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Does Herding Behavior Exist in the IDX Sectoral Indices

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Abstract:- This study aims to detect herding behavior based on cross-sectional dispersion in certain market conditions using CSAD method as proposed by Chiang, Li, & Tan (2010). CSAD method allows researchers to evaluate if there is a herding behavior in the capital market. This research uses 9 (nine) sectoral indices listed on the Indonesia Stock Exchange (IDX) in the 2013-2019 period. This study examines the hypothesis that herding behavior occurs in the sectoral indices of the Indonesia stock market in upward market conditions and downward market conditions. The results showed that herding behavior occurred in all of the sectoral indices in downward market condition, but herding behavior was not indicated at all in upward market condition.

Keywords:- *behavioral finance, herding behavior, CSAD, return, quantile regression.*

I. INTRODUCTION

In the 1970s, an idea emerged regarding the efficient market hypothesis (Shiller, 2003). According to Fama (1970), this theory states that the selection of financial assets, especially stocks, is influenced by the rational attitude of investors where investors choose stocks based on information available in the public.

In fact, investor behavior is not as rational as suggested by the efficient market hypothesis. When there is market turmoil, the falling share price tends to be responded by other investors by selling shares, which causes the share price to fall further. This is because humans tend to see what other people are doing and sometimes follow it by ignoring their analytical skills (Lao & Singh, 2011). In the 1990s, this was realized and academics began to shift the focus of discussion from econometric analysis of prices, dividends, and income towards developing human psychological models related to financial markets, known as behavioral finance (Shiller, 2003).

One aspect of behavioral finance that has become the focus of academics is herding behavior. Herding behavior in financial markets can be identified as a tendency for investor behavior to follow other investors' investment decisions (Phuoc Luong & Thi Thu Ha, 2011). When herding behavior occurs, stock prices in the stock market do not reflect both fundamental and non-fundamental information so that the probability of being overvalued and undervalued is relatively high, which has implications for increasing the likelihood of investors getting an abnormal return (Hwang & Salmon, 2004).

According to Chang, Cheng, & Khorana (2000), herding behavior tends to occur when market stress conditions happen in emerging markets and is less likely to occur in developed markets. Chiang & Zheng (2010) then found evidence that herding behavior occurs globally both when the market is down and is on the rise, except for the markets of the United States and Latin America. In the United States and Latin America markets, herding behavior is indicated only during a crisis. In line with this research, Tan, Chiang, Mason, & Nelling (2008) also found significant evidence of herding behavior in Indonesia, Malaysia, Singapore, and Thailand. Slightly different from these studies, Gunawan, Achsani, & Rahman (2011) provide evidence that herding behavior only occurs during market stress conditions in the Indonesia capital market. Under normal conditions and high yields, herding behavior does not occur.

As adapted from Bank Indonesia (2009), the facts show that the herding phenomenon is thought to be one of the factors that caused the rupiah to drop along with excessive fluctuations with depreciation reaching around 85% in the July 1997-June 1998 period. IDX Composite Index has decreased which was very sharp, namely 62% in the period June 1997-September 1998. Meanwhile, the yield on government securities increased sharply to 16% during the 'mini' crisis in 2005, while the IDX Composite Index had dropped to the level of 1,058.51. During the economic crisis in 2008, the IDX Composite Index decreased by 54%, while the yield on SUN was corrected by around 20% in the February 2008-November 2008 period. Therefore, detecting herding behavior on a stock market is needed to see the rationality of investors in various conditions.

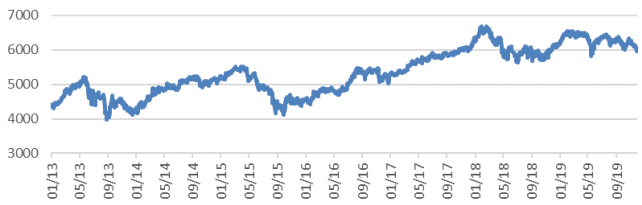

Fig 1:- IDX Composite Index Movement January 2013-December 2019

As can be seen in Fig. 1, IDX Composite Index also experienced a sharp decline after experiencing a fairly high increase in 2013, 2015 and 2018. However, little to no research discusses the role and behavior of herding during that period, whether herding behavior also occurred in 2013-2019 as happened in the period 1997-1998 and 2008 as reported by Bank Indonesia (2009).

II. THEORY STUDY

A. Efficient Market Hypothesis

Fama (1970) provides an understanding that the concept of an efficient market means that the current stock price reflects all available information and can be categorized into three, namely the weak form; semi-strong form; and strong form. According to Gumanti & Utami (2002), if the weak form efficient market hypothesis is fulfilled, the result is that price changes will follow a random walk method. A simple example of applying the method of random walking is the tossing of a coin, in which, for example, one side has head image and tree on the other side. Even though the first three throws come out head image, that does not mean that the next throw will come out head image again. Because securities offer positive returns, we can expect that stock prices will continue to increase or appreciate over time. But the upward trend or trend will not always be like that, because price changes follow a random path. Whereas in the semi-strong form of efficient market concept, investors will not be able to obtain abnormal returns by using strategies that are built based on publicly available information. The idea of this view is that once the information becomes public (general) information, meaning that it is spread across the market, all investors will react quickly and push prices up to reflect all available public information. Finally, the strong form efficient market is the strictest form of the efficient market hypothesis. This is related to the understanding that market prices reflect all information, both public and nonpublic. In this regard, in the context of a strong efficient market, no one, either individual or institution, can get an abnormal return.

B. Behavioral Finance

In the 1990s, academics began to shift the focus of discussion from econometric analysis of prices, dividends, and income to developing human psychological models related to financial markets, known as behavioral finance (Shiller, 2003). According to Lintner (1998), behavioral finance is a science that studies how humans disclose and react to existing information to make decisions that can optimize returns by paying attention to the risks inherent in it (elements of human attitudes and actions are determining factors in investing).

There are two perspectives on herding behavior — rational and irrational. From an irrational perspective, herding behavior can be defined as the behavior of individuals to suppress their own beliefs and base investment decisions solely on collective market actions, although they do not agree with the predicted results in reality (Christie, et al., 1995; Lao, et al., 2011). From a rational perspective, herding behavior occurs when low-ability managers deliberately mimic the actions of more senior investors to maintain their reputation, thus ignoring their information because they believe other people's decisions are more informed. (Devenow and Welch, 1996; Lao, et al., 2011).

C. Herding Behavior

One aspect of behavioral finance that has become the focus of academics is herding behavior. Herding behavior in financial markets can be identified as a tendency for investor behavior to follow other investors' investment decisions (Phuoc Luong, et al., 2011). There are several methods for detecting herding behavior, such as CSSD (Christie & Huang, 1995) and CSAD (Chang, Cheng, & Khorana, 2000).

Christie et al (1995) used the cross-sectional standard of return (CSSD) method. This method uses a measure to detect herding behavior over a period of time when there is an extreme up or down push in yields. In simple terms, it can be explained that this method tries to measure the average proximity of individual stocks returns to the average market returns. In the other hand, the method of Chang et al (2000) describes the relationship between cross-sectional absolute standard deviation (CSAD) and market returns. At the extreme, if investors follow market consensus and ignore personal opinion, then the increasing linear relationship between market spread and returns is no longer valid, but the relationship can be a non-linear increase or decrease.

III. THINKING FRAMEWORK

The analysis in this study uses quantile regression analysis between CSAD and market portfolio returns as described by Chiang, et al. (2010). The framework can be described as follows:

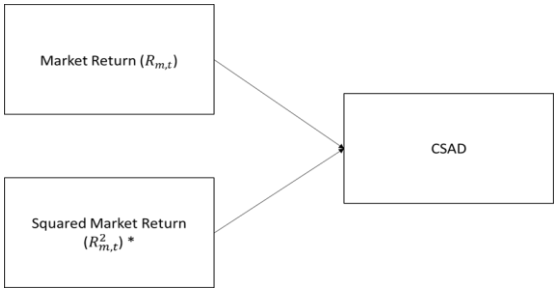

Fig 2:- Thinking Framework

Usually, the behavior of investors who follow other investors occurs when market conditions go up or down because there is a view that investors must follow the current trend to get a profit in investing, as a phrase that often appears in the investment world "The trend is your friend". Research by Luo & Schinckus (2014) in Shanghai and Shenzhen stock exchange markets found an indication of herding behavior in upward market conditions and downward market conditions. Hwang, et al. (2004) also found that herding behavior occurs in the American and South Korean capital markets when the market is down or is on the rise. Based on the explanation, the hypothesis of this research is:

- there was herding behavior on the IDX sectoral indices in upward market conditions
- there was herding behavior on the IDX sectoral indices in downward market conditions

IV. RESEARCH METHODS

A. Research Design

This study aims to describe and explain whether there is herding behavior in sectoral indices listed on the IDX in terms of upward market conditions and downward market conditions in the period March 2013- December 2019.

B. Data / Information Sources

The type and source of data used in the study were secondary quantitative data, namely data obtained by researchers indirectly through intermediary media. The data obtained by researchers is the daily price movement data.

C. Population and Samples

This study uses the IDX sectoral indices population data. The sample of this research is all sectoral indices daily data listed on the IDX as of March 2013-December 2019. The objects of research are according to the criteria set, namely the 9 (nine) sectoral indices of the IDX as follows:

No	Index Name	Research Code
1	Agriculture Index	AGRI
2	Mining Index	MING
3	Basic Industry and Chemical Index	BIND
4	Miscellaneous Industry Index	MISC
5	Consumer Goods Industry Index	CONS
6	Property, Real Estate and Building Construction Index	PROP
7	Infrastructure, Utilities and Transportation Index	INFA
8	Financial Index	FINA
9	Trade, Services and Investment Index	TRAD

Table 1:- List of Sectoral Indices on the Indonesia Stock Exchange

D. Data Analysis Method

The regression model to examine herding behavior is based on the robust approach proposed by Chiang, et al. (2010) based on the method of Chang, et al. (2000). With CSAD as the dependent variable and market return as the independent variable. Chiang, et al. (2010) used a more robust quantile regression and consequently produced a more efficient estimate since it was possible to cover a wide range of quantile functions.

Cross-Sectional Absolute Deviation, as measured by the method of Chang, et al. (2000) to detect herding behavior through cross-sectional data on security returns without the need to estimate beta values, as follows:

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

During periods of extreme market movements, some academics argue that the relation between the dispersion of returns and market returns becomes nonlinear when conditions rise or fall. To detect herding behavior in the above conditions, Chang, et al. (2000) modified the formula to be:

$$\mathrm{CSAD}_t = \alpha + y_1\left|R_{m,t}\right| + y_2\, R_{m,t}^2 + \varepsilon \quad \text{.....ii}$$

To be more specific in estimating the possibility of the asymmetric effect of herding behavior when market conditions go up and the market falls, the researchers adopted the robust approach proposed by Chiang et al. (2010) based on the method of Chang, et al. (2000) as follows:

$$CSAD_t = \alpha + y_1\left(1 - D_t\right)R_{m,t} + y_2\, D_t\, R_{m,t} + y_3\left(1 - D_t\right)R_{m,t}^2 + y_4\, D_t\, R_{m,t}^2 + \varepsilon \quad \text{..... iii}$$

The formulation is made by dividing the data into two (2) groups using dummy variable D. Variable D is 1 if the market portfolio return is negative and is 0 otherwise. To determine the herding behavior in upward market conditions, the coefficient y_3 is negative and significant. To determine the herding behavior in a down market condition, the coefficient y_4 is negative and significant.

V. RESEARCH RESULTS AND DISCUSSION

Testing to determine the presence of herding behavior was carried out using quantile regression analysis as adopted from Chiang et al. (2010). Briefly, quantile regression is a statistical procedure designed to estimate conditional quantiles. Researchers used 5 (five) outliers in this study, namely 5%, 25%, 50% 75%, and 90%. The use of 5 (five) outliers with a range of 5%-90% is selected after trial and error process is carried out so that the research can show the gradation of the coefficient of determination (R2) - a measure of the goodness of the model - in each market condition. The quantile regression results for the Sectoral Indices on the IDX are as follows.

A. Agriculture Index (AGRI)

AGRI		γ1	γ2	γ3	γ4	Pseudo R-Squared
τ = 5%	Coefficient	0.074479	-0.12237	0.67895	-0.39093	0.710692
	Prob.	0	0	0	0.0639	
τ = 25% *	Coefficient	0.091551	-0.11954	0.379415	-0.22063	0.813745
	Prob.	0	0	0.4429	0.0012	
τ = 50% *	Coefficient	0.096036	-0.12031	0.377755	-0.19031	0.849693
	Prob.	0	0	0.122	0.0001	
τ = 75% *	Coefficient	0.093167	-0.12152	0.597607	-0.19534	0.866846
	Prob.	0	0	0.0129	0.0052	
τ = 90%	Coefficient	0.082827	-0.12104	1.170896	-0.06917	0.871395
	Prob.	0	0	0.05	0.1597	

Table 2:- Agriculture Index Test Results

The quantile regression results on the Agricultural Index show that the coefficient y_(3) in all quantiles does not produce negative values.Meanwhile,the quantile regression results on the y_4 coefficient shows that for all quantiles,the y_4 coefficient has a negative value.However,the significant coefficient y_4 was only

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found in 25%,50% and 75% quantiles.This is evidenced by the probability value y_4 at 25%,50% and 75% quantiles less than 0.05 (0.0012; 0.0001; 0.0052).

B. Mining Index (MING)

MING		$\gamma 1$	$\gamma 2$	$\gamma 3$	$\gamma 4$	Pseudo R-*Squared*
τ = 5%	Coefficient	0.080979	-0.12373	0.55818	-0.40448	0.730969
	Prob.	0	0	0	0.198	
τ = 25% *	Coefficient	0.092111	-0.11828	0.384297	-0.18027	0.826107
	Prob.	0	0	0	0.0023	
τ = 50% *	Coefficient	0.095212	-0.12025	0.426731	-0.22971	0.861086
	Prob.	0	0	0.0011	0	
τ = 75% *	Coefficient	0.093573	-0.12121	0.591944	-0.25731	0.880671
	Prob.	0	0	0.0046	0.001	
τ = 90%*	Coefficient	0.087132	-0.12337	0.95063	-0.25464	0.893068
	Prob.	0	0	0.0429	0	

Table 3:- Mining Index Test Results

The quantile regression results on the Mining Index show that the coefficient y_(3)in all quantiles does not produce negative values. Meanwhile, the quantile regression results on the y_4 coefficient shows that for all quantiles, the y_4 coefficient has a negative value. However, the significant coefficient y_4 was only found in 25%, 50%, 75%, and 90% quantiles. This is evidenced by the probability value y_4 in 25%, 50%, 75%, and 90% quantiles smaller than 0.05 (0.0023; 0; 0.001; 0).

C. Basic Industry and Chemical Index (BIND)

BIND		$\gamma 1$	$\gamma 2$	$\gamma 3$	$\gamma 4$	Pseudo R-*Squared*
τ = 5%	Coefficient	0.087095	-0.12346	0.438903	-0.39396	0.765829
	Prob.	0	0	0.0001	0.1717	
τ = 25% *	Coefficient	0.094644	-0.1189	0.391485	-0.2081	0.851155
	Prob.	0	0	0	0.0001	
τ = 50% *	Coefficient	0.097152	-0.11967	0.469911	-0.17535	0.882039
	Prob.	0	0	0	0.0013	
τ = 75% *	Coefficient	0.095817	-0.12045	0.536459	-0.1712	0.899281
	Prob.	0	0	0.0004	0	
τ = 90% *	Coefficient	0.090346	-0.1223	0.76633	-0.22329	0.910427
	Prob.	0	0	0.0177	0	

Table 4:- Basic Industry and Chemical Index Test Results

The quantile regression results on the Basic Industry And Chemical Index show that the coefficient y_(3)in all quantiles does not produce negative values. Meanwhile, the quantile regression results on the y_4 coefficient shows that for all quantiles, the y_4 coefficient has a negative value. However, the significant coefficient y_4 was only found in 25%, 50%, 75%, and 90% quantiles. This is evidenced by the probability value y_4 in 25%, 50%, 75%, and 90% quantiles smaller than 0.05 (0.0001; 0.0013; 0; 0).

D. Miscellaneous Industry Index (MISC)

MISC		$\gamma 1$	$\gamma 2$	$\gamma 3$	$\gamma 4$	Pseudo R-*Squared*
τ = 5%	Coefficient	0.075142	-0.12447	0.654463	-0.42297	0.715055
	Prob.	0	0	0	0.0309	
τ = 25% *	Coefficient	0.086568	-0.12071	0.580752	-0.25229	0.809139
	Prob.	0	0	0	0.0001	
τ = 50% *	Coefficient	0.092455	-0.12458	0.468494	-0.34869	0.849103
	Prob.	0	0	0	0	
τ = 75% *	Coefficient	0.0898	-0.12466	0.712229	-0.31002	0.87356
	Prob.	0	0	0.0006	0.0021	
τ = 90% *	Coefficient	0.082944	-0.12153	0.973585	-0.20515	0.887725
	Prob.	0	0	0.0021	0	

Table 5:- Miscellaneous Industry Index Test Results

The quantile regression results on the Miscellaneous Industry Index show that the coefficient y_3 in all quantiles does not produce negative values. Meanwhile, the quantile regression results on the y_4 coefficient shows that for all quantiles, the y_4 coefficient has a negative value. However, the significant coefficient y_4 was only found in 25%, 50%, 75%, and 90% quantiles. This is evidenced by the probability value y_4 in 25%, 50%, 75%, and 90% quantiles smaller than 0.05 (0.0001; 0; 0.0021; 0).

E. Consumer Goods Industry Index (CONS)

CONS		$\gamma 1$	$\gamma 2$	$\gamma 3$	$\gamma 4$	Pseudo R-*Squared*
τ = 5%	Coefficient	0.086693	-0.12256	0.450899	-0.39033	0.773653
	Prob.	0	0	0	0.1082	
τ = 25% *	Coefficient	0.095322	-0.11839	0.325835	-0.19665	0.852982
	Prob.	0	0	0	0	
τ = 50% *	Coefficient	0.097619	-0.11904	0.389069	-0.19565	0.885038
	Prob.	0	0	0	0.0001	
τ = 75% *	Coefficient	0.096608	-0.11968	0.480851	-0.11571	0.904117
	Prob.	0	0	0.0006	0	
τ = 90% *	Coefficient	0.090423	-0.12111	0.841046	-0.15326	0.917168
	Prob.	0	0	0.118	0	

Table 6:- Consumer Goods Industry Index Test Results

The quantile regression results on the Consumer Goods Industry Index (table VI) show that the coefficient y_(3)in all quantiles does not produce negative values. Meanwhile, the quantile regression results on the y_4 coefficient shows that for all quantiles, the y_4 coefficient has a negative value. However, the significant coefficient y_4 was only found in 25%, 50%, 75%, and 90% quantiles. This is evidenced by the probability value y_4 in 25%, 50%, 75%, and 90% quantiles smaller than 0.05 (0; 0.0001; 0; 0).

F. Property, Real Estate and Building Construction Index (PROP)

PROP		$\gamma 1$	$\gamma 2$	$\gamma 3$	$\gamma 4$	Pseudo R-*Squared*
τ = 5% *	Coefficient	0.093736	-0.12381	0.310992	-0.41303	0.787604
	Prob.	0	0	0.0001	0.0185	
τ = 25% *	Coefficient	0.097134	-0.11919	0.317986	-0.24604	0.864376
	Prob.	0	0	0	0.0029	
τ = 50% *	Coefficient	0.099414	-0.11916	0.34546	-0.22257	0.891148
	Prob.	0	0	0	0	
τ = 75% *	Coefficient	0.097975	-0.12265	0.464001	-0.26703	0.907806
	Prob.	0	0	0.0034	0	
τ = 90% *	Coefficient	0.090584	-0.12002	0.845824	-0.11733	0.917958
	Prob.	0	0	0.0154	0.0032	

Table 7:- Property, Real Estate and Building Construction Index Test Results

The quantile regression results on the Property, Real Estate, and Building Construction Index show that the y_3 coefficient in all quantiles does not produce negative values. Meanwhile, the quantile regression results on the y_4 coefficient shows that for all quantiles, the y_4 coefficient has a negative value. With all the coefficients y_4 shows significant results. This is evidenced by the probability value y_4 in 5%, 25%, 50%, 75%, and 90% quantiles which is smaller than 0.05 (0.0185; 0.0029; 0; 0; 0.0032).

G. Infrastructure, Utilities and Transportation Index (INFA)

The quantile regression results on the Infrastructure, Utility, and Transportation Index (table VIII) show that the y_3 coefficient in all quantiles does not produce negative values. Meanwhile, the quantile regression results on the y_4 coefficient shows that for all quantiles, the y_4 coefficient has a negative value. However, the significant coefficient y_4 was only found in 25%, 50%, 75%, and 90% quantiles. This is evidenced by the probability value y_4 in 25%, 50%, 75%, and 90% quantiles smaller than 0.05 (0.0009; 0; 0.0059; 0.0003).

INFA		$\gamma 1$	$\gamma 2$	$\gamma 3$	$\gamma 4$	Pseudo R-*Squared*
τ = 5%	Coefficient	0.097995	-0.12761	0.243331	-0.58996	0.798095
	Prob.	0	0	0	0.062	
τ = 25% *	Coefficient	0.096925	-0.11867	0.339075	-0.20175	0.865276
	Prob.	0	0	0	0.0009	
τ = 50% *	Coefficient	0.099384	-0.11907	0.343692	-0.20559	0.894112
	Prob.	0	0	0.0009	0	
τ = 75% *	Coefficient	0.095712	-0.11954	0.575864	-0.21223	0.909105
	Prob.	0	0	0.008	0.0059	
τ = 90% *	Coefficient	0.08796	-0.12063	0.967087	-0.17556	0.923259
	Prob.	0	0	0.0097	0.0003	

Table 8:- Infrastructure, Utilities and Transportation Index Test Results

H. Financial Index (FINA)

FINA		$\gamma 1$	$\gamma 2$	$\gamma 3$	$\gamma 4$	Pseudo R-*Squared*
τ = 5%	Coefficient	0.093812	-0.12293	0.331903	-0.40729	0.810668
	Prob.	0	0	0	0.0651	
τ = 25% *	Coefficient	0.098847	-0.11773	0.297235	-0.16007	0.880021
	Prob.	0	0	0	0	
τ = 50% *	Coefficient	0.101104	-0.11906	0.257677	-0.19983	0.906457
	Prob.	0	0	0.0019	0	
τ = 75% *	Coefficient	0.099682	-0.11897	0.362703	-0.14396	0.922278
	Prob.	0	0	0	0	
τ = 90% *	Coefficient	0.094491	-0.12005	0.664933	-0.17246	0.9343
	Prob.	0	0	0.1018	0	

Table 9:- Financial Index Test Results

The quantile regression results on the Financial Index show that the y_3 coefficient in all quantiles does not produce negative values. Meanwhile, the quantile regression results on the y_4 coefficient shows that for all quantiles, the y_4 coefficient has a negative value. However, the significant coefficient y_4 was only found in 25%, 50%, 75%, and 90% quantiles. This is evidenced by the probability value y_4 in 25%, 50%, 75%, and 90% quantiles smaller than 0.05 (0; 0; 0; 0).

I. Trade, Services and Investment Index (TRAD)

TRAD		$\gamma 1$	$\gamma 2$	$\gamma 3$	$\gamma 4$	Pseudo R-*Squared*
τ = 5%	Coefficient	0.099196	-0.124	0.190095	-0.43749	0.837381
	Prob.	0	0	0.0052	0.0556	
τ = 25% *	Coefficient	0.099016	-0.11703	0.268652	-0.15694	0.891508
	Prob.	0	0	0.3308	0.0006	
τ = 50% *	Coefficient	0.099862	-0.11702	0.319114	-0.14145	0.914067
	Prob.	0	0	0	0	
τ = 75% *	Coefficient	0.098608	-0.11705	0.402695	-0.10077	0.927229
	Prob.	0	0	0.0001	0	
τ = 90% *	Coefficient	0.094808	-0.119	0.622167	-0.14583	0.937538
	Prob.	0	0	0.0482	0.0043	

Table 10:- Trade, Services and Investment Index Test Results

The quantile regression results on the Trade, Services and Investment Index show that the y_3 coefficient in all quantiles does not produce negative values. Meanwhile, the quantile regression results on the y_4 coefficient shows that for all quantiles, the y_4 coefficient has a negative value. However, the significant coefficient y_4 was only found in 25%, 50%, 75%, and 90% quantiles. This is evidenced by the probability value y_4 in 25%, 50%, 75%, and 90% quantiles smaller than 0.05 (0.0006; 0; 0; 0.0043).

J. Discussion

Based on the results of the research that has been done, the results show that there is an indication of herding behavior in the downward market condition in all of Indonesia stock market sectoral indices but there is no indication of herding behavior in upward market condition. The indication of herding behavior occurs in a downward market condition and does not occur in an upward market condition is in line with research results from Chang, et al. (2000); Chiang, et al. (2010); Chiang, et al. (2010); Lao, et al., (2011); and Gunawan, et al. (2011) who found that herding tends to occur under market stress conditions. During market stress, investors tend to suppress their thinking and follow market consensus more, so herding behavior tends to occur during this period. The absence of herding in upward market conditions illustrates that investors tend to behave rationally in making investment decisions based on information available in the market rather than following market consensus.

Chang, et al. (2000) provided an explanation for his research which found that herding tends to occur in emerging markets, especially during market stress conditions. In this study, it was found that herding occurred in emerging markets, namely South Korea and Taiwan because herding behavior could be influenced by several factors such as government intervention, either in monetary policy or direct buying/selling on the stock market as well as limited information factors related to stock market conditions.

According to Chang, et al. (2000) when market conditions are inefficient, investors' knowledge of the company's fundamental information is very limited, allowing them to make decisions based on other signals. Another factor is that there are more speculators on the South Korean and Taiwan stock markets than investors. According to Froot, Scharfstein, and Stein (1992), the presence of a short-term speculator can cause the quality of information to be inefficient. If investors focus on one source of information or there is no variety of information, it can produce a near dispersion rate of return. Bikhchandani & Sharma (2000) revealed that when they have limited information, investors tend to follow the movements of other investors in making investment decisions which in the end will ignore their own signals and follow the majority decision (herding behavior).

VI. CONCLUSIONS & SUGGESTION

A. Conclusions

Based on the research results to describe and explain whether there is herding behavior on the sectoral indices recorded in the IDX in terms of upward market conditions and downward market conditions in the period March 2013-December 2019, as well as the introduction, theoretical studies, data processing, and the discussion that was carried out in the previous chapter, it is known that the research conclusions are as follows:

- No indication of herding behavior was found in upward market conditions in all of the sectoral indices of Indonesia stock exchange, either in the 5%, 25%, 50%, 75%, or 90% quantiles.
- An indication of herding behavior was found in downward market conditions in all of the sectoral indices of Indonesia stock exchange. Herding behavior was generally detected in the 25%, 50%, 75%, and 90% quantiles except for the Agricultural Index where herding behavior was not found in the 90% quantile and the Property, Real Estate, and Building Construction Index where herding behavior was found across all study quantiles.

B. Suggestion

Following are suggestions that can be used as a reference for future research.

- Future research is expected to examine herding behavior in several market conditions in a wider scope, not only limited to the capital market in Indonesia. Research can be carried out in developing capital markets as well as in developed capital markets. Also, research can compare the results between developing and developed capital markets.
- Future research is expected to use different market conditions or add different market conditions so that more varied research results can be obtained and can contribute to the development of knowledge about the capital market, especially the topic of herding behavior.
- Future research is expected to use other methods that can detect herding behavior in various market conditions by distinguishing the behavior of foreign and domestic investors.

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