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Analysis of the Economy Fundamental in Indonesia Stock Exchange

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Abstract

This study aims at empirically to investigate the state of the Indonesian economy through two models of statistical analysis proposals that are often in use are the test of causality and simple regression. This study uses macroeconomic variable data consisting of 5 and 1 capital market variable that is the composite stock price index. From empirical studies that have been carried out can be given explanation that the macroeconomic conditions of the Indonesian economy and capital markets, in this case JCI has no causal relationship and not significant, it is in the mark with the results of statistical tests as presented in table 2 and table 3 in this study.

Key Words: Stock market, causality test, simple multiple regression test.

1. Introduction

In the analysis of Economy and Capital Market to be conducted by creditors, investors and shareholders in some countries or within the country, where the cost can be in the form of securities and cash. The fundamental model of analysis is the first step before doing the analysis at a later stage. Investor investors invest in a business, first perform the analysis of the economy and capital markets. This is done because of the strong relationship between economic environment and performance. Some empirical studies give the same results and opinions because the capital market is the same as what happens in the country's macroeconomic economy. In simple language, between economic conditions with capital markets are interrelated and interconnected.

This study needs to be done with a starting point on the theory that much in use in research on macroeconomics and the stock market is by Siegel, and in the book in [1,2]. Where in [1,2] describes a strong relationship between stock prices and performance. That is, the capital market may (issues) that are in the process of economic change that will occur even though it has not really happened. This is inversely related to the changes that occur after the change in the new interest rate, and even then through a long process until the change is realized evenly. The need for this research is done in due to the changes in stock market performance reflecting the incidence of macroeconomic. The stock market has been seen as a leading economic indicator: a large decline in stock prices may lead to future recession, while a large increase in stock prices may show strong economic growth in the future. Changes in stock market performance can not be separated by changes that occur in the prospects of various companies in the market which can further affect the stock price of a company in the future. The analysis in this study is supported by the argument that stock prices should reflect future earnings growth of the company. So this study needs to be re-done using the latest data to know the argument and the opinion is true for the State of Indonesia in particular.

The question arises where the capital market is always in the place of reference for the occurrence of economic change in a country, why is that. The most certain reason is that the stock price that has been formed will reflect investors' expectations of economic conditions in the future. Then, the performance of capital markets will react first to the macroeconomic changes that will occur, such as changes in interest rates, inflation, or the amount of money in circulation. Some macroeconomic variables are always made in the analysis tools and studies on the performance and prospects of the company.

Among these, the most common variables are Gross Domestic Product (GDP), Inflation, Interest Rate, and Private Investment.

1. Gross Domestic Product (GDP)

Increased GDP will be a good (positive) signal for investment in the capital market. Similarly, if GDP declines, eating will cause a decrease in investment in the capital market. That means, GDP is related in a direction (positive) to Capital Market Investments. Why is that?. Increased GDP has a positive influence on consumer purchasing power, thus increasing demand for the company's products.

2. Inflation

Inflation is best (negative) to investment in the capital market. Rising inflation will be a relatively negative signal for investors in the capital market. Inflation can indeed increase the revenue and cost of the company, but if the increase in production costs is higher than the price increase that can be enjoyed by the company, then the profitability of the company will go down.

3. Interest Rate

The interest rate is inversely related to the stock price. An increased interest rate will lead to an increase in interest rates imposed on an investment in a stock. In addition, increased interest rates may also cause investors to withdraw their investments in stocks, then transfer them to investments in the form of savings or deposits.

4. Private Investment

Private investment is in the same direction (positive) with Investment in capital market. That is, Increased private investment led to increased investment in capital markets. The reason is, when private investment increases, GDP will also increase, the consumer income (population) also increases. If consumer income increases, generally demand for the company's products also increases.

5. Rupiah Exchange Rate (Currency)

The Rupiah exchange rate is related (positive) to the domestic capital market. If the Rupiah strengthens against the foreign currency, then it will be a good signal (positive) for the economy that is experiencing inflation. That means, the increase in the rupiah exchange rate can provide a good effect for investors in the capital market. This is due to the strengthening of the Rupiah exchange rate can lower the cost of imported raw materials production, and also lower the prevailing interest rates.

6. Budget Deficit

The deficit budget tends to be a positive signal for a recurring economy. But on the other hand, the budget deficit will only be bad news for the economy that is experiencing inflation. In this case, the deficit budget will encourage government consumption and investment, thus increasing demand for the company's products. But behind all that, it will increase the amount of money in circulation and consequently will encourage the development of inflation.

7. Trade and Payment Balance

The trade balance and payments can be a negative signal for the investment world. Trade balance deficits and payments should be financed by attracting foreign capital. In order for that to happen, the government must raise interest rates. When interest rates rise, investors tend to withdraw their funds in stocks and then transfer them to deposits or savings. This research is divided into 5 sections, where part 1 is the introduction, part 2 of theoretical basis, part 3 of the research methodology, part 4 of the research results and the last of the 5 conclusions.

2. Theoretical Study

Analysis of SBI Interest Rate with JCI

In a study conducted [3] on interest rates and JCI, explaining that the SBI is a central bank instrument as a lender of the resort that is only used if the banks have been pressed. The amount of discount facility is adjusted to the amount of funds available in the community. In this case, SBI can be interpreted as an instrument of monetary contraction that can be used by Bank Indonesia if the monetary situation is considered expansive. The rate of return that investors expect on stock investments is often influenced by the income earned by investors on other investment alternatives. [4] argues that the interest rate affects the stock price in 2 ways, namely:

1. The interest rate affects the firm's earnings because the interest rate is the cost.
2. A high interest rate will cause investors to withdraw their stock investments and transfer them to other investments that offer higher interest rates.

Analysis of Exchange Rate with JCI

In other studies, in relation to the exchange rate with the JCI according to [5], it is argued that the value of a currency stated in the price of another currency can be made as a source of analysis. As the rupiah currency is kusr over US dollar. This rupiah value indicates the value of rupiah required for each US dollar. Changes in the rupiah exchange rate against the US dollar have a different impact on each type of stock, meaning a share is positively affected while other shares are adversely affected. For a sharp rise the USD exchange rate against the rupiah will negatively impact the issuer with dollar debt while the issuer's products are sold locally, while the export-oriented issuer will receive a positive impact from the rise of the USD exchange rate, resulting in an increase in the stock price.

Analysis of Economic Growth with JCI

See [1,2] describes economic growth as a process whereby an increase in real gross national product or real national income. Thus, the economy is said to grow or flourish in the case of real output growth. Understanding of economic growth is economic growth occurs when there is an increase in output per capita. Economic growth illustrates the increase in living standards is measured by real output per person. One indicator of a country's economic growth is Gross Domestic Product (GDP). If economic growth improves, then public purchasing power will increase as well and this gives an opportunity for the company to increase its sales. With the increase in sales then the opportunity to earn profits will also increase.

Analysis of World Oil Prices with JCI

Such as research [6] which discusses the use of crude oil (crude oil) as a tool of analysis of IHSG. World oil prices are one of the most vital energy and energy sources. The price of world crude oil is measured from the spot price of the world oil market, generally used as standard is West Texas Intermediate (WTI). Crude oil traded in WTI is high quality crude oil. Crude oil is light-weight type and has a low sulfur content making it suitable for fuel. For the use of crude variables in this study, it is considered an important commodity for the Indonesian economy. Fluctuations in world oil prices affect the capital market. For the oil exporting countries, the increase in world crude oil prices can increase the company's profit, especially for the mining sector. Companies that experience an increase in profits will make investors interested in buying shares of the company so the stock price of the company will rise and vice versa. Rise or decline in stock prices will affect the JCI.

Analysis of Inflation with JCI

Inflation variable is an explanation of the continuous increase in the price of goods in general. The price increase that occurs only once even though in a large percentage is not inflation. Inflation calculations use the Consumer Price Index (CPI) because CPI calculates the average price of goods and services consumed by households. Increasing the value of inflation is bad news for creditors, investors and shareholders. Increased inflation can increase revenue and cost of the company. If the cost of the company is higher than the revenue derived from the increase in price then the profits of the company will decrease. The decline in profits will affect the interest of investors to buy shares of the company. So that the company's stock price will decrease and will eventually result in the decline of IHSG. Hal is in accordance with the research conducted by [7,8,9].

Research Hypothesis

In this study proposes 2 hypotheses as the basis of analysis of research data: H0a: There is no causality relationship between macroeconomic fundamental variable to IHSG by using causality test.

H0b: There is no significant influence between macroeconomic fundamental variable to JCI by using simple regression test.

3. Research Method

For in the know, the authors conducted this study in March 2018. This study uses data analysis techniques of causality and multiple linear regression. The data used in this research is downloaded from the website of the world bank, yahoo. Finance, Bank Indonesia, BPS website and some other websites. The variables used in this study are capital market variables namely IHSG and 5 macroeconomic variables that influence among others the exchange rate of Indonesian currency to USA, gross domestic product, SBI interest rate, Indonesia State inflation, and world oil value. Here's the view of descriptive statistics for research data:

Table 1: Result for Statistic Descriptive Data

	BI_RATE	IHSG	INF__IND_	PDB	US_$_RP	WP
Mean	9.864862	189422.3	0.730983	104760.7	6700.401	36.69554
Median	8.955000	71336.75	0.550781	107536.0	6704.340	28.94000
Maximum	17.63000	676919.0	2.040000	160201.0	15300.00	70.43000
Minimum	5.750000	392.0360	-0.040000	43350.00	866.0000	11.73000
Std. Dev.	3.822518	217125.1	0.551204	35569.56	4899.629	20.31677
Skewness	0.415343	0.653638	0.754947	-0.153574	0.396739	0.494928
Kurtosis	1.752211	2.106210	2.902096	1.968743	1.682075	1.712974
Jarque-Bera	3.183273	3.552761	3.243266	1.640261	3.352588	3.734688
Probability	0.203592	0.169250	0.197576	0.440374	0.187066	0.154534
Sum	335.4053	6440360.	24.85344	3561863.	227813.6	1247.648
Sum Sq. Dev.	482.1841	1.560012	10.02626	4.180010	7.920008	13621.45
Observations	34	34	34	34	34	34

Sourced: Proceed author with statistic software

4. Result and Discussion

In analyzing the economic changes in need of several stages to know the changes that will occur. In due to economic change, many reflect other changes in the economy, such as stock prices.

Indirectly changes in stock prices can reflect the cyclical economic changes that will occur, but to determine when someone will react in the economy, it is still difficult to decide.

Economic actors need to be aware of the market changes that are going to and are happening, and it is impossible to be perfectly guessed. As the economy enters a cyclical recession where economic conditions tend to decline to the lowest point, economic actors can make a decision to invest or sell investments. The stronger an economic recession, the dependent economic variable will drop drastically.

If the economic cyclical improves, then the economic situation will tend to approach the peak point. In these circumstances the economic actors will be a little difficult to get an abnormal profit. This estimation model is proposed to be able to answer the empirical seacar of the problems that are reached. Thus the economic actors can take action what should be done at the moment with the analysis model and the variables that are used as a tool of consideration analysis.

Here is the result of an analysis model proposed by using simple causality and regression test, as presented in table 2 and 3.

Table 2: Result for Causality Test

Pairwise Granger Causality Tests			
Lags: 1			
Null Hypothesis:	Obs	F-Statistic	Prob.
IHSG does not Granger Cause BI_RATE	33	2.81761	0.1036
BI_RATE does not Granger Cause IHSG		0.58097	0.4519
INF__IND_ does not Granger Cause BI_RATE	33	2.28956	0.1407
BI_RATE does not Granger Cause INF__IND_		2.02388	0.1652
PDB does not Granger Cause BI_RATE	33	0.49016	0.4893
BI_RATE does not Granger Cause PDB		0.07758	0.7825
US_$_RP does not Granger Cause BI_RATE	33	1.61367	0.2137
BI_RATE does not Granger Cause US_$_RP		5.7E-05	0.9940
WP does not Granger Cause BI_RATE	33	2.84280	0.1022
BI_RATE does not Granger Cause WP		0.38318	0.5406
INF__IND_ does not Granger Cause IHSG	33	2.96025	0.0956
IHSG does not Granger Cause INF__IND_		5.10030	0.0314
PDB does not Granger Cause IHSG	33	3.12280	0.0874
IHSG does not Granger Cause PDB		0.11311	0.7390
US_$_RP does not Granger Cause IHSG	33	7.14496	0.0120
IHSG does not Granger Cause US_$_RP		0.18628	0.6691
WP does not Granger Cause IHSG	33	4.77543	0.0368
IHSG does not Granger Cause WP		3.06138	0.0904
PDB does not Granger Cause INF__IND_	33	0.24523	0.6241
INF__IND_ does not Granger Cause PDB		2.59772	0.1175
US_$_RP does not Granger Cause INF__IND_	33	0.00561	0.9408
INF__IND_ does not Granger Cause US_$_RP		3.1E-05	0.9956
WP does not Granger Cause INF__IND_	33	0.35751	0.5544
INF__IND_ does not Granger Cause WP		0.09560	0.7593
US_$_RP does not Granger Cause PDB	33	5.01622	0.0327
PDB does not Granger Cause US_$_RP		0.79634	0.3793
WP does not Granger Cause PDB	33	0.64841	0.4270
PDB does not Granger Cause WP		3.24567	0.0817
WP does not Granger Cause US_$_RP	33	0.45180	0.5066
US_$_RP does not Granger Cause WP		9.86965	0.0038

Sourced: Proceed author with statistic software

Table 3: Result for Regression Analysis

Dependent Variable: IHSG				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	479775.2	131859.9	3.638523	0.0011
INF__IND_	5504.969	64569.05	0.085257	0.9327
PDB	2.891602	1.950050	1.482834	0.1493
US_$_RP	-4.730310	15.12366	-0.312775	0.7568
WP	-11847.40	4418.984	-2.681024	0.0122
BI_RATE	-13265.38	9843.108	-1.347682	0.1886
R-squared	0.550273	Mean dependent var		189422.3
Adjusted R-squared	0.469965	S.D. dependent var		217125.1
S.E. of regression	158074.7	Akaike info criterion		26.93831
Sum squared resid	7.000011	Schwarz criterion		27.20767
Log likelihood	-451.9512	Hannan-Quinn criter.		27.03017
F-statistic	6.852001	Durbin-Watson stat		1.140708
Prob(F-statistic)	0.000274			

Sourced: Proceed author with statistic software

From the results table 2 and table 3 looks for economic analysis model with the variables that are in use. The results of this analysis illustrate empirically the economic condition of Indonesia which consists of several macroeconomic variables on the composite stock price index. Of the 2 models of analysis that are displayed and presented, the economic conditions in Indonesia, if compared with some literature that has been put forward. Here are the results of the equation estimation that is generated by using simple regression, as presented below:

Estimation Command:
====================
IHSG = 479775.205034 + 5504.96864304*INF__IND_ + 2.89160181479*PDB - 4.73031005797*US_$_RP - 11847.4039718*WP - 13265.3837076*BI_RATE

5. Conclusion

If analyzing and valuing stock prices can be done using various models of analysis in statistics and econometrics. One model of analysis that is not related to the analysis model that is proposed in view of economic conditions is to analyze the economic conditions that consist of macroeconomic variables that affect the performance of all companies in an industry. Some national economic variables are usually used such as the level of economic growth usually seen from the growth of Gross Domestic Product, the inflation rate, the interest rate, and the Rupiah exchange rate, as done by the authors in this study. By using only two models of analysis in statistics, Indonesia's macro economic condition can be explained as presented in table 2 and table 3. In this study, the assumptions for data analysis are often done in the first step, is considered to have met the test requirements data.

References

[1] Tandelilin E., Analisis Investasi dan Manajemen Portofolio, Edisi Pertama, Yogyakarta (2001).

[2] Tendelilin E., Portofolio dan Investasi Teori dan Aplikasi, Yogyakarta, Kanisius (2010).

[3] Rahardjo M.D., Bank Indonesia: Dalam Kilasan Sejarah Bangsa, Jakarta, LP3ES (1995).

[4] Weston J.F., Eugene F.B., Dasar-dasar Manajemen Keuangan.Jilid 2. Cetakan1, Terjemahan, Alfonsus Sirait, SE, Penerbit Erlangga, Jakarta (1990).

[5] Dahlan S., Manajemen Lembaga Keuangan. Edisi Ketiga, Jakarta, Lembaga Penerbit Fakultas Ekonomi Universitas Indonesia (2001).

[6] Handiani S., Pengaruh Harga Emas, Harga Minyak Dunia dan Nilai tukar dolar Amerika/Rupiah terhadap IHSG pada periode, E-Journal Graduate Unpar 1(1) (2014), 85-93.

[7] Astuti, Analisis Pengaruh Tingkat Suku Bunga (SBI), Nilai Tukar Rupiah, Inflasi, dan Indeks Bursa Internasional terhadap IHSG (Studi pada IHSG di BEI Periode 2008-2012), Jurnal Ilmu Administrasi Bisnis 2(4) (2013), 1-8.

[8] Krisna, Pengaruh Inflasi, Nilai Tukar Rupiah, Suku Bunga SBI Pada Indeks Harga Saham Gabungan Di BEI, E-Jurnal Akuntansi 3(2) (2013), 421-435.

[9] Nopirin, Ekonomi Moneter, Cetakan Kesepuluh, Yogyakarta: BPFE (2000).