

## Analysis of Investor Sentiment in Stock Return and Volatility in The Indonesia Stock Exchange During The Covid-19 Pandemic

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**Abstract:** The purpose of this study is to develop behavioral finance-based financial management literature by combining other sciences, namely social science and psychology, into financial management. This study focuses on investors who invest in the Indonesia Stock Exchange (IDX). The methodology used is a quantitative research method. The quantitative method is expected to provide measurable and accurate results which can then be used as a source of discussion, learning resources, library resources, and making decisions related to investment decisions and the Indonesian capital market. This research is also expected to be used as a reference and can help find solutions to problems that occur in the Indonesian capital market when there is a market crash or market anomaly that cannot be explained by efficient market theory.

**Keywords:** investor sentiment, return, volatility, TVA

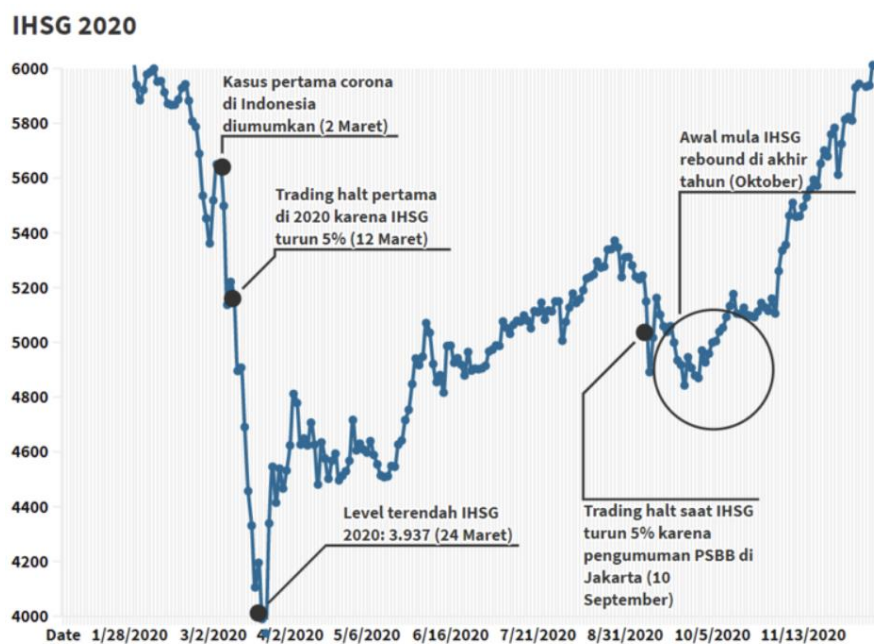
### Introduction

The Indonesian capital market is an emerging market, meaning that the Indonesian capital market is vulnerable to being affected by global conditions. Since the emergence of the Covid-19 virus in Wuhan China in 2020 and began to spread to several countries in the world so that it became a pandemic, the entire world community panicked, including Indonesia. The impact caused by the Covid-19 pandemic also has an impact on the economy, many small, medium and large companies have to survive and even some companies have to go out of business. Global economic growth at the beginning of 2020 has shown signs of decline; the situation is further exacerbated by the existence of export restriction policies in almost 80 countries based on World Trade Organization (WTO) records in 2020. The Indonesia Stock Exchange (IDX) is a capital market where long-term financial instruments are traded, including bonds, equities (stocks), mutual funds, and other derivative instruments, which are a means of funding for companies and institutions to facilitate various facilities and infrastructure. business and investment activities.

During the pandemic, stock markets in various countries showed a decline and weakened since March and April 2020. In general, the JKSE movement throughout 2020 (Figure 1) was divided into two phases, namely a bearish phase and a bullish phase that occurred in different semesters. The bearish phase occurred in the first quarter where the JKSE fell by 3.5% as of January 2020, 7% as of February 2020, 15% as of March 2020, and the lowest point occurred on 24

March 2020 at the level of 3,937.63. JKSE declined very deeply because investors panicked about the development of the Covid-19 virus, investors sold shares on a large scale which resulted in a decline in stock prices. Meanwhile, the bullish phase occurred in the fourth quarter where the JKSE crept up due to external factors such as the United States presidential election, rising commodity prices and the development of the Covid-19 vaccine. After bouncing to the level of 5,000, 4,000, and 3,000, the JKSE is now back at the level of 6,000 in the fourth quarter.

Figure 1. Movement of the 2020 Composite Stock Price Index



Resource: Yahoo Finance (2020)

Based on behavior finance theory, investors do not always behave rationally in investing; there is a cognitive bias that causes investor behavior in investing to become irrational so that the capital market becomes inefficient. This irrational behavior is also caused by the noise trade. Noise traders are able to change stock prices to be unreasonable because they make transactions in the capital market by ignoring the company's fundamental information. Noise traders make transactions based on investor psychology based on their opinions and beliefs (optimism and pessimism) themselves.

### Statement of the Problem

Basically the purpose of investing is to make a profit. Stock investment in the capital market is obtained from dividends distributed by the company to shareholders (investors). However, in addition to the profits from dividends distributed by the company, investors also benefit from changes in stock prices in the capital market, therefore the investor's preference for investing in the stock market also considers market conditions including current stock prices. The influence of investor sentiment on profit (return) is supported by research by Faisal and Fadhlillah (2017) showing that in the short-term (one month) and long-term (12 months) test the independent variable investor sentiment has a positive effect.

Sentiment affects volatility through the mechanism of trading disturbance activity or noise (noise) in financial markets. This reasoning is consistent with the finding by Liu (2015) that there is an increase in liquidity in the US market which is associated with improved sentiment. As sentiment improves, the incidence of noise traders increases, causing mispricing. Rational arbitrageurs then enter the market to exploit their irrational counterparts. Their trading is fundamentally against the bets of irrational traders so the subsequent buying and selling between these two groups creates liquidity in the financial markets. This is only possible when there are no limits to arbitrage and when the abnormal returns are commensurate with the noise trader risk that rational investors are exposed to when they enter the market. Alfano, Feuerriegel, and Neumann (2015) find that sentiment not only affects noise traders but also affects informed traders, investors who are generally considered rational.

Based on the description stated above, the researcher is interested in conducting research on the Indonesian stock market by analyzing the impact of investor sentiment on return and volatility in the stock market during the Covid-19 period. In this study, researchers will focus on the effect of investor sentiment on market returns and market volatility (JKSE).

### Objectives if the Study

The purpose of this study is to analyze the effect of investor sentiment on returns and analyze the effect of investor sentiment on stock volatility on the Indonesia Stock Exchange during the Covid-19 pandemic.

### Methodology

This research was conducted using a quantitative approach. Quantitative research is a type of research based on the philosophy of positivism, a quantitative approach method is used to study certain populations or samples, data collection using research instruments, quantitative / statistical data analysis that aims to test hypotheses using accurate statistical data tests (Sugiyono, 2012) . This study was designed quantitatively to measure the effect of investor sentiment on stock returns and volatility on the Indonesia Stock Exchange during the study period. The population in this study is all shares on the Indonesia Stock Exchange in the period since the Covid-19 pandemic occurred. The sample in this study was obtained using the purposive sampling method with the following criteria: data on trading volume of the Composite Stock Price Index (JKSE), IHSG returns, and ISHG volatility since the Covid-19 pandemic emerged in Indonesia, namely January 1, 2020 to October 30, 2021.

Investor sentiment is measured using Trading Volume Activity (TVA), Volatility is calculated using Standard Deviation, and Return is calculated using capital gain (lost) from the Composite Stock Price Index for the period 2020 – 2021. The data in this study are then analyzed and tested using analysis descriptive, stationary statistical test, optimal log, cointegration test and vector error correction model (VECM).

### Result

#### Unit Root Test

**Table 1. Unit Root Test Results**

Variable	ADF Statistic	Critical Value (5%)	Probability	Evidence
Sentiment	-21.78833	-2.867859	0.0000	Stationer
Return	-10.51333	-2.867859	0.0000	Stationer
Volatility	-3.193125	-2.865058	0.0211	Stationer

From the table above, it shows that the t-statistic value is still greater than 5% (critical value), and the probability is <0.05, so it can be concluded that it does not reject the null hypothesis and accepts the alternative hypothesis, then the data is stationary at the level level.

#### Lag Optimal

**Table 2. Lag Optimal**

VAR Lag Order Selection Criteria

Endogenous variables: D(RETURN) D(SENTIMEN) D(VOLATILITY)

Exogenous variables: C

Date: 11/26/21 Time: 09:22

Sample: 1/01/2020 9/14/2021

Included observations: 440

Lag	LogL	LR	FPE	AIC	SC	HQ
0	-4535.960	NA	183139.5	20.63163	20.65950	20.64263
1	-4376.081	316.8508	92243.96	19.94582	20.05728	19.98979
2	-4301.275	147.2313	68396.83	19.64670	19.84176*	19.72365*
3	-4291.517	19.07192	68162.71	19.64326	19.92190	19.75319

4	-4271.319	39.20228*	64781.90*	19.59236*	19.95460	19.73526
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\* indicates lag order selected by the criterion  
 LR: sequential modified LR test statistic (each test at 5% level)  
 FPE: Final prediction error  
 AIC: Akaike information criterion  
 SC: Schwarz information criterion  
 HQ: Hannan-Quinn information criterion

Determination of the optimal lag in this model is to use information criteria sequential modified likelihood ratio test statistic. These criteria indicate that the optimal lag for the VAR model in this study is that there are three recommended lags based on the test method, namely LR, FPE, and AIC depicted by an asterisk (\*) which means the optimal lag. Based on the table above, the optimal lag in this study is lag 4.

**Cointegration Test**

**Table 3. Johansen's Test Results**

Unrestricted Cointegration Rank Test (Trace)

Hypothesized		Trace	0.05	
No. of CE(s)	Eigenvalue	Statistic	Critical Value	Prob.**
None *	0.462010	528.4881	29.79707	0.0001
At most 1 *	0.306923	255.7251	15.49471	0.0001
At most 2 *	0.193119	94.41480	3.841466	0.0000

Trace test indicates 3 cointegrating eqn(s) at the 0.05 level

\* denotes rejection of the hypothesis at the 0.05 level

\*\*MacKinnon-Haug-Michelis (1999) p-values

Based on the results of the cointegration test above, it shows that it is based on trace statistics, which means that there are three cointegration ranks at the 5% significance level. This indicates that this study can use the VECM model at a later stage.

**VECM (Vector Correction Model) Test**

**Table 4. IDX Long-Term and Short-Term VECM Estimates**

Variable	Coefficient	t-statistic	t-table	Evidence
<b>Jangka Pendek</b>				
CointEq1	0.16722	-18.7189	1.966	Not significant
Sentiment	2.5E-11	-4.16483		Not significant
Return	0.04655	5.97167		Significant
Volatility	3.78359	1.44077		Not significant
<b>Jangka Panjang</b>				
Sentiment	-1.76E-11	-0,77963	1.966	Not significant
Volatility	1.922259	1.16164		Not significant

Based on table 4 in the long term, sentiment and volatility do not have a positive and insignificant effect on returns because the t-count value is smaller than t table. Meanwhile, in the short-term analysis, return has a positive influence on return sentiment, meaning that for every increase of one unit of return, there will also be an increase in return sentiment of 1,966.

**Impulse Response**

**Table 5. Impulse Response Values from the Indonesia Stock Exchange**

Response of D(RETURN): Period	D(RETURN)	D(SENTIMEN)	D(VOLATILITY)
1	0.014561	0.000000	0.000000
2	-0.010918	-0.001078	-0.000399
3	-0.002366	0.002517	9.54E-05
4	0.004959	-0.001106	-0.003551
5	-0.002610	0.000279	0.011970
6	0.004922	-0.000657	-0.036270
7	-0.010110	0.003855	0.104048
8	0.024888	-0.010938	-0.301916
9	-0.073210	0.032499	0.872750
10	0.216007	-0.093569	-2.526910

Based on table 5, it is known that the return variable responding to the shock given by sentiment is positive but at the end of the period it is negative. Meanwhile, the shock given by volatility is positive but at the end of the period it is also negative.

**Variance Decomposition (VD)**

**Table 6. Variance Decomposition (VD) Result**

Period	S.E.	D(RETURN)	D(SENTIMEN)	D(VOLATILITY)
1	0.014561	100.0000	0.000000	0.000000
2	0.018235	99.60235	0.349673	0.047977
3	0.018560	97.77468	2.176368	0.048956
4	0.019568	94.38542	2.277561	3.337018
5	0.023088	69.07271	1.650485	29.27681
6	0.043281	20.94939	0.492719	78.55789
7	0.113209	3.859535	0.187977	95.95249
8	0.323587	1.063951	0.137263	98.79879
9	0.934246	0.741712	0.137476	99.12081
10	2.704349	0.726504	0.136119	99.13738

The table above describes the results of the decomposition test, in the first period the return is influenced by the return itself. However, as the period increases, other variables begin to influence, namely investor sentiment and JKSE volatility.

**Conclusion**

Based on the results of the discussion described above, the researcher can draw conclusions: Based on the VECM test, it shows that the sentiment variable has no effect on return and volatility on the Indonesia Stock Exchange during the Covid-19 pandemic. In addition, judging from the time period, it can be concluded that: Long-term sentiment and volatility do not have a positive and insignificant effect on returns because the t-count value is smaller than the t table. Short-term returns have a positive effect on return sentiment, meaning that for every

increase of one unit of return, there will also be an increase in return sentiment of 1,966. The return variable responding to the shock given by the sentiment is positive but at the end of the period it is negative. Meanwhile, the shock given by volatility is positive but at the end of the period it is also negative. The results of the decomposition test, in the first period the return is influenced by the return itself. However, as the period increases, other variables begin to influence, namely investor sentiment and JKSE volatility.

### Recommendation

Based on the results of data processing, discussion and conclusions that the researchers discussed above, the researchers have several suggestions including:

1. For investors who invest in stocks, it is better to look at the development of the JKSE value which has developed quite well.
2. Investors are also advised to consider macroeconomic variables and other variables outside the variables in this study so that the JKSE continues to be stable.
3. Various academics can develop further research and also use more research variables so that their research can be better.
4. The government can increase the interest of other investors in the capital market so that the Indonesian capital market continues to develop.

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