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# The Effect of Interest Rate Risk on Financial Performance with the Mediating Variable of Banking Security Level (Study on Commercial Banks that Go Public in BEI)

**Retno Belinda[1], Zulfa Irawati[1]**

[1]*Faculty of Economics and Business, Muhammadiyah University of Surakarta*

**Corresponding Author: Retno Belinda*
*E-mail: b100200434@student.ums.ac.id*

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**Abstract**

*Rapid internal and external development has been witnessed by the banking industry, particularly at the domestic level, where the usage of innovative financial instruments has grown dramatically. Banks mediate transactions between different economic activity, receive deposits, create money, and offer thorough banking services to individuals, organizations, and other banks. They also provide credit facilities. As a measure of a nation's spending and investing habits, the interest rate plays a significant role in conserving money and choosing how to spend it. Banking institutions are beginning to understand the significance of risk management in preparing for potential threats to their businesses. Banking executives in Indonesia must mitigate these risks by enhancing their institutions' bottom lines. The purpose of this research was to examine the relationship between interest rate risk and financial performance in Indonesian banking organizations, with the level of banking security serving as a moderation variable. This quantitative analysis employs a sample of 24 commercial banks that have listed on the IDX between 2019 and 2022 as its research population. The findings shown that Interest Rate Risk significantly impacts Banking Security Level, Financial Performance, and Financial Performance via Interest Rate Risk via Banking Security Level.*

## Introduction

Besides offering credit facilities, banks also engage in accepting deposits and creating money, facilitating transactions between different economic activities, and providing extensive banking services to people, institutions, and other banks (Mehdiabadi et al., 2020). The primary goal is to gather different types of deposits, manage and utilize them as credit, and generate predetermined interest by capitalizing on the disparity between interest payments on deposits and interest earnings on loans, as elucidated in prior studies (Ogundipe et al., 2020; Puspitasari et al., 2021). Hence, the interest rate plays a crucial role in the accumulation of savings and allocation of funds, serving as a predictor of a nation's consumption and investment levels. Furthermore, it has an impact on the magnitude of economic expansion. Interest rate fluctuations are correlated with the robust and favorable performance of the banking industry due to the strong connection between risks and the assets and liabilities of banks (Kolapo & Fapetu, 2015).

The banking sector has seen substantial advancements both within and internationally, particularly at the national level, where there has been a major increase in the use of novel financial instruments. Likewise, on the outside, globalization and competition play a significant role in the banking industry. The Covid-19 epidemic has significantly affected the operating environment of the banking business in Indonesia, particularly its financial performance. The banking sector has become more cognizant of the significance of risk management in predicting



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potential business threats. Banks possess distinctive attributes due to the potential for banking issues to significantly impact the economy. Given the significant role of banking in the Indonesian economy, it is imperative to ensure good banking governance. Maintaining vigilance is crucial for the continued sustainability of banking operations and to mitigate the danger of financial losses.

Interest rate risk refers to the potential for poor financial circumstances arising from fluctuations in interest rates. Ahlstrom et al. (2003) highlights the impact of fluctuations in interest rates on the business and investment activities inside a nation. Embracing this risk is customary and a crucial aspect of generating a financial gain. Considering the impact of these risks on the financial performance of banks in Indonesia, it is imperative for bank managers to effectively handle these risks by enhancing financial performance, while simultaneously prioritizing crucial safeguards to ensure the stability of banks in attaining their future objectives. The study sought to examine the impact of Interest Rate Risk on Financial Performance from 2019 to 2021, utilizing the degree of bank safety as an intermediate variable.

A study conducted by Sihotang et al. (2022) concludes that the variable of interest rate risk does not have a significant impact on profitability. However, another study by Gomez et al. (2023) suggests that interest rate risk has a positive and significant effect on financial performance. Due to a lack of prior research, the author is motivated to perform a study named "The Effect of Interest Rate Risk on Financial Performance with Mediating Variables on Banking Security Level (Study on Commercial Banks That Go Public on the IDX)". The objective of this study is to determine the impact of interest rate risk on the financial performance.

## Methods

The research methodology employed in this work is quantitative research, which involves the collection and analysis of numerical data using statistical techniques (Sugiyono, 2018). This study utilizes a sample of 39 Commercial Banks that have undergone an initial public offering (IPO) on the Indonesia Stock Exchange (IDX) between the years 2019 and 2022. This study employs secondary data, namely the financial statements of banks that are publicly traded on the Indonesia Stock Exchange from 2019 to 2022. Additionally, it utilizes books, scientific research articles, journals, and relevant references pertaining to the topic matter. Furthermore, online publications of master's theses and doctoral theses are also included as sources of information.

## Results and Discussion

### Normality Test

Sinurat et al. (2021) explains that the purpose of the normality test is to determine if the regression model, confounding factors, or residual variables follow a normal distribution. This test helps identify whether the residuals are distributed normally or not, utilizing the Kolmogorov-Smirnov statistical test analysis. The Kolmogorov-Smirnov test is employed to assess the normality of the data by examining the Asymp. Sig (2-tailed) value.

Table 1. Normality Test of Equation I

| Sig Normality Value | Conditions | Information |
|---|---|---|
| 0,066 | More than 0.05 | Normal Distributed |

Table 2. Normality Test of Equation II

| **Sig Normality Value** | **Conditions** | **Information** |
|---|---|---|
| 0,200 | More than 0.05 | Normal Distributed |



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According to the findings of the Kolmogorov-Smirnov test presented in the table above, the asymp. Sig. (2-tailed) value is larger than 0.05. Therefore, we may infer that the data utilized follows a normal distribution.

**Multicollinearity Test**

The multicollinearity test is employed to determine if there exists a connection among the independent variables in the regression model. In an optimal regression model, the independent variables should exhibit no connection. One can identify multicollinearity by many methods, such as examining the tolerance value and variance inflation factor (VIF) generated by the independent variables.

Table 3. Multicollinearity Test of Equation I

| Variable | Tolerance | VIF | Information |
|---|---|---|---|
| Interest Rate Risk | 1,000 | 1,000 | No Multicollinearity |

Source: Processing Researcher Data 2023

Table 4. Multicollinearity Test of Equation II

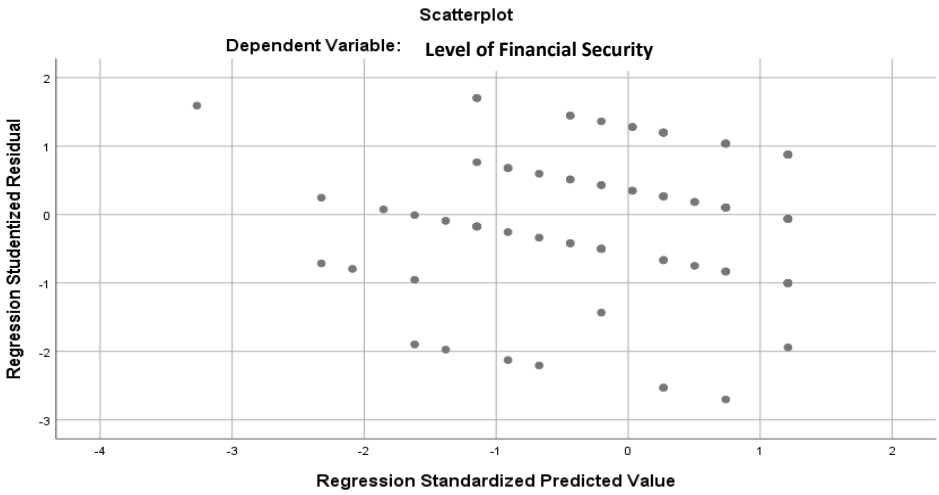
| Variable | Tolerance | VIF | Information |
|---|---|---|---|
| Interest Rate Risk | 0,891 | 1,122 | No Multicollinearity |
| Financial Security Level | 0,891 | 1,122 | No Multicollinearity |

Based on the provided table, it is evident that all variables possess a Tolerance value more than 0.10 and a VIF value less than 10. Consequently, it can be inferred that there is an absence of multicollinearity in this regression model.

**Heteroscedasticity Test**

The heteroscedasticity test is conducted to determine whether there is a disparity in the variance of residuals between different observations (Sinurat et al., 2021). Homoscedasticity refers to a situation where the variance of the residuals remains constant across multiple observations, whereas heteroscedasticity refers to a situation where the variance of the residuals varies. An ideal regression model exhibits homoscedasticity, meaning it does not display any heteroscedasticity.

**Scatterplot Heteroskedasticity Test Equation I**




Source: Researcher Data Processing 2023



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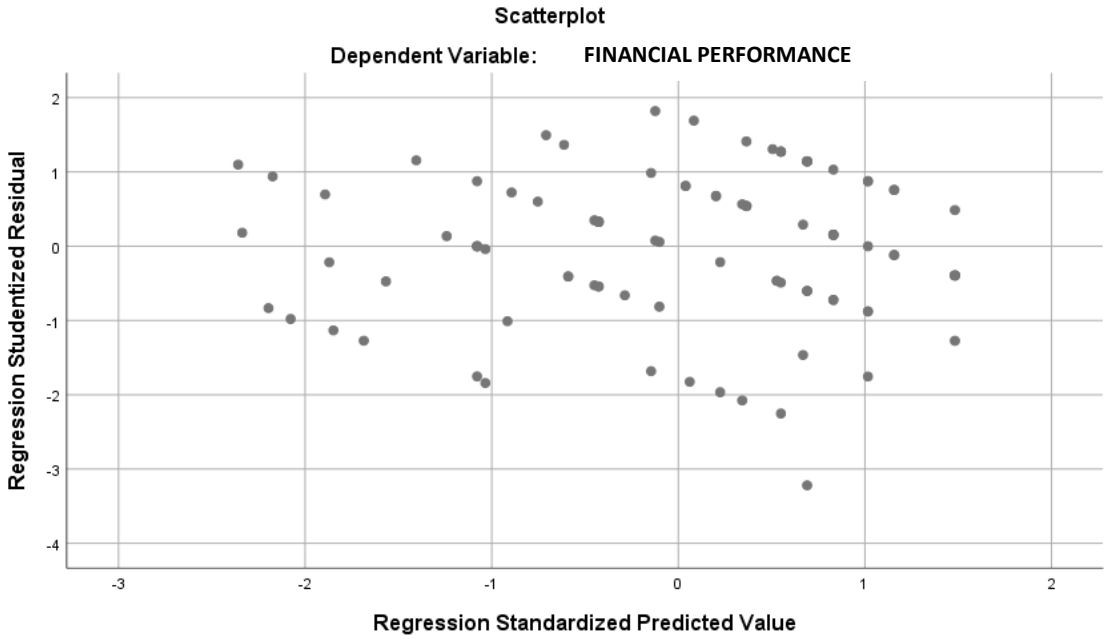
**Scatterplot Heteroskedasticity Test Equation II**




Source: Researcher Data Processing 2023

The study used the Scatterplot test to assess heteroscedasticity. From the aforementioned test results, it is evident that there is no discernible pattern in the data points. This is due to the fact that the data processing encompasses values both above and below zero on the Y axis, hence preventing the occurrence of heteroscedasticity.

**Hypothesis Test Analysis**

**Multiple Linear Regression Analysis**

The study used multiple linear regression analysis to ascertain the impact of interest rate risk on financial performance, taking into account the mediating variable of banking security level. The regression analysis findings for this investigation are displayed in the subsequent table:

Table 5. Regression Analysis of Equation I

| Variable | Direction | |
|---|---|---|
| (Constant) | + | 0,049 |
| Interest Rate Risk | + | 0,018 |

The multiple linear regression equation may be derived from the provided table as follows:

Z = 0,049 + 0,018*x*+ e

According to the constant value of 0.049, the average Banking Security Level is 0.049 when the independent variable is taken as constant. With an Interest Rate Risk (X) regression coefficient of 0.018, we can see that the Banking Security Level goes up by 0.018 for every unit rise in Interest Rate Risk.

Table 6. Regression Analysis of Equation I

| Variable | Direction | □ |
|---|---|---|
| (Constant) | + | 0,049 |
| Interest Rate Risk | + | 0,018 |



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Based on the table above, the multiple linear regression equation can be found, namely:

$Y = 0{,}070 + 0{,}031x + 0{,}445z + e$

A coefficient of 0.070 signifies that, under the condition of all other factors remaining unchanged, the mean value of Financial Performance is 0.070 when the independent and mediating variables are kept constant. A 0.031 unit increase in Financial Performance is linked to a 1 unit increase in Interest Rate Risk, as indicated by the regression coefficient of 0.031 for Interest Rate Risk (X). The regression coefficient of Banking Security Level (Z) is 0.445, indicating that for each unit increase in Banking Security Level, the amount of Financial Performance increases by 0.445.

**Determination Coefficient Test**

The adjusted R2, also known as the coefficient of determination, quantifies the extent to which the model can account for the variability in the dependent variable. The Adjusted R2 value runs from 0 to 1, representing the proportion of variance in the dependent variable that is accounted for by the independent variables. A number close to 1 indicates a stronger relationship between the variables. The table displays the value of Adjusted R2.

Table 7. Test the Coefficient of Determination of Equation I

| Model Summary[b] | | | |
|---|---|---|---|
| **Model** | **R** | **R Square** | **Adjusted R Square** |
| 1 | 0,329[a] | 0,109 | 0,099 |

The R Squared score of 0.109 (or 10.9%) indicates that the Interest Rate Risk variable explains 10.9% of the variability in the Banking Security Level. Although there are other unexplored elements that contribute to 89.1 percent of the outcome.

Table 8. Test Coefficient of Determination of Equation II

| Model Summary[b] | | | |
|---|---|---|---|
| **Model** | **R** | **R Square** | **Adjusted R Square** |
| 1 | 0,641[a] | 0,411 | 0,398 |

The table displays the coefficient of determination findings, indicating an Adjusted R Square value of 0.411 or 41.1%. This number signifies that 41.1% of the variation in the dependent variable, Financial Performance, can be accounted for by the variables Interest Rate Risk and Banking Security Level. Other variables not accounted for in this study explain 58.9% of the outcome.

**Model Significance Test F**

The sample regression function's ability to estimate the real value (Goodness of Fit) is evaluated using the F statistical test. According to Sinurat et al. (2018), the F test determines if the model employed is fit or if the independent variable adequately explains the dependent variable. In this study, a significance threshold of 5% is used for the F test.

Table 9. Test F Equation I

| Nilai Sig Uji F | Conditions | Information |
|---|---|---|
| 0,001 | < 0.05 | Influential |



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Table 10. Test F Equation II

| Nilai Sig Uji F | Conditions | Information |
|---|---|---|
| 0,000 | < 0.05 | Influential |

The model is true and the dependent variable Financial Performance is affected by both the independent variable Interest Rate Risk and the mediating variable Banking Security Level at the same time, as shown in the table above with a significant value of 0.000 <0.05.

**Significance Test of Independent Variables (t test)**

Sinurat et al. (2018) states that the purpose of this t test is to identify the impact of each independent variable on the dependent variable. By comparing the t-value of each regression coefficient with the t-table (critical value) according to the degree of significance employed, the t-test may determine the significance of the influence of decision making.

Table 11. T Test

| Variable | Direction | □ | Beta | Say. | Conclusion |
|---|---|---|---|---|---|
| (Constant) | + | 0,049 | | | |
| Interest Rate Risk | + | 0,018 | 0,329 | 0,001 | H1 Accepted |

The results of the t test analysis in this study are as follows:

**Interest Rate Risk affects Banking Security Level**

The regression test results table "Coefficient" shows a positive beta value of 0.018 and a significant value for Interest Rate Risk of 0.001, which is less than the threshold of 0.05 (0.001 < 0.05). Therefore, it can be confidently said that Interest Rate Risk significantly enhances the Level of Banking Security.

**Path Analysis**

Table 12. Path Analysis

| Variable | Arah | □ | Beta | Sig. | Conclusion |
|---|---|---|---|---|---|
| (Constant) | + | 0,070 | | | |
| Interest Rate Risk | + | 0,031 | 0,443 | 0,000 | H2 Accepted |
| Banking Security Level | + | 0,445 | 0,340 | 0,000 | H2 Accepted |

***Model I Path Coefficient***

Examining the results of Regression Equation I in the t-test table, it is evident that the significant value of the Interest Rate Risk variable is 0.001, which is below the threshold of 0.05. The result indicates that Regression Equation I, namely the variable of Interest Rate Risk, has a substantial impact on the Banking Security Level. The R2 or R Square value in the coefficient of determination table is 0.109, indicating that the impact of Interest Rate Risk on the Banking Security Level accounts for 10.9% of the total variation. The remaining 89.1% is attributed to other variables not considered in the study.

***Model II Path Coefficient***

The output of Regression Equation II in the t-test table indicates that the significant values of the two variables, Interest Rate Risk (0.000) and Banking Security Level (0.000), are both less than 0.05. The results indicate that Regression Equation II, namely the variables of Interest Rate Risk and Banking Security Level, have a substantial impact on Financial Performance.



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The coefficient of determination table indicates that the value of R2 or R Square is 0.411. This signifies that 41.1% of the financial performance can be attributed to the combined influence of Interest Rate Risk and Banking Security Level, while the remaining 58.9% is influenced by other variables not considered in the study.

**Hypothesis Testing and Conclusion Drawing**

Examining the Impact of Interest Rate Risk on the Security Level of Banking: Based on the preceding study, the Interest Rate Risk has a statistically significant value of 0.001, which is below the threshold of 0.05. The amount of banking security is significantly influenced by interest rate risk, as may be determined.

The aforementioned analysis demonstrates that the Interest Rate Risk exhibits a significant value of 0.000, which is less than the threshold of 0.05, when assessing its influence on financial performance. Therefore, it may be concluded that Interest Rate Risk significantly affects financial performance.

The previous study demonstrated that the brand image holds a statistically significant value of 0.000 <0.05 when assessing the influence of banking security level on financial performance. It may be deduced that the degree of banking security significantly affects financial performance.

Analyzing the Influence of Interest Rate Risk on Financial Performance via the Level of Banking Security: Interest Rate Risk has a significant and direct effect of 0.443 on Financial Performance. When the beta value of banking security level and the beta value of interest rate risk are multiplied, they result in a negative impact (-0.112) on financial performance, which is considered an indirect influence. The combined impact of interest rate risk on financial performance is 0.543, with both direct and indirect impacts included. Additionally, the total of the direct and indirect effects alone amounts to 0.112. The data shown above demonstrates that there is a considerable relationship between the Banking Security Level, which measures Interest Rate Risk, and Financial Performance. More specifically, there is a direct impact of 0.443 and an indirect influence of 0.555. This implies that the latter holds greater importance than the former.

**Discussion**

**Effect of Interest Rate Risk on Banking Security Level**

The hypothesis testing findings show that Interest Rate Risk has a statistically significant value of 0.018, with a beta value that is 0.001 lower than 0.05. Therefore, it can be confidently said that Interest Rate Risk significantly enhances the Level of Banking Security. The level of interest rate risk is closely correlated with the level of banking security.

Interest Rate Risk is necessary for a bank to be highly responsive to fluctuations in interest rates (Gomez et al., 2021). With the increasing number of banking risks, it is imperative for banks to diligently assess and control these risks, employing all possible measures to prevent or mitigate them. Minimizing the use of depositors' funds is a vital responsibility of bank safety, rendering it an immensely important objective to achieve for banking risk management. Banks may reduce risk by ensuring they have sufficient capital, which increases their ability to withstand any losses.

Awwad & El Khoury (2021) conducted research that demonstrated a favorable impact on the Risk and Security perspective through an analysis of the security measures implemented in the Palestinian banking system between 1979 and 2008. Alyousef (2022) study could not find any evidence on the impact of Interest Rate Risk on the security of Syrian commercial banks' money



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between 2008 and 2013. The research conducted by Al-Slehat (2022) found that Interest Rate Risk enhanced the security of Jordanian commercial banks. Jordan from 2000 until 2011.

**The Effect of Interest Rate Risk on Financial Performance**

The hypothesis testing findings indicate that the Interest Rate Risk has a statistically significant value of 0.000, which is less than the threshold of 0.05 (0.000 < 0.05), given its positive beta value of 0.031. Therefore, it can be confidently said that Interest Rate Risk significantly enhances Financial Performance. Therefore, an increase in the level of Interest Rate Risk will significantly improve Financial Performance.

Fluctuations in interest rates might potentially have adverse effects on individuals' financial circumstances. This phenomenon is commonly referred to as interest rate risk. The volatility of interest rates significantly impacts a nation's economic environment and investment behavior, as evidenced. Seizing this opportunity is customary and vital for every thriving firm. In order to reach their future goals, bank managers in Indonesia must enhance financial performance while simultaneously prioritizing important safeguards for the security of their institutions, since these risks have a direct influence on the financial performance of banks in the nation.

Several research have found a link between interest rate risk and financial success. Amsalu (2019) conducted a study to investigate the impact of financial risk on the performance of seven Ethiopian commercial banks listed from 2000 to 2017. The findings indicate that interest rate risk, inflation rate risk, and currency risk have a positive and statistically significant impact on return on assets.

Kolapo & Fapetu's (2015) research of Nigerian banks' performance between 2002 and 2011 found that interest rate risk had a negligible impact on the results of performance activities. Conversely, found a positive link between financial success and interest rate risk. Based on the study conducted, it was shown that there is a strong and statistically significant relationship between interest rate risk and financial performance, as measured by return on equity, across 63 commercial banks in the ASEAN-5 countries over the period of 2009 to 2017. However, it is worth noting that Ngumo et al. (2020) discovered a favorable correlation between interest rates and the financial performance of Kenyan banks during the period of 2006 to 2010.

**The Effect of Interest Rate Risk on Financial Performance Through the Level of Banking Security**

The hypothesis testing findings demonstrate that the Banking Security Level has a considerable impact on Financial Performance, specifically in relation to Interest Rate Risk. The direct effect value is 0.443 and the indirect impact value is 0.555, demonstrating that the latter is higher than the former.

Prior research has demonstrated that interest rate risk has a positive and statistically significant impact on financial performance, as evidenced by studies conducted by Amsalu (2019). In addition, studies conducted by Al-Slehat (2022), Shaheen & Sabah (2011), & Al-Slehat (2022) have demonstrated a positive association between interest rate risk and the level of banking safety. In addition, Khrawish et al. (2004) discovered a positive association between the degree of banking security and financial success.

## Conclusion

The testing and analysis conducted in the previous chapter have led to the conclusion that Interest Rate Risk has a substantial impact on the level of security in the banking sector. Interest Rate Risk significantly enhances Financial Performance. Interest rate risk is a significant



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determinant of financial performance, and it is assessed based on the amount of banking security.

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