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THE INFLUENCE OF INFLATION, EXCHANGE RATE AND INTEREST RATE, ON STOCK PRICE

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Abstract---Purpose: *This study aims to determine the effect of inflation, exchange rates and interest rates on stock prices.*

Design / methodology / approach*: The data used in this study is panel data, which is a combination of time series data and cross sections. The sample data of 11 companies were taken from the cross section unit data and time series data for the 2016-2019 period. The analytical method used in this study is the multiple regression analysis model.*

Findings: *The results show that inflation, interest rates and exchange rate fluctuations will influence the consumers and the world economy, because they will create inefficiencies and distort prices. High inflation and interest rates will cause company sales to decrease and capital costs to rise, so company profits will decline which will have an impact on the company's stock price. High inflation and interest rates will also affect the decline in a country's exchange rate. In the condition of a country with a high inflation rate, this export-oriented company will benefit from an increase in sales value. Conversely for importing companies, changes in exchange rates will cause an increase in production costs, consequently the company's profits will decrease which will cause a decline in share prices and increased losses suffered due to differences in exchange rates between countries.*

Practical implications: *This research is expected to be useful for managers in making decisions*

Originality / value: *this study different from previous studies because it examines the simultaneous effect of inflation, exchange rates and interest rates on stock prices.*

Keyword---*Inflation, Exchange Rates, Interest Rates and Stock Prices*

I. Introduction

Performance appraisal in the form of financial ratios is one of the useful tools in assessing a company's past achievements and prospects for the future. Stocks are long-term investments that promise high returns and also carry a high level of risk. Companies that want to obtain large profits mean that they must be prepared to bear a large risk as well. This makes share ownership interesting and at the same time a challenge for investors in investing their capital. Stock prices in general are influenced by the amount of demand and supply for these shares, demand and supply for shares that cause

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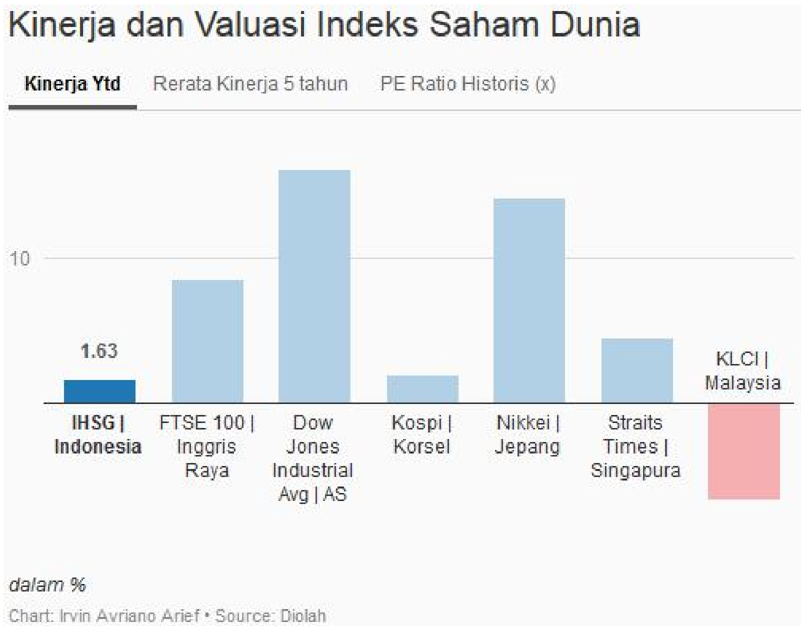
fluctuating stock prices will be influenced by various factors including inflation, interest rates and exchange rates (Zul Afni, 2011).

Based on data obtained underperformance from the Indonesian stock market 1.63% throughout the year only above the Malaysian KLCI index which is still 6.54%. The performance of the Jakarta Composite Index (JCI), another title IHSG in the eyes of the world, is still very low compared to the core of the center of the problem that is the US which is represented by the Dow Jones Industrial Average 16.06% and from China which is represented by the Shanghai Composite 17.86%, and that does not include the major indexes of other large countries.



Source: www.cnbcindonesia.com

Based on the phenomenon above, the purpose of this study is to find out whether there is an influence of Inflation, Exchange Rates, Interest Rates and Stock Prices

II. Theory and Hypothesis

Theory

Effects of Inflation on Stock Prices

Inflation is a condition where the general level of prices of goods and services has increased continuously in a certain period. This price increase will cause customers to buy fewer goods and services. Inflation will also have an impact on rising production costs. It is also not possible for a company to increase the price of goods, because the company is afraid that sales will decline and is also afraid that customers will switch to using competing products. This condition will cause company profits to fall due to decreased sales value and increased costs. This decline in profit will result in investors not wanting to invest in the company, which in the end will have an impact on the decline in demand for company shares which has an impact on falling stock prices.

Effect of Interest Rates on Stock Prices

Interest rates can be considered as capital costs. Interest rates are an important element in a nation's economy because they are directly related to economic growth. As a cost of capital, the interest rate is the price paid for using money for a certain period of time. From the point of view of creditors, interest rates are the fees charged for borrowing money. From the point of view of the debtor, interest rates are income because they provide money loans. From the point of view of the lender if the interest rate paid by the bank to the depositor increases, then the investor will divert brand capital from the stock market to the bank. As a result, it will reduce the demand for shares which has an impact on the decline in share prices (Alam and Uddin, 2009). For creditors, high interest rates will increase the cost of the company and result in a decrease of profits which will ultimately result in a decrease in stock prices, because the company's performance has decreased.

Effects of Exchange Rates on Stock Prices

The "Flow-Oirented" theory of Dornbusch and Fischer (1980) states that there is a relationship between exchange rates and stock prices. The size of the exchange rate shows the competitive ability of a company internationally. This exchange rate will affect the company's revenue, cost of capital and output which can give an indication of the present value of the company's cash flow in the future. This exchange rate will have an impact on companies in transactions that are converted into other currency units, such as exports and imports. The exchange rate can also cause changes in the book value of the company which will affect investors' assessment of the company's current performance (Fauziah et al, 2015).

Depreciation of the local currency will hamper export growth, which will increase income which will have an impact on increasing share prices. For companies that are dominated by imports, depreciation of the local currency will result in production costs which will cause a decline in company income and will reduce share prices. If viewed as a whole the exchange rate will affect the price of input and output of the company and will also affect the competitive position in the country against foreign competitors. (Fauziah et al, 2015).

Simultaneous Effects (Inflation, Interest Rates, Exchange Rates) on Stock Prices

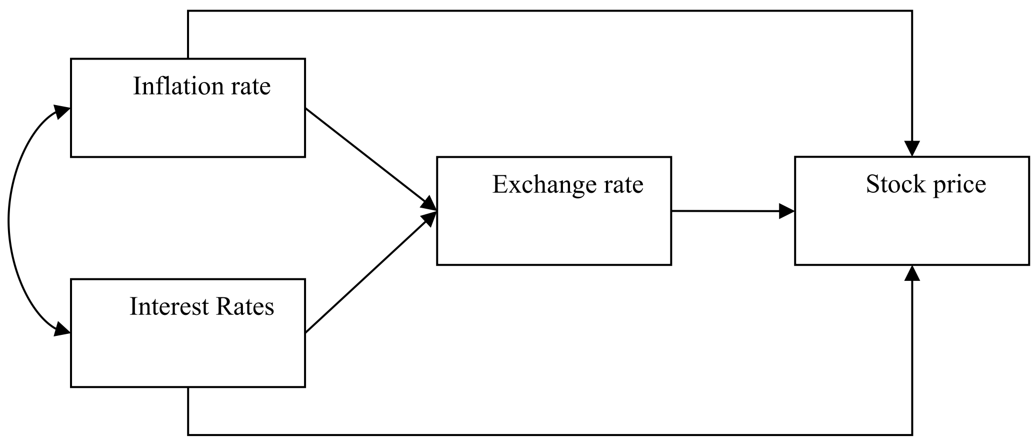
Inflation is a key factor affecting interest rates. If inflation occurs, the price of goods will increase. An increase in the price of goods will reduce the money supply in real terms. Based on Keynesian analysis, this will lead to economic imbalances. Excessive demand on the money market will lead to an excess supply of money on the bond market. Lenders believe that inflation will erode the value of their money within the term of the loan, so that there will be an increase in interest rates in order to compensate for losses. Therefore, inflation can encourage an increase in interest rates (Mirza and Rashidi, 2018).

An increase in interest rates can also encourage inflation. The interest rate for borrowers is the cost of capital. High capital costs will result in high production costs, which can increase prices. High interest rates can also cause consumers to tend to save because they are interested in getting a favorable return on savings. As a result the economy slows and the inflation rate has decreased. The opposite is that if interest rates decline, consumers will be attracted to borrow money. Consumers will have enough money to spend. This will encourage economic growth and inflation will occur (Mirza and Rashidi, 2018)

Based on the description above, the hypothesis in this study:

Thinking Framework and Hypothesis

Based on the above framework, the picture of the framework and hypotheses are as follows:



H1: There is a direct influence of the inflation rate on stock prices

H2: There is a direct influence of interest rates on stock prices

H3: There is a direct exchange rate effect on stock prices

H4: There is a simultaneous effect of inflation, interest rates and exchange rates stock price

III. Research methodology

In this research, hypothesis testing is aimed at testing the effect inflation and interest rates on exchange rates and their implications for stock prices. Data used in this research is panel data, which is a combination of time series data and cross section. The sample data of 11 companies were taken from the cross section unit data and time series data for the 2016-2019 period. The analytical method used in this study is the multiple regression analysis model.

IV. Analysis and Discussion

Analysis

Descriptive statistics used are average, maximum, minimum, and standard deviation. In this study, descriptive statistics are used to describe the variables of inflation, exchange rates, interest rates and stock prices. The results of the descriptive analysis can be seen in table 4.1 below.

Regression Analysis: USD-IDR Exchange Rate versus Inflation; Repo Rate

The regression equation is

Kurs USD-IDR = 29608 - 270863 Inflasi - 130177 Repo Rate

Predictor	Coef	SE Coef	T	P	VIF
Constant	29608	2957	10,01	0,063	
Inflasi	-270863	40384	-6,71	0,094	6,120
Repo Rate	-130177	32369	-4,02	0,155	6,120

S = 98,3209   R-Sq = 98,6%   R-Sq(adj) = 95,9%

PRESS = 179362   R-Sq(pred) = 74,69%

Analysis of Variance

Source	DF	SS	MS	F	P
Regression	2	699086	349543	36,16	0,117
Residual Error	1	9667	9667		
Total	3	708753			

Source	DF	Seq SS
Inflasi	1	542739
Repo Rate	1	156347

Obs	Inflasi	Kurs USD-IDR	Fit	SE Fit	Residual	St Resid
1	0,0353	13329,8	13390,9	77,0	-61,1	-1,00
2	0,0381	13398,2	13351,2	86,4	47,0	1,00
3	0,0320	14267,3	14302,9	91,7	-35,5	-1,00
4	0,0303	14130,5	14080,8	84,9	49,7	1,00

Durbin-Watson statistic = 2,66246

Regression Analysis: Δ Stock price versus Kurs USD-IDR_1

The regression equation is
Δ Harga Saham = 5,41 - 0,000376 Kurs USD-IDR_1

Predictor	Coef	SE Coef	T	P	VIF
Constant	5,407	2,986	1,81	0,080	
Kurs USD-IDR_1	-0,0003763	0,0002143	-1,76	0,089	1,000

S = 0,469660   R-Sq = 9,1%   R-Sq(adj) = 6,1%

PRESS = 8,18602 R-Sq(pred) = 0,00%

Analysis of Variance

Source	DF	SS	MS	F	P
Regression	1	0,6805	0,6805	3,09	0,089
Residual Error	31	6,8380	0,2206		
Lack of Fit	1	0,0388	0,0388	0,17	0,682
Pure Error	30	6,7992	0,2266		
Total	32	7,5185			

Obs	Kurs USD-IDR_1	Δ price Saham	Fit	SE Fit	Residual	St Resid
1	13398	0,1758	0,3644	0,1406	-0,1887	-0,42
2	14267	0,0309	0,0373	0,1088	-0,0064	-0,01
3	14130	-0,0050	0,0888	0,0922	-0,0938	-0,20
4	13398	-0,0444	0,3644	0,1406	-0,4089	-0,91
5	14267	0,0659	0,0373	0,1088	0,0286	0,06
6	14130	0,2145	0,0888	0,0922	0,1257	0,27
7	13398	-0,0820	0,3644	0,1406	-0,4464	-1,00
8	14267	0,1983	0,0373	0,1088	0,1609	0,35
9	14130	0,2364	0,0888	0,0922	0,1475	0,32
10	13398	0,0379	0,3644	0,1406	-0,3265	-0,73
11	14267	0,1742	0,0373	0,1088	0,1368	0,30
12	14130	0,0670	0,0888	0,0922	-0,0218	-0,05
13	13398	-0,0379	0,3644	0,1406	-0,4023	-0,90
14	14267	-0,0230	0,0373	0,1088	-0,0603	-0,13
15	14130	0,0638	0,0888	0,0922	-0,0251	-0,05
16	13398	0,1638	0,3644	0,1406	-0,2006	-0,45
17	14267	0,1700	0,0373	0,1088	0,1327	0,29
18	14130	-0,0313	0,0888	0,0922	-0,1201	-0,26
19	13398	0,2280	0,3644	0,1406	-0,1365	-0,30
20	14267	0,2970	0,0373	0,1088	0,2597	0,57
21	14130	-0,2176	0,0888	0,0922	-0,3064	-0,67
22	13398	0,9104	0,3644	0,1406	0,5460	1,22
23	14267	-0,2500	0,0373	0,1088	-0,2873	-0,63
24	14130	-0,2031	0,0888	0,0922	-0,2920	-0,63
25	13398	-0,2031	0,3644	0,1406	-0,5675	-1,27

26	14267	-0,0588	0,0373	0,1088	-0,0961	-0,21
27	14130	0,0833	0,0888	0,0922	-0,0055	-0,01
28	13398	2,5714	0,3644	0,1406	2,2070	4,93R
29	14267	0,3636	0,0373	0,1088	0,3263	0,71
30	14130	0,0733	0,0888	0,0922	-0,0155	-0,03
31	13398	0,3668	0,3644	0,1406	0,0024	0,01
32	14267	-0,1399	0,0373	0,1088	-0,1772	-0,39
33	14130	0,2000	0,0888	0,0922	0,1112	0,24

R denotes an observation with a large standardized residual.

Durbin-Watson statistic = 1,87782

The regression model resulting from the above calculation results is as follows.
USD-IDR exchange rate = 29608 - 270863 Inflation - 130177 Repo Rate

V. Discussion

1. Inflation is a key factor affecting interest rates. If inflation occurs, the price of goods will increase. An increase in the price of goods will reduce the money supply in real terms. Based on Keynesian analysis (1936), this will result in an economic imbalance. Excessive demand on the money market will lead to an excess supply of money on the bond market. Lenders argue that inflation will erode the value of their money within the term of the loan, so that there will be an increase in interest rates in order to compensate for losses. Therefore, inflation can encourage an increase in interest rates.
2. An increase in the interest rate can also encourage inflation. The interest rate for borrowers is the cost of capital. High capital costs will result in high production costs, which can increase prices. High interest rates can also cause investors to tend to invest their funds into savings because they are interested in getting profitable returns from savings. As a result the economy slows and the inflation rate increases. Conversely, if the inflation rate drops, interest rates decline, this encourages investors to invest their funds in a company because prices have decreased so that consumers will have enough money to spend. This will encourage economic growth and reduce inflation.
3. If in a country there is inflation and changes in interest rates, it will affect the exchange rate of that country's currency. The relationship of inflation, interest rates and exchange rates can be explained based on the International Fisher Effect (IFE) theory. This theory is in line with the theory of Purchasing Power Parity. Based on the Purchasing Power Parity theory, the purchasing power of consumers in a country will be similar to the purchasing power of consumers in a foreign country. If there are differences in inflation rates between countries, it will cause differences in interest rates based on the large difference in inflation rates between different countries so it is necessary to adjust the exchange rate to maintain the same purchasing power. The value of a country's currency experiencing inflation will weaken, especially if demand for foreign goods in the country persists. The decline in the value of this currency will continue until foreign product demand can be reduced. This can be overcome one of them by creating their own products, quotas on imported goods from other countries, in addition to increasing the

amount of domestic product exports to other countries. In addition, the IFE theory also explains that countries with relatively high interest rates, the value of their currencies will depreciate.

4. Inflation, interest rates and exchange rate fluctuations will affect consumers and the world economy, because they will create inefficiencies and distort prices. High inflation and interest rates will cause company sales to decrease and capital costs to rise, so company profits will decline which will have an impact on the company's stock price. High inflation and interest rates will also affect the decline in a country's exchange rate. In the condition of a country with a high inflation rate, this export-oriented company will benefit from an increase in sales value. Conversely for importing companies, changes in exchange rates will cause an increase in production costs, consequently the company's profits will decrease which will cause a decline in share prices and increased losses suffered due to differences in exchange rates between countries.

VI. Conclusion

Based on the framework of thought, hypothesis, and discussion can be concluded that

1. Inflation is a key factor affecting interest rates
2. An increase in the interest rate can also encourage inflation.
3. If in a country there is inflation and changes in interest rates, it will affect the exchange rate of that country's currency
4. High inflation and interest rates will cause company sales to decrease and capital costs to rise, so company profits will decline which will have an impact on the company's stock price

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