TESTING FOR HERDING BEHAVIOR OF AFTERMARKET OF IPO (INITIAL PUBLIC OFFERING) IN INDONESIA STOCK EXCHANGE

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Abstract

This research is aimed to test the aftermarket IPO herding that listed on Indonesia Stock Exchange. The sample in this research is company that do IPO from year 2006-2015. The test used monthly closing price data using Christie and Huang (1995) method, Cross Sectional Standard Deviation (CSSD) or return dispersion to measure herding behavior. Testing herding tested on two market conditions, namely up market and down market. Where the up market means the stock market (or the main market index) is trading higher than some particular point in the past. Down market conditions mean otherwise. The result of the research shows that there is herding in both market condition, up market and down market which is indicated by the spread of lower return on the market up market and down market.

Keywords: Herding Behavior, Return Dispersion, IPO

INTRODUCTION

The role of the capital market is important for a country's economy. The capital market serves as a source of financing for businesses in economic development. Indonesia Stock Exchange as one of the capital markets that became the destination country for domestic and global investors to place investment. This is seen from the increase in trading transactions on the Indonesia Stock Exchange as well as increased investor confidence to invest funds in the Indonesian Capital Market.

There is a strong assumption about the capital market that has been built long ago in the financial literature, the efficient market hypothesis. One article written by Fama (1970) describes the concept of efficient capital markets. A market is said to be efficient when the market is efficient in managing information, where the security prices formed at any given time reflect all available information at the time (Fama, 1970, 1976: 133).

According to the efficient market investors behave rationally in making investment decisions. But behavioral finance has another view, that is, market participants in financial theory are normal people. There are times when an investor is affected by cognitive errors and psychological factors. The real state of the market according to the theory of financial behavior is not efficient, investors design their portfolio also not only based on portfolio theory but there is psychological element in it. Finally, in the view of financial behavior, the return expected by investors is not only determined by the difference in risk.

One of the irrational behavior of investors among some types of psychological phenomena is herding behavior. Herding behavior is investor behavior which follows the behavior of more skilled investor when making investment decision of market consensus (Lindhe, 2012). Christie and Huang (1995) describe herding behavior as investor behavior that suppresses their analysis or personal opinion and makes other investor behavior and market sentiment the basis of investment decision making. The purpose of herding to investors is to get investment decisions quickly and valid without the use of time and resources for too long. It also can minimize feelings of guilt when the decision made investors are not appropriate (Natapura, 2009).

This study will test herding on the Initial Public Offering (IPO) stock market. According Samsul (2004: 46) the primary market is a place or means for companies to first offer shares or bonds to the general public. According to Agrawal in Kim (2014) in post-IPO the occurrence of underpricing phenomenon almost throughout the world capital market. The existence of underpricing phenomenon causes a domino effect (followings) that arise in potential investors post IPO. The presence of domino effects (followings) that arise in potential investors post IPO and underpricing phenomenon is causing the behavior of herding. The explanation is the basis for consideration of potential investors' IPO decision not only the information it holds but also the actions of other investors (Welch in Yong, 2007).

The phenomenon of underpricing and the high initial return be a good signal for investors to invest. Investors speculate to get a high return on stocks that provide a high initial return, so that other investors will be affected to jointly investing shares in the same direction. The existence of underpricing phenomenon is also associated with rational expectation theory which explains that investors who do not have private information will get the information by observing the price changes that occur. In addition, the over-optimistic investors in underpricing phenomena contribute to the increase of returns on post-IPO stocks, investors have different

reasons to maximize profits, preferring to follow other investors' observations as well as market consensus called herding (Kim, 2014).

Herding behavior is very likely to occur in post-IPO. Investors do not have enough information on the performance of the company and the underpricing phenomenon, so tend to behave following the market consensus. Investors do not use rationality in making decisions in the market. According to Chang, Cheng, and Khorana (1999) on emerging markets tend to occur herding behavior like Indonesia. This is corroborated by research conducted that says there is a herding activity on the emerging market market at that time, South Korea and Taiwan. An investor can make a decision to adjust to the majority of other investors or market consensus without considering the available and available information (Christie and Huang, 1995).

Related research herding the previous IPO conducted by Dehghani and sapian (2014) showed that there were herding behavior during the down market of Bursa Malaysia's IPO private placements in non-technology sectors. The findings of this study also indicate the existence of herding behavior during up and down market for private placement category for Consumer and Technology Products sector.

The up market is a common phrase that means the stock market (or the main market index) is trading higher than some particular point in the past. The market may rise compared with the previous day's close, the closing level of last month or the closing level three years ago.

Down market conditions mean otherwise. The stock market is trading lower than some specified point in the past. If βu (for up market) and βd (for down market) significant negative, it shows herding behavior in the market which means that the spread of stock returns versus market return decreases with extreme market conditions (Chang et a1., 2000: 1654; Christie and Huang 1995: 33; Caparelli ct a1., 2004: 224-225). Conversely, if the β measurement results are significantly positive, then it indicates that the dispersion of stock returns increases.

Muema (2014) conducted a study examining the post-IPO herding of the secondary market after an IPO at the Nairobi Stock Exchange. The results were not simultaneously found in the herding behavior of IPO shares on the Nairobi Stock Exchange but partially found herding behavior on five stocks: Scan Group Limited, Eveready Limited, Safaricom Limited, Centum Investment Company Limited and CIC Insurance Group Ltd.

So based on previous research conducted by Dehghani and Sapian (2014) and Muema (2014) there is a gap from the results of research that has been done. In Malaysia, it appears that post-IP herding behavior while at Nairobi Stock Exchange (West Africa) simultaneously does not appear post-IP herding behavior, herding behavior appears in only five stocks.

Based on the above background, the researcher proposes the research objectives as follows: 1) To test the existence of herding behavior during up market post IPO in Indonesia Stock Exchange. 2) To test the existence of herding behavior during down market post IPO at Indonesia Stock Exchange.

LITERATURE REVIEW AND HYPOTHESIS

According to Fama (1970), Efficient Market Hypothesis (EMH) is defined as the speed and completeness of a security price in response to relevant information. In an efficient capital market, the price of a share must have reflected all information relating to management activities and future prospects and when new information emerges about the company, the stock price will spontaneously change reflecting the new information.

In the process, researchers began to reveal that an investor often involves psychological factors, influences or emotions from others around him in making decisions other than considering the prospects of investment instruments. Even psychological factors become a very important factor in making a person's decision. So this psychological phenomenon affects the behavior of finance known as behavioral finance (Shefrin, 2000).

According to Ritter (2003) behavioral finance is a field of study that combines psychological behavior and theory with conventional economics and finance to provide an explanation for why someone makes irrational financial decisions.

Herding behavior is one of behavioral finance. According to Lindhe (2012) herding is defined as the behavior of investors who often follow the direction of market sentiment. Banerjee (1992) interpreted herding behavior when everyone ignored their private information and then did what everyone did. Such behavior is considered a rational behavior among unskilled investors, where they follow the decisions of more skilled investors than using their own information. The implication of such behavior is that a group of investors will follow the market consensus at a time.

The herding model in question is intentional herding (Intentional Herding) usually assumes that there is little reliable information in the market and traders are unsure about their decision and thus follow the crowd. Conversely, in the case of unintentional herding, traders recognize reliable public information, interpret it equally and they all end up on the same side of the market. There are several potential causes for herding

behavior in financial markets, namely information-based herding, compensation-based herding, and reputation-based herding (Bikhchandani and Sharma, 2001).

The phenomenon of herding in post-IPO begins with the occurrence of underpricing phenomenon. Underpricing is a phenomenon that occurs when the stock price at the time of offering is lower than the price formed when the stock was first traded on the secondary market. According to Agrawal in Kim (2014) in post-IPO the occurrence of underpricing phenomenon in almost all world capital markets. The existence of underpricing phenomenon causes a domino effect (followings) that arise in potential investors post IPO. The presence of domino effects (followings) that arise in potential investors post IPO and underpricing phenomenon is causing the behavior of herding. The explanation is the basis for consideration of potential investors' IPO decision not only the information it holds but also the actions of other investors (Welch in Yong, 2007).

Hartono (2016) conducted a research that underpricing phenomenon in Indonesia for the last 25 years that started in 1991 until May 2014. The existence of underpricing phenomenon and initial return high become a good signal for investors to invest. Investors speculate to get a high return on stocks that provide a high initial return, so that other investors will be affected to jointly investing shares in the same direction. The existence of the phenomenon is related to the rational expectation theory which explains that investors who do not have private information will get the information by observing the price changes that occur. In addition, the over-optimistic investors in underpricing phenomena contribute to the increase of returns on post-IPO stocks, investors have different reasons to maximize profits, preferring to follow other investors' observations as well as market consensus (Kim, 2014).

Testing herding tested on the market up market and down market. Up market is a common phrase that means the stock market is trading higher than at some point in the past. Down market conditions mean otherwise.

In accordance with the description, it can be arranged hypothesis:

H1: There is herding behavior during up market post IPO at Indonesia Stock Exchange.

H2: There is herding behavior on down Market post IPO at Indonesia Stock Exchange.

If βd (for down market) and βu (for up market) significant negative, it shows herding behavior in the market which means that stock return spread compared to market return decrease along with extreme market conditions (Chang et a1, 2000: 1654; Christie and Huang 1995: 33; Caparelli ct a1., 2004: 224-225). Conversely, if the β measurement results are significantly positive, then it indicates that the dispersion of stock returns increases.
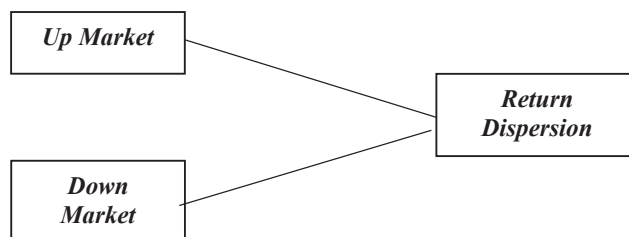

Figure 1
Theoretical Framework

RESEARCH METHODS

The population in this study are all companies that do an IPO (Initial Public Offering) from 2006-2015. In this research the sampling is done by using purposive sampling method, where the assessment of company samples during the study period based on certain criteria with the unit of analysis which is always the same period of research and obtained as many as 180 companies that meet the criteria.

ANALYSIS TOOLS

This study used the methods used Christie and Huang (1995) known as CH models. The previous literature shows that the Cross-sectional Standard Deviation (CSSD) method is used to investigate herding in the equity market in Malaysia (Lai and Lau 2004). This method is very appropriate to apply to the IPO market because the method examines the behavior of investors aftermarket IPO herding which sometimes has characteristics such as high initial return (Ritter 2003).

The method of data analysis in this study are as follows:

1. **Looking for the return of the monthly price of the stock (closing price)**

The calculation of return starts from the second month of the listing because it is based on the closing price of t month minus the previous month's closing price. Then stock return sought during 24 months trading after company doing IPO. The return of the monthly stock price is obtained by the formula:

$$r_{jt} = \frac{Pjt - Pjt-1}{Pjt-1}$$

Information:
Rjt = return IPO
Pjt = closing IPO price for month t
Pjt -1 = Closing IPO price for month t-1

2. **Seeking Return Dispersion**

In measuring the level of herding behavior, Christie and Huang used the Cross-sectional Standard Deviation (CSSD) method. The CSSD method tries to measure the average proximity of individual stock returns to the market's average returns. Christie and Huang describe the CSSD as follows:

$$CSSDt = \sqrt{\frac{\sum_{j=1}^{n}(r_{jt} - \bar{r}_t)^2}{n-1}},$$

Information:
n   = Number of Companies
rjt = Return of stocks observed in firm j for month t
$\bar{r}$ = Average cross-sectional return n in   the portfolio for m D_t^U ı t

3. **Divide data into up and down market**

Referring to research by Christie and Huang (1995), the determination of up market and down market is done by sequencing the sample return from the highest to the lowest, then the average value (mean) as cut off, for return above the mean it will be categorized as up market and the return included in the top 5% will be sampled for up market while for returns that are below the mean it will be categorized as down market (lower tail) and return which fall into the lowest 5% will be sampled for down market.

According to Christie and Huang (1995: 32) an intuition measurement of market influence is called dispersion, which is defined as cross sectional standard deviation from return. Therefore, to measure herding behavior use return dispersion as proxy with CH model using linear regression equation as follows:

$$CSSDt = \alpha + \beta d Dt^L + \beta u Dt^U + \varepsilon^t$$

Information:
CSSD = Return dispersion, as a proxy for   measuring herding
α   = The intercept that represents the average dispersion of a sample not included in the two dummy
               variables
βd   = Coefficient for down market   period
βu   = Coefficient for up market period
D   = Dummy variables representing   extreme market conditions
           = Value 1, if the return of the market portfolio on day t is in the lower tail of the return distribution, 0
               otherwise
D_t^L = Value 1, if the return of the market portfolio on day t is in the upper tail of the return distribution, 0
               otherwise
ε   = Residual error term

RESULTS AND DISCUSSION

Panel Data Analysis Results

In this study, a classic assumption test is used to test the data used in this study whether it has fulfilled the classical assumption, that is normal distributed data, no multicolinearity symptoms, no autocorrelation and no heteroscedasticity symptoms. If it has fulfilled these four things then the regression model will give the result of Best Linear Unbiased Estimator (BLUE), (Ghozali, 2011: 173).

NORMALITY TEST

The assumption test of data normality is done to see whether the dependent variable, independent variable or both in the regression model is normally distributed or not with Kolmogorov-Smirnov non-parametric statistic test (if the significance value > 0,05 means the normal data distribution and if significance value < 0,05 means abnormal data distribution. The result of normality test of data can be seen in Table 1.

Table 1. Normality Test Results after Trimming

One-Sample Kolmogorov-Smirnov Test

		Unstandardized Residual
N		149
Normal Parameters[a,b]	Mean	0.0000000
	Std. Deviation	0.06234329
Most Extreme Differences	Absolute	0.094
	Positive	0.094
	Negative	-0.056
Kolmogorov-Smirnov Z		1.143
Asymp. Sig. (2-tailed)		0.146

Source: SPSS Processed Results (2018)

Based on Table 1, the test results indicate that the data is normally distributed. This is demonstrated by the Kolmogorov-Smirnov (K-S) test showing results having a significance level of 0.146 above 0.05 ($\alpha = 5\%$). Initially residual data is not normally distributed so that the mechanism used is by using the trimming method or cleaning outlier. From the trimming process there are 67 observations that are discarded as an outlier. So the number of observations to 149 from the initial number of 216 observations. Here are the results of the normality test after the trimming method by throwing outliers.

AUTOKORELATION TEST

Autocorrelation test conducted to determine whether in a linear regression model there is a strong relationship, both positive and negative among the existing data on research variables. The autocorrelation test was performed using Durbin-Watson (DW) test. To achieve autocorrelation free the DW value should be at dU < DW < 4 - dU (Gujarati, 2006). The autocorrelation test results can be seen in Table 2.

Table 2. Autocorrelation Test Results after Cochrane-orcutt

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	0.336[a]	0.113	0.107	0.0479	2.185

Source: SPSS Processed Results (2018)

From this method obtained result value DW = 2.185. This suggests that this model has been treated with the Cochrane-orcutt method. Initially there was a positive autocorrelation, after treatment model in this study no

longer contain autocorrelation. So this model can be concluded that there is no problem autokorelasi in this research variable.

MULTICOLINEARITY TEST

The multicollinearity test aims to test whether there is a correlation between independent variables (Gujarati, 2004). To test the symptoms of multicollinearity in the regression model can be done by looking at the Tolerance and Variance Inflation Factor (VIF) values of each independent variable to the dependent variable (Gujarati, 2004). If the Tolerance value < 0.1 and the VIF value > 10, then the multicolinearity occurs. In Table 3. it can be seen that the Tolerance value > 0.1 and the VIF value < 10. Then it can be concluded that there is no problem multicollinearity in the independent variable of this study.

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Table 3. Multicolinearity Test Results

Coefficients[a]

Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig.	Collinearity Statistics	
	B	Std. Error	Beta			Tolerance	VIF
1 (Constant)	0.356	0.017		20.445	0.000		
return	-0.117	0.028	-0.329	-4.228	0.000	1.000	1.000

Source: SPSS Processed Results (2018)

HETEROSKEDASTICITY TEST

Heterocedasticity test was conducted to test whether in the regression model there was an inequality of variable variance of another observation observation. If the variance of a residual observation to another observation remains, it is called homokedastisitas (Ghozali, 2004: 105). In Table 4. R-square value of 0.204 and Chi square table = 176.294. Chi-Square Value Calculated obtained 0.204 x 149 = 30.396, so the value of Chi-Square Count <Chi square table. So it can be concluded this model has been treated with white test, so this model can be concluded that there is no problem heterokedastisitas in this research variable.

Table 4. Heteroskedasticity Results with White Test

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	0.451[a]	0.204	0.193	0.00667	1.832

Source: SPSS Processed Results (2018)

RESULT OF LINEAR REGRESSION TEST

Linear regression testing aims to determine how the influence of independent variables to the dependent variable. This research uses two dummy variables as independent variable. Both dummy variables represent dummy variables for down market and dummy variables for up market. While the dependent variable, namely return dispersion. Linear regression of independent variables and dependent variables in this study can be seen respectively in Table 5.

Table 5. Results of Multiple Linear Regression of Variables Dummy Up Market and Dummy Down Market

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	0.755	0.021		36.303	0.000
	Du	-0.428	0.024	-0.956	-17.572	0.000
	Dl	-0.567	0.026	-1.192	-21.911	0.000

Source: SPSS Processed Results (2018)

Based on table 5. we get multiple linear regression equation as follows:

$$CSSD = 0.755 - 0.567^L - 0.428^U + \varepsilon^t$$

The model regression equation above has the following meanings:

1. Constant value 0.755 can be interpreted that if the independent variable in this study is zero (0) or indicates that the variable is considered fixed, it will get the value of return dispersion of 0.755.
2. The regression coefficient of independent variables from dummy down market shows a negative and significant (sig <0.05) effect on return dispersion in IPO firms listed in Indonesia Stock Exchange 2006-2015 period and 24 months of testing with regression coefficient value of -0.567. This means that if the dummy down market has increased then it will result in a decrease in the value of return dispersion.
3. Coefficient of independent variable regression from dummy up market shows negative and significant influence (sig <0.05) to return dispersion at IPO company listed in Indonesia Stock Exchange period 2006-2015 24 months test with regression coefficient value equal to -0.428. This means that if the dummy up market has increased then it will lead to a decrease in the value of return dispersion.

The stock return will rise lower than the increase in market portfolio return when herding occurs (Chang ct al., 2000). Implicitly, herding behavior occurs when βu (for up market) and βd (for down market) are negative and significant meaning that if there is herding behavior then stock return will be below market return, this is indicated by negative coefficient on β, up market and down market.

The results of hypothesis testing are as follows:
1. Hypothesis 1 (H1)
Based on the results of tests that have been done then obtained the result that the dummy up market variable has negative and significant coefficients. This result is in accordance with the hypothesis that has been formulated. Thus Hypothesis 1 (H1) states that "There is herding behavior on up market at IPO companies in Indonesia Stock Exchange" accepted.
2. Hypothesis 2 (H2)
Based on the results of tests that have been done then obtained the result that the dummy variable down market has negative and signi fi cant coefficients. This result is also in accordance with the hypothesis that has been formulated. Thus Hypothesis 2 (H2) states that "There is herding behavior on up market at IPO company in Indonesia Stock Exchange" accepted.

Up market and down market variables show negative and significant coefficients (sig <0.05) against return dispersion in IPO firms listed in Indonesia Stock Exchange period 2006-2015. The negative sign on the regression coefficient shows that the stock return is smaller than the market portfolio return, which indicates the occurrence of herding behavior.

The negative and significant coefficients of the returns on the up and down markets on the return dispersion are based on the initial assumption that the firm's stock returns do not deviate far from the overall market return, or in other words the stock return will rise lower than the increase in market portfolio return (Chang et a1. , 2000).

Significant negative impacts of returns on up and down markets on return dispersion because an investor will be more likely to hide their beliefs and will make their investment decisions based on market collective action during periods of extreme market movements (Christie and Huang, 1995).

Herding behavior occurs when an investor has limited information, investors will follow the actions of other investors in making investment decisions that will eventually ignore his signal and follow a majority decision (Bikhchandani and Sharma, 2001). Prechter and Parker (2007: 95-96) say that when a person feels unsure of the outcome of the decision they take, they tend to think that other people know more information and in the end there is herding.

Fama (1970) says that the efficient market hypothesis explains that stock prices already reflect all the information available in the company, so the stock price reflects investor confidence that leads to the accuracy aspect of the return on investor expectations.However, investor knowledge related to the company's fundamental information is so limited that it allows them to make decisions based on other investors' signals, indicating that there is a herding behavior in post-IPO stock investment.

The results of this study in accordance with research with herding-related studies on the previous IPO conducted by Dehghani and Sapian (2014) show that there is herding behavior during the down market IPO Bursa Malaysia for non-private placements. The findings of this study also indicate the existence of herding behavior during up and down market for private placement category. Investors act irrationally when the market goes up and down. They tend to adopt behaviors that are similar to groups or follow market consensus, so investors sacrifice their own rational analysis.

The results of this study are also in accordance with the research of Chang et al. (2000) found significant evidence of herding in emerging markets or emerging markets such as South Korea and Taiwan. This is due to lack of knowledge or sensitivity to existing information will trigger the occurrence of herding behavior. Indonesia is one of the emerging market where it can be one of the factors of occurrence of herding activity in post IPO in up market and down market.

Research by Kim (2014) in Korea also found post heroic herding behavior. Over-optimistic investors in underpricing phenomena contribute to an increase in returns on post-IPO stocks, investors have different reasons to maximize profits, preferring to follow other investors' observations as well as market consensus. The existence of underpricing phenomenon is also associated with rational expectation theory where menjealskan that investors who do not have private information will get the information by observing the price changes that occur.

CONCLUSIONS AND SUGESTION

Based on the results of the research and discussion that have been described, the test results indicate that the independent variable dummy up market is negative and signi fi cant (<0.05) to the dependent return dispersion variable on post-listed in Indonesia Stock Exchange during 2006-2015 period. The test results show that the independent variable dummy down market is positive and signi fi cant (<0.05) to the dependent return dispersion variable on post-listed in Indonesia Stock Exchange during 2006-2015 period. Research on post-IP herding behavior on the Indonesia Stock Exchange gives the appropriate results of Dehghani and Sapian (2014) indicating that there is herding behavior during post-IPO Bursa Malaysia on up market and down market.

For investors in decision-making it is desirable to use a sharper analysis than simply following market consensus. In addition to be able to maintain market stability in order not to happen herding can be done with a regular socialization of the stock market on prospective investors.

For the company it is advisable to improve the quality of the information presented with a high degree of relevancy and reliability

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