

WHEN THE MARKET DAILY VOLATILITY IS HIGH DURING 2021- 2023, IS THERE ANY HERDING BEHAVIOR ON THE INDONESIA STOCK EXCHANGE?

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ABSTRACT: Herding behavior is one of the phenomena that is often researched and studied in the capital market, especially in stock trading. Herding behavior is an investor attitude where investors do not take into account the information available but rather follow market trends and other investors decisions in buying and selling stocks. This study was conducted to observe herding behavior on the Indonesia Stock Exchange when daily market volatility is high during 2021-2023. Herding is expected to be more pronounced during periods of extreme market conditions, which are characterized by increased uncertainty and significant market fluctuations (volatility). High stock price volatility indicates unusual supply and demand characteristics of stocks in the capital market. Over the past century, stocks have typically moved less than 1 percent up or down in daily trading. Therefore, herding behavior is observed when the daily volatility of the market is out of the ordinary, namely when market volatility rises or falls above 1%. In this study, market volatility is represented by the Jakarta Composite Index (JCI). The object of research is grouped into three parts: large capitalization stocks represented by constituents of the IDX30 index, small and medium capitalization stocks represented by constituents of the PEFINDO25 index, and the combined constituents of the two indices. The method used in this study uses the cross-sectional absolute deviation (CSAD) to find the return dispersion value of the various stock capitalization's and then see its relationship with market returns using multiple linear regression analysis. The results of this study indicate that no herding behavior was found in the three research groups. This means that investors on the Indonesia Stock Exchange during the observation period acted rationally in making investment decisions.

Keywords: herding behavior, CSAD, volatility, IDX30, PEFINDO25

INTRODUCTION

Herding behavior is one of the phenomena that is often researched and studied in the capital market, especially in stock trading. Herding behavior is an investor attitude where investors do not take into account the information available but rather follow market trends and other investors decisions in buying and selling stocks. Market participants, whether individual, institutional, or retail, tend to follow the market consensus. Herding behavior is like everyone doing what everyone else is doing, even when their private information suggests doing something quite different (Banerjee, 1992).

It is important to research this behavior because herding behavior is one of the significant driving factors behind the occurrence of asset bubbles and the increase in market volatility (Putera & Kaluge, 2022). Detecting herding behavior in a stock market is necessary to see the rationality of investors. The study was conducted in 2021 to 2023,

namely to observe investor behaviour after the COVID19 pandemic occurred, so that significant market fluctuations due to the pandemic that could affect the study result were not included. Herding behavior is often associated with the development of behavioral finance, which is defined as an understanding of financial science from the perspective of human thinking, both rational and irrational, ultimately influencing investment decision-making (Chandra, 2012).

Behavioral finance studies reveal that investor sentiment influences investment decisions and can therefore affect stock prices. Behavioral finance theory explains the psychological influence on people's decisions regarding their assets. Behavioral finance will help in making more rational and efficient decisions according to market circumstances. In business, behavioral finance approaches are combined with traditional economic approaches to help shape effective financial management strategies (Audina, 2023).

The factors that cause herding behavior have been studied by several previous researchers. Research on the factors that contribute to herding behavior among retail stock investors found 3 factors that trigger herding behavior, namely: i) lack of awareness of the capital market; ii) under confidence in making decisions about their own investment; and iii) optimism about their investment decisions (Zakirullah & Rahmawati, 2020). The study Rahayu et al. (2019) found that herding behavior occurs due to various things, including market risk and company-level uncertainty, market uncertainty, extreme market conditions, high volatility risk, economic and financial crises, declining market conditions, a poor information environment, and low quality of disclosure.

When herding behavior occurs, market participants realize that significant stock movements are an anomaly, but if there is high volatility, they will forget about rationality and tend to move simultaneously following market movements. Because individuals are more likely to suppress their own beliefs in favor of the market consensus during periods of unusual market movements, herd behavior would most likely emerge during periods of market stress (Christie & Huang, 1995). Herding is expected to be more pronounced during periods of extreme market conditions, which are characterized by increased uncertainty and significant market fluctuations (Economou et al., 2018).

Volatility is the price that occurs every time the capital market trades, resulting in a gap when the price rises or falls (Marwa & Mahmuda, 2021). Stock price volatility is influenced by factors, namely rational factors, which are company performance, interest rates, inflation rates, growth rates, foreign exchange rates, or stock price indices of other countries, and irrational factors, including market rumors, whispers of friends, or price games (Prasojo, 2012). High stock price volatility indicates unusual characteristics of supply and demand for shares in the capital market. (Purbawati & Dana, 2016). Over the past century, stocks have usually moved less than 1 percent in daily trading, up or down (Samuelson, 2020).

The existence of herding behavior in the market can be predicted if market participants suppress their own predictions about asset prices during periods of large market movements and base their investment decisions solely on aggregate market behavior. Individual asset returns will not diverge substantially from the overall market return (Chang et al., 2000). Studies on herding behavior in both developed and developing countries show different evidence depending on the period of analysis and the approach or methodology used (Rahman & Ermawati, 2019).

In a study conducted by Chang et al. (2000) on investor herd behavior in several

international stock markets, such as America, Hong Kong, Japan, South Korea, and Taiwan, their empirical tests indicate that during periods of extreme price movements, equity return dispersions for the US, Hong Kong, and Japan actually tend to increase rather than decrease, hence providing evidence against the presence of any herd behavior. However, for South Korea and Taiwan, the two emerging economies in their sample, they found dramatically different results. For both countries, their documents document the presence of smaller equity return dispersions (and hence herding) during both extreme up-and-down price movement days. The differences in return dispersion across developed and emerging markets may partly be the result of incomplete information disclosure.

In this study, Chang et al. (2000) used the cross-sectional absolute deviation (CSAD) to extend the work of Christie and Huang (1995), who used the cross-sectional standard deviation (CSSD) method to detect herd behavior, with the argument that a suitable tool for detecting herd behavior is by measuring the value of dispersion between the return of individual stocks of a company and the market return. The dispersion value itself is a measurement of how close individual stock returns are to market returns. A stock exchange with perfect herding behavior will cause stock returns to move in the same direction as market returns, resulting in a dispersion value of zero. Meanwhile, a stock exchange that is free from herding behavior will be indicated by a dispersion value that is large and different from market returns. The CSAD method is the most powerful approach to detecting herding based on equity return behavior, which measures herding behavior on the basis of stock returns, and use non-linear regression to analyze the relationship between the average value dispersion (CSAD) and the average market return (Chang et al., 2000).

Several researchers in Indonesia have also used the CSAD method to detect herding behavior on the Indonesia Stock Exchange. Some of these studies found herding behavior, and some did not find herding behavior. Here are some of the studies that have been done:

1. Tjahjono (2018). "Analysis of herding behavior in blue chip and non-blue-chip stocks on the Indonesia Stock Exchange". Conclusion: The empirical results of testing herding behavior resulted in the existence of herding behavior in blue-chip stocks and non-blue-chip stocks in Indonesia. In detail, herding behavior in blue chips stocks was detected in both market conditions in 2018 and only in rising market conditions in 2015, while for non-blue chip stocks, it was only detected in rising market conditions in 2015.
2. Wardani (2021). "Analysis of herding behavior in LQ45 stocks before and during the COVID-19 pandemic in Indonesia". Conclusion: Normal market conditions in 2019 (before the COVID-19 pandemic) did not affect the occurrence of herding behavior in LQ45 stocks, and market stress conditions in 2020 (during the COVID-19 pandemic) did not affect the occurrence of herding behavior in LQ45 stocks.
3. Sugiantara (2022). "Analysis of herding behavior based on market conditions with information asymmetry as a moderating variable". Conclusion: The existence of herding behavior by investors on the Indonesia Stock Exchange as a whole is detected, which is indicated by a significant negative R^2_{mt} to herding. Herding behavior is found in rising market conditions; this indicates that in rising market conditions, investors want to maximize their profits with the minimum possible risk, namely by herding.

Based on the phenomenon of previous research results, this study was conducted with the main objective to analyzing and detecting whether there is herding behavior when there is high daily volatility in the stock market in Indonesia. As stated by Christie and Huang (1995), individuals are more likely to suppress their own beliefs in favor of the market consensus during periods of unusual market movements.

In this study, there are three types of research objects: large-cap stocks, small/medium capitalization stocks, and a combination of large-cap and small/medium capitalization stocks. It is generally known that differences in stock capitalization have different levels of price movements. Large-capitalization stocks tend to have lower price volatility than small-capitalization stocks (Simak, 2023). In addition, investors have different views on the differences in market capitalization. Investors see stocks with small market capitalization providing greater returns compared to stock with large market capitalization. Other things, such as small-capitalization stock prices that tend to be cheaper, are also reasons for investors to choose small-capitalization stocks over large stocks (Tjahjono, 2018).

Large-capitalization stocks are represented by stocks included in the IDX30 index, which is one of the stock indices published and managed by the Indonesia Stock Exchange (IDX). IDX30 constituents are companies with large market capitalization, high liquidity, and the best fundamentals on the Indonesia Stock Exchange. The constituents of the IDX30 are the constituents of the LQ45 index, which is re-selected to obtain the 30 best stocks. The LQ45 index is the most popular index and one of the most important indicators in the world of stock investment in Indonesia. The main difference between the LQ45 index and the IDX30 lies in the scope of stocks included in each index. IDX30 monitors the price performance of 30 stocks with high liquidity, large market capitalization, and good fundamentals. The IDX30 has narrower coverage and stricter requirements compared to the LQ45 index.

The selection applied by the LQ45 index is based on criteria such as high liquidity and market capitalization, company fundamentals, growth prospects, and several other criteria determined by the Indonesia Stock Exchange. There are several specific criteria that must be met by the stocks included in the LQ45 index, including:

1. Shares have been officially listed on the Indonesia Stock Exchange for at least the last three months.
2. The stock is financially sound with good growth prospects.
3. The company has had the highest market capitalization over the last 1-2 months.
4. Within the last 12 months, the stocks must be among the 60 stocks with the highest transaction value in the regular market.

From the above criteria, the top 30 stocks that have the highest transaction value are automatically included in the calculation of the LQ45 index. Furthermore, 15 additional stocks will be selected based on criteria such as transaction days in the market, transaction frequency in the market, and market capitalization (Nurawan & Mahendra, 2023).

While small and medium capitalization stocks are represented by the PEFINDO25 index constituents, which is an index managed by PT Pemeringkat Efek Indonesia (Pefindo) in cooperation with the Indonesia Stock Exchange. whose constituents consist of 25 small and medium enterprises (SMEs) selected with certain criteria by Pefindo. Agustina (2019) report the Pefindo changes criteria for shares included in PEFINDO25 index. Pefindo filters constituents in two layers. Layer one filters based on total assets

of less than IDR 5 trillion and sufficient legal aspects. Layer two filters based on the business aspect and liquidity aspect.

METHODS

Research approach

This study aims to analyze herding behavior when daily stock price index volatility is high. This study uses a quantitative approach to detect whether herding behavior occurs when daily stock price index volatility is out of the ordinary, namely when the stock price index rises or falls by more than 1% per day.

Research variables

Based on the herding behavior detection method developed by Chang et al. (2000), there are independent variables and non-independent variables, or dependent variables, in this study. The independent variables are absolute market return and squared market return, while the dependent variable is the value of return dispersion (CSAD). This study uses ordinary least squares (OLS) linear regression with the Econometric Views (Eviews) 13 statistical application tool to see the non-linear relationship between the dependent variable CSAD and the independent variables of absolute market return and squared market return.

Data collection

The data collection method used is the non-participant observation method. The population of this study is secondary data derived from the official website of the Indonesia Stock Exchange. The object used in this study is the movement of several stock prices representing large, medium, and small capitalization stocks when the JCI (Composite Stock Price Index) rises or falls by more than 1% in the 2021-2023 period.

IDX30 and PEFINDO25 constituents included in this study are those listed in IDX30 and PEFINDO25 in December 2023. There are three stocks that are constituents of both indices, so in order not to overlap, the three IDX30 constituent stocks are not included but remain in the PEFINDO25 group, so the number of IDX30 constituents is 27 stocks (IDX30 adjusted) and PEFINDO25 is 25 stocks. The overlapping stocks have relatively small weights in IDX30 but relatively large weights in PEFINDO25.

The data processing stage begins with identifying dates from 2021 to 2023 where the JCI rises or falls by more than 1%. Subsequently, the closing prices of individual stocks (constituents) and JCI on that trading date and one day earlier, were collected. In the Indonesian stock market, JCI is used as an approach to measure market returns. During the period 2021-2023, there are 113 trading days with an increase or decrease in JCI of more than 1%. So for large capitalization stocks, there will be 113 x 27 or 3,501 observations, and for small or medium capitalization stocks, there will be as many as 113 x 25 or 2,825 observations.

Analysis Method

This study uses the cross-sectional absolute deviation (CSAD) method to detect herding behavior on the Indonesia Stock Exchange, which is measured by the value of dispersion between individual stock returns of a company and market returns. This

method illustrates that if indications of herding behavior on an exchange exist, then the CSAD value will tend to get smaller.

The data obtained was used to measure the respective return values of individual stocks and the market using the formula.

$$R_t = (P_t - P_{t-1}) / P_{t-1} \dots \dots \dots (1)$$

Description:

P_t = stock or market closing price at time t

P_{t-1} = the closing price of the stock or market at the previous trading time.

The next step is to calculate, on that trading date, the value of CSAD as the dependent variable, estimated through the following formula:

$$CASDt = \frac{1}{N} \sum_{i=1}^n |R_{i,t} - R_{m,t}| \dots \dots \dots (2)$$

Description:

$R_{i,t}$ = individual stock return at time t

$R_{m,t}$ = market return at time t

n = number of companies as a sample

To detect herding behavior Chang et al. (2000), used the quadratic equation between the dispersion value of CSAD with absolute market return and squared market return in the following regression form:

$$CSAD_t = \alpha + \gamma_1 |R_{m,t}| + \gamma_2 R_{m,t}^2 + \epsilon_t \dots \dots \dots (3)$$

Description:

$CSAD_t$ = magnitude of herding value at time t

α = intercept variable

γ_1 = linear coefficient between CSAD and market return

γ_2 = non-linear coefficient between CSAD and market return

$R_{m,t}$ = market return at time t

ϵ_t = standard error

Herding behavior will cause the relationship between CSAD and market returns ($R_{m,t}^2$), which was originally linear, to become non-linear. Statistically, the non-linear relationship then implies a significant negative coefficient $R_{m,t}^2$ ($\gamma_2 < 0$), which is reflected in the decreasing CSAD value (Chang et al., 2000), Conversely, if the coefficient γ_2 is positive or insignificant, it indicates the absence of herding behavior.

RESULTS AND DISCUSSION

Descriptive statistical analysis

Descriptive statistical analysis aims to provide an overview of the characteristics of each research variable as seen from the average (mean), minimum and maximum values, and standard deviations. Descriptive analysis is a statistic used to analyze data by describing or describing the data that has been collected as it is without intending to make general conclusions or generalizations (Sugiyono, 2018). The following are the results of the descriptive statistical analysis for the research object.

Tabel 1. Descriptive statistics

	JCI	CSAD IDX30	CSAD PEFINDO25	CSAD IDX30+PEFINDO25	ABSM RETURN
Mean	0.000378	0.020458	0.020364	0.020317	0.015072
Median	0.010319	0.018904	0.019110	0.019174	0.013647
Maximum	0.035001	0.040366	0.042894	0.034490	0.044151
Minimum	-0.044151	0.010344	0.010389	0.011495	0.010106
Std. Dev.	0.015974	0.005907	0.005933	0.004915	0.005113
Observations	113	113	113	113	113

Source : Eviews13 result, processed (2024)

Table 1 shows that the maximum volatility of JCI is 3.50% while the minimum volatility of JCI is -4.42%, with a median of +1.03% and a standard deviation of 1.60%. The maximum dispersion value is in the PEFINDO25 group of stocks, which is 0.042894, while the minimum dispersion value is in the IDX30 group of stocks, which is 0.010344. The combined dispersion value of IDX30 and PEFINDO25 stocks is between the two maximum and minimum values, where the maximum dispersion value of the combined stocks is 0.034490 and the minimum dispersion value is 0.11495.

CSAD regression analysis

To determine whether there is herding behavior, a regression analysis was conducted with the following results:

Tabel 2. CSAD regression test result

	CSAD IDX30	CSAD PEFINDO25	CSAD IDX30+PEFINDO25
α	0.010436	0.017389	0.013648
γ_1	0.851502	0.028937	0.458749
Prob(t-statistic)	0.0316	0.9396	0.1442
γ_2	-11.12036	10.03039	-0.967880
Prob(t-statistic)	0.2055	0.2408	0.8897
Adjusted R-squared	0.100144	0.153993	0.173510
Prob(F-statistic)	0.001120	0.000038	0.000010
Sample:	1/04/2021-12/14/2023	1/04/2021-12/14/2023	1/04/2021-12/14/2023
Included observations:	113	113	113

Source : Eviews13 result, processed (2024)

With the equation $CSAD_t = \alpha + \gamma_1 |R_{m,t}| + \gamma_2 R_{m,t}^2 + \varepsilon_t$, then from the regression test results above, the regression equation can be made as follows :

$$CSAD_{Idx30} = 0,010436 + 0,851502|R_{m,t}| - 11,12036R_{m,t}^2 + \varepsilon_t$$

$$CSAD_{Pef25} = 0,017389 + 0,028937|R_{m,t}| + 10,03039R_{m,t}^2 + \varepsilon_t$$

$$CSAD_{Idx+Pef} = 0,013648 + 0,458749|R_{m,t}| - 0,967880R_{m,t}^2 + \varepsilon_t$$

Based on the results of the CSAD regression test, the following tests and analyses were conducted:

a. Coefficient of Determination

The Coefficient of Determination Test (*Adjusted R-Squared*) is a test to explain how much the dependent data can be explained by the independent data. The obtained

Adjusted R-Squared value indicates the extent of the influence of market return ($R_{m,t}$) and the square of market return ($R_{m,t}^2$) together on the dispersion of returns using the CSAD method.

b. F-Test

This test is conducted to determine whether all independent variables in the model collectively influence the dependent variable. The influence of the independent variable $R_{m,t}$, and the independent variable $R_{m,t}^2$ on the dependent variable is tested by examining the extent of change in the dependent variable that can be explained by the changes in the values of all independent variables. The probability value for the F-Test (*Prob F-statistic*) is less than 0.05, which means that with a confidence level greater than 95 percent, there is an influence of the independent variables $R_{m,t}$, and $R_{m,t}^2$ collectively on the dispersion of returns using the CSAD method.

c. t-Test

This test is conducted to determine whether the independent variables individually (each) have a significant effect or not on the dependent variable. Based on the regression equation above, the partial effect of the two independent variables ($R_{m,t}$, and $R_{m,t}^2$) on the return dispersion using the CSAD method is that the independent variables $R_{m,t}$ and $R_{m,t}^2$ have a significant or insignificant relationship with the dependent variable CSAD, which can be seen from the probability values of the independent variables $R_{m,t}$ and $R_{m,t}^2$, being greater or less than 0.05.

d. Herding Behavior

The indication of herding behavior according to (Chang et al., 2000) can be seen from the non-linear relationship of the coefficient value γ_2 , which, if its value shows a negative and significant value (< 0.05), can be said to indicate herding behavior.

Comparison of the test results and analysis from each constituent group can be seen in the following table:

Table 3. Test and analysis of CSAD regression test results

Description/ Constituens	Coefficient of Determination	F-test	t-test	Herding Behavior
	Total influence of $R_{m,t}$, and $R_{m,t}^2$ on CSAD	Do $R_{m,t}$, and $R_{m,t}^2$ jointly affect CSAD?	Do $R_{m,t}$, and $R_{m,t}^2$ each affect CSAD?	When the coefficient γ_2 is negative and the Prob t- statistic < 0.05
CSAD IDX30	$R_{m,t}$, and $R_{m,t}^2$ together affect CSAD by 0.100144 or 10.0%.	<i>Prob F-statistic</i> = 0.001120, $< 0,05$, signifikan, $R_{m,t}$, and $R_{m,t}^2$ together affect CSAD	<i>Prob t-statistic</i> $\gamma_1 = 0.0316$, < 0.05 , signifikan, $R_{m,t}$ has an effect, $\gamma_2 = 0.2055$, > 0.05 , not significant, $R_{m,t}^2$ has no effect..	$\gamma_2 = -11.12036$, negative <i>Prob t-statistic</i> = 0.2055, > 0.05 , not signifikan, no herding behavior
CSAD PEFINDO25	$R_{m,t}$, dan $R_{m,t}^2$ together affect CSAD by	<i>Prob F-statistic</i> = 0.000038, $< 0,05$, signifikan, $R_{m,t}$, and $R_{m,t}^2$	<i>Prob t-satistic</i> $\gamma_1 = 0,9396$, > 0.05 , not significant, $R_{m,t}$ has no effect,	$\gamma_2 = 10.03039$, positive

	0.153993 or 15,4%.	together affect CSAD	$\gamma_2 = 0.2408$, > 0.05, not significant, R_{m,t^2} , has no effect	<i>Prob t-statistic</i> = 0.2408, > 0.05, not significant, no herding behavior.
CSAD IDX30+ PEFINDO25	$R_{m,t}$, dan R_{m,t^2} together affect CSAD by 0.173510 or 17,4%.	<i>Prob F-statistic</i> = 0.000010, < 0,05, signifikan, $R_{m,t}$, and R_{m,t^2} together affect CSAD	<i>Prob t-statistic</i> $\gamma_1 = 0.1442$, > 0.05, not significant, $R_{m,t}$ has no effect, $\gamma_2 = 0.8897$, > 0.05, not significant, R_{m,t^2} , has no effect.	$\gamma_2 = -0.967880$, negative <i>Prob t-statistic</i> = 0.8897 > 0.05, not significant, no herding behavior.

Source : Eviews13 result, processed (2024)

From the results of the analysis of the three research groups conducted and using indications of herding behavior according to Chang et al. (2000) that the coefficient γ_2 is negative and the Prob t-statistic <0.05, then no herding behavior was found in the three research groups, although in the IDX30 group there was an indication of herding with a negative γ_2 obtained but not significant. These findings are in accordance with previous research conducted by Wardani, S.S. (2021) where no herding behavior was found in LQ45 stocks before the COVID19 pandemic and during the pandemic. The results of this study can complement previous research that no herding behavior was found in stock trading on the Indonesia Stock Exchange.

CONCLUSIONS

Based on the results and discussion of the analysis of herding behavior using the CSAD method, namely when the daily volatility of stocks is high, up or down above 1% during 2021-2023 with the constituents of the IDX30 index, the PEFINDO25 index and the combined constituents of IDX30 and PEFINDO25, no herding behavior was found in the three research groups, although there are indications of herding with the discovery of the coefficient γ_2 on IDX30 and IDX30+PEFINDO25, but not significant.

During the observation period, it can be concluded that despite the high daily volatility of the market (JCI), stock investors on the Indonesia Stock Exchange still act rationally in making investment decisions and do not behave in herding behavior. The implication is that investors in the Indonesia Stock Exchange make investments based on their own decisions and are carried out independently and are relatively independent of market makers, so that acts of market manipulation and speculation on the exchange are relatively low.

This study has covered large, medium, and small-cap stocks that are actively traded on the Indonesia Stock Exchange. For further research on herding behavior, observations can be made on the opposite conditions, namely when the daily volatility of stocks is not high or below 1%, considering that these stocks are relatively influential on the movement of the JCI, so that their price fluctuations also reflect market fluctuations in accordance with the principle of herding behavior, which states that herding behavior occurs when everything moves following the market consensus.

REFERENCES

- Agustina, A. (2019), Pefindo changes the criteria for shares included in the PEFINDO25 index, Kontan.co.id, <https://investasi.kontan.co.id/news/pefindo-mengubah-kriteria-saham-penghuni-indeks-pefindo25>
- Audina, N. (2023). Behavioral finance: definition, key concepts, and biases. <https://glints.com/id/lowongan/behavioral-finance-adalah>
- Banerjee, A.V. (1992). A simple model of herd behavior, *The Quarterly Journal of Economics*, 107(3), 797-817.
- Chandra, M. (2012). Measurement and analysis of herding behavior in IPO stocks on the Indonesia Stock Exchange in 2007-2011. Thesis, University of Indonesia.
- Chang, E.C., Cheng, J. W., & Khorana, A. (2000). An examination of herd behavior in equity markets: An international perspective. *Journal of Banking & Finance*, 24, 1651-1679.
- Christie, W. G., & Huang, R. D. (1995). Following the pied piper: Do individual returns herd around the market? *Financial Analysts Journal*, 51(4), 31–37.
- Economou, F., Hassapis, C., & Philippas, N. (2018). Investors' fear and herding in the stock market. *Applied Economics*, Vol. 50, Nos. 34-35, 3654-3663.
- Marwa, S., & Mahmuda, D. (2021). Comparative analysis of the volatility of the Composite Stock Price Index (JCI) before and during the impact of COVID-19. *Scientific journal of UMButon Faculty of Economics Students*, 3(1), p 36-51.
- Nurawan, M. R., & Mahendra, R. (2023), What is the LQ45 index? This is the criteria and list of stocks. *Bisnis.com*.
<https://market.bisnis.com/read/20231110/7/1712648/apa-itu-indeks-1q45-ini-kriteria-dan-daftar-sahamnya>.
- Prasojo, H.S.U. (2012). Stock market reaction to global financial crisis announcement. *Brawijaya University FEB Student Scientific Journal*, 1(2), p. 1-17.
- Purbawati, N. L. K. & Dana, I. M. (2016). Comparison of the volatility of the Composite Stock Price Index (JCI) before and after the subprime mortgage crisis. *E-Journal of Management Unud*, 5(2), p. 1014-1042.
- Putera, I. P. & Kaluge, D. (2022). Analysis of herding behavior in sectors listed on the Indonesia Stock Exchange and Malaysia Stock Exchange from 2015 to 2021. *Contemporary Studies in Economic, Finance, and Banking*, 1(3), 527-533.
- Rahayu, A.D., Putra, A., Oktaverina, C. & Ningtyas, R.A., 2019. Analysis of determinant factors and herding behavior in the stock market. *Image Journal*, 8(2), 45-59.
- Rahman, R. E. & Ermawati, (2019), Analysis of herding behavior in the stock market: A case study of Asean-5+Us, Working Paper, Bank Indonesia.
- Samuelson, R. J. (2020). The stock market's 'fear gauge' hit its highest point ever. Here's why. *The Washington Post*.
<https://www.washingtonpost.com/opinions/2020/04/22/why-stocks-are-so-volatile/>
- Simak, S. (2023). Price volatility in stocks: definition and causes. *Phillip Sekuritas Indonesia (PSI), Newsletter Edition 126*
https://www.poems.co.id/htm/Freeducation/Newsletter/27/Vo1127_volatilitas.htm
- Sugiantara, P. W. (2022). Analysis of herding behavior based on market conditions with information asymmetry as a moderating variable. *E-Journal of Accounting*, 32(3), 721-734.
- Sugiyono. (2018). Quantitative, qualitative, and R&D research methods. Alfabeta,

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Bandung.

Tjahjono, N. A. (2018). Analysis of herding behavior in blue chip and non-blue chip stocks in the Indonesia Stock Exchange. Thesis, Brawijaya University.

Wardani, S.S. (2021). Analysis of herding behavior in LQ45 stocks before and during the Covid-19 pandemic in Indonesia.

<https://jimfeb.ub.ac.id/index.php/jimfeb/article/viewFile/7541/6509>

Zakirullah & Rahmawati S., 2020. Factors contributing to herding behavior in retail stock investors on the Indonesia Stock Exchange. Scientific Journal of Management Economics Students, 5(1), 1-23.