

# The Influence Money Flows on Movement of Stock Prices in Indonesia: An Analysis on Banking Industry

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**Abstract**--The effect of interest rates and money supply on movement of stock prices become a major topic of discussion with in the goal of analyzing two variables toward stock price volatility at banking companies listed on Indonesia Stock Exchange 2011-2015 period. The method used is explanatory research with descriptive and verification. Empirically, the results showed that there is a very strong relation between interest rates and money supply amounted to 0.809 with high impact on stock prices at banking sector amounted to 64.3%. t test results showed that when value of interest rate increase of 1 unit assuming other variables are fixed, it will increase the stock price of 1,252. Then, if the value of money supply increased by 1 unit, assuming other variables are fixed, it will increase the price of shares amounted to 47.737. While the results of ANOVA test with a significance level of 0.000 obtained calculated F-value of 42.135 > F-table at 3.16. Thus jointly of variable interest rates and money supply significantly influence the price of state-owned banking sector stocks.

**Keywords**--Interest rates, Money supply, Stock price.

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## I. INTRODUCTION

A strong and modern financial system has a structured paradigm shift regarding financial arrangements and allocation methods. This is important to do to increase economic growth in the future. Sector that plays an active role in the economic development of a country, namely the banking industry. This sector can develop rapidly in the face of the era of global competition and the development of financial investment, especially in the Indonesian market. Financial market investment is divided into two parts, namely capital market institutions and money markets. The capital market acts as a forum for companies to raise public funds (investors). The funds can be used for business development and expansion and additional working capital. Activities at stock exchange institutions are influenced by several factors, including external factors which are conditions that cannot be controlled by corporate institutions, for example: interest rates, money supply, exchange rates, and other macroeconomic conditions. While internal factors are conditions that can still be controlled by the company, such as: employee performance and machine technology. Changes that occur on external and internal factors will be responded to by the financial market, so that it has the potential for risk in investing. The level of the interest rate domain will have an influence on stock price movements indirectly, for example: if the stock price increases or decreases due to fluctuations in interest rates, it is likely that investors will experience capital loss or capital gains. The policy carried out by Indonesian banks in

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reducing credit interest rates is to increase the rate of economic growth and people's purchasing power. With the increase in interest rates, it will have an impact on the positive sentiment of the banking industry.

While understanding the amount of money in circulation can be interpreted narrowly and broadly. Narrow understanding, money that always circulates in the community consists of currency while in the broad sense it is called quasi money. The review of the results of previous studies shows that there is a factor in the money supply that has a significant effect on stock price movements. This is due to inflationary pressures that have an impact on the ups and downs of company profits. When inflation is high and the money supply is relatively large, Bank Indonesia will automatically respond by pressing interest rates. With high interest rates, people tend to prefer investment in the banking sector because they will benefit. But on the contrary if the interest rate is low, investors will tend to prefer investment in the capital market. Despite the increase in inflation due to the high money supply, the interest of the Indonesian community in investing is still small. This is because the patterns of life of the Indonesian people are mostly still consumptive. Exposure in the phenomenon that occurs, shows the existence of problems caused by the influence of interest rates and the money supply on the movement of the stock price of the banking industry. The purpose of this study is to be able to prove the results empirically between the influence of the two variables studied on the subject matter of stock price volatility that has a global impact on the country's economy.

## II. LITERATURE REVIEW

Activities in investing a certain amount of capital in some capital market instruments are referred to as investments. The capital owners (investors) can save their funds into shares or other forms on the stock exchange institutions. This aims to get a profit from the difference in the selling price of shares against the purchase price (capital gain). According to Murni (2013: 52), investment is a form of expenditure that is carried out for the business sector and Persero in buying capital goods or production equipment. According to Martin J. Et all (2003: 12), investment can be referred to as the purchase of goods used to produce more products / services in the future. According to Sunariyah (2011: 4), investment is investment in more than one asset and usually has a long period of time in the hope of gaining profit in the future. The purpose of each person in investing varies, depending on his own intentions. The existence of a capital market in a country can be a reference to see how the economy moves. Sunariyah argues (2011: 4), that capital markets are markets in which trade in shares, bonds and other securities using securities brokerage services. While Martalena and Maya Meilinda argue (2011: 2), that the capital market is a market for long-term financial instruments that are traded, such as: mutual funds, bonds and shares.

Interest rates are a term in the economy that states the use of money / capital. According to Kasmir (2011: 133) interest rates are the provisions of prices paid for each customer to the bank. Whereas Sunariyah argues (2011: 80) interest rates are a price of the effect of loans. Interest is a measure of the price of the resources used by the debtor and must be returned to the creditor. It can be said that the lower the interest rate, will have an impact on increasing economic growth caused by the increasing frequency of funds. Therefore the interest rate and profit determined are the main variables that have an influence on investors' desire to invest in portfolio instruments in capital market institutions even though the interest rates are low. The factor of the money supply is divided into two parts, namely: the money supply in a narrow sense consisting of currency and demand deposits, and the money supply in the broad sense consisting of currency / demand deposits with time deposits. Murni argues (2009: 113), that money is something that is accepted by the general public and is believed to be a legitimate means of payment for transaction purposes. In social life, the central bank has a role to regulate the amount of money circulating both in order to increase or reduce it through a monetary policy.

### II.I. Effect of Interest Rates on Stock Prices

Interest rates are important in making investment decisions. If interest rates fall, people tend to choose to make long-term investments. Whereas when interest rates increase, people will choose to invest in the short term. Samsul (2006: 201) stated that the increase in interest rates had a negative impact on issuers due to an increase in loan interest expenses and a decrease in the level of net income. The decline in net income resulted in the share profits declining and resulted in a decline in the stock market price in the stock. On the other hand, an increase in interest rates will encourage investors to sell shares and then be deposited in the form of deposits (Saudi, 2018).

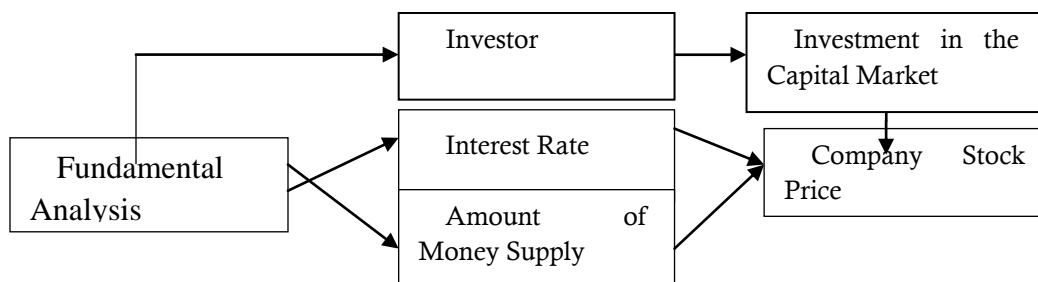
Whereas Novianto argues (2011: 11), that interest rates are also determined by the existence of a demand and supply of money. Fluctuations in changes in interest rates will affect the investment climate, where prices can experience increases or decreases in the interest rate so that the holders of securities will experience losses or profits.

If the interest rate is high, investors tend to invest their capital in the form of deposits or can also buy bond instruments that provide fixed interest, resulting in a stock market slump. But on the contrary if the interest rate is low, the tendency of investors will save their funds to the stock exchange market.

## II.II. Effect of Circulating Money Amount at Stock Prices

Samsul argues (2006: 210), if there is an increase in the money supply, the market price of the stock will also increase. This is because when the money supply increases, investors will tend to invest. When investors save their funds in the form of stock investments, then the stock market price of the stock will increase. The company's prospects in terms of performance processes are influenced by various uncontrolled macro variables. If there is a shift in the variable, it will be related to the rise or fall in stock market prices. The rate of interest has an influence on the activity process on the stock exchange. This interest rate is largely determined by the demand or supply of money.

Furthermore, it will influence investors' decisions in investing. For example: in securities instruments can experience an increase or decrease in value depending on the interest rate that allows the holders of securities will experience losses or profits. If the interest rate is high, money owners tend to save it in savings or deposits. Or vice versa if low interest rates, tend to choose the stock market. Thus the relationship between interest rates and shares has a negative relationship (Novianto, 2011: 11). The other macro variables are the money supply. (Nugroho, 2008) argues in his research that the money supply has a significant effect on the stock market price index. This is because the money circulating has begun to be utilized by the community in the context of investing in capital market institutions (Zeibote et al., 2019).



**Figure 1:** Flow of Thinking Framework

## III. METHODOLOGY

This study uses descriptive and verification by examining the status of human groups, objects, conditions or groups of events in the present. The descriptive objective is to make a systematic, factual and accurate description and illustration of the facts, the nature and the relationship between phenomena (Nazir, 2003: 54; Hussain et al., 2018). While the verification research aims to analyze the causality relationship between variables so that the results of evidence that show acceptance or rejection are obtained (Rasyad, 2003: 12). Data analysis applied in this study used correlation analysis and multiple regression to explain the direction of the relationship of independent and dependent variables. While to test the hypothesis using the t test and F test.

### III.I. Operational Variables

Operationalization of variables is a way of estimating concepts so that results can influence or be influenced, namely the causes of problems between other variables. The variables used in this study consist of independent variables which are causes of changes in the dependent variable. In this study the interest rate factor and the money supply are applied as independent variables. While the dependent variable is a factor caused by the influence of the independent variables. This study applies the stock price factor as the dependent variable.

**Table 1: Operationalization of Variables in Research**

Variabel	Konsep Variabel	Indikator	Skala
Interest rate	The SBI interest rate is the interest rate stated and determined by Bank Indonesia. This interest rate is used for a certain period and the measurement is expressed in units of percent.	<i>Bi rate</i>	Ratio
Amount of Money Supply	he number of units of money in circulation per year in billion rupiahs is calculated based on the amount of M2 for the period 2011 – 2015.	M1 and M2	Ratio
Stock price	Price per share of industrial shares in the Persero banking sector which are traded on the capital market	The closing price for the 2011 - 2015 period	Ratio

The data source applied in comes from secondary data financial statements of the go public banking industry in the Indonesia stock exchange for the period 2011-2015. The sampling technique uses a purposive sampling method. The sample is based on the entire population taken, namely for the banking industry that has been listed on the Indonesian stock exchange and meets certain criteria.

**Table 2: Average Banking Stock Prices**

Year	Mandiri	BTN	BNI	BRI
2011	Rp 6.775,00	Rp 1.424,58	Rp 3.872,92	Rp 6.158,33
2012	Rp 7.533,33	Rp 1.340,83	Rp 3.818,75	Rp 6.845,83
2013	Rp 8.862,50	Rp 1.228,33	Rp 4.433,33	Rp 8.075,00
2014	Rp 9.898,75	Rp 1.114,17	Rp 5.189,58	Rp 10.377,08
2015	Rp 10.004,17	Rp 1.150,83	Rp 5.591,67	Rp 11.131,25

Source :www.idx.co.id

### III.II. Methods in Data Analysis

Data analysis methods used are correlation analysis and multiple linear regression. The analysis of the test is done verifcatively in explaining the effect of interest rates and the money supply on stock market prices. The following is an explanation of each data analysis:

#### 1. Multiple Correlation Analysis

Multiple correlation analysis is used in finding relationships between two or more independent variables simultaneously associated with the dependent variable, then the direction and strength of the relationship will be known. Multiple correlation coefficients with two independent variables and one dependent variable can be calculated with the following formula:

$$R_{y(1,2)} = \sqrt{\frac{b_1 \sum XIY + B_2 \sum X_2Y}{\sum Y^2}}$$

Source : Metode Penelitian Kuantitatif dan Kualitatif (2012)

#### 2. Determination Coefficient Analysis

The coefficient of determination (R<sup>2</sup>) essentially measures how much the model's ability to explain variations in the independent variable. The coefficient of determination is between zero and one. The small value of R<sup>2</sup> means

that the ability of the independent variable to explain the variation of the dependent variable is very limited. A value close to one means that the independent variable gives almost all the information needed to predict variations in the dependent variable (Ghozali, 2011: 105).

### 3. Multiple Linear Regression Analysis

The multiple regression equation applied to the pattern of this research is conducted to determine the influence of interest rates and the money supply on the stock market price. The pattern of multiple regression equations is as follows:

$$Y = a + b_1X_1 + b_2X_2 + e$$

### 4. Hypothesis Testing

The compatibility of the regression function to estimate the true value can be measured by the term Goodness of Fit. In statistics, measured by the test values t and F. Testing the statistical value t shows how much influence an independent variable partially in explaining the dependent variable (Ghozali, 2011: 105). While to test the statistical value F shows about how much influence the independent variables into the model simultaneously on the dependent variable.

## IV. RESULT AND DISCUSSION

The results of the Bank Indonesia Board of Governors meeting dated February 17, 2015 determined to reduce the Bi rate by 25 bps to 7.5%, with the deposit interest rate dropping 25 bps to 5.5% and the credit facility factor remaining at the 8% level effective from 18 February 2015. This policy was decided with the belief that inflation will be under control. This policy is still in line with Bank Indonesia's efforts to control the current account deficit at a healthier level. Bank Indonesia appreciates the energy subsidy reform policy, then plans for infrastructure development, as well as improving the investment climate, including integrated one-stop licensing services. While the money supply at the beginning of January 2015 to December 2015 continued to increase. This is influenced by the increasing lending to the community. Recorded credit distribution reached Rp. 3,699 (trillion rupiah). Based on the data processing, the results for multiple correlation testing are as follows:

**Table 3:** Multiple Correlation Coefficients and Determination Coefficients.

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
dimensi on0	0.809 <sup>a</sup>	0.655	0.643	667.77605	0.502

a. Predictors: (Constant), Interest Rate, Money Supply  
 b. Dependent Variable: Stock Price

**Source :**Data Result

The results of multiple correlation analysis (R) show the number of correlation coefficients of 0.809. This states that there is a strong relationship between variable interest rates, the amount of money in circulation and stock market prices. The results of the analysis of the coefficient of determination (R<sup>2</sup>) based on the Adjusted R Square number 0.643 = 64.3% shows the influence of the interest rate factor and the money supply amounting to 64.3% on the stock market price. While the remaining 35.7% is influenced by other factors.

The formulation of the multiple linear regression equation model is  $Y = 303.255 + 1,252 X_1 + 47.737 X_2$  indicating that if the interest rate increases by 1 unit assuming that the other variables remain, it will increase the stock market price by 1,252. Meanwhile, if the value of the money supply increases by 1 unit assuming that the other variables are also fixed, it will increase the market price of the stock by 47,737.

In the partial test results (Test t) obtained a significant value for the variable interest rate of 0,000 smaller than the alpha standard value of 0.05. So, the conclusion is that the interest rate variable has a partial effect on stock prices. Whereas for the money supply variable, the significance value of 0.001 is smaller than the alpha standard value of 0.05. So, the conclusion is that the variable money supply has a partial effect on stock prices.

**Table 4:** Analysis of Multiple Linear Regression and t-Test

Source: Data Result

**Table 5:** F – Test

**ANOVA<sup>b</sup>**

ANOVA <sup>b</sup>		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	4.8297	2	2.4147	42.135	0.000 <sup>a</sup>
	Residual	2.5427	57	445924.86		
	Total	7.3717	59			

a. Predictors: (Constant), Interest Rate, Money Supply  
 b. Dependent Variable: Stock Price

The calculated F value from the ANOVA table of 42,135 shows the results of the comparison between F count with F table with Ho rejected, because the calculated F value is  $42.135 > F\text{-table} = 3.16$ . Likewise with a significance value of 0,000 simultaneously the factors of interest rates and the money supply have a significant influence on stock market price movements in the banking industry.

## V. CONCLUSION

Interest rates and money supply have a significant effect on volatility in stock market prices. This is because these factors have high sensitivity even though the reference used is not the interest rate in each bank, but is based on the reference of the central bank's interest rate through the BI-rate value. For investors, you can see the pattern of stockprice movements in terms of the analysis of interest rate factors and the money supply in addition to other

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	303.255	367.235		0.557	0.341
Suku Bunga	1.252	0.161	0.578	5.452	0.000
Uang Beredar	47.737	12.459	0.046	3.444	0.001

a. Dependent Variable: Stock Price

factors that can affect the activities on the capital market. Inflationary pressure due to weakening public purchasing power is a gap factor in the problems that arise besides the main factors. Therefore, with the existence of observed empirical evidence, it will provide a more comprehensive pattern of understanding and answer the purpose of this study, namely knowing the magnitude of the influence of the main factors on stock price volatility statistically. This research will provide meaningful benefits to practitioners, investors and other segments of the community concerned.

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