

PRE-MANAGED EARNINGS MODERATE THE EFFECTS OF THE CAPITAL ADEQUACY RATIO, DERIVATIVE INSTRUMENTS, AND REVENUE DIVERSIFICATION ON EARNINGS MANAGEMENT

Etty Murwaningsari¹, Sistya Rachmawati²

¹Universitas Trisakti, Jakarta, Indonesia

²Sekolah Tinggi Ilmu Ekonomi Tri Bhakti, Bekasi, Indonesia

Corresponding author: sistya.rachmawati@stietribhakti.ac.id

ABSTRACT

This study aims to examine and analyze: a) the effects of the capital adequacy ratio, derivative instruments, and revenue diversification on earnings management; b) the role of pre-managed earnings in moderating the effects of the capital adequacy ratio, derivative instruments, and revenue diversification on earnings management. This research employed secondary data from the banking sector listed on the Indonesia Stock Exchange (IDX) with purposive sampling for the 2022–2024 period, involving 43 banks (129 observations). The data were analyzed using panel regression. The results indicate that the capital adequacy ratio has a negative and significant effect on earnings management, whereas derivative instruments and revenue diversification do not affect earnings management. Pre-managed earnings strengthens the influence of the capital adequacy ratio on earnings management, making it a quasi-moderator. Conversely, pre-managed earnings does not strengthen the influence of derivative instruments and revenue diversification on earnings management, functioning as a predictor variable rather than a moderator. The implications of this study are twofold: theoretical and practical. Theoretically, the findings enrich the literature on determinants of earnings management in the banking sector, particularly the moderating role of pre-managed earnings. Practically, the findings provide a reference for investors in assessing financial reporting quality and investment risk; for banks in evaluating financial management practices related to capital adequacy, derivative instruments, and revenue diversification; and for regulators such as the Financial Services Authority (OJK) and Bank Indonesia (BI) in strengthening banking supervision and regulatory frameworks.

ABSTRAK

Penelitian ini bertujuan untuk menguji dan menganalisis: a) pengaruh capital adequacy ratio, instrumen derivatif, dan diversifikasi pendapatan terhadap manajemen laba; b) peran pre-managed earnings dalam memoderasi pengaruh capital adequacy ratio, instrumen derivatif, dan diversifikasi pendapatan terhadap manajemen laba. Penelitian ini menggunakan data sekunder sektor perbankan yang terdaftar di BEI dengan purposive sampling periode 2022–2024, melibatkan 43 bank (129 observasi). Data dianalisis menggunakan regresi panel. Hasil pengujian menunjukkan bahwa capital adequacy ratio berpengaruh negatif signifikan terhadap manajemen laba, sedangkan instrumen derivatif dan diversifikasi pendapatan tidak berpengaruh terhadap manajemen laba. Pre-managed earnings memperkuat pengaruh capital adequacy ratio terhadap manajemen laba sehingga pre-managed earnings merupakan quasi-moderator. Di sisi lain, pre-managed earnings tidak memperkuat pengaruh instrumen derivatif dan diversifikasi pendapatan terhadap manajemen laba sehingga berperan sebagai variabel prediktor, bukan moderator. Implikasi penelitian mencakup: 1) pengembangan teoritis, yaitu memperkaya literatur mengenai faktor-faktor yang memengaruhi manajemen laba pada sektor perbankan; 2) pengembangan praktik, yaitu: a) bagi investor, sebagai acuan menilai kualitas pelaporan keuangan dan risiko investasi; b) bagi perbankan, sebagai bahan evaluasi praktik manajemen keuangan terkait kecukupan modal, penggunaan instrumen derivatif, dan diversifikasi pendapatan; dan c) bagi pembuat kebijakan, sebagai masukan bagi OJK dan BI dalam penyempurnaan pengawasan perbankan.

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INTRODUCTION

A country's economic development depends on several publicly traded industries, including the banking sector, which plays a crucial role (Wiwoho, 2014). Indonesia's banking industry is currently experiencing significant growth, in line with the country's economic expansion and the public's demand for financial services. In every industry, including the banking sector, earnings are a key component of financial statements that influence economic decision-making, reflect a company's value, and serve as a tool for evaluating corporate performance (Graham et al., 2005). Responsibility for financial statements lies with management. Management has the authority to process financial data and may intentionally manipulate financial statements to meet management's needs (Apriadi, 2022). Management's efforts to manipulate profits are known as earnings management. Pre-managed earnings refer to earnings before taxes and provisions for losses (Kanagaretnam, K., Lobo, G. J., & Mathieu, 2004). Companies tend to view their performance as positive if their pre-managed earnings exceed the average pre-managed earnings of other companies. Additionally, pre-managed earnings are used by management to project revenue for the next period.

Earnings information is not the only metric for assessing a bank's financial health. Banking financial health can also be evaluated through the capital adequacy ratio (CAR). Originally, the capital adequacy ratio (CAR) was an indicator used to assess credit risk levels (Budianto & Dewi, 2022). According to (Valdiansyah & Murwaningsari, 2022), pre-managed earnings positively affect earnings management. Earnings management is measured by the discretionary loan loss provision (DLLP). These results align with research by (Kanagaretnam, K., Lobo, G. J., & Mathieu, 2004), indicating that companies will increase earnings by reducing DLLP when actual earnings are low. Conversely, companies will reduce earnings by increasing the DLLP when actual profits are high. Companies take no action when their profits are in line with expectations. Research findings from (Desta, 2017), (Bacho et al., 2019), and (Curcio, D., & Hasan, 2015) demonstrated that pre-managed earnings have a positive influence on earnings management.

A study by (Novita Anggraeni, 2022) showed that pre-managed earnings do not affect earnings management. Meanwhile, research by (Dewi & Eveline, 2017) and (Embuningtyas, 2018) concluded that pre-managed earnings negatively impact DLLP. The study's results show that companies will lower DLLP to maximize profits. Studies on the impact of CAR on earnings management were conducted by (Kibtiah & Cusyana, 2020; Lusmeida, H., & Khomsiyah, 2022), and (Curcio, D., & Hasan, 2015), all of which found that CAR has a positive effect. The research results indicate that regulations on the minimum CAR percentage allow managers to manipulate earnings. These results contradict those of (Husni, T., Sutra, R., & Andriani, 2021) and (Citra et al., 2021), who found that CAR negatively affects earnings management. Meanwhile, other studies revealed that CAR does not affect earnings management (Bacho et al., 2019; Embuningtyas, 2018; Jasman et al., 2023; Kibtiah & Reni Cusyana, 2020; Ndu, E. O., Udeh, A. C., & Nwosu, 2023).

The existence of diverse research findings prompted the author to conduct further research on the influence of pre-managed earnings and the capital adequacy ratio (CAR) on earnings management in the banking sector. This study differs from previous research by combining the variables of pre-managed earnings and the capital adequacy ratio (CAR), as profit and capital adequacy information are key indicators of banking sector health used by the Bank of Indonesia (BI) and the Financial Services Authority (OJK). The application of hedge accounting for derivative contracts is strictly regulated by international accounting standards such as IAS 39 and IFRS 9. Consequently, companies often face difficulties applying hedge accounting to derivative contracts intended for hedging. Several studies indicate a negative impact of derivative instruments (ID) on earnings management, suggesting that their use tends to reduce the likelihood of earnings management (Huang, P., Zhang, Y., Deis, D. R., & Moffitt, 2009; Oktavia et al., 2019). In addition to derivative instruments, revenue diversification (DP) is also considered to influence earnings

management. Changes in the banking business model over the past few years have shifted from reliance on interest income toward a more varied revenue structure, including non-interest income from underwriting, securities trading, and other financial services (Syafri et al., 2021). Research indicates that banks that diversify their revenue tend to engage in less earnings management, due to additional scrutiny from analysts, rating agencies, and regulators, thereby reducing the incentive to manage earnings (Tran, D. V., Hassan, M. K., & Houston, 2020). Thus, the objectives of this study are to examine and analyze whether: (1). there is an effect of the capital adequacy ratio (CAR) on earnings management, (2). There is an effect of derivative instruments (ID) on earnings management. (3). There is an effect of revenue diversification (DP) on earnings management, (4). pre-managed earnings moderate the effect of the capital adequacy ratio (CAR) on earnings management, 5. Pre-managed earnings moderate the effect of derivative instruments (ID) on earnings management, 6. Pre-managed earnings moderate the effect of revenue diversification (DP) on earnings management.

LITERATURE REVIEW AND HYPOTHESIS FORMULATION

Agency theory

Agency theory was introduced by Jensen and Meckling in 1976, describing the relationship between two parties: the owner (principal) and management (agent). The owner (principal) delegates the manager (agent) to manage resources and make decisions. Agency theory emerged due to the principal-agent relationship within an organization. The principal is the capital owner who cannot directly manage the company's business operations, while the agent is the manager mandated to manage them, including decision-making.

In this study, agency theory is used to describe the relationship between the agent and the principal and its connection to corporate earnings management. Managers possess more detailed information regarding company operations (Meckling, 1976). This situation motivates managers to leverage this informational advantage, one of which is the practice of earnings management. Managers can select specific accounting methods to adjust reported profit figures, thereby meeting market expectations and enhancing performance-based incentives, such as annual bonuses.

Shareholders Value Maximization Theory

The theory states that shareholder value can be enhanced by reducing foreign exchange exposure through the use of derivative instruments or hedging. Hedging can protect asset values and debt levels from exchange rate fluctuations, reducing cash flow volatility and enabling the company to maintain its ability to fund investments using available internal funds, while reducing reliance on costly external financing (Arnold, M. M., Rathgeber, A. W., & Stöckl, 2014).

(Bathala, C. T., Moon, K. P., & Rao, 1994) argued that financing can be obtained through debt; however, debt financing tends to lead shareholders to select riskier projects. This leads creditors to perceive shareholders as acting opportunistically, thereby imposing high interest rates on them. Consequently, this increases the cost of capital, reduces the project's net present value, and heightens the risk of default (Paranita, 2011). Through hedging, companies enhance corporate value and mitigate the occurrence of earnings management.

The Effect of the Capital Adequacy Ratio on Earnings Management

The capital adequacy ratio (CAR) is one of the key ratios that reflect a bank's ability to withstand losses and support its operational activities. The capital adequacy ratio (CAR) is a primary indicator of a bank's financial health because it reflects the level of capital available to protect the bank against potential risks. In Indonesia, this ratio is regulated by OJK Regulation (Peraturan Otoritas Jasa Keuangan Nomor 11/POJK.03/2016), which was subsequently updated by OJK Regulation No. 27/POJK.03/2022. This

regulation aims to ensure banking stability. Pressure to comply with regulations often drives banks to adopt strategies, such as earnings management practices, to ensure regulatory compliance and maintain their reputations. Previous studies have shown a positive relationship between the capital adequacy ratio (CAR) and earnings management. Some studies indicate that banks utilize discretionary loan loss provisions to manage reported earnings (Curcio, D., & Hasan, 2015; Lukman, 2015; Lusmeida, H., & Khomsiyah, 2022). When the capital adequacy ratio (CAR) is low, banks tend to reduce the DLLP to increase reported profits and thereby improve their capital position. Conversely, when the capital adequacy ratio (CAR) is high, banks use the DLLP to smooth income and stabilize financial performance across periods. This indicates that regulations setting a minimum capital adequacy ratio (CAR) can influence management decisions regarding profit reporting. According to signaling theory, firms can use specific information to signal to stakeholders. In this context, banks with a high capital adequacy ratio (CAR) send a positive signal to the public that they are financially stable and have strong risk management capabilities. However, banks with a low capital adequacy ratio (CAR) may utilize DLLP to signal that they remain capable of meeting regulatory obligations (Curcio, D., & Hasan, 2015). The independent variable (X) is capital adequacy ratio (CAR), derivative instruments (ID) and revenue diversification (DP), the dependent variables (Y) are earnings management (EM) and the moderating variables are pre-managed earnings (PME), control Variables: firm size (SIZE), firm age (AGE).—Thus, CAR is viewed as one of the elements in the implementation of earnings management practices. Thus, this study proposes the following hypothesis.

H1: The capital adequacy ratio has a positive effect on earnings management

The Effect of Derivative Instruments on Earnings Management

The requirements set forth by IAS 39 and IFRS 9 regarding financial instruments (Recognition and Measurement) require strict adherence to hedge accounting for derivative contracts. Previous research has shown that when an entity uses financial derivatives for hedging, this can reduce earnings volatility, thereby replacing the role of discretionary accruals in reducing volatility. Financial derivative transactions that meet the criteria for hedge accounting allow gains or losses from those transactions to be offset against gains or losses from the underlying assets (Dichev et al., 2012). Research findings from (Oktavia et al., 2019; Valdiansyah & Murwaningsari, 2022) indicate that derivative instruments negatively affect earnings management, whereas (Phua, L. K., Lok, C. L., Chua, Y. X., & Lim, 2021) found that financial derivatives positively affect earnings management. Furthermore, the use of financial derivatives can also affect the persistence of earnings components. Entities that use financial derivatives for hedging are considered more transparent in their disclosures to external parties than those that use derivatives for speculative purposes. This suggests that entities that significantly use derivatives for hedging are less likely to engage in earnings management practices. Thus, there is a trade-off between the use of financial derivatives and discretionary accruals (Huang, W., Li, S., & Wang, 2009; Oktavia et al., 2019). Therefore, this study proposes the following hypothesis.

H2: Derivative instruments have a negative effect on earnings management

The Effect of Revenue Diversification on Earnings Management

Currently, the primary revenue source for commercial banks, which previously came largely from interest income, is shifting toward a more diversified revenue structure. Banks are beginning to diversify by tapping into other revenue sources, such as underwriting, securities trading, brokerage services, investment banking, and other activities that generate non-interest income (Meslier et al., 2014). Research findings of (Amidu, M., & Kuipo, 2015; Hsieh, M. F., Chen, P. F., Lee, C. C., & Yang, 2009) reported that diversification has a positive effect on earnings management. Banks with more diversified revenue

sources often require a larger board of directors to effectively oversee banking operations, which can increase agency costs and allow management to gain personal benefits. The complexity of modern banking requires board members with diverse backgrounds to properly monitor bank operations. When a bank's revenue is sufficiently diversified, this can increase information asymmetry between the bank and its stakeholders. Therefore, banking revenue diversification (DP) can lead to greater manipulation, as the board may be unable to monitor or provide optimal incentives (Amidu, M., & Kuipo, 2015). Several previous studies documented a positive relationship between revenue diversification (DP) and discretionary accruals (Amidu, M., & Kuipo, 2015; Farooqi et al., 2014; Hsieh, M. F., Chen, P. F., Lee, C. C., & Yang, 2009). Thus, the hypothesis is as follows.

H3: Revenue diversification has a positive effect on earnings management

Pre-managed earnings moderate the effect of the capital adequacy ratio on earnings management.

Pre-managed earnings provide a picture of a company's operational performance without managerial intervention that could distort earnings information. This allows investors and other stakeholders to assess the company's financial health more objectively (Wibiksono, R. A and Rudiawarni, 2015). Thus, the primary objective of pre-managed earnings analysis is to ensure that investment decisions are based on reliable, unbiased information. Previous studies have shown a positive relationship between the capital adequacy ratio and earnings management. Some previous studies found that banks utilize discretionary loan loss provisions (DLLP) to manage reported earnings (Curcio, D., & Hasan, 2015; Lusmeida, H., & Khomsiyah, 2022). When the capital adequacy ratio (CAR) is low, banks tend to reduce the DLLP to increase reported profits, thereby improving their capital position. Conversely, when the capital adequacy ratio is high, banks use the DLLP to smooth income and stabilize financial performance across periods. This indicates that regulations regarding the minimum capital adequacy ratio threshold can influence management decisions regarding profit reporting. Meanwhile, the results of the studies by (Curcio, D., & Hasan, 2015; Desta, 2017) showed that pre-managed earnings have a positive influence on earnings management. Thus, the hypothesis is as follows.

H4: Pre-managed earnings strengthen the impact of the capital adequacy ratio on earnings management

Pre-Managed Earnings Moderate the Impact Of Derivative Instruments on Earnings Management.

According to research findings by (Kanagaretnam, K., Lobo, G. J., & Mathieu, 2004), pre-managed earnings (PME) are an indicator used by management to manipulate profits. Research by (Oktavia et al., 2019; Valdiansyah & Murwaningsari, 2022) found that derivative instruments negatively affect earnings management, whereas (Phua, L. K., Lok, C. L., Chua, Y. X., & Lim, 2021) found that financial derivatives positively affect earnings management. Meanwhile, the studies by (Curcio, D., & Hasan, 2015; Desta, 2017) found that pre-managed earnings have a positive effect on earnings management. Thus, the hypothesis is as follows.

H5: Pre-managed earnings mitigate the negative impact of derivatives on earnings management

Pre-Managed Earnings Moderate the Effect Of Revenue Diversification on Earnings Management.

The higher the pre-managed earnings, the greater the incentive or opportunity for management to engage in earnings management, whether to inflate or deflate earnings, to meet specific performance targets. Previous research indicates that diversification positively affects earnings management (Amidu, M., & Kuipo, 2015; Hsieh, M. F., Chen, P. F., Lee, C. C., & Yang, 2009). Meanwhile, the results of the studies by (Curcio, D., & Hasan, 2015; Desta, 2017) illustrated that pre-managed earnings have a positive effect on earnings management. Thus, the hypothesis is as follows.

H6: Pre-managed earnings strengthen the effect of revenue diversification on earnings management

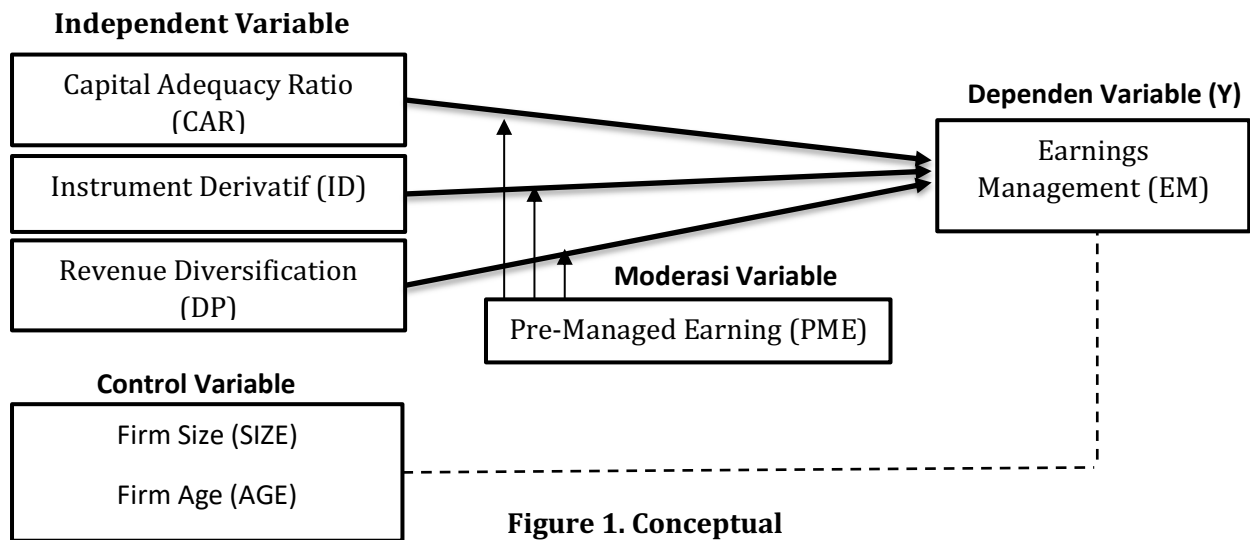


Figure 1. Conceptual

RESEARCH METHOD

This study employed a quantitative method that examines components, phenomena, and their relationships.

Research Population and Sample

The population in this study consisted of the banking sector companies listed on the Indonesia Stock Exchange (<https://www.idx.co.id/id>). Based on the criteria for the 2022–2024 period, the total included 47 conventional banks (excluding four Islamic banks). Thus, the sample comprised 43 banks over 3 years, resulting in 129 observations.

This study used purposive sampling, selecting participants based on specific criteria and limitations. The criteria used in sample selection were as follows: (1) Companies in the banking sector listed on the Indonesia Stock Exchange (IDX) from 2022 to 2024; and (2) Companies that have consistently published financial reports and sustainability reports.

Data Types and Sources

This study utilized secondary data, namely annual financial reports and sustainability reports of banking sector companies listed on the Indonesia Stock Exchange. Secondary data were obtained from the IDX website (<https://www.idx.co.id/id>).

Variable Measurement

Pre-managed earning (PME)

Earnings before tax and provisions (EBTP) is a ratio that compares earnings before income tax and provisions for impairment losses on productive assets to total assets. EBTP is measured using a ratio. According to (Valdiansyah & Murwaningsari, 2022), pre-managed earnings are calculated by dividing earnings before tax and provisions by total assets at the beginning of the period, using the following formula:

$$\text{Pre – Managed Earning} = \frac{\text{Earning before tax and provision}}{\text{Lagged Total Assets}}$$

Capital adequacy ratio (CAR)

In this study, capital management is measured using the capital adequacy ratio (CAR). The CAR is a ratio that indicates the minimum capital adequacy level that banks must maintain to manage capital and control business risk (Lukman, 2015). The formula used to measure the capital adequacy ratio (Lusmeida, H., & Khomsiyah, 2022) is as follows:

$$CAR = \frac{\text{Capital}}{\text{RWA}} \times 100\%$$

Description: RWA = Risk Weighted Asset

Derivative instruments (ID)

Derivative instruments are classified based on their hedging design (whether they are held for hedging purposes) and measured at fair value, with the fair value recorded as an asset or a liability (Hsieh, M. F., Chen, P. F., Lee, C. C., & Yang, 2013). According to IFRS hedge accounting rules, an entity must recognize changes in the fair value of derivatives as assets, liabilities, or equity in each financial reporting period (Ayturk, Y., Gurbuz, A. O., & Yanik, 2016). IAS 39 and IFRS 9 require that derivative instruments be recorded as assets or liabilities and reported in the statement of financial position at fair value. Derivative proxies, whether for hedging or speculative (trading) purposes, use the absolute value of the net fair value of the derivative instrument (Firmansyah, A., & Purnama, 2020).

$$ID = \frac{\text{The Absolute Value of Fair Value (Derivative Asset} - \text{Derivative Loan)}}{\text{Total assets at the beginning of the year}}$$

Revenue diversification (DP)

Referring to previous research, the researchers measured income diversification by comparing non-interest income (NON) to total net operating income (NETOP) (Amidu & Kuipo, 2015; Tran, D. V., Hassan, M. K., & Houston, 2020). Therefore, income diversification for each bank was calculated as follows:

$$DP = \frac{\text{Non Interest Income (NON)}}{\text{Total Net Operating Income (NETOP)}}$$

Firm Size

Firm size reflects the extent of a company's resources. In this study, total company assets were expressed in natural logarithms to standardize the diverse values of total assets (Marsintauli, 2019). The formula for measuring firm size (Nurmalasari & Murwaningsari, 2024):

$$\text{Firm Size} = \text{Ln (Total Assets)}$$

Firm Age

Firm age indicates the length of time it has been in operation and has maintained its business operations. Firm age is calculated based on the difference between the year of the study and the year the company was established (Violinna, R., & Zubaidi, 2022) using the following formula:

$$\text{Firm Age} = \text{Year of Research} - \text{Year of Company Incorporation}$$

Type of Moderation

According to Sharma et al. (1981) there are four types of moderation, as presented in Table 1.

Table 1. Types of Moderation

Type	Moderation on the Dependent	Interaction on the Dependent
Pure Moderation	Not Significant	Significant
Quasi-moderation	Significant	Significant
Homologizing Moderation	Not Significant	Not Significant
Moderation Predictor	Significant	Not Significant

The explanation for Table 1 is as follows.

(1) Pure moderation means it acts as a moderating variable in the established relationship model. (2) Quasi-moderation involves moderating the relationship between an independent variable and a dependent variable that also serves as an independent variable. (3) The moderator homologizer is when the moderator variable can act as a moderator in the established relationship. (4) A moderation predictor is a variable that serves solely as a predictor (independent variable) within the established relationship model.

RESULTS AND DISCUSSION**RESULTS****Results of Descriptive Statistical Tests****Table 2. Descriptive Statistics**

	Mean	Maximum	Minimum	Std. Dev.	Skewness	Kurtosis	Observations
CAR	40.4275	283.8800	10.7800	37.5668	3.5782	19.0808	129
ID	0.0352	1.1277	0.0000	0.1480	5.5125	35.0805	129
DP	0.2062	1.2065	0.0001	0.2147	2.4983	10.5029	129
EM	0.0114	0.0438	0.0001	0.0089	1.1530	4.2841	129
PME	2.4597	19.3500	-14.6700	3.0738	0.2108	16.5275	129
SIZE	31.5303	35.3154	28.5377	1.6777	0.5422	2.4055	129
AGE	51.9534	128.0000	23.0000	24.0821	1.2930	4.5263	129

Note: CAR = capital adequacy ratio; ID = derivative instruments; DP = revenue diversification; EM = earnings management; PME = pre-managed earnings; SIZE = firm size; AGE = firm age

Table 2 shows that the total number of observations across all variables is 129. The mean value of the capital adequacy ratio (CAR) variable is 40.4275, SIZE 31.5303, and AGE 51.9534, which is greater than the standard deviation values for the capital adequacy ratio (CAR) variable (37.5668), firm size (SIZE) 1.6777, and firm age (AGE) 24.0821. This indicates that the research data are relatively homogeneous, as the data dispersion does not exceed the mean. If the standard deviation is smaller than the mean, the data is relatively homogeneous, and the spread is small; and if the standard deviation is larger than the mean, the data is relatively heterogeneous, and the spread is large.

Correlation Test Results

Table 3. Correlation Test

Correlation Probability	CAR	ID	DP	PME	CAR*PME	ID*PME	DP*PME	SIZE	AGE	EM
CAR	1.0000									

ID	-0.0789	1.0000								
	0.3740	-----								
DP	-0.1808	0.0620	1.0000							
	0.0403	0.4850	-----							
PME	0.2648	-0.0037	-0.0885	1.0000						
	0.0024	0.9663	0.3183	-----						
CAR*PME	0.6878	-0.0419	-0.1355	0.7838	1.0000					
	0.0000	0.6371	0.1255	0.0000	-----					
ID*PME	-0.0415	0.7080	0.0282	0.1397	0.0211	1.0000				
	0.6397	0.0000	0.7508	0.1143	0.8122	-----				
DP*PME	-0.0082	0.0374	0.2546	0.6037	0.3900	0.1405	1.0000			
	0.9260	0.6738	0.0036	0.0000	0.0000	0.1121	-----			
SIZE	-0.5136	0.2052	0.1080	0.0768	-0.2824	0.2296	0.2780	1.0000		
	0.0000	0.0197	0.2229	0.3868	0.0012	0.0089	0.0014	-----		
AGE	-0.0687	0.0574	0.1561	0.1075	-0.0194	0.0660	0.2169	0.4359	1.0000	
	0.4391	0.5175	0.0771	0.2251	0.8271	0.4570	0.0135	0.0000	-----	
EM	0.0732	0.1317	0.0578	0.2391	0.2598	0.0404	0.0711	0.2176	0.2048	1.000000
	0.4093	0.1366	0.5148	0.0063	0.0029	0.6489	0.4228	0.0132	0.0199	-----

Note: CAR = capital adequacy ratio; ID = derivative instruments; DP = revenue diversification; EM = earnings management; PME = pre-managed earnings; SIZE = firm size; AGE = firm Age

Table 3 shows the correlations between the independent variables and the dependent variable.

(1) The correlation probability values for the capital adequacy ratio (CAR), derivative instruments (ID), and revenue diversification (DP) variables with earnings management (EM) are 0.4093 ($p > 0.05$), 0.1366 ($p > 0.05$), and 0.5148 ($p > 0.05$), respectively; therefore, it can be concluded that they have no relationship with Earnings Management. (2) The correlation coefficient for the interaction between the capital adequacy ratio and pre-managed earnings (CAR*PME) with earnings management is 0.0029 ($p < 0.05$). Therefore, it can be concluded that the interaction between the capital adequacy ratio (CAR) and pre-managed earnings is related to earnings management. The correlation coefficient is positive (0.259869). Therefore, it can be concluded that there is a positive relationship with earnings management. (3) The probability values for the derivative instruments (ID) interaction variable and the correlation between the revenue diversification interaction variable and pre-managed earnings (DP*PME) with earnings management are 0.6489 ($p > 0.05$) and 0.4228 ($p > 0.05$), respectively. Therefore, it can be concluded that there is no relationship with earnings management.

The different methodological approaches can explain the differences in results between the correlation test and the fixed-effects model. The correlation test merely measures a simple relationship between two variables without controlling for other factors; adding or removing variables does not affect the results of other variables. Conversely, the fixed effects model accounts for unobserved heterogeneity that is constant across individual banks, and the addition or removal of variables affects the outcomes of other variables; thus, the resulting estimates better reflect the impact of changes in the capital adequacy ratio within the same bank over time on changes in earnings management. These findings indicate that the relationship between the capital adequacy ratio and earnings management cannot be explained solely through simple correlation analysis. Using a panel model with a fixed effects approach yields more comprehensive results because it accounts for the specific, unchanging characteristics of each bank over the study period.

Model Selection Test Results

Chow Test Results

Table 4. Chow Test

Effects Test	Statistic	d.f.	Prob.
Cross-section F	2.4735	(42.77)	0.0003
Cross-section Chi-square	110.1754	42	0.000

Table 4 shows that the Cross-section F Prob is 0.0003 ($p < 0.05$), so the Fixed Effect Model is better than the Common Effect Model; therefore, the Fixed Effect Model is selected (Napitupulu et al., 2021). The analysis then proceeds to the Hausman test.

Results of the Hausman Test

Table 5. Hausman Test

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	30.8782	9	0.0003

Table 5 indicates the prob value of 0.0003 ($p < 0.05$); therefore, the fixed effect model is better than the random effect model, or the selected model is the fixed effect model (Napitupulu et al., 2021). Therefore, the lagrange multiplier test was not performed, and the best model is the fixed effect model.

Results of Classical Assumption Tests and t-Test Results

Based on the results of the Chow and Hausman tests, the best model in this study is the fixed effects model. The selected model is the fixed effects model (ordinary least squares). Therefore, the classical assumption tests must be conducted. The classical assumptions in panel data regression with the OLS approach are multicollinearity and heteroscedasticity (Napitupulu et al., 2021). The results are presented in Table 6.

Table 6. Classical Assumption Tests and t-Test Results

$$ML_{it} = \alpha_0 + \alpha_1 CAR_{it} + \alpha_2 ID_{it} + \alpha_3 DP_{it} + \alpha_4 CAR \cdot PME_{it} + \alpha_5 ID \cdot PME_{it} + \alpha_6 DP \cdot PME_{it} + \alpha_7 SIZE_{it} + \alpha_8 AGE_{it} + e_{it}$$

Variable	Predictions	Coefficient	Prob	Collinearity Tolerance	VIF
Constant		0.1865	0.2324		
CAR	+	-0.0002	0.0012*	0.292	3.430
ID	-	-0.0027	0.8890	0.472	2.117
DP	+	0.0025	0.7427	0.816	1.226
PME		-0.0012	0.0450	0.182	5.482
CAR*PME	+	0.0000	0.0001*	0.126	7.964
ID*PME	+	0.0006	0.8991	0.456	2.191
DP*PME	+	-0.0012	0.5326	0.497	2.011
SIZE		-0.0012	0.8283	0.489	2.046
AGE		-0.0025	0.0043 *	0.750	1.333
R ²		0.6778			
Adj R ²		0.4643			
F-stat		0.0000			
Residual Plot		0.016 ≤ 500 and -0.020 ≥ -500			
Observations		129			

Note: CAR = capital adequacy ratio; ID = derivative instruments; DP = revenue diversification; EM = earnings management; PME = pre-managed earnings; SIZE = firm Size; AGE = firm Age

Based on Table 6, the following results are presented.

Classical assumption test

If the VIF value is < 10 or the tolerance value is > 0.10 , there are no signs of multicollinearity, or the test for multicollinearity is passed. The heteroscedasticity test of the residuals shows that the residual values range from 0.016 to -0.020, which do not exceed the limits of 500 and -500 ($0.016 \leq 500$ and $-0.020 \geq -500$), indicating that the residual variance is constant. Therefore, it can be concluded that there is no heteroscedasticity or that the test for heteroscedasticity is passed (Napitupulu et al., 2021).

Coefficient of determination Test and F-Test

The adjusted R-squared value is 46.4347%. This coefficient of determination indicates that the independent variables, comprising the capital adequacy ratio (CAR), derivative instruments (ID), and revenue diversification (DP), moderated by pre-managed earnings (PME), account for 46.4347% of the variation in earnings management. The remaining 53.5653% is explained by other variables not included in this research model. The F-statistic probability value is 0.0000 ($p < 0.05$), indicating that the regression model is statistically significant and appropriate for explaining earnings management.

Regression test results

The constant value is 0.1865. If the variables capital adequacy ratio (CAR), derivative instruments (ID), and revenue diversification (DP), moderated by the variable pre-managed earnings (PME) and controlled by the variables firm size (SIZE) and firm age (AGE), have a constant value of 0, the value of the earnings management (EM) variable is 0.1864.

The beta coefficient for the capital adequacy ratio (CAR) is -0.0002. If all other variables remain constant and the capital adequacy ratio (CAR) increases by 1 unit, earnings management (EM) will decrease by 0.0002. The probability value for CAR is 0.0012 ($p < 0.05$), and the coefficient is negative. Therefore, H1 is rejected because the hypothesis predicted a positive effect; empirically, CAR has a negative and significant effect on earnings management (EM).

The beta coefficient for derivative instruments (ID) is -0.0027. If all other variables remain constant and ID increases by 1 unit, earnings management (EM) will decrease by 0.0027. The probability value for ID is 0.8890 ($p > 0.05$); therefore, H2 is rejected, meaning that derivative instruments do not affect earnings management. The beta coefficient for revenue diversification (DP) is 0.0025. If all other variables remain constant and DP increases by 1 unit, earnings management will increase by 0.0025. However, the probability value for DP is 0.7427 ($p > 0.05$); therefore, H3 is rejected, indicating that revenue diversification does not affect earnings management. The coefficient value for the interaction between CAR and PME (CAR*PME) is 0.0000, with a probability value of 0.0001 ($p < 0.05$). Therefore, H4 is accepted, meaning that pre-managed earnings strengthens the effect of CAR on earnings management. The coefficient value for the interaction between ID and PME (ID*PME) is 0.0006, with a probability value of 0.8991 ($p > 0.05$). Therefore, H5 is rejected, meaning that pre-managed earnings does not moderate the effect of derivative instruments on earnings management. The coefficient value for the interaction between DP and PME (DP*PME) is -0.0012, with a probability value of 0.5326 ($p > 0.05$). Therefore, H6 is rejected, meaning that pre-managed earnings does not strengthen the effect of revenue diversification on earnings management.

Type of Moderating Variable

The probability value for pre-managed earnings is 0.0450 ($p < 0.05$), indicating that pre-managed earnings directly affects banking earnings management. The type of moderation is determined by considering the significance of the moderator and the interaction terms.

The interaction between capital adequacy ratio and pre-managed earnings (CAR*PME) has a probability value of 0.0001 ($p < 0.05$), while pre-managed earnings is also significant as a direct predictor; therefore, PME is classified as a quasi-moderator in the relationship between CAR and earnings management. The interaction between derivative instruments and PME (ID*PME) has a probability value of 0.8991 ($p > 0.05$), and the interaction between revenue diversification and PME (DP*PME) has a probability value of 0.5326 ($p > 0.05$). Therefore, PME does not moderate the effects of derivative instruments and revenue diversification on earnings management and functions as a predictor variable rather than a moderator in those relationships.

DISCUSSION OF RESULTS

The Effect Of The Capital Adequacy Ratio on Earnings Management

Based on the hypothesis-testing results, it can be concluded that the capital adequacy ratio has a negative effect on earnings management. This means that the higher a bank's capital adequacy ratio (CAR), the lower the likelihood of earnings management by that bank. These findings align with several previous studies (Bacho et al., 2019; Desta, 2017; Embuningtyas, 2018; Jasman et al., 2023; Kibtiah & Cusyana, 2020; Ndu, E. O., Udeh, A. C., & Nwosu, 2023). These results may be due to management lacking an incentive to engage in earnings management in the sample companies tested, as the capital adequacy ratio are statistically above the regulator's minimum threshold. These results, derived from a descriptive statistical analysis of the capital adequacy ratio variable, indicate a maximum of 283.88% and a minimum of 10.78%. Based on OJK Regulation Nomor 11/POJK.03/2016 regarding the minimum capital adequacy requirements for commercial banks, which was updated via OJK Regulation No. 27/POJK.03/2022, the minimum capital requirement is at least 8% of risk-weighted assets (RWA) for banks with a Risk Profile Rating of 1. From this provision, it can be seen that all CAR values of the tested sample are above the minimum requirement set by OJK.

The Effect of Derivative Instruments on Earnings Management

Based on the results of the hypothesis testing, it can be concluded that the derivative instruments (ID) variable does not have an effect on earnings management. This result is inconsistent with previous studies (Valdiansyah & Murwaningsari, 2022), which state that derivative instruments (ID) have a negative effect on earnings management. In the Indonesian context, the use of derivative instruments (ID) is more focused on managing financial risks, such as currency exchange rate and interest rate fluctuations, rather than on manipulating financial statements.

In the context of Agency Theory (Jensen, M. C., & Meckling, 1976), management (the agent) is granted authority by the owners (the principal) to manage the company's resources. Management's decisions regarding the use of derivative instruments (ID) should aim to minimize risk and increase the company's value in the owners' best interests. This study finds that derivative instruments (ID) do not affect earnings management, suggesting that earnings management uses derivatives for risk management rather than for earnings manipulation. This indicates that management behaves in accordance with the principal's interests by maintaining the integrity of financial statements.

Furthermore, in banking practice, the effective use of derivative instruments (ID) can enhance a bank's financial stability by reducing income volatility caused by market fluctuations. Thus, the appropriate use of derivatives can demonstrate sound risk management and financial transparency, thereby boosting shareholders' and other stakeholders' confidence in the bank's financial statements.

The Impact of Revenue Diversification on Earnings Management

Based on the results of the hypothesis testing, revenue diversification (DP) does not have a significant effect on earnings management, as indicated by a probability value of 0.7427 ($p > 0.05$). Therefore, H3 is rejected, and the empirical evidence does not support the hypothesis that revenue diversification increases earnings management in the sampled banks.

In the context of agency theory, revenue diversification may create more complex revenue sources and potentially increase information asymmetry. However, the insignificant result indicates that, during the 2022–2024 period, diversified non-interest income did not become a dominant channel for earnings management in Indonesian listed banks. This may occur because banking revenue diversification is subject to prudential regulation, internal control, external audit, and supervisory mechanisms that limit managerial discretion in using diversified income streams to manipulate reported earnings.

This finding differs from studies reporting a positive relationship between revenue diversification and earnings management (Amidu & Kuipo, 2015; Hsieh, M. F., Chen, P. F., Lee, C. C., & Yang, 2009), but it is consistent with the view that stronger monitoring and regulatory scrutiny can reduce managerial opportunities to manage earnings. In the Indonesian banking sector, income from fee-based services, investments, and other non-interest activities may function more as a source of revenue stability than as a mechanism for earnings manipulation.

Accordingly, this study contributes to the literature by showing that revenue diversification does not automatically increase earnings management. For regulators and shareholders, the finding implies that supervision should continue to focus not only on the level of diversification, but also on the quality of disclosure, risk management, and governance over non-interest income activities.

Pre-Managed Earnings moderate the effects of the Capital adequacy ratio (CAR), Derivative Instruments, and Revenue Diversification on Earnings Management.

The results of this study are consistent with previous research (Bacho et al., 2019; Curcio, D., & Hasan, 2015; Desta, 2017; Kanagaretnam, K., Lobo, G. J., & Mathieu, 2004; Valdiansyah & Murwaningsari, 2022). These results indicate that company management tends to engage in earnings management by increasing discretionary loan loss provisions when the company's current earnings are in good condition (good-poor). Conversely, managers will reduce discretionary loan loss provisions when the company's current earnings are in poor condition (good-poor). Management engages in earnings smoothing to meet market expectations by avoiding the reporting of earnings that are either too high or too low (Valdiansyah & Murwaningsari, 2022). According to (Jensen, M. C., & Meckling, 1976), management (the agent) is granted authority by the owners (the principal) to manage resources and make decisions. The influence of pre-managed earnings on corporate earnings management is predicted by agency theory because management has the authority or opportunity to engage in earnings management practices. Management possesses information regarding the company's resources and has specific interests, such as meeting targets set by the principal. In addition to agency theory, the findings of this study are also consistent with signaling theory. Information about a company's earnings serves as a signal to stakeholders, which can be either positive or negative. Earnings are a component used to assess and predict a company's current and future condition. Company management will report earnings in line with market expectations because earnings information influences stakeholders' decision-making.

(1) The hypothesis-testing results indicate that pre-managed earnings strengthens the effect of the capital adequacy ratio on earnings management. Thus, pre-managed earnings acts as a quasi-moderator because it moderates the relationship between the capital adequacy ratio and earnings management while simultaneously functioning as an independent variable. (2) The interaction between derivative instruments and pre-managed earnings is not significant; therefore, pre-managed earnings does not moderate the effect of derivative instruments on earnings management and functions as a predictor

variable rather than a moderator in this relationship. (3) Similarly, the interaction between revenue diversification and pre-managed earnings is not significant; therefore, pre-managed earnings does not strengthen the effect of revenue diversification on earnings management and functions as a predictor variable rather than a moderator in this relationship.

The control variables, firm size and firm age, show different results. Firm size does not have a significant effect on earnings management, indicating that the tendency to engage in earnings management is not determined solely by whether a bank is large or small. In contrast, firm age has a significant negative effect on earnings management. This implies that as banks become older, the level of earnings management tends to decrease, possibly because older banks have more established governance, reporting systems, and reputational incentives.

CONCLUSION

The test results indicate that the capital adequacy ratio has a negative and significant effect on earnings management, while derivative instruments and revenue diversification do not affect earnings management. Pre-managed earnings strengthens the effect of the capital adequacy ratio on earnings management, making pre-managed earnings a quasi-moderator. However, pre-managed earnings does not strengthen the effects of derivative instruments and revenue diversification on earnings management, so it functions as a predictor variable rather than a moderator in those relationships. This study has limitations because it uses only banking companies listed on the Indonesia Stock Exchange during the 2022–2024 period; therefore, the findings cannot yet be generalized to the entire banking industry or other industrial sectors.

The results of this study offer both theoretical and practical implications. Theoretically, the findings enrich the literature on determinants of earnings management in the banking sector, particularly the moderating role of pre-managed earnings. Practically, the findings provide targeted insights for investors, banks, and regulators. For investors, the results can be used as a reference for assessing financial reporting quality and investment risk. For banks, the findings provide a basis for evaluating financial management practices related to capital adequacy, derivative instruments, revenue diversification, and earnings management. For policymakers, especially OJK and central Bank Indonesia, the findings offer input for strengthening banking supervision and regulatory frameworks.

Recommendations for future research include, first, expanding the sample to include companies from various industrial sectors and extending the observation period to ensure that the research findings are more generalizable. Second, incorporating additional variables such as corporate governance, industry competition, pressure from institutional investors, and regulatory factors.

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