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# The Role of Agency Costs in Moderating the Effect of Capital Structure on Company Performance: A Study of Banks Listed on the Indonesia Stock Exchange 2014-2023

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## Abstract

Capital structure plays an important role in determining bank performance through funding policies chosen by management. However, agency conflicts, namely agency costs, can affect the strength of the relationship between capital structure and performance. Based on this, the purpose of this study is to examine the role of agency costs as a moderator of the influence of capital structure on bank performance. Capital structure is proxied by the Short Term Debt to Total Assets Ratio (STDTA) and Long Term Debt to Total Assets Ratio (LTDTA). Financial performance is measured using three indicators: Return on Assets (ROA), Tobin's Q, and Earnings Per Share (EPS). Agency costs are proxied by the operating expense ratio (OER). The population of this study consists of all banks listed on the Indonesia Stock Exchange during 2014-2023, totaling 443 banks/year. The number of observations was 200 banks selected purposively, then data correction was performed through outlier and data centering, resulting in 144 observations. The analytical tool in this study is panel data regression analysis. The results show that LTDTA and OER have a significant negative effect on ROA, and agency cost moderates the effect of STDTA and LTDTA on ROA. STDTA and OER also have a significant negative effect on TQ, but agency cost does not act as a moderator. In EPS, STDTA and OER have a significant effect, while agency cost only moderates the effect of LTDTA. These findings emphasize the importance of operational cost efficiency in increasing profitability and the need for proper capital structure management in maintaining market value and shareholder returns.

***Keywords:*** *Agency Costs, Capital Structure, Financial Performance.*

## INTRODUCTION

Banking plays a crucial role in the economy of a country, including Indonesia. Banks are responsible for managing public funds and channeling them in the form of credit and other investments. The performance of commercial banks not only affects financial stability but also overall economic growth.

Understanding the factors that influence the performance of commercial banks is very important, and one of the key factors that influences the performance of commercial banks is capital structure (Muhammed et al., 2024). Capital structure is the combination of equity and debt used by banks to fund their operations. The choice between financing through equity or debt can affect a bank's risk, flexibility, and profitability. Capital structure theories, such as the Trade-Off Theory and Pecking Order Theory, provide different perspectives on how an optimal capital structure can be achieved (Ahmed et al., 2023).

The concept of agency relationships highlights that managers (agents) and shareholders (principals) act in their own interests, which creates conflicts of interest and increases company costs, known as “agency costs” (Hoang et al., 2019). Companies need significant amounts of money to achieve economies of scale. Therefore, efficient managers are better suited to manage companies due to their technical skills, knowledge, and personal characteristics (Sdiq & Abdullah, 2022). However, for the benefit of large shareholders, agents are pressured by owners to eliminate diversification and achieve adequate performance levels (Thomsen & Pedersen, 2000). These elements cause agency problems between agents and principals. Agency costs are related to monitoring agents, supervising agents, and also trying to prevent their abuse (Abdullah & Tursoy, 2021; Hoang et al., 2019; Sdiq & Abdullah, 2022).

In addition, shareholders face agency conflicts because executive managers do not work effectively for them and usually receive excessive bonuses and lavish salaries (Abdullah and Tursoy, 2021; Kalash, 2019; Baykara and Baykara, 2021). Therefore, agency costs can increase when managers' interests differ from those of shareholders, and this can only be eliminated through effective planning (Sdiq & Abdullah, 2022). M. C. Jensen and Meckling (1976) also argue that agency problems can be reduced by utilizing debt financing because managers may be disciplined by

consistent debt repayment obligations. Debt also limits the agent's capacity to reduce value through lack of effort or excessive spending (Jensen, 1986). Therefore, a company's capital structure plays an important role in creating a balance between equity-related agency costs, debt, and other benefits of debt.

A company's capital structure can be seen through its financial position report (balance sheet), and is a mixture of debt (short-term and long-term) and owner's equity (preferred and common stock) (Ali & Ahmed, 2021; Ngatno et al., 2021; Sdiq & Abdullah, 2022). The balance sheet also includes total assets, which are acquired through equity or debt. When examining a company's capital structure, one important aspect to consider is the debt-to-equity ratio. This means that when decisions are made by managers regarding financial strategy, agency costs arise (Dawar, 2014). Findings from previous literature provide different arguments and suggest that more studies are still needed to explain the relationship between capital structure and company performance in developing countries (Amare, 2021a; Sdiq & Abdullah, 2022).

Additionally, one important financial metric for investors is financial leverage, which is derived from the amount of debt, as this can reveal the company's capital structure (Myers, 1977, 1984; Taswan, 2010; Bae, Kim and Oh, 2017; Tran Thi Phuong and Nguyen, 2019; Diantimala et al., 2021; Ngatno, Apriatni and Youlianto, 2021) argue that the capital structure projected as a combination of debt capital, preferred stock capital, and equity capital is used by companies as a long-term and short-term financing strategy. This means that debt and equity have been combined to represent the historical capital structure.

The first proposition in MM theory by Modigliani and Miller (1958) argues that capital structure does not affect company value. However, this theory is based on restrictive assumptions of a perfect capital market, which does not exist in reality (Le & Phan, 2017). If these assumptions prove to be false, the decision on the debt-to-equity ratio becomes important in determining value. For example, based on the assumption of no taxes, Modigliani & Miller (1963) argued that companies should use maximum debt in their capital structure because interest payments are tax-deductible. Therefore, company performance can be improved by using maximum debt, and shareholders have access to a larger amount of income. Findings from previous studies differ and are derived from testing both developed and developing countries. Ahmed Sheikh & Wang (2013); El-Sayed Ebaid (2009) found a negative relationship between capital structure and company performance, while Amare (2021); Duasa et al. (2014); Jouida (2018) showed that capital structure has a positive effect on financial performance.

Many studies have been conducted on the relationship between capital structure and bank performance, but studies examining the moderating role of agency costs in this relationship are still limited, especially in Indonesia. As of December 2023, there were 47 commercial banks listed on the Indonesia Stock Exchange (IDX). This study will analyze commercial banks listed on the Indonesia Stock Exchange (IDX) because these banks tend to have higher transparency and accountability in their financial reporting.

This research is an extension of the study by Ahmed et al. (2023), which found that capital structure has a significant effect on company performance, with agency costs as a moderating variable, in manufacturing companies in Iran. That study was limited to one sector and recommended further analysis in other industries with more diverse indicators.

To overcome these limitations, this study was conducted on the commercial banking sector in Indonesia, focusing on commercial banks listed on the Indonesia Stock Exchange during the period 2017-2023. This study uses the Short Term Debt to Total Asset (STDTA) and Long Term Debt to Total Asset (LTDTA) indicators for capital structure, as well as the operating expenses ratio for agency costs. Thus, this study is expected to contribute to the financial literature by providing a more comprehensive perspective on the role of agency costs in moderating the influence of capital structure on corporate financial performance.

Specifically, this study will examine how capital structure affects the performance of commercial banks in Indonesia, as well as how agency costs moderate this relationship. The results of this study are expected to contribute to academic literature and provide practical guidance for bank managers and policymakers in managing capital structure and minimizing agency costs to improve bank performance. The objectives of this study are to analyze:

1. The effect of the short-term debt to total assets ratio on return on assets in the banking industry in Indonesia.

2. The effect of the long-term debt to total assets ratio on return on assets in the banking industry in Indonesia.
3. The effect of the operating expense ratio on operating income on return on assets in the banking industry in Indonesia.
4. The effect of the operating expenses ratio on operating income moderates the effect of the short-term debt to total assets ratio on return on assets in the banking industry in Indonesia.
5. The effect of the operating expense ratio on operating income moderates the effect of the long-term debt to total assets ratio on return on assets in the banking industry in Indonesia.
6. The effect of the short-term debt to total assets ratio on Tobin's Q in the banking industry in Indonesia?
7. Does the influence of the short-term debt to total assets ratio on Tobin's Q exist in the banking industry in Indonesia?
8. Does the influence of the operating expense ratio on operating income/Operating Expenses Ratio affect Tobin's Q in the banking industry in Indonesia?
9. The effect of the operating expenses ratio on operating income on moderating the effect of the short-term debt to total assets ratio on Tobin's Q in the banking industry in Indonesia?
10. The effect of the operating expense ratio on operating income on moderating the effect of the long-term debt to total assets ratio on Tobin's Q in the Indonesian banking industry?
11. The effect of the long-term debt to total assets ratio on earnings per share in the banking industry in Indonesia?
12. Does the long-term debt to total assets ratio have a significant positive effect on earnings per share in the Indonesian banking industry?
13. The effect of the operating expense ratio on earnings per share in the banking industry in Indonesia?
14. Does the operating expense ratio have a moderating effect on the impact of the short-term debt to total assets ratio on earnings per share in the Indonesian banking industry?
15. The effect of the operating expenses ratio on operating income on moderating the effect of the short-term debt to total assets ratio on earnings per share in the banking industry in Indonesia?

## METHODS

The study adopts an explanatory research design to analyze causal relationships among variables. The purpose is to explain how capital structure influences financial performance and how agency costs moderate this relationship. The analysis is conducted using Moderated Regression Analysis (MRA) with panel data models, namely the Fixed Effect Model (FEM) and Random Effect Model (REM), depending on the results of the Chow, Hausman, and Lagrange Multiplier (LM) tests.

The population consists of all commercial banks listed on the Indonesia Stock Exchange (IDX) during the period 2014–2023, totaling 443 bank-year observations. The sampling technique used is purposive sampling, with criteria including: (1) Banks that published complete annual financial reports during the study period, (2) Banks that have data available for all variables used in the study, and (3) Banks that were consistently listed on the IDX during 2014–2023.

The variables in this study consist of capital structure, agency cost, and financial performance. Capital structure, as the independent variable, is measured using two ratios: Short-Term Debt to Total Assets (STDTA) and Long-Term Debt to Total Assets (LTDTA), which reflect the proportion of short-term and long-term financing in total assets. Agency cost, serving as the moderating variable, is proxied by the Operating Expense Ratio (OER), calculated as the ratio of total operating expenses to total operating income. A higher OER value indicates lower efficiency and higher agency costs. Financial performance, as the dependent variable, is represented by three indicators: Return on Assets (ROA), calculated as net income after tax divided by total assets; Tobin's Q (TQ), measured by dividing the sum of market value of equity and total liabilities by total assets; and Earnings Per Share (EPS), measured as net profit after tax divided by the number of outstanding shares.

The data analysis was conducted through several stages using EViews 13 software. The process began with descriptive statistical analysis to explain the characteristics and distribution of each variable. Next, classical assumption tests, including normality, multicollinearity, heteroscedasticity, and autocorrelation tests, were performed to ensure the validity and reliability of the regression model. Following this, model selection tests (Chow, Hausman, and Lagrange Multiplier tests) were applied to

determine the most appropriate estimation technique between the Fixed Effect Model (FEM) and Random Effect Model (REM).

After the best model was determined, panel data regression analysis was used to test the hypotheses regarding the effect of capital structure and agency cost on bank performance. Furthermore, Moderated Regression Analysis (MRA) was conducted by including interaction terms such as (STDTA × OER) and (LTDTA × OER) to examine the moderating role of agency cost. The results were interpreted based on the significance level of 5% ($\alpha$ = 0.05), where a p-value below 0.05 indicates a statistically significant relationship.

## RESULTS AND DISCUSSION

### Panel Data Regression Analysis

From the table **above**, it can be seen that the three regression models, namely ROA with the Random Effect Model, have a probability value above 0.05, so they are said to be normally distributed. Meanwhile, TQ with the Fixed Effect Model and EPS with the Random Effect Model have a probability value below 0.05. This indicates that the residuals of the two models are not statistically normally distributed.

However, in panel data analysis, violation of the normality assumption does not directly invalidate the validity of the estimation model, especially when the number of observations is large. This is in line with the opinion of Gujarati & Porter (2009:153), who state that the assumption of normality of residuals is more crucial in testing individual parameters (t-test) in small samples. While for panel data with large observations, the Ordinary Least Squares (OLS), Fixed Effect Model (FEM), and Random Effect Model (REM) estimators remain consistent and efficient even if the normality assumption is violated.

### Multicollinearity Test

Based on the correlation test results presented in the table above, all variable pairs have relatively low correlation values, and none exceed the threshold of 0.95. Thus, it can be concluded that there is no multicollinearity between the independent variables in this research model. This indicates that each independent variable in the model does not excessively influence the others linearly, so that the regression estimation results can be interpreted more reliably.

### Heteroscedasticity Test

From the table, it can be concluded that all variables in each model have a probability value > 0.05. This indicates that there is no heteroscedasticity problem in the regression model used in this study. Thus, the model can be said to satisfy the assumption of homoscedasticity, which means that the residual variance in each observation is constant.

### Autocorrelation Test

The autocorrelation test in this study uses the Durbin-Watson (DW) value. The decision is based on the lower limit (dl) and upper limit (du) of Durbin-Watson, with:

n = 200 (number of observations),

k = 5 (number of independent variables),

dl = 1.7176 and du = 1.8199 (Durbin-Watson critical limits).

### The Effect of STDTA on ROA

Based on the results of the hypothesis test, it was found that short-term debt to total assets (STDTA) has a negative and insignificant effect on Return on Assets (ROA). Short Term Debt to Total Assets (STDTA) is a ratio obtained by dividing total short-term debt (Short Term Debt/STD) by total assets (Total Assets/TA). The STD component in the banking context generally includes liabilities maturing within $\leq$ 1 year, such as current accounts, savings accounts, short-term deposits, short-term interbank loans, and other liabilities that are immediately payable. Meanwhile, the TA component includes all bank assets, including cash, placements with other banks, loans granted, securities, fixed assets, and other assets.

Return on Assets (ROA) is the ratio of net income after tax to total assets. The net income component reflects the bank's ability to generate profits after taking into account all costs and expenses. Meanwhile, the total assets component is the same as in STDTA, so that in the context of the STDTA-ROA relationship, there are overlapping variables in the denominator (total assets).

In theory, an increase in STDTA means that the portion of short-term financing to assets has increased. In banking, short-term third-party funds can be used for lending or short-term investments that have the potential to increase interest income. If these funds are used efficiently, net profit (the numerator component of ROA) will increase, causing ROA to rise. However, if these funds are not used optimally or interest costs are

too high, net profit will be depressed, causing ROA to fall.

Scientifically, this insignificance may be due to the low proportion of STDTA in the bank sample, where the average STDTA is only 0.0046 or 0.46% of total assets, so that the fluctuation is not large enough to affect net profit. In addition, the characteristics of banking funding in Indonesia, which is more dominant in long-term third-party funds or own capital, make short-term debt not a major source of financing. The high interest costs and liquidity risk of short-term debt can also neutralize the potential increase in interest income from the use of these funds. Furthermore, external factors such as minimum liquidity regulations, Bank Indonesia's interest rate policy, and macroeconomic conditions also limit banks' flexibility in utilizing short-term funds. Based on descriptive data, during the 2014–2023 period, STDTA experienced an average growth of 0.19, while ROA grew by an average of 0.15. Although both grew positively, the very small average value of STDTA indicates a limited contribution to ROA variation, which practically explains why the positive relationship found is not statistically significant.

This shows that the higher the STDTA, the higher the ROA. During the observation period, the average STDTA value for the 2014–2023 period was 0.0046 with an average growth of 0.19, while the average ROA was 0.0127 with a growth of 0.15. Although on average both variables show an upward trend, statistical tests did not find a significant direct relationship between an increase in the proportion of short-term debt and performance as proxied by ROA.

These results do not support the Trade-Off Theory, which states that the use of debt up to a certain level can improve company performance before the costs of bankruptcy exceed the benefits. In this context, the benefits of STDTA on ROA are not significant because the contribution of STDTA to the capital structure is relatively small. Similarly, Agency Theory, which states that debt can be a disciplinary tool for management, is not proven in the context of short-term bank debt in Indonesia. These results are in line with previous studies by Al-Taani (2013), Alexander (2016), and El-Sayed Ebaid (2009), which found that the STDTA capital structure has no effect on company performance.

**The Effect of LTDTA on ROA**

Based on the results of the hypothesis test, it was found that long-term debt to total assets (LTDTA) has a negative and significant effect on Return on Assets (ROA). Long Term Debt to Total Assets (LTDTA) is a ratio obtained by dividing total long-term debt (Long Term Debt/LTD) by total assets (Total Assets/TA). The LTD component in the banking context generally includes liabilities maturing in more than 1 year, such as subordinated loans, long-term debt securities, bonds, and long-term foreign loans. The TA component includes all bank assets financed by equity and liabilities, both short-term and long-term. Return on Assets (ROA), as explained earlier, is the ratio of net income to total assets.

In theory, an increase in LTDTA means that the portion of long-term funding in total assets has increased. Long-term debt usually has a fixed and stable interest rate, so in theory it can support productive long-term investments. If managed efficiently, these funds can increase interest or non-interest income, which ultimately increases net profit and ROA. However, if interest costs are too high or investments do not generate sufficient returns, net profit will decline, causing ROA to fall.

The regression results show a negative coefficient of -0.105 and is significant ($p = 0.002 < 0.05$), which means that every increase in LTDTA tends to be followed by a decrease in ROA, and this relationship is statistically significant. Scientifically, this negative relationship can be caused by high interest costs on long-term debt that suppress net profit, inefficient use of funds, such as financing less productive assets or investments with suboptimal returns, and long-term leverage risk that increases fixed costs, making net profit vulnerable to decline when bank income fluctuates. Additionally, the banking structure in Indonesia, which tends to rely on third-party funds (DPK) as the main source, makes the portion of long-term debt relatively more risky and expensive. Based on descriptive data, during the 2014-2023 period, the average LTDTA was recorded at 0.45 or 45% of total assets with an average growth of -0.004, while the average ROA was 0.0127 with a growth of 0.15. The relatively high proportion of LTDTA compared to STDTA indicates that long-term debt is a major burden that has the potential to suppress bank profitability.

This result is in line with the negative side of the Trade-Off Theory, where excessive use of debt,

especially long-term debt, increases bankruptcy costs and reduces financial performance. In addition, from the perspective of Agency Theory, an increase in long-term debt can increase the risk of conflict between managers and creditors, especially if the funds are used for high-risk projects that are not profitable for creditors. This study is in line with previous studies, namely Abor (2007); Ahmed Sheikh & Wang (2013); Dawar (2014); Sadeghian et al. (2012); Tretiakova et al. (2021), which found that the STDTA capital structure does not significantly affect company performance as proxied by ROA.

**The Effect of OER on ROA**

Based on the results of the hypothesis testing, it was found that the Operating Expenses Ratio (OER) has a negative and significant effect on Return on Assets (ROA). The Operating Expenses Ratio (OER) is the ratio of total operating expenses to total operating income. Operating expenses in banking include labor costs, administrative expenses, depreciation expenses, marketing expenses, and other expenses directly related to bank operations. Operating income components include interest income, commission-based income, and other non-interest income, which are the main sources of bank revenue. ROA, as explained earlier, is net income divided by total assets, which reflects management's efficiency in managing all assets to generate profits.

Conceptually, the lower the OER, the more efficient the bank is in managing operating costs compared to the income generated. This efficiency is expected to have a positive impact on net profit and increase ROA. Conversely, if the OER is high, it means that the portion of operating costs is too large compared to income, thereby reducing net profit and decreasing ROA.

These results indicate that the higher the agency cost (OER), the lower the Return on Assets (ROA). Descriptively, the average OER value during the 2014–2023 period was 0.389 with an average growth of 0.02, while the average ROA was 0.0127 with a growth of 0.15. Logically, this occurs because an increase in unproductive operating costs will reduce the net profit generated from the assets used, thereby reducing the efficiency of the company's asset management.

These results are in line with Agency Theory, where high operational costs reflect high agency costs that reduce shareholder profits. This finding also supports the efficiency hypothesis, which states that banks with low operational efficiency will have poorer financial performance. These results are also in line with previous studies, such as Wycliffe (2020), which found that agency costs have a significant negative effect on company profitability. Therefore, the efficiency of operational cost management is a key factor in maintaining or increasing company profitability, especially in the financial sector, such as banking.

**The Role of OER in Moderating the Effect of STDTA on ROA**

Based on the hypothesis testing results, it was found that agency costs moderate the influence of Short Term Debt to Total Assets (STDTA) on Return on Assets (ROA) negatively and significantly. STDTA (Short Term Debt to Total Assets) is the ratio of short-term debt to total assets. The short-term debt (STD) component in banking generally consists of liabilities maturing in less than one year, such as current accounts, savings, short-term deposits, and short-term interbank loans. The total assets (TA) component includes all productive and non-productive assets of the bank, including cash, placements with other banks, loans granted, securities, and fixed assets.

ROA (Return on Assets) is net profit divided by total assets, which shows the bank's ability to utilize assets to generate profits. Meanwhile, OER (Operating Expense Ratio) is the ratio of operating expenses to operating income, which reflects the level of efficiency of the bank's operating costs.

In theory, an increase in STDTA can affect ROA through two mechanisms. First, a positive impact can occur if short-term funds are used productively for high-margin lending. Second, a negative impact arises when dependence on short-term funds leads to high funding costs or increases liquidity risk. In this context, OER as a moderating variable plays a role in strengthening or weakening the influence of STDTA on ROA. Operational cost efficiency as reflected in a low OER, will make additional short-term funding more effective in increasing ROA, while a high OER will erode the profits obtained from the use of short-term debt.

The regression results show a moderation coefficient of STDTA_OER of -3.962, which is significant ($p = 0.031 < 0.05$) with a negative direction, which means that under high operating costs, the positive effect of STDTA on ROA actually decreases significantly. Scientifically, this can be explained by

high operational costs that reduce the benefits of short-term financing on profitability. High overhead costs also make income from STD-based fund distribution insufficient to drive ROA growth. Based on descriptive data, the average STDTA during 2014–2023 was recorded at 0.0046 with a growth of 0.19, while the average OER reached 0.389. This relatively high OER value indicates that additional short-term funding is difficult to contribute optimally to increasing bank profitability.

These results are in line with Agency Theory, which states that agency costs (including operational inefficiencies) can reduce the benefits of funding policies. These findings are also consistent with Trade-Off Theory, where the benefits of using short-term debt can be lost if the associated costs are greater than the profits obtained. These results support the research of Jensen & Meckling (1976) that the effect of capital structure on profitability depends on the level of agency conflict within the company, as well as other previous studies, namely Ahmed et al. (2023); Sdiq & Abdullah (2022); Tretiakova et al. (2021).

**The Role of OER in Moderating the Influence of LTDTA on ROA**

Based on the hypothesis testing results, it was found that agency costs moderate the influence of Long Term Debt to Total Assets (LTDTA) on Return on Assets (ROA) positively and significantly. LTDTA (Long Term Debt to Total Assets) is the ratio of long-term debt to total assets. In the banking context, the long-term debt (LTD) component includes liabilities with maturities of more than one year, such as bonds, long-term loans from other financial institutions, or subordinated debt instruments. Meanwhile, the total assets (TA) component is the same as in the STDTA calculation, covering all productive and non-productive assets owned by the bank. ROA (Return on Assets) is used to measure a bank's ability to generate net income from all of its assets, while OER (Operating Expense Ratio) is an indicator of operational cost efficiency calculated from the ratio of operating expenses to operating income.

Theoretically, LTDTA can affect ROA in two ways. A positive effect can occur if long-term debt provides a stable source of funding for business expansion, long-term investment, and productive lending. Conversely, a negative effect can occur if long-term interest expenses weigh on profits, especially when funding costs exceed the returns generated. In this relationship, OER acts as a moderating variable that can strengthen or weaken the effect of LTDTA on ROA. Operational efficiency (low OER) allows long-term funds to be used productively, while high OER has the potential to erode the benefits obtained.

The regression results show an LTDTA_OER coefficient of 2.232 with a significance level of $p = 0.000$ ($< 0.05$) and a positive direction. This finding indicates that at a better level of operational efficiency, the effect of LTDTA on ROA increases significantly. Scientifically, this indicates that long-term debt can provide stable capital that allows banks to extend credit or make investments with high rates of return, while operational cost efficiency ensures that these returns are not eroded by overhead costs.

Based on descriptive data, the average LTDTA during the study period was 0.45 with a growth rate of -0.004, while the average OER was 0.389. Although the proportion of long-term debt was relatively high, the company maintained operational efficiency ensured that its contribution to ROA remained positive. Theoretically, these results are in line with Trade-Off Theory, which states that the use of debt up to an optimal level can improve company performance if the tax and leverage benefits exceed the costs incurred. In addition, these findings are consistent with Agency Theory, in which cost efficiency (low OER) can reduce potential agency conflicts, so that long-term funds can be used more effectively to increase profitability.

**The Effect of STDTA on TQ**

Based on the results of the hypothesis test, it was found that short-term debt to total assets (STDTA) has a negative and significant effect on Tobin's Q (TQ). STDTA (Short Term Debt to Total Assets) is the ratio of short-term debt to total assets. In banking, short-term debt (STD) generally includes customer deposits with maturities of less than one year, such as short-term deposits, current accounts, savings, short-term interbank loans, and other liabilities that are due immediately. Meanwhile, total assets (TA) include all productive and non-productive assets, including cash, loans, securities, and fixed assets. Tobin's Q (TQ) is used to measure a company's market value compared to the book value of its assets. In the banking context, market value is calculated from market capitalization added to the value of debt, then divided by total assets.

Conceptually, STDTA can affect TQ through several mechanisms. A positive effect can arise if short-term debt is used effectively because it is more

flexible and has lower costs than long-term debt, thereby supporting rapid financing for profitable opportunities. However, a negative effect may occur if dependence on short-term financing increases liquidity risk and refinancing risk, which in turn lowers investors' perception of the company's market value.

The test results show an STDTA coefficient of -7.757 with a significance level of p = 0.029 (< 0.05) and a negative direction. These findings indicate that an increase in the proportion of short-term debt to total assets tends to significantly reduce Tobin's Q. Scientifically, this can be explained by the market view that a capital structure dominated by short-term debt signals high liquidity risk, thereby reducing the valuation of the company.

Based on descriptive data, the average STDTA during the study period was only 0.0046 with a growth of 0.19, while the average Tobin's Q reached 1.10, indicating a higher market value than book value. Although the proportion of STDTA value is relatively small, its increase still has a negative impact on market perception. Theoretically, these results are in line with the Trade-Off Theory, which states that excessive use of debt—especially short-term debt—can increase the risk of bankruptcy and reduce company value. In addition, these findings are consistent with Agency Theory, in which liquidity pressure from short-term debt can encourage management to make short-term decisions that are detrimental to the company's long-term value.

This study is also in line with previous studies, such as those cited by Ahmed et al. (2023); Al-Taani (2013); Sadeghian et al. (2012); Tretiakova et al. (2021), which state that a high proportion of short-term debt can exert negative pressure on a company's market value.

**The Effect of LTDTA on TQ**

Based on the results of the hypothesis test, it was found that long-term debt to total assets (LTDTA) has a positive and insignificant effect on Tobin's Q. LTDTA (Long Term Debt to Total Assets) is the ratio of long-term debt to total assets. In the banking sector, long-term debt (LTD) components include subordinated loans, bonds, or long-term debt securities, and other liabilities with maturities of more than one year. Total assets (TA) include all productive and non-productive assets, such as cash, placements with other banks, loans, securities, and fixed assets. Tobin's Q (TQ) reflects the market's assessment of a company's value compared to its book value, which is measured by comparing market capitalization plus debt value to total assets.

Theoretically, LTDTA can affect TQ in two ways. A positive effect can arise if long-term debt is used to finance strategic projects that can increase earning capacity and create long-term value, which is viewed positively by the market. Conversely, a negative effect can arise if high interest expenses from long-term debt suppress profitability and reduce investor interest, which ultimately affects market valuation.

The test results show an LTDTA coefficient of 1.001 with a p-value of 0.260 (> 0.05), which means that the effect is positive but not significant on Tobin's Q. Scientifically, this indicates that although on average an increase in LTDTA is followed by an increase in TQ, the statistical evidence is not strong enough to conclude that there is a consistent relationship. External factors such as capital market conditions, banking regulations, and interest rates likely play a more dominant role in influencing market perceptions than the proportion of long-term debt itself.

Based on descriptive data, the average LTDTA during the research period was recorded at 0.45 with a growth of -0.004, while the average Tobin's Q was at 1.10 with a growth of 0.022. Although the proportion of LTDTA is relatively large, the downward trend is not necessarily followed by a decline in the market value of banks. Theoretically, these findings do not fully support the Trade-Off Theory or Agency Theory. The Trade-Off Theory assumes that there is an optimal point of debt usage to maximize company value, but in this context, the market does not seem to respond significantly to changes in LTDTA. This study is similar to the results found by Jouida (2018) and Tretiakova et al. (2021).

**The Effect of OER on TQ**

Based on the results of the hypothesis testing, it was found that the Operating Expense Ratio (OER) has a negative and significant effect on Tobin's Q (TQ). The Operating Expense Ratio (OER) in banking is the ratio between operating expenses and operating income. Operating expenses include labor, maintenance, marketing, depreciation, and administrative costs, while operating income includes interest income, provisions, services, and other income from core banking activities. A high OER indicates low operational efficiency.

Tobin's Q (TQ) measures the market's assessment of a company's value compared to its book value, reflecting future prospects and investor confidence levels. Conceptually, the higher the OER, the lower the bank's efficiency, which can reduce investor confidence and suppress TQ because high costs have the potential to erode profitability and limit room for expansion. Conversely, a low OER indicates high efficiency, which tends to be appreciated by the market with better valuations.

The test results show an OER coefficient of -0.436 with a p-value of 0.039 (< 0.05), indicating a significant negative effect on TQ. Scientifically, this reinforces the view that high operating costs will suppress market perceptions of company value, particularly in the banking sector, which is highly sensitive to efficiency. Investors tend to lower valuations for banks with high OER because they are considered less optimal in converting assets into income.

Based on descriptive data, the average OER during the research period was 0.389 with a growth of 0.03, while the average TQ was 1.10 with a growth of 0.00. The stability of TQ despite the increase in OER indicates that other factors, such as net profit performance, asset quality, and industry prospects, also influence market valuation.

Theoretically, these results are in line with Agency Theory, which states that operational inefficiency reflects high agency costs, which ultimately reduce the value of the company in the eyes of investors. The results of this study are also similar to the findings in studies by Annisa et al. (2025) and Wycliffe (2020).

**The Role of OER in Moderating the Influence of STDTA on TQ**

Based on the hypothesis testing results, it was found that agency costs, proxied by the Operating Expenses Ratio (OER), moderate the influence of Short Term Debt to Total Assets (STDTA) on Tobin's Q negatively and insignificantly. Short-term Debt to Total Assets (STDTA) is obtained from the ratio of short-term debt to total assets. In the banking context, short-term debt mainly includes third-party funds (DPK) such as current accounts, savings, and time deposits with maturities of less than one year. Total assets include all of the bank's resources, including loans, cash, placements with other banks, and securities.

Tobin's Q (TQ) measures the market value of a bank compared to its book value, which is calculated from (market value of equity + book value of debt) divided by the book value of assets. In the banking sector, this approach often uses total assets as the divisor because debt is dominated by third-party funds. Agency cost, proxied by the Operating Expense Ratio (OER), describes the level of operational efficiency, where a high value indicates greater operational costs relative to total assets.

Based on the hypothesis test results, it was found that OER moderates the effect of STDTA on TQ positively but not significantly. Descriptively, the average. STDTA during the 2014–2023 period is 0.0046 with an average growth of 0.19, while OER has an average of 0.389 and TQ of 1.10.

This insignificance can be explained scientifically by several factors. First, although STDTA represents short-term debt, DPK in banking is relatively stable and is rarely considered by the market as high risk. Second, operational efficiency (OER) is not the main indicator used by investors to assess the effect of STDTA on bank market value; they tend to focus more on profitability, asset quality, and credit growth. Third, bank market valuation is more influenced by external factors such as interest rates, regulations, and public confidence than by the combination of STDTA and OER. Fourth, the stability of TQ values in the banking sector means that the variation in STDTA and OER is not large enough to produce a statistically significant relationship.

These results indicate that in the banking context, the interaction between the proportion of short-term debt and operational cost efficiency has not been proven to play an important role in influencing a company's market value. These results are also similar to the findings of research by Nidumolu & Deshpande (2018).

**The Role of OER in Moderating the Influence of LTDTA on Tobin's Q**

Based on the hypothesis testing results, it was found that the Operating Expenses Ratio (OER) moderates the influence of Long Term Debt to Total Assets (LTDTA) on Tobin's Q negatively and insignificantly. Long-Term Debt to Total Assets (LTDTA) is obtained from the ratio of long-term debt to total assets. In banking, long-term debt usually includes interbank loans with tenors of more than one year, foreign loans, or bond issuances, although their

share is relatively small compared to DPK. Total assets include all productive and non-productive assets of banks, such as credit, cash, securities, and fixed assets.

Tobin's Q (TQ) is used to measure a bank's market performance by comparing the company's market value to its book value. In the banking context, this measurement method generally uses total assets as the divisor because the financing structure of banks differs from that of non-financial companies.

Agency cost, proxied by the Operating Expense Ratio (OER), represents the level of operational cost efficiency. A high OER value indicates high operational costs relative to assets, which can reduce investor confidence if not offset by good income performance. The test results show that agency costs moderate the effect of LTDTA on TQ negatively and insignificantly. The average LTDTA for the 2014–2023 period is 0.45 with a growth rate of -0.004, while the average OER is 0.389 and TQ is 1.10.

The negative direction of the relationship indicates that when long-term debt increases under high operating cost conditions, the market tends to respond with a decline in Tobin's Q value. This may occur because investors view the combination of high long-term leverage and operational inefficiency as a signal of higher risk to the bank's long-term profitability. These risks include ongoing interest expenses, cost structure rigidity, and potential reductions in funding flexibility.

However, this relationship is not statistically significant due to several factors. First, the portion of long-term debt in the bank's funding structure is relatively small compared to the main sources, such as DPK, so that LTDTA variability is low and has less influence on market perception. Second, operational cost efficiency (OER) tends to have a direct influence on profitability (e.g., ROA) compared to market value, so that weakening its moderating effect on LTDTA–TQ. Third, bank market valuation is heavily influenced by external factors such as banking regulations, macroeconomic conditions, bank reputation, and public trust, which can mask the impact of the combination of LTDTA and OER.

Thus, these results indicate that although in theory an increase in long-term debt under conditions of low efficiency can reduce market value, in the context of Indonesian banking in the 2014–2023 period, this relationship is not strong enough to be statistically proven. These findings are in line with the results of research by Nidumolu & Deshpande (2018).

**The Effect of STDTA on EPS**

Based on the hypothesis testing results, it was found that short-term debt to total assets (STDTA) has a positive but insignificant effect on Earnings Per Share (EPS). Long Term Debt to Total Assets (LTDTA) is obtained from the ratio of long-term debt to total assets. In banking, long-term debt usually includes interbank loans with tenors of more than one year, foreign loans, or bond issuances, although their share is relatively small compared to DPK. Total assets include all productive and non-productive assets of banks, such as loans, cash, securities, and fixed assets.

Tobin's Q (TQ) is used to measure a bank's market performance by comparing the company's market value to its book value. In the banking context, this measurement method generally uses total assets as the divisor because the financing structure of banks differs from that of non-financial companies. Agency cost, proxied by the Operating Expense Ratio (OER), represents the level of operational cost efficiency. A high OER value indicates high operational costs relative to assets, which can reduce investor confidence if not offset by good income performance.

The test results show that agency costs moderate the effect of LTDTA on TQ negatively but not significantly. Descriptively, the average LTDTA for the 2014–2023 period is 0.45 with a growth rate of -0.004, while the average OER is 0.389 and TQ is 1.10.

This insignificance can be explained by the fact that long-term debt in banking is relatively small in proportion, so that its variation does not sufficiently affect market perception, especially when compared to other factors such as DPK stability, capital, and credit quality. In addition, operational efficiency (OER) tends to affect direct profitability (such as ROA) rather than market value, so its moderating effect on the LTDTA–TQ relationship is not strong enough. Bank market valuation is also influenced by external factors such as OJK regulations, macroeconomic conditions, and public confidence, which can mask the moderating effect of OER. Thus, these results indicate that the interaction between long-term debt and operational cost efficiency has not been a significant factor in determining bank market value during the study period.

**The Effect of LTDTA on EPS**

Based on the hypothesis test results, it was found that Long Term Debt to Total Assets (LTDTA) has a

negative and insignificant effect on Earnings Per Share (EPS).

Long-term Debt to Total Assets (LTDTA) is the ratio of long-term debt to total assets. In banking, long-term debt can include bonds, subordinated loans, long-term interbank loans, or other debt instruments with a maturity of more than one year. Total assets include all productive and non-productive assets such as cash, credit, securities, fixed assets, and other assets. Earnings Per Share (EPS) reflects the net profit allocated to each outstanding share. EPS is greatly influenced by interest expenses from debt, the effectiveness of productive asset distribution, and operational cost efficiency. The test results show that LTDTA has a negative and insignificant effect on EPS. During the observation period, the average LTDTA was 0.45 with a growth of -0.004, while the average EPS was 169.50 with a growth of 0.21.

This negative relationship indicates that an increase in the proportion of long-term debt tends to be followed by a decline in EPS. Scientifically, this can be explained because long-term debt usually has higher interest costs than short-term debt, so that large interest expenses reduce the net profit available to shareholders. In addition, returns from assets financed by long-term debt may not be realized immediately in the short term (e.g., project financing or long-term investments), so they do not immediately increase EPS.

The insignificance of this relationship may occur because most banks in Indonesia tend to rely more on short-term funding from DPK, which is cheaper. The relatively small portion of long-term debt in the funding structure makes its impact on EPS statistically insignificant. External factors such as interest rate fluctuations and banking regulations can also obscure the direct effect of LTDTA on EPS. In the context of trade-off theory, although debt can provide tax benefits (tax shield), the high interest burden of long-term debt can reduce these benefits and even suppress earnings per share if not managed optimally.

**The Effect of OER on EPS**

Based on the results of the hypothesis test, it was found that the Operating Expenses Ratio (OER) has a negative and significant effect on Earnings Per Share (EPS). The Operating Expenses Ratio (OER) is the ratio of operating expenses to operating income. In banking, operating expenses include employee salaries and benefits, administrative costs, marketing costs, depreciation of fixed assets, and other operating expenses. Operating income includes interest income, provision income, fee-based income, and other operating income.

Earnings Per Share (EPS) indicates the net profit allocated per share. EPS is directly influenced by operational efficiency: the higher the operating expenses, the smaller the net profit available to be distributed to shareholders. The test results show that OER has a negative and significant effect on EPS. During the observation period, the average OER was 0.389 with a growth of 0.03, while the average EPS was 169.50 with a growth of 0.21.

The direction of this negative relationship can be explained scientifically because an increase in operating costs that is not offset by an increase in revenue will reduce the net profit margin. In the banking industry, these costs can come from opening new branches, increasing employee salaries, large marketing costs, or technology investments that have not had a direct impact on revenue.

This relationship is significant because the variation in OER in the research sample is quite large and consistently affects net profit per share. Banks with low OER are consistently able to generate higher EPS, while banks with high OER tend to have low EPS. The consistency of this pattern makes the statistically detected relationship significant at a 95% confidence level.

From an agency theory perspective, high OER may indicate inefficient use of company resources by management, thereby suppressing profits that should be enjoyed by shareholders. Operational cost efficiency is key to increasing EPS and maintaining investor confidence. In addition, these results also support previous empirical findings showing that high agency costs are negatively correlated with financial performance indicators (Annisa et al., 2025).

**The Role of OER in Moderating the Effect of STDTA on EPS**

Based on the hypothesis test results, it was found that agency costs moderate the influence of Short Term Debt to Total Assets (STDTA) on Earnings Per Share (EPS) negatively and insignificantly. Short-term Debt to Total Assets (STDTA) is the ratio of short-term debt to total assets. Short-term debt in banking includes liabilities that mature in less than one year, such as short-term deposits, savings, current accounts, and short-term interbank loans. Total assets include all resources owned by the bank, including cash,

placements with other banks, loans granted, securities, and fixed assets.

Earnings Per Share (EPS) is the net profit allocated to each outstanding share. EPS is influenced by how assets are managed and how liabilities, including short-term debt, are financed and utilized to generate profits. Agency cost, measured by the Operating Expenses Ratio (OER), reflects the efficiency of the bank's operational management. This ratio shows how much operational costs are incurred to generate operating income. The test results show that agency cost moderates the effect of STDTA on EPS negatively and insignificantly. The average STDTA during the research period was 0.0046 with a growth of 0.19, while the average OER and EPS were 0.389 and 169.50, respectively, with growth of 0.03 and 0.21.

The negative direction of the relationship indicates that when OER increases (efficiency decreases), the positive effect of short-term debt utilization on EPS tends to weaken, or even become a burden that reduces earnings per share. Scientifically, this can occur because high operating costs absorb the profits generated from short-term leverage, thereby reducing its impact on EPS.

This relationship is not statistically significant because the variation in the data is not consistent enough to show a strong moderation pattern. In practice, not all banks with high OER experience a significant decline in the effect of STDTA on EPS, possibly due to differences in cost management strategies, funding structure, and revenue diversification between banks.

From an agency theory perspective, these results indicate that high agency costs do not necessarily always inhibit the effect of short-term leverage on earnings per share, as external factors such as macroeconomic conditions, banking regulations, and financial product innovation can also play a major role. The results of this study are also in line with the findings of Nidumolu & Deshpande (2018).

**The Role of OER in Moderating the Effect of LTDTA on EPS**

Based on the results of the hypothesis testing, it was found that agency costs, proxied by the Operating Expenses Ratio (OER), moderate the effect of Long Term Debt to Total Assets (LTDTA) on Earnings Per Share (EPS) in a positive and significant manner.

Long-term Debt to Total Assets (LTDTA) is the ratio of long-term debt to total assets. In the banking context, long-term debt can include loans from other financial institutions, bonds, or other funding instruments that have a maturity of more than one year. Total assets include all of the bank's assets, including loans, securities, liquid assets, and fixed assets. Earnings Per Share (EPS) measures the net profit available for each outstanding share, making it highly sensitive to changes in income, interest expenses, and operating expenses that are influenced by the bank's funding structure.

Agency cost, proxied by the Operating Expenses Ratio (OER), reflects the level of efficiency in the bank's operational management. The higher the OER, the greater the portion of operating income absorbed by costs, and vice versa. The test results show that agency cost moderates the effect of LTDTA on EPS positively and significantly. The average LTDTA during the research period was 0.45 with a growth of -0.004, while the average OER and EPS were 0.389 and 169.50, respectively, with growth of 0.02 and 0.21, respectively.

The positive direction of the relationship indicates that when OER increases, the effect of LTDTA on EPS also increases. Scientifically, this can be explained by the fact that even though operating costs increase, the use of long-term debt allows banks to have better funding stability to finance productive assets that generate income, thereby ultimately increasing earnings per share. In this case, the positive effect of long-term debt is greater than the negative impact of high operating costs.

The statistically significant results show the consistency of this relationship pattern across the sample. From a trade-off theory perspective, this is in line with the view that well-managed long-term debt can provide benefits in the form of tax shields and maintain liquidity, thereby supporting higher profits for shareholders, even in conditions of increased operating costs. These findings are also similar to the results of studies conducted by Ahmed et al. (2023) and Sdiq & Abdullah (2022).

## CONCLUSION

1. STDTA does not have a significant effect on ROA, even though the coefficient is positive. This indicates that an increase in short-term debt tends to be followed by an increase in asset profitability, but the effect is not statistically significant. One reason for this is the characteristic of short-term

debt in banking, which mostly comes from third-party funds (DPK) such as savings and time deposits, which have relatively low interest costs. However, if the increase in DPK is not balanced with effective credit distribution and good risk management, the impact on ROA becomes weak and insignificant.

2. LTDTA has a significant negative effect on ROA. This means that the higher the proportion of long-term debt, the lower the asset profitability. Conceptually, long-term debt in banking is usually used to finance large projects or long-term funding, which takes a long time to generate income. In addition, high interest expenses and economic uncertainty risks can put pressure on profit margins, thereby reducing ROA.
3. OER has a significant negative effect on ROA, which means that the higher the operating costs, the lower the bank's profitability. This is in line with the theory of operational efficiency, where increases in administrative costs, salaries, and other non-interest expenses will reduce pre-tax profits. Banks with less efficient cost management tend to have lower profit margins, resulting in a decline in ROA.
4. Agency costs significantly moderate the negative effect of STDTA on ROA. This means that when operating costs are high, the positive potential of using short-term debt on profitability is reduced. High agency costs may indicate operational inefficiencies in banks, such as unproductive expenditures or suboptimal resource allocation, thereby minimizing the benefits of short-term financing.
5. Agency costs moderate the effect of LTDTA on ROA in a positively significant manner. This means that under conditions of high operating costs, the use of long-term debt can actually help increase asset profitability. This may occur because long-term funds can be used for strategic investments or financing projects with greater returns, which in turn can cover high operating costs. In other words, long-term debt can be a stable source of funding to support asset efficiency amid high agency costs.
6. STDTA has a significant negative effect on Tobin's Q. This indicates that the higher the proportion of short-term debt to total assets, the lower the market value of the bank compared to its book value. In theory, investors view an increase in short-term funding as a liquidity risk because banks must immediately fulfill these obligations in the near future. High dependence on short-term debt can trigger market concerns about a bank's ability to manage short-term liabilities, thereby depressing market valuation.
7. LTDTA does not have a significant effect on TQ even though the direction of the relationship is positive. This indicates that the addition of long-term debt does not sufficiently influence market perceptions of bank value. One possible reason for this is that the market has taken into account the use of long-term debt as part of a normal funding strategy, so it does not provide a strong new signal. In addition, the weak positive effect could also be due to the fact that the results of long-term investments take a long time to materialize, so that their impact on market value is not immediately apparent.
8. OER has a significant negative effect on TQ. The higher the operating costs, the lower the market value of the bank. Investors tend to assess operational efficiency as one of the key indicators of a bank's health. If operating costs are high, net income may be depressed, thereby worsening market perceptions of long-term performance. This is in line with the view that operational inefficiencies can reduce a bank's competitiveness and growth prospects.
9. Agency costs do not moderate the effect of STDTA on TQ, even though the direction of the relationship is negative. This means that high operating costs neither strengthen nor weaken the relationship between short-term debt and market value. This may be due to the fact that investors focus more on the funding structure itself rather than on the level of operational efficiency when assessing the liquidity risk of short-term funding. In other words, the effect of STDTA on TQ is relatively independent of the magnitude of agency costs.
10. Agency costs do not moderate the effect of LTDTA on TQ, with a negative relationship. This means that high operational costs do not have an additional impact on the relationship between long-term debt and bank market value. One reason for this is that the market may view long-term debt as relatively stable financing, so it is not greatly

affected by fluctuations in operational efficiency. Thus, the moderating variable of agency costs does not strengthen or weaken the effect of LTDTA on TQ in the banking context.

11. STDTA has a significant positive effect on EPS. This indicates that an increase in the proportion of short-term debt is followed by an increase in earnings per share. In the banking context, short-term debt dominated by Third Party Funds (TPF), such as savings and deposits, is a source of cheap funds that can be immediately channeled as credit. If the distribution of credit effectively generates net interest income, then net profit increases and is reflected in an increase in EPS.
12. LTDTA does not have a significant effect on EPS, even though the direction of the relationship is negative. This indicates that the use of long-term debt has not been proven to significantly suppress or increase earnings per share. The possible cause is the high interest burden on long-term debt and the long repayment period, so that the benefits of this financing have not been optimally reflected in EPS during the research period.
13. OER has a significant negative effect on EPS. The higher the operating costs, the lower the bank's earnings per share. This is because high operating costs directly reduce net profit, thereby decreasing the income that can be distributed to shareholders. Low operational efficiency indicates potential waste of resources and weaknesses in cost control, which ultimately suppress EPS.
14. Agency cost does not moderate the effect of STDTA on EPS, even though the direction of the relationship is negative. This means that the level of operational efficiency does not affect the strength of the relationship between short-term financing and earnings per share. This is likely because the effect of STDTA on EPS is more dominantly influenced by the effectiveness of credit distribution and net interest margin than by the level of operating costs.
15. Agency costs significantly moderate the positive effect of LTDTA on EPS. This shows that when operational cost efficiency increases (low agency costs), the positive effect of long-term debt on earnings per share becomes stronger. Operational efficiency can help maximize the benefits of long-term financing, for example, by channeling funds to projects or investments that provide stable returns, thereby significantly increasing earnings per share.

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