The Effect of Loan Interest Rates and Inflation Rates on Net Profit Growth at Commercial Banks Listed on the IDX

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Abstract. *This research was conducted to determine the influence of interest rates and inflation on the net profit growth of publicly listed commercial banks in the Indonesia Stock Exchange. Data was collected from www.idx.co.id, spanning from 2017 to 2021. The study took place from March to August 2022. The population for this research comprised 43 companies, with a sample size of 20 companies. The research employed quantitative data processed using Eviews 9 with the panel data regression method. The test results concluded that the interest rate variable, partially, does not have a significant impact on the net profit growth. However, inflation, partially, has a significant effect on the net profit growth of commercial banks during the period from 2017 to 2021. Simultaneously, interest rates and inflation do not have a significant impact on the net profit growth of commercial banks. The contribution of the interest rate and inflation variables to net profit growth is only 5.66%, and the correlation between the interest rate and inflation variables with net profit growth is weak.*

Keywords: *Interest Rates, Inflation, Profit Growth, Commercial Banks.*

INTRODUCTION

In essence, companies are established to generate maximum profit, both in the short term and the long term. Therefore, companies strive to implement various policies to maximize sales and, consequently, achieve significant net profits. The ability of a company to generate profit is also referred to as profitability. According to Munawir (2016), profitability is the company's capability to generate profit over a specific period. The annual growth of net profit is consistently anticipated by companies as an indicator that the company's performance is continually improving.

The average growth of net profit for all Commercial Banks can be observed in the following graph:
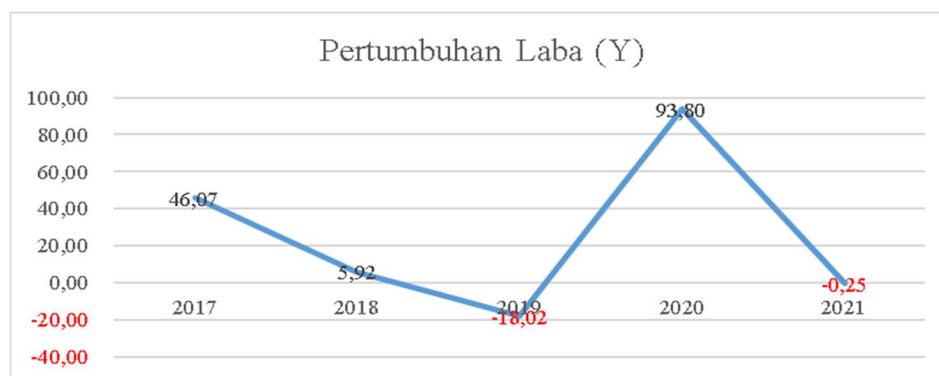
Source: www.idx.co.id, 2022

Figure 1. Net Profit Growth of Commercial Banks 2017-2021

Based on Figure 1, it is evident that the average net profit growth of companies during the period 2017-2019 continued to decline. In 2020, it even reached a negative figure of -18.02, indicating that many companies experienced a decline in net profit. In 2020, the average growth rate surged significantly to 93.80% as commercial banks began to recover from the recession caused by the Covid-19 pandemic. Unfortunately, in 2022, the average net profit growth returned to negative. This indicates issues with the net profit of Commercial Banks, identified by the decline in net profit growth values to negative in 2019 and 2021.

The total revenue recorded by companies is subtracted from various financing expenses, including the payment of short-term debts (current liabilities). Interest rates and inflation play a crucial role in this component, where high interest rates increase the burden of debt payments for companies. Additionally, high inflation rates lead to a decrease in the currency value, affecting financing expenses and influencing company sales. The average interest rates set by Bank Indonesia during the years 2017-2021 can be seen in the following table:

Table 1. Average Loan Interest Rates During the Period of Years 2017-2021.

Year	2017	2018	2019	2020	2021
interest rate (%)	4,56	5,10	5,63	4,25	3,52

Source: Bank Indonesia, 2022

Based on Table 1, loan interest rates tend to increase until 2019, but after that, they consistently decline until 2021. The graph illustrating the trend of loan interest rates from 2017 to 2021 can be seen in the picture:
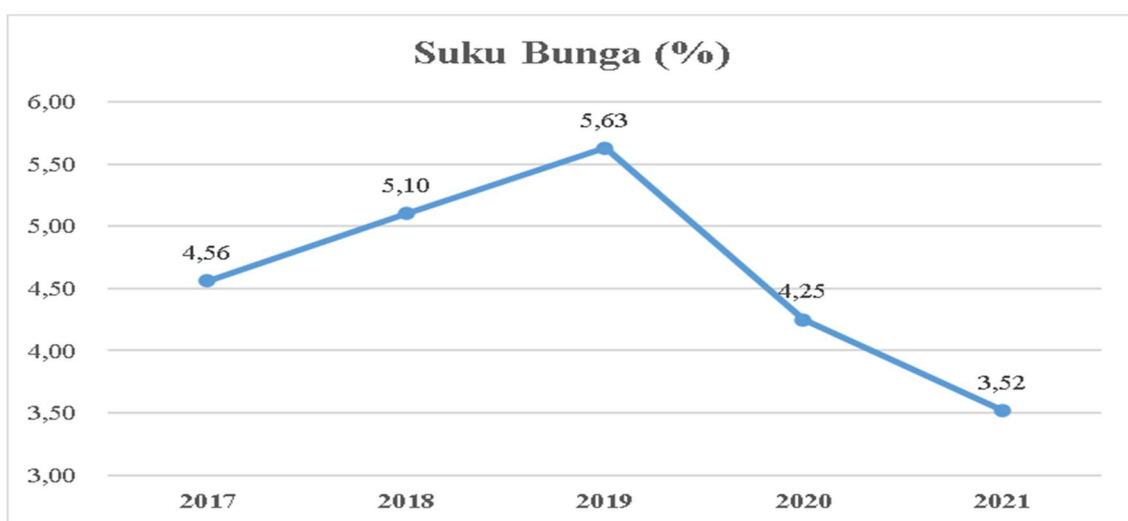
Source: Bank Indonesia, 2022

Figure 2. Interest Rates Set by Bank Indonesia for the Period of Years 2017-2021

Based on Figure 2, it can be observed that the average interest rate never exceeded 5.63%, with this value being the highest point of interest rates during the period from 2017 to 2021, specifically in the year 2019. Interest rates tended to increase from 2017 to 2019. However, in 2020 and 2021, interest rates continued to decline, reaching their lowest point in 2021 at 3.52%. Comparing Figure 1.1 and Figure 1.2, the decline in interest rates is generally accompanied by a decrease in the net profit growth of companies. This contrasts with the theory proposed by (Tandelilin, 2017), which suggests that changes in interest rates can influence the variability of returns on investment, reflected in the increasing cost of loan interest that companies have to pay. According to this theory, a decrease in interest rates should be able to increase a company's net profit, rather than decrease it.

Every country has an inflation rate that lowers the value of its currency, including Indonesia. Inflation causes the value of the Rupiah to continuously decrease each year. This is not always negative, but if inflation occurs uncontrollably and with a significant magnitude, it can harm a country's economy because the purchasing power of the population will decrease due to the diminishing value of their money. The average inflation rate in Indonesia, based on data from the Central Statistics Agency, for the years 2017-2021, can be seen in the following table:

Table 2. Average Loan Inflation during the period of Years 2017-2021

Years	2017	2018	2019	2020	2021
Inflation (%)	3,81	3,20	3,03	2,04	1,56

Source: Bank Indonesia, 2022

Based on Table 2, it is known that the average inflation in Indonesia tends to consistently decrease during the period from 2017 to 2021. The graph illustrating the development of loan interest rates from 2017 to 2021 can be seen in the following.
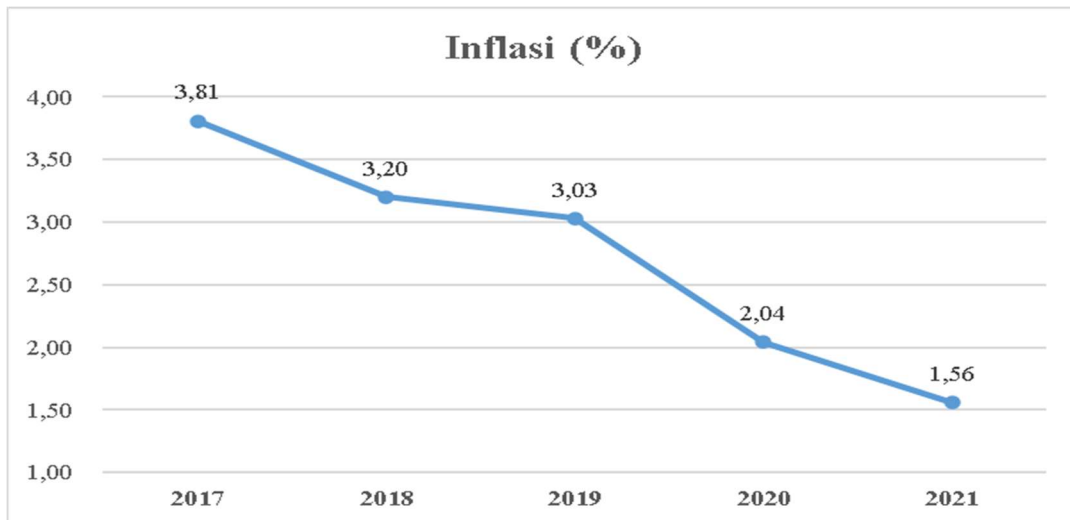
Source: Bank Indonesia, 2022

Figure 3. Inflation Set by Bank Indonesia for the Period of Years 2017-2021

Based on Figure 3, it can be observed that inflation in Indonesia tends to consistently decrease each year during the period from 2017 to 2021. This indicates that the country has been able to maintain the value of the Rupiah, leading to a continuous decline in inflation and the Rupiah retaining its value. When comparing the graph of net profit growth of companies in Figure 1.1 with the inflation graph in Figure 1.3, it can be seen that a decrease in inflation tends to lead to a decrease in the growth of net profit for companies. This contradicts the theory proposed by (Samsul, 2016), which suggests that high inflation will reduce consumer purchasing power in the market, leading to a potential decline in product sales and consequently a decrease in profits.

LITERATURE REVIEW

Pecking Order Theory

The Pecking Order Theory states that companies prefer internal financing over external financing, safe debt over risky debt, and common equity as a last resort (Fahmi, 2018). The Pecking Order Theory, proposed by Corey and Myers in (Fahmi, 2018), is based on the idea that there is no specific target debt-to-equity ratio; rather, it emphasizes a hierarchy of preferred sources of funding for companies. The essence of this theory lies in the existence of two types of capital: external financing and internal financing.

Interest Rate

According to (Brigham & Houston, 2016), the interest rate is the price that must be paid for borrowed capital, and it includes dividends and capital gains resulting from equity capital. According to (Darmawi, 2017), the interest rate is the price paid by borrowers to obtain funds from lenders for a specific period. Therefore, the interest rate is the annual interest payment on a loan, expressed as a percentage of the loan amount. It is calculated by dividing the annual interest received by the loan amount.

Inflation

According to (Tandelilin, 2017), inflation is the tendency for a general increase in the prices of products. An increase in the prices of one or two items alone cannot be called inflation unless it is widespread or leads to an increase in the prices of other goods. Inflation will lead to an increase in a company's interest rates, which, in turn, will cause the company's third-party debt, in the form of interest expenses, to rise.

Net Profit Growth

According to (Suwardjono, 2018), profit is interpreted as the reward for a company's efforts in producing goods and services. This means that profit is the excess income over costs (total costs involved in production and delivery of goods/services). According to (Harahap, 2018), profit is a crucial figure in financial statements for various reasons, including being the basis for tax calculations, a guide in determining investment policies and decision-making, the foundation for profit forecasting and other economic events in the company's future, the basis for efficiency calculations and assessments in running the company, and as a basis for evaluating the company's performance.

RESEARCH METHOD(S)

Research Approach

This research employs an associative approach with quantitative data, utilizing secondary data. The analytical technique used is Panel Data Regression. An associative or causal research (cause-and-effect relationship) aims to investigate whether a variable acting as an independent variable affects another variable that serves as the dependent variable.

Population and Sample

According to (Pakpahan & Manullang, 2014), the population is a group of research elements, where elements are the smallest units that are the source of the required data. The population describes the types and criteria of the population that are the subject of the research, while the sample describes the criteria for the sample, its size, and the sampling method. This study focuses on companies in the general banking sector listed on the Indonesia Stock Exchange as the research object. Currently, there are 43 General Banking Companies listed on the Indonesia Stock Exchange, making the population for this study consist of 43 General Banking Companies.

According to (Pakpahan & Manullang, 2014), a sample represents the population. Meanwhile, according to (Sugiyono, 2016), a sample is a part of the total number and characteristics possessed by the population. This study only has one population, so the sample size in this study is only one company. The data used in this research spans from 2017 to 2021. The number of qualified or criteria-meeting companies for sampling is 20, while the remaining 23 General Banking Companies did not meet the criteria to be included as a sample in this study. Therefore, the companies that can be taken as samples amount to 20 General Banking Companies listed on the Indonesia Stock Exchange, as shown in Table 3. below:

Table 3. List of Research Samples

No	Code	Company Name
1	BACA	PT Bank Capital Indonesia Tbk
2	BBCA	PT Bank CentralAsia Tbk
3	BBNI	PT Bank Negara Indonesia (Persero) Tbk
4	BBRI	PT Bank Rakyat Indonesia (Persero) Tbk
5	BBTN	PT Bank Tabungan Negara (Persero) Tbk
6	BDMN	PT Bank Danamon Indonesia Tbk
7	BMRI	PT Bank Mandiri (Persero) Tbk
8	BNBA	PT Bank Bumi Arta Tbk
9	BNGA	PT Bank CIMB Niaga Tbk
10	BNII	PT Bank Maybank Indonesia Tbk
11	BNLI	PT Bank Permata Tbk
12	BSIM	PT Bank Sinar Mas Tbk
13	BTPN	PT Bank BTPN Tbk
14	INPC	PT Bank Artha Graha International Tbk
15	MAYA	PT Bank Mayapada International Tbk
16	MCOR	PT Bank China Construction Bank Indonesia Tbk
17	MEGA	PT Bank Mega Tbk
18	NISP	PT Bank OCBC NISP Tbk
19	PNBN	PT Bank Pan Indonesia Tbk
20	SDRA	PT Bank Woori Saudara Indonesia 1906 Tbk

Source: www.idx.co.id, 2022

Data Analysis Technique

This research employs the technique of panel data regression analysis using the Eviews 9 application. The method and analytical techniques are carried out in the following stages:

Panel Data Regression Specification Test

1. Chow Test

(Rusiadi et al., 2016) explains that the Chow Test is used to determine whether the Pooled Least Square (PLS) or Fixed Effect Model (FEM) should be chosen for estimating data, and this can be done with an F-test. If the Chow Statistic (F Stat) value from the test is greater than the critical F-table value, there is enough evidence to reject the null hypothesis (H0), indicating that the appropriate model is the Fixed Effect Model, and vice versa.

2. Hausman Test

The Hausman Test is conducted to examine whether the data to be analyzed should use fixed effect or random effect. (Rusiadi et al., 2016) explains that the Hausman Test aims to determine which model is better to use, whether it's the Fixed Effect or Random Effect model.

3. Panel Data Regression Analysis

According to (Rusiadi et al., 2016), panel data analysis is a data analysis model that combines cross-sectional data with time-series data. Cross-sectional data is obtained from data sources at a single point in time or a one-time observation, while time-series or periodic data is collected over time to illustrate the development of a phenomenon.

Hypothesis Testing

1. Partial Test (t-test)

(Rusiadi et al., 2016) explains that the t-statistic test essentially indicates the extent of the partial influence of independent variables on the dependent variable. The partial test (t-test) shows how much the partial influence of each independent variable is on the dependent variable.

2. Simultaneous Test (F-test)

The F-test examines the simultaneous influence of independent variables on the dependent variable (Rusiadi et al., 2016). This test is conducted to determine whether the combined influence of all independent variables significantly affects the dependent variable at

a confidence level (Confidence Interval) or a 5% level of hypothesis testing using the F-test statistical formula.

3. Coefficient of Determination (R^2)

According to (Pakpahan & Manullang, 2014), the R-Square (r2) value is used to observe how the variation in the dependent variable is influenced by the variation in the independent variable. Similarly, (Sugiyono, 2016) explains that the coefficient of determination is used to determine the extent of the relationship among several variables in a clearer sense. The coefficient of determination elucidates how much the change or variation in one variable can be explained by the change or variation in another variable.

FINDINGS AND DUSCUSSION

Chow Test

Table 4. Chow Test Result

Redundant Fixed Effects Tests Equation: Untitled Test cross-section fixed effects			
Effects Test	Statistic	d,f,	Prob,
Cross-section F	49,978691	(1978)	0,0000
Cross-section Chi-square	257,826769	19	**0,0000**

Source: Results of Eviews Ver. 9 Analysis on Research Data, 2022

The statistical distribution value of the chi-square in Table 2, above, based on calculations using Eviews 9, indicates that the probability of the Cross-section Chi-Square in the Chow test on the influence of Interest Rates (X1) and Inflation (X2) on Profit Growth (Y) is 0.0000. This value is less than 0.05 or 5%, therefore, statistically, H0 is rejected, and H1 is accepted. Hence, based on the Chow test, the most appropriate model to use is the Fixed Effect Model (FEM).

Hausman Test

Table 5. Hausman Test Result

Correlated Random Effects - Hausman Test Equation: Untitled Test cross-section random effects			
Test Summary	Chi-Sq, Statistic	Chi-Sq, d,f,	Prob,
Cross-section random	0,000000	2	1,0000

Source: Results of Eviews Ver. 9 Analysis on Research Data, 2022

The results of the Hausman test in Table 3 above show a probability value of 1.0000. This result indicates that the probability value is greater than 0.05, so H0 is accepted, and H1 is rejected. Therefore, based on the Hausman test, the most appropriate model to use is not the Fixed Effect Model (FEM) but the Random Effect Model (REM).

In summary, based on the results of both the Chow test and the Hausman test, it is concluded that the Hausman test suggests the most suitable model for panel data regression in this study is the Random Effect Model (REM), while the Chow test suggests the most suitable model is the Fixed Effect Model (FEM). Hence, in this research, the regression model used is the Random Effect Model (REM).

Panel Data Regression Analysis

Table 6. Results of Panel Regression with Random Effects Model (REM)

Dependent Variable: Y_PL Method: Panel EGLS (Cross-section random effects) Date: 05/12/22 Time: 11:07 Sample: 2017 2021 Periods included: 5 Cross-sections included: 20 Total panel (balanced) observations: 100 Swamy and Arora estimator of component variances			
Variable	Coefficient	Std, Error	t-Statistic	Prob,
C	29,65186	1,827464	16,22569	0,0000
X1_SB	-1,073436	0,661607	-1,622467	0,1079
X2_IN	0,775651	0,325597	2,382241	0,0192
Effects Specification				
			S,D,	Rho
Cross-section random			4,146875	0,9074

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Idiosyncratic random			1,324959	0,0926
	Weighted Statistics			
R-squared	0,056632	Mean dependent var		3,943132
Adjusted R-squared	0,037181	S,D, dependent var		1,350299
S,E, of regression	1,324959	Sum squared resid		170,2850
F-statistic	2,911514	Durbin-Watson stat		1,654149
Prob(F-statistic)	0,059162			
	Unweighted Statistics			
R-squared	0,005635	Mean dependent var		27,87621
Sum squared resid	1803,959	Durbin-Watson stat		0,156144

Source: Results of Eviews Ver. 9 Analysis on Research Data, 2022

Without the specific details from Table 4, I'm unable to provide the regression equation. If you have the relevant coefficients or information from the table, you can share them, and I'd be happy to assist you in forming the regression equation based on the Random Effects Model (REM).

$$PLB(Y) = \alpha it + \beta 1 SBit + \beta 2 INit + \varepsilon it$$

$$PLB(Y) = 29{,}65186 - 1{,}073436 SBit + 0{,}775651 INit + \varepsilon it$$

Explanation of the panel data regression equation above can be interpreted as follows:

1. The constant term (α) of 29.65186 indicates that if all variables are considered zero or absent or not counted, including Interest Rate (X1) and Inflation (X2), then the value of Profit Growth (Y) is already present and is positive, specifically at 29.65186.

2. The regression coefficient for the Interest Rate variable (X1) is -1.073436, indicating that if the Interest Rate (X1) increases by 1 unit, Profit Growth (Y) will decrease by 1.073436 units. This suggests a negative impact of interest rates on profit growth. Therefore, an increase in interest rates will decrease a company's profit growth, and conversely, a decrease in interest rates will increase profit growth.

3. The regression coefficient for the Inflation variable (X2) is 0.775651, indicating that if Inflation (X2) increases by 1 unit, Profit Growth (Y) will increase by 0.775651 units. This suggests a positive impact of inflation on profit growth. Hence, an increase in inflation will increase a company's profit growth, while a decrease in inflation will decrease profit growth.

Hypothesis Testing

1. Partial Test (t-Test)

The t-table for the panel regression model can be found using the t-table or Microsoft Excel with the formula =tinv(0.05;df). The df value is obtained from the formula df = n – k, where n is the number of observation data (100 in this study - 20 companies x 5 years) and k is the number of variables (3 in this case - both independent and dependent variables). So, df = n – k = 100 – 3 = 97. By typing =tinv(0.05;97) in Microsoft Excel, the t-table value is obtained as 1.985.

The t-test results show that the t-value for the Interest Rate variable (X1) is -1.622467, with a t-table value of 1.985. Since -1.622467 < -1.985, we reject the alternative hypothesis (Ha) and accept the null hypothesis (Ho). The probability value for the Interest Rate variable (X1) is 0.1079, which is significantly higher than the significance threshold of 0.05. Therefore, we reject Ha and accept Ho. In conclusion, there is no significant effect of Interest Rate (X1) on Profit Growth (Y) individually.

Similarly, for the Inflation variable (X2), the t-value is 2.382241, and the t-table value is 1.985. Since 2.382241 > 1.985, we reject Ho and accept Ha. The probability value for the Inflation variable (X2) is 0.0192, which is less than the significance threshold of 0.05. Therefore, we reject Ho and accept Ha. In conclusion, there is a significant effect of Inflation (X2) on Profit Growth (Y) individually.

2. Simultaneous Test (F-Test)

The F-table can be found using the F-table or Microsoft Excel with the formula =finv(0.05;df1;df2). Here, df1 = k – 1 and df2 = n – k. With k = 3 and n = 100, df1 = 3 – 1 = 2 and df2 = 100 – 3 = 97. Typing =finv(0.05;2;97) in Excel yields an Ftabel value of 3.090.

The F-test results show that the obtained F-value is 2.911514, which is smaller than the F-table value of 3.090 (2.911514 < 3.090). Therefore, we reject Ha and accept Ho. The probability value for the F-test is 0.059162, which is greater than 0.05. Hence, we reject Ha and accept Ho. In conclusion, the regression model, including both Interest Rate (X1) and Inflation (X2), does not have a significant simultaneous effect on Profit Growth (Y).

3. Determination Test (R2)

The determination test is used to assess how well the model explains the dependent variable and the strength of the relationship between independent and dependent variables. The obtained R Square value is 0.056632, indicating that only 5.66% of profit growth can be

explained by Interest Rate and Inflation, while the remaining 94.34% is influenced by other factors outside the model. The relationship between Interest Rate (X1) and Inflation (X2) with Profit Growth (Y) is weak (R = 0.238), as the R value falls within the range of 0.2 – 0.39. A higher R value indicates a stronger relationship between independent and dependent variables.

CONCLUSION AND RECOMMENDATION

1. It is recommended that general banks adjust the interest rates for savings and deposit accounts in line with the increase in the Bank Indonesia interest rates. This adjustment can attract customers to deposit or save their funds with the company.

2. It is advised for general banks to raise loan interest rates in line with the prevailing inflation rate. This strategy ensures that the company continues to generate profits that exceed the increase in inflation, allowing the bank to report a higher net profit.

3. General banks are encouraged to offer various promotions, incentives, or attractive interest rates to motivate potential customers to deposit or save their funds with the company. This approach can help the company attract more funds to manage, leading to a larger net profit.

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