

## **CHAPTER 1**

### **INTRODUCTION**

#### **1.1 Object Overview**

In the capital market, there are several instruments that can be traded, one of them is stocks. One of the ways that companies can do to increase company funds is by issuing stocks in the capital market. In Indonesia, the Indonesia Stock Exchange is the largest stock exchange. Stock is a capital instrument, and people can buy stocks called investors in the form of investment. Investor wants to buy stock is because the return of the company that issued the stocks. Stocks are bought and sold on the stock exchange. There are many stock exchanges, such as NASDAQ, S&P 500 and so on. IDX is the stock exchange used by Indonesian companies and investors, which has several products, including stocks, bonds, mutual funds, exchange traded funds (ETF), and derivatives.

On November 30, 2007, the Surabaya Stock Exchange merged into the Jakarta Stock Exchange, as a result, JSX changed its name into the Indonesia Stock Exchange (IDX). The merger is to make the operation of the stock exchange more efficient. At the beginning of 2009, IDX has conducted an implementation of Jakarta Automated Trading System Next Generation (JATS Next G) stock trading system in order to answer the challenge to raise from global crisis which has the capacity of 1 million order and 500 thousand transactions per day and is able to handle multi products in a single platform. The Indonesia Composite Index is a stock market used by the Indonesia Stock Exchange and its function is an index that measures the stock price performance of all listed companies in main board and development board of the Indonesia Stock Exchange.

The IDX also has eleven (11) classifications of the stock sector of industrial companies listed, which is called "Indonesia Stock Exchange-Industrial Classification" or IDX-IC. The IDX classifies company shares into several categories of the stock sector, one of the stock sector is the Property, Real Estate and Building Construction, then in the Property, Real Estate and Building



Construction sector is also divided into several categories of the sub-sector, one sub-sector is bulding construction.

According to IDX Annually Statistics 2019, there are 17 companies in building construction sub-sector registered on Indonesia Stock Exchange (IDX). The list of building construction sub-sector companies registered on Indonesia Stock Exchange can be seen in table 1.1.

**Table 1.1 List of Building Construction Sub -Sector Companies**

No.	Stock Code	Stock Name	IPO Date
1.	ACST	Acset Indonusa Tbk.	24 June 2013
2.	ADHI	Adhi Karya (Persero) Tbk.	18 March 2004
3.	CSIS	Cahayasakti Investindo Sukses Tbk.	10 May 2017
4.	DGIK	Nusa Konstruksi Enjiniring Tbk.	19 December 2007
5.	IDPR	Indonesia Pondasi Raya Tbk.	10 December 2015
6.	JKON	Jaya Konstruksi Manggala Pratama Tbk.	04 December 2007
7.	MTRA	Mitra Pemuda Tbk.	10 February 2016
8.	NRCA	Nusa Raya Cipta Tbk.	27 June 2013
9.	PBSA	Paramita Bangun Saran Tbk.	28 September 2016
10.	PTPP	PP (Persero) Tbk.	09 February 2010
11.	SKRN	Superkrane Mitra Utama Tbk.	11 October 2018
12.	SSIA	Surya Semesta Internusa Tbk.	27 March 1997
13.	TOPS	Totalindo Eka Persada Tbk.	16 June 2017
14.	TOTL	Total Bangun Persada Tbk.	25 July 2006
15.	WEGE	Wijaya Karya Bangunan Gedung Tbk.	30 November 2017
16.	WIKA	Wijaya Karya (Persero) Tbk.	29 October 2007
17.	WSKT	Waskita Karya (Persero) Tbk.	19 December 2012

Sources: [www.idx.co.id](http://www.idx.co.id)

Out of 17 building construction companies, there are only 7 companies that fulfill the criteria. As 10 companies do not IPO since 2010, so the company stocks that will examine in this research are Adhi Karya (Persero) Tbk (ADHI), Nusa Konstruksi Enjiniring Tbk. (DGIK), PP (Persero) Tbk. (PTPP), Surya Semesta Internusa Tbk. (SSIA), Total Bangun Persada Tbk. (TOTL), Wijaya Karya (Persero) Tbk (WIKA), and JKON (Jaya Konstruksi Manggala Pratama Tbk.)

## 1.2 Research Background

The capital market has a role as a means for society to invest in financial instruments. Investment is the current commitment of money or other resources expected to obtain future benefits (Bodie *et al.*, 2014). Invest in financial assets include securities such as stocks and bonds. Stocks are one of the common investment tools in society that investors are interested in. As shown in Figure 1.2, from 2010 to 2019, the stock trading volume of the Indonesian stock exchange tended to increase and also it can be seen from the Indonesian capital market set a record for the highest market value in 2019, as much as 7,265 trillion IDR., as shown in Figure 1.3.

According to Figure 1.1, so far, the Indonesia Composite Index has successfully closed in the positive zone, with an overall increase of 1.7% (percentage), which is much better than last year when it closed in 2018 (with conditions are -2.5%), because in 2019 there were several stock trading indicators of the Indonesian Stock Exchange performed well, such as BBCA, BBRI, TLKM, BMRI, and UNVR (CNBC Indonesia, 2019).

(in IDR Thousand)

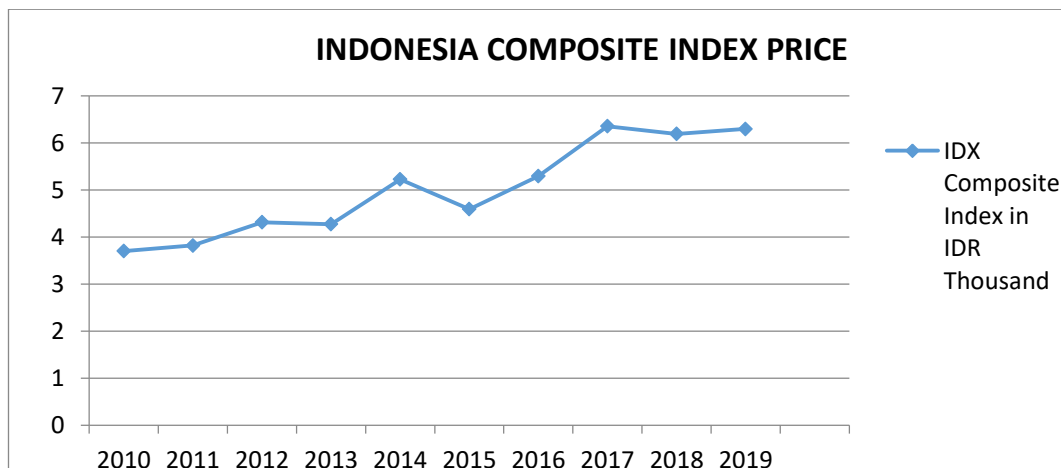


Figure 1.1 Indonesia Composite Index Price

Sources: [www.idx.co.id](http://www.idx.co.id)

As can be seen from the picture above, the Indonesia Composite Index increase year by year from 2010 to 2019. The highest composite index reached in 2017 was IDR 6,356 thousand, and the lowest price in 2010 was IDR 3,704

thousand. In 2010, the price started from IDR 3,704 thousand to IDR 6,299 thousand in 2019, an increase of approximately IDR 2.595 thousand.

(In Million Shares)

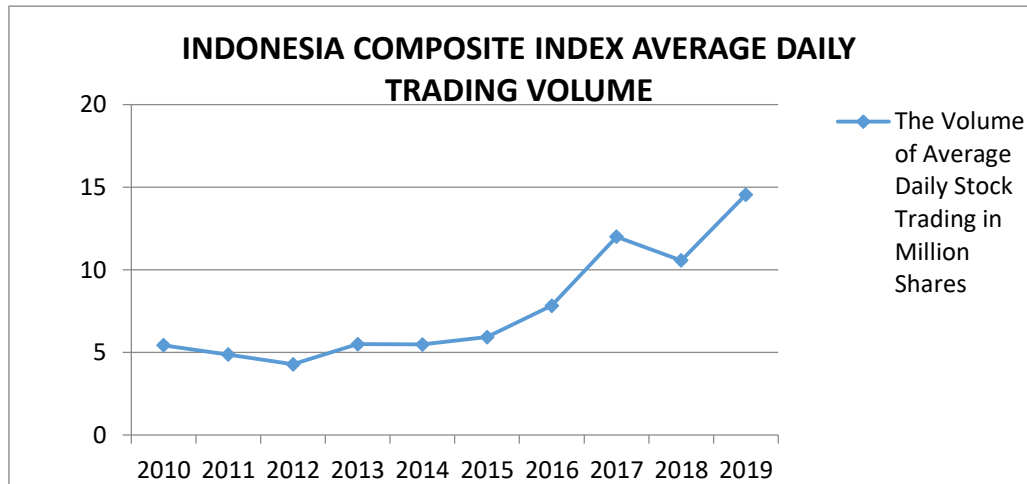


Figure 1.2 Indonesia Composite Index Average Daily Trading Volume

Sources: [www.idx.co.id](http://www.idx.co.id)

According to the picture above, the average daily trading volume of the Indonesia Composite Index tends to increase from 2010 to 2019. The highest achievement of average daily trading volume was 14.541 million shares in 2019, and the lowest achievement was 4,824 million shares in 2012.

Beginning in 2010, the average daily trading volume was 5,432 million shares, then declined in 2011 to 4,873 million shares, then in 2012, it was still declining to 4,284 million shares, then in 2013, it was going increase to 5,502 million shares, but it dropped to 5,483 million shares in 2014, then it increased to 5,927 million shares in 2015, then it continued to increase to 7,826 million shares in 2016, and still increased by 12,001 million shares in 2017, but in 2018, it fell back to 10,567 million shares, and in 2019, it increased again by 14,541 million shares.

(In IDR Trillion)

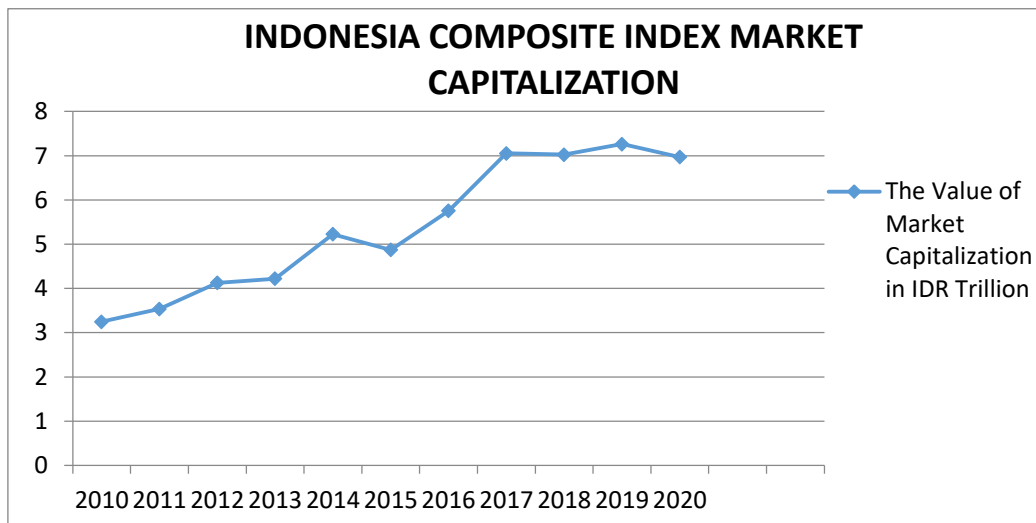


Figure 1.3 Indonesia Composite Index Market Capitalization

Sources: [www.idx.co.id](http://www.idx.co.id)

As can be seen from the picture above, it can be seen that the market capitalization of the Indonesia Composite Index increased by IDR 290 billion from 2010 to 2011, then increased by IDR 589 billion from 2011 to 2012, and then increased by IDR 93 billion from 2012 to 2013, then it increased by IDR 1.009 trillion from 2013 to 2014, then it decreased by IDR 355 billion from 2014 to 2015, then it increased by IDR 881 billion from 2015 to 2016, then it still increased by IDR 1,299 trillion from 2016 to 2017, then it decreased by IDR 23 billion from 2017 to 2018, and it increased by IDR 242 billion from 2018 to 2019.

In 2019, the Indonesian Stock Exchange has successfully achieved impressive achievements. The market capitalization increased by 3.44% from IDR 7,023.50 trillion in 2018 to IDR 7,265.02 trillion at the end of 2019. It is because the average daily stock trading volume of IDX increased from 10,567 million in 2018 to 14,541 million.

(in IDR billion)

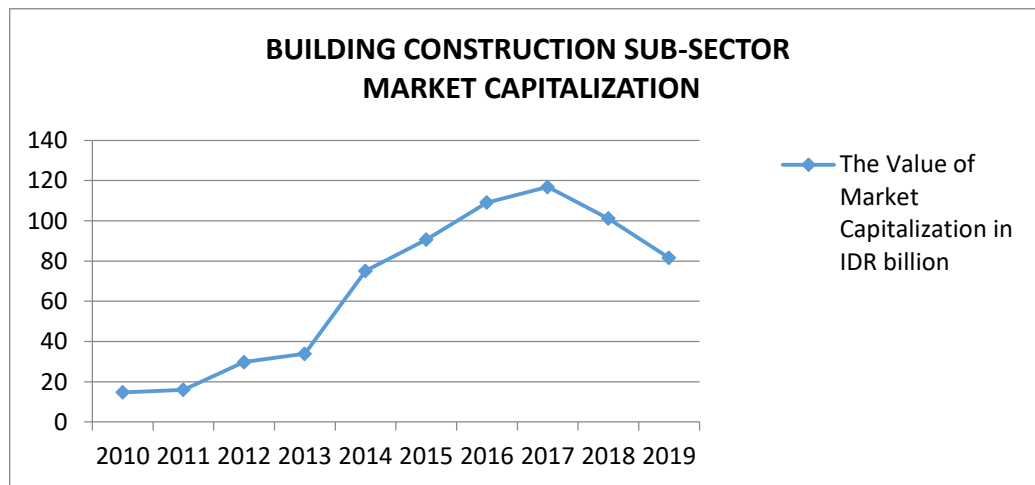


Figure 1.4 Building Construction Sub-sector Market Capitalization

Sources: [www.idx.co.id](http://www.idx.co.id)

Another effort made by the Indonesian capital market to attract potential new domestic investors is by classify the sector and sub-sectors of companies stocks registered on IDX. Building construction is one of the sub-sectors stocks listed on IDX, it especially for those who want to invest in company stocks in building construction sub-sector.

It can be seen from Figure 1.4, the market capitalization of building construction sub-sector has experienced a significant decline in 2019, but its market capitalization continued to always increase, especially from 2010 to 2018, with it highest point is in 2017 by IDR 116.849 billion.

In the second period government of the President Republic Indonesia, namely Mr. Jokowi Dodo in the period 2019 to 2024, he had determined several government targets, one of the government target is to focus on infrastructure development, and the infrastructure development carried out in the first period of government will continue in the second period of government.

Starting from the infrastructure that connects the production area with the distribution area, and then the infrastructure that facilitates access to tourist area, it is expected to increase new employment opportunities and accelerate the value added of the people's economy (Hidayat, 2019), which enable building construction companies obtain a large number of projects and contracts, which

will increase the company's revenue and lead to good stock performance in building construction sub-sector, and increase the price of the company's stock in building construction sub-sector, so it will attract people's attention to create an investment in building construction, because when investing in the capital market, investors usually pay attention to the conditions that are beneficial to investors, so that this research will examine the stock listed on IDX in building construction sub-sector, by analyzing the herd behavior on company shares in building construction sub-sector, to know whether people create investment decisions based only on the trend of the capital market and follows the investment decisions of others in the company shares of building construction sub-sector, which it will lead to herding behavior in capital market.

(in Percentage (%) and IDR Trillion)

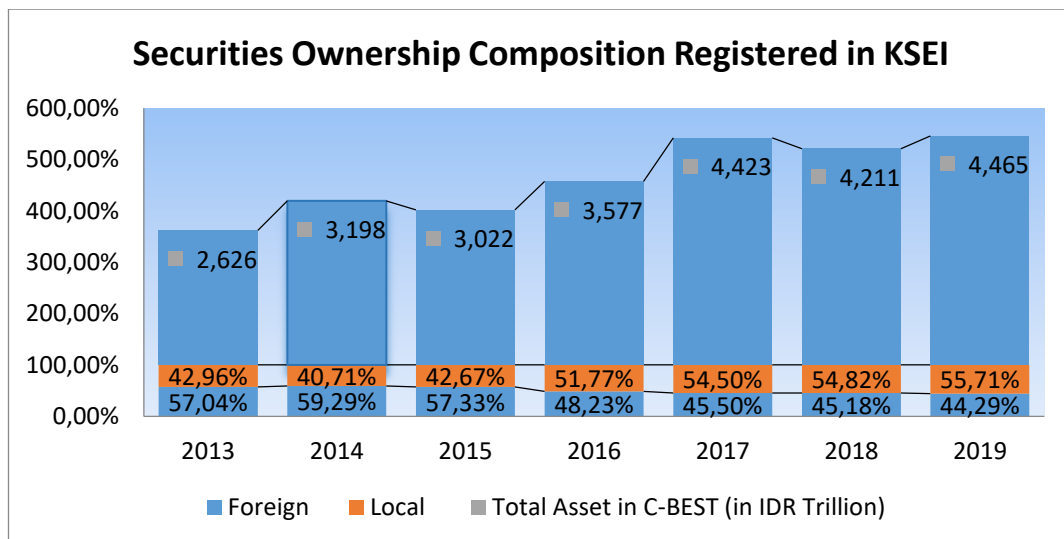


Figure 1.5 Securities Ownership Composition Registered in KSEI

Source: [https://www.ksei.co.id/files/Statistik\\_Publik\\_Februari\\_2021.pdf](https://www.ksei.co.id/files/Statistik_Publik_Februari_2021.pdf)

According to the picture above, the investors who trade on Indonesia Stock Exchange include domestic investors and foreign investors. From the investor side, the ownership of securities recorded in Indonesia Central Securities Depository (KSEI) has been increasing over the past four years, and after experiencing decline in 2015 due to the weakening of the Indonesian and global exchanges and also the decline in 2018, then it continued to increase to IDR 4,465 trillion in 2019.



In 2013, the portion of local ownership of securities registered in KSEI dropped from 42.96% to 40.71% in 2014, and then continued to increase from 2015 to 2019, namely 42.67% in 2015, 51.77% in 2016, and then 54,50% in 2017, then 54.82% in 2018, and 55.71% in 2019. At the same time, the portion of foreign ownership of securities registered in KSEI in 2013 rose from 57.04% to 59.29% in 2014, and then continued to decline from 2015 to 2019, which is 57.33% in 2015, 48.23% in 2016, 45.50% in 2017, 45.18% in 2018, and 44.29% in 2019.

According to the efficient market theory, the price always fully reflect available information, so that the investors can get information and make the investment decisions based on their technical and fundamental analysis (Fama, 1970). The investors should be rational, or if the investor is irrational, then their bias should not be correlated, so that the market becomes efficient (Baker and Nofsinger, 2010). If the investors act not rational and their biases are correlated, then the market will become inefficient, inefficient markets will encourage the development of financial behavior, although the information is impeccable, a lot of research concludes that investors tend to make irrational decisions. Irrational decisions lead to biases that can influence the investor's behavior.

Due to the asymmetry of information received by investors, share ownership movement between local and foreign investors are different, so investment decisions may be different. The presence of information asymmetry in a less efficient stock market will make investors in making investment decisions are influenced by psychological factors, so that the bias will occur. There are several heuristics that encourage biases, heuristic is a process where people rely on such as representativeness, anchoring and adjustment, overconfidence, availability bias, aversion to ambiguity, and emotion and cognition (Shefrin, 2002). Herding behavior is a cognitive error that come from the way of someone thinks as well as the emotional influence in describing ambiguity into the fear of ignorance, it will make the investor follow market consensus and other investor investment decisions without doing fundamental analysis, for example when a

financial crisis occurs or stock prices dropped dramatically, investors will panic and sell stocks to avoid greater losses.

According to Banarjee (1992), herding behavior is a condition when investors make investment decisions based on investment decisions made by other investors, when in fact they do not agree with the action. According to Devenow and Welch (1996), herding behavior can be categorized into two points of view, which are rational and irrational. Rational view is based on the externalities to which the issue of access to the informations and incentive issues can distort optimal decision making, while the irrational view is based on investor psychology when investors ignore their analysis and instead follow the market consensus.

The obvious outcome of herding behavior is inefficient markets. Herding behavior makes a group of different investors to invest together, causing the stock prices to move away from the economic realities (equilibrium value), leading to price changes and excess fluctuations (Bikhchandani *et al.*, 1992). Herding behavior is considered as collective irrational behavior of investors, which leads to mispricing of economic fundamentals (Shiller, 2003)

In emerging markets, investors are more likely to engage in herd behavior (Chiang and Zheng, 2010). It because in developing countries, the financial sector is not very regular and capital inflows and outflows are unstable. Herding behavior was found in South Korea and Taiwan stock markets, but no herding behavior was found in the United States, Hong Kong, and Japan stock markets (Chang *et al.*, 1999). According to Filip *et al.* (2015), the herding behavior was also found in the capital markets of Czech Republic, Hungary, Romania, and Bulgaria stock markets.

In the past, there are several studies of herding behavior in the Indonesian stock market have shown different results, starts from the research conducted by Pangesti and Koesrindartoto (2013), they found herding behavior does not exist in the Indonesian stock market, this finding implies investors in the Indonesian stock market have heterogeneous beliefs. Setyawan and Ramli (2016), found the herding behavior in the IDX exists; moreover, by using VAR analysis, it also

indicates that the occurrence of herding behavior is caused by negative feedback trading from foreign investors. Purba and Faradynawati (2012), found the non-existence of herding behavior in the Indonesian stock market by using daily and weekly CSSD , however by using CSAD of either data frequency, the result demonstrates the presence of herding behavior, particularly on big capitalization and liquid stocks, while Rizal and Damayanti (2019), found the herding behavior exists in the Islamic stock market of Indonesia, asymmetric herding occurs in the Indonesia Islamic stock market where herding behavior exists during falling market conditions only.

The method of analyzing herding behavior that is often used today was created by Christie and Huang (1995), by using the dispersion method which is first in detecting herding behavior while the previous research only uses learning models or probabilities. The method used is the Cross-Sectional Standard Deviation of returns or dispersion, it is used to capture herd behavior by analyzing daily and monthly returns. The results of this research reveal that the presence of herd behavior exists when individual returns follow the lead of the portfolio return. Another method to analyze herding behavior that is mainly used today, first used by Chang *et al.* (1999), this method is an extent of the methodology used by Christie and Huang (1995) by using non-linear regression specification, which examines the relationship between the levels of equity return dispersions (as measured by the Cross-Sectional Absolute Deviation of returns), and the overall market return, the research results indicate that during periods of extreme price movements, equity return dispersions for the US, Hong Kong and partial evidence of herding in Japan. However, for South Korea and Taiwan, the two emerging economies in the sample, they found dramatically different results. For both countries, they document the presence of smaller equity return dispersions (and hence herding has existed) during both extreme up and down price movement days.

This research will mainly focus on the use of the Chang *et al.* (1999)'s method with the measure of Cross-Sectional Absolute Deviation of returns (CSAD), which will evolve into the GARCH model because the data for this

research are daily stock prices which will be processed to daily Cross-Sectional Absolute Deviation (CSAD) which are time-series data. Time-series is a series of object observations based on a time sequence, then the research data used depends on the time, so there is a correlation between current data or events with data from previous periods. In time-series data on economics and finance has very high volatility, therefore it needs a time-series model that can model most of the economic and financial data that has heteroscedasticity.

GARCH model is a time-series model that can explain heteroscedasticity in data. The GARCH model can be used to explain the volatility of the residuals. Volatility is the variance value of data change which is often expressed by the conditional standard deviation or the root of the conditional variance of a time-series. The GARCH model was developed by Dr. Tim Bollerslev in 1986 and was generalized from ARCH model developed by Robert F. Engle in 1982. Generalized Autoregressive Conditional Heteroskedasticity (GARCH) is a statistical model used in analyzing time-series data where the residual variance is not only affected by the residual of the previous period, but also the residual variant of the previous period.

In this research, the GARCH (Generalized Autoregressive Conditional Heteroskedasticity) model is used to detect herding behaviour by measuring the linear relationship and non-linear relationship between market returns and Cross-Sectional Absolute Deviation (CSAD). According to Gujarati and Porter (2012), this model correlates the error variance over time due to the phenomenon of volatility clustering. There are several GARCH models, including GARCH-M (GARCH in the mean), TGARCH (threshold GARCH), and EGARCH (exponential GARCH).

GARCH (1,1) is the most commonly used GARCH and is considered a benchmark. Research conducted by Hansen and Lunde (2005) state that there are no ARCH and GARCH which can outperform the GARCH (1,1) model, therefore and based on research conducted by Chaffai and Medhioub (2018), researchers will only apply the GARCH (1,1) model which consists of GARCH (1,1) model with normal distribution, GARCH (1,1) model with student's distribution,

GARCH (1,1) model with general error distribution, IGARCH (1,1) model and GARCH (1,0) asymmetric model. Based on research by Chaffai and Medhioub (2018), to determine the best GARCH model is by choosing the coefficient of quadrad market that is negative and the largest among other models.

Followed by the increase in investment and investor on Indonesian stock exchange which accompanied by the increase in the market capitalization of building construction sub-sector, and due to the existence of government's target from President Joko Widodo, which focuses on infrastructure development. Infrastructure development that has been carried out in the first period will be continued in the second period of Joko Widodo's government, and also there are still many varied and inconsistent results from the previous research, therefore it has become the reason for this research to conduct a research on detecting the herding behavior of the company shares in building construction sub-sector, with the research title "Analyzing Herding Behavior on Company Shares in Building Constructions Sub-Sector during Period 2010-2019".

### **1.3 Problem Statement**

According to Sharma *et al.* (2015), herding behavior refers to the behavior of investors following market consensus and waiving their own analysis or personal information obtained in making investment decisions during the period of unusual market behavior, such as financial crisis. If herding behavior occurs, it will damage the market price or it can drives the price away from their equilibrium value.

There are several research gaps regarding herding behavior detection analysis on the IDX conducted by academicians. Research conducted by Setyawan and Ramli (2016), found that there are indications of herding behavior in the Indonesian Stock Exchange (IDX). Purba and Faradynawati (2012), found herding behavior particularly on big capitalization and liquid stocks by using CSAD method using daily and weekly stocks return data. However, some studies suggest otherwise, research conducted by Pangesti and Koesrindartoto (2013), found that there is no herding behavior in the Indonesian stock market. Purba and Faradynawati (2012), found that there is no herding behavior in the Indonesian

stock market by using the CSSD method using daily and weekly stocks return data, and Rizal and Damayanti (2019), revealed that there is herding behavior in the Islamic stock market of Indonesia, the asymmetric herding occurs in the Indonesia Islamic stock market, where herding behavior only exists when the market is falling, so it is still necessary to study the herding behavior in the Indonesian stock market.

#### **1.4 Research Question**

1. Is there any herding behavior on company shares in building construction sub-sector during all market conditions for period 2010-2019?
2. Is there any herding behavior on company shares in building construction sub-sector during rising market condition for period 2010 – 2019?
3. Is there any herding behavior on company shares in building construction sub-sector during falling market condition for period 2010 – 2019?

#### **1.5 Research Purposes**

1. To conduct herding behavior detection analysis on company shares in building construction sub-sector during all market conditions for period 2010 – 2019.
2. To conduct herding behavior detection analysis on company shares in building construction sub-sector during rising market condition for period 2010 – 2019.
3. To conduct herding behavior detection analysis on company shares in building construction sub-sector during falling market condition for period 2010 – 2019.

## **1.6 Benefits of Research**

The expected benefits of the results of this study are as follows:

### **1.6.1 Theoretical Benefit**

#### **1. For Future Researchers**

This study hopes as a reference for the next study of herd behavior in the Indonesian stock market and hopes that the next study will add or use another type of company stock sub-sector, such as the energy sector, raw goods sector, industrial sector, primary consumer goods sector, non-primary consumer goods sector, health sector, financial sector, technology sector, etc. Another approach is to use other variables such as volatility.

#### **2. For Academicians**

The result of this study is expected to provide adequate information for academic community so that this research can increase knowledge and insight, especially in the fields of business management and finance, and can as a reference or description for students engaged in similar research, and make the development of Indonesia Stock Exchange theories, such as building construction sub-sector and herding behavior on company shares in building construction sub-sector.

### **1.6.2 Practical Benefit**

#### **1. For Investors**

The purpose of this study is to provide investors with information to be able to make good decisions regarding building construction sub-sector and in another sub-sector investments by looking at the herd behavior of company shares in building construction sub-sector from 2010 to 2019.

## **1.7 Systematics Writing**

Thesis writing will be arranged systematically by the author which contains an overview and research results. The systematics of writing will be briefly explained as follows:

## **CHAPTER I INTRODUCTION**

In this chapter, the authors will elaborate on the description of the object of research, research background, formulation of problems, research questions, research objectives, research benefits, as well as research systematics.

## **CHAPTER II THEORIES AND FRAMEWORK**

In this chapter, the author will elaborate on the theory used by researchers in the study of research to be conducted by researchers. In this chapter, there will also be previous research, skeletal thinking, and finally research hypotheses.

## **CHAPTER III RESEARCH METHODOLOGY**

In this chapter, the author will elaborate on how the author researched and also the approach used. In this chapter also, the researcher will describe the operational variables to be used, measuring scales, types and techniques of data collection for research, research techniques used, validity testing and data reliability, as well as data analysis and testing research hypothesis.

## **CHAPTER IV ANALYSIS AND RESULT**

In this chapter, the authors will elaborate on the characteristics of respondents, research results, and classical assumptions test consisting of normality test, simple linear regression analysis, and discussion of research results.

## **CHAPTER V CONCLUSION AND RECOMMENDATION**

This chapter is the last chapter of the research that will contain the conclusion along with the suggestion of the authors on the results of this study.