THE INFLUENCE OF MARKET RISK TOWARDS FINANCIAL PERFORMANCE OF FOREIGN EXCHANGE BANKS IN INDONESIA

PENGARUH RISIKO PASAR TERHADAP KINERJA KEUANGAN BANK DEVISA DI INDONESIA

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Abstract: The banking sector in Indonesia always continues to experience ups and downs. One of the factors that influence the decrease in banking performance is the increase in risk, such as market risk. This study aims to analyze how the market risk affects the financial performance of foreign exchange banks listed on Indonesia Stock Exchange. This study uses a quantitative approach by taking secondary data from 39 foreign exchange banks' annual reports from 2009 to 2019. The result of this study shows that market risk has a positive and significant effect on foreign exchange banks' financial performance which measured by net interest margin. The result also shows that the other control variables such as dividend payout ratio, capital adequacy ratio, operating income to operating expenses, and return on asset positively significantly affect the net interest margin of foreign exchange banks in Indonesia.

Keywords: banks, market risk, financial performance

Abstrak: *Sektor perbankan di Indonesia terus mengalami pasang surut. Salah satu faktor penurunan kinerja perbankan yaitu peningkatan risiko, seperti risiko pasar. Penelitian ini bertujuan untuk menganalisa pengaruh dari risiko pasar terhadap kinerja keuangan dari bank devisa yang terdaftar di Bursa Efek Indonesia. Penelitian ini menggunakan pendekatan kuantitatif dengan mengambil data sekunder dari 39 laporan tahunan dari tahun 2009-2019. Hasil penelitian ini menunjukkan bahwa risiko pasar berpengaruh positif dan signifikan terhadap kinerja keuangan bank devisa yang diukur menggunakan rasio net interest margin. Hasil penelitian juga menunjukkan bahwa variabel kontrol lainnya seperti dividend payout ratio, capital adequacy ratio, operating income to operating expenses, dan return on asset juga berpengaruh positif dan signifikan terhadap net interest margin bank-bank devisa di Indonesia.*

Kata Kunci: *bank, risiko pasar, kinerja keuangan*

INTRODUCTION

Research Background

Almost all sectors that support Indonesia's economy require banks to deposit or distribute funds, as banks' functions in general. The importance of the role of banking in a country's economy is also supported by the research from Setiawan (2020), which shows that conventional bank credit and sharia bank financing positively and significantly affect economic growth, measured by gross domestic product (GDP), meaning that any increase in occurs in the value of credit and bank financing will also increase economic growth in Indonesia. Research from Zeqiraj et al. (2019) show a positive and significant impact of banking sector performance on thirteen Southeast European countries' economic growth, which highlights the importance of banking sector as a major determinant of economic growth. However, the banking sector in Indonesia continues to experience ups and downs and strives to develop by adapting to society's conditions, including during times of economic crisis. The global financial crisis that started in the USA in 2008 had implications for the deteriorating condition of worldwide economy. The financial crisis led to the mortgage market's collapse, which affected both private and governmental investors across the country and resulted in massive and significant losses (Rabie, 2020).When this crisis occurred, the banking sector also took an important role in the Indonesian economy. In addition to several structural

weaknesses such as rigid and too long domestic trade regulations, there is also an import monopoly which causes inefficient and competitive economic activity, as well as a lack of data transparency which creates uncertainty so that with the weak banking system factors, foreign funds can enter into a significant amount. Loans of foreign funds by the private sector also worsened the Indonesian economy's condition at that time (Tarmidi, 2003).

Therefore, in relation to the crucial function of banks to provide financial services, banks are faced with many types of risk such as market risk. The direct impact of market risk is also represented in functional spread declines due to rising raw material prices or currency depreciation in countries designated as target markets for the observed business. A change in interest rate as a measurement of market risk could lead to a mismatch between interest paid on deposit and the interest received on loans (Muriithi, Muturi & Waweru, 2016). Milanova (2010) stated that interest rates could influence income and operative costs. Based on the background above, it can be concluded that market risk, primarily interest rate risk, can affect a bank's performance. Therefore, this study is conducted to find out the influence of market risk on banks' financial performance, in this case, foreign exchange banks in Indonesia.

Research Objective

Based on the research background above, this study aims to analyze the influence of market risk towards financial performance of foreign exchange banks listed on Indonesia Stock Exchange.

THEORETICAL FRAMEWORK

Risk Management

Risk can result in a high loss, which is particularly troublesome because it is often not anticipated due to a low probability of occurring. Hopkin (2010) stated that risk management always related with the strategic decision making, the effective delivery of projects and programs, also the routine operations of the organization. By taking a proactive approach to risk management, banks or organizations are able to achieve the efficiency of banks' strategy, process and projects, also the operations.

Market Risk

Market risk is the risk of loss due to a decrease in market prices because of market factors and potentially harming the bank's portfolio position. It is defined as the risk to a financial portfolio from movements in market prices that banks cannot control such as interest rate, exchange rate, equity price, and commodity price. Milanova (2010) added that variations in the interest rates could influence banks' income, change the net interest revenue and the level of other interest-sensitive earnings, and operative costs. It can also affect the primary value of banks' assets, liabilities, and off-balance instruments. An effective interest rate risk management is needed to keep the risk at a narrow limit which is very important for banks' stability.

Banking

Bank is a financial intermediary that has functions to transform savings into investments, efficiently handle the loans, where stronger banks providing greater trust (Rumler and Waschiczek, 2010). The banking sector is the part of the economy that deals with maintaining financial assets for others, investing those assets as leverage to generate more capital controlled by the government.

Financial Performance

According to Keown, Martin, and William (2011), the purpose of financial analysis is to create value for shareholders instead of accounting financial data. Financial ratios will be used as a guideline for shareholders. The purpose of using the ratio is to measure the company's ability from year to year and compare it with other industries. This research uses Net Interest Margin (NIM) to measure the financial performance of banks in terms of profitability. Jima (2017) stated that increase in interest margin leads to growth in profitability and capital; but it may also affect efficiency and competition, thereby economic growth which indicates that Net Interest Margin (NIM) is one factor that affects economic efficiency.

Previous Research

Busch and Memmel (2015) analyzed the impact of the level of interest rate on banks' net interest margin using time series regression. Using a time series of more than 40 years for the German banking system, they

showed that the opposite effect exists in the long run, where an increase in the level of interest rates by 100 basis points leads to an estimated increase of 7 basis points in the banks' net interest margin. In addition, they analyzed the consequences of the low-interest rate environment and find that banks' interest margins for retail deposits, especially for term deposits, have declined by up to 97 basis points.

Muriithi, Muturi, and Waweru (2016) assessed the effect of market risk on financial performance of commercial banks in Kenya. The study covered the period between year 2005 and 2014. Market risk was measured by degree of financial leverage, interest rate risk and foreign exchange exposure while financial performance was measured by return on equity. The study used the balance sheets components and financial ratios for 43 registered commercial banks in Kenya. Panel data techniques of random effects, fixed effects estimation and generalized method of moments (GMM) were used to purge time–invariant unobserved firm specific effects and to mitigate potential endogeneity problems. The pairwise correlations between the variables were carried out. F- test was used to determine the significance of the regression while the coefficient of determination, within and between R2, were used to determine how much variation in dependent variable is explained by independent variables. From the results financial leverage, interest rate and foreign exchange exposure have negative and significant relationship with bank profitability.

Syafi'i and Rusliati (2016) examined the effect of credit risk, market risk, operational risk, and liquidity risk on profitability of banks listed on the Indonesia Stock Exchange in 2010-2014. The method used is descriptive and verification methods, with a sample of 30 banks and using multiple regression analysis. The results showed that credit risk does not partially affect profitability. Market risk, operational risk, and liquidity risk partially have positive effect on profitability. It simultaneously shows that credit risk, market risk, operational risk and liquidity risk have effect on the profitability of banks amounted to 67.1%. Improvement of Non-Performing Loan, Net Interest Margin, Operating Expenses to Operating Income Ratio, and Loan to Deposit Ratio will increase the Profitability.

Conceptual Framework

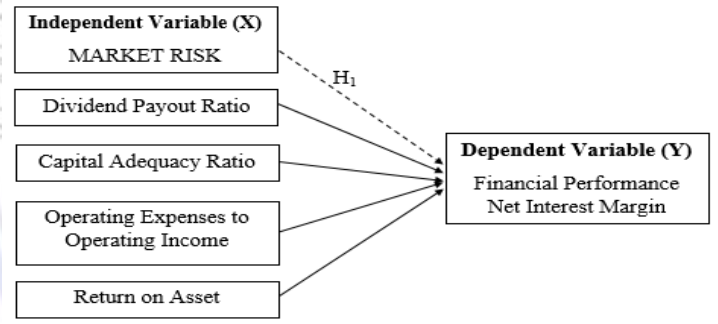

Figure 1. Conceptual Framework
Source: Data Processed, 2021

Research Hypothesis

Based on the research background and the theoretical review, the hypothesis of this study can be written as:

H_0: Market risk does not affect foreign exchange banks' financial performance
H_a: Market risk significantly affects foreign exchange banks' financial performance

RESEARCH METHOD

Research Approach

This study uses a quantitative approach to see the influence of market risk on banks' financial performance from 2009 to 2019. This approach is used to create more accurate and reliable measurements that can be analyzed statistically (Goertzen, 2017).

Population, Sample, and Sampling Technique

The population of this study is all banks operated in Indonesia and listed on the Indonesia Stock Exchange. The sample is gathered using purposive sampling. Purposive sampling is a technique for determining samples

based on the researcher's considerations or specific objectives and individuals' values for research. The individuals are chosen as a sample because they have fulfilled the necessary information and criteria (Ismail, 2018). The sample consists of foreign exchange banks listed on Indonesia Stock Exchange with a research period of 2009-2019 and during this certain period had complete information on financial performance. Based on the criteria, there are 39 foreign exchange banks that met the requirements as the sample of this study.

Data Collection Method

Secondary data is being used in this study. Data has been collected by reaching the list of foreign exchange banks and their financial reports on the Indonesia Stock Exchange website. It also obtained from any relevant journals, articles, and case studies.

Operational Definition of Research Variables

Table 1. Variable Definition

Variable	Definition	Indicator
Net Interest Margin (Y)	A financial ratio that indicates the bank's ability to generate net interest income by placing earning assets.	Net Interest Income Net Interest Expenses Average Earning Assets
Market Risk (X)	The risk of price changes in balance sheet and administration account including the derivative transaction caused by the total changes of market situation.	Liability of the Interest Rate
Dividend Payout Ratio	The ratio of the total amount of dividends paid out to shareholders in relation to the total amount of net income of the company	Total Dividends Net Income
Capital Adequacy Ratio	The ratio that indicates banks' ability to provide funds to overcome the possible risk of loss. The indicators for this ratio are total capital and risk-weighted assets.	Total Capital Risk-weighted Assets
Operating Expenses to Operating Income	The ratio that describes the efficiency of banks in carrying out their activities. The indicators for this ratio are operating expenses and operating income.	Operating Expenses Operating Income
Return on Asset	Profitability ratio that shows banks' ability to generate profits from the assets used.	Net Income Total Assets

Source: Theoretical Review, 2021

Panel Data Regression: Fixed Effect Model (FEM)

Panel data is a model that combine cross-section and time-series data. Cross-section focuses on several observations at one time, meanwhile time-series data focuses on one subject observed over some time. In addition, the method the researcher uses to regress panel data in this study is the Fixed Effect Model (FEM). Fixed Effect Model (FEM) can show constant differences between objects, even with the same regressor coefficient.

Multicollinearity test

Multicollinearity test is used to determine if the variables are very highly correlated with each other or not. The relation among the independent variables will be disrupted if a high correlation is found. To determine whether there is multicollinearity in the regression model can be seen by looking at the Tolerance Value (TOL) or Variance Inflation Factor (VIF). If the TOL value is more than 0.10 or the VIF value is less than 10, then multicollinearity is not detected in this regression model.

Heteroscedasticity test

Heteroscedasticity test is used to determine whether in the model regression occurs the unequal variance from the residual of one observation to another observation. Heteroscedasticity occurs if there is residual variance is not constant. This study uses a scatterplot graph for the heteroscedasticity test. Heteroscedasticity occurs if the scatterplot dots having a regular pattern, either narrowed or widened in waves.

RESULT AND DISCUSSION

Result

Multicollinearity test

Table 2. Multicollinearity test

Coefficients[a]

Model		Collinearity Statistics	
		Tolerance	VIF
1	(Constant)		
	Market Risk	.680	1.471
	DPR	.725	1.380
	CAR	.942	1.062
	OEOI	.111	9.006
	ROA	.124	8.070

a. Dependent Variable: NIM

Source: Data Processed, 2021

The result of the tolerance value calculation shows that there is no tolerance value (TOL) less than 0.10. On the other hand, the result of the variance inflation factor (VIF) calculation shows that there is no VIF value greater than 10. It concludes that multicollinearity does not affect the variables.

Heteroscedasticity Test

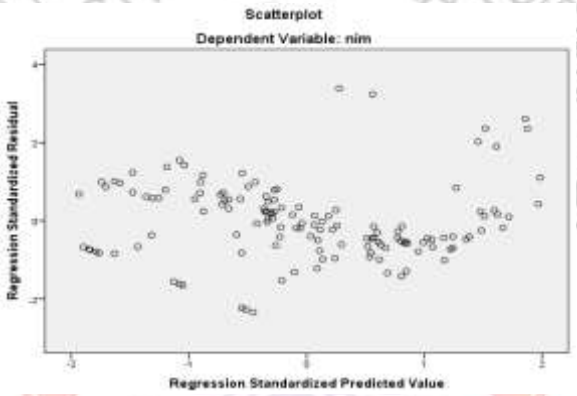

Figure 2. Heteroscedasticity Test

Source: Data Processed, 2021

Based on the scatterplot graph (Figure 2), the heteroscedasticity test shows that the data spread above, below, or around the number 0 on the Y-axis, and the points do not form a wavy pattern. This result shows that there is no heteroscedasticity detected in the regression model.

Panel Data Regression: Fixed Effect Model (FEM)

Table 3. Panel Data Regression: Fixed Effect Model

Estimates of Fixed Effects[a]

Parameter	Estimate	Std. Error	df	t	Sig.	95% Confidence Intervals	
						Lower Bound	Upper Bound
Intercept	-26.374987	3.745416	122	-7.042	.000	-33.789411	-18.960563
Market Risk	.718641	.084235	122	8.531	.000	.551890	.885392
DPR	-.020827	.010372	122	-2.008	.047	-.041360	-.000294
CAR	.140306	.036473	122	3.847	.000	.068104	.212507
OEOI	.097977	.023158	122	4.231	.000	.052133	.143820
ROA	1.107759	.204173	122	5.426	.000	.703578	1.511939

a. Dependent Variable: NIM

b. This parameter is set to zero because it is redundant.

Source: Data Processed, 2021

If all independent variables are considered constant or have a value of zero, the independent variables (Market Risk, DPR, CAR, OEOI, and ROA) do not increase or decrease, the NIM value is -26.374987. The regression coefficient value of the Market Risk is 0.718641 and has a positive sign, which means that every 1% increase in Market Risk will cause an increase in NIM of 0.718641%. The regression coefficient value of DPR is 0.020827 and has a negative sign, which means that every 1% increase in DPR will cause a decrease in NIM by -0.020827%. The regression coefficient value of CAR is 0.140306 and has a positive sign, which means that every 1% increase in CAR will cause an increase in NIM of 0.140306%. The regression coefficient value of OEOI is 0.097977 and has a positive sign, which means that every 1% increase in OEOI will cause an increase in NIM of 0.097977%. The regression coefficient value of ROA is 1.107759 and has a positive sign, which means that every 1% increase in ROA will cause an increase in NIM of 1.107759%

Hypothesis Test

F-Test

Table 4. Result of F- Test

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	476.144	5	94.229	28.014	.000[b]
	Residual	445.306	131	3.399		
	Total	921.450	136			

a. Dependent Variable: NIM

b. Predictors: (Constant), ROA, CAR, Market Risk, DPR, OEOI

Source: Data Processed, 2021

This study can use these decisions to prove the hypothesis:

1. If the significance level is greater than 0.05, it concludes that H_0 is accepted and H_a is rejected.
2. If the significance level is less than 0.05, it concludes that H_0 is rejected and H_a is accepted.

The table of the F-test result shows that F_{count} is 28.014 with a level of significance of 0.000, which is less than 0.05. Based on the result, it can conclude that Market Risk, DPR, CAR, OEOI, and ROA simultaneously affect NIM.

T- Test

The t-test can be done by comparing the value of t_{count} to t_{table} with a significance level of 0.05, where df = (n – k) = (39 – 5) = 34, get a t_{table} of 2.032. Based on the table 2, the results of the t-test can be interpreted as follows:

1. The result of Market Risk variable shows t_{count} 8.531 > t_{table} 2.032 with a significance value of 0.000, which is less than 0.05. Based on the result, Market Risk partially has a significant effect on NIM, concluding that H_0 is rejected and H_a is accepted.
2. The result of DPR variable shows t_{count}t -2.008 < t_{table} 2.032 with a significance value of 0.047, which is less than 0.05. Based on the result, DPR partially has a significant effect on NIM, concluding that H_0 is rejected and H_a is accepted.
3. The result of CAR variable shows t_{count} 3.847 > t_{table} 2.032 with a significance value of 0.000, which is less than 0.05. Based on the result, CAR partially has a significant effect on NIM, concluding that H_0 is rejected and H_a is accepted.
4. The result of OEOI variable shows t_{count} 4.231 > t_{table} 2.032 with a significance value of 0.000, which is less than 0.05. Based on the result, OEOI partially has a significant effect on NIM, concluding that H_0 is rejected and H_a is accepted.
5. The result of ROA variable shows t_{count} 5.426 > t_{table} 2.032 with a significance value of 0.000, which is less than 0.05. Based on the result, ROA partially has a significant effect on NIM, concluding that H_0 is rejected and H_a is accepted.

R^2- Test

Table 5. Result of R^2- Test

Model Summary				
Model	**R**	**R Square**	**Adjusted R Square**	**Std. Error of the Estimate**
1	.719[a]	.517	.498	1.84371

a. Predictors: (Constant), ROA, CAR, Market Risk, DPR, OEOI

b. Dependent Variable: NIM

Source: Data Processed, 2021

Based on the R^2-test result, NIM of foreign exchange banks can be explained by variations in Market Risk, DPR, CAR, OEOI, and ROA as much as 51.7%, meaning that 48.3% of the variation is influenced by other variables or other factors that are not examined in this study.

Discussion

The Influence of Market Risk towards NIM

The regression result explains that Market Risk has a positive and significant effect on NIM. The t-test result shows the value of Market Risk is 8.531 with a significance level of 0.000. This indicates that the increase in interest rate can increase the banks' profits. Net interest margin shows how banks could manage their assets to generate greater net interest income, the greater the NIM the more effective banks to place their assets in the form of credit which also increase other profitability ratios. The result of this study is supported by research conducted by Syafi'i and Rusliati (2016) which stated that market risk significantly affect the profitability of banks.

The Influence of DPR towards NIM

The regression result explains that DPR has a negative and significant effect on NIM. The t-test result shows the value of DPR is -2.008 with a significance level of 0.047, meaning that DPR negatively significantly affects the NIM of foreign exchange banks which shows that every increase in DPR will decrease the NIM, meanwhile every decrease in DPR will increase the NIM.

The Influence of CAR towards NIM

The regression result shows that CAR has a positive and significant effect on NIM. It can be explained from the t-test, which shows the CAR value of 3.847 with a significance level of 0.000. To anticipate the potential risk of loss experienced by a bank's business activity requires a high level of capital adequacy to fund the bank's productive assets, which also caused the increase in the bank's interest margin. The results of this study are supported by research conducted by Raharjo et al. (2014), which states that CAR is significantly positively affecting the NIM.

The Influence of OEOI towards NIM

The regression result shows that OEOI has a positive and significant effect on NIM. It can be explained from the t-test that shows the value of OEOI is 4.231 with a significance level of 0.000. Banks with high operating expenses tend to set high margins to compensate or cover the increase in operating expenses; this explains that the rise in the OEOI ratio will also increase the NIM ratio at the bank. The results of this study are supported by research conducted by Dewi and Triaryati (2017), which states that OEOI has a significant positive effect on NIM.

The Influence of ROA towards NIM

The regression result shows that ROA has a positive and significant effect on NIM. It can be explained from the t-test that shows the ROA value of 5.426 with a significance level of 0.000. The increase in ROA will encourage banks to increase interest margins to increase net interest income. The results of this study are supported by research conducted by Raharjo et al. (2014), which states that ROA is significantly positively affected the NIM.

CONCLUSION AND RECOMMENDATION

Conclusions

1. Market Risk simultaneously affects foreign exchange banks' financial performance in terms of probability which measured by NIM. The regression result shows that Market Risk, which is measured by interest rate, has a positive and significant influence on NIM. It means that every increase in Market Risk will also raise the NIM, vice versa. It indicates that every change in interest rate can influence banks' performance.
2. On the other hand, the control variables such as DPR, CAR, OEOI, and ROA also have a significant and positive effect on the NIM which indicates that every change in each variable could influence the banks' interest margin.

Recommendations

1. The banking industry, especially foreign exchange banks, needs to pay more attention to the effect of market risk. The results of this study can be used as considerations for banks to make decisions and maintain banks' health and ability to carry out their functions so that banks can prevent some problems that could occur and cause the possibility of loss.
2. Investors need to examine the factors that influence the financial performance of banks. However, as one of the market risk indicators, the interest rate significantly affects financial performance, impacting the stock and the funds invested in the companies. Investors should consider the ability of banks to face and handle the risk and how they minimize the risks.
3. To further researchers who want to do similar research and improve its quality can develop this study by using more or other market risk indicators to determine the effect of market risk on financial performance. The next analysts can also use this study to reference the following analyses by using different methods and periods to examine the role of market risk to banking or other industries.

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