performance. These findings can lay the groundwork for future research into the environmental context of manufacturing companies' REM and the motivational elements that impact them.

The results obtained from this study offer significant contributions to the understanding of REM as it pertains to manufacturing companies. Having said that, it is important to note that this study does have some limitations. The first limitation is that the study may only be able to apply its findings to a small subset of the manufacturing industry. Hence, when trying to generalize these results to other industries' REM, it is important to use caution. Additionally, other elements that may impact REM habits may go unnoticed if particular financial variables are focused on. Also, legislative shifts or ever-changing mar-

ket conditions are not factored into this study, even if they might impact REM. Nonetheless, there are a number of avenues for expanding upon this study. First, future research should broaden the scope of variables by looking at other variables and extraneous circumstances that could impact REM practice. Second, qualitative methods, such as in-depth interviews with company executives, can also shed light on the reasons behind REM.

AUTHOR CONTRIBUTIONS

Conceptualization: Taufiq Akbar.

Data curation: Taufiq Akbar, Ridarmelli.

Formal analysis: Ridarmelli, Hedwigis Esti Riwayati.

Funding Acquisition: Taufiq Akbar, Ridarmelli, Inung Wijayanti, Septo Pramesworo, Hedwigis Esti Riwayati.

Investigation: Taufiq Akbar.

Methodology: Taufiq Akbar.

Resources: Inung Wijayanti.

Project administration: Septo Pramesworo.

Supervision: Ridarmelli, Hedwigis Esti Riwayati.

Validation: Inung Wijayanti.

Visualization: Septo Pramesworo.

Writing – original draft: Septo Pramesworo.

Writing – review & editing: Inung Wijayanti, Septo Pramesworo, Hedwigis Esti Riwayati.

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APPENDIX A

Table A1. Variable description

Variable Name	Variable Description	Variable Code
Real Earnings Management	Real Earnings Management	REM
Return on Assets	Income before extraordinary items divided by total assets	ROA
leverage	Total Debt divided by Total Asset	LEV
Sales growth	Percentage change in sales	Growth
Operating cash flow	Operating cash flow divided by total assets	CFO
Cash held by the company	Cash and short-term investments divided by total assets	CASH
Bonus mechanism	Net profit in the current year divided by net profit in the previous year	BONUS
Net operating assets	Lagged net operating assets divided by sales	NOA
Company size	Company size based on total assets	SIZE
Auditor reputation	Dummy variables of big four and non-big four	REP
Audit tenure	Terms of the number of days between the date of the balance sheet and the release of the financial report	TEN
Financial Distress	An equation-based bankruptcy prediction that formulated by (Jacoby et al., 2016)	ZSCORE
Loss	Dummy of Losses (one if the net income is negative and zero otherwise)	LOSS
Interaction Bonus and ROA	Interaction between Variable Bonus and Variable ROA	BROA
Interaction Bonus and Leverage	Interaction between Variable Bonus and Variable Leverage	BLEV
Interaction Bonus and Sales Growth	Interaction between Variable Bonus and Sales Variable Growth	Bgrowth
Interaction Bonus and CFO	Interaction between Variable Bonus and Variable CFO	BCFO
Interaction Bonus and Cash	Interaction between Variable Bonus and Variable Cash	BCASH
Abnormal cash flow operations	The real earnings management via CFO.	ACFO
Abnormal production costs	The real earnings management via production costs	PROD
Abnormal discretionary expenses	The real earnings management via discretionary expenses	DISEXP