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# Behavior Analysis Herding of Indonesian Stock Exchange (Case Study of Stocks Listed in LQ45 Index)

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## Abstract

Decision making in the capital market is not always based on rational considerations. Investors' actions are also influenced by psychological characteristics that emerge as human innate nature. These psychological characteristics will encourage different investor reactions. This study aims to test the indications of behavior herding on the Indonesia Stock Exchange 2006 to 2010. This study uses a sample of companies listed in the LQ45 index of 62 companies. The herding detection method is the CSAD (Cross-Sectional Absolute Deviation) method from Chang et al (2000). The variables used were dispersion value, returns absolute market and returns market squares. The data return used is derived from returns weekly for 260 weeks. The results in this study are no discovery of behavior herding on the Indonesia Stock Exchange either overall (5 years) or every year.

**Keywords:** Psychological Characteristics, Behavior Herding and CSAD

## 1. Introduction

Investors in acting on the capital market are faced with investment decisions. The investment decision in question is the decision to buy, sell or maintain share ownership (Cahyadin and Milandari, in Puspaningtyas, 2013). The decisions he makes are based on rational reasons. Wendy (2012) argues that rational investors prioritize mathematical or statistical calculations before making risky investment decisions. In behavioral finance, theory explains that often psychological factors affect investor behavior so that investors act irrationally. Among the irrational behaviors is herding. behavior is Herding defined as the tendency of investors to imitate the actions of other market participants so that they ignore their information (Filip et al, 2015). Some previous studies explain that behavior herding often occurs during market stress (Chang et al, 2000 and Christie and Huang, 1995). In addition, it was also explained that developing country exchanges are "fertile ground" for the detection of behavior herding (Filip et al, 2015 and Lao and Singh, 2010) conditions Market stress occurred in Indonesia in 2008 which caused JCI to drop by 50.64% at the end of the year. Previous research explains that herding behavior causes inefficiency market, such as unstable price movements and the emergence of price bubbles that have implications for returns for portfolio and risks (Peterson et al, 2004).

In Asia research on herding has been carried out in recent years. Gunawan et al (2011) prove that behavior occurs herding on all Asia Pacific stock exchanges. Wijaya and Nuffus (2013) examined behavior herding on the Indonesian stock exchange and did not find any behavior herding from 2008 to 2012. Zheng et al (2017) found herding behavior on 9 Asian exchanges, one of which was Indonesia.

## 2. Method

### 2.1 Identify Subsections

This research is quantitative research, the variable used is CSAD as the dependent variable and return market ( $R_{m,t}$ ) and  $|R_{m,t}|$  as the independent variable. The data used are data of return the weekly market the LQ45 Index and the weekly return individual of shares listed in the LQ45 index from 2006 to 2010.

### 2.2 Participant (Subject) Characteristics

Appropriate identification of research participants is critical to the science and practice of psychology, particularly for generalizing the findings, making comparisons across replications, and using the evidence in research syntheses and secondary data analyses. If humans participated in the study, report the eligibility and exclusion criteria, including any restrictions based on demographic characteristics.

### 2.3 Sampling Procedures

The sampling technique is purposive sampling with the following criteria:

- Company shares were included in the LQ45 index from 2006 to 2010 .
- Availability of data according to the study period.

#### 2.3.2 Experimental Manipulations or Interventions

Return Marketsquared  $R_{m,t}^2$  in this study is used to illustrate the situation when there is high movement. Whereas *returns* absolute market ( $|R_{m,t}|$ ) to prove linear coefficients and also to illustrate the situation when *returns are* market normal. The research model uses the model CSAD by the formula:

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

Table 1: Formulas Return and CSAD

Stock Return	
<p><b>Stock Return Individual</b></p> $R_{i,t} = \frac{P_{i,t} - P_0}{P_0}$ <p>(Brigham and Houston, 2006: 410)</p> <p><b>Return the Market</b></p> $R_{m,t} = \frac{P_{m,t} - P_{m(t-1)}}{P_{m(t-1)}}$ <p>(Jogiyanto, 2000 : 232)</p> <p>Where:</p> <p><math>R_{i,t}</math> / <math>R_{m,t}</math>: Return stock in period t</p> <p><math>P_{i,t}</math> / <math>P_{m,t}</math> : the share price in period t,</p> <p><math>P_0</math> / <math>P_{(t-1)}</math>: stocks period t-1 (previous period).</p>	$CSAD_t = \frac{1}{N} \sum_{i=1}^N  R_{i,t} - R_{m,t} $ <p>Where:</p> <p><math>R_{i,t}</math> : <i>returns</i> individual stock in the same period</p> <p><math>r_{m,t}</math> : <i>returns</i> market in the same period t</p> <p>N: number of companies in the sample</p> <p>(Chang et al, in <a href="#">Gangopadhyay and Elkanj, 2016</a>)</p>

### 3. Results

#### 3.1 Statistics and Data Analysis

Table 2: Statistical Descriptive

	N	Minimum	Maximum	Mean	Std Deviation
Csad	260	0.0245	0.2850	0.049428	0.0243858
Rmt	260	-.02373	0.1500	0.005514	0.0432155

table above shows the results of descriptive statistics for CSAD variables and market returns (Rm). CSAD has a maximum value of 0.285 which occurred in the first week of March 2009 (March 1, 2009) with a minimum value of 0.024 that occurred in the last week of 2007 (December 30, 2007). The average CSAD value for 260 observations weeks was 0.049 with a standard deviation of 0.0243 . Standard deviation values indicate that during the observation period the size of the CSAD spread was 0.0243 points. The Rmt value of has a maximum value of 0.150 which was achieved in the first week of May 2009 (May 3, 2009). The minimum value of Rmt of -0.2373 occurred in the first week of October 2008 (October 5, 2008) which was also the week with the largest index decline during the crisis. Rmt during the 260 weeks of observation has an average value of 0.0054 with a standard deviation of 0.043 which indicates that during the period of observation data dissemination size Rmt by 0043 points.

#### 3.2 Regression Analysis

Table 3: Overall Regression Test Period 2006 - 2010

$\sigma$	$^1$ (rmabs)	$\square^2$ (rm <sup>2</sup> )	AR <sup>2</sup>
0.040	0.243	1,382	0.331
(0.000)	(0.006)	(0.014)	

Chang et al (2000) argue that if there is a behavior herding it will cause the relationship between returns quadratic market (Rm, t)<sup>2</sup> with CSAD which was originally linear, will be non linear. This non-linear relationship will cause the coefficient (Rm, t)<sup>2</sup> to be statistically significant negative ( $\gamma_2 < 0$ ). The coefficient  $\gamma_2$  negative and significant ( $\gamma_2 < 0$ ), indicates that there is a herding on the stock market. Table 3 is the overall regression test results from 2006 to 2010, from the table there is no empirical indication of herding behavior. This is indicated by the coefficient value  $\square^2$  which is positive and significant, which is 1,382 with a significance of 0.014.

Table 4: Regression Test

Year	$\sigma$	$^1$ Yearly(rmabs)	$\gamma^2$ (rm <sup>2</sup> )	$R^2$
2006	0.035 (0.000)	0.408 (0.079)	-2.153 (0.442)	0.110
2007	0.038 (0.000)	0.272 (0.041)	-0.685 (0.501)	0.211
2008	0.051 (0.000)	0.268 (0.203)	0.188 (0.863)	0.153
2009	0.047 (0.000)	0.416 (0.058)	8.755 (0.000)	0.741
2010	0.039 (0.000)	0.271 (0.072)	- 1.249 (0.460)	0.132

Table 4 above shows the regression results for each year, the regression results for the years 2006 and 2007 produced the coefficient of  $\square^2$  negative, namely -2153 and -0685 yet results to a significance level greater than 0:05. then empirically in 2006 and 2007 there was no behavior herding.. Regression testing in 2008 resulted in

coefficient  $\beta_2$  a positive of 0.188 with a significance level greater than 0.05 ( $0.863 > 0.05$ ), the results showed the absence of herding behavior. Results of regression test in 2009 resulted in the coefficient of  $\beta_2$  is positive and significantly by 8755 (0000), empirical coefficient  $\beta_2$  are positive and significant, indicating not happen to herd the year. Testing the regression results in 2010 produced coefficient  $\beta_2$  a negative of -1,249 but a significance level greater than 0.05, it can be concluded in 2010 there was no behavior herding.

#### 4. Discussion

This research detects behavior herding in Indonesia by using a sample of companies listed in the LQ45 index for the period 2006 to 2010. The first hypothesis test is conducted using the entire data to produce a coefficient  $\gamma^2$  value that is positive and significant that is equal to 1,382 (0.014). value  $\gamma$  coefficient<sup>2</sup> is positive and significant empirically indicates no behavior herding during 2006 s / d 2010. The test results per year respectively show the coefficient of  $\beta_2$  that is not negative and not significant that occur annually test herding behavior on the Stock Exchange. The results of testing in 2008 and 2009 are consistent with testing herding by Chiang and Zheng (2010) who examined behavior herding in 18 countries including Indonesia during the crisis (3/1/2008 to 3/31/2009). In the research of Chiang and Zheng (2010) during the crisis period there was no indication of behavior herding in the Indonesian stock exchange. This study is different from the research of Christi and Huang (1995), Lao and Singh (2010) and Filip et al (2015) which states that behavior herding tends to be more common in developing country exchanges. This study supports the study of Ahsan & Sarkar (2013) that not all exchanges in developing countries have behavior herding.

Degirman et al (2012) argued that the quality of information available on the exchange also became one of the causes of behavior herding. The emergence of asymmetric information will cause information gaps between investors on the stock exchange. Conversely, when the information on the exchange is even and accurate, it will cause investors to trust their own information and suppress behavior herding.

This study aims to detect behavior herding in Indonesia in the period 2006 to 2010 by using a sample of companies from the LQ45 Index. The detection herding was performed using a model CSAD. Overall results of this study showed that there was no indication behavior herding in Indonesia during 2006 s / d 2010. The limitation in this study is not to differentiate market conditions (bearish and bullish) as well as the type of investor (domestic, foreign, individuals and institutions).

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