Research Paper

Analysis of Herding Behavior in Developing Countries

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ABSTRACT

When faced with market uncertainty and high volatility in financial markets, the potential for herding behavior in the stock market is likely to increase. This will cause instability in the financial market and also the economy of a country. The purpose of this study is to analyze herding behavior in the stock markets of developing countries including China, the Philippines, India, Indonesia, Korea, Malaysia, Pakistan, Taiwan and Thailand. This type of research is quantitative research and the population in this study is stocks listed on the Stock Exchanges of all developing countries with a time period from January 2016 to December 2020. The sampling method used is purposive sampling. The data used are monthly stock index data, VIX, world oil prices and the fed funds rate. Data analysis was performed through panel data regression, which is a combination of cross section and time series using the Eviews program. The results showed that there was no herding behavior in developing countries. The result of this research is that the fed fund rate has a significant effect on herding behavior in developing countries, especially in Indonesia.

Keywords: Herding, Market Volatility, Oil Price, Fed Fund Rate

INTRODUCTION

It is very important for business people and academics to understand how market participants' decision making in the stock market and investor behavior patterns affect stock prices (Choin and Yoon, 2020). Sometimes investors fail because they make decisions based on their own information and analysis and sometimes, they fail because they ignore their beliefs when making decisions. Investors who prefer to follow market sentiment and even rely heavily on other investment actions to act to sell or buy are called herding behavior (Christie and Huang, 1995).

Herding behavior usually occurs without market participants directing price movements in a certain direction or herding behavior occurs naturally when the market is under pressure. Herding behavior is investor behavior that suppresses personal analysis or opinion and makes the behavior of other investors and market sentiment the basis for making investment decisions (Christie and Huang, 1995). Investors who do herding will ignore the fundamental analysis of the company when making investment decisions. So, what happens is that when the price of a stock drops, the stock will be sold because other investors see other investors selling their shares.

In recent years, emerging market financial markets, especially in Asia, have become attractive options for investors in allocating their funds. This is based on the fact that in general developing countries offer a higher rate of return than developed countries. So that developing countries are expected to be able to provide high returns for investors (Harvey, 1995). Economou at al. (2018) states that herding behavior in emerging markets usually occurs because investors consider developing countries to have large profit opportunities compared to

developed countries whose stock markets are quite deep.

Based on data from Morgan Stanley Capital Inc. in 2021 developing countries in the Asian continent, namely China, India, Indonesia, Korea, Malaysia, Pakistan, the Philippines, Taiwan and Thailand, this is measured based on the amount of capital ownership by investors in each country, economic developments, size and market access so that the sampled countries are part of developing countries. The rapid development of stock exchanges in developing countries in Asia cannot be separated from investors in carrying out their investment activities in these countries in a conducive manner. Although the number of financial instruments in the Asian market is less than the United States, the investment pattern of mutual funds in Asia is growing rapidly, especially after going through the global financial crisis (Qureshi et al. 2016).

Indonesia itself recorded a decline in the annual performance of the stock index based on data from Morgan Stanley Capital Inc, where in 2020 it decreased to -8.09 so that it experienced a decline of 188 percent from 2019. In addition, the decline in the annual performance of the stock index of all developing countries was recorded at 0.6 percent. compared to the previous year.

The decision-making process of investors cannot be separated from the financial behavior that underlies the actions of these investors. Financial behavior that is owned will explain why and how investment decisions are made and carried out by investors (Ricciardi, 2005).

Herding behavior is one of the financial behaviors that can be caused by fundamental or non-fundamental factors (Indars at al. 2019). Fundamental factors consist of rational analysis carried out by investors themselves. Meanwhile, non-fundamental factors are factors that make the market inefficient such as market volatility, crude oil prices and monetary policies such as the fed funds rate (Indars at al. 2019).

In the development of financial management, there are two opposing views that underlie the behavior of financial markets. The first view is the view of efficient market conditions which states that the prices formed in the market are a reflection of the available information (Fama, 1970). The second view is the existence of a behavioral bias that makes the market efficiency hypothesis no longer in accordance with the explanation of asset price formation or is more dominated by psychological factors of actors in making investment decisions. One of them is psychological factors where the desire for something certain and feelings of insecurity to spur herding behavior, feelings of security will arise if imitating other people's investment decisions (Devenow and Welch, 1996).

LITERATURE REVIEW
Herding Behavior

In theory, herding behavior involves the tendency of investors to imitate the activities of other investors after observing the actions and results obtained by other investors (Hirshleifer and Teoh, 2003). The results of Demirer and Zhang's research (2018) state that herding is carried out because everyone will do what others do even though their personal information shows the opposite. According to Houda and Mohamed (2013) argue that herding behavior is similar to the situation when investors try to improve their performance and reputation by suppressing their own analysis and applying the actions of other investors who have more reliable sources of information or superior analytical competence of decisions.

Banerjee (1992) states that herding behavior is the behavior of transferring information as additional knowledge about the environment around the individual to make decisions. Herding behavior is also very concerned with the existence of information by observing other individuals in interacting. Herding behavior in making investment decisions occurs due to the

absence of accurate information in the market. In such conditions, it is possible that investors will follow other investors for their personal interests such as maintaining or achieving a certain reputation, career advancement and certain compensation (Setiyono, 2013).

The findings of Economou et al. (2018) stated that herding behavior is more likely to occur in emerging markets because market participants believe that the opportunities for profit in emerging markets are higher than in developed countries whose securities are large and deep. Emerging market returns are more predictable than developed markets, low risk exposure and less global information influence (Harvey, 1995).

Many investors choose markets in developing countries due to the light volume of work in the context of developing economies where the stock market is still at an early stage of development besides information asymmetry factors are stronger in developing countries (Vo and Phan, 2016). Herding behavior is expected to occur during market periods under stress or extreme conditions as indicated by increased uncertainty, high market value fluctuations (Economou et al. 2018). When in a situation of high market pressure, panic often occurs among market participants and in the end tends to follow the market consensus (Christie and Huang 1995).

Market Volatility as a Driver of Herding Behavior

Herding behavior has a linear impact on volatility for all available volatility measures (Natividad, et al. 2012). Some literature states that volatility is only caused by continuous adjustment of stock prices to new information (Thaler, 1991). However, there are conflicting studies on price adjustments that are not caused by the arrival of new information, but because of market conditions or collective phenomena such as herding behavior (Shefrin, 2000). Floating information can increase volatility and uninformed market participants very

often follow market trends, buying when prices are rising and selling when prices are falling, thus indicating the type of behavior we might equate with herding behavior (Natividad, et al. 2012).

Crude Oil Price as Driver of Herding Behavior

The influence of oil prices on financial markets has become an interesting topic for academics, practitioners and policy makers. In recent times the price of oil has become a determinant in the economic development of both oil-importing and exporting countries, in some cases providing investors with clues about the future performance of the stock market in these countries (Ulussever and Demirer, 2017). Not a few investors do herding when there is a change in the return of world oil prices both when it goes down and when it rises (BenMabrouk and Litimi, 2018). The world oil price as a global factor is able to encourage the herding behavior of investors when there is a change in the return of the oil price.

Fed Fund Rate as a Driver of Herding Behavior

Interest rates are important macroeconomic variables that significantly affect the stock market (Bernanker and Kuttner, 2005). However, exchange rate movements affect stock prices because of their effect on cash flows and the international competitiveness of companies, as well as capital flows into and out of a country (Thorbecke, 1997). An increase in interest rates which is manifested in a down trending market situation reflects that investors are more sensitive to bad information than good news (Gong and Dai, 2017).

Overall economic interest rates affect investment. In theory, interest rates and stock prices generally have an inverse relationship. When interest rates rise, stock prices fall and vice versa (Arisanti, 2020). Herding behavior itself occurs when certain information occurs in the market. For

example, the announcement of the fed funds rate so that many stock analysts will provide information related to predictions of certain increases or decreases. The existence of this information will attract investor reactions in investing both rationally using technical or fundamental analysis and investors who are not rational in investing (Arisanti, 2020).

Herding Behavior Detector

There are several approaches to detect herding behavior. One well-known approach is the market wide approach (Oshlon, 2005). This approach focuses on the entire stock population or in other words uses a large research sample. If there is herding behavior in one stock, there will be a grouping of individual stock returns (clustered) and will approach the total market return due to the attitude of investors who follow market sentiment (Oshlon, 2005).

MATERIALS & METHODS

This type of research is associative research. According to Sugiyono (2011), associative research is research that aims to determine the relationship between two or more variables to study, describe, and see the influence between the variables formulated on the research hypothesis. This study aims to identify whether there is herding behavior on the stock exchanges of China, the Philippines, India, Indonesia, Malaysia, Korea, Pakistan, Taiwan and Thailand. The population in this study is the active shares listed on the stock exchanges of developing countries in the Asian continent according to Morgan Stanley Capital International Inc. namely stocks in the financial markets of China (Shanghai Stock Exchange), Philippines (Philippine Stock Exchange), India (Bombay Stock Exchange) Indonesia (Indonesian Stock Exchange), Malaysia (Kuala Lumpur Stock Exchange), Korea (Korea Exchange), Pakistan (Pakistan Stock Exchange) Exchange), Taiwan (Taiwan Stock Exchange) and Thailand (Stock Exchange of Thailand). In this study, the sample was taken using a purposive sampling technique, namely the sample used to estimate the characteristics of the population based on certain criteria. The sampling criteria in this study are the combined stock index for the monthly period of each developing country in the Asian continent, the period January 2016 to December 2020.

RESULT
Data Analysis Results

Table 1 Regression Test Results

Dependent Variable: CSAD				
Method: Panel EGLS (Cross-section random effects)				
Date: 12/06/21 Time: 10:49				
Sample: 2016M01 2020M12				
Periods included: 60				
Cross-sections included: 9				
Total panel (balanced) observations: 540				
Swamy and Arora estimator of component variances				
Variable	**Coefficient**	**Std. Error**	**t-Statistic**	**Prob.**
C	0.048413	0.003436	14.08871	0.0000
ABSRM	0.240019	0.044599	5.381661	0.0000
RM2	0.064308	0.258222	0.249043	0.8034
VIX	-0.004046	0.002942	-1.375326	0.1696
WTI	0.016474	0.004985	3.304843	0.0010
FFR	-0.011668	0.004106	-2.841922	0.0047
	Effects Specification			
			S.D.	Rho
Cross-section random			0.009534	0.2593
Idiosyncratic random			0.016114	0.7407
	Weighted Statistics			
R-squared	0.271267	Mean dependent var		0.012241
Adjusted R-squared	0.264444	S.D. dependent var		0.018788
S.E. of regression	0.016113	Sum squared resid		0.138647
F-statistic	39.75576	Durbin-Watson stat		1.733694

Table 1 Continued...			
Prob(F-statistic)	0.000000		
	Unweighted Statistics		
R-squared	0.248929	Mean dependent var	0.057424
Sum squared resid	0.181876	Durbin-Watson stat	1.321617

Based on Table 4.30 the results of data processing with Eviews software, the results of the regression equation for the stock market from all developing countries in this study are:

CSAD = 0,048413 + 0,240019 |RM| + 0,064308 Rm^2 - 0,004046 VIX + 0,016474 WTI - 0,011668 FFR

The regression results from table 4.30 can be interpreted as follows:

1. The constant value of 0.048413 means that if the value of market return (|RM|, Rm2), market volatility value (VIX), crude oil price value (WTI) and interest rate value (FFR) is constant or zero, then the value is constant or zero. CSD increased 0.048413%.
2. The linear coefficient value between the dispersion coefficient (CSAD) and market return (|Rm|) of 0.240019 is positive and not significant.
3. The linear coefficient value between the dispersion coefficient (CSAD) and market return (Rm2) of 0.064308 is positive and not significant.
4. The non-linear coefficient between the dispersion coefficient (CSAD) and market volatility (VIX) of -0.004046 is negative and not significant.
5. The linear coefficient of dispersion coefficient (CSAD) with crude oil (WTI) of 0.016474 is positive and not significant.
6. The non-linear coefficient value between the dispersion coefficient (CSAD) and the interest rate (FFR) of -0.011668 is negative and significant.

DISCUSSION

Based on the results of descriptive analysis, the Pakistan stock market recorded the highest return and the highest standard deviation compared to the eight other countries. These findings follow the financial theory which states that the returns obtained are in line with the risks that must be borne. Based on Table 4.34 there is no variation in the return variable that has a significant value. This shows that reject H0 where if the variation of the return variable is negative and significant, it indicates herding behavior. This study supports the results of research from Yao and Tangjitprom (2019) which stated that herding behavior was not found in the stock exchanges of Indonesia, Malaysia, the Philippines, Singapore and Thailand. The absence of herding behavior illustrates that investors in developing countries think more rationally in terms of making investment decisions. This is in line with the results of Ahsan and Sarka's (2013) research which states that there is no herding behavior in developing country markets. This shows that investors in making decisions do not follow the market consensus. Research conducted by Jouini (2013), Alotaibi and Mishra (2015), and Basher et al. (2012) stated that market volatility, world oil prices and the fed funds rate are used as proxies for global sentiment because these three variables are often used as indicators that influence the dynamics of global financial markets.

The effect of market volatility was not found significantly in the nine developing countries. Positive coefficients occur in the Philippines and Thailand. The increase in VIX is associated with an increase in the CSAD value of market returns, which means that investor responses vary when the VIX increases. Large market volatility is usually an attractive signal for long-term investors to enter or invest. Although the coefficient values in China, India, Indonesia, Korea, Malaysia, Pakistan and Taiwan are negative, there is no significance for these countries. This indicates that there are other factors that have more influence on herding behavior in the country's market.

Based on the estimation results from table 4.34 the effect of world oil prices (oil price) is significant in Malaysia. However, the indications of herding behavior in this study have no effect on world oil prices which are indicated by a positive coefficient. The results of this study contradict the results of research by Balcilar et al. (2014) which states that world oil prices affect herding behavior. According to research by Bhar and Nikolova (2009), the stock market response to oil prices depends on whether the country is a net importer or a net exporter. Countries that are classified as net exporters will respond positively and on the contrary countries that are classified as net importers will respond negatively.

The effect of the fed fund rate on herding behavior was found to be significant in the Indonesian stock market index and panel data. Kim's research (2009) states that the fed fund rate has a spillover effect on the stock markets of countries in Asia Pacific which is often associated with the news impact of the stock markets of these countries. In the markets of China, the Philippines, India, Korea, Malaysia, Pakistan, Taiwan, Thailand, the fed fund rate proved insignificant in influencing herding behavior. Wongswan (2009) states that countries that have capital control tend to be unaffected by monetary changes from other countries, in this study Malaysia as an example of control over cash flows in that country so that financial linkages with other countries are automatically limited. This study supports the research of Rahman and Ekawati (2020) which states that the biggest influence on herding behavior is caused by the fed fund rate.

CONCLUSION

Based on the analysis and discussion, conclusions and suggestions can be drawn as follows:

1. Herding behavior does not occur in emerging markets, namely China, the Philippines, India, Indonesia, Korea, Malaysia, Pakistan, Taiwan and Thailand.
2. Market volatility has no effect on herding behavior in China, the Philippines, India, Indonesia, Korea, Malaysia, Pakistan, Taiwan and Thailand.
3. The price of crude oil has no effect on herding behavior in China, the Philippines, India, Indonesia, Korea, Malaysia, Pakistan, Taiwan and Thailand.
4. The Fed fund rate has a significant effect on herding behavior in developing countries, especially in Indonesia.
5. It is necessary to add research on herding behavior by sector in each stock to be more specific in assessing which stock sector is more affected by market sentiment.
6. Herding behavior does not show a large rate of return. Therefore, investors should use technical and fundamental analysis when making investment decisions. When the decision is only based on market sentiment then it is not the right solution in the face of uncertainty to meet the goal of seeking profit. Investors need a deeper understanding of technical and fundamental analysis in starting an investment.
7. Further researchers can add government bond independent variables to see herding behavior along with price movements of government bonds.

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