**Effect of Market Value Added, Price to Book Value Ratio and Return on Equity to Stock Return in Property and Real Estate Industry that Listed in Indonesia Stock Exchange**

**THESIS**

Presented as Partial Fulfillment of the Requirements
to Obtain the Bachelor Degree in Management Department



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DEPARTEMENT OF MANAGEMENT
INTERNATIONAL PROGRAM
FACULTY OF ECONOMICS
UNIVERSITAS ISLAM INDONESIA
2018

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BACHELOR DEGREE THESIS

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Defended Before the Board of Examiners

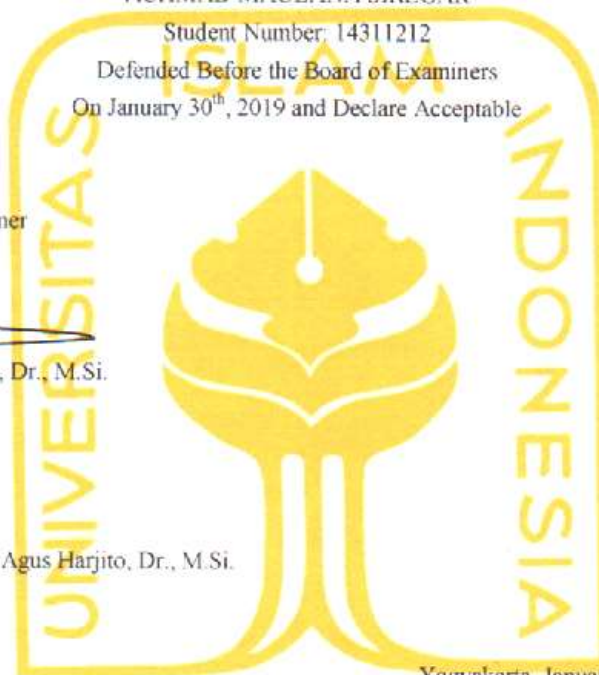On January 30th, 2019 and Declare Acceptable

Board Examiner

Examiner I

Zaenal Arifin, Dr., M.Si.

Examiner II

Dwipraptono Agus Harjito, Dr., M.Si.

Yogyakarta, January 30th, 2019

International Program

Faculty of Economics

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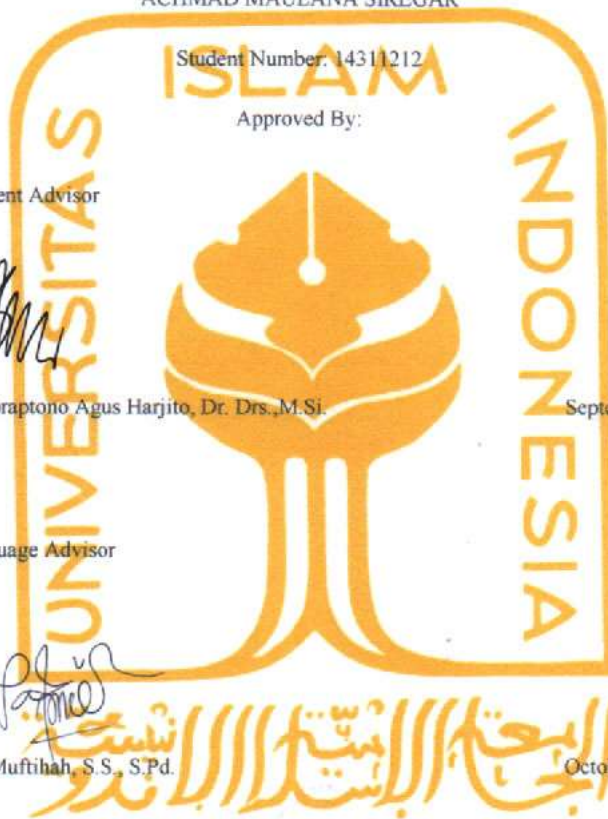Content Advisor

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## DECLARATION OF AUTHENTICITY

Hereby I declare the originality of the Thesis; I have not presented someone else's work to obtain my university degree, nor have I presented someone else's words, ideas or expressions without any of the acknowledgements. All quotations are cited and listed in the bibliography of the thesis. If in the future this statement is proven to be false, I am willing to accept any sanction complying with the determined regulation or its consequence.

Yogyakarta, October 16<sup>th</sup>, 2018

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# ACKNOWLEDGEMENTS

بسم الله الرحمن الرحيم

Assalamu'alaikum warrahmatullahi wabarakatuh

All praise to Allah SWT for all His blessing and grace granted to all beings that are in the world and in the hereafter. He is the ruler of the universe who ruled all nature and destiny since beginning of this world until the world destroyed by His will. I succeed in completing this thesis entitled "Effect of Market Value Added, Price to Book Ratio, and Return on Equity to Stock Return in Property and Real Estate Industry that Listed in Indonesia Stock Exchange".

Shalawat and salam are given to our beloved prophet Muhammad SAW, who give light to our life, guide people from darkness to lightness. He is an example for humanity because behind the sunnah has the glory.

I believed that without help and support from these people, my thesis will not concluded and finished. In this part, I want to say thanks to:

1. Allah SWT, who has always protect and guided me through writing this thesis.

2. Rasulullah SAW, who brought prosperities toward humanity and made me tasted the sweetness of iman.

3. My beloved father and mother, who always beside me mentally. Even though we are separate with distance, I can feel all your love across the sea. I

cannot describe my thanks to my parent who has given me all of theirs, who choose to sacrifice themselves for the happiness of their child. We meet once every semester, and for this year, we haven't met for at least one year. Thanks for Ayah, who sacrifice himself for the sake of his children. These obligation cannot be repaid for all of eternity. All I can do is pray for your health, wealth, and happiness. Emak, you are my angel, who always believes in me since I was born. I start to love our family thanks to you Mak. Once I drop out from my previous university caused by my arrogance. I got cornered and desperate in life because all of my life didn't go as I planned. I still remember your expression when you found out I stopped my study without your consent. It is full of sadness and disappointment. I stay silent with hoping that you will lash out your anger. I steel my heart, harder than iron. But one sentence from you makes me regret for my stupidity. One sentence from you that I will take to the grave, "I feel sad is not caused by you who stop to go to college, but I cannot imagine your burden through four years, who shoulder the problem alone." This sentence feel full of love. Oh god, thanks for made me born in this family.

4. For Muhammad Rafi'i Siregar, Imam Malik muliyana Siregar, and Nailah Azzahrah Siregar, thanks for the support that you guys give. You are believed in me, now I will return your support, help and believe thousand times.

5. My content advisor Mr. Dwipraptono Agus Harjito, Dr.Drs.,M.Si who have the patience and advice for my thesis and revisions. At least my thesis has been completed and one of your task has been finished. Even though we will

be separate, but all of your teaching will be remembered and hold dear in my heart. We met in class up to two times, in research methods and risk management class. I feel happiness when I know you become my advisor. To My language advisor Mrs. Ata Muftiah, S.S.,S.Pd. thank you for all the advice and guidance you give to me.

6. My greatest friends, hanif and ilham, we have traveled the sea of time together, through hard time and good time. My vision got broader every time we put up conversation. We always fooling around, but when the time is needed, you guys always stay beside me. Pulling me up when I down, and pushing me up when I high, putting me in a new height of life. We always converse ourselves until past midnight even though we planned to go to sleep in 10 o'clock. Impossible man, impossible to happen.

7. To my circle, mbul-mbul, irra, putri and hanna. I really glad to meet you girls. I can feel the sweet nectar of life caused by mbul-mbul group. I still remember when you girls prank me in Boko temple. It has been a while since I punch someone, and that day is one of my greatest days.

8. Kelompok Studi Pasar modal or what usually called as KSPM, place that I learn about stock and investment. Thanks to Mrs. Erni who always stay in Investment Gallery and giving me the chance for internship, Mr. Tony become my broker since 2017, Mrs. Eka who always beside Mr. Tony because of work, and all of member of KSPM give me knowledge and experience. These memories are my valuable memories. To Koperasi Mahasiswa Fakultas Ekonomi Universitas Islam Indonesia or what usually called as KOPMA FE UII. You guys are my brother, my sister and my

family. I learn the first time about how to create event together in KOPMA. Whenever my schedule is free, I always go to KOPMA office for a short break and meet friends.

9. To my KKN friends, I love you guys. The most solid friend ever, who always call me father, even though you guys are not my children. Enif, as village coordinator, spent most time in outside rather than in our own post. Fahim, as unit president, always misunderstood by his member. Theo, who break up with his partner because of fleeting love in KKN, the most handsome man in this unit. Osi, my partner in private talk, we have similar train of thought, I almost think you are my twin sister because how similar we think. Puspa, our guardian angel who always give attention to our daily life. She is the first one who will give help when someone got sick. Bella, my cutest friend who trying to look though but has a soft heart. Sevina, who has plan a step ahead, preparing the report template so that the team can write the report in a short time. Nurul, as our princess and our mascot. Seeing her act cutely make the team refreshed.

10. To all the people who I can't describe one by one, thank you for all the help and support given to me. I hope for you to be healthy and wealthy and become muslim and muslimah.

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# ABSTRACT

*This study tests the hypothesis of the effect of Market Value Added (MVA), Price to Book Value (PBV), and Return on Equity (ROE) to stock return. The purpose of this study is to provide empirical evidence of MVA, PBV, and ROE affect stock return. The population taken from Property and Real Estate industry that listed in Indonesia Stock Exchange with 49 companies. The sample taken for this research is 10 companies from population in the period 2012-2017. The researcher use panel data regression, partial test (T-Test), simultaneously test (F-Test), and coefficient of determination (R-Square) to analyze the hypothesis and to get result in this study. The result indicates that MVA and PBV have insignificant effect toward stock return, but ROE has significant effect to stock return. Therefore, Indonesian investor can use ROE to evaluating companies for investment decision.*

***Keywords:*** *Market Value Added (MVA), Price to Book Value (PBV), Return on Equity (ROE), Stock Return*

# ABSTRAK

Penelitian ini menguji hipotesis pengaruh Market Value Added (MVA), Price to Book Value (PBV), dan Return on Equity (ROE) terhadap return saham. Tujuan dari return saham. Populasi dalam penelitian ini diambil dari industri Properti dan Real Estate yang penelitian ini adalah untuk memberikan bukti empiris MVA, PBV, dan ROE mempengaruhi terdaftar di Bursa Efek Indonesia dengan 49 perusahaan. Sampel yang diambil untuk penelitian ini adalah 10 perusahaan dari populasi pada periode 2012-2017. Peneliti menggunakan regresi data panel, uji parsial (T-Test), tes simultan (Uji-F), dan koefisien determinasi (R-Square) untuk menganalisis hipotesis dan untuk mendapatkan hasil dalam penelitian ini. Hasilnya menunjukkan bahwa MVA dan PBV memiliki pengaruh yang tidak signifikan terhadap return saham, tetapi ROE memiliki pengaruh yang signifikan terhadap return saham. Oleh karena itu, investor Indonesia dapat menggunakan ROE untuk mengevaluasi perusahaan dalam menentukan keputusan investasi.

**Kata Kunci:** Market Value Added (MVA), Price to Book Value (PBV), Return on Equity (ROE), Stock Return

# CHAPTER 1

## INTRODUCTION

### 1.1 Background

In this global era, the competition phenomenon that happened between manufacture, service and main sector become fierce. The properties and real estate industry is one of the industries that increase in competition. The properties and real estate industry in Indonesia is driven by presidential policies in the 2014-2019 period regarding infrastructure improvements. The rivalry in industry is growing and become more competitive among companies to survive in competition and gain high profit to fulfill companies source of funds need. Source of fund can be obtained from one of the sources, that is capital investment of investors.

An investor which doing investment must take into consideration two things that will be used for investment decision, they are return which provided by company and the level of risk that will be faced by investors. In decision making, investors must have the right and accurate information to gain high return and low level of risk. Companies which give information to investors can affect the investors perception of company value toward their investment decision to invest their capital. Beside that, company have gained benefit from investors, that is capital which can be used for company financing. The more investors who invest their capital, the company will have more fund to be managed.

Investors who invest their capital will get stock return based on how much the stock owned by investors in a company. Stock return is the outcome from putting resources into stock market (Willem, Saerang, and Tumewu, 2014). Stock return is an investment

used to measure a company's financial results (Brigham, Gapenski, and Ehmart, 1999). Stock return is one of investors foundation to make decision for investing their capital and gain profit in the companies. Profit which are given to investors can be in the form of dividend and capital gain. Dividend can be achieved from agreement between issuers and investors, meanwhile capital gain can be achieved from market mechanism by stock transactions. Stock transactions in market make the stock price become changed overtime. When stock price owned by investor is higher than market price, then the investors have profits and vice versa. This condition used by investors to increase their wealth through investment in stock market. Investors who understand this mechanism search an issuer which give the highest return.

Stock with high return is the result of great expectation of investors toward issuer performance. Issuers will have high performance when the companies can maintain their health levels. Health level is the condition of the company both financially and operationally. When the health levels of companies are high, it means that the companies have good financial and operational conditions and vice versa. Health level of company can be noticed through fundamental analysis. Investors use fundamental analysis to have clear view of aggregate market. Investors who use fundamental analysis have good understanding of market condition and they will have higher stock return. Investors can indentify how a company create value to maintain the health of company through fundamental analysis. Beside fundamental analysis, investor can also use technical analysis to predict the trend of stock prices in the future. Investors conduct technical analysis by studying past market data, especially price and market volume data, so investors can assess current market conditions based on historical data prices in the past and investors can predict future market movements. Investor can make decision

to buy shares in a company based on these two analyzes. Investors need to do analysis to gain return in capital market and one of the analysis tool to gain return is using Market Value Added (MVA).

MVA is one of alternative used by investors to analyze a company. Market Value Added (MVA) is the difference among equity market value of a company in certain period with equity that supplied by investors (Willem et al., 2014). The companies can be considered to create value when market value is higher than book value and when it is less than book value it reduces the market value (Kumar and Subramanyam, 2017). MVA can be used by investors to measure added value in a company. MVAis also used to find out the change that happened in a company based on market value.

Based on company performance, investors used MVA to find out what happened in a company, whether the company will undergo toward positive change, negative change or the company face the fluctuative change between positive and negative. When a company faces positive change, it means that the company can create value. If the company faces negative change, then company destroys the value. However, if a company faces fluctuative change, it means that the company cannot maintain the value creation. Therefore, investors can made decision to invest after doing analysis using MVA.

Another measurement tool that can be used by investors is Price to Book Value (PBV) because PBV can measure the expectation of investors toward the company. Investor can discover the value of companies by comparing the market price to its book value (Wijesundera, Weerasinghe, Krishna, Gunawardena, and Peiris, 2015). PBV can

be used as a book value multiple to be a value driver (Shittu, Ahmad and Ishak, 2016). PBV can be used to measure the investor expectation and stock return of a company. One of the stock returns is capital gain and can be achieved when investors have great expectation toward the company performance which resulting in raise of demand and affect the market price. Market price is driven by demand and supply concept, where when demand excess supply, the price will be rising. When supply excess demand, the price will be declining. These demand and supply can change the company stock price which resulted on change of PBV.

PBV is based on market price which is divided by book value of company. The higher PBV of a company, the higher of expectation of investors toward it. When PBV is low, it means that investors have low expectation toward the company, on the other hand, high PBV results high expectation of investors. When value of a company is lower than market value, the PBV will be high and when it is higher than market value, the PBV will be low. PBV can be used to measure whether the company is overvalued or undervalued. For investors to get this conclusion, they must compare the PBV of company with similar company which runs in same sector to made conclusion of a company is overvalued or undervalued. The PBV of companies of this year can be compared to the last year to gain insight of stock performance and investor expectation through times, year by year.

Beside PBV, investors can used Return on Equity (ROE) to analyze a company because ROE can measure company rate of return and the efficiency of equity used for generate return. ROE indicate the rate of return created by investors for investment that is obtained from dividing net income by book value of equity (Nasery, 2017). However,

ROE ratio cannot be used if ROE did not have last year performance of a company or if there are no other companies for comparison. ROE is a benefit which used by company in investing funds that obtained from earnings growth (Wijesundera et al, 2015). ROE is a measurement tool that usually used by investors to measure the company performance.

ROE have two elements, that is net income and equity. The bigger ROE of a company, the bigger net income generated by company, and can be said that the company using their equity with efficiency. Based on those two elements investors can consider the size of net income which generated by company or how much equity is used by company to generate net income. So that can be utilize to decide by investors in investment of a company.

Investor can made decision of investing or not based on these tools, that is: Market Value Added (MVA), Price to Book Value (PBV), and Return on Equity (ROE). Investor can conclude the company have good performance and undervalued stock, which the market price is below of company value. When a company have high performance and it can use their equity efficiently then investors will start to notice this company and start to collecting the stock. When this happened the market price will rising up, trying to match the company value.

The relevant research about this topic has been done by these researcher: Nakhaei (2016), based on the result of data analysis that has been studied shows that MVA has significant effect on stock return. This is due to the added value to company with the increasing of stock price so that the stock return will be increased. This is in

line with the research that have been done by Kumar and Subramanyam (2017) which has been stated that MVA has significant effect to stock return.

The previous research about Price to Book Value (PBV) is: Shittu, Ahmad, and Ishak (2016) based on the result that has been researched shows that PBV give significant effect toward stock return. Based on studied, PBV has positive signal for investors because they can predict the expected return. This is in line with the research that have been done by Wijesundera et al. (2015) which stated that PBV has a significant effect to stock return.

From previous research of Return on Equity (ROE) is: Reddy and Fu (2014) said that ROE has significant effect to stock return. Based on analysis ROE has positive signal because companies with good performance can increase their profitability. A company that has high profit will attracted the investor to invest in the company. This studied is in line with research that have been done by Wijesundera et al. (2015); Har, Afif, and Ghafar (2015); and Petcharabul and Romprasert (2014) said that ROE give significant effect to stock return.

However, this is not in line with the research of Willem et al. (2014) stated that MVA has insignificant effect to stock return. Based on analysis increase of MVA is due to decrease of company value from what is expected by investor. This is in line with research of Sharma and Kumar (2010) which said that MVA has insignificant effect to stock return.

PBV has different result from other researcher, such as Feng, Payne and Sheng (2015) stated that PBV give significant negative effect toward stock return. The lower of PBV means that the companies will have higher potential return and give higher

return. This study is in line with Mohanty (2002) stated that PBV has insignificant effect to stock return.

Based on the resulted of ROE research from other researcher got different resulted. This is not in line with the research of Nasery (2017) said that ROE has insignificant effect to stock return. This is due to ROE not effective to measured the profitability that will be gained by investors in expected stock return. This is in line with Anwaar (2016) stated that ROE has insignificant effect to stock return.

## 1.2 Problem Formulation

1. Does MVA affect stock return in property and real estate industry that listed in BEI?

2. Does PBV affect stock return in property and real estate industry that listed in BEI?

3. Does ROE affect stock return in property and real estate industry that listed in BEI?

## 1.3 Research Purposes

Corresponding with problem formulation, the purposes of this research is:

1. To know the effect of MVA to stock return in property and real estate industry that listed in BEI

2. To know the effect of PBV to stock return in property and real estate industry that listed in BEI

3. To know the effect of ROE to stock return in property and real estate industry that listed in BEI

**1.4 Research Benefit**

As for the benefits of research obtained from this research is:

1. To investor, can get the picture of step that can be taken when the investor want to invest in stock that listed in BEI.

2. To company that listed in BEI, can be used as guidance in improving the performance of the company so that the investor will not hesitate to invest.

3. To academics, can be used as comparison material for other research in the future time.

## CHAPTER II

## LITERATURE REVIEW

**2.1 Stock Market**

**2.1.1 Stock Market Roles**

Stock market is one of the sources of capital for companies in a given economy (Marszk, A., 2013). The source of funds obtained from stock market comes from the public. All companies that have gone through initial public offering (IPO) can listed into stock market to obtain this fund. The community provided funds to companies for financing and referred to as investors. The stock market provides facilities between those who need funding and those who have excess funds. Companies can obtain funds by selling some of its shares to the public, while the investor will receive funds based on results from the number of shares invested into the company.

The stock market can be said as a representation of a country's economic condition. The higher the economy in a country, the higher it will affect the level of development of the stock market. It is because many companies want to expand their stock expansion and make the companies want to sell their shares to the public.

The stock market has a relationship with the capital market, where the capital market becomes a meeting place between investors who have excess funds with companies that need funds. The existence of capital markets for investors is to be an investment instrument to increase wealth while for public companies are to become source of funds and it is required to sales of shares, bonds and derivatives.

Capital market provides access to many public companies to absorb funds from the public. The main target of the absorption of these funds is business expansion and

improvement of the capital structure. Expansion and improvement of the capital structure carried out by companies can improve the competitiveness of companies. According to Brealey, Myers and Marcus (2015) the capital market is divided into two, namely the primary market and the secondary market:

1. Primary Market

   Sales of stocks by the companies are called primary offerings and are said to be made in the primary market (Brealey, et al., 2015). The company offers stocks to investors for the first time is during the time set by the issuer before the stock traded on the secondary market. This activity referred to as IPO and is known as going public. There are two parties that make an arrangement in this market, which are companies that go public with underwriter. Investors who order shares in the primary market will get shares in accordance with the allotment system applied by the underwriter.

   Allotment occurs when the underwriter gets the number of investors who will buy the shares and the number of shares to be purchased. The procedure for purchasing securities is by completing an order to purchase shares from the underwriter or several other appointed sales agents. When investors buy a company stock they can collect information about the company who IPO goes through a short prospectus advertised in 2 national newspapers or public exposures or prospectuses. In the primary market there are two possibilities that can occur, namely oversubscribed and undersubscribed. Oversubscribed is the interest of the public to start investing and purchase shares greater than the number of shares available in the primary market. Undersubscribed is the

number of shares available in the primary market greater than the incoming request for purchasing stock.

2. Secondary Market

Exchange among investors is market for second-hand stock and called as secondary market (Brealey, et al., 2015). The secondary market is a continuation of the primary market after the company releases its IPO. Secondary market is financial market that is used to trade securities that have been issued in the initial public offering. Investors are conducting stock sale and purchase transactions on the secondary market are held on the Indonesia Stock Exchange. Purchase transactions in the secondary market are only carried out on shares that have been circulated based on the rules of the game that have been applied in the market. Investors buy shares from other investors with an auction system contained in software online trading stock. When investors use online stock trading software to buy shares, meaning investors do transaction on the secondary market. With this software, investors can transact anywhere according to capital market hours. If there is no transaction, the investor will wait until there is suitability for investment or the transaction is cancelled because the trading period is up or the transaction is withdrawn.

Secondary markets are very liquid and transparent. Basically the secondary market connects between investors preference for liquidity with capital users who want to use the capital in the long run.

In the Secondary Market there are also three types of trade that can be done, that is the Regular Market, the Negotiation Market, and the Cash Market. Mechanisms in the Regular Market investors conduct transactions with price

increases that have been determined by the price fraction, but in the Market Trade Negotiations are carried out through a bargaining process directly outside the stock price fraction, while in the Cash Market it is almost the same as the Regular Market, only the payment system is different. In the regular market the transaction settlement is t + 3 (3 days after the transaction), but in cash market the payment system on the t + 0 is done that same day.

### 2.1.2 Investment Vehicles in Financial Asset

Investment Vehicles is an instrument used by investor to invest and gain positive return (Levisaukaite, 2010). Investment vehicles in financial asset have many varieties such as stock and bonds. There is 3 main types of financial investment vehicles that is fixed-income securities, common stock, and speculative investment vehicles (Levisaukaite, 2010), as follows:

### 2.1.2.1 Fixed-income Securities

Fixed-income securities give fixed return up to some redemption date or indefinitely (Levisaukaite, 2010). Fixed-income securities give investor fixed rate of return until maturity date. Investors who do not want to get high risk and choose a safe investment, investors will prefer fixed-income securities in investing. This investment has two types of securities that are long-term debt securities and preferred stocks.

1. Long-term Debt Securities

Long term debt securities are a long term debt instrument that provided contract of obligation (Levisaukaite, 2010). Long term debt securities have maturity longer than one year. Long term debt securities usually referred as bonds or obligation. The buyer of obligation is lending money to companies that issue it

and the issuer will pay periodically to repay the principal and interest until maturity date. The default risk of bonds is related to default risk of issuer.

2. Preferred Stock

Preferred stock is an equity securities that has infinite maturity and pay dividen (Levisaukaite, 2010). Preferred shareholders will be prioritized by the company to obtain dividends first when the company goes bankrupt and is liquidated. Even though preferred stock is equity but it is similar with bond and counted as fixed-income securities because the dividend for preferred stock is in fixed amount and period. If the issuer fails to pay dividends, the issuer has an obligation to pay dividends in the next period. If the company experiences liquidation, the owner of preferred shares will be prioritized to receive the money invested before the common shareholders get a return on capital. Preferred stocks are traded based on the results offered by the company to investors.

**2.1.2.2 Common Stock**

Common stock is the most popular investment vehicles among investors with long time horizon of their investment. Common stock represents the ownership of a company and has rights to decide and vote for company manager and policy (Levisaukaite, 2010). The issuer of common stock is a company that seek to receive funds in the market through go public. Company can raise funds by issuing common stock and sell it to market. Common stock holder or shareholder can attend the general meeting, and received dividend when declared. If the issuer of common stocks experiences bankruptcy and is liquidated, the issuer of common stocks does not have an

obligation to pay dividends to shareholders. Every common stock holder has voting rights at a general meeting of shareholders based on the applicable provisions. The more percentage of shares owned by investors, the greater the right of investors to have voting rights in a meeting such as profit sharing meetings, the selection of new directors, and various other company decisions.

Common stocks have a predetermined nominal value based on the nominal value of the shares in accordance with the wishes of the issuer. The nominal price determined by the issuer has a price difference between the nominal price and the primary price of a stock price. The primary price is the stock price that has not been recorded by the stock exchange.

Common stock is a form of investment that has a high risk. It is because investors expect to get a higher level of profit than the level of return on investing in bonds or preferred shares. In addition, ordinary shares do not have maturity, so investors are easy to buy and sell their shares. Ordinary shares have limited responsibility for ownership of another party for the number of shares held and ordinary stock investors have the right to transfer their ownership to other people.

Ordinary shares are given to investors in the form of a charter or certificate to indicate that there is evidence of ownership of investors in a company. Investors who own shares in a company have the right to manage the company in accordance with the size of the shares owned. The greater the percentage of shares owned by investors, the greater the voting rights obtained to manage the company.

### 2.1.2.3 Speculative Investment Vehicles

Speculative investment vehicles can be defined as investment with high risk high return (Levisaukaite, 2010). The users of speculative investment have intention to buy low and sell high. Their intention is to gain profit in market fluctuations. Investor gained profit from capital gain only. The nature of this vehicle is riskier than any vehicles. Based on Levisaukaite (2010) it has 2 types of investments that is options and futures traded in stock exchange.

1. Options

   Options give the owner the right to buy and sell a financial asset from another party (Levisaukaite, 2010). There is big uncertainty from options because it is depend not only on demand and supply market but other instrument as well. Investor use options as hedging rather than investment. Investors do hedging to protect their investment from unpredictable risk.

2. Futures

   Futures are a contract agreement between one party with another parties to agree on transaction of financial asset at a specified future date (Levisaukaite, 2010). One party agree to buy the financial asset and the other agrees to sell the financial asset. If option has the choice to cancel the purchase, then futures have obligation to be performed and neither parties charges the fee.

### 2.2 Investment in Stock Market

Investment is all assets owns or controls by investors both directly and indirectly and has characteristics such as capital or other resource commitments, profit expectations, or risk assumptions (Malik, M., 2008). Investment is a commitment for

investors on assets or other resources owned to obtain profits in the future. Investment use wealth of people in the present for investing to obtain profits in the future.

Investment is the activity of investors in obtaining profits in the form of real assets and financial assets. Real assets are assets owned by investors such as land, gold, houses and other real assets, while financial assets include stocks, bonds, deposits and other financial assets. Investing in financial assets has a higher level of profit but the risk is also greater. Investing in financial assets has a higher level of profit but the risk is also greater. Based on Levisaukaite (2010) there are two type of investing, that is:

1. Direct Investing

   Direct investing is when investors make purchases and sales of financial assets and manage their own individual investment portfolios (Levisaukaite, 2010). Investors directly buy shares through online stock trading software and can be referred to as direct investing. Direct investing has consequences in which all the risks and returns that will be obtained depend on understanding of financial markets, its fluctuations and on their abilities to analyze and to evaluate the investments and to manage their investment portfolio. Direct investment is used by investors to control the activities of a company decisions that will be obtained in the future. This can be achieved by investors by acquiring significant majority or minority shares.

2. Indirect Investing

   Indirect investing is when investors make purchases and sales of financial assets through financial intermediaries (financial institutions) that invest a lot of funds in financial markets and hold portfolios (Levisaukaite, 2010). Investors do not

need to make decisions about their portfolios because there are financial intermediaries who have done so. The risk faced by investors through indirect investing is more connected to the credibility of the institution and the professionalism of the portfolio manager. Indirect investments are included in short-term investments that include transaction activities in the capital market and money market. It is due to the sale of shares and currencies within a very short period of time based on fluctuations in the value of the stock and the value of the currency that will be traded.

**2.2.1 The Basics of Investment Decision**

Investment decisions of investors are subjective where the investment decisions are based on costs, knowledge of the capital market and the companies, and risk factors (Virlics, 2013). Investors need to make decisions to invest even though the result of valuation is subjective.Investor need to consider two things in investment decision, that is risk and return (Levisaukaite, 2010). Return is the goal of all investors in investing but any investments that generate returns have risk. The greater the expectation of returns, the greater the risks involved. Investors need some basic investment decisions that investors must consider to invest in a company, as follows:

1. Risk

   Risk is the ratio obtained by investors based on the results of actual returns with expected returns (Sharpe, 1999). Risk is complex issue and need to studied, understood and identified in investment process. Uncertainty and risk always present in any investment. Analyzing risk is great starting point to collect information and analyze investment risk. Investors can decide what to do based

on the result of their risk analysis and decide whether to invest or not. When risk has been defined, economic calculation can investigate the amount of money used to invest, the payoff of investment and future loss if it were not done (Virlics, 2013). Therefore, investors must realize that theoretically in investing not only earns the expected profit but investors also realize that it is likely to experience the risk of loss in investment.

Risk is the possibility of investment exposed to losses. The determination of risk is based on the information on the company condition, environment, or the country where the company is operate that allow the estimation likelihood consequences (Virlics, 2013). It is a decision for investors to consider matters relating to the company to invest.

2. Return

Return is a benefit obtained by investors through investment (Levisaukaite, 2010). Return is the level of profit generated by investors in investing. Return consists of two components, namely yield and capital gain or capital loss. Yield is the percentage of profits earned by investors in an investment. Capital gain is the profit obtained from the difference in value of current investment with value of investment in the past. If the stock return is positive, it means that the investor gets capital gain, but if the stock return is negative it means that the investor gets a capital loss. Investors can measure the rate of return that will be obtained by finding information on the company's financial data that will be used for decision in investing. The greater the current investment value compared to the value of the investment in the past, the greater the capital gains obtained. Therefore, returns are very important for investors to gain profits in investing.

**2.2.2 Investment Management Process**

Investment management process is the process to money management for investing. Investment management process explained what an investor should do about making decisions. There is five stages to formulate the investment management process (Levisaukaite, 2010), that is:

1. Setting of Investment Policy

   The first step of investment management process is the most important step. Investment policy is about setting of investment objectives and any variables that can influence the investment management (Levisaukaite, 2010). Investment policy must have specific objective regarding requirement of expected return and risk tolerance of the investor. Identifying risk tolerance of investor is the most important objective. If investor wants to gain a lot of money, then investor will face high risk. When investor wants to face low risk, then investor will get less money. Investment policy must state the return that wants to gain and risk that will be faced. Investment policy must put other constrains that can affect investment management. It is based on assessment of their current and future financial objectives. The required rate of return depends on how much sum of money invested and how much investor needs to have in the end of the investment horizon. Investment horizon is the period of time needed for investment (Levisaukaite, 2010). The longer time needed for investing, the higher risk faced by investor.

2. Analysis and evaluation of investment vehicles

After the first step has been set up, investor can define the financial asset that will be used for investment. This step examines several relevant types of investment vehicle to be put in portfolio (Levisaukaite, 2010). When investors want to put common stock into their portfolio, the analysis will be focused to the common stock as investment. The purpose of this analysis is to identify whether the current investment vehicles is mispriced or not. There are many approaches can be used for analysis, but the common approach for analyze common stocks are technical analysis and fundamental analysis.

3. Formation of diversified investment portfolio

Investment portfolio is formed by investor after realize defined investment objectives. According to Levisaukaite (2010), it is the issue of selecting, timing, and diversification needed to build portfolio. Selectivity refers to forecasting condition of company and the price movement in stock market. Timing involves macro forecasting of price movement where the price is affordable by investor. Diversification is reducing risk faced by investor. There are two techniques to diversification (Levisaukaite, 2010), that are:

1. Random diversification, where several financial asset put to portfolio at random.

2. Objective diversification, where selected financial assets follow the investment objectives and use appropriate techniques for analyzing and evaluating the financial assets.

4. Portfolio revision

This step is necessary because investor with long time investment horizon may change the investment objective (Levisaukaite, 2010). When investment objective is change, then the current portfolio held by investor is no longer optimal and can even contradict with the new settled investment objectives. Investor must make new portfolio by sell some of the financial asset or buying new financial asset. The price of financial asset is change over time and some asset that were attractive may be no longer be so. Investors can also update their portfolio to be more efficient. An efficient portfolio is a portfolio that can provide a large return in accordance with the expectations of investors for the lowest risk level in a certain rate of return.

5. Measurement and evaluation of portfolio performance

This step involves determining periodically how the portfolio performed, that is how much the return earned and risks involved (Levisaukaite, 2010). For appropriate evaluation of portfolio performance need benchmarks. Benchmark is predetermined for comparison purpose (Levisaukaite, 2010). The benchmark usually used in Indonesia is "Index Harga Saham Gabungan (IHSG)". Benchmark widely used by investors for measuring and evaluating the performance of their portfolios relatively.

**2.3 Investment Analysis**

Investment analysis is a way to measure expected returns and historical rates of return from individual assets or portfolios. Investment analysis can not only measure the risk of individual investment but also can measure the level of portfolio risk. According to Reilly and Brown (2012), investment analysis is divided into two, which is technical analysis and fundamental analysis.

**2.3.1 Technical Analysis**

Technical analysis is a tool to study market activity using charts with the aim to predict future price trends (Murphy, 1999). Investors use technical analysis based on information from outside the company that has an impact on the company rather than the company's internal information. The information used to study market activity is price and volume, so investors can pay attention to changes in stocks price over time and it can help investors to identify those stocks that are overpriced or underpriced. Investors use technical analysis to forecast the stock price movements in the short term and can anticipate buying and selling shares at the right time.

Investors make decisions to invest their capital by buying shares from the issuer and have considered the profits obtained by the issuer, sales growth, and assets for a certain period of time. Technical analysis has three principles, which are market discount everything, price move in trend, and history repeat itself (Murphy, 1999).

1. Market Discount Everything

   The statement "market discount everything" proposed by Murphy (1999) comes from the cornerstone of technical analysis. Technicians believe that all information that can affect the capital market has been reflected by market

prices. Investors who use technical analysis only need to learn price movements. Prices formed in the capital market are based on supply and demand. When demands exceed supply, price should rise and vice versa. Demand should be higher than the supply so that prices are rising and is known as a bullish trend. When demand is lower than supply, prices will decline and are known as bearish trends. This supply and demand concept is the underlying forces that created bull and bear market. This information is reflected by the chart and used by investors to make decisions.

2. Price Move in Trend

The concept of trend is the most important thing in technical analysis. The purpose of charting the price movement is to identify trends in early stages for the purpose of trading (Murphy, 1999). The trends that have formed at the early stages are more likely to continue than reverse. This movement will occur continuously so that the trend shows a reversal signal.

3. History Repeat Itself

Technical analysis and market price movements are influenced by human psychology (Murphy, 1999). According to the first principle, chart patterns reflect certain pictures that appear on charts. This picture shows the psychological state of the bullish or bearish market. Since this pattern was successful in the past, it is assumed that the pattern will be successful in the future.

**2.3.2 Fundamental Analysis**

If technical analysis focuses on market price movements, then fundamental analysis focuses on economic forces that cause market prices to increase or decrease. Fundamental analysts believe that there is basic intrinsic values that aggregate stock market, industries, or individual securities and these value affected by economic factors (Reilly et al., 2012). Fundamental analysis is used by investors to make comparisons between the intrinsic value of a stock and the market price which aims to determine the intrinsic value of the stock price. Investor can determine investment asset intrinsic value by examine variables such as cash flows, interest rate, and risk variables. Investors buy stocks when intrinsic value is higher than market value and sell stocks when intrinsic value is lower than market value. Investors believe that the market price will follow the intrinsic value of a company. Investors who can estimate value consistently make superior asset allocation decision or acquire undervalued securities.

Fundamental analysis can provide an overview of stock prices in a company, so investors can find out and decide whether the stock price is cheap or expensive, has good or bad performance, and the stock price has fluctuated or not. Companies that have good performance give rise to stock prices that are worth buying or deserving for investors to invest in the company. On the contrary, if the performance of the company is bad it will affect investors in investing because the performance of company has decreased so that it is not feasible to invest or not worth buying and is not feasible for investors to sell their shares.

Fundamental analysis is widely used by investors, because it is convenient for investor to make decisions and to do stock analysis using fundamental analysis. Reilly

et al. (2012) stated that fundamental analysis is divided into several analyzes to facilitate investors in conducting stock analysis, as follows:

1. Market Analysis

   Market analysis has two components, which is macro analysis and micro valuation (Reilly et al., 2012). Macro analysis explained about what is expected to go in the economy that can affect security market. The objective of macro analysis is to consider the variable and economic series should be considered when projecting future market movement. Micro valuation builds assumption on the result of macro analysis to provide insight of market to investors.

2. Industry Analysis

   Industry analysis is a process toward selecting specifics firms and stocks for portfolio (Reilly et al., 2012). Investor use industry analysis to screening companies that listed in Indonesia Stock Exchange (IDX) and choose the companies with good condition, whether financially or operationally. In industry analysis, investors compare the performance of various industries to find out various types of industries that have promising prospects. The first step to analyzing an industry is to identify the life cycle of product. This stage is to identify and analyze the industries that experience growth, stability or decline. The next step is to analyze the industry and its relation to economic conditions. The last step is qualitative analysis of the industry such as competitors, consumers, substitute products, and other stakeholders. It can help investors to find out the weaknesses and strengths of each industry. Therefore, investors conduct industry analysis to identify investment opportunities from various industries that have differences in each of the characteristics of risks and returns

that investors will get, so that investors can decide which shares of industry are worth investing in.

3. Company Analysis

Company analysis is an analysis to determine the overall condition of the company, such as product analysis, marketing, growth, and management performance (Reilly et al., 2012). Investor need to analyze the companies and have understanding of its strength and risk. Investor can evaluate companies with company analysis and determine the value of companies. Companies values have two characteristics that are undervalue and overvalue companies. Undervalue company is when company intrinsic value is higher than market value and overvalue company is when company intrinsic value is lower than market value. If a company is undervalued, its price will increase to reflect its true fundamental value.

**2.4 MVA and Stock Return**

Willem et al. (2014) stated that Market Value Added (MVA) is the difference between equity market value of a company in certain period with equity that supplied by investors. In other word, MVA is a sum up of total value of companies that appreciated with the amount of money that invested to the company by shareholders. MVA is one of approach that relative new and used by investors to evaluate the company performance.

MVA can be said as indicator for measurement of a company that has been done by investors to invest in a company. MVA is a method that used by investors to measure the errors of a company in certain period. MVA can be used by investor because to

measure the good company performance based on market value that include of company stock price. That is why, MVA is easier to understood. Many companies used MVA methods to run their companies so that in the future they can create wealth that matched with investor expectation.

MVA is one of relevant measurement method because investor can know the effective rate of a company in improving the company performance. MVA as a new performance measurement analysis tool improving the weakness of a financial performance measurement ratio. MVA analysis used by investor in measuring company performance to valuing the ability of a company whether it's success or not in creating wealth that fulfill the investor expectation. The wealth is source from the ability of the company both internally and externally. An investor can consider his decisions to invest in a ncompany. The MVA concept illustrate the achievement of a company since the founding. MVA chosen by investor because one of financial tool to measure the company performance by externally with considering all factor that have connection with value creation of a company. The use of MVA greatly affects investors in evaluating companies to obtain a high level of return and anticipate the level of risk that will occur.

## 2.5 Hypothesis Development

In this study, researchers used variables from three independent variables, namely Market Value Added (MVA), Price to Book Value (PBV), and Ratio On Equity (ROE) with one dependent variable namely Stock Return. Here is the development of hypotheses with the variables used:

### 2.5.1 Effect of Market Added Value on Stock Return

MVA is a measurement tool that using the cumulative valuation method obtained from the management of the company in managing the capital provided by the investor for the investment of a company. MVA is a variation to calculate the comparative value of the stock market with the book value of the company (Nakhaei, 2016). MVA is the market value of all debts and shares held by companies. MVA is the amount earned by investors from the sale of all investments in the form of stocks and bonds sold to financial markets then reduced by the total capital invested to the companies. The creation of value generated by MVA is a welfare value given to investors through maximizing the difference between the market value of equity and the amount of capital invested by investors into the firm. When MVA is greater than zero indicates that the company can create a company's wealth.However, if the MVA is lower than zero indicates that the company is not able to grow a good wealth. The company must increase the shareholders' wealth to maximizing the MVA value so that many investors will invest in the company.

The results of research conducted by Nakhaei (2016), and Kumar et al. (2017) which states that there is a significant effect on MVA on stock returns.So in this study concluded that the alternative hypothesis proposed is:

$H_1$: MVA has significant positive effect on Stock Return

### 2.5.2 Effect of Price to Book Value (PBV) on Stock Return

PBV is a measure of company performance by doing a comparison between market price and book value of shares. PBV is a measurement ratio used by investors in measuring company performance by looking at market prices and book value of the

stock market (Majid et al., 2015). PBV is a value that companies get when the companies are liquidated. PBV is widely used by investors to assess a company, whether the shares in the company are undervalued, overvalued, or fair value. PBV is a comparison between the value of a company in the market based on the valuation or valuation of investors with the value of the company obtained from the company's financial statements. High corporate values can reflects high investor prosperity. The higher the PBV value, the higher the level of investor confidence in the company's performance in maintaining it in the future so that it can improve the company's ability to share stock returns.

Results of research conducted by Shittu et al. (2016) and Wijesundera et al. (2015) states that there is a significant effect on PBV on stock returns. So in this study concluded that the alternative hypothesis proposed is:

$H_2$: PBV has significant positive effect on Stock Return

### 2.5.3 Effect of Ratio On Equity (ROE) on Stock Return

ROE is a ratio used by investors to measure the profitability of each stock to be obtained by investors. ROE is a ratio that can determine the number of corporate profits obtained from the investment return of investors who have invested in certain companies (Har et al., 2017). ROE is used to measure the level of efficiency of companies in using capital gained from investors to generate profit. ROE can also be used as an indicator of investors to assess management effectiveness in using equity financing to fund the company's operations and growth. ROE calculates how much money a company generates based on investments provided by investors. The higher the

value of ROE, the better the performance of the company so that many investors who want to invest in companies that have good performance.

Results of research conducted by Wijesundera et al. (2015), Reddy et al. (2014), Har et al. (2015), and Petcharabul et al. (2014) states that there is a significant effect of ROE on stock returns. So in this study concluded that the alternative hypothesis proposed is:

$H_3$: ROE has significant positive effect on Stock Return

Hypothesis in this study, the researcher aims to test whether by using MVA, PBV, and ROE can significantly affect the Stock Return.
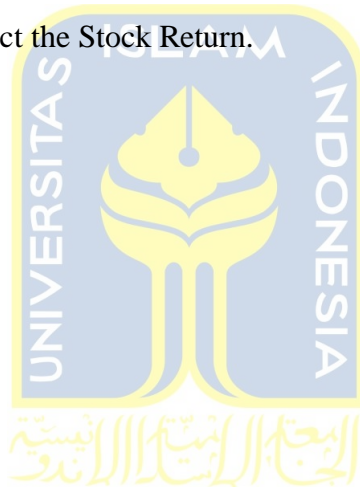
## CHAPTER III

## RESEARCH METHOD

### 3.1 Population and Sample

### 3.1.1 Population

The population in this study is a property and real estate company listed on the Indonesia Stock Exchange which consist of 49 companies. These companies are representing all companies of property and real estate that listed in Indonesia Stock Exchange (IDX) in 2012-2017.

### 3.1.2 Sample

In this research, the researcher uses ten companies of properties and real estate as a sample. The method used for sampling is purposive sampling. Purposive sampling is a non-random sampling technique where the researchers determine the sample intentionally by determining specific characteristics that is aligned with the research purpose so that it is expected to answer the research problem. The criteria used as the basis for sample selection as follows:

1. Property and real estate companies listed in IDX.

2. The availability of financial statements of property and real estate companies in the period 2012-2017.

**Table 3.1**

**Listed of Property and real estate Companies Listed in Indonesia Stock Exchange**

| Num | Ticker | Listed Companies |
|---|---|---|
| 1 | BSDE | Bumi Serpong Damai Tbk |
| 2 | CTRA | Ciputra Development Tbk |
| 3 | DUTI | Duta Pertiwi Tbk |
| 4 | GMTD | Gowa Makassar Tourism Development Tbk |
| 5 | LPCK | Lippo Cikarang Tbk |
| 6 | MKPI | Metropolitan Kentjana Tbk |
| 7 | PLIN | Plaza Indonesia Realty Tbk |
| 8 | RDTX | Roda Vivatex Tbk |
| 9 | SCBD | Danayasa Arthatama Tbk |
| 10 | SMRA | Summarecon Agung Tbk |

Resource: web.idx.id

**3.2 Data and Data Sources**

In this study, the type of data to be used is secondary data derived from the annual financial statements of each property and real estate company listed on the Stock Exchange at the end of each year during the study period that is from 2012-2017. The analysis to be used in this research is the analysis of MVA, PBV and ROE. For calculation of PBV where price is needed to determine the value it is derived from Yahoo Finance. These three analyzes are used as a measure of company performance. The data sources conducted by researchers in this study are to retrieve the data in the

form of the company's financial statements for five years through web.idx.id and finance.yahoo.com.

After recording all necessary data in the form of annual financial statements of property and real estate companies in the period 2012-2017, the researcher did the calculations by using the data in accordance with the formulation available to obtain the ratio to be analyzed.

**3.3 Operational Definition of Research Variables**

Company performance can be measured using variables consisting of MVA, PBV, ROE, and Stock Return. These variables have relationship between an element with other elements in a financial report. These variables can facilitate investors to perform a company performance analysis using the following variables:

1. **Market Value Added (MVA)**

   Market Value Added (MVA) is the difference between equity market value of a company in certain period with equity that supplied by investors (Willem et al., 2014). Market Value Added is a financial management system used by investors in analyzing financial statements to find out the added value of the level of profit to be obtained by investors. Profits obtained by the company can create wealth for the company in carrying out its operations and improve company performance. MVA can be calculated using the following formula:

   **MVA = Market Value Equity (MVE) – Book Value of Equity (BVE)**

2. **Price to Book Value (PBV)**

PBV is a measurement ratio used by investors in measuring company performance by looking at market prices and book value of the stock market (Majid et al., 2017). Price to Book Value is a ratio that investors use to know the difference between the stock market price and the book value in a company. PBV can show the level of stock price traded by a company has good prospects and performance. PBV can be calculated using the following formula:

$$\text{PBV} = \frac{\text{Market Value of Equity}}{\text{Book Value of Equity}}$$

3. **Ratio On Equity (ROE)**

ROE is one of profitability ratio that measure the company ability to give profit toward shareholders that have been invested in the company (Har et al., 2015). Ratio On Equity is the ratio that investors use to calculate the level of profit earned based on the number of shares owned by investors. ROE is one of the profitability ratios from an investor's point of view not from the company's point of view. It is due to calculate how much money investors can get from the investment returns in the company. ROE can be calculated by looking at the annual financial statements of companies listed on the Stock Exchange. Most investors will calculate and make comparisons between the initial period and the final period to see the company's development and ability to return its equity. Calculating ROE can be performed by the following formula:

$$\text{ROE} = \frac{\text{Net Income After Tax}}{\text{Owner's Equity}}$$

4. **Stock Return**

   Stock returns are returns on given period that have been subtracted by the initial investment (Nakhaei, 2016). Stock return is an investment used to measure a company's financial results (Brigham et al., 1999). Return of shares is an activity that investors use to obtain the investment returns through information provided by the company by issuing the company's financial statements. Stock return can be calculated using the following formula:

$$R = D + \frac{(P_t - P_{t-1})}{P_{t-1}}$$

## 3.4 Data Analysis Method

Data analysis method used in this research is to measure various variables that are used as measuring instrument of company's financial performance, by the following way:

### 3.4.1 Data Quality Test

### 3.4.1.1 Statistic Descriptive

Descriptive statistic is dealing with measurement of different aspect and population where the population can be finite or infinite (Bickel and Lehman, 1975). Descriptive statistics or descriptive analysis is an analysis to test the generalization of research results based on samples. The result of this analysis is whether the research

hypothesis can be generalized or not. Descriptive analysis used in this study is Mean, Median, Maximum, Minimum and Standard Error.

**3.4.1.2 Classical Assumption Test**

Classic assumption test that will be used in this research is multicollinearity test and heteroscedasticity test. This test is performed to ensure the data that are used in accordance with the basic assumptions and have an unbiased estimator of linear or commonly called Best Linear Unbiased Estimator (BLUE).

1. Multicollinearity test

   Multicollinearity can affect the estimation of coefficients to become unstable for individual predictor, which is the standard errors and confidence interval for coefficient estimates that will be inflated (Williams, Grajales and Kurkiewicz, 2013). Multicollinearity is a situation that shows the level of relationship between independent variable in a multiple regression. Multicollinearity test is conducted to see if there is a correlation of perfect relationship between variables. If the data tested has a perfect relationship, then the regression coefficient cannot be determined and the standard error value become infinite.

2. Heteroscedasticity test

   The present of heteroscedasticity can result consistent regression coefficient estimates but these estimate will be inefficient (Baltagi, 2005). Heteroscedasticity test was conducted to determine whether there were deviations from the classical assumption requirements of the regression. Heteroscedasticity is a factor that can cause a regression to be inaccurate and

the method used in estimating the regression parameter will be disturbed. If the assumption of heteroscedasticity is not met then the regression model is not valid.

### 3.4.2 Panel Data Regression

The researcher used panel data regression because the data characteristic is cross-sectional data and time series data. Panel data regression is a combination of cross section data with time series data, where the same cross data is measured at different times. It is very useful for analyzing the data with inseparable state between each individual in some periods. It is cannot be obtained from using cross section data and time series data separately. The equation of panel data regression in this research is:

$$R = \alpha + \beta_1 \ Ln(MVA) + \beta_2 \ PBV + \beta_3 \ ROE$$

Definition:

R           : Stock Return

$\alpha$           : Constanta

$\beta_1, \beta_2, \beta_3$      : Regression Coefficient

Ln(MVA)      : Market Value Added

PBV         : Price to Book Value

ROE         : Return on Equity

**3.4.2.1 Determination of Estimation Model**

Data panel has same purpose as multiple linier, which is to estimate intercept and slope value. There are three models that can be used to analyze panel data, which is common effect model, fixed effect model and random effect model.

1. Common Effect Model

   The common effect model is used to estimate the significance of relationship between dependent variable and independent variable (Wahla, Shah, and Hussain, 2012). Common effect model is usually called as pooled least square (OLS). This model has the simplest approach by combines cross section and time series data. This model does not take into account the time individual by assuming that the data has the same behavior in different periods of time.

2. Fixed Effect Model

   Fixed effect model is an appropriate to use when focusing on specific set of firms and the conclusion is restricted to the behavior of these firms (Baltagi, 2005). This model is commonly referred to as Least Square Dummy Variable (LSDV) which has different intercept on each data but the slope value of each data does not change. To estimate the data in this model, it required the use of dummy variable techniques to estimate the difference between intercompany that can occur due to differences in culture, policy and managerial.

3. Random Effect Model

Random effect model is appropriate when drawing the firm's individual randomly from a large population (Baltagi, 2005). This model commonly referred to generalized least square (GLS) which estimates panel data where interference variables have the possibility to relate between time and individual. The advantage of using this model is the loss of heteroscedasticity.

### 3.4.2.2 Determination of Estimation Method

After the researcher determine what model will be selected and then the researcher will use the estimation method to select the most appropriate model. The right model will improve the accuracy of the analysis results performed. Model that can be used as the test tool are two, namely Chow Test and Hausman Test.

1. Chow Test

Chow test is a test whether the state of dummy coefficients are equal (Baltagi, 2005). Chow Test is a test tool to determine which method is better to estimate panel data between common effects with fixed effect. Chow test can also be referred as F-Test, where the test is to see how the influence of independent variables to the dependent variable. In this case the F-Test has the function to test whether the specified model is significant or insignificant. The hypothesis for Chow test is $H_0$: common effect model and $H_a$: fixed effect model.

2.  Hausman Test

    Hausman test is a test based on the difference between random effect and fixed effect estimates (Wooldridge, 2002). Hausman test is a statistical test tool to choose between fixed effect model and random effect model as the most appropriate method. The Hausman test is based on the idea that LSDV in fixed effect method and GLS in random effect method more efficient or superior than OLS in common effect. The hypothesis for Hausman test is $H_0$: random effect model and $H_a$: fixed effect model.

## 3.5 Hypothesis Test

This study uses a significant level of 5% or 0.05. The basic decision making in a study are as follows:

a.  If the level of significant level $\geq$ 0.05 then $H_0$ is accepted and $H_a$ is rejected, it means there is no significant difference in financial performance for stock returns.

b.  If the level of significant level $\leq$ 0.05 then $H_0$ rejected and $H_a$ is accepted, it means there is significant difference in financial performance for stock returns.

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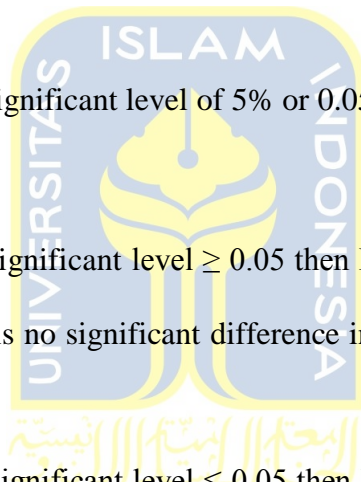
# CHAPTER IV

## DATA ANALYSIS AND DISCUSSION

### 4.1. Data Analysis

### 4.1.1 Descriptive Statistics Analysis

This chapter presents descriptive statistics of research from three independents variables and one dependent variable. The Descriptive statistics that will be used in this research are mean, median, maximum, minimum, and standard deviation. The variables used in this study are MVA, PBV, ROE and stock returns. The data used in this study for each variable amounted to 50 obtained from 10 companies multiplied by the period of observation (5 years). The result of descriptive test conducted to these variables can be seen in the table 4.1:
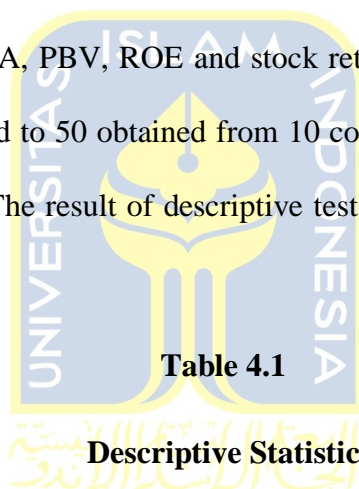
**Table 4.1**

**Descriptive Statistic**

| Variable | LN (MVA) | PBV | ROE | Stock Return |
|---|---|---|---|---|
| Mean | 28.61800 | 3.081497 | 0.174136 | 0.266676 |
| Median | 29.23474 | 2.169700 | 0.153322 | 0.152510 |
| Maximum | 31.01019 | 13.87975 | 0.504659 | 2.253012 |
| Minimum | 22.00698 | 1.014617 | 0.011689 | -0.589474 |
| Std. Dev. | 1.912799 | 2.492315 | 0.106597 | 0.513283 |

Based on the table 4.1 the result of descriptive statistic for each variable dependent and independent can be concluded as follows:

1. Market Value Added (MVA)

Based on the results in Table 4.1 above it is known that MVA obtained an average of 28.61800. This means that the average value added generated by the company from market is 28.61800. The median value of the company is 29.23474. The maximum value is 31.01019 which means that the highest value added by the company is 31.01019, while the minimum value of MVA is 22.00698 which means that the lowest value added by the company is 22.00698. The standard deviation of value added generated by company is 1.912799.

2. Price to Book Value (PBV)

Based on the results in Table 4.1 above it is known that PBV obtained an average of 3.081497. This means that the average market price is 3.081497 compared to the book value of the company. Median of market price to book value amounted to 2.169700. The maximum value is 13.87975 which means that the highest market value obtained by the company is 13.87975 compared to book value, while the minimum value of PBV is 1.014617 which means that the lowest market value obtained by the company is 1.014617 times compared to book value. The standard deviation of market price to book value of company is 2.492315.

3. Return on Equity (ROE)

Based on the results in Table 4.1 above, it is known that ROE obtained an average of 0.174136. It is means that the company is able to obtain net income 0.174136 of the equity value of the company in one period. The median on ROE is 0.153322. The maximum value is 0.504659 which means

that the maximum net income value obtained by the company is 0.504659 of the equity value of company, while the minimum ROE value is 0.011689 which means that the lowest net income obtained by the company is 0.011689 of the equity value of company. Standard deviation of ROE is 0.106597.

4. Stock Return

Based on the results in Table 4.1 above it is known that stock returns obtain an average of 0.266676. This means that the company is able to increase the share value by 0.266676 from the market close price in one period. The median of the stock return is 0.152510. The maximum value is 2.253012 which means that the maximum stock return value obtained by the company is 2.253012 of the market close price, while the minimum value of stock return is -0.589474 which means that the lowest stock return obtained by the company is -0.589474 of the market close price. The standard deviation of stock return is 0.513283.

## 4.1.2 Classical Assumption

## 4.1.2.1 Multicollinearity Test

Williams et al. (2013) stated that multicollinearity can affect the estimation of coefficients to become unstable for individual predictor, which is the standard errors and confidence interval for coefficient estimates will be inflated. Multicollinearity test can be performed when the variables has more than one independent variable in the regression model. The result of multicollinearity test can be seen in table 4.2:

**Table 4.2**

**Result of Multicollinearity Test**

| Variable | Coefficient | Uncentered VIF | Centered VIF |
|----------|-------------|----------------|--------------|
| C | 1.449474 | 294.3566 | NA |
| MVA | 0.001886 | 315.0124 | 1.369341 |
| PBV | 0.001258 | 3.978013 | 1.551345 |
| ROE | 0.514418 | 4.327880 | 1.160076 |

Based on table 4.2 the VIF value in MVA variable is 1.369341, PBV variable is 1.551345, and ROE variable is 1.160076. From these results can be concluded that the VIF value for every independent variable in this research is below 10, thus the model proposed in this research does not occur multicollinearity error so the data is feasible to use.

### 4.1.2.2 Heteroscedasticity Test

Based on Baltagi (2005) the present of heteroscedasticity can result consistent regression coefficient estimates but these estimate will be inefficient. Heteroscedasticity can cause disturbance to the regression, where the residual from model of regression do not have constant variant values. The existence of heteroscedasticity error may cause the F-Test to be useless. The result of heteroscedasticity test can be seen in table 4.3 below:

**Table 4.3**

**Result of Heteroscedasticity Test**

| Heteroskedasticity Test: Harvey | | | |
|---|---|---|---|
| F-statistic | 1.107572 | Prob. F(3,40) | 0.3573 |
| Obs*R-squared | 3.374662 | Prob. Chi-Square(3) | 0.3374 |
| Scaled explained SS | 2.878353 | Prob. Chi-Square(3) | 0.4108 |

Based on table 4.3 above, the p-value for heteroscedasticity test is 0.3573 when significance level is 0.05 (5%). It can be concluded that the probability value 0.3573 > 0.05 thus the model proposed in this research does not occur heteroscedasticity error.

### 4.1.3 Selection of Estimation Models

The three types of panel data regression models (common effect, fixed effect, and random effect) can be used based on the research circumstances. All of these models can be used, but there are ways to determine which regression model is most appropriate to use. Based on these three models that can be used to estimate panel data, the regression model with best resulted will be used in analyzing. So in this study to determine the best model that will be used to analyze whether the model of common effect, fixed effect, or model random effect, then tested first using Chow test and Hausman test.

**4.1.3.1 Chow Test**

Based on Baltagi (2005) chow test is a test whether the state of dummy coefficients are equal. Chow test as determiner the model will give result which model is more appropriate to be used in this research between common effect and fixed effect.

$H_0$ : Common Effect

$H_a$ : Fixed Effect

If the chi-square probability result is less than 5% then $H_0$ is rejected. The result of this study can be seen as follows:

**Table 4.4**

**Result of Chow Test**

| Test cross-section fixed effects | | | |
|---|---|---|---|
| Effects Test | Statistic | d.f. | Prob. |
| Cross-section F | 1.180081 | (9,31) | 0.3415 |
| Cross-section Chi-square | 12.962892 | 9 | 0.1643 |

The p-value of chow test is 0.3415 where the significance level is 0.05. It means that p-value > α, the use of common effect model is more appropriate to use in this study. Because this study has determined the model for this study, the Hausman test is not needed. Hausman test used when result of hypothesis test is p-value < α, and the function for Hausman test is to determine the appropriate method between random effect model and fixed effect model.

**4.1.4 Hypothesis test**

The analysis model used in this study is multiple linear regression tests and this study used quantitative analysis to determine the magnitude of the independent variable influence on the dependent variable. With multiple linear regression tests, the writer can see the influence between variable.

**4.1.4.1 Regression Equation of Panel Data**

In this study the writer use Eviews 8 for multiple linear regression analysis. The purpose of multiple linear regression analysis is to find out the functional and casual relationship between two variables or more independent variables to one dependent variable. The independent variable in this study is MVA, PBV and ROE where the dependent variable is Stock Return.

**Table 4.5**

**Result of Multiple Regression Analysis**

| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
|---|---|---|---|---|
| C | -1.446979 | 1.203941 | -1.201868 | 0.2365 |
| LOG(MVA) | 0.049469 | 0.043426 | 1.139165 | 0.2614 |
| PBV | -0.037398 | 0.035474 | -1.054240 | 0.2981 |
| ROE | 2.372808 | 0.717230 | 3.308295 | 0.0020 |
| R-squared | 0.234989 | Mean dependent var | | 0.266676 |
| Adjusted R-squared | 0.177613 | S.D. dependent var | | 0.513283 |
| S.E. of regression | 0.465473 | Akaike info criterion | | 1.394983 |
| Sum squared resid | 8.666610 | Schwarz criterion | | 1.557182 |
| Log likelihood | -26.68963 | Hannan-Quinn criter. | | 1.455135 |
| F-statistic | 4.095603 | Durbin-Watson stat | | 2.011587 |

| Prob(F-statistic) | 0.012599 |
| --- | --- |

From the estimation above, the panel data analysis model is made on the analysis of the effect of MVA, PBV and ROE to Stock Return obtained the following results:

$$R = -1.447 + 0.049\ Ln(MVA) - 0.037\ PBV + 2.372\ ROE$$

Based on equation above, can be explained the influence of each independent variable to dependent variable as follows:

1. The constant value is -1.447 means that when all the independent variables, which is MVA, PBV, and ROE, in constant position and have 0 value, the stock return variable value is -1.447.

2. The regression coefficient of MVA has positive relationship 0.049 to stock return. Means that every change in 1 ratio, the stock return will increase 0.049. All other factors are considered constant. The regression coefficient has positive relationship and the significant value is 0.2614 > 0.05 means that the effect of MVA variable to Stock Return Variable is positive and insignificant.

3. The regression coefficient of PBV has negative relationship -0.037 to stock return. Means that every change in 1 ratio, the stock return will decline -0.037. All other factors are considered constant. The regression coefficient has negative relationship and the significant value is 0.298 > 0.05 means that the effect of PBV variable to Sock Return variable is negative and insignificant.

4. The regression coefficient of ROE has positive relationship 2.372 to stock return. Means that every change in 1 ratio, the stock return will increase 2.372. All other factors are considered constant. The regression coefficient has positive

relationship and the significant value is $0.002 < 0.05$ means that the effect of ROE variable to Sock Return variable is positive and significant.

**4.1.4.2 Simultaneous Test**

The results of multiple linier regressions in table 4.5 determine the F-test value of probability value is 0.012 where the significant value in this study is 0.05. This shows that F-test probability $0.012 < 0.05$. From this result the writer can concluded that MVA, PBV, and ROE variable has significant effect simultaneously.

**4.1.4.3 Coefficient of Determination**

Table 4.5 shows that R-squared value is 0.234989 means that MVA, PBV, and ROE variable affect Stock Return variable simultaneously and give affect of contribution 23.49%, where the other 76.51% affected by other variable that not included in this study.

**4.2 Discussion**

**4.2.1 Effect of Market Value Added to Stock Return**

MVA has insignificant effect to stock return means that the increase and decrease in MVA of corporate do not affect stock return. MVA partially has no effect on return received by shareholders. This result indicates that MVA is not reliable to predict stock return.

Willem et al. (2014) stated that Market Value Added (MVA) is the difference between equity market value of a company in certain period with equity that supplied by investors. In other word, MVA is a sum up of total value of companies that appreciated with the amount of money that invested to the company by shareholders.

MVA is one of approach that relative new and used by investors to evaluate the company performance. Based on the result of research that has been done by Nakhaei (2016); and Kumar et al. (2017); it is shows that MVA has a significant effect on stock return. This is due to the added value to company with the increasing of stock price so that the stock return will be increased. However, this is not in line with the research of Willem et al. (2014); and Sharma et al. (2010) stated that MVA has insignificant effect to stock return. Based on analysis MVA have insignificant positive effect toward stock return.

The result of this research is in line with study conducted by williem et al. (2014) and Sharma et al. (2010) says that the MVA give insignificant effect to stock return.

**4.2.2 Effect of Price to Book Value to Stock Return**

PBV has insignificant effect to stock return means that the increase and decrease of PBV value do not affect stock return. PBV is not an effective measurement to affect stock return. Thus, the result indicates that PBV is not reliable to predict stock return.

Investor can discover the value of companies by comparing the market price to its book value (Wijesundera et al., 2015). PBV is a ratio used by investor to value a company with measuring market price performance toward its book value. In other word, PBV is a ratio investment valuation that widely used by investor to compare between stock market price with book value. Based on the result of research that has been done by Shittu et al. (2016) and Wijesundera et al. (2015) are PBV has significant effect toward stock return. Based on studied, PBV has positive signal for investors because they can predict the expected return. The different result is concluded from

other researcher such as Feng et al. (2015) and Mohanty (2002) stated that PBV has insignificant effect toward stock return.

This is in line with study conducted by Feng et al. (2015) and Mohanty (2002) says that the PBV give insignificant effect to stock return.

### 4.2.3 Effect of Return on Equity to Stock Return

ROE has significant positive effect to stock return means that the increase and decrease of ROE value give impact to stock return. An increase in the value of ROE will make the market react positively because the market tends to interpret that the increase in ROE is considered to be an increase of company performance when utilize the company equity. Likewise when there is a decrease in the value of ROE is considered a bad signal against company performance.

From previous research of Return on Equity (ROE), Reddy et al. (2014) and Har et al. (2015) said that ROE has significant effect to stock return. Based on analysis ROE has significant effect because companies with good ROE give good performance and can increase their profitability. A company that has high profit will attracted the investor to invest in the company. Based on the resulted of ROE research from other researcher got different resulted. This is not in line with the research of Nasery (2017) and Anwaar (2016) said that ROE has insignificant effect to stock return. This is due to ROE not effective to measure the profitability that will be gained by investors in expected stock return.

This is in line with study conducted by Reddy et al. (2014) and Har et al. (2015) says that the ROE give significant to stock return.

**Table 4.6**

**Recapitulation Table**

| Variable | Result of Analysis | Conclusion |
|---|---|---|
| MVA | $H_0$ is Accepted | MVA has insignificant positive effect on Stock Return |
| PBV | $H_0$ is Accepted | PBV has insignificant negative effect on Stock Return |
| ROE | $H_0$ is Rejected | ROE has significant positive effect on Stock Return |
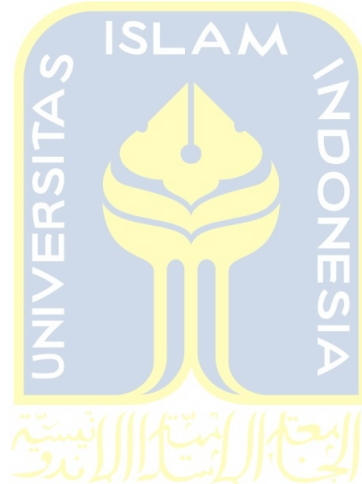
# CHAPTER V

## CONCLUSION AND RECOMMENDATION

### 5.1 Conclusion

Based on the data analysis and discussion conducted, it can be concluded as follows:

1. The test results of MVA indicate that MVA does not have significant effect on Stock Returns. It is indicate that this concept of measurement, MVA is not good to predict stock return. Even though MVA is a tool for measurement of added value of companies, but it is not reliable to predict stock return.

2. The test results of PBV indicate that PBV does not have significant effect on Stock Returns. It is indicate that PBV used as measurement of investor expectation toward companies is not an effective measurement to affect stock return. The expectations of investors toward companies do not affect the stock return.

3. The test results of ROE indicate that ROE does have significant positive effect on Stock Returns. An increase in the value of ROE will make the market react positively because the market tends to interpret that the increase in ROE is considered to be an increase of company performance when utilize the company equity. Likewise when there is a decrease in the value of ROE is considered a bad signal against company performance.

4. The test result of simultaneous test (F-Test) indicate that MVA, PBV, and ROE variable does affect Stock Returns simultaneously. This result indicate that even

though MVA and PBV does not have significant effect toward stock return, these independent variables can be used for predict the stock return when used simultaneously.

**5.2 Recommendation**

Based on the results of the analysis and conclusions, the suggestions that can be given in this study are as follows:

1. For investors or prospective investors should not exclude the ratio of MVA and PBV although in this study did not have a significant influence but also one of the important ratios that can be used to assess stock returns as in other studies.

2. We recommend that to pay more attention to the company's financial criteria as reflected in the financial statements and financial ratios and also need to pay more attention to the condition of stock price movements and environmental factors that might have a significant influence on stock returns.

3. Adding more sample to gain more accurate result. Such as adding samples of all property and real estate industry that listed in Indonesia stock exchange by extending the study period to the most recent year.

4. Adding more variable that can affect stock return such as: current ratio, debt ratio, etc.

# REFERENCES

Anwaar, M., 2016, *Impact of Firms Performance on Stock Returns Evidence from Listed Companies of FTSE-100 Index London, UK)*, Global Journal of Management and Business Research, vol. 16, pp31-39.

Baltagi, B. H., 2005, *Econometric Analysis of Panel Data*, John Wiley & Sons Ltd. England: West Sussex.

Bickel, P. J., and Lehman, E. L., 1975, *Descriptive Statistic for Nonparametic Models*, The Annals of Statistics, vol. 3, pp 465-471

Brealey, R. A., Myers, S. C., and Marcus, A. J., 2015, *Fundamental of Corporate Finance: Eighth Edition*, International Edition. New York: Penn Plaza.

Brigham, E.F., Gapenski, L.C., and Ehmart, M.C., 1999, *Financial Management Theory and Practice*, Orlando: The Dryden Press.

Bursa Efek Indonesia.(n.d.).Retrieved from http;//web.idx.id/

Feng, W., Payne B. C., and Sheng, S. Y., 2015, *An Investigation on Institutional Holdings of Firms During The 2008 Financial Crisis*. American Journal of Business Research, vol. 8, pp 75-84.

Har, W.P., Afif, M., and Ghafar, A., 2015,*The Impact of Accounting Earnings on Stock Returns: The Case of Malaysia's Plantation Industry,*International Journal of Business and Management, vol. 10, pp 155-165.

Kumar, K.K., and Subramanyam, D. A. R., 2017, *Shareholders Value Analysis: EVA & MVA in Relation to Stock Market Returns with Reference to The Indian Cement Industry*, International Journal of Research in Economics and Social Sciences, vol. 7, pp 165-172.

Levisaukaite, K., 2010, *Investment Analysis and Portfolio Management*, Kaunas: Vytautas Magnus University.

Majid, M.S.A., and Benazir., 2017, *An Indirect of the Price to Book Value to the Stock Returns: An Empirical Evidence from the Property Companies in Indonesia*, Accounting and Finance Journal, vol. 17, pp 91-96.

Mohanty, P., 2002, *Evidence of Size Effect on Stock Returns in India*, Vikalpa, vol. 27, pp 27-37

Nakhaei, Habibollah., 2016, *Market Value Added and Traditional Accounting Criteria: Which Measure is a Best Predictor of Stock Return in Malaysian Companies*, Iranian Journal of Management Studies, vol. 9, pp 433-455.

Nasery, Saeedeh.,2017, *Estimating the Effect to Financial and Non-Financial Factors on Stock Returns of Companies Listed on Tehran Stock Exchange*, Journal of Engineering and Ahallied Sciences, vol. 6, pp1-14.

Petcharabul, P., and Romprasert, S., 2014, *Technology Industry on Financial Ratios and Stock Returns*, Journal of Business and Economics, vol. 5, pp739-746.

Reddy, K., and Fu, M., 2014, *Does Shariah Compliant Stocks Perform Better than the Conventional Stocks? A Comparative Study of Stocks Listed on the Australian Stock Exchange*, Asian Journal of Finance and Accounting, vol. 6, pp 155-170.

Sharpe, William., 1999, *Investment*, Sixth Edition. New Jersey: Prentice Hall.

Shittu, I., Ahmad, A.C., and Ishak, Z., 2016, *Equity Valuation Multiples and Stock Returns: Evidence from Malaysian Listed Firms*, International Conference on Accounting Studies, pp 249-253.

Subramanyam, K. R., 2014, *Financial Statement Analysis: Eleventh Edition*, International Edition. New York: Penn Plaza.

Virlics, A., 2013, *Investment Decision Making and Risk*, International Conference of Sibiu, pp 169-177.

Wahla, K. U. R., Shah, S. Z. A., and Hussain, Z., 2012, *Impact of Ownership Structure on Firm Performance Evidence from Non-Financial Listed Companies at Karachi Stock Exchange*, International Research Journal of Finance and Economics, pp 6-13.

Wijesundera, A.A.V.I., Weerasinghe, D.A.S., Krishna, T.P.C.R., Gunawardena, M.M.D., and Peiris, H.R.I., 2015, *Predictability of Stock Returns Using Financial Ratios: Empirical Evidence from Colombo Stock Exchange*, Journal of Management, vol. 4, pp 44-55.

Willem, M.F., Saerang, D.P.E., and Tumewu, F., 2014, *Prediction Of Stock Return On Banking Industry at The Indonesia Stock Exchange By Using MVA dan EVA Concepts*, Journal EMBA, vol. 2, pp 543-549.

Williams, M. N., Grajales, C. A. G., and Kurkiewicz, D., 2013, *Assumptions of Multiple Regression: Correcting Two Misconceptions*, Practical Assessment, Research & Evaluation Journal, vol. 18, pp 1-14.

Wooldridge, J. M., 2002, *Econometric Analysis of Cross Section Panel Data*, The MIT Press. Massachusetts: Cambridge.

Yahoo Finance.(n.d.). Retrieved from http://finance.yahoo.com/

**APPENDICES**

Appendix 1

**Listed of Property and real estate Companies Listed in Indonesia Stock Exchange**

| Num | Ticker | Listed Companies |
|-----|--------|------------------|
| 1 | BSDE | Bumi Serpong Damai Tbk |
| 2 | CTRA | Ciputra Development Tbk |
| 3 | DUTI | Duta Pertiwi Tbk |
| 4 | GMTD | Gowa Makassar Tourism Development Tbk |
| 5 | LPCK | Lippo Cikarang Tbk |
| 6 | MKPI | Metropolitan Kentjana Tbk |
| 7 | PLIN | Plaza Indonesia Realty Tbk |
| 8 | RDTX | Roda Vivatex Tbk |
| 9 | SCBD | Danayasa Arthatama Tbk |
| 10 | SMRA | Summarecon Agung Tbk |

## Appendix 2

### Result of MVA Calculations

| No | Ticker | MVA | | | | |
|---|---|---|---|---|---|---|
| | | 2013 | 2014 | 2015 | 2016 | 2017 |
| 1 | BSDE | Rp 28,702,409,802,833 | Rp 44,285,595,530,958 | Rp 44,168,681,800,843 | Rp 46,988,989,534,339 | Rp 49,029,773,615,238 |
| 2 | CTRA | Rp 15,023,677,024,593 | Rp 22,350,513,256,862 | Rp 26,126,643,096,147 | Rp 23,703,130,778,700 | Rp 29,308,318,525,445 |
| 3 | DUTI | Rp 12,525,245,559,655 | Rp 13,579,628,931,777 | Rp 16,903,166,767,123 | Rp 17,141,285,060,811 | Rp 16,379,966,353,256 |
| 4 | GMTD | Rp 1,163,672,490,573 | Rp 1,058,817,625,668 | Rp 1,280,792,291,467 | Rp 1,344,447,918,486 | Rp 1,666,986,209,129 |
| 5 | LPCK | Rp 5,212,086,078,988 | Rp 9,901,609,387,885 | Rp 8,641,243,436,363 | Rp 7,686,809,123,358 | Rp 9,631,304,000,000 |
| 6 | MKPI | Rp 10,669,630,990,562 | Rp 16,331,975,974,982 | Rp 18,415,429,045,515 | Rp 27,574,007,614,305 | Rp 38,449,494,702,645 |
| 7 | PLIN | Rp 7,848,444,528,000 | Rp 14,402,618,898,000 | Rp 15,320,049,703,000 | Rp 18,101,684,613,000 | Rp 10,859,153,496,000 |
| 8 | RDTX | Rp 2,298,127,889,970 | Rp 2,762,974,500,027 | Rp 3,202,364,948,731 | Rp 4,516,463,127,984 | Rp 3,667,761,766,461 |
| 9 | SCBD | Rp 12,203,340,981,000 | Rp 9,522,600,262,000 | Rp 8,630,104,243,000 | Rp 8,646,718,688,000 | Rp 12,293,227,188,000 |
| 10 | SMRA | Rp 13,182,476,700,400 | Rp 24,726,871,668,600 | Rp 26,095,556,378,000 | Rp 17,931,802,302,000 | Rp 12,159,501,275,600 |

## Appendix 3

### Result of PBV Calculations

| No | Ticker | PBV | | | | |
|---|---|---|---|---|---|---|
| | | 2013 | 2014 | 2015 | 2016 | 2017 |
| 1 | BSDE | 2.20761 | 2.15587 | 1.75439 | 1.64125 | 1.29114 |
| 2 | CTRA | 1.78355 | 2.5569 | 2.66327 | 2.24384 | 1.64408 |
| 3 | DUTI | 1.92867 | 1.84938 | 2.18352 | 1.80886 | 1.49957 |
| 4 | GMTD | 2.6262 | 1.40949 | 1.37397 | 1.10478 | 1.46788 |
| 5 | LPCK | 1.86522 | 2.71792 | 1.40352 | 0.84247 | 0.28583 |
| 6 | MKPI | 4.69499 | 6.71111 | 5.65579 | 6.57262 | 7.60387 |
| 7 | PLIN | 3.21924 | 5.73505 | 6.03569 | 7.75774 | 13.8798 |
| 8 | RDTX | 1.14806 | 1.04396 | 1.01462 | 1.47009 | 0.78483 |
| 9 | SCBD | 2.64643 | 1.94459 | 1.60987 | 1.54315 | 2.4859 |
| 10 | SMRA | 2.53966 | 3.98931 | 3.95891 | 3.06193 | 2.09424 |

Appendix 4

Result of ROE Calculations

| No | Ticker | ROE | | | | |
|---|---|---|---|---|---|---|
| | | 2013 | 2014 | 2015 | 2016 | 2017 |
| 1 | BSDE | 26.32% | 24.84% | 11.35% | 8.73% | 19.42% |
| 2 | CTRA | 15.32% | 17.87% | 15.27% | 9.39% | 6.69% |
| 3 | DUTI | 15.35% | 11.99% | 9.86% | 11.47% | 8.04% |
| 4 | GMTD | 28.68% | 27.70% | 21.45% | 13.61% | 9.69% |
| 5 | LPCK | 32.47% | 31.70% | 25.33% | 12.94% | 4.80% |
| 6 | MKPI | 19.05% | 20.24% | 31.45% | 32.29% | 26.23% |
| 7 | PLIN | 1.92% | 15.29% | 11.57% | 32.15% | 30.07% |
| 8 | RDTX | 17.28% | 17.21% | 16.27% | 14.22% | 12.02% |
| 9 | SCBD | 50.47% | 1.17% | 2.45% | 1.34% | 1.61% |
| 10 | SMRA | 24.87% | 25.44% | 14.22% | 4.99% | 5.56% |

Appendix 5

Result of Stock Return Calculations

| No | Ticker | Stock Return | | | | |
|---|---|---|---|---|---|---|
| | | 2013 | 2014 | 2015 | 2016 | 2017 |
| 1 | BSDE | 16.22% | 39.92% | -0.28% | -2.50% | -3.13% |
| 2 | CTRA | -6.25% | 66.67% | 16.80% | -8.56% | -11.24% |
| 3 | DUTI | 46.72% | 9.05% | 31.15% | -6.25% | -10.00% |
| 4 | GMTD | 1157.58% | -26.51% | 22.95% | -7.33% | 46.40% |
| 5 | LPCK | 51.16% | 113.33% | -30.29% | -30.34% | -37.82% |
| 6 | MKPI | 143.59% | 61.05% | 10.29% | 52.59% | 41.75% |
| 7 | PLIN | 18.52% | 95.31% | 6.67% | 21.25% | -26.80% |
| 8 | RDTX | 40.00% | 7.14% | 14.29% | 66.67% | -40.00% |
| 9 | SCBD | 225.30% | -25.93% | -15.25% | -2.65% | 63.64% |
| 10 | SMRA | -58.95% | 94.87% | 8.55% | -19.70% | -28.68% |

## Appendix 6

### Descriptive Statistics

| Variable | STOCK_RETURN | LOG_MVA | PBV | ROE |
|---|---|---|---|---|
| Mean | 0.266676 | 28.61800 | 3.081497 | 0.174136 |
| Median | 0.152510 | 29.23474 | 2.169700 | 0.153322 |
| Maximum | 2.253012 | 31.01019 | 13.87975 | 0.504659 |
| Minimum | -0.589474 | 22.00698 | 1.014617 | 0.011689 |
| Std. Dev. | 0.513283 | 1.912799 | 2.492315 | 0.106597 |
| Skewness | 1.601224 | -1.664248 | 2.314084 | 0.615049 |
| Kurtosis | 6.723046 | 5.444756 | 9.337064 | 3.424808 |
| | | | | |
| Jarque-Bera | 44.21404 | 31.26882 | 112.8936 | 3.104941 |
| Probability | 0.000000 | 0.000000 | 0.000000 | 0.211724 |
| | | | | |
| Sum | 11.73374 | 1259.192 | 135.5859 | 7.661994 |
| Sum Sq. Dev. | 11.32873 | 157.3284 | 267.1003 | 0.488607 |
| | | | | |
| Observations | 44 | 44 | 44 | 44 |

Appendix 7

Multicolinearity Test

| | | Coefficient | Uncentered | Centered |
|---|---|---|---|---|
| | | | | |

Variance Inflation Factors

Date: 02/12/19   Time: 15:48

Sample: 1 49

Included observations: 44

| Variable | Coefficient Variance | Uncentered VIF | Centered VIF |
|---|---|---|---|
| LOG(MVA) | 0.001886 | 315.0124 | 1.369341 |
| PBV | 0.001258 | 3.978013 | 1.551345 |
| ROE | 0.514418 | 4.327880 | 1.160076 |
| C | 1.449474 | 294.3566 | NA |

Appendix 8

Heteroscedasticity Test

Heteroskedasticity Test: Harvey

| F-statistic | 1.107572 | Prob. F(3,40) | 0.3573 |
|---|---|---|---|
| Obs*R-squared | 3.374662 | Prob. Chi-Square(3) | 0.3374 |
| Scaled explained SS | 2.878353 | Prob. Chi-Square(3) | 0.4108 |

Test Equation:

Dependent Variable: LRESID2

Method: Least Squares

Date: 02/12/19   Time: 15:53

Sample: 1 48

Included observations: 44

| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
|---|---|---|---|---|
| C | -5.769081 | 5.347747 | -1.078787 | 0.2871 |
| LOG(MVA) | 0.077640 | 0.192891 | 0.402509 | 0.6895 |
| PBV | -0.147776 | 0.157571 | -0.937834 | 0.3540 |
| ROE | 5.689559 | 3.185839 | 1.785890 | 0.0817 |

| | | | | |
|---|---|---|---|---|
| R-squared | 0.076697 | Mean dependent var | | -3.011778 |
| Adjusted R-squared | 0.007449 | S.D. dependent var | | 2.075314 |
| S.E. of regression | 2.067570 | Akaike info criterion | | 4.377133 |
| Sum squared resid | 170.9938 | Schwarz criterion | | 4.539332 |
| Log likelihood | -92.29693 | Hannan-Quinn criter. | | 4.437284 |
| F-statistic | 1.107572 | Durbin-Watson stat | | 1.973302 |
| Prob(F-statistic) | 0.357344 | | | |

Appendix 9

Chow Test

Redundant Fixed Effects Tests

Equation: REGRESI

Test cross-section fixed effects

| Effects Test | Statistic | d.f. | Prob. |
|---|---|---|---|
| Cross-section F | 1.180081 | (9,31) | 0.3415 |
| Cross-section Chi-square | 12.962892 | 9 | 0.1643 |

Cross-section fixed effects test equation:

Dependent Variable: STOCK_RETURN

Method: Panel Least Squares

Date: 02/12/19   Time: 15:58

Sample: 2013 2017

Periods included: 5

Cross-sections included: 10

Total panel (unbalanced) observations: 44

| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
|---|---|---|---|---|
| LOG(MVA) | 0.049469 | 0.043426 | 1.139165 | 0.2614 |
| PBV | -0.037398 | 0.035474 | -1.054240 | 0.2981 |
| ROE | 2.372808 | 0.717230 | 3.308295 | 0.0020 |
| C | -1.446979 | 1.203941 | -1.201868 | 0.2365 |

| R-squared | 0.234989 | Mean dependent var | 0.266676 |
|---|---|---|---|
| Adjusted R-squared | 0.177613 | S.D. dependent var | 0.513283 |
| S.E. of regression | 0.465473 | Akaike info criterion | 1.394983 |
| Sum squared resid | 8.666610 | Schwarz criterion | 1.557182 |

| | | | |
|---|---|---|---|
| Log likelihood | -26.68963 | Hannan-Quinn criter. | 1.455135 |
| F-statistic | 4.095603 | Durbin-Watson stat | 2.011587 |
| Prob(F-statistic) | 0.012599 | | |

Appendix 10

Hausman Test

Correlated Random Effects - Hausman Test
Equation: REGRESI
Test cross-section random effects

| Test Summary | Chi-Sq. Statistic | Chi-Sq. d.f. | Prob. |
|---|---|---|---|
| Cross-section random | 5.028589 | 3 | 0.1697 |

** WARNING: estimated cross-section random effects variance is zero.

Cross-section random effects test comparisons:

| Variable | Fixed | Random | Var(Diff.) | Prob. |
|---|---|---|---|---|
| LOG(MVA) | 0.186363 | 0.049469 | 0.007586 | 0.1160 |
| PBV | -0.117365 | -0.037398 | 0.002372 | 0.1006 |
| ROE | 2.725548 | 2.372808 | 0.225777 | 0.4579 |

Cross-section random effects test equation:
Dependent Variable: STOCK_RETURN
Method: Panel Least Squares
Date: 03/11/19   Time: 09:47
Sample: 2013 2017
Periods included: 5

Cross-sections included: 10

Total panel (unbalanced) observations: 44

| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
|---|---|---|---|---|
| C | -5.179610 | 2.722898 | -1.902241 | 0.0665 |
| LOG(MVA) | 0.186363 | 0.096945 | 1.922363 | 0.0638 |
| PBV | -0.117365 | 0.059842 | -1.961256 | 0.0589 |
| ROE | 2.725548 | 0.848624 | 3.211724 | 0.0031 |

Effects Specification

Cross-section fixed (dummy variables)

| | | | |
|---|---|---|---|
| R-squared | 0.430203 | Mean dependent var | 0.266676 |
| Adjusted R-squared | 0.209637 | S.D. dependent var | 0.513283 |
| S.E. of regression | 0.456320 | Akaike info criterion | 1.509463 |
| Sum squared resid | 6.455074 | Schwarz criterion | 2.036610 |
| Log likelihood | -20.20819 | Hannan-Quinn criter. | 1.704955 |
| F-statistic | 1.950448 | Durbin-Watson stat | 2.196158 |
| Prob(F-statistic) | 0.066593 | | |

## Appendix 11

## Common Effect Model

| Dependent Variable: STOCK_RETURN |
| :--- |
| Method: Panel Least Squares |
| Date: 03/11/19   Time: 09:50 |
| Sample: 2013 2017 |
| Periods included: 5 |
| Cross-sections included: 10 |
| Total panel (unbalanced) observations: 44 |

| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
| :---: | :---: | :---: | :---: | :---: |
| C | -1.446979 | 1.203941 | -1.201868 | 0.2365 |
| LOG(MVA) | 0.049469 | 0.043426 | 1.139165 | 0.2614 |
| PBV | -0.037398 | 0.035474 | -1.054240 | 0.2981 |
| ROE | 2.372808 | 0.717230 | 3.308295 | 0.0020 |

| | | | |
| :--- | :--- | :--- | :--- |
| R-squared | 0.234989 | Mean dependent var | 0.266676 |
| Adjusted R-squared | 0.177613 | S.D. dependent var | 0.513283 |
| S.E. of regression | 0.465473 | Akaike info criterion | 1.394983 |
| Sum squared resid | 8.666610 | Schwarz criterion | 1.557182 |
| Log likelihood | -26.68963 | Hannan-Quinn criter. | 1.455135 |
| F-statistic | 4.095603 | Durbin-Watson stat | 2.011587 |
| Prob(F-statistic) | 0.012599 | | |

Appendix 12

Fixed Effect Model

| Dependent Variable: STOCK_RETURN | | | | |
|---|---|---|---|---|
| Method: Panel Least Squares | | | | |
| Date: 03/11/19   Time: 09:53 | | | | |
| Sample: 2013 2017 | | | | |
| Periods included: 5 | | | | |
| Cross-sections included: 10 | | | | |
| Total panel (unbalanced) observations: 44 | | | | |
| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
| C | -5.179610 | 2.722898 | -1.902241 | 0.0665 |
| LOG(MVA) | 0.186363 | 0.096945 | 1.922363 | 0.0638 |
| PBV | -0.117365 | 0.059842 | -1.961256 | 0.0589 |
| ROE | 2.725548 | 0.848624 | 3.211724 | 0.0031 |
| Effects Specification | | | | |
| Cross-section fixed (dummy variables) | | | | |
| R-squared | 0.430203 | Mean dependent var | | 0.266676 |
| Adjusted R-squared | 0.209637 | S.D. dependent var | | 0.513283 |
| S.E. of regression | 0.456320 | Akaike info criterion | | 1.509463 |
| Sum squared resid | 6.455074 | Schwarz criterion | | 2.036610 |
| Log likelihood | -20.20819 | Hannan-Quinn criter. | | 1.704955 |
| F-statistic | 1.950448 | Durbin-Watson stat | | 2.196158 |
| Prob(F-statistic) | 0.066593 | | | |

Appendix 13

Random Effect Model

| Dependent Variable: STOCK_RETURN |
|---|

Method: Panel EGLS (Cross-section random effects)

Date: 03/11/19   Time: 09:54

Sample: 2013 2017

Periods included: 5

Cross-sections included: 10

Total panel (unbalanced) observations: 44

Swamy and Arora estimator of component variances

| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
|---|---|---|---|---|
| C | -1.446979 | 1.180267 | -1.225975 | 0.2274 |
| LOG(MVA) | 0.049469 | 0.042572 | 1.162015 | 0.2521 |
| PBV | -0.037398 | 0.034777 | -1.075386 | 0.2886 |
| ROE | 2.372808 | 0.703126 | 3.374653 | 0.0017 |

| Effects Specification | | | | |
|---|---|---|---|---|
| | | | S.D. | Rho |
| Cross-section random | | | 0.000000 | 0.0000 |
| Idiosyncratic random | | | 0.456320 | 1.0000 |

| Weighted Statistics | | | | |
|---|---|---|---|---|
| R-squared | 0.234989 | Mean dependent var | | 0.266676 |
| Adjusted R-squared | 0.177613 | S.D. dependent var | | 0.513283 |
| S.E. of regression | 0.465473 | Sum squared resid | | 8.666610 |
| F-statistic | 4.095603 | Durbin-Watson stat | | 2.011587 |
| Prob(F-statistic) | 0.012599 | | | |

| Unweighted Statistics | | | | |
|---|---|---|---|---|
| R-squared | 0.234989 | Mean dependent var | | 0.266676 |
| Sum squared resid | 8.666610 | Durbin-Watson stat | | 2.011587 |