Effect of Loan Interest Rate and Inflation Rate on Net Profit Growth in the Financial Sector Listed on the Indonesia Stock Exchange

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ABSTRACT

This study was conducted to find out how the effect of interest rates and inflation on net profit growth in Conventional Bank Sub-Sector Companies listed on the Indonesia Stock Exchange. The data is taken from the www.idx.co.id. The data used from 2017 to 2021. The population in this study was 43 companies with a sample of 20 companies used. This study used quantitative data processed with the Eviews version 9 application using the panel data regression method. The test results concluded that the variable interest rate partially did not have a significant effect on net profit growth, but inflation partially had a significant effect on the growth of net profit of Conventional Bank Sub-Sector Companies for the 2017-2021 period. Simultaneously, interest rates and inflation did not have a significant effect on the growth of net profit of commercial bank companies. The contribution made by variable interest rates and inflation to profit growth was only 5.66%.

Keywords: Profit Growth, Interest, Inflation, Conventional Banks

1. INTRODUCTION

According to Law Number 7 of 1992 which was amended by Law Number 10 of 1992 concerning Commercial Banks, banks are declared as entities that collect funds from the public in the form of deposits and distribute them domestically to the public. Loans and/or other forms to improve people's living standards. According to the bank, it is a financial institution whose main activity is to collect funds from the community, distribute back to the community, and provide other banking services Kasmir, (2016).

Basically, the company exists to maximize short-term and long-term profits. Therefore, the company is trying to make various efforts to generate the greatest revenue in order to obtain a large net profit. The ability of an enterprise to make a profit is also called profitability. According to Munawir, (2016) positing that profitability is the ability of an enterprise to make a profit over a certain period of time. According to Suwardjono, (2018) profit, it is interpreted as a reward for the company's efforts to produce goods and services. This means that income exceeds costs (total costs of production and provision of goods/services). According to Harahap, (2018) net profit is the excess of the entire income on all expenses for a certain period after withholding income tax, which is expressed in the form of an income statement. Pure net profit means after all deductions. According to Harahap, (2018) the growth of net profit is a change in the percentage increase in net profit achieved by an enterprise over a certain period of time. Good revenue growth indicates that the company is in a good financial position, which increases its value.

The growth of an enterprise's annual net profit is always expected as an indicator that the company's performance is constantly improving. Data shows that the total net profit of general banking companies for the 2017-2021 period continues to experience a significant decline for several general banking companies. This has also caused many commercial banks to experience a decline in company profit growth characterized by negative net profit growth. Negative signs indicate that the company's net profit has decreased compared to the previous year. The average growth rate of net profit growth of all commercial banking companies can be seen in the Chart below.
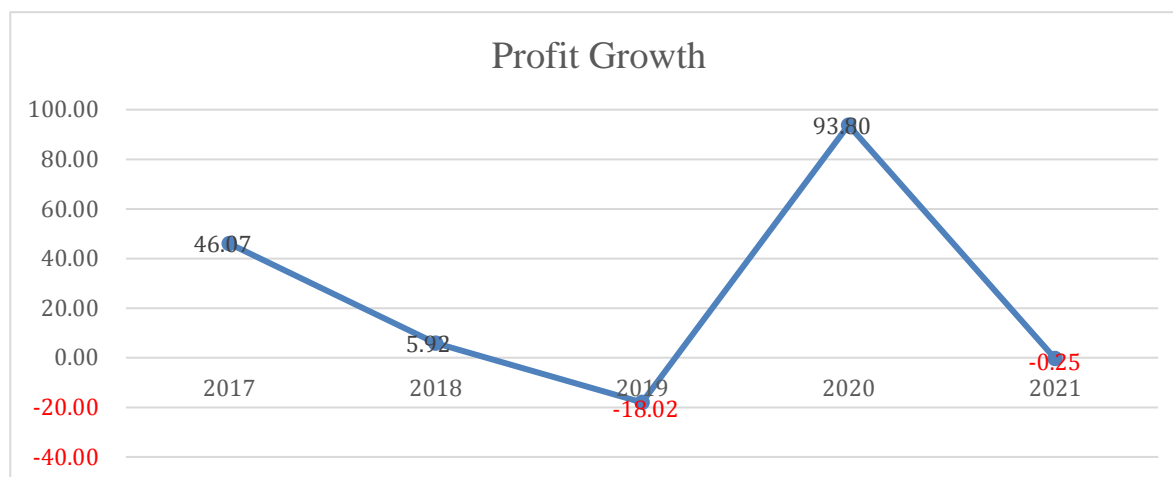

Figure 1. Growth in Net Profit in the Financial Sector, Conventional Bank Sub-Sector for the 2017-2021 Period
Source: www.idx.co.id, 2022.

From Figure 1, the average net profit growth of the Conventional Bank Sub-Sector from 2017 to 2019 continued to decline. Reaching minus 18.02 in 2020, meaning that many companies experienced a decrease in net profit. The average growth rate in 2020 jumped to a very high 93.80% as Conventional Banks began to rise from the recession caused by the Covid-19 pandemic. However, the average net profit growth returned negative in 2022. This indicates a problem in net profit characterized by a decrease in net profit growth to negative figures in 2019 and 2021.

Interest rates and inflation play an important role in this factor, and too high interest rates also increase the debt repayment burden on businesses. In addition, high inflation depreciated the currency, affecting the cost of funding and selling enterprises. According to Brigham & Houston, (2016) the interest rate is the price paid for the borrowed capital and the dividends generated and the capital gains on the shares. Therefore, the interest rate is the annual interest payment on the loan in the form of a percentage of the loan, that is, the amount of interest received annually divided by the loan amount. The interest rate on the loan is the interest received by the borrower, or the price that the borrower's customer must pay to the bank (Kasmir, 2016).

Lower interest rates tend to be accompanied by lower net profit growth for companies, contrary to the theory, Investments are reflected in the increased interest expense on loans. Based on this theory, lowering interest rates should increase a company's net profit, not lower its net profit.

In addition, high inflation depreciated the currency, impacting the cost of funding and selling enterprises. All countries, including Indonesia, have inflation rates that depreciate their currencies (Tandelilin, 2017). Inflation continues to depreciate the rupiah every year. This is not necessarily a bad thing, but when inflation is large and out of control, it wreaks havoc on the country's economy. This is because people's

purchasing power decreases because the value of the money they have decreases. The theory put forward by samsul researchers in 2016 states that high inflation decreases the purchasing power of consumers in the market, so that fewer products are sold, which can lead to lower profits.

According to Tandelilin, (2017) inflation tends to increase the price of the product as a whole. An increase in the price of one or two commodities alone is not inflation unless the increase is widespread or causes an increase in other commodities. Inflation increases the interest rate of the enterprise, which in turn increases the company's obligations to third parties in the form of interest expenses. Good revenue growth indicates that the company is in a good financial position, which increases its value.

2. RESEARCH METHOD

2.1 Research Approach

This study uses an associative approach with quantitative data using secondary data. Associative studies or causal studies (causality) are studies that seek to know whether a variable that plays the role of a free variable affects other variables that are bound variables. Quantitative research methodology is the science of obtaining valid data with the aim of finding, proving, and developing knowledge so that it can be used to understand, solve, and predict problems in a particular field of methods. Because this study has partial or simultaneous time series data, regression is used in the panel data (Manullang & Manuntun, 2014).

2.2 Research Location

The research location was conducted in the Financial Sector of the Conventional Bank Sub-Sector which is listed on the Indonesia Stock Exchange.

2.3 Population and Sample

According to Manullang & Manuntun, (2014) the population is a group of research items and the item is the smallest unit that becomes the desired source of data. Population describes the type and criteria of the population under study, while Sample describes the sampling criteria, size, and sampling method. This study used companies in the Conventional Bank Sub-Sector listed on the Indonesia Stock Exchange as many as 43 companies whose population in this study.

According to Manullang & Manuntun, (2014) the sample is a representative of the population. This study used data from 2017 to 2021. The population that can be sampled is companies that meet the criteria, as follows:

a) Conventional Bank Sub-Sector Company listed on the Indonesia Stock Exchange.
b) Conventional Bank Sub-Sector Companies that publish net profit data during the 2017-2021 period.
c) Conventional Bank Sub-Sector Company Data For the period 2017-2021 has been audited.
d) Conventional Bank Sub-Sector Companies that have never experienced losses during the 2017-2021 period

Based on these criteria, it is known that the number of populations that meet the criteria to be sampled is as many as 20 companies, then the sample calculation is 20 companies x 5 periods = 100 rows of data.

2.4 Data Collection Techniques

The data collection technique carried out in this study is a document study, by studying, analyzing and taking data from documents obtained through financial statements accessed on the website www.idx.co.id conventional bank sub-sector companies for the 2017-2021 period.

2.5 Data Analysis Techniques

This research uses panel data regression analysis techniques with the help of *the Eviews* 9 Application, with the following stages:

a) Descriptive Analysis

Descriptive statistics is a statistical analysis that gives an overview of the characteristics of each research variable, which is evidenced by the mean, minimum and maximum values. Descriptive analysis is a statistic used to analyze data by describing the collected data as it is, without intending to make generalizations or conclusions that apply to generalizations (Sugiyono, 2019).

b) Panel Data Regression Specification Test

1. Chow Test

According to Rusiadi et al., (2016) explaining that the Chow test is used to find out which model to choose for data estimation, pooled least squares (PLS) or fixed effect (FEM) models. For, the model used is a fixed effect model if there is enough evidence to reject the hypothesis 0 (zero), and vice versa.

2. Hausman Test

The Hausman test was performed to test whether the analyzed data used fixed or random effects. According to Rusiadi et al., (2016) explaining that the purpose of the Hausman test is to determine whether it is feasible to use a fixed effect (FEM) model or a random effect (REM) model. Hausman's test hypothesis, H0 is rejected if the chi-squared statistics > the chi-squared table or the chi-squared probability value is at least 10% significant then the model used is a fixed effect model (FEM) and vice versa

3. Lagrange Multiplier Test

The *Lagrange Multiplier* test is used to choose whether to analyze data using a random effect (REM) model or a common effect model (CEM). The *Lagrange Multiplier* test is used when the Chow test of choice is common effect (CEM) by performing the *Lagrange Multiplier* test. The data were regressed using random effect (REM) and common effect models (CEM) to generate hypotheses, if H0 is

rejected lm statistics > chi -squared values. That is, a random effect (REM) model is chosen or vice versa.

c) Panel Data Regression Analysis

According to Rusiadi et al., (2016) data analysis, panel is a data analysis model that combines cross-section data using time series data. Cross section data is data obtained according to the origin of data at one time or one-way observation. For hypothesis testing, this study uses panel data analysis, used to determine the magnitude of the interaction of free variables, namely interest rates and inflation with bound variables, namely net long growth. The regression model equation used, as follows:

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

Description:
PLB = Net Profit Growth (*Dependent Variable*)
α = Constants
β1, β2 = *Multiple Regression* Coefficient
SB = Interest Rate (*Independent Variable*)
IF = Inflation (*Independent Variable*)
i = Unit Sektor
t = Units of Time
ε = *Error Term*

d) Hypothesis Test

1. Partial Test (T test)

According to Rusiadi et al., (2016) explain that the statistical partial test t basically shows how far the partial influence between the independent variables is on the dependent variables. The criteria for making decisions with the t-test, are:
Accept Ho (Reject Ha) if $t_{count} < t_{table}$ or Significant value > 0.05.
Reject Ho (Receive Ha) if $t_{count} > t_{table}$ or significant value > 0.05.

2. Simultaneous Test (F Test)

According to Rusiadi et al., (2016) Test F tests the simultaneous influence between independent variables on dependent

variables. This test was performed to determine whether the influence of all free variables simultaneously had a positive and significant effect on the variables bound to the *confidence level (Confidence Interval)* or the hypothesis testing level of 5% with the F test using statistical formulas. The criteria for decision making with the F test, are:

Accept Ho (reject Ha), if $F_{counts} < F_{table}$ or Sig > 0.05

Reject Ho (accept Ha), if $F_{counts} > F_{of the table}$ or Sig < 0.05.

3. Coefficient of Determination (R^2)

According to Manullang & Manuntun, (2014) the value of *R-Square* (r^2) it is used to see how the variation in the value of the bound variable is affected by the variation in the value of the free variable. The coefficient of determination will explain how much a change or variation of a variable can be explained by a change or variation in another variable. Colloquially it is the ability of a free variable to contribute to its bound variable in percentage units. The value of this coefficient is between 0 and 1. If the result is closer to the number 0, it means that the ability of free variables to explain variable variations is very limited. But if the result is close to the number 1 it means that the free variables provide almost all the information needed to predict the variation of the bound variable. The formula of the coefficient of determination is as follows:

$$KD = R^2 \; x \; 100\%$$

Information

KD = Value Coefficient of determination
R^2 = Squared correlation coefficient

3. RESULTS AND DISCUSSIONS

3.1 Descriptive Statistical Analysis

Table 1. Descriptive Analysis of Data

	Profit Growth	Interest	Inflation
Mean	25,50470	4,612000	2,728000
Median	8,195000	4,560000	3,030000
Maximum	1600,000	5,630000	3,810000
Minimum	-900,3000	3,520000	1,560000
Std. Dev.	217,1447	0,724838	0,819248

Source: Ver Eviews Output Result. 9, 2022

Standard deviation is a reflection of the average deviation of data from the *mean*. Standard deviation can describe how much variation the data has, where if the standard deviation value is greater than the *mean* value it means that the *mean* value is a poor representation of the overall data. However, if the standard deviation value is smaller than the *mean* value, this indicates that the *mean* value can be used as a representation of the overall data.

Profit Growth has a minimum value of -900.30% owned by the company PT Bank Artha Graha International Tbk in 2021 and has a maximum value of 1600.0% owned by the company PT Bank Sinar Mas Tbk in 2020, where the average Profit Growth during 2017-2021 was 25.50% with a standard deviation of 217.14% . The *mean* value is smaller than the standard deviation which indicates that the *mean* value is a poor representation of the overall data on the Profit Growth variable.

The Interest Rate has a minimum value of 3.52% in 2021 and has a maximum value of 5.63% in 2019, where the average Interest Rate during 2017-2021 is 4.61% with a standard deviation of 0.72%. The *mean* value is greater than the standard deviation which indicates that the *mean* value is a good representation of the overall data on the Interest Rate variable.

Inflation has a minimum value of 1.56% in 2021 and has a maximum value of 3.81% in 2017, where the average inflation during 2017-2021 was 2.73% with a standard deviation of 0.82%. The *mean* value is greater than the standard deviation which indicates that the *mean* value is a good representation of the overall data on the Inflation variable.

3.2 Panel Data Regression Specification Test

a) Chow Test

Table 2. Chow Test Results

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

Source: Eviews Ver. 9 Output Results, 2022

Table 3. Hausman Test Results

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: Ver Eviews Output Result. 9, 2022

The statistical distribution value of *chi-square* in Table 2, based on the calculation results shows that the *probability of the Chi-Square Cross-section* in the Chow test on the effect of Interest Rates and Inflation on Profit Growth is 0.0000. The value is smaller than 0.05 or 5%, then statistically H_0 is rejected and H_1 is accepted, so based on the Chow test the most appropriate model to use is the fixed effect (FEM) model.

b) Hausman Test

3.3 Panel Data Regression Analysis

The results of the Hausman test in Table 3, obtained the result that *the probability* was 1.0000. The test results showed that the *probability* value was greater than 0.05, so H_0 was accepted and H_1 was rejected. Therefore, based on the Hausman test, the most appropriate model to use is the random effect (REM) model.

Based on the results of the Chow Test and the Hausman Test, it was concluded that the regression model used in this study was a random effect (REM) model.

Table 4. Panel Regression Test Results

Dependent Variable: Y_PL				
Method: EGLS panel (Cross-section random effects)				
Date: 8/20/22 Time: 11:07 AM				
Sample: 2017 2021				
Periods included: 5				
Cross-sections included: 20				
Total panel (balanced) observations: 100				
Swamy and Arora estimator of component variances				
Variables	Coefficient	Std, Error	t-Statistics	Prob
C	29,65186	1,827464	16,22569	0,0000
Sb	-1,073436	0,661607	-1,622467	0,1079
In	0,775651	0,325597	2,382241	0,0192
	Effects Specification			
			S,D,	Rho
Cross-section random			4,146875	0,9074
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-statistics	2,911514	Durbin-Watson stat		1,654149
Prob(F-statistics)	0,059162			
	Unweighted Statistics			
R-squared	0,005635	Mean dependent var		27,87621
Sum squared resid	1803,959	Durbin-Watson stat		0,156144

Source: Ver Eviews Output Result. 9, 2022

Based on the processing of panel data using the random effect (REM) model approach in Table 4, the results of the regression equation were obtained, as follows:
PLB= $\alpha it + \beta 1SBit + \beta 2INit + \epsilon it$

PLB= 29.65186 - 1.073436SBit + 0.775651INit + ϵit
The constant (α) of 29.65186 indicates that if everything in the free variables is considered zero or non-existent or not

calculated, both Interest Rate and Inflation then the value of Profit Growth already exists and is positively valued at 29.65186.

The regression coefficient for the Interest Rate variable of -1.073436 indicates that if the Interest Rate increases by 1 unit, then Profit Growth will also decrease by 1.073436 units. This indicates that interest rates negatively affect earnings growth. So that an increase in interest rates will reduce the growth of company profits, on the contrary, a decrease in interest rates will increase the growth of company profits.

The regression coefficient for the Inflation variable of 0.775651 indicates that if Inflation increases by 1 unit, then Profit Growth will increase by 0.775651 units. This indicates that inflation has a positive effect on profit growth. So that an increase in inflation will increase the growth of company profits, on the contrary, a decrease in inflation will reduce the growth of company profits.

3.4 Hypothesis Test

Table 5. Hypothesis Test Results

Variables	Coefficient	Std, Error	t-Statistics	Prob
Dependent Variable: Y_PL				
Method: EGLS panel (Cross-section random effects)				
Date: 8/20/22 Time: 11:07 AM				
Sample: 2017 2021				
Periods included: 5				
Cross-sections included: 20				
Total panel (balanced) observations: 100				
Swamy and Arora estimator of component variances				
Variables	Coefficient	Std, Error	t-Statistics	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
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-statistics	2,911514	Durbin-Watson stat		1,654149
Prob(F-statistics)	0,059162			
Unweighted Statistics				
R-squared	0,005635	Mean dependent var		27,87621
Sum squared resid	1803,959	Durbin-Watson stat		0,156144

Source: Ver Eviews Output Result. 9, 2022

In hypothesis testing, partial influence testing analysis (t test) will be carried out, simultaneous influence testing (F test) and coefficient of determination (R^2). The statistical values from Table 4 will be described, as follows:

a) Partial Test (t-test)
Based on Table 4, the table t values of the panel regression model can be searched by using the table t or Ms. Excel with the formula = tinv(0.05;df). The value of df obtained from the formula df = n − k. n is the sum of the observation data and k is the sum of variables. The value of n in this study amounted to 100 (20 companies x 5 years) and k by 3 (the number of free and bound variables), so df = n − k = 100 − 3 = 97. By typing = tinv(0.05;97) in Ms. Excel, a_{table} t of 1.985 is obtained.

The results of the t-test show that the calculated t owned for the Interest Rate variable is -1.622467, with a $_{table}$ t value of 1.985, it is known that the -t value of the $_{table}$ < t_{count}, which is -1.985 < -1.622467, reject Ha and accept Ho. The *probability* value of the Interest Rate variable is 0.1079, where this value is much greater than the

significant threshold of 0.05, reject Ha and accept Ho. Therefore, the test results do not meet the equation $-t_{of\ the\ table} < t_{count}$ and significantly < 0.05. So it can be concluded that partially there is no significant influence of Interest Rates on Profit Growth. The results of the t-test show that the calculated t owned for the Inflation variable is 2.382241, with a $_{table}$ t value of 1.985, it is known that the calculated t value $> t_{of\ the\ table}$, which is $2.382241 > 1.985$, reject Ho and accept Ha. The *probability* value of the Inflation variable is 0.0192, where this value is smaller than the significant threshold of 0.05, reject Ho and accept Ha. Therefore, the test results meet the equation $t_{count} > t_{the\ table}$ and are significant < 0.05. So it can be concluded that there is a partial positive and significant influence of Inflation on Profit Growth.

b) Simultaneous Test (F Test)
Based on Table 4, the F value of $_{the\ table}$ can be searched by using table F or ms. Excel application with the formula $=$ finv(0.05;df1;df2). Where $df1 = k - 1$ and $df2 = n - k$. n are the total observation data (20 companies x 5 years) which is 100 data and k is the total research variable which is 3. $Df = k - 1 = 3 - 1 = 2$. $Df2 = n - k = 100 - 3 = 97$. In Ms. Excel type $=$ finv(0.05;2;97) will produce a table F value of 3,090.
The result of the $_{calculated}$ F value obtained was 2.911514. The value of F is smaller than the table F value of 3.090 which is $2.911514 < 3.090$. Then it can be concluded reject Ha and accept Ho. Based on the resulting *probability* value, it is known that the *probability* value of the F test conducted is 0.059162 where this *probability* value is much greater than 0.05 so reject Ha and accept Ho. Itis concluded that the regression model in this study, namely Interest Rates and Inflation, simultaneously has no significant effect on Profit Growth.

c) Coefficient of Determination
From the results of the determination test in Table 4, it shows that the value of *R Square* obtained is 0.056632 which can be called the coefficient of determination, this indicates that only 5.66% of profit growth can be obtained and explained by interest rates and inflation, while the remaining 94.34% can be explained by factors -other factors or variables outside the model of this study.
The relationship between interest rates and inflation to profit growth can be seen from the R value that can be obtained by rooting the R-square value using the MS. Excel application by understanding $=$ SQRT (0.056632) so that an R value of 0.238 is generated. An R of 0.238 indicates that the relationship between Interest Rates and Inflation to Profit Growth is neither strong nor close. This is because the R value is in the range of values $0.2 - 0.39$. The greater the value of R the closer the relationship between the free variables to the bound variables.

4. CONCLUSION
Conventional Bank Sub-Sector Companies to adjust the savings interest rate and deposit rate offered adjust the increase in Bank Indonesia's interest rate so that customers become more interested in saving or depositing the funds they have to the company. The results of this study explain that the ups and downs in the profit growth of conventional bank sub-sector companies are not greatly influenced by the interest rates on loans issued by Bank Indonesia. This resulting negative direction shows that the greater the loan interest rate, the percentage of the company's net profit growth will basically decrease because the burden that the company has to pay on the loan will be greater. However, this is not very significant in reducing the company's net profit.
Conventional Bank Sub-Sector Companies to increase loan interest in line with the inflation rate that occurs so that the

company continues to get a profit with a value greater than the increase in inflation that occurs so that commercial bank companies can still record an increase in net profit. The results of this study explain that the ups and downs in the profit growth of conventional bank sub-sector companies are strongly influenced by inflation. This resulting positive direction shows that the greater the inflation that occurs, the percentage of the company's net profit growth will also increase significantly. This shows that inflation is one of the main factors that commercial bank companies must pay attention to in increasing the percentage of company net profit growth.

Conventional Bank Sub-Sector Companies to offer various more attractive promos, prizes, or interest so that prospective customers are motivated to save or deposit the funds they have to the company so that the company has more funds to manage to generate a greater net profit. The results of this study show that although inflation partially has a significant influence that can increase the growth of the company's net profit, but simultaneously the influence of inflation has not been large enough to encourage the influence of interest rates and inflation so that simultaneously making interest rates and inflation have no significant effect on the growth of the company's net profit.

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