ANALYSIS OF THE EFFECTIVENESS OF THE BROKER CODE CLOSING POLICY IN RUNNING TRADE ON HERDING BEHAVIOR

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Abstract: *The broker code closure policy in running trades carried out by the Indonesia Stock Exchange on December 6, 2021, aims to overcome herding behavior and make better price spreads in the Indonesian capital market. This study aims to determine the policy's success by examining the existence of herding behavior before and after the broker code closure policy is enforced using the Cross-Sectional Absolute Deviation method and by looking at price volatility during the research period. Based on the research that has been carried out, it is known that there is a herding behavior before the policy is implemented, and there is no herding behavior after the policy is enforced. This means that the broker code closure policy in running trades carried out by the Indonesia Stock Exchange has succeeded in overcoming the herding behavior contained in the Indonesian capital market but is still not effective in overcoming price spreads that occur in the Indonesian capital market because there is the market sentiment towards economic conditions that occur both nationally and globally.*

Keywords: herding behavior, broker code, running trades, volatility.

1. Introduction

The number of Indonesian capital market investors experienced a significant increase in 2021 of 92.99% compared to 2020. Even so, this was different from the increase in the financial literacy of the Indonesian people, as reflected in the Financial Inclusion Index level of 76.19%, compared to the Indonesian Financial Literacy is 38.03% (Sugianto, 2021). This difference in the percentage of inclusion and financial literacy means that increasing public access to financial products has not been fully followed by an understanding of the risks (Fatimah, 2021) and has the potential to create herding behavior among new investors, which can have an impact on stock price volatility (Untari, 2017).

The existence of herding behavior can disrupt the volatility of stock prices in the capital market. Stock price volatility shows the up-and-down movement of stock prices due to the level of risk and return of securities investors face in a certain period. Because investors tend to make investment decisions by following the decisions of other investors, it will cause high volatility, which can increase errors in determining prices because there is a bias in considering the risk and expected return (Untari, 2017).

Herding behavior can make the market inefficient because there is an imbalance of information held between investors, making it biased in the capital market (Mesran, 2021). It makes investors behave irrationally, where they tend to make investment decisions without being based on sound financial literacy. However, they only take advantage of information from other investors reflected in the broker code available on running trades as an indicator in making investment decisions. Investors often make investment decisions by utilizing broker codes in running trades using the follow the giant principle, which believes that big players have a role in driving stock prices and are believed to have the best information and the right strategy (Karo Karo, 2012). This behavior contrasts with the theory of the efficient market hypothesis (EMH), where this theory believes investors are market participants who are rational in assessing a stock (Shleifer, 2000).

To overcome herding behavior and keep the market more efficient and make a better price spread, the Indonesia Stock Exchange made a policy to remove the broker code in running trades on December 6, 2021 (Sugianto, 2021). This policy change caught the attention of the author in knowing whether this policy has effectively controlled herding behavior, resulting in better price spreads. Herding behavior can be identified using the dispersion of return with the Cross-Sectional Standard Deviation method (Christie & Huang, 1995) and Cross-Sectional Absolute Deviation (Chang et al., 2000). The authors use the CSAD model in detecting herding behavior. Based on the background above, the problem to be investigated is whether closing the broker code in running trades has successfully overcome herding behavior. The question of this research is how the existence of herding behavior before and after the enactment of the broker code closing policy in running trades, as well as analyzing the effectiveness of the broker code closing policy in running trades that the Indonesia Stock Exchange has carried out.

2. Literature Review

Efficient Market Hypothesis. Eugene Fama put forward the efficient market hypothesis (EMH) theory in 1970 (Mesran, 2021). In EMH theory, the prices formed in an efficient market. EMH reflects the availability of the information available in the market. The information is divided into three categories: stock price historical information, public information, and private information. An efficient market can be formed if it fulfills the following conditions (Mesran, 2021): (a) Dominated by rational investors and trying to maximize profits, (b) Investors are price takers where decisions made by other investors will not affect stock prices, (c) Information that occurs is unpredictable and random, (d) Information is spread to all market participants simultaneously and is free of charge, (e) Investors are sensitive to actual information. The essential aspect when assessing the efficiency of a market is to look at the market's speed in absorbing new information, which will result in a new equilibrium price adjustment. Nevertheless, in practice, it is challenging to find genuinely efficient and inefficient markets. It made Fama adjust the EMH theory by classifying market efficiency into three forms (Rachman & Ervina, 2017), namely (a) the weak efficient market hypothesis, (b) the semi-strong efficient market hypothesis, and (c) the robust and efficient market hypothesis. In short, the EMH theory believes investors are very rational human beings regardless of psychological and emotional angles. However, the EMH theory contradicts behavioral finance, which believes that economics and finance are part of social science that considers a person's psychological condition in making investment decisions (Frensidy, 2022).

Behavioral Finance. The emergence and development of behavioral finance began with the opposition to the EMH theory by Shiller (1981), who believes that the market does not fully operate efficiently. Through this working paper, Shiller shows that stock prices have higher fluctuations than fundamental conditions resulting in excess volatility between stock prices and the company's fundamentals. Behavioral finance believes that there is a psychological influence on decision-making by investors. Psychological influence is divided into two biases, namely cognitive bias and emotional bias.

Dow theory. Karo Karo (2012) explains that the Dow Theory was first popularized by Charles Dow and Edward Jones at the end of the 18th century. This theory believes that stock price movements are divided into three phases: accumulation, public participation, and distribution. The Dow theory gave rise to an analysis called andrology which believes big players have the best information and a planned strategy so that they have the power to control stock price movements (Karo Karo, 2012). The market tends to believe in the role of the big player. It has made a handful of investors make investment decisions without being based on sufficient literacy regarding the decisions made, thus triggering herding behavior.

Herding Behavior. Herding behavior is a condition in which a person invests based on following decisions made by other investors so that it can cause irrational behavior (panic and euphoria), or rational behavior based on decision-making by other investors who are believed to have information that they do not know (Narasanto & Tandelilin, 2012). Herding behavior can occur in an investor when investors rely on information from other investors by ignoring news information or financial reports (Ramdani, 2018). In addition, Hwang and Salmon (2004) (Pasaribu, 2017) explain that herding behavior is the cause of the emergence of several phenomena, such as increased stock price fluctuations, falling prices, and differences in daily stock returns, causing prices and fundamental variables to be inappropriate. Furthermore, lead to an inefficient market.

3.   Research Methodology

The object used in this study focuses on companies listed on the LQ45 index during the study period. The LQ45 index is considered more appropriate because the trading volume on this index is more active and liquid, indicating that the stock is heavily traded on the stock exchange compared to other indexes (Masdupi & Thursina, 2015). The study period for the LQ45 index was carried out for a total of 50 (fifty) weeks, 25 (twenty-five) weeks before the closing of the broker code took effect on June 14 to December 3, 2021, and 25 (twenty-five) weeks after the closing of the broker code took effect on December 6, 2021, to May 30, 2022, by eliminating stock holidays. The data comes from the official website of the Indonesia Stock Exchange (IDX), namely www.idx.co.id, to find out the data of companies listed on the LQ45 index and through the Yahoo Finance website, namely www.finance.yahoo.com to find out information on daily stock prices and the combined stock price index.

To find out the existence of herding behavior, authors used the Cross-Sectional Absolute Deviation (CSAD) method designed by Chang et al. (Wyème & Olfa, 2013). Descriptive statistical analysis methods are used to analyze data by describing the data that has been collected as it is without intending to make general conclusions or generalizations (Sugiyono, 2017). The descriptive statistics can provide an overview, as seen from the dispersion return variable's minimum, maximum, average, and standard deviation values using the CSAD model.

After performing a descriptive statistical analysis, then a non-linear regression analysis was performed with the following equation (Wyème & Olfa, 2013):

$$CSAD_t = \propto + \gamma_1 |R_{m,t}| + \gamma_2 R_{m,t}^2 + \varepsilon_t \tag{1}$$

If the coefficient γ_2 is negative and statistically significant, then this can be used as an indicator of the existence of herding behavior. Conversely, if the coefficient γ_2 is statistically insignificant and increases linearly with the absolute value of market returns, herding behavior does not occur in the market (Wyème & Olfa, 2013).

Cross-Sectional Absolute Deviation (CSAD) is measured using the following equation (Pasaribu, 2017).

$$CSAD_t = \frac{\sum_{i=1}^{n} |R_{i,t} - R_{m,t}|}{n} \tag{2}$$

Return at time t ($R_{i,t}$) is calculated using the following equation (Juwita et al., 2022).

$$R_{i,t} = \frac{P_{i,t} - P_{i,t-1}}{P_{i,t-1}} \tag{3}$$

Where
$CSAD_t$: Cross-Sectional Absolute Deviation at time t
$\propto$: intercept constant
γ_1 : linear coefficient between CSAD and absolute market return
γ_2 : non-linear coefficient between CSAD and absolute market return
$R_{m,t}$: market return at time t
ε_t : error
n : the number of companies in the sample
$R_{i,t}$: daily stock return at time t
$P_{i,t}$: stock closing price at time t
$P_{i,t-1}$: stock price at the previous time

4. Discussion and Conclusion

Descriptive Statistical Analysis. Descriptive statistical results for all research variables before the closing broker code policy was enforced can be seen in Table 1. It is known that there were 121 trading days before the closing of the broker code from June 14 to December 3, 2021. The most negligible returns were generated by the Jakarta Composite Index (JCI) ($R_{m,before}$) negative of -0.021003 or around -2.10%, and the most significant return is 0.020148 or around 2.01% with an average JCI return of 0.00059 or around 0.059%. Then for the stock dispersion returns ($CSAD_{before}$), that the smallest CSAD return is 0.000258 or around 0.026%, and the most significant return is 0.024709 or around 2.471% with an average stock dispersion return used in the research sample of 0.006325 or about 0.063%.

Table 1. Descriptive Statistics Prior to Closing of the Broker Code

Variable	Minimum	Maximum	Mean	Std. Deviation
$R_{m,before}$	-0.021003	0.020148	0.000590	0.0078388
$CSAD_{before}$	0.000258	0.024709	0.006325	0.0050439

Then the results of descriptive statistics for all research variables after the broker code closing policy was enforced can be seen in Table 2. It is known that there were 113 trading days during the research period used by researchers after the closing of the broker code from December 6, 2021, to May 30, 2022. The smallest returns generated by JCI ($R_{m,after}$) was -0.046197 or around -4.620%, and the most significant return was 0.021928 or around 2.193% with an average JCI return of 0.00061259 or around 0.0613%. Then for the stock dispersion returns used in the research sample ($CSAD_{,after}$) based on Table 2, it is known that the smallest CSAD return is 0.000166 or around 0.0166%, and the largest return is 0.055114 or around 5.551% with an average stock dispersion return of 0.00649335 or about 0.0649%.

Table 2. Descriptive Statistics After Closing of the Broker Code

Variable	Minimum	Maximum	Mean	Std. Deviation
$R_{m,after}$	-0.046197	0.021928	0.000613	0.008819
$CSAD_{after}$	0.000166	0.055114	0.006493	0.006989

Return dispersion measures how close individual stock returns are to market returns. This stock market indicates that perfect herding behaviour will cause stock returns to move in the same direction as market returns, resulting in a dispersion value of zero (0) (Dharmawan, 2015). The average return value of stock dispersion before closing the broker code is 0.006325, and after closing, the broker code is 0.00649335. Based on this data, it is known that the average stock return dispersion before closing the broker code is closer to zero (0) when compared to after closing the broker code. Thus, herding behavior is more likely to be detected during the period before closing the broker code compared to the period after closing the broker code.

Model Analysis. The results of data processing in the study period before closing the broker code are obtained in Table 3.

Table 3. Regression Results Before Closing Broker Code

	$\propto$	$R_{m,before}$	$R^2_{m,before}$
Coefficient	0.01503	0.13363	-2.10528
Standard error	0.00079	0.21694	11.61383

Based on Table 3, the regression equation before closing the broker code in this study is:

$$CSAD_{before} = 0.01503 + 0.13363|R_{m,before}| - 2.10528R^2_{m,before} + \varepsilon_t \qquad (4)$$

The non-linear coefficient value between CSAD and the market return ($R^2_{m,before}$) is -2.10528. This value is negative, which means that there is an indication of herding behavior in the sample stocks during the study period prior to the enactment of the closing of the broker code.

The results of data processing in the study period before closing the broker code are obtained in Table 4.

Table 4. Regression Results After Closing Broker Code

	$\propto$	$R_{m,after}$	$R^2_{m,after}$
Coefficient	0.00015	0.99775	2.20308
Standard error	0.00006	0.01092	0.32464

Based on Table 3, the regression equation before closing the broker code in this study is:

$$CSAD_{after} = 0.00015 + 0.99775|R_{m,after}| + 2.20308R^2_{m,after} + \varepsilon_t \qquad (5)$$

The non-linear coefficient value between CSAD and the market return ($R^2_{m,after}$) shows a value of 2.20308. This value is positive, which means that there is no indication of herding behaviour in the research sample stocks throughout the study period after the enactment of the closing of the broker code.

The high surge in the number of investors in the Indonesian capital market in 2021, which was not based on increased literacy, was one of the causes for the emergence of herding behaviour in the Indonesian capital market throughout 2021. The detection of herding behavior in stocks listed in the research sample prior to the enactment of the closing of this broker code meant that during the study period, investors tended to behave irrationally because they made investment decisions by following the investment decisions of others without being based on personal analysis both fundamentally and technically (Setiawan, Atahau, & Robiyanto, 2018). It is in line with behavioural finance theory, which believes that there is a psychological influence in making investment decisions that are carried out by investors due to a lack of analysis skills both fundamentally and technically so that investors tend to follow the decisions of other investors in investing.

In andrology analysis theory, investors tend to follow the giant principle in making investment decisions; one is by utilizing the broker code available on running trades, where investors believe that the broker can move stock prices with the funds they have. It is in line with the representativeness bias in the cognitive bias found in behavioural finance, where investors make decisions too quickly without going through detailed analysis and rely solely on their investment experience.

The Effectiveness of the Broker Code Closing Policy in Running Trades. Regarding the effectiveness of the broker code closure policy in running trades enforced by the Indonesia Stock Exchange on December 6, 2021, this policy has succeeded in overcoming herding behavior. In addition, closing the broker code aims to create a good price spread if the difference between the selling and buying prices is not too significant, which can be reflected in the level of stock price volatility (Utami, 2010).

The decline and increase in the LQ45 stock price during the study period before the closing of the brokerage code show the level of volatility as seen from Figure 1 using the Bollinger band indicator. It is known that the Bollinger bands have widened, especially from May to July and October to November 2021. This high volatility indicates an increase in the volume of buying and selling transactions carried out by investors in the Indonesian capital market during the study period (Olavia, 2022). It supports the assumption that herding behavior impacts the increasing volatility that occurs in the market (Untari, 2017).

Figure 1. Movement of LQ45 Prior to Closing of the Broker Code
Source: tradingview.com

Closing the broker code to improve price spreads has not worked well because there are still fluctuations in price spreads, resulting in high price volatility after the broker code was closed, especially in May 2022 (See Figure 2). It was influenced by high inflation sentiment in the United States and the lockdown in China, which disrupted trade and supply chains for Indonesia (Saumi, 2022), investors responded to this by flocking to trading transactions on the stock market, as reflected in the high price volatility that occurred during May 2022.

Figure 2. Movement of LQ45 After Closing of the Broker Code
Source: tradingview.com

5.   Conclusion

Based on the results and discussion, the author managed to find empirical evidence regarding the existence of herding behavior prior to the implementation of the broker code closing policy in running trades conducted by the Indonesian Stock Exchange so that it can be stated that during the research period, investors LQ45 tend to act irrationally in making investment decisions, by following the noise that occurs in the market. In addition, the author did not find empirical evidence related to the existence of herding behavior after the implementation of the policy, so it can be stated that after the broker code was closed, investors LQ45 act rationally in making investment decisions. Thus, the author can conclude that the policy implemented by

the Indonesia Stock Exchange to close broker codes to reduce herding behavior has been effective. Nevertheless, the other goal of the policy is to make better price spreads. This policy cannot achieve this goal because there are still fluctuations in price spreads, influenced by market sentiment towards global conditions.

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