Article Type: Research Paper

Herding Behaviour Around Fed Fund Rate Announcements In Southeast Asia

Ike Arisanti[1*]

ABSTRACT

This study aims to detect herding behavior in the Southeast Asian capital market after the announcement of the fed fund rate in 2018. The population used in this study are all companies listed on the Indonesia, Malaysia, Thailand, Vietnam, Philippines stock exchanges. The sample collection technique in this study used purposive sampling. The method used to detect herding behavior using CSAD was developed by Chang, Cheng, and Khorana (2000). The results of the study found a herding behavior. . Empirical test results from the regression showed the coefficient $\gamma 2$ is negative and meets the level of confidence at the level of 95%. The ability of the regression results to meet the expected level of confidence, then empirically this can conclude the existence of herding behavior. This means supporting the hypothesis in Hi, thus in aggregate it appears that during the observation period herding behavior occurred after the Fed Fund Rate 2018 was announced.

KEYWORDS: Fund Fed Rates; Herding; Southeast Asia

INTRODUCTION

Classical financial theory explains that the behavior of investors in the capital market is rational, which means that an investor's investment decisions are based on one's logic and rationality. This rational behavior makes investors have the desire to get high returns and low risk. An efficient market is characterized that prices in the market reflect all available information and no one can obtain an abnormal return. Traditional finance / classical financial theory is often associated with modern portfolio theory, modern portfolio theory is published by (Markowitz, 1952) in the publication of Portfolio Selection. This theory reveals the importance of diversification to reduce the risk of an investment, assuming that investors will behave rationally, predictably and not deviate from generally accepted procedures / habits.

Sharpe, (1964), Lintner, (1965), and Treynor (1965) introduce a model in valuing securities prices, by describing the relationship between risk and expected return. The model is a development of portfolio theory put forward by Markowitz (1952) by introducing a new term namely systematic risk and specific risk / unsystematic risk. In 1970, William Sharpe won the economic nobel for the theory of the formation of financial asset prices which came to be called the Capital Asset Pricing Model (CAPM). However, these theories are not able to provide an explanation of a number of inconsistencies (anomalies) of the capital market, for example, January Effect, Day of the week effects, returns over trading and non-trading periods, Stock return volatility and the internet phenomenon (including capital market deadlock as the impact of the fall of internet-based stocks in the late 1990s), the collapse of the capital markets in 1929 and 1987 and the impact of the subprime mortgage crisis in 2007 - 2008. In fact the current capital market conditions are not fully able to be explained by financial theory classically, there are conditions where investors are not rational in their investment decisions.

In the practice of capital market operations, it turns out there are sophisticated investors and naive investors (Hartono, 2016). Sophisticated investors are investors who are able to understand and interpret information quickly and well. Meanwhile, naive investors are investors who have limited ability to interpret and interpret the information received. It is very likely that the inability of naive investors will cause them to follow other's behavior. While sophisticated investors are not always sophisticated in every decision making in the market, when there is a large market uncertainty, then the possibility of engaging in behavior also increases. This behavior is a reflection of irrational investor behavior.

One of the irrational behavior of investors is herding behavior, herding behavior is behavior following the decisions of other investors in investing. Herding behavior occurs when the market is not transparent, that is, if an investor encounters an uncertain source of public information and receives unclear signals about the company's future. According to Narasanto (2012) herding behavior generally occurs in developing capital markets (emerging markets), insufficient information is available which is the main reason why herding behavior occurs. Investors do not seem to use rationality in making decisions in the market. An investor can make the decision to adjust to the majority of other investors or market consensus without considering the information available and already owned (Christie and Huang, 1995).

Herding behavior usually occurs when phenomena occur or certain information is available in the capital market, for example there is an announcement of a fed fund rate so that many stock analysts will inform related predictions of increases or decreases in certain

stock prices. With this information it will attract investors' reactions in investing both rationally using technical or fundamental analysis as well as irrational investors in investing.

The existence of the global financial crisis certainly has a significant impact on the development of capital markets in Indonesia. One of the global financial crises is the financial crisis that occurred in the United States. The impact of the United States (US) financial crisis is clearly very influential on Indonesia (Nugroho, 2013). During a recession, interest rates fall as capital demand decreases. Overall, economic interest rates affect deposits and investment. In theory, interest rates and stock prices are generally inversely proportional. When interest rates rise, stock prices fall and when interest rates fall, stock prices rise. In addition to reducing interest rates to 0%, the Fed also pursued a controversial policy by conducting Quantitative Easing.

According to Kremer & Nautz (2012) herding behavior occurs when the market is not transparent, ie when investors face uncertain sources of public information and receive unclear signals about companies in the future. Based on World Bank survey results, it shows that Indonesia's financial literacy rate is 20%, Philippines 27%, Malaysia 66% Thailand 73% and Singapore 98%. This shows that the level of literacy in developing countries is relatively smaller compared to developed countries.

Based on Liu's research (2007), the financial sector has specific characteristics with regulations that directly impact the financial sector, so this study uses financial sector objects that exist in developing capital markets in Southeast Asia because the rise and fall of FFR policies will directly impact the financial sector. .

The existence of quantitative easing resulted in an increase in the company's program to repurchase shares that had been previously issued (Magavi, 2012). Due to an increase in the share repurchase program previously issued, the outstanding shares will decrease and if the total income remains unchanged, the earnings per share (EPS) will increase. As a result, investors aka The above shows that the existence of quantitative easing resulted in an increase in global investment in the financial asset market or capital market. So that this will cause an increase in the flow of funds into each capital market in several countries. In the midst of the pressures of the global crisis that befell countries in Europe and the United States, the emerging markets (developing countries) became one of the choices for global investment (Nugroho, 2013) triggered to buy shares of companies.

Based on research on the Fed Fund Rate Effect on the Indonesian capital market that has been conducted by Chandra (2018), Magavi (2012) and Nugroho (2013) any increase or decrease in FFR will have an impact on capital market investment in developing countries, so it becomes an interesting phenomenon in the capital market, investors will tend to remember a phenomenon that makes it a reference for investment.

Based on the description above, this study tries to detect herding behavior after the Fed Fund Rate Announcement in 2018, starting on the 1st day to the 7th day after the FFR Announcement by detecting the level of dispersion of individual stock returns to market returns using the CSAD method. Thus, the research hypotheses are as follows: H1: There is a herding behavior after the announcement of the FFR in 2018. Based on the description from the background above, researchers are interested in researching related herding behavior after the announcement of the 2018 fed fund rate in Southeast Asia.

METHOD

Types and Data Sources

The type of data used in this study is secondary data. The data source used is sourced from the website of yahoo finance (www.finance.yahoo.com) in the form of daily stock price data during the observation period in developing countries in southeast asia. The population used in this study were all companies listed on the Indonesia, Malaysia, Thailand, Vietnam, Philippines stock exchanges. The sample collection technique in this study uses purposive sampling that meets the following criteria:

a. Companies listed on the Indonesia Stock Exchange, Malaysia, Thailand, Vietnam, the Philippines in 2018.

b. Companies that enter the financial sector

Definition of Variable Operations

Daily Stock Return Calculation

Return is the result obtained from an investment. According to Hartono (2014), returns consist of capital gains / losses and yields. Chang, Cheng, & Khorana (2000) define returns as capital gains / losses that rise / fall based on stock prices, as an independent variable in CSSD / CSAD. Daily stock returns of individual shares are calculated using the formula:

$Ri = (Pt-Pt-1) / Pt-1$ (3.1)

Information :

Ri: Return of stock i on t day.

Pt: Share price on day t.

Pt-1: Share price on the previous day

Daily Market Return Calculation The value of market return (Rm, t) in this study was obtained by calculating daily stock returns (Ri, t), then adding up all the values of each stock on the t-day and divided by the number of shares available (N). This is because not all stock sectors used during the observation period can be used as a sample, so by calculating portfolio returns can represent all stocks that meet the sample criteria. Absolute Deviation / Dispersion Christi Huang (2015) uses standard deviations to detect herding behavior. In statistics the absolute deviation is considered one alternative to standard deviations so that it is used in the study of Chang et al. (2000) to detect herding behavior. In this study, absolute deviation is used to detect herding behavior. CSAD

Detection of herding behavior using Cross Sectional Absolute Deviation developed by Chang, Cheng, & Khorana (200) with the following equation $CSADt = 1 / (N) \sum_{(i=1)}^{N} | Ri, t - Rm, t |$ (3.2)

Information :

CSADt: Cross Sectional Absolute Deviation

Ri, t: individual stock returns in period t

Rm, t: market return in period t

N: number of companies in the sample

Furthermore, Perform CSADt data regression with market returns at α = 0.05%. The formula used is as follows:

CSADt: α + γ1 | Rm, t | + γ2 Rm, t2 + εt

α: intersect variable

γ1: linear coefficient between CSAD and market return portfolio

γ2: Non-linear coefficients between CSAD and market return portfolio

Rm, t: portfolio market return in period t

εt: standard error

Data analysis method

Data analysis methods used are descriptive statistics and regression. Descriptive and regression statistics are performed using the SPSS 22 software.

The data analysis stages carried out in this study are:

1. Register financial sector companies in Indonesia, Malaysia, Thailand, Vietnam, Philippines.

2. Calculate the daily return of each share 7 days after the announcement of the federal reserve interest rate in September 2018.

3. Calculate CSADt of daily stock returns for each company stock and calculate the magnitude of market returns. In this study, CSADt calculation is done with the following formula:

CSADt = 1 / (N) ∑_ (i = 1) ^ N | Ri, t - Rm, t |

Information :

CSADt: Cross Sectional Absolute Deviation

Ri, t: individual stock returns in period t

Rm, t: market return in period t

N: number of companies in the sample

4. Conduct Data Normality and Multicollinearity Tests a. Normality test The normality test is the first classic assumption test, aimed at testing whether in the regression model, confounding or residual variables have a normal distribution. The normality test used in this study uses the Kolmogorov Smirnov test using a significance level of 0.05, if the data has a level of significance equal to or above 0.05 the data has a normal distribution, whereas if the data is less than 0.05 then the data is not normally distributed. b. Multicollinearity Test Multicollinearity test aims to test whether the regression model found a correlation between the independent variables (independent) with one another. A good regression model should not occur correlation between independent variables. If the independent variables are correlated with each other, then these variables are not orthogonal. Orthogonal variables are independent variables whose correlation values between variables are zero. In this study, to detect the presence or absence of multicollinearity can be seen from the tolerance value and the Prince Inference Fiction (VIF). So a low tollerance value is equal to a high VIF (VIF = 1 / tolerance) and shows a high colinearity. The value used to indicate the presence of multicollinearity is a toll value> 0.10 or equal to VIF <10.

5 Perform CSADt data regression with market returns to get the herding value at α = 0.05%. The formula used is as follows:

CSADt: α + γ1 | Rm, t | + γ2 Rm, t2 + εt

α: intersect variable
γ1: linear coefficient between CSAD and market return portfolio
γ2: Non-linear coefficients between CSAD and market return portfolio
Rm, t: portfolio market return in period t
εt: standard error

RESULTS AND DISCUSSION

Table 1 provides a description that a total of 130 issuers met the sample criteria with a total of 7 trading days during the observation period each day. The average CSAD value during the observation period was 6.2% with a standard deviation of 3%. Daily average market return during the observation period of 7.1% with a standard deviation of 2.08% in this study market returns are calculated using portfolio returns, meaning that in this study sample the majority of stocks have portfolio returns above 9%. Based on these descriptive statistics the mean value is greater than the standard deviation meaning the data used in the study varies. Based on table 2 Test for normality using Kolmogorov Smirnov it can be seen that asymp 2 tailed 0.993 above 0.05 means the data is normal.

Table 1.
Descriptive
Statistic

Variabel	Mean	Std. Deviation	N
Csad	6,2051	3,02224	130
Rmt	7,1153	2,08732	130
RMt2	9,6567	4,05368	130

Table 2.
Kolmogorov-
Smirnov Test

N		136
Normal Parameters[a,b]	Mean	,0000000
	Std. Deviation	4,26239000
Most Extreme Differences	Absolute	,349
	Positive	,252
	Negative	-,349
Test Statistic		,349
Asymp. Sig. (2-tailed)		,993

Table 3.
Hasil Regresi
Agregate

CSAD$_t$	α	γ1	γ2	Adjusted R^2
Agregate	0,533 (0,350)	1,549 (0,000)	-0,053 (0,000)	0,640

Table 3 shows that the regression results using a sample of a total of 130 companies that entered the financial sector in the capital markets of developing Southeast Asia empirically indicated herding behavior. Empirical test results from the regression showed the coefficient γ2 is negative and meets the level of confidence at the level of 95%. The ability of the regression results to meet the expected level of confidence, then empirically this can deduce the existence of herding behavior. This means supporting the hypothesis in Hi, thus in aggregate it appears that during the observation period there was herding behavior after the Fed Fund Rate 2018 was announced. The adjusted R-Square value in this study was 64% meaning that the absolute market return and market return variables simultaneously affected the CSAD variable while 36% is influenced by other variables not included in the research model.

Discussion

Based on Chandra's research (2018) The interest rate of the Fed has a negative influence on the Composite Stock Price Index, meaning that when the Fed increases interest rates, a lot of money is absorbed in America, which results in investing in savings more attractive than investing in stocks. When the Fed raises interest rates it will affect developing countries, interest rates in developing countries will rise then bank interest rates or savings will increase as a result of funds being absorbed into banks, investment in savings becomes more attractive than investment is understood so that the Composite Stock Price Index goes down.

Based on the table 4 Fed Fund Rates continue to increase during 2018, the rise and fall of the fed fund rate policy is a phenomenon in developing capital markets in developing countries. The existence of informed investors who know information related to the announcement of FFR has an effect on other investors who do not have information to follow the behavior of market consensus. Uninformed investors will follow the behavior of investors to sell their shares when the FFR goes up, this is indicated by the decline in the value of the JCI after the announcement of the FFR which is down 0.1%, KLCI down 0.31%, PSEI down 0.05%, SET down 0.54% in each country Post FFR Announcement. Rational expectation theory that explains that investors who do not have private information will get that information by observing through price changes that occur. Investors who do not follow this information will conduct transactions by following transactions conducted by other investors.

Li (2017) found a relationship between institutional investors, the more institutional investors in a country, the herding behavior will be reduced, institutional investors are more sensitive to public information and have better financial education compared to individual investors. The smaller number of institutional investors compared to individual investors in developing countries is one of the causes of herding behavior. One reason is that herding occurs in developing countries because the size of capital markets in developing countries is smaller than in developed countries, according to research Sajter and ćorić (2009) found that capital markets with smaller sizes will be easier to do herding than those with larger sizes because capital markets that have large sizes are more stable. In

Date	Fed Rates (%)
22 Maret 2018	1,50 – 1,75
14 Juni 2018	1,75 – 2,00
27 September 2018	2,00 – 2,25

Table 4.
The Hikes Of Fed Rate Rates in 2018

addition, investors who invest their funds in large capital markets will spend large funds so that in making investments more careful and highly considered every decision (Patterson & Sharma, 2010).

Based on reports from The Standard & Poor's Ratings Services Global Financial Literacy Survey the level of financial literacy in developing countries in Southeast Asia is still low including Indonesia 32%, Malaysia 36%, Thailand 27%, Philippines 25%, Vietnam 26%. The low level of financial literacy has an impact on investment decisions of an investor who tends to not understand the characteristics of the instruments they invest.

Furthermore, what will be discussed in this study is adjusted R square. The value of adjusted R square means that how well the research model can be applied to explain the theory. The adjusted R square value in the study of 0.64 means that 64% of the dependent variable can be explained by the independent variable, while 36% is explained by other variables outside the model. Based on Chang, Cheng, Khorana (2000) a high adjusted R square value indicates that macroeconomic conditions have a higher role than company-specific information. Based on these assumptions, the results of this study indicate that herding behavior in Indonesia is more than 64% influenced by macroeconomic factors. In the research journal Chang, Cheng, Khorana shows that the higher value of adjusted R square in emerging markets is consistent with the view that the scarcity of company-specific information that is fast and accurate can cause investors to focus more on macroeconomic conditions.

The ups and downs of the fed fund rate associated with the ups and downs of share prices in certain sectors can be categorized as information asymmetry for some investors, especially investors who are less sophisticated or unsophosticated investors. The existence of information asymmetry, investors tend to follow the crowd, namely the higher the information asymmetry, investors are more likely to ignore their personal information and choose to follow market consensus.

According to Chen & Xiaoyuan Mao (2007) the level of active trading of shares in the Chinese stock market has a positive correlation with the information content of stock prices. If stock prices contain more information, share price volatility and company fundamentals are more closely linked, then investor enthusiasm for trading stocks is higher and market transactions will be more active. This means that compared to small companies, large companies have a better corporate governance structure and prices including more basic company information. Based on the theory of market efficiency, the hypothesis proposed by Fama (1970) market efficiency is the relationship between the prices of stock securities and the availability of information. The information discussed in this study is the announcement of American interest rates, when public information is announced in the community and makes certain phenomena many speculators will relate to the rise and fall of stock prices, causing panic in the market so that transactions will be more active on the exchange.

CONCLUSION

Empirically this research shows that companies entering the financial sector in the capital markets of developing Southeast Asian countries indicate herding behavior. When the Fed raises interest rates it will affect developing countries, interest rates in developing countries will rise then bank interest rates or savings will increase as a result of funds being absorbed into banks, investment in savings becomes more attractive than investment is understood

so that the Composite Stock Price Index falls so that investors will be busy selling his sahmnya then diverted to investment savings. The panic also often occurs when there is a shock on the capital market so that investors will follow each other to sell shares then the stock price will go down. This can cause stock prices to be unpredictable and price volatility in the market. This situation also makes the market inefficient. The research implications can be used as a source of investor reference in investing in the capital market related to the irrational behavior of investors that have an impact on the ups and downs of stock prices. Suggestions for future researchers can use all sectors of shares in the Stock Exchange in Southeast Asia for research objects. Researchers can then consider cultural and financial literacy factors in herding behavior research.

REFERENCES

Asri, M. 2015. *Keuangan Keperilakuan*. Yogyakarta : BPFE Fakultas Ekonomika dan Bisnis UGM.

Chang, E., Cheng, J.W., dan Khorana, A. (2000). An Examination of Herd Behaviour in Equity Markets: An International Perspective. Journal Of Banking and Finance 24, 1651-1679.

Chang, C. H., & Lin, S. J. (2015). The effects of national culture and behavioral pitfalls on investors' decision-making: Herding behavior in international stock markets. *International Review of Economics & Finance, 37*, 380-392.

Christie, W.G., dan Huang, R.D. (1995). Following The Pied Piper: Do Foreign Individual Returns Herd Around The Market. Financial Analyst Journal, pp 31-37.

Chiang, T. , & Zheng, D. (2010). An empirical analysis of herd behavior in global stock markets. Journal of Banking & Finance, 34(8), 1911-1921

Economou, F., Kostakis, A., & Philippas, N. (2011). Cross-country effects in herding behaviour: Evidence from four south European markets. *Journal of International Financial Markets, Institutions and Money, 21*(3), 443–460.

Fama, F.E. (1970). Efficient Capital Markets: A Review of Theory and Empirical Work. *The Journal Of Finance*, Vol.25, No.2, pp 413-416.

federalreserve.gov/monetarypolicy/openmarket.htm (Diakses pada 19 Desember 2019)

Hartono, J. (2016). *Teori Portofolio dan Analisis Investasi Edisi Kesepuluh*. Yogyakarta : Fakultas Ekonomika dan Bisnis UGM.

Jannata, D. C. (2018). *Pengaruh Fed rates, BI rates dan EIDO Terhadap Indeks Harga Saham Gabungan di Bursa Efek Indonesia.*

Kremer, S. & Nautz, D. (2012) Cause and consequences of Short-Term Institutional Herding. JEL Classification : G11, G24.

Li, X. (2017). A Research on Relationship between the Stock Holdings of Institutional Investors And the Stock Price Synchronicity of SME Board Market. *Technology and Investment, 8(*01), 1.

Lintner, J. (1965). Security prices, risk, and maximal gains from diversification. *The journal of finance*, *20*(4), 587–615.

Markowitz, H. (1952). Portfolio selection. *The journal of finance*, *7*(1), 77–91.

Sharpe, W. F. (1964). Capital asset prices: A theory of market equilibrium under conditions of risk. *The journal of finance*, *19*(3), 425–442.

Narasanto, T.I. (2012). "Herding Behaviour: An Experience In Indonesian Stock Market". Tesis. Universitas Gadjah Mada. Yogyakarta.

Nugroho, Arif. (2013). Quantitative Easing The Fed Menjadi Sentimen Penggerak Indeks Harga Saham Gabungan atau Jakarta Composite Indeks. *Jurnal Ekonomi* Universitas Negeri Surabaya

Patterson, D. M., & Sharma, V. (2010). The incidence of informational cascades and the behavior of trade interarrival times during the stock market bubble. *Macroeconomic Dynamics, 14*(S1), 111-136.

Sajter, D. & ćorić, T. (2009). (I) rationality of Investors on Croatian Stock Market: Explaining the Impact of American Indices on Croatian Stock Market. *Zagreb International Review of Economics and Business, 12*(2), 57-72.

Sharpe, W. F. (1964). Capital asset prices: A theory of market equilibrium under conditions of risk. *The journal of finance*, *19*(3), 425–442.

Tversky, A & D. Kahneman (1974) "Judgement unerd certainty: Heuristics and biases. *Science, New Series*, Vol.185. pp: 1124.

www.yahoofinance.com