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Herding Behavior : Analysis of Stock Investor Behavior on the Indonesian Stock Exchange

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A B S T R A C T

This research aims to analyze the herding behavior of LQ-45 shares on the Indonesia Stock Exchange for the 2021-2023 period and determine the influence of market returns and market capitalization on herding behavior. The total sample in this study was 58 companies listed in the LQ-45 stock index for the 2021-2023 period. The analytical method used is Generalized Least Square (GLS) analysis. The research results show that there is no herding behavior on the Indonesian Stock Exchange for the 2021-2023 period, which means investors are rational and do not follow market movements or the actions of other investors. This research also found a relationship between market capitalization and herding behavior, where the greater the market capitalization, the lower the herding behavior. This research makes an important contribution to understanding market behavior and the factors that influence it.

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INTRODUCTION

The current development of the Indonesian economy cannot be separated from the existence of the capital market. The capital market is one of the main pillars in the financial system and plays an important role in the economy, namely as an allocation of economic resources and a means of business financing. The capital market is a means of investing for every individual in financial instruments such as mutual funds, bonds, shares, etc. (Permata & Ghoni, 2019). Currently, investment is very important for both individuals and organizations or entities with the aim of gaining profits in the future. In order to achieve this goal, investment decisions must consider expected returns and the risks to be accepted. The relationship between expected return and risk is unidirectional and linear, in other words the greater the expected return, the greater the risk that must be considered (Khairiyati & Krisnawati, 2019). In making investment decisions, investors tend to experience difficulties, especially in uncertain market situations which encourage them to act rationally and irrationally. An investor does not always act rationally under the pressure of risk and uncertainty, psychological factors and erratic behavior will influence investors, making them make irrational decisions (Pradikasari & Isbanah, 2018). One of the irrational behaviors carried out by investors is herding behavior.

Herding behavior is defined as the tendency of investors to follow the behavior of other investors (Dewan & Dharni, 2019). An investor ignores their personal information and tends to follow the collective actions taken by other investors (Rahman & Ermawati, 2019). Limited knowledge and lack of access to information that investors have makes them tend to follow other people's investment decisions. Investors assume that when they follow the actions of other people who have access to better information, they can make investment decisions with little risk (Fransiska et al., 2018). A rational investor uses all available information, assesses each information based on risk and return and requires sufficient time to make decisions in order to get maximum results. Investors who act rationally are considered to be able to make decisions logically. Meanwhile, investors who act irrationally tend to be influenced by psychological and emotional biases so that their investment decisions are less effective and can damage market stabilization (S. Sharma & Sharma, 2022).

Herding behavior is caused by several factors including market risk and company level uncertainty, market uncertainty, extreme market conditions, high volatility risk, economic or financial crisis, declining market conditions and poor information environment (Rahayu et al., 2019). Apart from that, reputation and social proof factors are also causes of herding behavior (Fadhlia et al., 2023). This herding behavior not only creates challenges for investors and market players, but also has an impact on market stabilization and efficiency. Herding behavior is one of the factors that causes market inefficiency and stock prices deviate from their fundamental value (Komalasari, 2016). Changes in share prices caused by herding behavior affect asset returns and risks. Herding behavior will have an impact on the formation of stock prices and the return and risk of the assets owned (Candraningrat, 2019). This will result in share

prices deviating from their fundamental value or mispricing, meaning that the current share price does not reflect the actual condition of the company. When stock prices deviate from their fundamental value for a long time, stock volatility will become bad and cause bubbles and even stock crashes (Wardani, 2021).

The herding phenomenon, which shows the tendency of investors to follow the majority in making investment decisions, can be seen in companies with high market capitalization. Companies with high market capitalization are often the focus of many investors. One of the attractions for investors in choosing shares is large market capitalization because it has lower risk and good prospects in the long term with high return expectations (Taslim & Wijayanto, 2016). To reduce the risk of loss, investors will choose shares that have good fundamentals, are liquid and easy to trade so that they can provide returns in line with their expectations (Fauziah & Rusmita, 2020). This research focuses on the LQ-45 stock index which has good growth prospects and financial conditions (Romadhan & Satrio, 2019). When carrying out investment activities, investors will tend to prefer shares with good index values (Fauziah & Rusmita, 2020). The LQ-45 stock index is considered to represent overall market performance because it consists of the most liquid shares and has a large market capitalization. Stock liquidity shows how quickly and easily a stock is bought and sold (Agatha & Lasmanah, 2022). This makes investors more comfortable following the flow of the majority so that it can influence herding behavior.

Various studies have succeeded in identifying that there is herding behavior in the Indonesian capital market. Research conducted by Putera & Kaluge (2022) found that herding behavior was very high on the Indonesian Stock Exchange during the COVID 19 pandemic. Sugiantara (2022) conducted similar research and found that herding behavior occurred on the Indonesian Stock Exchange which was reflected in the squared market return value the negative. Another research conducted by Putra et al., (2017) also found that in the Indonesian capital market there were indications of herding behavior. In contrast to research by Pasaribu & Sadalia (2018), Wardani (2021) where no herding behavior was found, meaning investors tend to act rationally when making investment decisions. They carry out their own analysis and do not follow the actions of other investors.

Therefore, this research re-examines the tendency of herding behavior on the Indonesian Stock Exchange and carries out further analysis by adding the market capitalization variable to find out whether there is an influence between market capitalization and herding behavior. By adding market capitalization variables to the analysis of herding behavior, this research expands the framework of previous research. Previous research only looked at the daily closing price of shares to detect herding behavior in the stock market. By considering market capitalization factors, research can explore whether herding behavior is more dominant in large or small capitalization stocks, as well as how company size influences herding intensity. This can provide an in-depth understanding of the factors that cause herding behavior in the stock market.

THEORETICAL REVIEW

Efficient Market Hypothesis

The Efficient Market Hypothesis (EMH) assumes that the stock market is a simple and efficient system, where stock prices reflect all available information and investors make their investment decisions based on this information (A. Sharma & Kumar, 2020). According to Kamoune & Ibenrissoul (2022), the efficient market hypothesis consists of two main concepts, namely investor rationality, where investors are rational market participants with the aim of maximizing utility, and important information is efficiently incorporated into asset prices at any time so that it cannot be used to predict prices. In the future.

According to Fama (Obalade & Muzindutsi, 2018) the efficient market hypothesis is divided into three, namely weak form, semi-strong form and strong form. According to the weak form hypothesis, prices reflect all previous information, while the semi-strong and strong form hypotheses mean that prices also reflect all information available both publicly and internally. Even though EMH is a general and popular theory in economics, this theory fails to explain several anomalies that occur in the stock market (A. Sharma & Kumar, 2020). One example of an anomaly that occurs is herding behavior where investors tend to ignore information and fundamental conditions of the company (Putera & Kaluge, 2022). The herding phenomenon directly contradicts the efficient market hypothesis (EMH) because efficient market theory assumes that investors always act rationally (Hälli, 2022).

Capital Asset Pricing Model (CAPM)

The capital asset pricing model is a financial concept used to estimate the expected level of return from a financial asset. In this model, investors do not like risk and when choosing a portfolio, they only pay attention to the average and variance to choose the portfolio optimally (Rossi, 2016). CAPM also provides important insights regarding the relationship between risk and expected return on risky assets and functions as a tool for financial decision making (Khudoykulov et al., 2016). In decision making, this theory is based on the assumption of rationality which emphasizes that investors make their investment choices by considering maximum profits objectively (Mahastanti et al., 2021). Therefore, CAPM provides a useful framework for investors in evaluating investments and managing financial risks.

Behavioral Finance

Behavioral finance is a science that combines behavioral and cognitive psychology theories with economic and financial theories. In this theory, emotional and subjective factors play an important role in making investment decisions (Komalasari, 2016). An investor's decision making does not always act

rationally and logically, but can also be influenced by emotions, beliefs and cognitive biases (Almansour & Arabyat, 2017). This explains that financial behavior theory is not always rational, but is also influenced by irrationalities such as sociology and psychology (Wiryaningtyas, 2016). Because it is a combination of psychology, sociology and cognitive theory, making investment decisions is difficult (Sattar et al., 2020). This decision making is based on cognitive bias and affective (emotional) aspects which are considered irrational behavior (Antony, 2020).

Different from conventional financial theories, namely the Capital Asset Pricing Model (CAPM) and the Efficient Market Hypothesis (EMH), behavioral finance expands the understanding of this theory by considering the psychological aspects that influence it (Sadalia & Butar-Butar, 2016). The CAPM model reflects the relationship between risk and expected returns on assets and the EMH shows that new information is reflected in prices quickly. Both theories are based on the assumption that investors behave rationally and markets are always efficient (Yousuf & Makina, 2022). However, conventional financial theory cannot explain the anomalies and unexpected phenomena that occur in the stock market (Kapoor & Prosad, 2017). Furthermore, researchers use behavioral finance theory as a more reasonable explanation to explain stock returns and unexpected phenomena, such as bubbles and recessions (A. Sharma & Kumar, 2020).

Herding Behavior

Herding Behavior is the tendency for investor behavior to follow other investors' decisions due to a lack of relevant information (Litimi, 2017). They believe that other investors have more information, ability and knowledge about the capital market so that in making investment decisions they tend to prioritize psychological or emotional factors (Putera & Kaluge, 2022). In herding behavior among investors, there are two main categories, namely spurious herding and intentional herding. According to Beum-Jo & Myung-Joong (2017) (Beum-Jo & Myung-Joong, 2017) spurious herding occurs when investors respond to information that is popular in the public by making similar investment decisions. In contrast, intentional herding refers to the tendency to follow other people's investment actions without carrying out their own analysis, which can lead to market inefficiencies.

Herding behavior influences the asset pricing process because it influences stock price fluctuations, as well as stock risks and returns (Fransiska et al., 2018). Furthermore, herding behavior can cause information not to be properly reflected in the company's share price, resulting in the share price not reflecting the company's fundamental economic value (Adem & Sarıoğlu, 2020). If it occurs for a long time, this behavior will worsen stock volatility so that

stock prices will deviate from their fundamental value, causing market instability (Ismiyanti et al., 2021).

According to Chang et al., (2000) herding behavior in the stock market can be identified by looking at the relationship between the level of dispersion of stock returns (CSAD) and market portfolio returns. Indications of herding behavior are not only shown by a decrease in the value of dispersion (CSAD), but also by the existence of a non-linear relationship between CSAD and market returns. Based on previous research which has found herding behavior in the Indonesian capital market, this research also tries to detect this in LQ-45 shares, so the following hypothesis is formulated.

H1: There will be herding behavior in LQ-45 shares on the Indonesia Stock Exchange during the 2021-2023 period

High returns are one of the motivations for investors to invest. Investors make every effort to imitate the investment decisions of other people who are considered to have the information or ability to generate high returns and avoid the risk of loss (Sugiantara, 2022). According to Lan and Lal (Fransiska et al., 2018) investors tend to share information about the profits they get, spread the news and trigger herding behavior.

H2: There is a relationship between market returns and herding behavior in LQ-45 shares during the 2021-2023 period

Companies with high market capitalization are often the focus of many investors. Investors will choose shares with large market capitalization because they have lower risk and good long-term prospects with high return expectations (Taslim & Wijayanto, 2016).

H3: There is a relationship between market capitalization and herding behavior in LQ-45 shares during the 2021-2023 period

METHODOLOGY

This research is quantitative research using returns and market capitalization as independent variables to identify herding behavior on the Indonesian Stock Exchange. The type of data used is secondary data, in the form of daily closing share prices and the number of outstanding shares of LQ-45 index companies obtained from the internet via the official website of the Indonesia Stock Exchange (www.idx.co.id) and Yahoo Finance (finance.yahoo. com). The population in this study is all companies listed in the LQ-45 index on the Indonesia Stock Exchange during the 2021-2023 period. The research sample was determined using a purposive sampling method with company characteristics that were consistently listed in the LQ-45 stock index for the 2021-2023 period and had complete data regarding the research variables. So, the number of samples that meet the criteria is 58 companies.

Table 1. Operational Variables

Variable	Variable Definition	Pengukuran
Market Return	Returns from the overall market portfolio (Pasaribu, 2018).	$R_{m,t} = \frac{P_{m,t} - P_{m,t-1}}{P_{m,t-1}}$
Market Capitalization	The value of the shares issued by a company (Taslim and Wijayanto, 2016)	Kap = Number of shares outstanding x share price
Herding Behavior	The tendency of investors to follow the actions of other investors (Dewan and Dharni, 2019)	CSAD = $\frac{1}{N}\sum_{1=i}^{N}\left\|R_{i,t} - R_{m,t}\right\|$

In this research, the data analysis technique uses the Stata 17 program as a data processing tool to regress the model created. This model as a whole is estimated using the Generalized Least Square (GLS) method which is shown by the following equation:

$$CSAD_t = a + y_1\left|R_{m,t}\right| + y_2 R_{m,t}^2 + y_3 Kap + \varepsilon_t$$

Information:
$CSAD_t$ = The amount of herding value in period t
a = Intercept variable
y_1 = Linear coefficient between CSAD and market returns
y_2 = Non-linear coefficient between CSAD and market returns
y_3 = Market capitalization coefficient
R_(m,t) = Market return in period t
Cap = Market capitalization
ε_t = *Standard error*

To identify herding behavior and the influence of market capitalization on herding behavior on the Indonesia Stock Exchange, the data analysis stage begins by calculating the value of individual stock returns and market returns using the following formula:

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

Information:

$$R\_(i,t) = Individual\ stock\ return\ in\ period\ t$$

$$P\_(i,t) = Individual\ stock\ price\ for\ period\ t$$

$$P\_(i, t-1) = Individual\ stock\ price\ in\ the\ previous\ period$$

$$R_{m,t} = \frac{P_{m,t} - P_{m,t-1}}{P_{m,t-1}}$$

$$R\_(m, t) = Market\ return\ in\ period\ t$$

$$P\_(m, t) = Market\ index\ price\ for\ period\ t$$

$$P\_(m, t-1) = Market\ index\ price\ for\ the\ previous\ period$$

The Cross Sectional Absolute Deviation (CSAD) model which was developed by Chang et al., (2000) which is used to identify herding behavior is shown with the following formula:

$$\text{CSAD} = \frac{1}{N}\sum_{1=i}^{N}\left|R_{i,t} - R_{m,t}\right|$$

Information:

$$R\_(i, t) = Individual\ stock\ return\ in\ period\ t$$

$$R\_(m, t) = Individual\ market\ return\ in\ period\ t$$

$$N = Number\ of\ companies$$

Market capitalization is a measure of the value of a company which is based on the total value of shares outstanding. Market capitalization is calculated by the formula:

Market capitalization = number of shares outstanding x share price

RESULTS

Based on the Descriptive Statistics calculations in Table 1, there are 507 observations during the period 2 August 2021 to 31 August 2023, showing that the herding variable has a minimum value of 0.008311, a maximum value of 0.36891 and an average value of 0.0161091 with a standard deviation of 0. ,003811. The absolute market return variable (Abs Rmt) has a minimum value of 0.0000028, a maximum value of 0.0441509 and an average value of 0.0056112 with a standard deviation of 0.0048571. The squared market return variable (Rmt Squared) has a minimum value of 0.0000000000078, a maximum value of 0.0019493 and an average value of 0.000055 with a standard deviation of 0.0001241. The market capitalization variable has a minimum value of 61.62774, a maximum value of 81.52536 and an average value of 74.48214 with a standard deviation of 4.612968.

Table 2. Descriptive Statistical Analysis

Variable	Observations	Mean	Std. Dev.	Minimum	Maximum
Herding Behavior	507	.0161089	.0038132	.008311	.036891
Abs Rmt	507	.0056112	.0048571	2.80e-06	.0441509
Rmt Kuadrat	507	.000055	.0001241	7.80e-12	.0019493
Kap	507	74.48214	4.612968	61.62774	81.52536

Table 3. Multicollinearity Test Results

Variable	VIF	1/VIF
Abs Rmt	4.11	0.243078
Rmt Kuadrat	4.04	0.247827
Kap	1.04	0.961994

Based on Table 2, the tolerance value (1/VIF) for each variable is greater than 0.1 and the VIF value is smaller than 10 so it can be concluded that there are no symptoms of multicollinearity.

Table 4. Heteroscedasticity Test Results

Prob > chi2 = 0.4040

Based on Table 3, it shows that the probability value is 0.404 > 0.05 so it can be concluded that heteroscedasticity does not occur.

Table 5. GLS Method Regression Test Results

Variable	Coefficient	Std. Err.	t	P > | t |	[95% conf. interval]	
Abs Rmt	.2823485	.0801786	3.52	0.000	.1248216	.4398754
Rmt Kuadrat	-3.261096	3.845934	-0.85	0.397	-10.81721	4.295013
Kap	-.0001305	.0000365	-3.58	0.000	-.0002022	-.0000588
Cons	.024424	.0028049	8.71	0.000	.0189131	.0299348
Number of obs	506					
F (3, 502)	21.02					
Prob > F	0.0000					
Adj R-Suared	.01116					
Root MSE	.00351					

Based on Table 4 of the regression test, the following regression equation can be prepared:

Y = 0,024424 + 0,2823485 Abs Rmt – 3,261096 Rmt Kuadrat – 0,0001305 Kap + e

A constant value of 0.024424 indicates that if the market return value (Abs Rmt and Rmt Squared) and market capitalization are constant or zero then herding is worth 0.024424. The regression coefficient value between herding and absolute market return (Abs Rmt) is 0.2823485, this value is positive and not significant, and indicating that herding will increase by 0.2823485 units if absolute market return increases by one unit. The regression coefficient value between herding and squared market return (Rmt Squared) is –3.261096, this value is negative and not significant, which indicates that herding will decrease by –3.261096 units if the squared market return increases by one unit. The regression coefficient value between herding and market capitalization (Kap) is –0.0001305, this value is negative which indicates that herding will decrease by 0.0001305 units if market capitalization increases by one unit.

The adjusted R square test is a method to determine how far the independent variable explains the variation of the dependent variable in the regression model. The coefficient of determination test result from Table 4 of the regression test is 0.1116, which means that 11.16% of the variation in herding behavior values is influenced by market returns and market capitalization, while the remaining 88.84% is influenced by other variables not included in the research. .

Based on Table 4, the regression test results above show that the calculated t value of squared market return (Rmt Squared) is -0.85 with a significance value of 0.397 and greater than 0.05, so it can be concluded that squared market return is not significant to the herding variable. The squared market return coefficient value of –3.261096 is negative, indicating that the direction of the relationship is not unidirectional or negative. The squared market return in this condition is negative and not significant, which means there is no indication of herding behavior in LQ-45 index shares on the Indonesia Stock Exchange for the 2021-2023 period, so the first hypothesis is rejected. Based on research findings, it shows that there is no non-linear relationship between the market return variable and the herding behavior variable so the second hypothesis is rejected. The market capitalization has a value of -3.58 with a significance value of 0.0000 and is smaller than 0.05, which means that market capitalization is significant to the herding variable. The market capitalization coefficient value of –0.0001305 is negative, indicating that the direction of the relationship is not unidirectional. Market capitalization in this condition is negative and has a significant effect on the herding variable,

meaning that there is a relationship between market capitalizations and herding behavior so that the third hypothesis is accepted.

DISCUSSION

The results of the tests that have been carried out show that there is no herding behavior in LQ-45 shares on the Indonesia Stock Exchange for the 2021-2023 period, meaning that investors in making investment decisions do not follow market movements or the actions of other investors. This can be seen from the fact that there was no significant non-linear relationship between CSAD and market returns. This finding is in line with research conducted by Dewi (2023), Ramadhan & Mahfud (2016) and Pasaribu & Sadalia (2018) which shows that there is no herding behavior in the Indonesian capital market. These results indicate that investors are rational in their investment decision making process because they have good access to relevant information about stock price movements in the market.

Furthermore, it was found that there is a significant relationship between market capitalization and herding behavior. Market capitalization has a strong influence on herding behavior as indicated by the low significance value. However, the negative market capitalization coefficient indicates that the relationship between the two is not unidirectional. This means that the greater the market capitalization, the lower the herding behavior that occurs. These results confirm that the impact of market capitalization on herding behavior has been proven and can provide an important contribution to understanding market behavior and the factors that influence it, especially those related to herding behavior.

CONCLUSIONS AND RECOMMENDATIONS

This research found that there was no herding behavior in LQ-45 shares on the Indonesia Stock Exchange during the 2021-2023 period. This shows that investors tend to make investment decisions rationally based on their own analysis and the information they have, without being influenced by the collective actions of other investors. This research also found that there is a relationship between market capitalization and herding behavior, which plays a role in influencing how investors act in the Indonesian capital market. Based on the analysis that has been carried out, this research is only limited to LQ-45 shares.

FURTHER STUDY

future researchers are expected to expand the company sector and add other variables to determine the factors that influence herding behavior in the stock market.

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