The Impact of Financial Leverage on Firm's Value and Stock Performance:
Evidence from the non-financial listed companies in Kompas100

THESIS

By:

Chitna - 16111008

Academic Supervisor:

Prof. Ir. H. M. Roy Sembel, MBA, Ph.D., CSA

Ardo R. Dwitanto, MSM, CFP, CFMA, CFMP

SEKOLAH TINGGI MANAJEMEN IPMI

JAKARTA

2020

The Impact of Financial Leverage on Firm's Value and Stock Performance: Evidence from the non-financial listed companies in Kompas 100

By:

Chitna (16111008)

A THESIS

Submitted in a partial fulfillment of the requirements for the degree of Bachelor of Management

CERTIFICATE OF APPROVAL

Name & Student ID :Chitna (16111008)

Topic :The Impact of Financial Leverage on Firm's Value and Stock Performance.

We hereby declare that this Thesis is from student's own work, has been read and presented to IPMI International Business School Board of Examiners, and has been accepted as part of the requirements needed to obtain a Bachelor of Business Administration Degree and has been found to be satisfactory.

Jakarta, 18th August 2020

Examined by,

Prof. Ir. H. M. Roy Sembel, MBA, Ph.D, CSA®

Mentor 1

Dr. Wiwiek M. Daryanto, SE-Ak, MM, CMA

Chairperson

Ardo R. Dwitanto, MSM

Mentor 2

Acknowledged by,

Yulita F Susanti, Ph.D

Director of Academic Affairs

NON-PLAGIARISM DECLARATION FORM

This Thesis is a presentation of our original research work. Wherever contribution of others is involved, every effort is made to indicate this clearly, with due reference to the literature, and acknowledgement of collaborative research and discussions

Also, this work is being submitted in partial fulfillment of the requirements for the Bachelor of Business Administration degree and has not previously been accepted in substance for any degree and is not being concurrently submitted in candidature for any degree.

Jakarta, 18th August 2020

Chitna

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

LIST OF EQUATION

ACKNOWLEDGEMENTS

First and foremost, I would like to acknowledge and express my sincerest gratitude to my academic advisor, Prof. Ir. Roy H. M. Sembel, MBA, Ph.D, CSA and my secondary academic advisor, Ardo R. Dwitanto, MSM, CFP, CFMA, CFMP for their time and patience as they guide me through the writing process of this thesis. Without their guidance and willingness to input their knowledge, this thesis would not have been possible.

Secondly, I would like to express my gratitude to my colleagues, to name a few; Adinda Thalia, Nadia Ingrida, and Quincy Lustamin, as well as my fellow classmates from batch 2016. Each and every one of my fellow classmates have contributed a great measure to my personal growth and perseverance. In addition, I would also like to thank all of my family members for the motivation and support to complete this thesis, and for all the encouragements in every aspect of my life.

Lastly, I would finally like to thank each one of the managements, faculty members, and staff of IPMI International Business School who have helped me through the 4-year process of studying at IPMI.

ABSTRACT

Firms require capital to operate their daily activities and achieve their objectives, which in most cases, the goal of the firm is maximize value. Firms can raise capital through debt or equity and the company will try to get a combination of debts and equities which will maximize the value of the firm. Previous studies have tried to uncover the positive or negative impact of Financial Leverage on Firm's Value and Stock Performance, so this research study fills the gap as this study aims to identify the possibility of a non-linear relationship between financial leverage and firm's value and stock performance based on the listed companies in Kompas100 as the evidence, during the observation period of 2014-2018. This study aims to prove that Leverage has a non-linear relationship with Firm's value and Stock Performance.

This study uses quantitative research and the data is derived from secondary data, that is the annual reports and financial statements of the listed companies. For the measurement of variables, this study uses Debt-Equity Ratio (Model 1) and Debt-Asset Ratio (Model 2) as an independent variable to measure Financial Leverage. Tobin's Q, Enterprise Value/EBITDA, and Earnings Yield are used to measure Firm's Value. Whereas, Stock Return, Stock Risk and Beta are used to measure Stock Performance. For the data analysis, this study uses Panel Data Regression, Multicollinearity test, the Individual Parameter Significance Testing (T-Test) and Simultaneous Significance Testing (F-Test).

Based on the results of this research, this study found that Debt Asset Ratio is the only variable that has a significant non-linear relationship with Tobin's Q (Firm's Value), during the period of 2014-2018. Hence, supporting the second hypothesis of this study and it aligns with the findings and assumptions of the Trade-off Theory. For recommendations, it is encouraged that future observations consider companies that pay based on final tax by adding a dummy variable when running the regression. It is also encouraged that further research to use different variables to measure Firm's value such as Economic Value Added or Market Value Added.

Keywords: Financial Leverage, Firms Value, Stock Performance, Non-linear Relationship

CHAPTER I

INTRODUCTION

1.1. Background of the study

Firms require funds to operate their daily activities, regardless of whether they are small scale firms or large-scale firms. According to Das (2018), the primary objective or goal of the firm is to maximize value of the firm, that is, shareholders wealth. While the goal of the firm may differ from different industries, firm size and businesses, the goal of maximizing value is still important for private companies as they share ownership with investors. To achieve this objective, firms require a source of funds to finance their activities, assets and overall investment in the future growth of the firm. Firms can raise capital through debt or equity and the company may issue a variety of debts in many proportions and try to get a combination of debts and equities which will maximize the value of the firm (Bhole & Makanud, 2004).

Raising capital through debt involves borrowing the required amount of funds and repaying it at a later date. Debt financing is beneficial as it allows businesses to leverage a small amount of money into a larger sum. However, debt financing requires the lenders to pay interest and the payments must be made regardless of the business revenue. Whereas, Equity financing involves raising capital through the sale of shares in a company. When the company's shares are sold, the shareholders receive ownership interests in the company. Equity financing is beneficial as no loan needs to be repaid. However, the ownership of the company may be diluted and the profits have to be shared. When companies employ a huge amount of debt, it might be able to drive the company into bankruptcy if they are unable to meet the obligation. (Ilman et al., 2009)

Financial leverage is referred to as the degree to which a firm utilizes borrowed money to achieve its objectives. (Gill & Mathur, 2011). Financial leverage is essentially viewed as the use of debt component in the capital structure, through the use of fixed income securities, such as loans and bonds. According to Taani (2012), financial leverage influences the company's ability to achieve its ultimate goal, such as maximizing the shareholder's wealth or reducing costs. Leverage is important to have as it ensures that the firm is not using too much equity to fund its operations, essentially balancing the capital structure. In other words, financial leverage is the extent to which a firm relies on debt. (Hillier et al., 2010). Firms will also need to consider the cost of capital, which is the amount of money required to obtain capital from different sources, to achieve the optimal capital structure.

The use of financial leverage varies greatly by the industry. Table 1.1. illustrates the level of DER employed by different non-financial companies that are consistently listed in the Kompas 100 index from 2014-2018. These companies are sorted based on the highest to the lowest amount of percentage change of DER from 2014 to 2018.

Furthermore, DER will differ depending on the industry because some industries tend to use more debt financing than others. Firms in the financial industry will have a higher DER as opposed to non-financial companies, simply because banks and other financial institutions borrow money to lend money, which can result in a higher level of debt. Firms in other industries tend to have a high DER as they would need to fund for large capital project investment and some of these industries include utilities, transportation, and energy.

Table 1.1. Top 10 Non-Financial Companies Listed in the Kompas 100 with High DER.

Kompas 100 Companies with High DER					
No	**Company Code**	**Industry**	**Debt to Equity Ratio**		**Percentage Change (%)**
			2014	**2018**	
1	SSMS	Agriculture	0.34	1.53	350%
2	BMTR	Trade, Service & Investment	0.6	1.05	75%
3	UNTR	Trade, Service & Investment	0.56	0.97	73%
4	BEST	Property & Construction	0.28	0.47	68%
5	SMGR	Chemical Industry	0.37	0.6	62%
6	JSMR	Infrastructure & Transportation	1.89	3.01	59%
7	TINS	Mining	0.74	1.15	55%
9	TLKM	Infrastructure & Transportation	0.64	0.93	45%
8	LSIP	Agriculture	0.2	0.28	40%
10	MEDC	Mining	1.94	2.64	36%

Source:Kontan.co.id[1]

The concept of capital structure garnered much attention after Modigliani and Miller (1958) demonstrated in their paper that the choice between debt and equity does not have any material effects on the value of the firm. A firm's value, or otherwise known as Firm Value is an economic concept that reflects the value of a business. The fair value of the business is determined for a variety of reasons, such as sale value, taxation, establishing partner ownership, etc. In other words, the value of the firm is the amount that one needs to pay to take over the business entity. According to Hermuningsih (2013), the value of the company is characterized by a higher rate of return on investment to shareholders. Similar to an asset, the value of a firm can be determined based on either book value or market value but it generally

[1] **https://www.kontan.co.id/indeks-kompas100**

refers to the market value of a company. Economic Value is a more comprehensive substitute for market capitalization.

Modigliani and Miller (1958) were the first ones to hit a landmark on the topic of capital structure. After their discovery, there were other findings following it, a study by Lubatkin and Chatterjee (1994) as well as many other supporting studies have proven the opposite, where their studies have found a relationship between capital structure and firm value. According to McConnell and Servaes (1995), leverage is value-enhancing for low-growth firms and value-destroying for high-growth firms. Therefore, the importance of leverage is important to note. However, the impact depends on the nature of the firm in terms of growth level. A study by Agrawal and Knoeber (1996) stated that there is a lack of relationship between leverage and firm value. Fama and French (1998) found that there was a negative relationship between debt and financial achievement and value. Myers (2002) argued that capital structure theories are conditional, not general and are at best dependent on firm, industry, and country-specific factors. A study by Robertson (2003) also states that there is no significant relationship between the two variables. Hovakimian and Tehranian (2004) researched on the topic and concluded that the importance of stock returns in studies of corporate financing choices was unrelated to target leverage. Other findings, such as from Aggarwal and Zhao (2007), states that there is a positive relationship between leverage and firm value but it disappears even for low-growth firms when the industry effect is controlled. Barakat (2014) strived to investigate the effect of financial structure, financial leverage, and profitability on the industrial company's value and in his study, he concluded that there is a statistically significant direct relationship between return on equity and capital structure and the stock market price.

Previous studies have been conducted to analyze the relationship between Financial Leverage and Firms Value and Stock Performance. However, there have been no studies that have used EV/EBITDA and Earnings yield as a dependent variable to measure the firm’s value. Furthermore, none of studies have used Kompas100 index as the evidence of their study to analyze the relationship between Financial Leverage and Firm’s value. In addition, previous studies have only assumed and predicted that Financial leverage has a positive/ negative relationship. Therefore, this research study fills the gap as this study aims to identify the possibility of a non-linear relationship between financial leverage and firm’s value and stock performance based on the listed companies in Kompas100 as the evidence, during the time frame of 2014-2018. Therefore, the title of this study is “The Impact of Financial Leverage on the Firm’s Value and Stock Performance: Evidence from the non-financial companies in Kompas100.

1.2. Problem Statement

Firms aim to achieve the optimal capital structure, which is said to be the objectively best mix of debt, preferred stock, and common stock that maximizes a company's market value while minimizing its cost of capital. Achieving this optimal capital structure is a question mark for all the firms in every industry and the failure to put considerations on capital structure might lead to low profitability, bankruptcy, failure to invest in high returns projects and ultimately a decrease in the value of the firm. Firms may also raise concerns for whether their increase in financial leverage (highly-leveraged firms) would overall impact their firms’ value. Several studies have uncovered different results and several theories have been made on this subject and since the amount of financial leverage varies from companies to industries, this study will uncover whether there is a significant relationship between financial leverage and firm’s value and stock performance.

To assess whether there is a solid relationship between the financial leverage of a company and the value of the firm and stock performance, the financial ratios will be used as a tool to measure the amount of financial leverage that is employed and the supposed value of the firm. Therefore, this study will analyze the possibility of an impact from the financial leverage towards the firm's value and stock performance in non-financial companies listed in the stock exchange, during 2014-2018.

1.3. Research Questions

Based on the research background and the problem statement that was addressed in 1.1. and 1.2, the research questions are as follows:

1. a). How does Debt-Equity Ratio impact Tobin's Q?

   b). How does Debt-Asset Ratio impact Tobin's Q?

   c.) How does Debt-Equity Ratio impact Enterprise Value/EBITDA?

   d.) How does Debt-Asset Ratio impact Enterprise Value/EBITDA?

   e.) How does Debt-Equity Ratio impact Earnings Yield?

   f.) How does Debt-Asset Ratio impact Earnings Yield?
2. a). How does Debt-Equity Ratio impact Stock Return?

   b). How does Debt-Asset Ratio impact Stock Return?

   c.) How does Debt-Equity Ratio impact Stock Risk?

   d.) How does Debt-Asset Ratio impact Stock Risk?

   e.) How does Debt-Equity Ratio impact Risk-Adjusted Return?

   f.) How does Debt-Asset Ratio impact Risk-Adjusted Return?

1.4. Research Objective

Based on the research questions stated in 1.3, the research objective of this study is:

1. a). To analyze the impact of Debt-Equity Ratio on Tobin's Q

   b). To analyze the impact of Debt-Asset Ratio on Tobin's Q

   c.) To analyze the impact of Debt-Equity Ratio on Enterprise Value/EBITDA

   d.) To analyze the impact of Debt-Asset Ratio on Enterprise Value/EBITDA

   e.) To analyze the impact of Debt-Equity Ratio on Earnings Yield

   f.) To analyze the impact of Debt-Asset Ratio on Earnings Yield
2. a). To analyze the impact of Debt-Equity Ratio on Stock Return

   b). To analyze the impact of Debt-Asset Ratio on Stock Return c.) To analyze the impact of Debt-Equity Ratio on Stock Risk

d.) To analyze the impact of Debt-Asset Ratio on Stock Risk

e.) To analyze the impact of Debt-Equity Ratio on Risk-Adjusted Return

f.) To analyze the impact of Debt-Asset Ratio on Risk-Adjusted Return

In other words, this study aims to analyze the impact of financial leverage with the value of the firm and whether financial leverage will create an impact on the firm's value by taking empirical evidence from non-financial firms listed in Kompas 100 index.

1.5. Research Scopes and Limitations

The research scope and limitations of this study are as follows:

a. This study covers and is restricted to only non-financial publicly listed firms in the Kompas 100 index that are consistently listed during the year 2014-2018 (5 years)

b. This study attempts to align with the Trade-off theory. However, this study does not consider the factor that Trade-off theory does not impact firms that pay taxes on Final Tax.

c. This study uses Financial Leverage as the independent variable and Firm's value and Stock performance as the dependent variable.

d. The variables that were used to measure Financial Leverage includes Debt to Equity Ratio and Debt-Asset Ratio, and the variables to measure the value of the firm include Tobin's Q, Enterprise Value/EBITDA, and Earnings Yield. The variables to measure Stock Performance include Stock Return, Stock Risk, and Risk-Adjusted Return.

e. All the listed companies in the Kompas 100 index are collected from https://www.kontan.co.id/indeks-kompas100

1.6. Research Structure

This study is titled The Impact of Financial Leverage on the Value of the Firm: Evidence from Non-financial companies listed in Kompas 100. It consists of five chapters:

Chapter I: Background

This chapter will explain the background of the study, problem statement, research questions, and the scope of the study which are correlated with the title of this study.

Chapter II: Literature Review

This chapter will explain the theories that were used to enhance the understanding of the research and analyze the problems as stated in the problem statement. The theories are sourced from articles, journals, and books. This chapter also includes an overview of previous research as one of the references for the study and the hypothesis development.

Chapter III: Methodology

This chapter will explain the research design, measurement of variables, data collection, data collection procedures, technique of data analysis, research framework, and hypotheses.

Chapter IV: Findings, Analysis, and Discussion

This chapter will explain the overview of companies that are included in the study. This chapter will also include the findings from hypotheses that were tested. The findings are then analyzed and discussed to determine whether the findings support the hypotheses.

Chapter V: Conclusion and Recommendation

This chapter will explain the conclusion from the findings, analysis, and discussion of the study to answer all of the research questions. This chapter will also explain about the recommendations for the parties involved and for those who are interested in conducting further research related to the topic.

CHAPTER II

LITERATURE REVIEW

2.1. Financial Leverage

Firms require capital to finance their business and operational activities, assets, and business expansion. Therefore, capital is needed for every stage in the business and for this reason, it is important to understand the concept and implementation of the capital structure. (Dhita et al., 2018). Capital structure is a mix of debts and equities used by a company to finance its investment. Capital structure is determined through a combination of equity and debt financing. (Hardiyanto et al., 2014). In theory, the corporate financing policy should be directed to achieve optimal capital structure; the capital structure that will maximize the value of the firm. (Hardiyanto et al., 2015).

According to Rehman (2013), financial leverage is defined as the extent to which a firm is using the borrowed money and it acts as a measure of how much debt and equity that is used by the firm to finance its assets. Essentially, as debt increases, financial leverage increases. External debt financing plays an important role to increase future productivity of firms and more important for future growth (Gomis & Khatiwada, 2016)

Financial Leverage is the ratio between total debt to the total assets of the firm and it indicates the extent at which total assets are financed by debts (Mwangi et al., 2014). A higher leverage ratio means that the firm has a high dependence on debt financing. Leveraged businesses have additional capital available to finance its operations and expansions compared to an unleveraged business solely dependent on equity (Strebulaev & Yang, 2013). In addition, employing financial leverage offers financial benefits in the form of tax shield, as it is a tax saving from interest expense of debts that can be deducted in the calculation of corporate income tax. So, if a company increases the amount of debt, they will experience an increasing amount of company tax shield. Therefore, the optimal level of capital structure suggests the level of debt that balances bankruptcy costs with the benefits obtained from debt financing. (Hardiyanto et al., 2014)

However, employing a huge amount of debt might cause the company to fall into bankruptcy due to inability of the company to meet the obligation to pay interest and principal installment, that in most cases are fixed. (Hardiyanto et al., 2015)

There are multiple ways to measure financial leverage in a firm. In this study, financial leverage is measured by DER and DAR, which will act as the independent variables for this study.

2.1.1. Debt-Equity Ratio

Debt-Equity Ratio (DER) is a ratio that is calculated by dividing the company's total liabilities by its shareholder equity. According to Carlson (2020), DER is a measure of degree to which a company its financing its operations through debt versus equity. In addition, DER reflects the ability of the shareholder equity to cover all outstanding debts in the event of a business downturn. A good DER is somewhere around 1 to 1.5. However, the ideal debt to equity ratio will vary depending on the industry because some industries use more debt financing than others. Capital-intensive industries like the financial and manufacturing industries often have higher ratios that can be greater than 2.

2.1.2. Debt-Asset Ratio

Debt-Asset ratio (DAR) is a ratio that is used as an indicator for the company's financial leverage. According to Carlson (2020), DAR shows a percentage of the company's total assets that were financed by borrowed money and it is calculated by dividing the company's total liabilities by the total assets. DAR results are essentially the company's total assets that were financed by creditors and is used as an indicator of a company's ability to meet those debt obligations. In the case of DAR, a lower debt-to-asset ratio suggests a stronger financial structure, and similarly a higher debt-to-asset ratio suggests higher risk. In general, a ratio of 0.4 (40%) or lower is considered a good debt ratio. A ratio above 0.6 (60%) is generally considered to be a poor ratio, since there's a risk that the business will not generate enough cash flow to service its debt.

2.2.Firm's Value and Stock Performance

2.2.1. Firm Value

According to Sabrin et al., (2016), the firm's value is important to the firm as the company's value indicates the prosperity of the shareholders (investors). Firm value is the perception of investors to companies that are often associated with stocks prices.

High stock prices will cause the firm value to increase (Susanti, 2017).

While many studies use other tools to represent the firm value, this research study will use Tobin's Q, Enterprise Value/EBITDA, Earnings Yield, and Stock Performance as the measure for the firm's value. Therefore, Tobin's Q, Enterprise Value/EBITDA, Earnings Yield, and Stock Performance will act as the dependent variable in this study.

Tobin's Q has been utilized as the market value of a firm in numerous studies (Allayannis & Weston,2001; Bhabra, 2007; Mihir & Dharmapala, 2009; McConnel & Servaes, 1990; and Shleifer & Vishny, 1988). Tobin's Q is commonly used because of its ability to reflect the performance of management. According to Bhagat and Black (2002), high Tobin's Q means that the managers of a firm have produced greater market value from its assets. According to Lewellen & Badrinath (1997), Tobin's Q measures the value of the firm by scaling the market value of a company's assets with the costs that would be incurred by the company to replace the asset at the current marketplace. It was stated by Wernerfelt & Montgomery (1988), that Tobin's

Q ratio is a good choice for firm value measurement. According to Lewellen and Badrinath (1997), companies that exhibit Tobin's q greater than "one" means effective use of scarce resources, while Tobin's q less than "One," means the inefficient or poor use of scarce resources.

EV/EBITDA is a ratio that compares a company's Enterprise Value (EV) to its Earnings Before Interest, Taxes, Depreciation & Amortization (EBITDA). The EV/EBITDA ratio is commonly used as a valuation metric to compare the relative value of different businesses. EV stands for Enterprise Value and is the numerator in the EV/EBITDA ratio. A firm's EV is equal to its equity value (or market capitalization) plus its debt (or financial commitments) less any cash (debt less cash is referred to as net debt). EBITDA stands for Earnings Before Interest Taxes Depreciation and Amortization. It often used in valuation as a proxy for cash flow, although for many industries it is not a useful metric.

Earnings Yield is an indicator that is used to determine what is considered to be the optimal asset allocations and this ratio is also used by investors to determine which assets are considered to be overpriced or underpriced. Earnings Yield is calculated by the EPS for the most recent 12-month period divided by the current market price per share, so it is essentially the inverse of the P/E ratio, which shows a percentage value of how much a company earned per share. Earnings yield is useful for the calculation of the rate of return on investment. (Carnevale, 2017)

2.2.2. Stock Performance

Stock Performance is a measure of the return on shares over a period of time. In this study, stock performance includes Stock Return, Stock Risk and Stock Risk Adjusted Return.

Stock Return is the capital gain or loss that is a result of investing in a stock portfolio (Jones, 2000). Stock return is considered to be one of the most important aspects in conducting investment analysis because it serves as an index for investors, meaning that investors will select the portfolio that will allow them to obtain a return that is higher than their cost of capital.

Stock Risk is the risk that an outcome of an investment's actual gains will differ from the expected outcome of the investment gains. (Sandler, 2019). This variable is related to the Modern Portfolio Theory (MPT), which is a theory developed by Harry Markowitz that describes how risk-averse investors can create portfolios to optimize their expected return based on the given level of market risk. The theory states that risk is an inherent part of higher reward. (Chen, 2020). Within the theory, the risk for individual stock returns is stated to have two components. The first one is Systematic Risk, which are market risks that cannot be dissolved with diversification as they are unpredictable and impossible to completely avoid. Investors can try to mitigate the impact of systematic risk by creating a diversified portfolio (Fontinelle, 2020). The second one is Unsystematic Risk, which is the risk that is specific and unique to the individual company or industry. While investors are able to anticipate some sources of unsystematic risk, it is impossible to be aware all or when or how these risks might occur. However, investors can mitigate this risk through diversification (Chen, 2020). Some common ways of measuring stock risk include calculating the beta of the company or total risk, which is the sum of both systematic and unsystematic risk of an investment.

Stock Risk Adjusted Return is measure of calculating the profit or potential profit from an investment while also taking into account the degree of risk that must be accepted in order to achieve such profits. In other words, the risk-adjusted return is used to measure the profit of an investment relative to the amount of risk that the investment entails throughout a certain period of time. If two or more investments have the same return over a given time period, the one that has the lowest risk will have a better risk-adjusted return (Chen, 2020). Some common ways of measuring risk adjusted return includes Treynor Ratio, Jensen-Alpha Ratio and the Sharpe ratio.

2.3. Theoretical Literature

2.3.1 Modigliani and Miller Theory

The entire discussion started with the Capital Structure Irrelevance Theory that was proposed by Modigliani and Miller in 1958. The theory proposed that in a world where the competition is high and frictionless, the value of companies was not affected by their capital structure, and/or the value of companies are independent from their capital structure. (Dhita et al., 2018).

In the early 1950s, The Modigliani and Miller theory adopted, this theory suggests that the valuation of a firm is not relevant to the capital structure of a company. According to this theory, the firm has no bearing on its market value regardless of whether the firm is highly leveraged or not. Furthermore, the theory suggests that this is because the market value of the firm is solely dependent on the operating profits of the company, apart from the risk involved in the investment. To put simply, The Modigliani and Miller theory states that the value of the firm does not depend on the choice of capital structure or financing decisions of the firm.

The assumptions of the Modigliani and Miller theory is that:

a. Taxes are not considered.
b. Bankruptcy cost is not considered
c. There is an asymmetry of information. This assumption indicates that investors will have access to the same information that the company would and this would result in investors behaving rationally.
d. The cost of borrowing is the same for investors and companies.
e. Flotation costs, such as advertisement expenses are not considered.
f. Corporate dividend taxes are not considered

The Modigliani and Miller Approach indicates that the value of a firm that employs both debt and equity is the same as the value of a firm that is fully uses equity to finance its assets, assuming that the operating profits and prospects of both the leveraged firm and the unleveraged firm are the same. This implies that if an investor buys the shares of a leveraged firm, then the costs of it would be the same as buying the shares of an unleveraged firm.

2.3.2. Trade-off Theory

The trade-off theory is a theory that is developed after the MM theory as it takes into consideration the assumptions that were not considered before. The trade-off theory states that the optimal capital structure that firms hope to achieve is essentially a trade-off between interest tax shields and the cost of financial distress. This theory states that firms will decide on the capital structure that they wish to employ by considering the trade-off between the cost of bankruptcy and tax benefits of the debt. This theory suggests that the manager should choose the debt ratio that maximizes firm value (Brealey and Myers, 2003). In other words, the firm's decisions related to capital structure are related to a target debt ratio, in which debt tax shields should be maximized and the bankruptcy costs should be minimized.

According to the trade-off theory, the total value of a levered firm equals the value of the firm without leverage plus the present value of the tax savings from debt, less the present value of financial distress costs. It can be seen from the equation below:

$$V^L = V^U + \text{PV (Interest Tax Shield)} - \text{PV (Financial Distress Costs)} \qquad (2.1)$$

This equation illustrates that employing leverage has costs as well as benefits. Firms have an incentive to increase leverage to exploit the tax benefits of debt, but with too much debt, they are more likely to risk default and incur financial distress costs. Financial distress occurs when a firm is unable to meet its debt commitments.

The probability of financial distress occurring will increase as the firm employs more leverage. It also increases with the volatility of a firm's cash flows and asset values. In other words, firms with steady and reliable cash flows are able to use high level of debt and will have a lower probability of default. Firms with volatile value and cash flows must have much lower levels of debt to avoid a significant risk of default.

It is assumed that highly profitable firms will have a higher debt to equity ratio as opposed to low-profit firms since they have more debt repayment capacity with high taxable income to shield them. Put simply, the higher profitable firms will employ a higher level of debt due to lower bankruptcy probability and higher debt ratings.

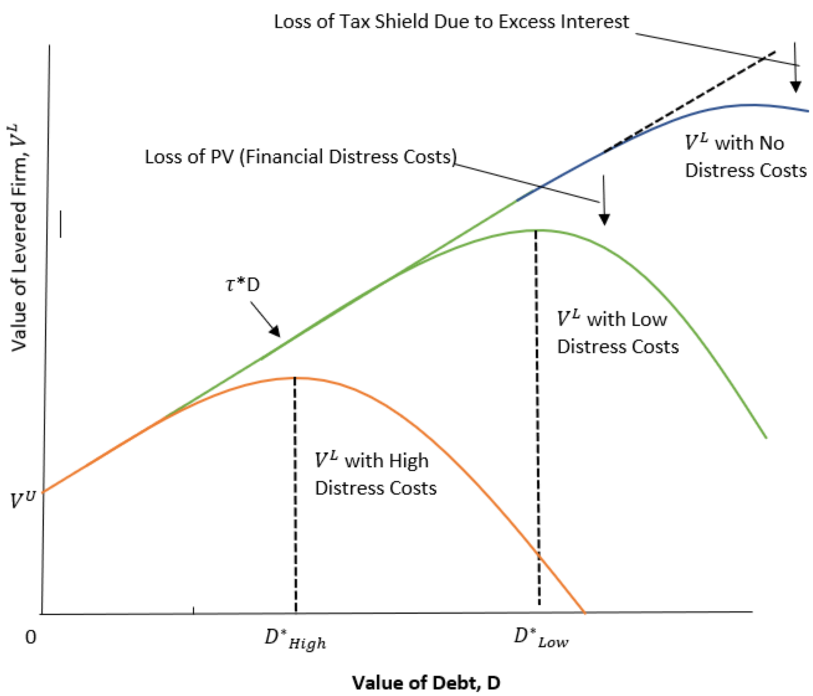


Figure 2.1. Value of Firm and Value of Debt.

Source: Berk & De Marzo (2006)

Figure 2.1 shows how the value of a levered firm, denoted as V^L, varies with the level of permanent debt, denoted by *D*. When a firm employs no debt, the value of the firm is denoted as V^U

Firms with low debt levels incurs a low risk of default and the main effect of an increase in leverage is an increase in the interest tax shield, which has present value $\tau^{*}D$, where $\tau^{*}$is the effective tax advantage of debt.

If there were no costs of financial distress, the value of the firm would proceed to increase at this rate until the interest on the debt exceeds the firm's EBIT and the tax shield is exhausted. The costs of financial distress will result to a reduction in the value of the levered firm, V^{L}. The amount of the reduction increases with the probability of default, which in turn increases with the level of the debt *D*. The trade-off theory states that firms should increase their leverage until it reaches the level *D** for which V^{L}. is maximized. At this point, the tax savings that result from increasing leverage are just offset by the increased probability of incurring the costs of financial distress.

Figure 2.1. also illustrates the optimal debt choices for two types of firms; a firm with low costs of financial distress is indicated by *D*low*, and the optimal debt choice for a firm with high costs of financial distress is indicated by *D*high*. With a higher cost of financial distress, it is optimal for the firm to choose lower leverage.

Essentially, the trade-off theory suggests that firm value increases with increase of debt until the marginal benefits from leverage equal to the marginal bankruptcy costs. At that point, the firm 's value reaches its maximum level, If the firm further increases the level of debt usages, firm values not only does not increase, but also decrease.

2.3.3. Capital Structure Signaling Theory

According to Ross (1977), the capital structure signaling theory is a theory that is based on the issues that arise from the existence of asymmetrical information between managers and investors, where the top executives of the firm have inside information and would attempt to transfer this knowledge to the external investors, in an attempt to get the stock prices to rise up. Managers would refrain from announcing any improvements within the company, so instead the administration will increase the leverage of the firm to indicate that they have good prospects. When firms want to send signals that they are performing well, they tend to increase their leverage, whereas, firms that are not willing to undertake the burden of lending will not employ leverage, as they intend to avoid the risk of bankruptcy. According to Veronesi (2000), the precision of the signal is significant as well as managers may sometimes use the changes in capital structure to transfer some information for the profitability and the risk of the firm, to the external users.

In addition, Ross (1977) suggested that capital structure is useful as a signaling mechanism which increases the possibilities and the costs of financial distress for a firm. When investors notice that a firm has increased their leverage, they will interpret it as a sign that the managers await in the future such cash flows that will avoid
recession. Essentially, Capital structure signaling theory suggests that the capital structure can be a signal for investors to invest because the company is considered as a good performance to fund the capital structure, thus causing a positive to the firm's value if the capital structure is deemed favorable.

2.4. Previous Research

Numerous research studies have been conducted to test the impact between financial leverage and firm value. Previous studies since 2013 have showed the impact of debt to firm's value to be negative and positive. A research by Akhtar et al., (2016). which aims to identify the effect of debt on the value of a firm shows that the relationship between financial leverage and firm's value is positively correlated. A research by Adenugba et al., (2016) aims to identify the impact of financial leverage on firm's value by using selected firms in Nigeria showed that there is no relationship between financial leverage and firm's value.

In the research of Ibrahim (2020), the objective is to identify the effect of financial leverage on firm value. The researcher uses selected firms listed on the Nigerian Stock Exchange over the period of 2014-2018. The researcher uses panel data analysis as a method to test the hypothesis and uses the Loan to Value (LVR) ratio as an independent variable to measure the financial leverage, the Tobin's Q ratio as a dependent variable to measure the firm's value. Based on the findings of the research, Tobin's Q has a negative causal relationship with financial leverage.

In the research of Pandya (2016), the objective is to analyze the Impact of Financial Leverage on Market Value Added, using evidence from companies listed in the Bombay Stock Exchange. This study uses the observation period of 2010-2014. The study uses Regression as a method to test the hypothesis. The findings of this study reveal that leverage has a significant positive impact on market value added. While the study by Pandya (2016) uses MVA as a dependent variable, this study will use Enterprise Value/EBITDA as a dependent variable.

In the research of Elangkumaran and Nimalathasan (2013), the objective is to analyze the impact of leverage on EPS and Share Price. The two researchers use 20 companies listed on the Colombo Stock Exchange for the period from year 2007/2008 to 2011/2012. The researcher uses Multiple Linear Regression as a method to test the hypothesis. The researcher uses Financial leverage as the independent variable to measure leverage and Earning per share and Share Price was used as the dependent variable. Based on the findings of the study, financial leverage has no correlation with EPS and Share Price.

In the research Mustafa et al., (2017), the objective of this study is to identify the effect of financial leverage and market size on the stock return. The researchers use non-financial listed companies in the Karachi Stock Exchange covering a period of twelve years from 2004 to 2015, in which the leverage of the selected sector was collected from the Annual Financial Reports and the stock index prices of the selected stocks between 2004-2015 for the non-financial sector firms are used to calculate the stock return. The researchers use the Ordinary Least Square Regression Model as a method to test the hypothesis. The researchers use DER as the Independent Variable and Stock Return as the Dependent Variable. Based on the findings of this study, leverage is negatively correlated with stock return.

In the research of Dedunu (2017), the objective of the study is to identify the impact of Financial Variables on Systematic Risk. The researcher used the selected 50 companies from CSE including manufacturing sector, beverage food and tobacco sector and hotel sector companies for the period of 2009-2016 and selected profitability, dividend payout, liquidity and leverage as financial variables. The financial variables have been tested by descriptive statistics, correlation analysis and regression analysis. Based on the findings of this study, the regression results showed that dividend payout had a negative significant relationship with systematic risk while profitability, liquidity and leverage had a positive relationship. The Pearson Correlation analysis showed that all the variables are insignificantly affected for beta. Lastly, profitability and liquidity had a positive relationship with systematic risk and the dividend payout and leverage represented a negative correlation with beta.

In the research of Suryani & Herianti (2015), the objective of the study is to analyze the consistency of three ratios: Sharpe Ratio, Treynor Ratio and Jensen-Alpha index as a measurement of risk-adjusted performance. The researcher used 14 companies that were consistently listed in the LQ45 index during the observation period of 2010-2014. The study uses the three methods and tests it out on the portfolio performance of these 14 companies to see if the results are consistent. Based on the findings of the study, there is no significant difference between testing with Sharpe, Treynor and Jensen Method.

Table 2.1. Summary of Previous Research

RESEARCH TITLE (AUTHOR, YEAR)	METHODOLOGY (Research Method, Variable Measurement)	FINDINGS
Effect of Financial Leverage on Firm Value: Evidence from Selected Firms Quoted on the Nigerian Stock Exchange in Nigeria (Ibrahim, 2020)	• Research Method: Panel data analysis • Variable Measurement: - Independent Variable: Loan to Value Ratio - Dependent Variable: Tobin's Q - Control Variables: Size of the company, ROA, Age of the company	Negative causal relationship between firm's value and financial leverage
Impact of Financial Leverage on Market Value Added in India (Pandya, 2016)	• Research Method: Regression Analysis • Variable of Measurement: - Independent Variable: Debt to Equity Ratio, Debt Ratio, Interest Coverage Ratio - Dependent Variable: MVA	- DER, DAR, ICR significantly impacts MVA in a positive way.
Leverage and its Impact on Earnings and Share Price A Special Reference to listed Companies of Colombo Stock Exchange (CSE) in Sri Lanka. (Elangkumaran and Nimalathasan, 2013)	• Research Method: Multiple linear regression analysis • Variable of Measurement: -Independent Variable: Financial leverage -Dependent Variable: EPS, Share Price	- Financial leverage. is not correlated with EPS -Financial Leverage is not correlated with Share Price
RESEARCH TITLE	**METHODOLOGY**	**FINDINGS**

(AUTHOR, YEAR)	(Research Method, Variable Measurement)	
The Effect of Financial Leverage and Market size on Stock Returns on the Karachi Stock Exchange: Evidence from Selected Stocks in the Non-Financial Sector of Pakistan (Mustafa et al, 2017).	• Research Method: Ordinary Least Square Regression Model • Variable of Measurement: -Independent Variable: DER -Dependent Variable: Stock Return -Control Variable: size of the firm	Financial Leverage is negatively correlated with return of stock.
Financial Variables Impact on Common Stock Systematic Risk (Dedunu HH, 2017).	• Research Method: Regression analysis • Variable of Measurement: -Independent Variable: Profitability, Dividend Payout, Liquidity and Leverage. -Dependent Variable: Systematic Risk	• There is an insignificant positive relationship between profitability and beta • Significant negative relationship of dividend payment and beta • Significant positive relationship with liquidity and systematic risk • Positive insignificant relationship with leverage and beta
The Analysis of Risk Adjusted Return Portfolio Performance Share for LQ45 Index in Indonesia Stock Exchange in 2010-2014 periods (Suryani & Herianti, 2015)	• Research Method: Kruskal Wallis Test, Z-score transformation • Variable of Measurement: -Independent Variable: Sharpe Ratio, Treynor Ratio and Jensen-Alpha Ratio. -Dependent Variable: Stock portfolio performance	• The results of the study show that there is no significant difference between the three testing methods of Sharpe, Treynor and Jensen index.

2.5. Hypothesis Development

Previous research studies have demonstrated numerous results related to the relationship between financial leverage and the value of the firm. In order to assess whether financial leverage has an impact on the firm's value, the following hypotheses were developed; which is a temporary assumption on each variable:

2.5.1. Tobin's Q

Ibrahim (2020) conducted a study to measure the impact of Financial Leverage on Firm's value using the evidence from selected firms Quoted on the Nigerian Stock Exchange. This research is the first study to use Tobin's Q as a measure for firm's value as most existing research studies of Nigerian firms such as Kenn-Ndubuisi and Nweke (2019) and Isola and Akanni (2015) have only considered measuring the current performance of firms using perform indices such as ROE and ROI as opposed to Tobin's q, which is considered a better measure of firm value. Tobin's Q describes the differences in decisions about diversification and investment among firms, the association of equity ownership of corporate managers with a firm's value and payout, funding and compensation policies (Chung & Pruitt, 1994; Wolfe & Sauaia, 2014). Tobin's Q is also considered as to how the investors value a firm. In other words, The Tobin's Q ratio comprises two variables namely the market value of the firm and the replacement cost of the assets of the firm (Fisher and McGowan, 1983). The results from the research conducted by Ibrahim (2020) suggest that there exists a negative causal relationship that is significant between financial leverage and firm value, where a 1% increase in financial leverage will bring about a 0.21344% reduction in the value of the firm.

$\boldsymbol{H_1}$: **DER has a non-linear relationship with the firm's Tobin's Q.**

$\boldsymbol{H_2}$: **DAR has a non-linear relationship with the firm's Tobin's Q.**

2.5.2. Enterprise Value/EBITDA

Pandya (2016) conducted a study on the Impact of Financial Leverage on Market Value Added, using evidence from companies listed in the Bombay Stock Exchange. This study uses the observation period of 2010-2014. The findings of this study reveal that leverage has a significant positive impact on market value added. While the study by Pandya (2016) uses MVA as a dependent variable, this study will use Enterprise Value/EBITDA as a dependent variable.

H_3: DER has a non-linear relationship with the firm's Enterprise Value/EBITDA

H_4: DAR has a non-linear relationship with the firm's Enterprise Value/EBITDA

2.5.3. Earnings Yield

Elangkumaran & Nimalathasan (2013) conducted a study on Leverage and its Impact on Earnings and Share Price using evidence from listed companies of Colombo Stock Exchange (CSE) in Sri Lanka. The findings of this study revealed that only 4% of earnings can be explained by Financial leverage and there is no significant relationship with EPS. While the study by Elangkumaran & Nimalathasan (2013) uses EPS as a dependent variable, this research study will use Earnings Yield as a dependent variable.

H_5: DER has a non-linear relationship with the firm's Earnings Yield

H_6: DAR has a non-linear relationship with the firm's Earnings Yield

2.5.4. Stock Return

Mustafa et al., (2017) conducted a study on The Effect of Financial Leverage and Market size on Stock Returns on the Karachi Stock Exchange using evidence from selected companies in the Non-Financial Sector of Pakistan. This study concluded that there is a feeble and inverse relationship between financial leverage and stock return, but this relationship is not significant.

H_7: DER has a non-linear relationship with the firm's Stock Return

H_8: DAR has a non-linear relationship with the firm's Stock Return

2.5.5. Stock Risk

Dedunu (2017) conducted a study on the impact of Financial Variables on Common Stock Systematic Risk using evidence from 50 selected companies from CSE including manufacturing sector, beverage food and tobacco sector and hotel sector companies for the period of 2009-2016. Focusing on the leverage portion among the other variables, this study concluded that there is a positive insignificant relationship between leverage and Systematic Risk. While the study by Dedunu (2017) used Systematic Risk as a dependent variable, this study will use Beta as a dependent variable and a measurement of Stock Risk.

$\boldsymbol{H_9}$: **DER has a positive relationship with the firm's Stock Risk**

$\boldsymbol{H_{10}}$: **DAR has a positive relationship with the firm's Stock Risk**

2.5.6. Stock Risk Adjusted Return

Suryani and Herianti (2015) conducted a study on the consistency of three ratios: Sharpe Ratio, Treynor Ratio and Jensen-Alpha index as a measurement of risk-adjusted performance. The researcher used 14 companies that were consistently listed in the LQ45 index during the observation period of 2010-2014. The study uses the three methods and tests it out on the portfolio performance of these 14 companies to see if the results are consistent. Based on the findings of the study, there is no significant difference between testing with Sharpe, Treynor and Jensen Method. While the study by Suryani and Herianti (2015) used all three methods of measurement, this study will use Sharpe Ratio to measure the Risk-Adjusted performance.

$\boldsymbol{H_{11}}$: **DER has a non-linear relationship with the firm's Risk-Adjusted Return.**

$\boldsymbol{H_{12}}$: **DAR has a non-linear relationship with the firm's Risk-Adjusted Return.**

2.6. Research Framework

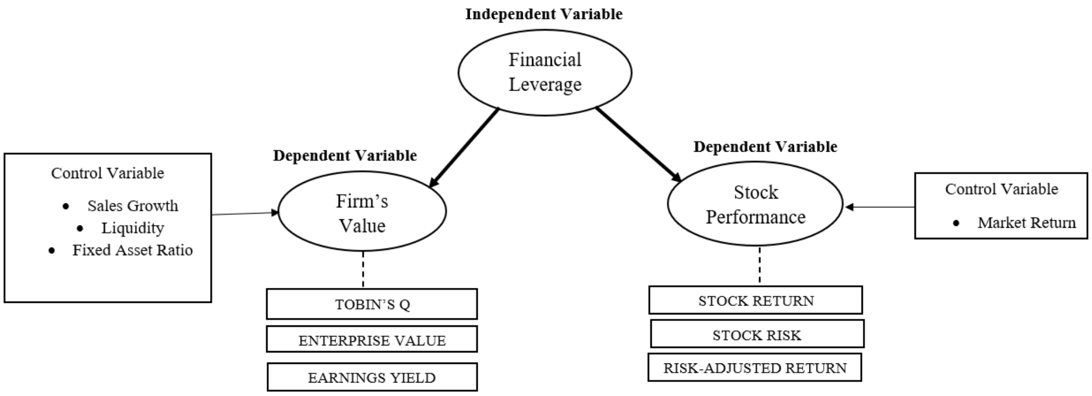


Figure 2.2. Research Framework

CHAPTER III

METHODOLOGY

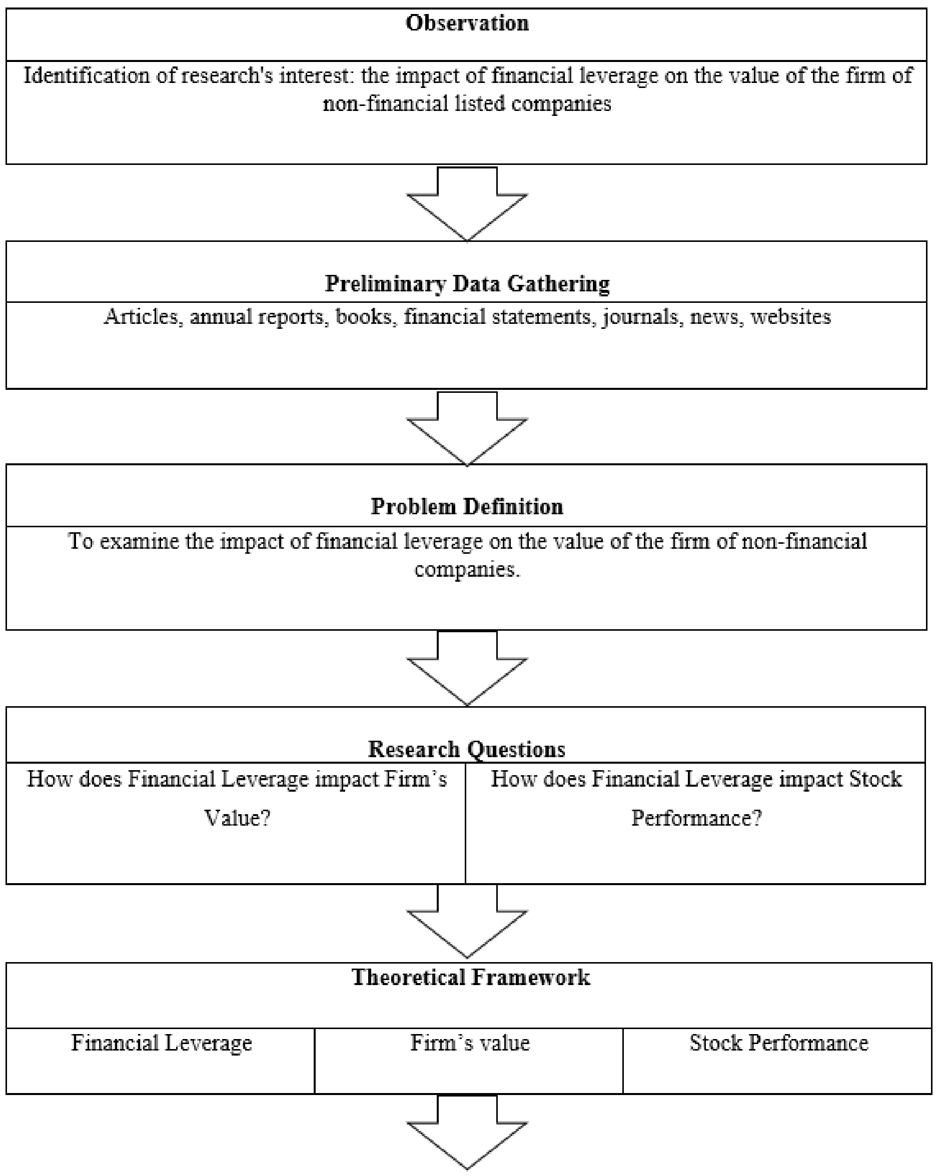
3.1. Research Design

Research design is defined as a plan, a roadmap and a blueprint strategy of investigation conceived, to obtain answers to research questions (Kothari, 2004). In the most elementary sense, the research design is the logical sequence that connects the empirical data, research questions and conclusions (Yin, 2002). Bryman & Bell (2007) stressed that the research design should provide the overall structure and orientation of an investigation as well as a framework within which data can be collected and analyzed.

The three approaches of research include either quantitative or qualitative or mixed-method of approach (Creswell, 2003). According to Babbie (2010), Quantitative research methods emphasize objective measurements and the statistical, mathematical, or numerical analysis of data collected through polls, questionnaires, and surveys, or by manipulating pre-existing statistical data using computational techniques. Quantitative research focuses on gathering numerical data and generalizing it across groups of people or to explain a particular phenomenon.

This research study is categorized as quantitative research, which according to Bougie & Sekaran (2013) is deductive and according to Fraenkel & Wallen (2003) can be classified as either descriptive or experimental research. The purpose of quantitative research is to become more familiar with phenomena, to gain new insight, and to formulate a more specific research problem or hypothesis. Quantitative research involves independent and dependent variables (Hopkins, 2000).

According to Kumar (2011), research designs can be classified into three groups, namely cross-sectional studies, before-and-after studies, and longitudinal studies. This research study uses the cross-sectional study and a cross-sectional study is suitable for the studies that have an objective to find out the prevalence of a phenomenon, situation, problem, attitude, or issue, by taking a cross-section of the population (Kumar,2011). In the cross-sectional study, the researcher measures the relationship between variables at the same time (Setia, 2016). This study also used a time-series study method that involves variables measured repeatedly at regular intervals over time (Salkind, 2010). The objectives of this study are to examine the impact of financial leverage affect the firm's value of non-financial listed companies.



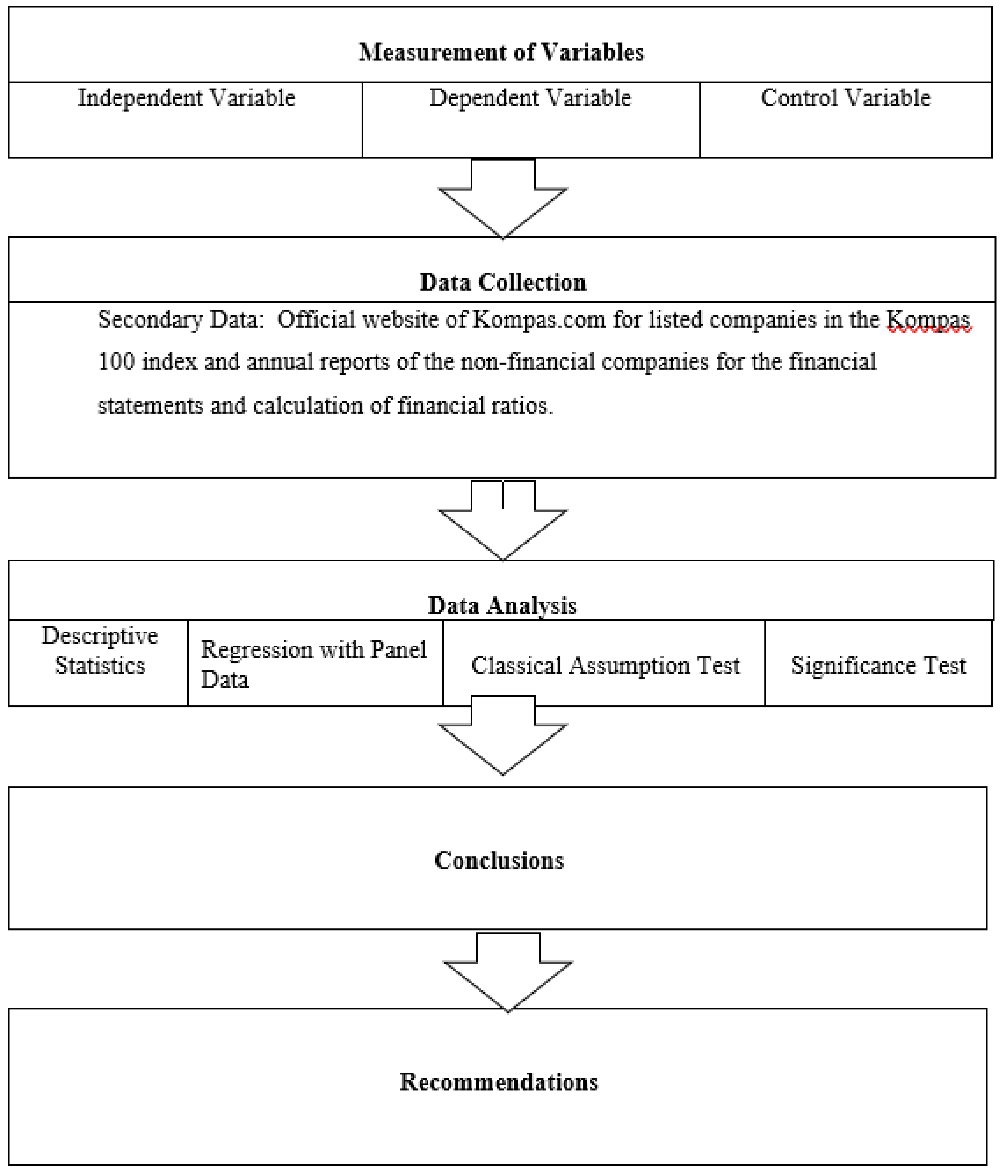


Figure 3.1. Research Design

3.2 Data Collection

There are two types of data, qualitative and quantitative. Qualitative data involves an interpretive and naturalistic approach: "This means that qualitative researchers study things in their natural settings, attempting to make sense of, or to interpret, phenomena in terms of the meanings people bring to them" (Lincoln,2000).

In contrast, Quantitative data involves the type of data that is numerical in nature and can be mathematically calculated (Kabir, 2016). This study uses quantitative data.

According to Aliaga and Gunderson (2002), Quantitative research is an inquiry into a social problem, explain phenomena by gathering numerical data that are analyzed using mathematically based methods. The data used in this study is classified as quantitative data, which means that it is numerical and can be calculated. Furthermore, the data that is collected in a quantitative study can be obtained from either the primary or secondary sources of data.

In this study, the data collection derives from secondary data. According to Kabir (2016), secondary data refers to data collected from a source that has already been published in any form, such as books, records, journals, etc. The secondary data that was collected in this study derives from:

1. Official website of Kompas.com to access the listed companies in the Kompas 100 index. (https://money.kompas.com/)
2. Annual reports of the non-financial companies for the financial statements and calculation of financial ratios.

3.3 Data Collection Procedure

3.3.1 Sampling Method

To determine the sampling method of this study, three important factors need to be considered. The first factor is the observation period of this study, which is from the year 2014-2018. The second factor is the list of companies that are consistently listed in the Kompas 100 index during the observation period ending August-January update. Another criterion that is taken into account is that the list of companies has to be non-financial, since companies in the banking industry have very unpredictable levels of leverage because they borrow capital in order to lend to customers. Hence, firms in the financial companies are not used as a sample here.

Based on the information stated above, non-probability sampling is the most suitable sampling method for this study. According to Showkat and Parveen (2017), the non-probability sampling technique uses non-randomized methods to draw the sample. Non-probability sampling method mostly involves judgment. Instead of randomization, subjective judgment selects those who can provide the most relevant and easiest information to achieve the objective of the study.

3.3.2 Research Population and Samples

A population is a well-defined collection of individuals or objects that have similar characteristics and are used as the main focus of a research query. Sampling refers to the process of selecting research subjects from the population of interest in such a way that they are representative of the whole population (Sykes et al., 2016).

The population of this study follows the criteria, which is that all of the non-financial companies that are listed in the Kompas 100 index during the observation period from 2014-2018. From this population, the sample will be narrowed down to the non-financial companies that are consistently listed in the Kompas 100 index during the observation period of 2014-2018 (August-January Updated). Since the Kompas 100 index is updated every 6 months (every February and August), it is found that only 29 companies have matched the criteria mentioned above.

Table 3.1. Research Sample

No	Industry Sector	Company Code	Company Name
1	Agriculture	LSIP	PP London Sumatra Indonesia Tbk.
2	Chemical Industry	CPIN	Charoen Pokphand Indonesia Tbk
3		INTP	Indocement Tunggal Prakarsa Tbk
4	Consumer Goods	KLBF	Kalbe Farma Tbk.
5		UNVR	Unilever Indonesia TbkC
6	Infrastructure & Transportation	EXCL	XL Axiata Tbk.
7		ISAT	Indosat Tbk.
8		JSMR	Jasa Marga (Persero) Tbk.
9		PGAS	Perusahaan Gas Negara Tbk.
10		TLKM	Telekomunikasi Indonesia (Persero) Tbk.
11	Mining	ADRO	Adaro Energy Tbk.
12		ANTM	Aneka Tambang Tbk.
13		INCO	Vale Indonesia Tbk.
14		ITMG	Indo Tambangraya Megah Tbk.
15	Miscellaneous Industry	ASII	Astra International Tbk.
16		SRIL	Sri Rejeki Isman Tbk
17	Property & Construction	APLN	Agung Podomoro Land Tbk
18		BEST	Bekasi Fajar Industrial Estate Tbk.
19		PWON	Pakuwon Jati Tbk.
20		WIKA	Wijaya Karya (Persero) Tbk
21		WSKT	Waskita Karya (Persero) Tbk.
22	Trade, Service & Investment	ACES	Ace Hardware Indonesia Tbk
23		AKRA	AKR Corporindo Tbk.
24		BHIT	MNC Investama Tbk.
25		BMTR	Global Mediacom Tbk.
26		MNCN	Media Nusantara Citra Tbk.
27		RALS	Ramayana Lestari Sentosa Tbk.
28		SCMA	Surya Citra Media Tbk.
29		UNTR	United Tractors Tbk.

3.4. Measurement of Variables

Variable is simply defined as something that takes on different values; it is something that varies (Bhopal, 2002; Kerlinger, 1973). Within the context of research, a variable may be defined as ‘‘an empirical phenomenon that takes on different values or intensities’’ (Ellis, 1998). The variables used in this study includes independent, dependent and control variable.

3.4.1. Independent Variable

Independent Variable is the variable that is stable and unaffected by the other variables that are measured and it also functions as the presumed cause (Cramer & Howitt, 2004). This means that it is the variable that has a positive or negative effect on the dependent variable. The independent variable used in this study is financial leverage, which is measured by using the Debt Equity Ratio and Debt Asset Ratio

1. Debt to Equity Ratio

   The formula to calculate Debt Equity Ratio is as follows:

$$DER_{i,t} = \frac{Total\ Debt_{\ i,t}}{Total\ Equity_{\ i,t}} \qquad (3.1.)$$

where,

$DER_{i,t}$ = Debt to Equity Ratio of company *i* at period of *t* time

Total Debt $_{i,t}$ = Total Debt of company *i* at period of *t* time

Total Equity $_{i,t}$ = Total Equity of company *i* at period of *t* time

Debt to Equity Ratio (DER) measures the degree to which a company is financing its operations through debt versus its equity. In other words, it reflects the ability of the company’s equity to cover all of the outstanding debts that the business has incurred, in the event of a business downturn. For example, a company’s DER is 0.85, this means that the liabilities are 85% of stockholder’s equity that is used to finance the assets. DER may vary from industry to industry.

2. Debt to Asset Ratio

   The formula used to calculate Debt to Asset Ratio is as follows:

$$DAR_{i,\,t} = \frac{Total\ Debt_{\,i,t}}{Total\ Asset_{\,i,t}} \qquad (3.2.)$$

where,

$DAR_{i,t}$ = Debt to Asset Ratio of company *i* at period of *t* time

Total Debt $_{i,t}$ = Total Debt of company *i* at period of *t* time

Total Asset $_{i,t}$ = Total Asset of company *i* at period of *t* time

Debt to Asset Ratio (DAR) is a leverage ratio that measures the total amount of debt relative to the assets owned by a company. With DAR, analysts can compare the leverage of one company with another company in the same industry. With the results of DAR, they are able to identify how financially stable a company is. For example, a company's DAR is 0.60, this means that the liabilities are 60% of total assets owned by the company.

3.4.2. Dependent Variable

Dependent Variable I s the variable that depends on other factors that are measured. The Dependent variable is expected to change as a result of an experimental manipulation of the independent variable or variables and it functions as the presumed effect (Cramer & Howitt, 2004). The dependent variables that are used in this study is firm's value, which is measured by using the financial ratios as follows:

1. Tobin's Q

   The Tobin's Q ratio is a measure of firm assets concerning a firm's market value. According to Ali, K.A. (2013), the formula to calculate Tobin's Q is as follows:

$$T_{i,t} = \frac{Total\ Market\ Value_{i,t}}{Total\ Asset\ Value_{i,t-1}} \qquad (3.3.)$$

where,

$T_{i,t}$ = Tobin's Q of company *i* at period of *t* time

Total Market Value $_{i,t}$ = Total Market Value of company *i* at period of *t* time

Total Asset Value $_{i,t\text{-}1}$ = Total Asset Value of company *i* at period of *t-1* time

Tobin's Q expresses the relationship between market value and intrinsic value and it aids in estimating whether a certain company or market is overvalued or undervalued. For example, a low Tobin's Q (between 0 and 1) implies that the cost to replace a firm's assets is greater than that of its sock. In contrast, a high Tobin's Q (greater than 1) implies that a firm's stock is more expensive than the replacement cost of its assets, also implying that the stock is overvalued. Put simply, when the Tobin's Q ratio is between 0 and 1 (low Tobin's Q), it costs more to replace a firm's assets than what the firm is worth. When Tobin's Q is greater than 1 (High Tobin's Q), the firm is worth more than the cost of its assets. Since the Tobin's Q insists that the firms should be worth more than what their assets are worth, anything greater than 1 indicates that the company is overvalued.

2. Enterprise Value/EBITDA

EV/EBITDA is used to compare the entire value of a business with the amount of EBITDA it earns on an annual basis. EV/EBITDA also indicates to investors how many times they have to pay the EBITDA, if were they to acquire the entire business. The formula to calculate Enterprise Value/EBITDA is as follows:

$$EV/EBITDA_{\mathrm{i,t}} = \frac{Enterprise\ Value_{i,t}}{EBITDA_{i,t}} \qquad (3.4.)$$

Where,

$EV/EBITDA_{\mathrm{i,t}}$= Enterprise Value/EBITDA of company *i* at period of *t* time

$Enterprise\ Value_{i,t}$ = Enterprise Value of company *i* at period of *t* time

$EBITDA_{i,t}$ = Earnings before Income, tax, depreciation and amortization of company *i* at period of *t* time

EV/EBITDA is used to compare the value of the firm, with debt included, to the company's cash earnings less non-cash expenses. EV/EBITDA with values below 10 are seen as healthy but sometimes the comparison of relative values among companies within the same industry is the best way for investors to determine companies with the healthiest EV/EBITDA within a specific sector.

3. Earnings Yield

According to KenFaulkenberry (2018), The earnings yield refers to the earnings per share for the most recent 12-month period divided by the current market price per share. The formula for Earnings Yield is as follows:

$$EY_{i,t} = \frac{Earnings\ per\ share_{i,t}}{Stock\ Price\ per\ share_{i,t}} \tag{3.5.}$$

where,

$EY_{i,t}$= EY of company *i* at period of *t* time

$Stock\ Price\ per\ share_{i,t}$ = Stock Price of company *i* at period of *t* time

$Earnings\ per\ share_{i,t}$ = EPS of company *i* at period of *t* time

The result of this figure is expressed as a percentage (%). The earnings yield shows the percentage of how much a company earned per share. This yield is used by many investment managers to determine optimal asset allocations and is used by investors to determine which assets seem underpriced or overpriced.

The remaining dependent variables that are used in this study is stock performance, which is measured by using the financial ratios as follows:

4. Stock Return

Stock Return is the actual return of an investment over a certain period. The formula to calculate Stock Return is as follows:

$$SR_{i,t} = \frac{SP_{i,t} - SP_{i,t-1}}{SP_{i,t-1}} \tag{3.6.}$$

where,

$SR_{i,t}$= Stock Return of company *i* at period of *t* time

$SP_{i,t}$ = Stock Price of company *i* at period of *t* time

$SP_{i,t-1}$ = Stock Price of company *i* at period of *t-1* time

5. Stock Risk

Stock risk is the risk related to the stock market as a whole. It is calculated by using the Beta of the company or the Total Risk of the company. This study will use the Beta to calculate the stock. The formula to calculate Stock Risk using Beta is as follows:

$$SRisk_{i,t} = \frac{cov(r_s, r_m)_{i,t}}{\text{var}\ (r_m)_{i,t}} \tag{3.7.}$$

where,

$SRisk_{i,t}$= Stock Risk of company *i* at period of *t* time

$cov(r_s, r_m)_{i,t}$ = covariance of the stock and market

var $(r_m)_{i,t}$ = variance of the market.

6. Stock Risk Adjusted Return

Stock Risk Adjusted Return is essentially how much return the investment makes relative to the amount of risk the investment has. In general, risk-adjusted returns are represented as numbers or ratings and in most cases, a risk-adjusted return applies to investment funds, individual securities, and portfolios. Risk-adjusted returns measures risk management and how well the risk performs or pays off. In order to calculate risk adjusted return, Sharpe Ratio or Treynor Ratio can be used. However, this study will use the Sharpe

Ratio to calculate the Risk-Adjusted Return. The formula to calculate Stock Risk-Adjusted Return using Sharpe Ratio is as follows:

$$RAR_{i,t} = \frac{RP_{i,t} - RF_{i,t}}{\sigma_{i,t}} \qquad (3.8.)$$

where,

$RAR_{i,t}$= Stock Risk Adjusted Return of company *i* at period of *t* time

$RP_{i,t}$ = Return of Portfolio of company *i* at period of *t* time

$RP_{i,t}$ = Risk-free rate of company *i* at period of *t* time

$\sigma_{i,t}$ = Standard Deviation of the portfolio of company *i* at period of *t* time

3.4.3. Control Variables

In the research conducted by Ali, A.K (2013), The firm’s value is affected by a certain number of control variables that are firm size, firm age, liquidity. This research study will use the following control variables:

- Liquidity

  Liquidity is essentially used to assess the company's ability to meet its obligations in the short term, where it measures the firm’s ability to pay all short-term financial obligations at maturity using the current assets of the company. A higher current ratio describes that the company has more funds available to pay its obligations. If the firm is liquid, then the investors will have a positive perception of the company as it is considered able to meet its financial obligations on time. The positive perception of the investor will cause the value of the company to increase.

  Liquidity is measured by the ratio of current assets to current liabilities.

- Sales Growth

  Sales growth indicates the results of the previous success of the investment period. The company can be said to experience growth if there is a consistent increase of activity during its operation and the company's sales growth is understood as an increase in sales from year to year, or as an indicator of increased market share of the company. Similar to liquidity, a higher growth prospect will result to a positive perception from the investors, which will also cause an increase in the value of the company.

Sales Growth is measured by (Sales current year – Sales previous year/ Sales previous year)

- Fixed Asset Ratio

  These are assets which are purchased for long-term use and are not likely to be converted quickly into cash, such as land, buildings, and equipment. Firms need fixed assets as collateral to raise the desired optimal debt that maximizes firm value. To secure long-term debt, fixed assets are required as collateral by creditors.

- Market Return

  The return on the overall theoretical market portfolio which includes all assets and having the portfolio weighted for value.

3.5 Techniques of Data Analysis

Data Analysis is the process of systematically applying statistical and/or logical techniques to describe and illustrate, condense and recap, and evaluate data. According to Shamoo and Resnik (2003), various analytic procedures "provide a way of drawing inductive inferences from data and distinguishing the signal (the phenomenon of interest) from the noise (statistical fluctuations) present in the data".

The techniques of data analysis are the methods used to transform the collected data collected data into information that can be utilized in order to solve problems. In data analysis, there are four steps that need to followed, first is to get the data ready for analysis, second is to get a sense of the data, third is to test the goodness of the data, and fourth is to test the formulated hypotheses (Bougie & Sekaran, 2013).

To analyze the data in this study, the software used are Microsoft Excel and EViews. EViews is a software developed by Quantitative Micro Software (QMS) that offers various tools, such as statistical and econometric tools that can be utilized to analyze cross-sectional, time series, and panel data.

3.5.1 Descriptive Statistics

According to Kaur et al., (2018), Descriptive statistics are normally used to summarize data in an organized manner by describing the relationship between variables in a sample or population. Descriptive statistics include types of variables (nominal, ordinal, interval, and ratio) as well as measures of frequency, central tendency, dispersion/variation, and position. In other words, descriptive statistics condense data into a simpler summary and it is used to analyze data and making conclusions.

3.5.1.1 Mean

Mean is the average value of a group of numbers or a data set. Mean can prove to be an effective tool when comparing different sets of data. (Sykes et al., 2016). The mean value can be calculated by dividing the sum of the set of data by the number of values, and the result is the mean/average. The formula for calculating mean is as follows:

$$\bar{X} = \frac{X_1 + X_2 + X_3 + \ldots + X_n}{n} = \frac{\sum_{i=1}^{n} X_i}{n} \tag{3.9.}$$

where,

$\bar{X}$= The symbol for mean (pronounced as X bar)

X1 + X2 + X3 + Xn = Value of i th item X, i = 1, 2, …, n

$\sum_{i=1}^{n} X_i$ = Sum of the value

n = Total number of items

3.5.1.2 Standard Deviation

The standard deviation is a statistic that measures the dispersion of a dataset relative to its mean and is calculated as the square root of the variance and it provides insight into how much variation there is within a group of values. (Sykes et al., 2016). In simple terms, the standard deviation is a measure to quantify the amount of variation or dispersion of a data set and it is the deviation from the group's mean or average. The formula of standard deviation is as follows:

$$\sigma = \sqrt{\frac{\sqrt{\sum(X_i - \bar{X}\,)^2}}{n}} \qquad (3.10.)$$

where,

σ = The symbol for standard deviation (pronounced as sigma)

$\bar{X}$= Mean

X_{i} = Value of *i* th item X

n = Total number of items

3.5.1.3. Correlation Coefficient

Correlation coefficient is a statistical method used to assess a possible linear association between two continuous variables. (Mukaka 2012). The formula of correlation is:

$$r_{xy} = \frac{Cov\ (x,y)}{\sigma_x \sigma_y} \qquad (3.11)$$

where,

r_{xy}= correlation of variables x and y

Cov (x,y) = covariance between x and y

σx = standard deviation of x

σy = standard deviation of y

The values of the correlation coefficient range between -1.0 and 1.0. When the value of the correlation is -1.0, it means the correlation is a perfect negative correlation. A perfect negative correlation indicates the two variables will move in opposite direction, in which as one variable increases, the other one will decrease. On the other hand, when the value of the correlation is 1.0, it means the correlation is a perfect positive correlation. A perfect positive correlation indicates the two variables will move in the same direction, in which as one variable increase, the other variable will also increase. When the value of the correlation is 0.0, it means there is no linear relationship between the movement of the two variables. In addition, when the value of the correlation is greater than 1.0 or less than -1.0, it means there was an error in the correlation measurement.

In terms of the strength of the relationship between the two variables, the degree is based on the value of the correlation coefficient. For instance, if a value of correlation is 0.4, it means the correlation is a positive correlation between two variables, however, the correlation is weak. The correlation coefficient can be shown in a table, which is called as correlation matrix.

In order to perform hypothesis testing, the correlation coefficient uses following hypothesis:

H_0: $r_{ij} = 0$

H_a: $r_{ij} \neq 0$

There are two criteria that are used to measure the aforementioned hypotheses:

a. If p-value < significance level of 0.05, the H_0 is rejected = There is a significant linear relationship or correlation between i and j

b. If p-value > significance level of 0.05, the H_0 is accepted = There is no significant linear relationship or correlation between i and j

3.5.1.4. Beta

Beta is a measure of a stock's volatility in relation to the market as it measures the exposure of risk that a particular stock or sector has in relation to the market. To identify the systematic risk of a portfolio, a beta will prove useful. The formula for calculating Beta is as follows:

$$Beta = \frac{cov(r_s, r_m)_{i,t}}{\text{var}\ (r_m)_{i,t}} \qquad (3.12.)$$

where,

$cov(r_s, r_m)_{i,t}$ = covariance of the stock and market

var $(r_m)_{i,t}$ = variance of the market.

3.5.1.5. Sharpe Ratio

The Sharpe ratio is a ratio that is used to help investors analyze the return of an investment portfolio against the risk. It was developed by William F. Sharpe. The ratio is the average return earned in excess of the risk-free rate per unit of volatility (price fluctuations of an asset or portfolio) or total risk. To elaborate the results of this ratio, the greater the value of the Sharpe ratio, the more attractive the risk-adjusted return. The formula for Sharpe Ratio is as follows:

$$Sharpe\ Ratio = \frac{RP_{i,t} - RF_{i,t}}{\sigma_{i,t}} \qquad (3.13.)$$

where,

$RP_{i,t}$ = Return of Portfolio of company *i* at period of *t* time

$RP_{i,t}$ = Risk-free rate of company *i* at period of *t* time

$\sigma_{i,t}$ = Standard Deviation of the portfolio of company *i* at period of *t* time

3.5.2 Regression with Panel Data

3.5.2.1 Regression

Regression analysis allows market researchers to analyze relationships between one independent and one dependent variable. In marketing applications, the dependent variable is usually the outcome that businesses need to know, for example: sales, while the independent variables are the instruments, we have to achieve those outcomes with for example: pricing or advertising. Regression analysis can provide insights that few other techniques can (Mooi, 2014).

Regression can also help identify the correlation between variables, resulting to either a positive or a negative correlation. When two variables have a positive correlation, this indicates that both of the variables move in the same direction, while, a negative correlation indicates that when one variable increases as the other decreases, and vice versa.

In regression, there is simple regression and multiple linear regression analysis. According to Kothari (2004), The simple regression analysis is used to analyze how one independent variable affects the behavior of one dependent variable. Meanwhile, the multiple linear regression analysis is used to explain the relationship between two or more than two independent variables and one dependent variable. This study will use multiple linear regression analysis. Equation of the multiple linear regression is as follows:

$$Y_{it} = \beta_0 + \beta_1 X_{1\ ,it}^2 + \beta_2 X_{2,it} + \ldots + \beta_n X_{n,it} + \varepsilon_{it} \qquad (3.14a)$$

MODEL 1

Specifically, the equation of regression for this study can be outlined as follows:

$$T_{it} = \beta_0 + \beta_1 DER^2{}_{it} + \beta_2 DER_{it} + \beta_3 LIQ_{it} ++ \beta_4 FAR_{it} + \beta_5 SGR_{it} + \beta_5 MR_{it} + \varepsilon_{it}$$

(3.14b)

$$EV/EBITDA_{it} = \alpha_0 + \alpha_1 DER^2{}_{it} + \alpha_2 DER_{it} + \alpha_3 LIQ_{it} + \alpha_4 FAR_{it} + \alpha_5 SGR_{it} + \alpha_5 MR_{it} + \epsilon_{it} \quad (3.14c)$$

$$EY_{it} = \gamma_0 + \gamma_1 DER^2{}_{it} + \gamma_2 DER_{it} + \gamma_3 LIQ_{it} + \gamma_4 FAR_{it} + \gamma_5 SGR_{it} + \gamma_5 MR_{it} + \theta_{it}$$

(3.14d)

SR_{it} = $\delta_0 + \delta_1 DER^2{}_{it} + \delta_2 DER_{it} + \delta_3 LIQ_{it} + \delta_4 FAR_{it} + \delta_5 SGR_{it} + \delta_5 MR_{it} + \rho_{it}$

(3.14e)

$SRisk_{it}$ = $\omega_0 + \omega_1 DER^2{}_{it} + \omega_2 DER_{it} + \omega_3 LIQ_{it} + \omega_4 FAR_{it} + \omega_5 SGR_{it} + \omega_5 MR_{it}$

$+\tau_{it}$ (3.14f)

RAR_{it} = $\varphi_0 + \omega_1 DER^2{}_{it} + \omega_2 DER_{it} + \omega_3 LIQ_{it} + \omega_4 FAR_{it} + \omega_5 SGR_{it} + \omega_5 MR_{it} +$

π_{it} (3.14g)

MODEL 2

T_{it} = $\beta_0 + \beta_1 DAR^2{}_{it} + \beta_2 DAR_{it} + \beta_3 LIQ_{it} + \beta_4 FAR_{it} + \beta_5 SGR_{it} + \beta_5 MR_{it} + \varepsilon_{it}$

(3.14h)

$EV/EBITDA_{it}$ = $\alpha_0 + \alpha_1 DAR^2{}_{it} + \alpha_2 DAR_{it} + \alpha_3 LIQ_{it} + \alpha_4 FAR_{it} + \alpha_5 SGR_{it} +$

$\alpha_5 MR_{it} + \epsilon_{it}$ (3.14i)

EY_{it} = $\gamma_0 + \gamma_1 DAR^2{}_{it} + \gamma_2 DAR_{it} + \gamma_3 LIQ_{it} + \gamma_4 FAR_{it} + \gamma_5 SGR_{it}$

$+ \gamma_5 MR_{it} + \theta_{it}$ (3.14j)

SR_{it} = $\delta_0 + \delta_1 DAR^2{}_{it} + \delta_2 DAR_{it} + \delta_3 LIQ_{it}\, LIQ_{it} + \delta_4 FAR_{it} + \delta_5 SGR_{it} +$

$\delta_5 MR_{it} + \rho_{it}$ (3.14k)

$SRisk_{it}$ = $\omega_0 + \omega_1 DAR^2{}_{it} + \omega_2 DAR_{it} + \omega_3 LIQ_{it} + \omega_4 FAR_{it} + \omega_5 SGR_{it} + \omega_5 MR_{it}$

$+\tau_{it}$ (3.14l)

RAR_{it} = $\varphi_0 + \omega_1 DAR^2{}_{it} + \omega_2 DAR_{it} + \omega_3 LIQ_{it} + \omega_4 FAR_{it} + \omega_5 MR_{it} +$

π_{it} (3.14m)

where,

T_{it} = Tobin's Q of company *i* at period of *t* time

$EV/EBITDA_{it}$ = Enterprise Value/EBITDA of company *i* at period of *t* time

EY_{it} = Earnings Yield of company *i* at period of *t* time

SR_{it} = Stock Return of company *i* at period of *t* time

$SRisk_{it}$ = Stock Risk of company *i* at period of *t* time

RAR_{it} = Risk Adjusted Return of company *i* at period of *t* time

DAR_{it} = Debt Asset Ratio of company *i* at period of *t* time

DER_{it} = Debt Equity Ratio of company *i* at period of *t* time

LIQ_{it} = Liquidity of company *i* at period of *t* time

Age_{it} = Age of company *i* at period of *t* time

FAR_{it} = Fixed Asset Ratio of company *i* at period of *t* time

SGR_{it} = Sales Growth of company *i* at period of *t* time

MR_{it} = Market Return at period of *t* time

3.5.2.2 Panel Data and Panel Data Regression

Panel data, otherwise known as longitudinal data or cross-sectional time-series data, refers to the pooling of observations on a cross-section of, say, firms, countries, etc., over several time periods (Baltagi 2005). The panel data is obtained from a number of observations over time on a number of cross-sectional units and with repeated observations of enough cross-sections, panel analysis permits the researcher to study the dynamics of change with short time series. The combination of time series with cross-sections can enhance the quality and quantity of data in ways that would be impossible using only one of these two dimensions (Gujarati, 2003).

Panel data is referred to as a balanced panel data if each of the cross-sectional unit has the same number of time observations. On the other hand, a panel data is referred to as an unbalanced panel data if each of the cross-sectional unit has different number of time observations. The panel data in this study can be referred to as a balanced panel data because the number of the cross-sectional units is 47 companies consistently listed in the Kompas 100 index and the observation period is from the year of 2014-2018.

Panel data by blending the inter-individual differences and intra-individual dynamics have several advantages over cross-sectional or time-series data: The first one is more accurate inference of model parameters. Panel data usually contain more degrees of freedom and more sample variability than cross-sectional data which may be viewed as a panel with T = 1, or time series data which is a panel with N = 1, hence improving the efficiency of econometric estimates (Hsiao et al., 1995). The second advantage is greater capacity for capturing the complexity of human behavior than a single cross-section or time series data. These include: constructing and testing more complicated behavioral hypotheses, controlling the impact of omitted variables, and Generating more accurate predictions for individual outcomes by pooling the data rather than generating predictions of individual outcomes using the data on the individual in question.

3.5.3. Model Structure

There are several types of panel data models that need to be considered before conducting the panel data regression. Each of these panel data models have a different effect and require proper selection based on the suitability of the nature of the variables in this study. The three model structures in panel data regression are Common Effect Model, Fixed-Effect Model, and Random-Effect Model.

3.5.3.1. Common Effect Model

Common Effect Model is a panel data model approach that combines time series and cross data section as a single unit without looking into the differences between time and individuals (Widarjono, 2007). Since the Common Effect model ignores differences in individual dimensions or time, the most common approach used is the Ordinary Least Square (OLS) method. (Baltagi, 2005). The equation for the common-effect model is as follows:

$$Y_{it} = \alpha + x'_{it}\beta + e_{it} \tag{3.15}$$

i = 1, …, n

t =1, …, T

where,

Y_{it} : The Dependent Variable of the cross-sectional units over the time periods observed

x'_{it} : The Independent and Control Variables of the cross-sectional units over the time periods observed

α: The regression model intercept

β: The slope coefficient

e_{it}: The error component of the observed cross-sectional units and time period

n: The number of observed cross-sectional units

T: The number of observed time periods

3.5.3.2. Fixed-Effect Model

The Fixed Effect model approach assumes that the intercepts of each individual are different while the slope between individuals is fixed (the same). This technique uses dummy variables to capture intercept differences between individuals. (Widarjono, 2007). In order to estimate the Fixed Effects Model with different intercept between individuals, the dummy variable technique is used. Such estimation models are often referred to as the Least Squares Dummy Variable technique or abbreviated LSDV (Zulfikar, 2018). The equation for Fixed-Effect Model is as follows:

$$Y_{it} = \beta X_{it} + a_i + e_{it} \tag{3.16}$$

$$i = 1, \ldots, n$$

$$t = 1, \ldots, T$$

where,

Y_{it} = the dependent variable of the cross-sectional units over the time period observed

X_{it} = the independent variable of the cross-sectional units over the time period observed

a_i = the regression model intercept of the observed cross-sectional units and/or the observed time period

β= slope coefficient

e_{it} = the error component of the observed cross-sectional units and time period

n = the number of observed cross-sectional units

T = the number of observed time period

3.5.3.3. Random-Effect Model

Random-Effect Model assumes that each company has different intercepts, which intercepts are random or stochastic variables. This model assumes that cross-sectional units do not have their own fixed intercept. The intercept instead represents the mean value of all the intercepts of the cross-sectional units observed (Gujarati, 2003). Furthermore, there are two error components that are present in the random-effect model. These error components are the combined cross-section and time-series error component and an individual-specific error component. This model is very useful if the individuals (entities) taken as a sample are chosen randomly and are representative of the population. The equation for the Random-Effect Model is as follows:

$$Y_{it} = \beta X_{it} + \alpha + w_{it} \quad (3.17)$$

$$w_{it} = \varepsilon_{it} + e_{it}$$

$$i = 1, \ldots, n$$

$$t = 1, \ldots, T$$

where,

Y_{it} = the dependent variable of the cross-sectional units over the time period observed

X_{it} = the independent variable of the cross-sectional units over the time period observed

α = intercept of the regression model

β = slope coefficient

w_{it} = combination of two error components, namely εit and eit

εit = individual-specific error component

ε_{it} = the error component of the observed research sample and time period n = the number of observed cross-sectional units

T = the number of observed time period

3.5.4. Model Selection

In order to select the most suitable panel data model for this study, there are several tests that need to be conducted, they are Chow Test, Lagrange Multiplier Test and Hausman Test.

3.5.4.1 Chow Test

Chow test is used to identify whether panel data regression techniques with the Fixed Effect method are better than regression models panel data without dummy variables or the Common Effect method (Iqbal, 2015).

The Chow test used following hypotheses:

H_0: Common-Effect Model is better than Fixed-Effect Model

H_a: Fixed-Effect Model is better than Common-Effect Model

The two criteria that are used to measure the Chow test hypotheses are:

a. If p-value < 0.05, it means the H_0 is rejected = Fixed-Effect Model is better than Common-Effect Model
b. If p-value > 0.05, it means the H_0 is not rejected = Common-Effect Model is better than Fixed-Effect Model

3.5.4.2 Hausman Test

Hausman Test is used to test whether the Fixed Effect method and the Random Effect method is better in comparison to the Common Effect method. The Hausman test is based on the idea that Least Squares Dummy Variables (LSDV) in the Fixed Effect and Generalized Least Squares (GLS) methods in the Random Effect method is efficient while Ordinary Least Squares (OLS) in the Common Effect method is inefficient. On the other hand, alternatives are efficient OLS methods and inefficient GLS. Therefore, the first hypothesis test is that the estimation results of the two are not different so that the Hausman test can be done based on differences in these estimates. Hausman test statistics follow the Chi-Squares statistical distribution with degrees of freedom (df) equal to the number of independent variables. (Iqbal, 2015)

The Hausman test used following hypotheses:

H_0: Random-Effect Model is better than Fixed-Effect Model

H_a: Fixed-Effect Model is better than Random-Effect Model

The two criteria that are used to measure the Hausman test hypotheses are:

a. If p-value < 0.05, it means the H_0 is rejected = Fixed-Effect Model is better than Random-Effect Model
b. If p-value > 0.05, it means the H_0 is not rejected = Random-Effect Model is better than Fixed-Effect Model

3.5.4.3. Lagrange Multiplier Test

According to Thamrin (2019), the Lagrange multiplier test is used to determine whether random-effect model is better than common-effect model. The Lagrange multiplier test can be performed if result of the chow test showed that the common-effect model is better than the fixed-effect model and if result of the Hausman test showed that the random-effect model is better than the fixed-effect model.

The Lagrange multiplier test uses following hypotheses:

H_0: Common-Effect Model is better than Random-Effect Model

H_a: Random-Effect Model is better than Common-Effect Model

The two criteria that are used to measure the Lagrange Multiplier hypotheses are:

a. If p-value < 0.05, it means the H0 is rejected = Random-Effect Model is better than Common-Effect Model

b. If p-value > 0.05, it means the H0 is accepted = Common-Effect Model is better than Random-Effect Model.

3.5.5 Classical Assumption Test

The Classical assumption test is a statistical test performed to determine the relation between variables. The classical assumption test includes normality test, multicollinearity test, heteroscedasticity test, and autocorrelation test. As this is a panel data regression, the only classical assumption test that will be conducted is multicollinearity test.

Multicollinearity, or near-linear dependence, is a statistical phenomenon in which two or more predictors variables in a multiple regression model are highly correlated (Daoud, 2017).

Multicollinearity can be diagnosed through signs among which the correlation among predictors is large. If the correlation is not calculated, the following are signs of having the multicollinearity is then the predictor’s coefficients vary from one to another model and/or when applying t-test, the coefficient is not significant but put all together (F-test) for the whole model it is significant.

There are some limitations when relying on correlation between pairs of predictors to identify multicollinearity. The limitations include the small or large value of correlation is subjective and on the field of research, hence why testing the multicollinearity requires the indicator known as the variance inflation factors (VIF).

The VIF is a tool that is used to measure and quantify how much the variance is inflated and it is usually calculated by the software as part of regression analysis and will appear in VIF column as part of the output. To interpret the value of VIF, if the Variance Inflation Factors (VIF) is less than 10 or not exceeding 10, it means there is no multicollinearity problem in the regression model (Hair et al., 2010).

3.5.6 Significance Test

3.5.6.1 Individual Parameter Significance Testing (T-Test)

Individual parameter significance test (t-test) is used to determine whether an individual independent variable has an effect on the dependent variable. The hypotheses of the t-test are as follows:

H_0: $\beta_{1,t}$ = 0

H_a: $\beta_{1,t}$ > 0 or $\beta_{1,t}$ < 0

There are two criteria that are used to measure the aforementioned hypotheses:

a. If p-value < significance level of 0.05, the H_0 is rejected = There is an individual independent variable effect on the dependent variable
b. If p-value > significance level of 0.05, the H_0 is not rejecte = There is no individual independent variable effect on the dependent variable

3.5.6.2 Simultaneous Significance Testing (F-Test)

Simultaneous significance test (F-test) is used to determine whether all of the independent variables have same effect on the dependent variable. The hypotheses of the F-test are as follows:

H_0: All parameters = 0

H_a: At least one parameter $\neq$ 0

There are two criteria that are used to measure the aforementioned hypotheses:

a. If p-value < significance level of 0.05, the H_0 is rejected = at least one independent variable has an effect on the dependent variable
b. If p-value > significance level of 0.05, the H_0 is not rejected = not enough evidence that independent variable has an effect on the dependent variable

3.6. Research Process

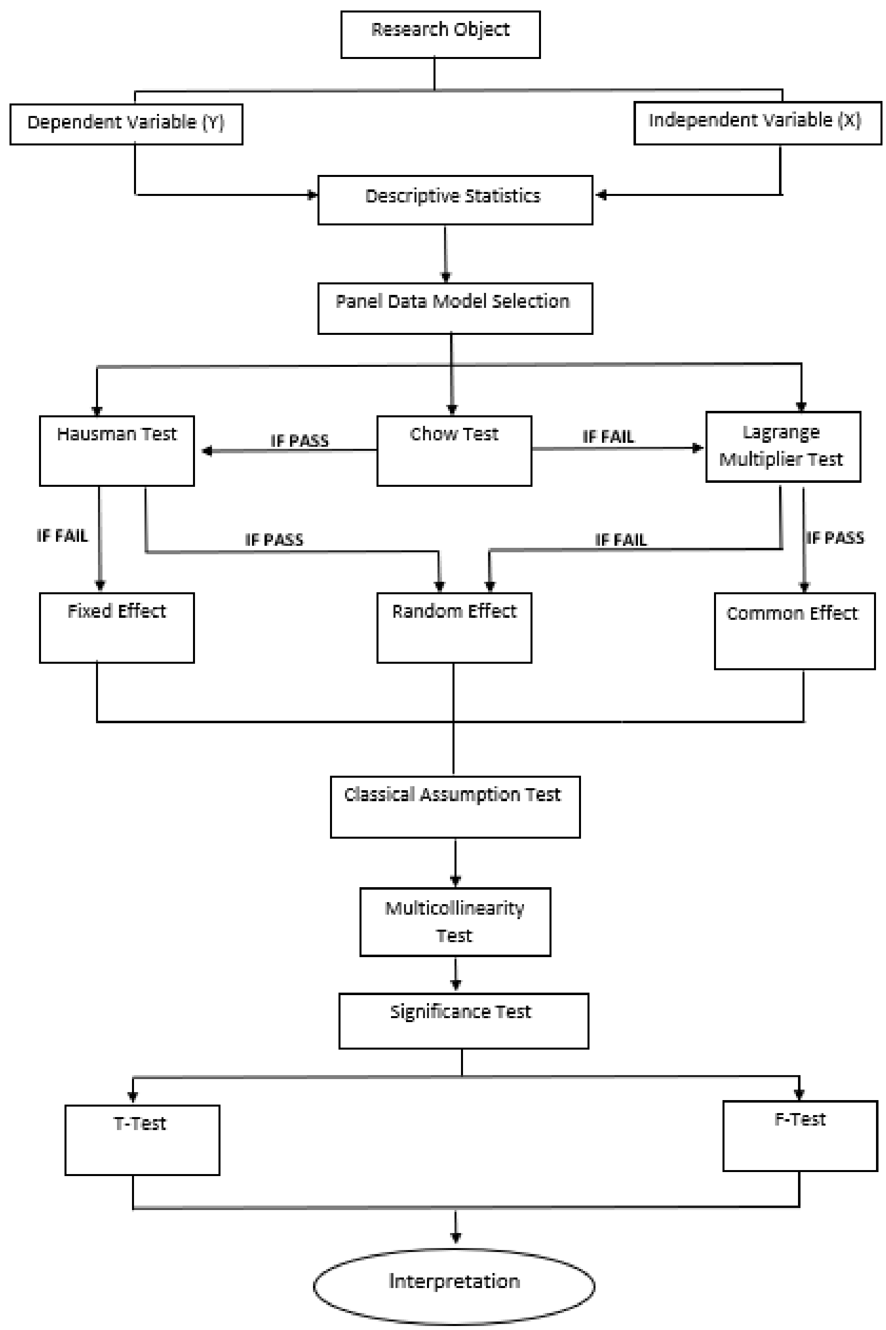


Figure 3.2. Research Process

CHAPTER IV

FINDINGS, ANALYSIS, AND DISCUSSION

4.1. Descriptive Statistical Analysis

Descriptive statistics are useful for describing the basic features of the data in the study as it provides simple summaries about the sample and the measures. The table 4.1 below shows the result of descriptive statistics which include Mean, Median, Max, Min and Standard Deviation.

Table 4.1. Descriptive Statistics Result

	TOBINSQ	EVEBITDA	EY	SR (%)	SRISK	RAR (%)	DER (%)	DERSQ (%)	DAR (%)	DARSQ (%)	LIQ	SGR (%)	FAR	MR (%)
No of Obvs	580	580	580	580	580	580	580	580	580	580	580	580	580	580
Mean	1.97	133.87	3.65	3.82	1.25	1.95	109.19	20736.00	44.60	2345.00	2.46	18.23	1.00	6.41
Median	1.21	20.92	2.82	2.36	1.14	-3.87	77.72	6040.00	43.73	1912.00	1.98	6.26	0.59	6.08
Max	72.35	15764.43	46.30	262.96	7.75	261.66	972.04	944857.00	90.67	8221.00	9.72	2557.20	5.93	27.01
Min	0.23	-293.53	-26.68	-64.92	-4.41	-66.50	9.84	96.82	8.96	80.25	0.00	-94.41	0.04	-17.78
Std. Dev	3.44	1143.15	5.87	41.05	1.28	41.02	93.95	47950.00	18.88	1739.00	1.72	138.20	1.06	12.25
Dependent Variable														
TOBINSQ	Tobin's Q													
EVEBITDA	Enterprise Value/EBITDA													
EY	Earnings yield													
SR	Stock Return													
SRISK	Stock Risk/Beta													
RAR	Risk-Adjusted Return/ Sharpe Ratio													
Independent Variables														
DER	Debt-Equity Ratio													
DERSQ	Debt-Equity Ratio Square													
DAR	Debt-Asset Ratio													
DARSQ	Debt-Asset Ratio Square													
Control Variables														
LIQ	Liquidity													
SGR	Sales Growth Ratio													
FAR	Fixed Asset Ratio													
MR	Market Return													

Based on the Descriptive Statistics Result stated in Table 4.1. above, it is evident that the total observations are 580 observations, which is obtained from the 29 companies listed in the Kompas100 index during the observation period of 2014-2018. Therefore, 29 companies x 5 years x 4 quarters = 580 observations. The table 4.1. shows that this study uses 6 dependent variables, 4 independent variables including the DARSQ and DERSQ to support the non-linear relationship, and 4 control variables.

Aside from the descriptive statistics result stated above, this study also shows the correlation coefficient as one of the results of the descriptive statistics. Table 4.2

below shows the values of the correlation coefficient, which can be used to measure the strength of the relationship between the relative movements of two variables.

4.1.2. Correlation Coefficient

Table 4.2. Correlation Matrix

	Correlation Coefficient {P-value}													
	TOBINSQ	EVEBITDA	EY	SR	SRISK	RAR	DER	DERSQ	DAR	DARSQ	LIQ	SGR	FAR	MR
TOBINSQ	1.000	0.028	-0.04	0.132	-0.048	0.13	-0.17	-0.07	-0.23	-0.2133	0.006	-0.019	0.201	0.006
		{0.496}	{0.271}	{0.001}	{0.243}	{0.001}	{0.000}	{0.068}	{0.000}	{0.000}	{0.000}	{0.632}	{0.000}	{0.872}
EVEBITDA	0.028	1.000	-0.03	0.024	-0.018	0.025	-0.002	-0.011	0.012	0.006	0.0006	-0.01	-0.06	0.0008
	{0.496}		{0.394}	{0.548}	{0.658}	{0.545}	{0.952}	{0.784}	{0.756}	{0.868}	{0.988}	{0.797}	{0.107}	{0.984}
EY	-0.04	-0.03	1.000	0.0011	-0.03	0.0007	-0.032	-0.03	-0.019	-0.019	0.073	0.005	0.105	0.082
	{0.271}	{0.394}		{0.977}	{0.368}	{0.986}	{0.435}	{0.395}	{0.637}	{0.631}	{0.078}	{0.890}	{0.010}	{0.047}
SR	0.132	0.024	0.011	1.000	0.009	0.999	0.024	0.033	0.002	0.01	0.033	-0.02	0.162	0.312
	{0.001}	{0.548}	{0.977}		{0.813}	{0.000}	{0.550}	{0.416}	{0.957}	{0.806}	{0.417}	{0.629}	{0.000}	{0.000}
SRISK	-0.048	-0.018	-0.03	0.009	1.000	0.014	-0.0002	0.03	-0.026	-0.019	0.091	0.031	-0.114	0.129
	{0.243}	{0.658}	{0.368}	{0.813}		{0.726}	{0.996}	{0.466}	{0.519}	{0.614}	{0.027}	{0.443}	{0.005}	{0.001}
RAR	0.13	0.025	0.0007	0.999	0.014	1.000	0.022	0.032	-0.0004	0.007	0.037	-0.019	0.161	0.307
	{0.001}	{0.545}	{0.986}	{0.000}	{0.726}		{0.587}	{0.433}	{0.990}	{0.858}	{0.361}	{0.637}	{0.000}	{0.000}
DER	-0.17	-0.002	-0.032	0.024	-0.0002	0.022	1.000	0.835	0.896	0.951	-0.514	-0.004	-0.1206	-0.002
	{0.000}	{0.952}	{0.435}	{0.550}	{0.996}	{0.587}		{0.000}	{0.000}	{0.000}	{0.000}	{0.919}	{0.003}	{0.951}
DERSQ	-0.07	-0.011	-0.03	0.033	0.03	0.032	0.835	1.000	0.556	0.636	-0.291	-0.004	-0.120	0.017
	{0.068}	{0.784}	{0.395}	{0.416}	{0.466}	{0.433}	{0.000}		{0.000}	{0.000}	{0.000}	{0.937}	{0.152}	{0.672}
DAR	-0.23	0.012	-0.019	0.002	-0.026	-0.0004	0.896	0.556	1.000	0.98	-0.62	-0.013	-0.179	0.0015
	{0.000}	{0.756}	{0.637}	{0.957}	{0.519}	{0.990}	{0.000}	{0.000}		{0.000}	{0.000}	{0.971}	{0.000}	{0.753}
DARSQ	-0.2133	0.006	-0.019	0.01	-0.019	0.007	0.951	0.636	0.98	1.000	-0.58	-0.005	0.155	-0.011
	{0.000}	{0.868}	{0.631}	{0.806}	{0.614}	{0.858}	{0.000}	{0.000}	{0.000}		{0.000}	{0.895}	{0.000}	{0.778}
LIQ	0.006	0.0006	0.073	0.033	0.091	0.037	-0.514	-0.291	-0.62	-0.58	1.000	0.03	0.227	-0.01
	{0.000}	{0.988}	{0.078}	{0.417}	{0.027}	{0.361}	{0.000}	{0.000}	{0.000}	{0.000}		{0.468}	{0.000}	{0.796}
SGR	-0.019	-0.01	0.005	-0.02	0.031	-0.019	-0.004	-0.003	0.0015	-0.005	0.03	1.000	0.096	-0.055
	{0.632}	{0.797}	{0.890}	{0.629}	{0.443}	{0.637}	{0.919}	{0.937}	{0.971}	{0.895}	{0.468}		{0.020}	{0.180}
FAR	0.201	-0.06	0.105	0.162	-0.114	0.161	-0.1206	-0.059	-0.179	0.155	0.227	0.096	1.000	0.047
	{0.000}	{0.107}	{0.010}	{0.000}	{0.005}	{0.000}	{0.003}	{0.152}	{0.000}	{0.000}	{0.000}	{0.020}		{0.258}
MR	0.006	0.0008	0.082	0.312	0.129	0.307	-0.002	0.017	-0.013	-0.011	-0.01	-0.055	0.047	1.000
	{0.872}	{0.984}	{0.047}	{0.000}	{0.001}	{0.000}	{0.951}	{0.672}	{0.753}	{0.778}	{0.796}	{0.180}	{0.258}	

Table 4.2. shows the correlation between the variables that are used in this study. Starting with the dependent variables, the first result to look into is Tobin's Q. The correlation between Tobin's Q and the variable Enterprise Value/EBITDA (EVEBITDA), Stock Return (SR), Risk-Adjusted Return (RAR), Liquidity (LIQ), and Market Return (MR) are 0.028, 0.132, 0.13, 0.006, 0.006 respectively. This means that the correlation between Tobin's Q and these variables are very weak and positive. The correlation between Tobin's Q and the variable Fixed Asset Ratio (FAR) is 0.201, which means that the correlation between these two variables are weak and positive. The correlation between Tobin's Q and the variable Earnings Yield (EY), Stock Risk (SRISK), Debt-Equity Ratio (DER) and (DERSQ), Sales

Growth Ratio (SGR) are -0.04, -0.048, -0.17, -0.17, and -0.019 respectively. This means that the correlation between Tobin's Q and these variables are very weak and negative. The correlation between Tobin's Q and the variable Debt-Asset Ratio (DAR and DARSQ) are -0.23 and -0.2133, which means that the correlation is weak and negative. Aside from the correlation coefficient values, it also could be known that the p-value between Tobin's Q with EVEBITDA ({0.496}, EY {0.271}, SRISK {0.243}. DERSQ {0.068}, SGR {0.632}, and MR {0.872} are all greater than 0.05, which means the null hypothesis should be accepted, therefore, it could be concluded that there is no significant linear relationship between Tobin's Q and those variables. On the other hand, the p-value between Tobin's Q and the variable SR {0.001}, RAR {0.001}, DER {0.000}, DAR {0.000}, DARSQ {0.000}, LIQ {0.000}, FAR {0.000} are less than 0.05, it means the null hypothesis should be rejected and it could be concluded that there is significant linear relationship between Tobin's Q and these variables.

The second result is the correlation between EVEBITDA and the variable Tobin's Q, Stock Return (SR), Risk-Adjusted Return (RAR), Debt-Asset Ratio (DAR) and (DARSQ), Liquidity (LIQ), and Market Return (MR) are 0.028, 0.024, 0.025, 0.012, 0.006, 0.0006, 0.0008 respectively. This means that the correlation between EVEBITDA and these variables are very weak and positive. The correlation between EVEBITDA and the variable Earnings Yield (EY), Stock Risk (SRISK), Debt-Equity Ratio (DER) and (DERSQ), Sales Growth Ratio (SGR), and Fixed Asset Ratio (FAR) are -0.03, -0.018, -0.002, -0.011, -0.01, -0.06 respectively. This means that the correlation between EVEBITDA and these variables are very weak and negative. Aside from the correlation coefficient values, it also could be known that the p-value between EVEBITDA with Tobin's Q{0.496}, EY{0.394}, SR {0.548}, SRISK {0.658}, RAR {0.545}, DER {0.952}, DERSQ {0.784}, DAR {0.756}, DARSQ {0.868}, LIQ {0.988}, SGR {0.797}, FAR {0.107}, and MR {0.984}are all greater than 0.05, which means the null hypothesis should be accepted, therefore, it could be concluded that there is no significant linear relationship between EVEBITDA and those variables.

The third result is the correlation between Earnings Yield and the variable Stock Return (SR), Risk-Adjusted Return (RAR), Liquidity (LIQ), Sales Growth Ratio (SGR), Fixed Asset Ratio (FAR), Market Return (MR) are 0.0011, 0.0007, 0.073, 0.005, 0.105, 0.082 respectively. This means that the correlation between Earnings Yield and these variables are very weak and positive. The correlation between Earnings Yield and the variable Tobin's Q, Enterprise Value/EBITDA (EVEBITDA), Stock Risk (SRISK), Debt-Equity Ratio (DER) and Debt-Asset Ratio (DERSQ), (DAR) and (DARSQ) are -0.04, -0.03, -0.03, -0.032, -0.03, -0.019, -0.019 respectively. This means that the correlation between Earnings Yield and these variables are very weak and negative. Aside from the correlation coefficient values, it also could be known that the p-value between EY with Tobin's Q{0.271}, EVEBITDA{0.394}, SR {0.977}, SRISK {0.368}, RAR {0.986}, DER {0.435}, DERSQ {0.395}, DAR {0.637}, DARSQ {0.631}, LIQ {0.078}, SGR {0.890}, and FAR {0.010} are all greater than 0.05, which means the null hypothesis should be accepted, therefore, it could be concluded that there is no significant linear relationship between EY and those variables. On the other hand, the p-value between EY and the variable MR {0.047} are less than 0.05, it means the null hypothesis should be rejected and it could be concluded that there is significant linear relationship between EY and MR.

The fourth result is the correlation between Stock Return and the variable Tobin's Q, Enterprise Value/EBITDA (EVEBITDA), Earnings Yield (EY), Stock Risk (SRISK), Debt-Equity Ratio (DER) and (DERSQ), Debt-Asset Ratio (DAR) and (DARSQ), Liquidity (LIQ), and Fixed Asset Ratio (FAR) are 0.132, 0.024, 0.011, 0.009, 0.024, 0.033, 0.002, 0.01, 0.033, 0.162 respectively. This means that the correlation between Stock Return and these variables are very weak and positive. The correlation between Stock Return and the variable Market Return (MR) is 0.312, which means that the correlation is weak and positive. The correlation between Stock Return and the variable Risk-Adjusted Return (RAR) is 0.999, which means that the correlation is very strong and positive. The correlation between Stock Return and the variable Sales Growth Ratio (SGR) is -0.02, which means that the correlation is very weak and negative. Aside from the correlation coefficient values, it also could be known that the p-value between SR with EVEBITDA ({0.548}, EY {0.977}, SRISK {0.813}, DER{0.550}, DERSQ {0.416}, DAR{0.957}, DARSQ {0.806}, LIQ {0.417}, and SGR {0.629} are all greater than 0.05, which means the null hypothesis should be accepted, therefore, it could be concluded that there is no significant linear relationship between SR and those variables. On the other hand, the p-value between SR and the variable Tobin's Q {0.001}, RAR {0.000}, FAR{0.000}, and MR {0.000} are less than 0.05, it means the null hypothesis should be rejected and it could be concluded that there is significant linear relationship between SR and these variables.

The fifth result is the correlation between Stock Risk and the variable Stock Return (SR), Risk-Adjusted Return (RAR), Debt-Equity Ratio (DERSQ), Liquidity (LIQ), Sales Growth Ratio (SGR), and Market Return (MR) are 0.009, 0.014, 0.03, 0.091, 0.031, and 0.129 respectively. This means that the correlation is very weak and positive. The correlation between Stock Risk and the variable Tobins Q, Enterprise Value/EBITDA (EVEBITDA), Earnings Yield (EY), Debt-Equity Ratio (DER), Debt-Asset Ratio (DAR) and (DARSQ), and Fixed Asset Ratio (FAR) are -0.048, -0.018, -0.03, -0.0002, -0.026, -0.019, and -0.114 respectively. This means that the correlation between Stock Risk and these variables are very weak and negative. Aside from the correlation coefficient values, it also could be known that the p-value between SRISK with Tobin's Q {0.243}, EVEBITDA{0.658}, EY{0.368}, SR {0.813}, RAR {0.726}, DER {0.996}, DERSQ {0.466}, DAR{0.519}, DARSQ{0.614}, and SGR {0.443} are all greater than 0.05, which means the null hypothesis should be accepted, therefore, it could be concluded that there is no significant linear relationship between SRISK and those variables. On the other hand, the p-value between SRISK and the variable LIQ {0.027}, FAR{0.005}, and MR {0.001} are less than 0.05, it means the null hypothesis should be rejected and it could be concluded that there is significant linear relationship between SRISK and these variables.

The sixth result is the correlation between Risk-Adjusted Return and the variable Tobin's Q, Enterprise Value/ EBITDA (EVEBITDA), Earnings Yield (EY), Stock Risk (SRISK), Debt-to Equity Ratio (DER) and (DERSQ), Debt-to Asset Ratio (DARSQ), Liquidity (LIQ), Fixed Asset Ratio (FAR) are 0.13, 0.025, 0.0007, 0.014, 0.022, 0.032, 0.007, 0.037, 0.161 respectively. This means that the correlation between Risk-Adjusted Return and these variables are very weak and positive. The correlation between Risk-Adjusted Return and Market Return is 0.307, which means that the correlation is weak and positive. The correlation between Risk-Adjusted Return and Stock Return is 0.999, which means that the correlation is very strong and positive. The correlation between Risk-Adjusted Return and the variable Debt-to Asset Ratio (DAR) and Sales Growth Ratio (SGR) are -0.0004 and -0.019 respectively. This means that the correlation between Risk-Adjusted return and these variables are very weak and negative. Aside from the correlation coefficient values, it also could be known that the p-value between RAR with EVEBITDA{0.545}, EY{0.986}, SRISK {0.726}, DER {0.587}, DERSQ{0.433}, DAR{0.990}, DARSQ{0.858}, LIQ{0.361}, and SGR{0.637} are all greater than 0.05, which means the null hypothesis should be accepted, therefore, it could be concluded that there is no significant linear relationship between RAR and those variables. On the other hand, the p-value between RAR and the variable Tobins Q {0.000}, SR{0.000}, FAR {0.000} and MR {0.000} are less than 0.05, it means the null hypothesis should be rejected and it could be concluded that there is significant linear relationship between RAR and these variables.

The seventh result is the correlation between Debt-Equity Ratio and the variable Stock Return (SR) and Risk-Adjusted Return (RAR) are 0.024 and 0.022 respectively. This means that the correlation between Debt-Equity Ratio and these variables is very weak and positive. The correlation between Debt-Equity Ratio and the variable Debt-Equity Ratio (DERSQ) and Debt- Asset Ratio (DAR) and (DARSQ) are 0.835, 0.896, 0.951 respectively. This means that the correlation between Debt-Equity Ratio and these variables are very strong and positive. The correlation between Debt-Equity Ratio and the variable Tobin's Q, Enterprise Value (EVEBITDA), Earnings Yield (EY), Stock Return (SR), Stock Risk (SRISK), Sales Growth Ratio (SGR), Market Return (MR), and Fixed Asset Ratio are -0.17, -0.002, -0.032, 0.024, -0.0002, -0.004, -0.002, -0.1206 respectively. This means that the correlation between Debt-Equity Ratio and these variables are very weak and negative. T. The correlation between Debt-Equity Ratio and the variable Liquidity (LIQ) is -0.514, which means that the correlation is moderate and negative. Aside from the correlation coefficient values, it also could be known that the p-value between DER with EVEBITDA{0.952}, EY{0.435}, SR{0.550}, SRISK{0.996}, RAR{0.587}, SGR{0.919}, and MR {0.951} are all greater than 0.05, which means the null hypothesis should be accepted, therefore, it could be concluded that there is no significant linear relationship between DER and those variables. On the other hand, the p-value between DER and the variable Tobins Q {0.000}, DERSQ{0.000}, DAR {0.000}, DARSQ {0.000}, FAR {0.000} and LIQ {0.000} are less than 0.05, it means the null hypothesis should be rejected and it could be concluded that there is significant linear relationship between RAR and these variables.

The eight result is the correlation between DERSQ and the variable Stock Return (SR), Stock Risk (SRISK), Risk-Adjusted Return (RAR), and Market Return (MR) are 0.033, 0.03, 0.032, 0.017 respectively. This means that the correlation between DERSQ and these variables are very weak and positive. The correlation between DERSQ and the variable Debt- Asset Ratio (DAR) is 0.556, which means that the correlation is moderate and positive. The correlation between DERSQ and the variable Debt- Asset Ratio (DARSQ) is 0.636, which means that the correlation is strong and positive. The correlation between DERSQ and the variable Debt-Equity Ratio (DER) is 0.835, which means that the correlation is very strong and positive. The correlation between DERSQ and the variable Tobin's Q, Enterprise Value (EVEBITDA), Earnings Yield (EY), Sales Growth Ratio (SGR), and Fixed Asset Ratio (FAR) are -0.07, -0.011, -0.03, -0.004, -0.120 respectively. This means that the correlation between DERSQ and these variables are very weak and negative. The correlation between DERSQ and the variable Liquidity (LIQ) is -0.291, which means that the correlation is weak and negative. Aside from the correlation coefficient values, it also could be known that the p-value between DERSQ with Tobins Q{0.068}, EVEBITDA{0.784}, EY{0.395}, SR{0.416}, SRISK{0.466},RAR {0.433}, SGR {0.937}, FAR{0.152}, and MR{0.672} are all greater than 0.05, which means the null hypothesis should be accepted, therefore, it could be concluded that there is no significant linear relationship between DERSQ and those variables. On the other hand, the p-value between DERSQ and the variable DER{0.000}, DAR {0.000}, DARSQ {0.000}, and LIQ {0.000} are less than 0.05, it means the null hypothesis should be rejected and it could be concluded that there is significant linear relationship between DERSQ and these variables.

The ninth result is the correlation between Debt-Asset Ratio and the variable (EVEBITDA), (SR), (MR) are 0.012, 0.002, 0.0015 respectively. This means that the correlation between Debt-Asset Ratio and these variables are very weak and positive. The correlation between Debt-Asset Ratio and the variable Debt-Equity Ratio (DERSQ) is 0.556, which means that the correlation between Debt-Asset Ratio and these variables are moderate and positive. The correlation between Debt-Asset Ratio and the variable Debt-Equity Ratio (DER) and Debt-Asset Ratio (DARSQ) 0.896 and 0.98. This means that the correlation between Debt-Asset Ratio and these variables are very strong and positive. The correlation between Debt-Asset Ratio and the variable Earnings Yield (EY), Stock Risk (SRISK), Risk-Adjusted Return (RAR), Sales Growth Ratio (SGR), and Fixed Asset Ratio (FAR) are, -0.019, -0.026, -0.0004,

-0.013, -0.179 respectively. This means that the correlation between Debt-Asset Ratio and these variables are very weak and negative. The correlation between Debt-Asset Ratio and the variable Tobin’s Q is -0.23, which means that the correlation is weak and negative. The correlation between Debt-Asset Ratio and the variable Liquidity (LIQ) is -0.62. This means that the correlation between Debt-Asset Ratio and these variables are strong and negative. Aside from the correlation coefficient values, it also could be known that the p-value between DAR with EVEBITDA{0.756}, EY{0.637}, SR{0.957}, SRISK{0.519}, RAR {0.990}, SGR {0.971}, and MR {0.753} are all greater than 0.05, which means the null hypothesis should be accepted, therefore, it could be concluded that there is no significant linear relationship between DAR and those variables. On the other hand, the p-value between DAR and the variable Tobins Q {0.000}, DERSQ{0.000}, DER {0.000}, DARSQ {0.000}, FAR {0.000} and LIQ {0.000} are less than 0.05, it means the null hypothesis should be rejected and it could be concluded that there is significant linear relationship between RAR and these variables.

The tenth result is the correlation between DARSQ and the variable Enterprise Value/EBITDA (EVEBITDA), Stock Return (SR), Risk-Adjusted Return (RAR), and Fixed Asset Ratio (FAR) are 0.006, 0.01, 0.007, 0.155 respectively. This means that the correlation between DARSQ and these variables are very weak and positive. The correlation between DARSQ and the variable Debt-Equity Ratio (DERSQ) is 0.636, which means that the correlation is strong and positive. The correlation between DARSQ and the variable Debt-Equity Ratio (DER) and Debt-Asset Ratio (DAR) are 0.951 and 0.98 respectively. This means that the correlation between DARSQ and these variables are very strong and positive. The correlation between DARSQ and the variable Earnings Yield (EY), Stock Risk (SRISK), Sales Growth Ratio (SGR), Market Return (MR) are -0.019, -0.019, -0.005, -0.011 respectively. This means that the correlation between DARSQ and these variables are very weak and negative. The correlation between DARSQ and the variable Tobin’s Q is -0.2133, which means that the correlation is weak and negative. The correlation between DARSQ and the variable Liquidity (LIQ) is -0.58, which means that the correlation is moderate and negative. Aside from the correlation coefficient values, it also could be known that the p-value between DARSQ with EVEBITDA{0.868}, EY{0.631}, SR{0.806}, SRISK{0.614}, RAR {0.858}, SGR {0.895}, and MR {0.778} are all greater than 0.05, which means the null hypothesis should be accepted, therefore, it could be concluded that there is no significant linear relationship between DARSQ and those variables. On the other hand, the p-value between DARSQ and the variable Tobins Q {0.000}, FAR {0.000}, DERSQ{0.000}, DER {0.000}, DAR {0.000}, and LIQ {0.000} are less than 0.05, it means the null hypothesis should be rejected and it could be concluded that there is significant linear relationship between DARSQ and these variables.

The eleventh result is the correlation between Liquidity and the variable Tobin's Q, Enterprise Value/EBITDA (EVEBITDA), Earnings Yield (EY), Stock Return (SR), Stock Risk (SRISK), Risk-Adjusted Return (RAR), Sales Growth Ratio (SGR) are 0.006, 0.0006, 0.073, 0.033, 0.091, 0.037, 0.03 respectively. This means that the correlation between Liquidity and these variables are very weak and positive.The correlation between Liquidity and the variable Fixed-Asset Ratio (FAR) is 0.227, which means that the correlation is weak and positive.The correlation between Liquidity and the variable Market Return (MR) is -0.01, which means that the correlation is very weak and negative. The correlation between Liquidity and the variable Debt-Equity Ratio (DERSQ) is -0.291, which means that the correlation is weak and negative. The correlation between Liquidity and the variable Debt-Equity Ratio (DER), Debt-Asset Ratio (DARSQ) -0.514 and -0.58 respectively. This means that the correlation between Liquidity and these variables are moderate and negative. The correlation between Liquidity and the variable Debt-Asset Ratio (DAR) is -0.62, which means that the correlation is strong and negative. Aside from the correlation coefficient values, it also could be known that the p-value between LIQ with EVEBITDA{0.988}, EY{0.078}, SR{0.417}, RAR {0.361}, SGR {0.468}, and MR {0.796} are all greater than 0.05, which means the null hypothesis should be accepted, therefore, it could be concluded that there is no significant linear relationship between LIQ and those variables. On the other hand, the p-value between LIQ and the variable Tobins Q {0.000}, SRISK {0.027}, FAR {0.000}, DERSQ{0.000}, DER {0.000}, and DARSQ {0.000} are less than 0.05, it means the null hypothesis should be rejected and it could be concluded that there is significant linear relationship between LIQ and these variables.

The twelfth result is the correlation between Sales Growth and the variable Earnings Yield (EY), Stock Risk (SRISK), Debt-Asset Ratio (DAR), Liquidity (LIQ), Fixed-Asset Ratio (FAR) are 0.005, 0.031, 0.0015, 0.03, 0.096 respectively. This means that the correlation between Sales Growth and these variables are very weak and positive.The correlation between Sales Growth and the variable Tobin's Q, Enterprise Value/EBITDA (EVEBITDA), Stock Return (SR), Risk-Adjusted Return (RAR), Debt-Equity Ratio (DER) (DERSQ), Debt-Asset Ratio (DARSQ), Market Return(MR) are -0.019, -0.01, -0.02, -0.019, -0.004, -0.003, -0.005, -0.055 respectively. This means that the correlation between Sales Growth and these variables are very weak and negative. Aside from the correlation coefficient values, it also could be known that the p-value between SGR with Tobinsq{0.632}, EVEBITDA{0.797}, EY{0.890}, SR {0.629},SRISK{0.443},RAR{0.637},DER{0.919},DERSQ{0.937},DAR{0.971}, DARSQ{0.895}, LIQ{0.468} are all greater than 0.05, which means the null hypothesis should be accepted, therefore, it could be concluded that there is no significant linear relationship between SGR and those variables. On the other hand, the p-value between SGR and the variable FAR {0.020} are less than 0.05, it means the null hypothesis should be rejected and it could be concluded that there is significant linear relationship between SGR and FAR.

The thirteenth result is the correlation between Fixed Asset Ratio and the variable Earnings Yield (EY), Stock Return (SR), Risk-Adjusted Return (RAR), Debt-Asset Ratio (DARSQ), Sales Growth Ratio (SGR), and Market Return (MR) are

0.105, 0.162, 0.161, 0.155, 0.096, 0.096, 0.047 respectively. This means that the correlation between Fixed Asset Ratio and these variables are very weak and positive. The correlation between Fixed Asset Ratio and the variable Tobin's Q and Liquidity (LIQ) is 0.201 and 0.227 respectively. This means that the correlation between Fixed Asset Ratio and these variables are weak and positive. The correlation between Fixed Asset Ratio and the variable Enterprise Value/EBITDA (EVEBITDA), Stock Risk (SRISK), Debt-Equity Ratio (DER) and (DERSQ), Debt-Asset Ratio (DAR) are -0.06, -0.114, -0.1206, -0.059, -0.179 respectively. This means that the correlation between Fixed Asset Ratio and these variables are very weak and negative. Aside from the correlation coefficient values, it also could be known that the p-value between FAR with EVEBITDA{0.107}, DERSQ {0.152}, and MR {0.258} are all greater than 0.05, which means the null hypothesis should be accepted, therefore, it could be concluded that there is no significant linear relationship between FAR and those variables. On the other hand, the p-value between FAR and the variable Tobins Q {0.000}, EY {0.010}, SR {0.000}, SRISK{0.005}, RAR{0.000}, DER{0.003}, DAR{0.000}, LIQ {0.000}, FAR {0.020} and DARSQ {0.000} are less than 0.05, it means the null hypothesis should be rejected and it could be concluded that there is significant linear relationship between SGR and these variables.

The fourteenth result is the correlation between Market Return and the variable Tobin's Q, Enterprise Value/EBITDA (EVEBITDA), Earnings Yield (EY), Stock Risk (SRISK), Debt-Equity Ratio (DERSQ), Fixed Asset Ratio (FAR) are 0.006, 0.0008, 0.082, 0.129, 0.017, 0.047 respectively. This means that the correlation between Market Return and these variables are very weak and positive. The correlation between Market Return and the variable Stock Return (SR), Risk-Adjusted Return (RAR) are 0.312 and 0.307 respectively. This means that the correlation between Market Return and these variables are weak and positive. The correlation between Market Return and the variable Debt-Equity Ratio (DER), Debt-Asset Ratio (DAR) and (DARSQ), Liquidity (LIQ), and Sales Growth Ratio (SGR) are -0.002, -0.013, -0.011, -0.01, -0.055 respectively. This means that the correlation between Market Return and these variables are very weak and negative. Aside from the correlation coefficient values, it also could be known that the p-value between MR with Tobin's Q {0872}, EVEBITDA{0.984}, DER{0.951}, DERSQ{0.672}, DAR{0.753}, DARSQ{0.778}, LIQ{0.796}, SGR{0.180}, FAR {0.258}are all greater than 0.05, which means the null hypothesis should be accepted, therefore, it could be concluded that there is no significant linear relationship between M and those variables. On the other hand, the p-value between MR and the variable EY{0.047}, SR {0.000},SRISK{0.001},and RAR {0.000}} are less than 0.05, it means the null hypothesis should be rejected and it could be concluded that there is significant linear relationship between MR and these variables.

4.1.3. Boxplots

4.1.3.1. Debt-Equity Ratio

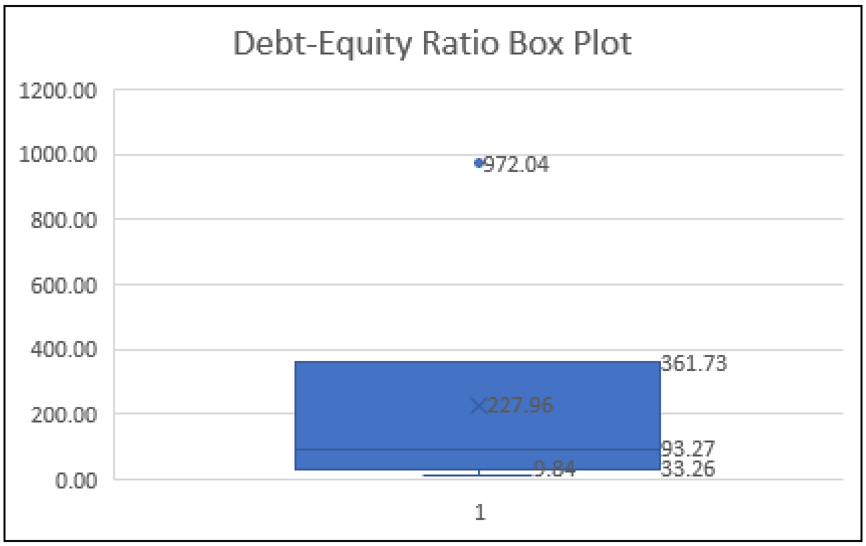


Figure 4.1. Boxplot of Debt-Equity Ratio

From the Table 4.1 and Figure 4.1, it could be known that the mean of Debt-Equity Ratio data is 109.19%, which means the average amount of debt as opposed to equity that is employed by 29 companies from 2014 until 2018 is 109.19%. Aside from the mean of the Debt-equity ratio data, the median, maximum, minimum, and standard deviation of the Debt-equity ratio data are shown in the Table 4.1 and Figure 4.1. The median value of the Debt-equity ratio data is 77.72%. The maximum value of the

Debt-equity ratio data is 972.04%, which comes from PT Astra International during the second quarter of 2017. The minimum value of the Debt-equity ratio data is 9.84%, which comes from PT Indocement Tunggal Prakarsa Tbk during the third quarter of 2016. The standard deviation of the Debt-equity ratio data is 93.95%. Since the standard deviation is lower than the mean, it means the Debt-equity ratio data is not varied.

4.1.3.2. Debt Asset Ratio

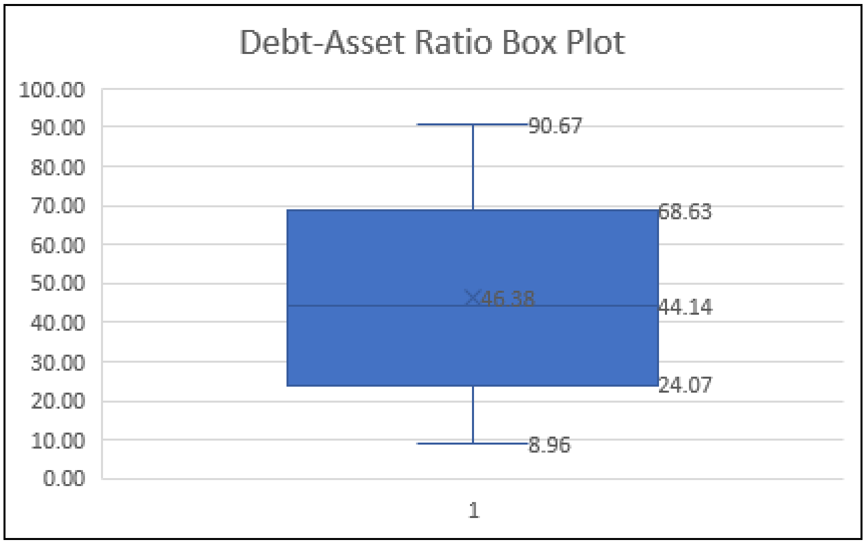


Figure 4.2. Boxplot of Debt-Asset Ratio

From the Table 4.1 and Figure 4.2, it could be known that the mean of Debt-Asset Ratio data is 44.60%, which means the average amount of debt that is employed to finance the company's assets by 29 companies from 2014 until 2018 is 44.60%. Aside from the mean of the Debt-Asset Ratio data, the median, maximum, minimum, and standard deviation of the Debt-Asset Ratio data are shown in the Table 4.1 and Figure 4.2. The median value of the Debt-Asset Ratio data is 43.73%. The maximum value of the Debt-Asset Ratio data is 90.67%, which comes from PT Astra International during the second quarter of 2017. The minimum value of the Debt-Asset Ratio data is 8.96%, which comes from PT Indocement Tunggal Prakarsa Tbk during the third quarter of 2016. The standard deviation of the Debt-Asset Ratio data is 18.88%. Since the standard deviation is lower than the mean, it means the Debt-Asset Ratio data is not varied.

4.1.3.3. Tobin’s Q

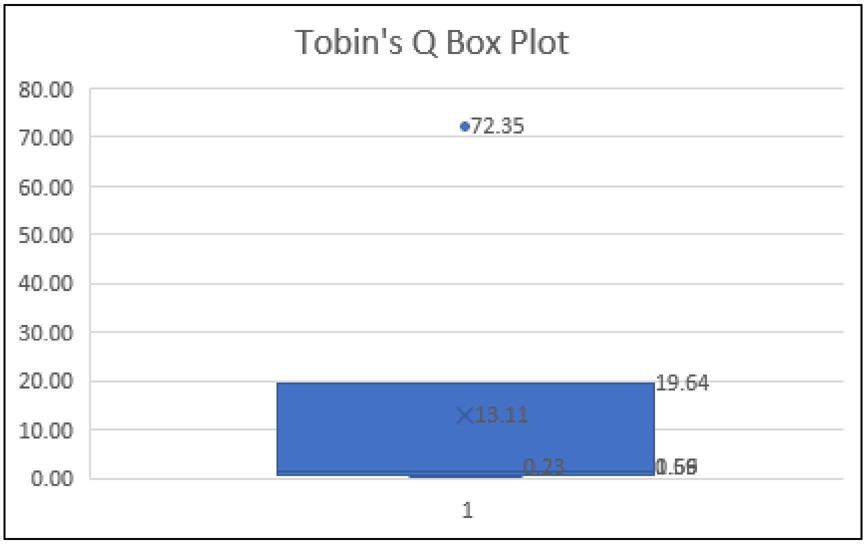


Figure 4.3. Boxplot of Tobin’s Q

From the Table 4.1 and Figure 4.3, it could be known that the mean of the Tobin’s Q data is 1.97, which means the average ratio between the physical asset's market value and replacement value of 29 companies from 2014 until 2018 is 1.97. Aside from the mean of the Tobin’s Q data, the median, maximum, minimum, and standard deviation of the Tobin’s Q data are shown in the Table 4.1 and Figure 4.3. The median value of the Tobin’s Q is 1.21. The maximum value of the Tobin’s Q data is 72.35, which comes from PT Vale Indonesia Tbk during the second quarter of 2014. The minimum value of the Tobin’s Q data is 0.23, which comes from PT MNC Investama Tbk during the third quarter of 2016. The standard deviation of the Tobin’s Q is 3.44. Since the standard deviation is higher than the mean, it means the Tobin’s Q data is varied.

4.1.3.4. EV/EBITDA

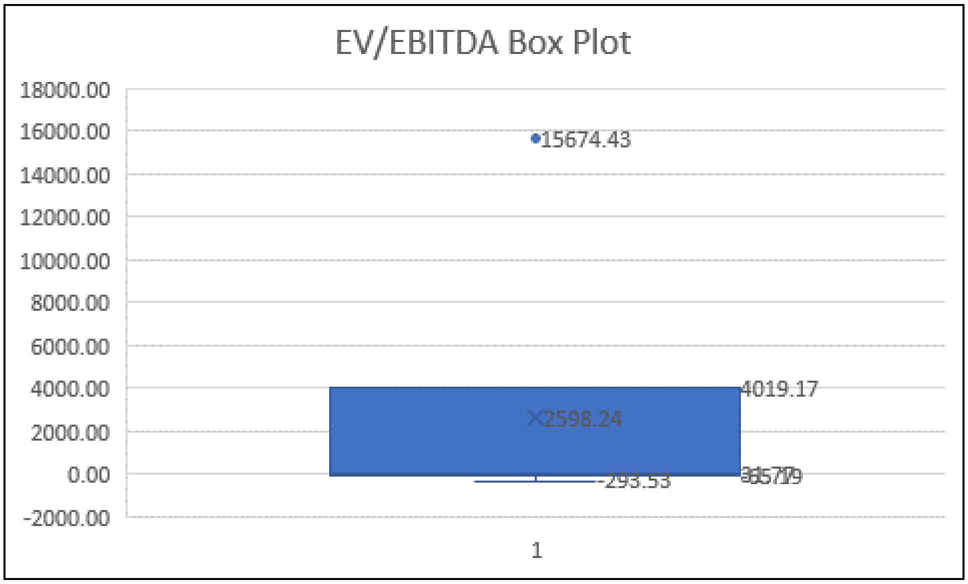


Figure 4.4. Boxplot of EV/EBITDA

From the Table 4.1 and Figure 4.4, it could be known that the mean of the EV/EBITDA data is 133.87, which means the average enterprise value to ebitda of 29 companies from 2014 until 2018 is 133.87. Aside from the mean of the EV/EBITDA data, the median, maximum, minimum, and standard deviation of the EV/EBITDA data are shown in the Table 4.1 and Figure 4.4. The median value of the EV/EBITDA is 20.92. The maximum value of the EV/EBITDA data is 15764.43, which comes from PT MNC Investama Tbk during the second quarter of 2017. The minimum value of the EV/EBITDA data is -293.53, which comes from PT Vale Indonesia Tbk during the third quarter of 2016. The standard deviation of the EV/EBITDA is 1143.15. Since the standard deviation is higher than the mean, it means the EV/EBITDA data is varied.

4.1.3.5 Earnings Yield

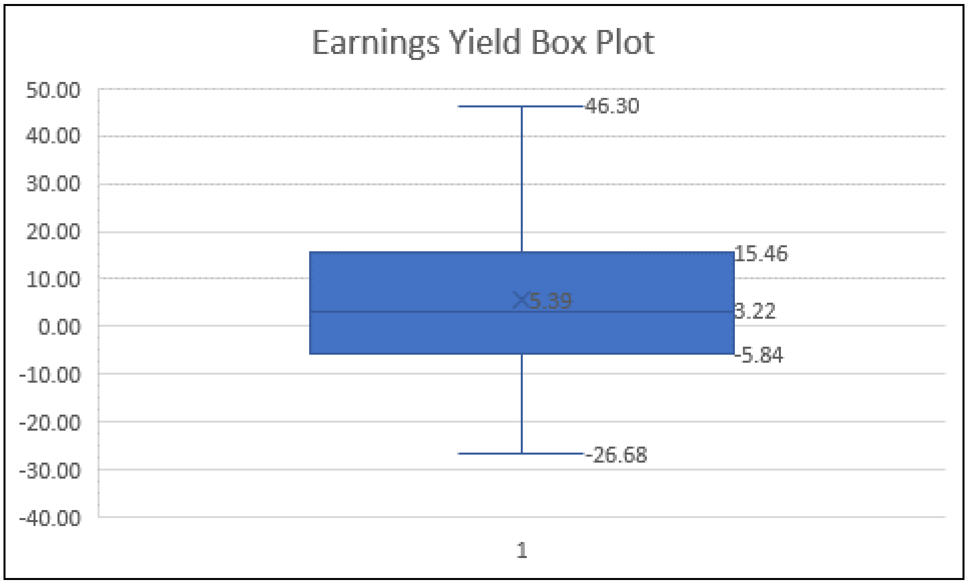


Figure 4.5. Boxplot of Earnings Yield

From the Table 4.1 and Figure 4.5, it could be known that the mean of the Earnings Yield data is 3.65%, which means the average percentage earned per share is 3.65% by 29 companies from 2014 until 2018 is 3.65%. Aside from the mean of the Earnings Yield data, the median, maximum, minimum, and standard deviation of the Earnings Yield data are shown in the Table 4.1 and Figure 4.5. The median value of the Earnings Yield is 2.82%. The maximum value of the Earnings Yield data is 46.30%, which comes from PT Agung Podomoro Land Tbk during the fourth quarter of 2017. The minimum value of the Earnings Yield data is -26.68%, which comes from PT Aneka Tambang Tbk during the third quarter of 2015. The standard deviation of the Earnings Yield is 5.87%. Since the standard deviation is higher than the mean, it means the Earnings Yield data is varied.

4.1.3.6. Stock Return

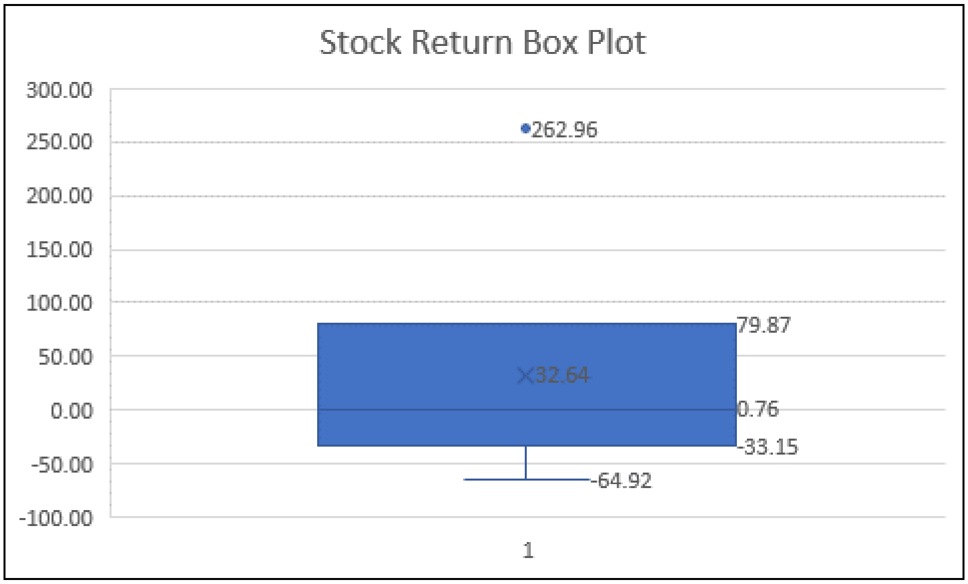


Figure 4.6. Boxplot of Stock Return

From the Table 4.1 and Figure 4.6, it could be known that the mean of the Stock Return data is 3.82%, which means the average return that investors receive from their investments in 29 companies from 2014 until 2018 is 3.82%. Aside from the mean of the Stock Return data, the median, maximum, minimum, and standard deviation of the Stock Return data are shown in the Table 4.1 and Figure 4.6. The median value of the Stock Return is 2.36%. The maximum value of the Stock Return data is 262.96%, which comes from PT Waskita Karya Tbk during the fourth quarter of 2014. The minimum value of the Stock Return data is -64.92%, which comes from PT Aneka Tambang Tbk during the fourth quarter of 2015. The standard deviation of the Stock Return is 41.05%. Since the standard deviation is higher than the mean, it means the Stock Return data is varied.

4.1.3.7. Stock Risk

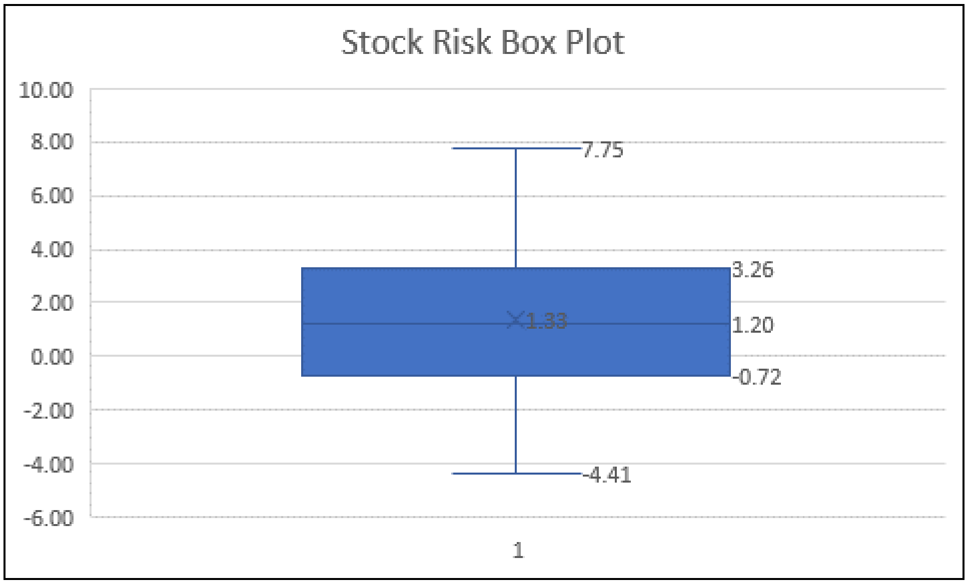


Figure 4.7. Boxplot of Stock Risk

From the Table 4.1 and Figure 4.7, it could be known that the mean of the Stock Risk data is 1.25, which means the average stock volatility in relation to the overall market in 29 companies from 2014 until 2018 is 1.25. Aside from the mean of the Stock Risk data, the median, maximum, minimum, and standard deviation of the Stock Risk are shown in the Table 4.1 and Figure 4.7. The median value of the Stock Risk is 1.14. The maximum value of the Stock Risk data is 7.75, which comes from PT Sri Rejeki Isman Tbk during the first quarter of 2015. The minimum value of the Stock Risk data is -4.41, which comes from PT Sri Rejeki Isman Tbk during the first quarter of 2017. The standard deviation of the Stock Risk is 1.28. Since the standard deviation is higher than the mean, it means the Stock Risk data is varied.

4.1.3.8. Risk Adjusted Return

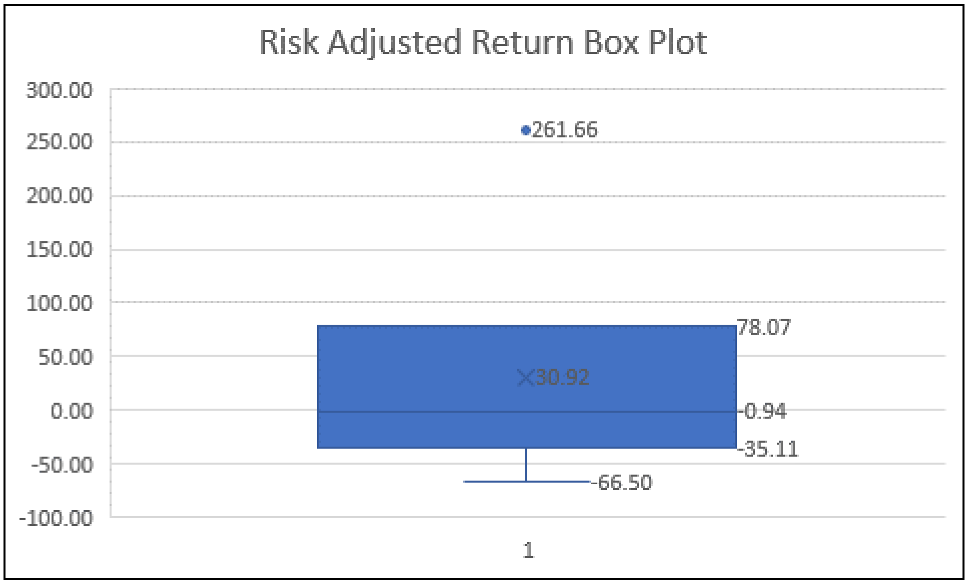


Figure 4.8. Boxplot of Risk-Adjusted Return

From the Table 4.1 and Figure 4.8, it could be known that the mean of the Risk-Adjusted Return data is 1.95%, which means the average potential profits for investors with the degree of risk considered from the investment in 29 companies from 2014 until 2018 is 1.95%. Aside from the mean of the Risk-Adjusted Return data, the median, maximum, minimum, and standard deviation of the Risk-Adjusted Return are shown in the Table 4.1 and Figure 4.8. The median value of the Risk-Adjusted Return is -3.87%. The maximum value of the Risk-Adjusted Return data is 261.66%, which comes from PT Waskita Karya Tbk during the fourth quarter of 2014. The minimum value of the Risk-Adjusted Return data is -66.50%, which comes from PT Indosat Tbk during the fourth quarter of 2018. The standard deviation of the Risk-Adjusted Return is 41.02%. Since the standard deviation is higher than the mean, it means the Risk-Adjusted Return data is varied.

4.1.3.9. Liquidity

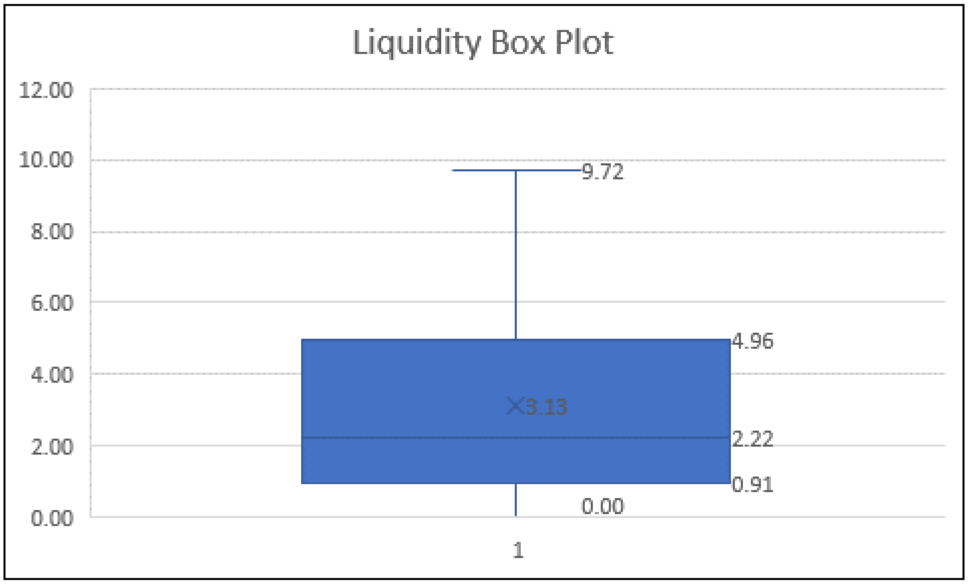


Figure 4.9. Boxplot of Liquidity

From the Table 4.1 and Figure 4.9, it could be known that the mean of Liquidity data is 2.46, which means the average efficiency of the ability to pay the short-term debts of 29 companies from 2014 until 2018 is 2.46. Aside from the mean of the Liquidity data, the median, maximum, minimum, and standard deviation of the Liquidity are shown in the Table 4.1 and Figure 4.9. The median value of the Liquidity is 1.98. The maximum value of Liquidity data is 9.72, which comes from PT Media Nusantara Citra Tbk during the fourth quarter of 2014. The minimum value of the Liquidity data is 0.00, which comes from PT Ace Hardware Indonesia Tbk during the first until the third quarter of 2018. The standard deviation of the Liquidity is 1.72. Since the standard deviation is lower than the mean, it means the Liquidity data is not varied.

4.1.3.10. Fixed-Asset Ratio

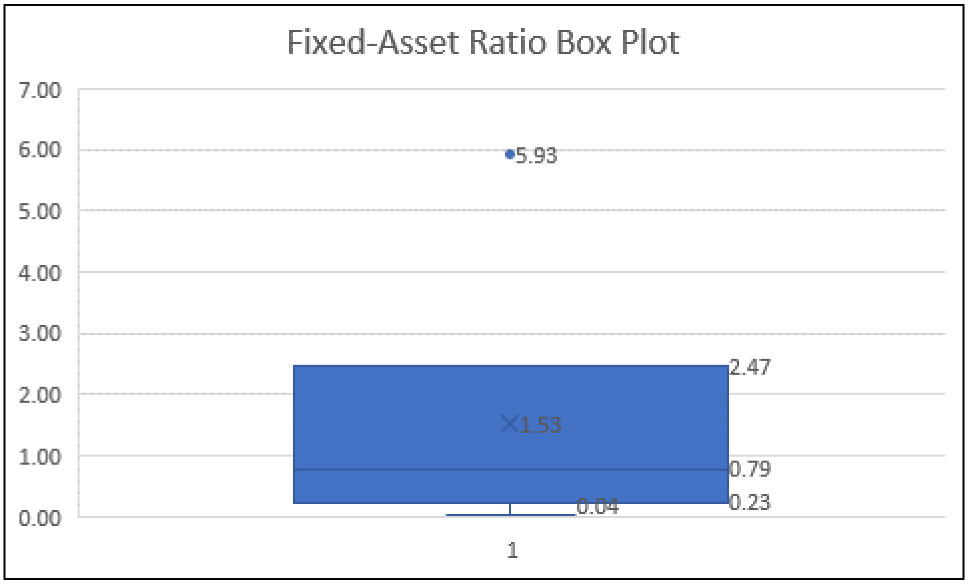


Figure 4.10. Boxplot of Fixed Asset Ratio

From the Table 4.1 and Figure 4.10, it could be known that the mean of the Fixed Asset Ratio data is 1, which means the average efficiency of net sales generation derived from fixed-asset investments of 29 companies from 2014 until 2018 is 1. Aside from the mean of the Fixed Asset Ratio data, the median, maximum, minimum, and standard deviation of the Fixed Asset Ratio are shown in the Table 4.1 and Figure 4.10. The median value of the Fixed Asset Ratio is 0.59. The maximum value of Fixed Asset Ratio data is 5.93, which comes from PT Ace Hardware Indonesia Tbk during the fourth quarter of 2015. The minimum value of the Fixed Asset Ratio data is 0.04, which comes from PT Jasa Marga Tbk during the first quarter of 2018. The standard deviation of the Fixed Asset Ratio is 1.06. Since the standard deviation is higher than the mean, it means the Fixed Asset Ratio data is varied.

4.1.3.11. Sales Growth Ratio

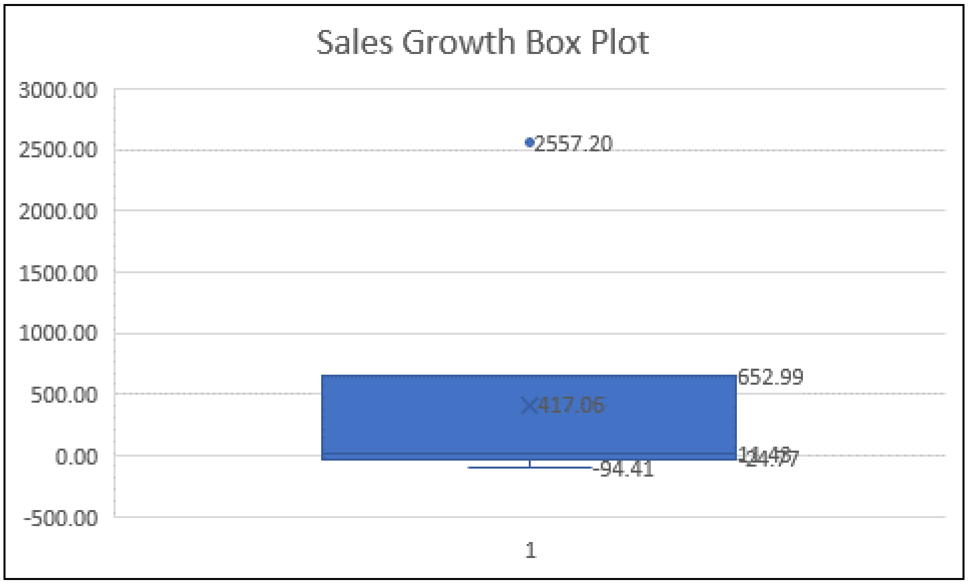


Figure 4.11. Boxplot of Sales Growth

From the Table 4.1 and Figure 4.11, it could be known that the mean of the Sales Growth data is 18.23%, which means the average growth in the revenue of 29 companies from 2014 until 2018 is 18.23%. Aside from the mean of the Sales Growth data, the median, maximum, minimum, and standard deviation of the Sales Growth are shown in the Table 4.1 and Figure 4.11. The median value of the Sales Growth is 6.26%. The maximum value of Sales Growth data is 2557.20%, which comes from PT Bekasi Fajar Industrial Estate Tbk during the second quarter of 2015. The minimum value of the Sales Growth data is -94.41%, which comes from PT Bekasi Fajar Industrial Estate during the third quarter of 2016. The standard deviation of the Sales Growth is 138.02%. Since the standard deviation is higher than the mean, it means the Sales Growth data is varied.

4.1.3.12. Market Return

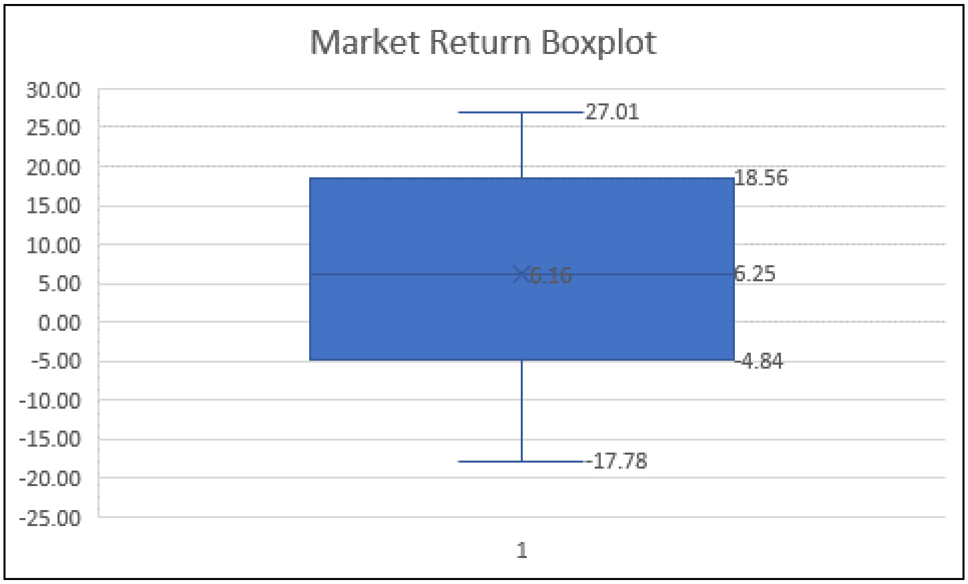


Figure 4.12. Boxplot of Market Return

From the Table 4.1 and Figure 4.12, it could be known that the mean of the Market Return data is 6.41%, which means the average the overall market portfolio in 29 companies from 2014 until 2018 is 6.41%. Aside from the mean of the Market Return data, the median, maximum, minimum, and standard deviation of the Market Return are shown in the Table 4.1 and Figure 4.12. The median value of the Market Return is 6.08%. The maximum value of the Market Return data is 27.01. The minimum value of the Market Return data is -17.78%. The standard deviation of the Market Return is 12.25%. Since the standard deviation is higher than the mean, it means the Market Return data is varied.

4.2. Panel Data Regression Analysis

This study uses panel data. Therefore, it is essential to firstly identify the most suitable panel data model before running the panel data regression. There are two tests that have been conducted to estimate the most suitable panel data model for this study, they are Chow Test, Hausman Test and Lagrange Multiplier Test. The results of the three tests for both independent variables (DER and DAR) are shown in the table below.

Table 4.3. Results of Chow Test, Hausman Test and Lagrange Multiplier Test (MODEL 1)

MODEL 1 (DER)						
	EQ1	**EQ2**	**EQ3**	**EQ4**	**EQ5**	**EQ6**
Chow Test (p-value)	0.000	0.520	0.000	0.000	0.053	0.000
Hausman Test (p-value)	0.170	1.000	1.000	0.650	0.212	0.691
Lagrange Multiplier Test (p-value)	0.000	0.836	0.000	0.000	0.000	0.000
Result	REM	REM	REM	REM	REM	REM

Table 4.4. Results of Chow Test, Hausman Test and Lagrange Multiplier Test (MODEL 2)

MODEL 2 (DAR)						
	EQ1	**EQ2**	**EQ3**	**EQ4**	**EQ5**	**EQ6**
Chow Test (p-value)	0.000	0.542	0.000	0.000	0.046	0.000
Hausman Test (p-value)	0.009	1.000	0.471	0.717	0.154	1.000
Lagrange Multiplier Test (p-value)	0.000	0.661	0.000	0.000	0.003	0.000
Result	FEM	REM	REM	REM	REM	REM
Note: EQ1: Tobins'Q EQ2: EV/EBITDA EQ3: Earnings Yield EQ4: Stock Return EQ5: Stock Risk EQ6: Risk-Adjusted Return						

4.2.1. Chow Test

The chow test is a test that is conducted to determine the most suitable panel data model between common-effect model and fixed-effect model. If the result of chow test shows that the p-value < 0.05, it means that the null hypothesis should be rejected and it concludes that the fixed-effect model is better than common-effect model. In contrast, if the result of chow test shows the p-value > 0.05, it means the null hypothesis should be accepted and it concludes that the common-effect model is better than fixed-effect model.

The Table 4.3 above shows the result of the chow test for Model 1, where the p-value in EQ1, EQ3, EQ4, EQ5, and EQ6 (0.000, 0.000, 0.000,0.000, 0.053, 0.000) are lesser than 0.05, which means the null hypothesis should be rejected and it is concluded that the fixed-effect model is better than the common-effect model. However, the p-value in EQ2 (0.520) is greater than 0.05, which means that the null hypothesis should be accepted and it is concluded that the common-effect model is better than the fixed-effect model.

The Table 4.4 above shows the result of the chow test for Model 2, where the p-value in EQ1, EQ3, EQ4, EQ5, and EQ6 (0.000, 0.000, 0.000, 0.000, 0.046, 0.000) are lesser than 0.05, which means the null hypothesis should be rejected and it is concluded that the fixed-effect model is better than the common-effect model. . However, the p-value in EQ2 (0.543) is greater than 0.05, which means that the null hypothesis should be accepted and it is concluded that the common-effect model is better than the fixed-effect model.

4.2.2. Hausman Test

The Hausman test is a test that is conducted to determine the most suitable panel data model between random-effect model and fixed-effect model. If the result of Hausman test shows the p-value < 0.05, it means the null hypothesis should be rejected and it concludes that the fixed-effect model is better than random-effect model. In contrast, if the result of Hausman test shows the p-value > 0.05, it means the null hypothesis should be accepted and it concludes that the random-effect model is better than fixed-effect model.

The Table 4.3 above shows the result of the Hausman test for Model 1, where the p-value of all of the equations (0.170, 1, 1, 0.650, 0.212, 0.691) are greater than 0.05, which means that the null hypothesis should be accepted and it can be concluded that the random-effect model is better than the fixed-effect model.

The Table 4.4 above shows the result of the Hausman test for Model 2, where the p-value of EQ2, EQ3, EQ4, EQ5, EQ6 (1, 0.471, 0.717, 0.154, 1) are greater than 0.05, which means that the null hypothesis should be accepted and it can be concluded that the random-effect model is better than the fixed-effect model. However, the p-value in EQ2 (0.009) is lesser than 0.05, which means that the null hypothesis should be rejected and it is concluded that the fixed-effect model is better than the random-effect model.

4.2.3. Lagrange Multiplier Test

The Lagrange multiplier test is a test that is conducted to determine the most suitable panel data model between random-effect model and common-effect model. The Lagrange multiplier test can be conducted if the result of chow test showed that the common-effect model is the most suitable panel data model compared to fixed-effect model and if the result of Hausman test showed that the random-effect model is the most suitable panel data model compared to fixed-effect model. If the result of Lagrange multiplier test shows the p-value < 0.05, it means the null hypothesis should be rejected and it concludes that the random-effect model is better than common-effect model. In contrast, if the result of Lagrange multiplier test shows the p-value > 0.05, it means the null hypothesis should be accepted and it concludes that the common-effect model is better than random-effect model.

The Table 4.3 above shows the result of the Lagrange Multiplier test for Model 1, where the p-value of EQ1, EQ3, EQ4, EQ5, and EQ6 (0.000, 0.000, 0.000,0.000, 0.000, 0.000) are lesser than 0.05, which means that the null hypothesis should be rejected and it can be concluded that the random-effect model is better than the common-effect model. However, the p-value in EQ2 (0.836) is greater than 0.05, which means that the null hypothesis should be accepted and it is concluded that the common-effect model is better than the random-effect model.

The Table 4.4 above shows the result of the Lagrange Multiplier test for Model 2, where the p-value of EQ1, EQ3, EQ4, EQ5, and EQ6 (0.000, 0.000, 0.000,0.000, 0.003, 0.000) are lesser than 0.05, which means that the null hypothesis should be rejected and it can be concluded that the random-effect model is better than the common-effect model. However, the p-value in EQ2 (0.661) is greater than 0.05, which means that the null hypothesis should be accepted and it is concluded that the common-effect model is better than the random-effect model.

Summary of the results of Chow Test, Hausman Test, and Lagrange Multiplier Test for Model 1 could be seen through Table 4.5 and for Model 2 could be seen through Table 4.6 below.

Table 4.5. Panel Data Model Selection Summary (Model 1)

DER	**EQ1, EQ3, EQ4, EQ5, EQ6**	
Test	Compared Model	Result of Comparison
Chow Test	CEM	FEM
	FEM	
Hausman Test	FEM	REM
	REM	
Lagrange Multiplier Test	REM	CEM
	CEM	
	EQ2	
Test	Compared Model	Result of Comparison
Chow Test	CEM	CEM
	FEM	
Hausman Test	FEM	REM
	REM	
Lagrange Multiplier Test	REM	REM
	CEM	

Table 4.6. Panel Data Model Selection Summary (Model 2)

DAR	**EQ3, EQ4, EQ5, EQ6**	
Test	Compared Model	Result of Comparison
Chow Test	CEM	FEM
	FEM	
Hausman Test	FEM	REM
	REM	
LM Test	REM	CEM
	CEM	
	EQ2	
Test	Compared Model	Result of Comparison
Chow Test	CEM	CEM
	FEM	
Hausman Test	FEM	REM
	REM	
LM Test	REM	REM
	CEM	
	EQ1	
Test	Compared Model	Result of Comparison
Chow Test	CEM	FEM
	FEM	
Hausman Test	FEM	FEM
	REM	
LM Test	REM	CEM
	CEM	

4.3. Classical Assumption Test – Multicollinearity Test

Table 4.7. Result of Multicollinearity Test (Model 1)

Variance Inflation Factor (VIF)						
	EQ1	**EQ2**	**EQ3**	**EQ4**	**EQ5**	**EQ6**
DER	4.533	4.533	4.533	4.533	4.533	4.533
DERSQ	3.641	3.641	3.641	3.641	-	3.641
LIQ	1.542	1.542	1.542	1.542	1.542	1.542
FAR	1.067	1.067	1.067	1.067	1.067	1.067
SGR	1.013	1.013	1.013	1.013	1.013	1.013
MR	1.008	1.008	1.008	1.008	1.007	1.008

Note:
EQ1: Tobins'Q
EQ2: EV/EBITDA
EQ3: Earnings Yield
EQ4: Stock Return
EQ5: Stock Risk
EQ6: Risk-Adjusted Return

Table 4.8. Result of Multicollinearity Test (Model 2)

Variance Inflation Factor (VIF)						
	EQ1	**EQ2**	**EQ3**	**EQ4**	**EQ5**	**EQ6**
DAR	29.684	29.684	29.684	29.684	29.684	29.684
DARSQ	27.271	27.271	27.271	27.271	-	27.271
LIQ	1.754	1.754	1.754	1.754	1.754	1.754
FAR	1.077	1.077	1.077	1.077	1.077	1.077
SGR	1.017	1.017	1.017	1.017	1.017	1.017
MR	1.007	1.007	1.007	1.007	1.007	1.007

Note:
EQ1: Tobins'Q
EQ2: EV/EBITDA
EQ3: Earnings Yield
EQ4: Stock Return
EQ5: Stock Risk
EQ6: Risk-Adjusted Return

From the Table 4.7 above which shows the VIF values for Model 1, it could be seen that all of the values of Variance Inflation Factor (VIF) in EQ1, EQ2, EQ3, EQ4, EQ5 and EQ6 are all below 10. This means that a multicollinearity problem does not exist between the variables of DER, DERSQ, LIQ, FAR, SGR, and MR.

From the Table 4.8 above which shows the VIF values for Model 2, it could be seen that all of the values of Variance Inflation Factor (VIF) in EQ1, EQ2, EQ3, EQ4, EQ5 and EQ6, shows that the independent variables, namely Debt-Assets Ratio (DAR & DARSQ) has the values of VIF that are greater than 10. This means there are multicollinearity problems between independent variables in the EQ1 until EQ6. However, for the VIF values for LIQ, FAR, SGR, and MR in EQ1 until EQ6 are all below 10, so there is no multicollinearity problem. Despite the existence of multicollinearity problems in the EQ1, EQ2, EQ3, EQ4, EQ5, and EQ6 for the DAR and DARSQ, it does not significantly affect the usefulness of the multiple linear regression equations to predict the value of the dependent variable. Because of this reason, the multicollinearity problems in the EQ1, EQ2, EQ3, EQ4, EQ5, and EQ6 are not a huge concern for this study that wants to focus on prediction or estimation.

4.4. Significance Test

This study performed two significance tests, namely the Test on Individual Regression Coefficients (t-Test) and the Simultaneous Significance Test (F-Test). The results of each of the significance test could be seen through Table 4.9 (Model 1) and Table 4.10 (Model 2) below.

Table 4.9. Result of Significance Test (Model 1)

	Coefficient t-statistic [p-value]					
	EQ1 (Tobin's Q)	EQ2 (EVEBITDA)	EQ3 (EY)	EQ4 (SR)	EQ5 (SRISK)	EQ6 (RAR)
DER	-0.008	0.319	0.0038	0.030	0.0010	0.030
	-1.902	0.293	0.008	0.597	1.487	0.594
	[0.057]*	[0.768]	[0.666]	[0.55]	[0.137]	[0.552]
DERSQ	0.00001	-0.0007	-0.00001	-0.00002	-	-0.00002
	1.614	-0.389	-0.522	-0.242	-	-0.234
	[0.106]	[0.697]	[0.601]	[0.808]	-	[0.815]
LIQ (DER)	0.029	14.407	-0.123	1.99	0.1316	2.075
	0.238	0.414	-0.592	1.369	3.393	1.427
	[0.812]	[0.678]	[0.554]	[0.171]	[0.000]***	[0.154]
FAR (DER)	0.275	-76.19	1.416	4.929	-0.201	4.902
	1.634	-1.626	5.099	2.526	-3.68	2.509
	[0.102]	[0.104]	[0.000]***	[0.011]**	[0.000]***	[0.012]**
SGR (DER)	-0.0002	-0.034	-0.002	-0.003	0.0004	-0.003
	-0.296	-0.098	-1.627	-0.274	1.207	-0.274
	[0.767]	[0.921]	[0.104]	[0.783]	[0.227]	[0.784]
MR (DER)	-0.0002	0.442	0.032	1.022	0.014	1.013
	-0.023	0.113	2.061	8.124	3.519	8.054
	[0.981]	[0.909]	[0.039]**	[0.000]***	[0.000]***	[0.000]***
R-square (DER)	0.013	0.005	0.055	0.12	0.053	0.1192
F statistic	1.335	0.482	5.56	13.105	6.445	12.934
F-Statistic (Prob)	[0.239]	[0.821]	[0.000]***	[0.000]***	[0.000]***	[0.000]***
No of Observations	580	580	580	580	580	580
Note: *significance at <10% of significance level ***significance at <5% of significance level ***significance at <1% of significance level						

Table 4.10. Result of Significance Test (Model 2)

	Coefficient t-statistic [p-value]					
	EQ1 (Tobin's Q)	EQ2 (EVEBITDA)	EQ3 (EY)	EQ4 (SR)	EQ5 (SRISK)	EQ6 (RAR)
DAR	0.192	9.556	0.102	0.149	0.0030	0.140
	2.28	0.679	0.963	0.226	0.993	0.214
	[0.023]**	[0.497]	[0.335]	[0.819]	[0.321]	[0.830]
DARSQ	-0.0016	-0.09	-0.0008	-0.0002	-	-0.0001
	-2.074	-0.615	-0.831	-0.034	-	-0.021
	[0.038]**	[0.538]	[0.406]	[0.972]	-	[0.982]
LIQ (DAR)	0.003	24.09	-0.071	2.129	0.129	2.206
	0.022	0.643	-0.333	1.391	3.052	1.439
	[0.981]	[0.52]	[0.738]	[0.165]	[0.000]***	[0.150]
FAR (DAR)	0.049	-73.86	1.429	4.973	-0.199	4.944
	0.255	-1.551	5.147	2.537	-3.637	2.519
	[0.798]	[0.121]	[0.000]***	[0.011]**	[0.000]***	[0.012]**
SGR (DAR)	-0.00008	-0.045	-0.002	-0.003	0.0004	-0.003
	-0.083	-0.131	-1.667	-0.285	1.195	-0.284
	[0.933]	[0.895]	[0.095]*	[0.775]	[0.232]	[0.776]
MR (DAR)	0.002	0.426	0.032	1.023	0.014	1.014
	0.268	0.109	2.073	8.135	3.527	8.065
	[0.788]	[0.913]	[0.038]**	[0.000]***	[0.000]***	[0.000]***
R-square (DAR)	0.26	0.005	0.056	0.12	0.051	0.119
F statistic	5.647	0.539	5.701	13.1	6.187	12.927
F-Statistic (Prob)	[0.000]***	[0.778]	[0.000]***	[0.000]***	[0.000]***	[0.000]***
No of Observations	580	580	580	580	580	580
Note: *significance at <10% of significance level ***significance at <5% of significance level ***significance at <1% of significance level						

4.4.1. Test of Individual Regression Coefficients (t-test)

The test on individual regression coefficients (t-Test) is a test that is conducted to determine whether an independent variable has a significant effect towards a dependent variable, holding all other independent variables fixed. If the result of t-Test shows the p-value < significance level of 0.05 and 0.10, it means the null hypothesis should be rejected and it is concluded that there is an individual independent variable effect on the dependent variable. In contrast, if the result of t-Test shows the p-value > significance level of 0.05 and 0.10, it means the null hypothesis should be accepted and it is concluded that there is no individual independent variable effect on the dependent variable.

From the Table 4.9 above which shows the result of the Significance Test for Model 1, shows the results of the t-Test in the form of coefficient value, t-Statistic value, and p-value of each of the independent variables under each of the multiple linear regression equations. The explanation regarding the effect of each independent variable and control variable towards the dependent variable based on the results of the t-Test are as follows:

- Tobin's Q (EQ1)

  The results from the T-test for EQ1 shows the p-value of DER as 0.0576, which is lesser than the significance level of 0.10. This means that the effect of DER towards Tobin's Q is significant. Whereas, the p-value of DERSQ is 0.106, which is greater than the significance level of 0.05 and 0.10. This means that the null hypothesis should be accepted and it can be concluded that DERSQ does not affect Tobin's Q. In addition to DERSQ being insignificant to the dependent variable Tobin's Q, the coefficient of DER is negative and the coefficient of DERSQ is positive. Thus, the results of the t-Test do not support the first hypothesis of this study and can be assumed that DER is not significant in explaining Tobin's Q (Firm's Value) of non-financial companies listed in Kompas100 during the period of 2014-2018.

  As for the control variables, LIQ, FAR, SGR, and MR has a p-value of 0.812, 0.102, 0,767, and 0.981, which means that the p-value of all of the control variables are greater than the significance level of 0.05 and 0.10. Therefore, the null hypothesis should be accepted and it can be concluded that LIQ, FAR, SGR and MR does not affect Tobin's Q.

- Enterprise Value/EBITDA (EQ2)

The results from the T-test for EQ2 shows the p-value of DER as 0.768 and DERSQ as 0.697, which is greater than the significance level of 0.05 and 0.10. This means that the null hypothesis should be accepted and it can be concluded that DER and DERSQ does not affect EV/EBITDA. In addition to DER and DERSQ being insignificant to the dependent variable EV/EBITDA, the coefficient of DER is positive and the coefficient of DERSQ is negative. Thus, the results of the t-Test support the second hypothesis of this study. However, since the p-value is above significance level, it can be assumed that DER is not significant in explaining the Enterprise Value/EBITDA (Firm's Value) of non-financial companies listed in Kompas100 during the period of 2014-2018.

As for the control variables, LIQ, FAR, SGR, and MR has a p-value of 0.678, 0.1044, 0,9213, and 0.909, which means that the p-value of all of the control variables are greater than the significance level of 0.05 and 0.10. Therefore, the null hypothesis should be accepted and it can be concluded that LIQ, FAR, SGR and MR does not affect Enterprise Value/EBITDA.

- Earnings Yield (EQ3)

The results from the T-test for EQ3 shows the p-value of DER as 0.6662 and DERSQ as 0.601, which is greater than the significance level of 0.05 and 0.10. This means that the null hypothesis should be accepted and it can be concluded that DER and DERSQ does not affect Earnings Yield. In addition to DER and DERSQ being insignificant to the dependent variable Earnings Yield, the coefficient of DER is positive and the coefficient of DERSQ is negative. Thus, the results of the t-Test support the third hypothesis of this study. However, since the p-value is above significance level, it can be assumed that DER is not significant in explaining the Earnings Yield (Firm's Value) of non-financial companies listed in Kompas100 during the period of 2014-2018.

As for the control variables, LIQ and SGR has a p-value of 0.554, and 0.1042 which means that the p-value of all of the control variables are greater than the significance level of 0.05 and 0.10. Therefore, the null hypothesis should be accepted and it can be concluded that LIQ and SGR does not affect Earnings Yield. Meanwhile, the p-value of FAR and MR is 0.000 and 0.039, which is lesser than the significance level of 0.05 and 0.10. Therefore, the null hypothesis should be rejected and it can be concluded that FAR and MR affects Earnings Yield.

- Stock Return (EQ4)

The results from the T-test for EQ4 shows the p-value of DER as 0.55 and DERSQ as 0.808, which is greater than the significance level of 0.05 and 0.10. This means that the null hypothesis should be accepted and it can be concluded that DER and DERSQ does not affect Stock Return. In addition to DER and DERSQ being insignificant to the dependent variable Earnings Yield, the coefficient of DER is positive and the coefficient of DERSQ is negative. Thus, the results of the t-Test support the fourth hypothesis of this study. However, since the p-value is above significance level, it can be assumed that DER is not significant in explaining the Stock Return (Stock Performance) of non-financial companies listed in Kompas100 during the period of 2014-2018.

As for the control variables, LIQ and SGR has a p-value of 0.171, and 0.783 which means that the p-value of all of the control variables are greater than the significance level of 0.05 and 0.10. Therefore, the null hypothesis should be accepted and it can be concluded that LIQ and SGR does not affect Stock Return. Meanwhile, the p-value of FAR and MR is 0.011 and 0.000, which is lesser than the significance level of 0.05 and 0.10. Therefore, the null hypothesis should be rejected and it can be concluded that FAR and MR affects Stock Return.

- Stock Risk (EQ5)

The results from the T-test for EQ5 shows the p-value of DER as 0.1375 which is greater than the significance level of 0.05 and 0.10. This means that the null hypothesis should be accepted and it can be concluded that DER and does not affect Stock Risk. Thus, the results of the t-Test do not support the fifth hypothesis of this study and it can be assumed that DER is not significant in explaining the Stock Risk (Stock Performance) of non-financial companies listed in Kompas100 during the period of 2014-2018.

As for the control variables, SGR has a p-value of 0.2279 which means that the p-value of all of the control variables are greater than the significance level of 0.05 and 0.10. Therefore, the null hypothesis should be accepted and it can be concluded that SGR does not affect Stock Risk. Meanwhile, the p-value of LIQ, FAR and MR is 0.0007, 0.0003 and 0.0005, which is lesser than the significance level of 0.05 and 0.10. Therefore, the null hypothesis should be rejected and it can be concluded that LIQ, FAR and MR affects Stock Risk.

- Risk-Adjusted Return (EQ6)

The results from the T-test for EQ6 shows the p-value of DER as 0.552 and DERSQ as 0.815, which is greater than the significance level of 0.05 and 0.10. This means that the null hypothesis should be accepted and it can be concluded that DER and DERSQ does not affect Risk-Adjusted Return. In addition to DER and DERSQ being insignificant to the dependent variable Earnings Yield, the coefficient of DER is positive and the coefficient of DERSQ is negative. Thus, the results of the t-Test support the sixth hypothesis of this study. However, since the p-value is above significance level, it can be assumed that DER is not significant in explaining the Risk-

Adjusted Return (Stock Performance) of non-financial companies listed in Kompas100 during the period of 2014-2018.

As for the control variables, LIQ and SGR has a p-value of 0.154 and 0.784, which means that the p-value of all of the control variables are greater than the significance level of 0.05 and 0.10. Therefore, the null hypothesis should be accepted and it can be concluded that LIQ and SGR does not affect Risk-Adjusted Return. Meanwhile, the p-value of FAR and MR is 0.012 and 0.000, which is lesser than the significance level of 0.05 and 0.10. Therefore, the null hypothesis should be rejected and it can be concluded that FAR and MR affects Risk-Adjusted Return.

From the Table 4.10 above which shows the result of the Significance Test for Model 2, shows the results of the t-Test in the form of coefficient value, t-Statistic value, and p-value of each of the independent variables under each of the multiple linear regression equations. The explanation regarding the effect of each independent variable towards the dependent variable based on the results of the t-Test are as follows:

- Tobin's Q (EQ1)

  The results from the T-test for EQ1 shows the p-value of DAR as 0.023 and DARSQ as 0.038, which is lesser than the significance level of 0.05 and 0.10. This means that the effect of DAR and DARSQ towards Tobin's Q is significant. In addition to both variables being significant to the dependent variable Tobin's Q, the coefficient of DAR is positive and the coefficient of DARSQ is negative. Thus, the results of the t-Test support the first hypothesis of this study and can be assumed that DAR is significant in explaining Tobin's Q (Firm's Value) of non-financial companies listed in Kompas100 during the period of 2014-2018.

  As for the control variables, LIQ, FAR, SGR, and MR has a p-value of 0.981, 0.798, 0,933, and 0.788, which means that the p-value of all of the control variables are greater than the significance level of 0.05 and 0.10.

Therefore, the null hypothesis should be accepted and it can be concluded that LIQ, FAR, SGR and MR does not affect Tobin's Q.

- Enterprise Value/EBITDA (EQ2)

  The results from the T-test for EQ2 shows the p-value of DAR as 0.497 and DARSQ as 0.538, which is greater than the significance level of 0.05 and 0.10. This means that the null hypothesis should be accepted and it can be concluded that DAR and DARSQ does not affect EV/EBITDA. In addition to DAR and DARSQ being insignificant to the dependent variable EV/EBITDA, the coefficient of DAR is positive and the coefficient of DARSQ is negative. Thus, the results of the t-Test support the second hypothesis of this study. However, since the p-value is above significance level, it can be assumed that DAR is not significant in explaining the Enterprise Value/EBITDA (Firm's Value) of non-financial companies listed in Kompas100 during the period of 2014-2018.

  As for the control variables, LIQ, FAR, SGR, and MR has a p-value of 0.520, 0.121, 0,895, and 0.913, which means that the p-value of all of the control variables are greater than the significance level of 0.05 and 0.10. Therefore, the null hypothesis should be accepted and it can be concluded that LIQ, FAR, SGR and MR does not affect Enterprise Value/EBITDA.

- Earnings Yield (EQ3)

  The results from the T-test for EQ3 shows the p-value of DAR as 0.335 and DARSQ as 0.406, which is greater than the significance level of 0.05 and 0.10. This means that the null hypothesis should be accepted and it can be concluded that DAR and DARSQ does not affect Earnings Yield. In addition to DAR and DARSQ being insignificant to the dependent variable Earnings Yield, the coefficient of DAR is positive and the coefficient of DARSQ is negative. Thus, the results of the t-Test support the third hypothesis of this study. However, since the p-value is above significance level, it can be assumed that DAR is not significant in explaining the Earnings Yield (Firm's Value) of non-financial companies listed in Kompas100 during the period of 2014-2018.

As for the control variables, LIQ has a p-value of 0.738, which means that the p-value of all of the control variables are greater than the significance level of 0.05 and 0.10. Therefore, the null hypothesis should be accepted and it can be concluded that LIQ does not affect Earnings Yield. Meanwhile, the p-value of SGR FAR and MR are 0.095 0.000 and 0.038, which is lesser than the significance level of 0.05 and 0.10. Therefore, the null hypothesis should be rejected and it can be concluded that SGR, FAR, and MR affects Earnings Yield.

- Stock Return (EQ4)

The results from the T-test for EQ4 shows the p-value of DAR as 0.819 and DARSQ as 0.972, which is greater than the significance level of 0.05 and 0.10. This means that the null hypothesis should be accepted and it can be concluded that DAR and DARSQ does not affect Stock Return. In addition to DAR and DARSQ being insignificant to the dependent variable Earnings Yield, the coefficient of DAR is positive and the coefficient of DARSQ is negative. Thus, the results of the t-Test support the fourth hypothesis of this study. However, since the p-value is above significance level, it can be assumed that DAR is not significant in explaining the Stock Return (Stock Performance) of non-financial companies listed in Kompas100 during the period of 2014-2018.

As for the control variables, LIQ and SGR has a p-value of 0.165, and 0.775, which means that the p-value of all of the control variables are greater than the significance level of 0.05 and 0.10. Therefore, the null hypothesis should be accepted and it can be concluded that LIQ and SGR does not affect Stock Return. Meanwhile, the p-value of FAR and MR is 0.011 and 0.000, which is lesser than the significance level of 0.05 and 0.10. Therefore, the null hypothesis should be rejected and it can be concluded that FAR and MR affects Stock Return.

- Stock Risk (EQ5)

The results from the T-test for EQ5 shows the p-value of DAR as 0.321 which is greater than the significance level of 0.05 and 0.10. This means that the null hypothesis should be accepted and it can be concluded that DAR and does not affect Stock Risk. Thus, the results of the t-Test do not support the fifth hypothesis of this study and it can be assumed that DAR is not significant in explaining the Stock Risk (Stock Performance) of non-financial companies listed in Kompas100 during the period of 2014-2018.

As for the control variables, SGR has a p-value of 0.232 which means that the p-value of all of the control variables are greater than the significance level of 0.05 and 0.10. Therefore, the null hypothesis should be accepted and it can be concluded that SGR does not affect Stock Risk. Meanwhile, the p-value of LIQ, FAR and MR are 0.000, 0.000 and 0.000, which is lesser than the significance level of 0.05 and 0.10. Therefore, the null hypothesis should be rejected and it can be concluded that LIQ, FAR and MR affects Stock Risk.

- Risk-Adjusted Return (EQ6)

The results from the T-test for EQ6 shows the p-value of DAR as 0.83 and DARSQ as 0.982, which is greater than the significance level of 0.05 and 0.10. This means that the null hypothesis should be accepted and it can be concluded that DAR and DARSQ does not affect Risk-Adjusted Return. In addition to DAR and DARSQ being insignificant to the dependent variable Earnings Yield, the coefficient of DAR is positive and the coefficient of DARSQ is negative. Thus, the results of the t-Test support the sixth hypothesis of this study. However, since the p-value is above significance level, it can be assumed that DAR is not significant in explaining the Risk-

Adjusted Return (Stock Performance) of non-financial companies listed in Kompas100 during the period of 2014-2018.

As for the control variables, LIQ and SGR has a p-value of 0.150 and 0.776, which means that the p-value of all of the control variables are greater than the significance level of 0.05 and 0.10. Therefore, the null hypothesis should be accepted and it can be concluded that LIQ and SGR does not affect Risk-Adjusted Return. Meanwhile, the p-value of FAR and MR is 0.012 and 0.000, which is lesser than the significance level of 0.05 and 0.10. Therefore, the null hypothesis should be rejected and it can be concluded that FAR and MR affects Risk-Adjusted Return.

4.4.2. Simultaneous Significance test (F test)

The simultaneous significance test (F-Test) is a test that is conducted to determine whether all of the independent variables have same effect towards the dependent variable. If the result of F-test shows the p-value < significance level of 0.05, it means the null hypothesis should be rejected and it is concluded that all of the independent variables have same effect on the dependent variable. In contrast, if the result of F-test shows the p-value > significance level of 0.05, it means the null hypothesis should be accepted and it is concluded that all of the independent variables do not have same effect on the dependent variable.

From the Table 4.8 above which shows the result of the Significance Test for Model 1, it could be seen that the probability(F-statistic) or p-value (0.000) of EQ3, EQ4, EQ5, and EQ6 are less than 0.05. This means the null hypothesis should be rejected and it can be concluded that all of the independent variables have same effect on the dependent variable. However, the probability(F-statistic) or p-value (0.000) of EQ1 and EQ2 are greater than 0.05, which means that the null hypothesis should be accepted and it can be concluded that all of the independent variables do not have same effect on the dependent variable.

From the Table 4.9 above which shows the result of the Significance Test for Model 2, it could be seen that the probability(F-statistic) or p-value (0.000) of EQ1, EQ3, EQ4, EQ5, and EQ6 are less than 0.05. This means the null hypothesis should be rejected and it can be concluded that all of the independent variables have same effect on the dependent variable. However, the probability(F-statistic) or p-value (0.000) of EQ2 is greater than 0.05, which means that the null hypothesis should be accepted and it can be concluded that all of the independent variables do not have same effect on the dependent variable.

The independent variables used for this study are DER, DERSQ, DAR, DARSQ, which represents Financial Leverage. Meanwhile, the dependent variable used for this study is Tobin's Q, EVEBITDA, EY which represents Firms Value and SR, SRISK and RAR which represents Stock Performance. Lastly, the control variables are LIQ, SGR, FAR, and MR.

4.5. Research Summary

The Table 4.10 below shows the summary of research findings that have been obtained after performing the statistical tests.

Table 4.11. Summary of Research Findings

No	Objective	Hypothesis	Research Findings (Independent Variable)	Research Findings (Control Variable)	Remarks
1	To identify the impact of DER on Tobin's Q	H1: DER has a non-linear relationship with Tobin's Q	DER: p-value (0.057) <0.10. DERSQ: p-value (.106) >0.05 and 0.10. Coefficient: DER (-), DERSQ (+) Decision: Accept H_0: (Not supported H_1)	LIQ, FAR, SGR, MR : p-value: (0.812;0.102 ;0.767;0.981) >0.05 and 0.10	DER does not affect Tobin's Q
2	To identify the impact of DAR on Tobin's Q	H2: DAR has a non-linear relationship with Tobin's Q	DAR & DARSQ: p-value (0.023; 0.038) <0.05 and 0.10. Coefficient: DAR (+), DARSQ (-) Decision: Reject H_0: supported H_2)	LIQ, FAR, SGR, MR: p-value: (0.981;0.798 ;0.933;0.788) >0.05 and 0.10	DAR has a significant non-linear relationship with Tobin's Q
3	To identify the impact of DER on EV/EBITDA	H3: DER has a non-linear relationship with EV/EBITDA	DER and DERSQ: p-value (0.768; 0.67) >0.05 and 0.10. Coefficient: DER (+), DERSQ (-) Decision: Accept H_0: (Coefficient supports H_3)	LIQ, FAR, SGR, MR: p-value: (0.678;0.104; 0.921;0.909) >0.05 and 0.10	DER does not have a significant non-linear relationship with EVEBITDA
4	To identify the impact of DAR on EV/EBITDA	H4: DAR has a non-linear relationship with EV/EBITDA	DAR and DARSQ: p-value (0.497; 0.538) >0.05 and 0.10. Coefficient: DAR (+), DARSQ (-) Decision: Accept H_0: (Coefficient supports H_4)	LIQ, FAR, SGR, MR: p-value: (0.52;0.12;0 .89;0.91)>0.05 and 0.10	DAR does not have a significant non-linear relationship with EVEBITDA

No	Objective	Hypothesis	Research Findings (Independent Variable)	Research Findings (Control Variable)	Remarks
5	To identify the impact of DER on Earnings Yield	H5: DER has a non-linear relationship with EY	DER and DERSQ: p-value (0.6662; 0.601) >0.05 and 0.10. Coefficient: DER (+), DERSQ (-) Decision: Accept H_0 (Coefficient supports H_5)	LIQ, SGR: p-value: (0.554;0.104) > 0.05 and 0.10 FAR, MR: p-value (0.000; 0.039) <0.05 and 0.10	DER does not have a significant non-linear relationship with EY
6	To identify the impact of DAR on Earnings Yield	H6: DAR has a non-linear relationship with EY	DAR and DARSQ: p-value (0.335; 0.406) >0.05 and 0.10. Coefficient: DAR (+), DARSQ (-) Decision: Accept H_0 (Coefficient supports H_6)	LIQ: p-value: (0.738) > 0.05 and 0.10 SGR, FAR, MR: p-value (0.095;0.000; 0.038) <0.05 and 0.10	DAR does not have a significant non-linear relationship with EY
7	To identify the impact of DER on-Stock Return	H7: DER has a non-linear relationship with SR	DER and DERSQ: p-value (0.55; 0.808) >0.05 and 0.10. Coefficient: DER (+), DERSQ (-) Decision: Accept H_0 (Coefficient supports H_7)	LIQ, SGR: p-value: (0.171;0.783) > 0.05 and 0.10 FAR, MR: p-value (0.011; 0.000) <0.05 and 0.10	DER does not have a significant non-linear relationship with SR
8	To identify the impact of DAR on Stock Return	H8: DAR has a non-linear relationship with SR	DAR and DARSQ: p-value (0.809; 0.972) >0.05 and 0.10. Coefficient: DAR (+), DARSQ (-) Decision: Accept H_0 (Coefficient supports H_8)	LIQ, SGR: p-value: (0.165;0.775) > 0.05 and 0.10 FAR, MR: p-value (0.011; 0.000) <0.05 and 0.10	DAR does not have a significant non-linear relationship with SR

No	Objective	Hypothesis	Research Findings (Independent Variable)	Research Findings (Control Variable)	Remarks
9	To identify the impact of DER on-Stock Risk	H9: DER has a positive impact on Stock Risk	DER: p-value (0.1375) >0.05 and 0.10. Decision: Accept H_0 (supports H_9)	SGR: p-value (0.227)>0.05 and 0.10 LIQ, FAR, MR: p-value (0.0007, 0.0003, 0.0005) <0.05 and 0.10	DER does not affect Stock Risk
10	To identify the impact of DAR on Stock Risk	H10: DAR has a positive impact on Stock Risk	DAR: p-value (0.321) >0.05 and 0.10. Decision: Accept H_0 (supports H_{10})	SGR: p-value (0.232)>0.05 and 0.10 LIQ, FAR, MR: p-value (0.000, 0.000, 0.000) <0.05 and 0.10	DAR does not affect Stock Risk
11	To identify the impact of DER on Risk-Adjusted Return	H11: DER has a non-linear relationship with RAR	DER and DERSQ: p-value (0.552; 0.815) >0.05 and 0.10. Coefficient: DER (+), DERSQ (-) Decision: Accept H_0 (Coefficient supports H_{11})	LIQ, SGR: p-value: (0.154;0.784) > 0.05 and 0.10 FAR, MR: p-value (0.012; 0.000) <0.05 and 0.10	DER does not have a significant non-linear relationship with RAR
12	To identify the impact of DAR on Risk-Adjusted Return	H12: DAR has a non-linear relationship with RAR	DAR and DARSQ: p-value (0.83; 0.982) >0.05 and 0.10. Coefficient: DAR (+), DARSQ (-) Decision: Accept H_0 (Coefficient supports H_{12})	LIQ, SGR: p-value: (0.150;0.776) > 0.05 and 0.10 FAR, MR: p-value (0.012; 0.000) <0.05 and 0.10	DAR does not have a significant non-linear relationship with RAR

4.6. Research Analysis and Discussion

Based on the summary of research findings as stated in the Table 4.10 above, the results of the T-test regarding the independent variables stated that only DAR has a significant non-linear relationship with the Tobin's Q of non-financial listed companies in the Kompas100 index during 2014-2018. This means that when DAR increases, it will not always bring about the same change in Tobin's Q. Since this study found that DAR has a significant non-linear relationship with the Tobin's Q, this means that the results of this study support the second (H_2) hypothesis of this study. It can be assumed that the reason why DAR has a significant non-linear relationship with the Tobin's Q during the period of 2014-2018 is because DAR is a more appropriate ratio for reflecting and measuring the firm's leverage as it takes into account of the total assets as opposed to just the equity. Hence, the results coincide with the trade-off theory, which assumes that leverage and firm's value have a non-linear relationship which causes the increase in the benefit of tax advantages and financial distress to occur as firms increase their debt level. The result of the T-test regarding the control variable, Liquidity (LIQ) has a significant effect on Stock Risk. Sales Growth (SGR) has a significant effect on Earnings Yield. Market Return (MR) and Fixed Asset Ratio (FAR) has a significant effect on Earnings Yield, Stock Return, Stock Risk, and Risk-Adjusted Return.

From the result of the T-test, it could be known that DER does not have an effect on Tobin's Q, Enterprise Value/EBITDA (EVEBITDA), Earnings Yield (EY), Stock Return (SR), Stock Risk (SRISK), and Risk-adjusted Return (RAR). In addition, DAR does not have an effect on Enterprise Value/EBITDA (EVEBITDA), Earnings Yield (EY), Stock Return (SR), Stock Risk (SRISK), and Risk-adjusted Return (RAR). This means the increase or decrease of the firm's value and stock performance of non-financial companies listed in the Kompas100 index during the period of 2014-2018 could not be explained by the aforementioned independent variables. Since the aforementioned independent variables do not have effect towards the firm's value and stock performance, this means the results of this study do not support the first (H_1), third (H_3), fourth (H_4), fifth (H_5), sixth (H_6), seventh (H_7), eighth (H_8), ninth (H_9), tenth (H_{10}), eleventh (H_{11}), and twelfth (H_{12}) hypothesis of this study. The results of this study also do not support the previous researches that have been done by Ibrahim (2020), Pandya (2016), and Mustafa et al., (2017) which showed that the aforementioned independent variables have effects towards firm's value and stock performance.

Since the results of this study show that only financial leverage (DAR) have a significant non-linear relationship towards firm's value (Tobin's Q) of non-financial companies listed in the Kompas100 index during the period of 2014-2018, it means the results of this study align with the Trade-off Theory. This theory states that firms will decide on the capital structure that they wish to employ by considering the trade-off between the cost of bankruptcy and tax benefits of the debt. This theory suggests that the manager should choose the debt ratio that maximizes firm value (Brealey and Myers, 2003, p.498). Further study is still required in order to further investigate the reasons behind why only DAR has a significant non-linear relationship towards the Tobin's Q of the non-financial companies listed in the Kompas 100 index during the period of 2014-2018.

CHAPTER V

CONCLUSIONS AND RECOMMENDATIONS

5.1. Conclusions

This study explores the concern of whether firms need to consider building an optimal capital structure and whether it would overall affect their goal, assuming their main objective is to maximize value. The research problem is that previous research studies have looked into the relationship between capital structure/ financial leverage on firms' value and stock performance under different industries and these studies have ultimately uncovered different results. There are also several theories that have been adopted on this subject. Essentially, this study explores the idea of whether employing more leverage (highly-leveraged firms) would impact the firm's value.

Based on the research problem, this study has two main objectives, namely to identify the impact of Financial Leverage on Firm's Value and to identify the impact of Financial Leverage on Stock Performance, during the period of 2014-2018. This study used the panel data regression and significance test in order to answer all research questions of this study. The analysis and discussion regarding the results of each of the tests are provided in the Chapter 4 of this study. The conclusions from the results of each of the tests are as follows:

1. To answer the first and second research question, this study used the panel data regression and significance test, especially the test on individual regression coefficients (t-Test) and simultaneous significance test (F-Test). Based on the results of the panel data regression and F-test, the Financial Leverage (DER) has the same effect on Firm's Value (EY) and Stock Performance (SR, SRISK, RAR) and Financial Leverage (DER) does not have the same effect on Firm's Value (Tobin's Q, EVEBITDA). In addition, Financial Leverage (DAR) has the same effect on Firm's Value (Tobin's Q, EY) and Stock Performance (SR, SRISK, RAR) and Financial

Leverage (DAR) does not have the same effect on Firm’s Value (EVEBITDA).

2. Based on the results of the panel data regression and t-Test, it could be known that Financial Leverage (DAR) has a significant non-linear relationship with Tobin’s Q (Firm’s Value), during the observation period of 2014-2018. Meanwhile, Financial Leverage (DER) does not have a significant relationship with Firm’s Value (Tobin’s Q, EVEBITDA, EY) and Stock Performance (SR, SRISK, RAR). In addition, Financial Leverage (DAR) does not have a significant relationship with Firm’s Value (EVEBITDA, EY) and Stock Performance (SR, SRISK, RAR), during the observation period of 2014-2018.

In conclusion, since only DAR has a significant non-linear relationship with Tobin’s Q (Firm’s Value), during the period of 2014-2018, it means the ratio of Tobin’s Q of non-financial companies listed in the Kompas100 index during the period of 2014-2018 can be explained by the level of Debt-Asset Ratio of the company. The results of this study can also be concluded to be aligned with the Trade-off theory, which suggests that benefits (tax advantages) and costs (financial distress) are associated with debt and firms should follow a targeted debt ratio where benefits are maximum against minimum loss, and henceforth, have a non-linear relationship.

5.2. Recommendations

Based on the limitations of this study, there are several recommendations for the researchers who want to continue and develop this study, namely:

1. Further research is encouraged to use an index that is not based in Indonesia, such as S&P 500 to obtain more data.
2. Further research is encouraged to analyze in longer observation period or to use different observation period in order to obtain more accurate or possible different research results and to get more research samples.

3. This study uses Tobin's Q, Enterprise Value/EBITDA and Earnings Yield as a measurement for Firm's Value. Further research is encouraged to use other variables that may predict a more accurate representation of Firm's Value.
4. Further Research is encouraged to focus on Model 2 for the measurement of Financial Leverage, since DAR is considered to be a more accurate representation of Financial Leverage.
5. Further Research is encouraged to take the companies that pay taxes based on Final tax into consideration. Assuming that the Trade-off theory assumptions are intended to be carried on, further Research can separate the companies that pay based on Final Tax by industry and use a dummy variable when running the regression.

REFERENCES

Adenugba, A. A., IGE, A. A. & Kesinro, O. R. (2016). Financial leverage and firms' value: a study of selected firms in Nigeria. *European Journal of Research and Reflection in Management Sciences, 4 (1)*, pp.14-32.

Agrawal, A. and Knoeber, C.R (1996). Firm Performance and Mechanism to Control Agency Problems between Managers and Shareholders, *Journal of Financial and Quantitative Analysis 31*, 377–39

Ali, A.K. (2013). The Impact of Financial Leverage on Firm Performance: The Case of Non-Financial Firms in Kenya. *University of Nairobi Research Archive*. Retrieved from https://pdfs.semanticscholar.org/57cd/3c1480d318bbbf593a4f59fcf4a0c4eb0b75.pdf

Babbie, E. R. (2010) The Practice of Social Research. 12th ed.

Baltagi, B.H. (2005) Econometric analysis of panel data. 3rd edition. West Sussex: Wiley.

Barakat, A. (2014). The Impact of Financial Structure, Financial Leverage and Profitability on Industrial Companies Shares Value (Applied Study on a Sample of Saudi Industrial Companies). *Research Journal of Finance and Accounting 5 (1)*, 55–66.

Bert, J. & DeMarzo, P. (2017). Corporate Finance. Fourth Edition
Bhabra, G.S. (2007). Insider ownership and firm value in New Zealand. *Journal of Multinational Financial management 17.* 142-154.

Bhagat, S. & Black, B. (2002.) The Non-Correlation between Board Independence and Long-Term Firm Performance. *Journal of Corporation Law, 27*, 231-273.

Bhole,L.M. & Mahakud,J. (2004). Trends and Determinants of Corporate Capital Structure in India: A Panel Data Analysis. *Finance India 18*, 1: 37-55.

Bhopal, R. S. (2002). Concepts of epidemiology: An integrated introduction to the ideas, theories, principles and methods of epidemiology.

Bougie, Roger, & Sekaran, Uma. (2013). Research Methods for Business: A skill Building Approach (5th Edition).

Brealey R.A., Myers S.C., (2003), Principles of Corporate Finance, Seventh Edition,

Bryman, A. and Bell, E. (2007) Business research methods. Oxford university press

Carlson, R. (2020). The Debt-to-Equity Ratio: Measuring Financial Risk. *The Balance Small Business*. Retrieved from https://www.thebalancesmb.com/what-is-the-debt-to-equity-ratio-393194.

Carlson, R. (2020). What the Debt-to-Asset Ratio Can Tell You About Your Company. *The Balance Small Business*. Retrieved from https://www.thebalancesmb.com/debt-to-asset-ratio-393193.

Carnevale. (2017). High Earnings Yield Does Not Mean Invest. Retrieved from https://seekingalpha.com/article/4079631-high-earnings-yield-not-mean-invest

Chung, K. H., & Pruitt, S. W. (1994). A simple approximation of Tobin's q. *Financial Management 23 (3),* pp. 70-74

Corporate Finance Institute. (n.d.) EV/EBITDA - Guide & Examples of How to Calculate EV/EBITDA. Retrieved from https://corporatefinanceinstitute.com/resources/knowledge/valuation/ev-ebitda/

Cramer, D., & Howitt, D. L. (2004). The SAGE Dictionary of Statistics: A Practical Resource for Students in Social Sciences. *Creative Education, 8 (12).*

Creswell, J. (2003). Research design: Qualitative, quantitative and mixed methods approaches (2nd ed.). Thousand Oaks, CA: SAGE Publications.

Crunch Numbers (2019). Total Stock Return Formula. How to Calculate the Total Return of a Stock. Retrieved from https://crunchnumbers.net/total-stock-return/

Elangkumaran.P and Nimalathasan. B. (2013). Leverage and its Impact on Earnings and Share Price A Special Reference to listed Companies of Colombo Stock Exchange (CSE) in Sri Lanka. *International Journal of Technological Exploration and Learning (IJTEL) 2 (4).*

Ellis, L. (1998). Research methods in the social sciences.

Fama. E.F; French K.R. (1998). Taxes, Financing Decisions, and Firm Value. *The Journal of Finance, 53 (3),* 819-43, Quoted in Zuraidah Norhasniza Ahmad, M. H Abdullah, and Shashazrina Roslan, Fisher, Franklin M. and McGown, John J. (1983). On the Misuse of Accounting Rates of Return to Infer Monopoly Profits. *American Economic Review, 73, (1),* pp.82-97

Fraenkel, J. R. & Wallen, N. E. (2003). How to design and evaluate research in education. Fifth ed. New York: McGraw-Hill.

Ghasemi. A; Zahediasl. S. (2012). Normality Tests for Statistical Analysis: A Guide for Non-Statisticians.

Gujarati, D. (2003). Basic Econometrics. 4th ed. New York: McGraw Hill, 638-640.

Hair, J., Black, W. C., Babin, B. J., & Anderson, R. E. (2010). Multivariate Data Analysis (7th ed.). Upper Saddle River, New Jersey: Pearson Education International.

Hermuningsih (2013). Pengaruh Profitabilitas, Growth Opportunity, Sruktur Modal Terhadap Nilai Perusahaan Pada Perusahaan Publik Di Indonesia. *Bulletin of Monetary Economics and Banking, Bank Indonesia, 16(2).* pp. 1-22

Hillier, et al., (2010). Corporate Finance, First European Edition, McGraw-Hill Education

Hopkins, W.G. (2000). Quantitative Research Design. Retrieved from https://sportsci.org/jour/0001/wghdesign.html

Hovakimian, A., and Tehranian, H. (2004). Determinants of Target Capital Structure: The Case of Dual Debt and Equity Issues. *Journal of Financial Economics, 71(3),* 517–540.

Hsiao,C. (1995). Panel Data Analysis — Advantages and Challenges. *Society for Statistics and Operational Research.* pp.1-63.

IHS Global Inc. (2017). EViews 10 User's Guide (2nd ed.). Retrieved from https://www3.nd.edu/~nmark/FinancialEconometrics/EViews10_Manuals/E Views 10 Users Guide I.pdf

Isola, A and Akanni, L.O. (2015). Corporate Financial Structure of Nonfinancial Quoted Companies in Nigeria. *Managing Global Transitions 13 (3).* pp.267–280

Iqbal M. (2015). Regresi Data Panel (2) "Tahap Analisis". *Perbanas Institute.* Retrieved from https://dosen.perbanas.id/regresi-data-panel-2-tahap-analisis/

Jensen, Michael C. (1976) Theory of the Firm: Managerial Behavior, Agency Costs and Ownership Structure. *Journal of Financial Economics 3.* pp.305-360.

Kabir. S.M.S. (2016). Basic Guidelines for Research: An Introductory Approach for All Disciplines, First Edition: Methods of Data Collection. Retrieved from https://www.researchgate.net/publication/325846997_METHODS_OF_DATA_COLLECTION

Kaur P, Stoltzfus J, Yellapu V. (2018) Descriptive statistics. *International Journal of Academic Medicine 4 (1).* pp.60-63. Retrieved from: http://www.ijam-web.org/text.asp?2018/4/1/60/230853

Kothari, C. R. (2004). Research Methodology: Methods & Techniques (2nd ed.). New Delhi: New Age International (P) Ltd.

KenFaulkenberry. (2018). Earnings Yield & How to Calculate Earnings Yield. Retrieved from http://www.arborinvestmentplanner.com/earnings-yield/

Kumar, R. (2011). Research Methodology: A Step-by-Step Guide for Beginners (3rd ed.). London: SAGE Publications Ltd.

Lewellen, W. and Badrinath, G. (1997) On the Measurement of Tobin's q. *Journal of Financial Economics*, *44*, 77-122.

Lincoln, Y. and Guba, E. (2000). Paradigmatic Controversies, Contradictions, and Emerging Confluences in Denzin, N and Lincoln, Y (ed.). Handbook of Qualitative Research.

Lubatkin, M. and Chatterjee, S. (1994). Extending Modern Portfolio Theory into the Domain of Corporate Diversification: Does It Apply? *Academy of Management Journal*, *37,* 109–136

McConnell, J.J., & Servaes, H. (1990). Additional evidence on equity ownership and corporate value. *Journal of Financial Economics, 27.*

McConnell, J., & Servaes, H. (1995). Equity Ownership and the Two Faces of Debt, *Journal of Financial Economics 39*, 131–157.

Mihir A. D, and Dharmapala, D (2009). The Review of Economics and Statistics Vol. 91, pp. 537-546.

Modigliani, F. and M. Miller, (1958). The Cost of Capital, Corporation Finance and the Theory of Investment, *American Economic Review 48,* 261–297.

Montgomery, Cynthia A. and Wernerfelt, B. (1988). Diversification, Ricardian Rents, and Tobin's q. *Journal of Economics 19* (4), 623-632.

Mooi. E. (2014). A Concise Guide to Market Research: Regression Analysis. pp.193-233. Retrieved from https://www.researchgate.net/publication/300403700_Regression_Analysis

Mukaka.MM (2012). A guide to appropriate use of Correlation Coefficient in medical research. *Malawi Medical Journal 24 (3)*, 69-71.
Mustafa, S., Saeed, A., and Zafar, A**.** (2017). The Effect of Financial Leverage and Market Size on Stock Returns on the Karachi Stock Exchange: Evidence from Selected Stocks in the Non-Financial Sector of Pakistan. *The International Journal of Business & Management, 5, (10).*

Myers. S.C. (2002). Financing of Corporations. Handbook of the Economics of Finance.

Ndubuisi,K. Ifechi,J, Nweke, and Joel, C (2019) Financial leverage and Firm Financial Performance in Nigeria: A Panel Data Analysis Approach. *Global Journal of Management and Business Research: C Finance 19.*

Pandya, B. (2016). Impact of Financial Leverage on Market Value Added: Empirical Evidence from India. *Journal of Entrepreneurship, Business and Economics, 4(2),* pp.40-58.

Robertson, D. (2003). Debt, Incentives and Performance: Evidence from UK Panel Data, *Economic Journal 113*, 903–919.

Ross, S.A. (1977) "the Determination of Financial Structure: The Incentive-Signaling Approach." *the Bell Journal of Economics* 8: 23-40
Salkind, N. J. (2010). Encyclopedia of Research Design. Retrieved from https://doi.org/http://dx.doi.org/10.4135/9781412961288

Setia, M. S. (2016). Methodology Series Module 3: Cross-sectional Studies. *Indian Journal of Dermatology*, 61(3), 261–264.

Shamoo, A.E., Resnik, B.R. (2003). Responsible Conduct of Research. Oxford University Press.

Shleifer, A and W. Vishny, R. (1988). Management Ownership and Market Valuation: An Empirical Analysis. *Journal of Financial Economics, 20*, pp. 293-315

Showkat, N., & Parveen, H. (2017). Non-probability and probability sampling. Retrieved from https://www.researchgate.net/publication/319066480_Non-Probability_and_Probability_Sampling

Sykes, L.M., Gani, F.,Vally, Z. (2016). Statistical terms Part 1: The meaning of the MEAN, and other statistical terms commonly used in medical research. *South African Dental Journal 71 (6).*

Taani, K. (2012). Impact of Working Capital Management Policy and Financial Leverage on Financial Performance: Evidence from Amman Stock Exchange Listed Companies *International Journal of Management Sciences and Business Research 1 (8)*, 10–17. Retrieved from http://www.iosrjournals.org/iosr-jef/papers/vol5-issue3/C0521725.pdf

Veronesi Pietro (2000). "How does information quality affect stock returns?", *Journal of Finance*, *55 (2)*, pp. 807-837.

Voutsinas, K., and Werner, R.A. (2011). Credit Supply and Corporate Capital Structure: Evidence from Japan. *International Review of Financial Analysis, 20*, pp 320-334.

Wall Street Mojo (2020). EV to EBITDA: How to Calculate EV/EBITDA Valuation Multiple? Retrieved from https://www.wallstreetmojo.com/ev-to-ebitda-multiple-formula

Wolfe, J., & Sauaia, A. C. A (2014). The Tobin q as a company performance indicator. Developments in Business Simulation. *Developments in Business Simulation and Experiential Learning, 30.*

Widarjono, A (2007). Ekonometrika: Teori dan Aplikasi Untuk Ekonomi dan Bisnis, edisi kedua. Yogyakarta: Ekonisia FE Universitas Islam Indonesia.

APPENDICES

Appendix 1: Result of Chow Test, Hausman Test, and LM Test

- Results of Chow Test Model 1 (Equation 1-Equation 6)

Effects Test	Statistic	d.f.	Prob.
Cross-section F	4.585972	(28,545)	0.0000
Cross-section Chi-square	122.707360	28	0.0000

Effects Test	Statistic	d.f.	Prob.
Cross-section F	0.964141	(28,545)	0.5198
Cross-section Chi-square	28.040746	28	0.4623

Effects Test	Statistic	d.f.	Prob.
Cross-section F	13.212062	(28,545)	0.0000
Cross-section Chi-square	300.480729	28	0.0000

Effects Test	Statistic	d.f.	Prob.
Cross-section F	3.052858	(28,545)	0.0000
Cross-section Chi-square	84.503500	28	0.0000

Effects Test	Statistic	d.f.	Prob.
Cross-section F	1.540466	(28,545)	0.0390
Cross-section Chi-square	44.177105	28	0.0267

Effects Test	Statistic	d.f.	Prob.
Cross-section F	3.050543	(28,545)	0.0000
Cross-section Chi-square	84.443855	28	0.0000

Appendix 2: Result of Chow Test, Hausman Test, and LM Test (Cont)

- Results of Chow Test Model 2 (Equation 1- Equation 6)

Effects Test	Statistic	d.f.	Prob.
Cross-section F	4.497635	(28,545)	0.0000
Cross-section Chi-square	120.573100	28	0.0000

Effects Test	Statistic	d.f.	Prob.
Cross-section F	0.949028	(28,545)	0.5424
Cross-section Chi-square	27.611497	28	0.4852

Effects Test	Statistic	d.f.	Prob.
Cross-section F	13.261036	(28,545)	0.0000
Cross-section Chi-square	301.349366	28	0.0000

Effects Test	Statistic	d.f.	Prob.
Cross-section F	3.057714	(28,545)	0.0000
Cross-section Chi-square	84.628552	28	0.0000

Effects Test	Statistic	d.f.	Prob.
Cross-section F	1.563117	(28,545)	0.0341
Cross-section Chi-square	44.802214	28	0.0231

Effects Test	Statistic	d.f.	Prob.
Cross-section F	3.056892	(28,545)	0.0000
Cross-section Chi-square	84.607397	28	0.0000

Appendix 3: Result of Chow Test, Hausman Test, and LM Test (Cont)

- Results of Hausman Test Model 1 (Equation 1- Equation 6)

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	9.061084	6	0.1702

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	0.000000	6	1.0000

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	0.000000	6	1.0000

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	4.200394	6	0.6496

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	10.451822	6	0.1069

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	3.891247	6	0.6914

Appendix 4: Result of Chow Test, Hausman Test, and LM Test (Cont)

- Results of Hausman Test Model 2 (Equation 1- Equation 6)

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	17.143418	6	0.0088

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	0.000000	6	1.0000

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	5.585470	6	0.4712

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	3.703830	6	0.7167

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	9.044005	6	0.1711

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	0.000000	6	1.0000

Appendix 5: Result of Chow Test, Hausman Test, and LM Test (Cont)

- Results of LM Test Model 1 (Equation 1- Equation 6)

	Test Hypothesis		
	Cross-section	Time	Both
Breusch-Pagan	104.2744 (0.0000)	3.749590 (0.0528)	108.0240 (0.0000)

	Test Hypothesis		
	Cross-section	Time	Both
Breusch-Pagan	0.042993 (0.8357)	0.390738 (0.5319)	0.433731 (0.5102)

	Test Hypothesis		
	Cross-section	Time	Both
Breusch-Pagan	683.2707 (0.0000)	9.396143 (0.0022)	692.6669 (0.0000)

	Test Hypothesis		
	Cross-section	Time	Both
Breusch-Pagan	40.54587 (0.0000)	0.929717 (0.3349)	41.47559 (0.0000)

	Test Hypothesis		
	Cross-section	Time	Both
Breusch-Pagan	22.07625 (0.0000)	548.8109 (0.0000)	570.8871 (0.0000)

	Test Hypothesis		
	Cross-section	Time	Both
Breusch-Pagan	42.24717 (0.0000)	1.012471 (0.3143)	43.25964 (0.0000)

Appendix 6: Result of Chow Test, Hausman Test, and LM Test (Cont)

- Results of LM Test Model 2 (Equation 1- Equation 6)

	Test Hypothesis		
	Cross-section	Time	Both
Breusch-Pagan	110.4760 (0.0000)	2.429856 (0.1190)	112.9058 (0.0000)

	Test Hypothesis		
	Cross-section	Time	Both
Breusch-Pagan	0.192837 (0.6606)	0.239567 (0.6245)	0.432405 (0.5108)

	Test Hypothesis		
	Cross-section	Time	Both
Breusch-Pagan	683.2766 (0.0000)	9.682250 (0.0019)	692.9588 (0.0000)

	Test Hypothesis		
	Cross-section	Time	Both
Breusch-Pagan	37.59971 (0.0000)	0.970943 (0.3244)	38.57065 (0.0000)

	Test Hypothesis		
	Cross-section	Time	Both
Breusch-Pagan	3.501256 (0.0613)	620.0821 (0.0000)	623.5833 (0.0000)

	Test Hypothesis		
	Cross-section	Time	Both
Breusch-Pagan	38.21372 (0.0000)	1.100968 (0.2941)	39.31469 (0.0000)

Appendix 7: Result of Multicollinearity Test

- Results of Multicollinearity Test (Equation 1- Equation 3)

Coefficients[a]

Model		Unstandardized Coefficients B	Std. Error	Standardized Coefficients Beta	t	Sig.	Collinearity Statistics Tolerance	VIF
1	(Constant)	3.715	1.455		2.553	.011		
	DAR	-.071	.063	-.388	-1.126	.261	.013	74.687
	DARSQ	.000	.002	-.182	-.221	.825	.002	425.709
	DER	.018	.027	.492	.656	.512	.003	352.645
	DERSQ	-1.035E-5	.000	-.144	-.537	.591	.022	45.365
	LIQ	.008	.107	.004	.078	.938	.563	1.778
	FAR	.510	.135	.157	3.773	.000	.920	1.087
	SGR	-.001	.001	-.034	-.851	.395	.980	1.020
	MR	-.002	.011	-.006	-.149	.881	.992	1.008

a. Dependent Variable: TOBINSQ

Coefficients[a]

Model		Unstandardized Coefficients B	Std. Error	Standardized Coefficients Beta	t	Sig.	Collinearity Statistics Tolerance	VIF
1	(Constant)	117.627	506.013		.232	.816		
	DAR	.886	21.820	.015	.041	.968	.013	74.687
	DARSQ	.191	.566	.290	.337	.736	.002	425.709
	DER	-4.723	9.532	-.388	-.495	.620	.003	352.645
	DERSQ	.003	.007	.125	.446	.656	.022	45.365
	LIQ	20.925	37.077	.031	.564	.573	.563	1.778
	FAR	-70.705	47.015	-.065	-1.504	.133	.920	1.087
	SGR	-.039	.349	-.005	-.113	.910	.980	1.020
	MR	.407	3.909	.004	.104	.917	.992	1.008

a. Dependent Variable: EVEBITDA

Coefficients[a]

Model		Unstandardized Coefficients B	Std. Error	Standardized Coefficients Beta	t	Sig.	Collinearity Statistics Tolerance	VIF
1	(Constant)	5.297	2.563		2.066	.039		
	DAR	-.165	.111	-.530	-1.490	.137	.013	74.687
	DARSQ	.007	.003	2.019	2.380	.018	.002	425.709
	DER	-.123	.048	-1.961	-2.540	.011	.003	352.645
	DERSQ	7.840E-5	.000	.640	2.310	.021	.022	45.365
	LIQ	.260	.188	.076	1.383	.167	.563	1.778
	FAR	.579	.238	.104	2.431	.015	.920	1.087
	SGR	.000	.002	.003	.083	.934	.980	1.020
	MR	.038	.020	.079	1.915	.056	.992	1.008

a. Dependent Variable: EY

Appendix 8: Result of Multicollinearity Test (Cont)

- Results of Multicollinearity Test (Equation 4- Equation 6)

Coefficients[a]

Model		Unstandardized Coefficients B	Unstandardized Coefficients Std. Error	Standardized Coefficients Beta	t	Sig.	Collinearity Statistics Tolerance	Collinearity Statistics VIF
1	(Constant)	5.297	2.563		2.066	.039		
	DAR	-.165	.111	-.530	-1.490	.137	.013	74.687
	DARSQ	.007	.003	2.019	2.380	.018	.002	425.709
	DER	-.123	.048	-1.961	-2.540	.011	.003	352.645
	DERSQ	7.840E-5	.000	.640	2.310	.021	.022	45.365
	LIQ	.260	.188	.076	1.383	.167	.563	1.778
	FAR	.579	.238	.104	2.431	.015	.920	1.087
	SGR	.000	.002	.003	.083	.934	.980	1.020
	MR	.038	.020	.079	1.915	.056	.992	1.008

a. Dependent Variable: SR

Coefficients[a]

Model		Unstandardized Coefficients B	Unstandardized Coefficients Std. Error	Standardized Coefficients Beta	t	Sig.	Collinearity Statistics Tolerance	Collinearity Statistics VIF
1	(Constant)	1.095	.283		3.871	.000		
	DAR	-.004	.007	-.063	-.613	.540	.157	6.368
	DER	.002	.001	.113	1.213	.226	.191	5.228
	LIQ	.109	.040	.145	2.726	.007	.581	1.720
	FAR	-.189	.051	-.156	-3.710	.000	.930	1.075
	SGR	.000	.000	.051	1.244	.214	.986	1.015
	MR	.015	.004	.140	3.441	.001	.993	1.007

a. Dependent Variable: BETA

Coefficients[a]

Model		Unstandardized Coefficients B	Unstandardized Coefficients Std. Error	Standardized Coefficients Beta	t	Sig.	Collinearity Statistics Tolerance	Collinearity Statistics VIF
1	(Constant)	-32.669	17.064		-1.915	.056		
	DAR	.791	.736	.364	1.075	.283	.013	74.687
	DARSQ	-.026	.019	-1.085	-1.341	.180	.002	425.709
	DER	.466	.321	1.066	1.448	.148	.003	352.645
	DERSQ	.000	.000	-.353	-1.337	.182	.022	45.365
	LIQ	1.183	1.250	.049	.946	.345	.563	1.778
	FAR	5.528	1.585	.143	3.487	.001	.920	1.087
	SGR	-.006	.012	-.021	-.533	.594	.980	1.020
	MR	1.010	.132	.302	7.659	.000	.992	1.008

a. Dependent Variable: RAR

Appendix 9: Results of Panel Data Regression and Significance Test

- Model 1 (Equation 1- Equation 2)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	2.372846	0.665798	3.563914	0.0004
DER	-0.008711	0.004579	-1.902180	0.0576
DERSQ	1.01E-05	6.26E-06	1.614941	0.1069
LIQ	0.029924	0.125725	0.238009	0.8120
FAR	0.275568	0.168601	1.634440	0.1027
SGR	-0.000289	0.000975	-0.296215	0.7672
MR	-0.000249	0.010447	-0.023876	0.9810
		Effects Specification		
			S.D.	Rho
Cross-section random			1.307702	0.1544
Idiosyncratic random			3.060153	0.8456
		Weighted Statistics		
Root MSE	3.052390	R-squared		0.013789
Mean dependent var	0.914695	Adjusted R-squared		0.003462
S.D. dependent var	3.076308	S.E. of regression		3.070978
Sum squared resid	5403.911	F-statistic		1.335258
Durbin-Watson stat	1.998647	Prob(F-statistic)		0.239295
		Unweighted Statistics		
R-squared	0.065829	Mean dependent var		1.972914
Sum squared resid	6386.740	Durbin-Watson stat		1.691084

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	152.5772	165.5819	0.921461	0.3572
DER	0.319729	1.087657	0.293962	0.7689
DERSQ	-0.000740	0.001902	-0.389191	0.6973
LIQ	14.40715	34.73223	0.414806	0.6784
FAR	-76.19121	46.84730	-1.626373	0.1044
SGR	-0.034347	0.347681	-0.098789	0.9213
MR	0.442839	3.907811	0.113322	0.9098
		Effects Specification		
			S.D.	Rho
Cross-section random			37.18582	0.0010
Idiosyncratic random			1147.225	0.9990
		Weighted Statistics		
Root MSE	1138.752	R-squared		0.005029
Mean dependent var	132.4927	Adjusted R-squared		-0.005389
S.D. dependent var	1142.612	S.E. of regression		1145.687
Sum squared resid	7.52E+08	F-statistic		0.482731
Durbin-Watson stat	2.119950	Prob(F-statistic)		0.821393
		Unweighted Statistics		
R-squared	0.005042	Mean dependent var		133.8775
Sum squared resid	7.53E+08	Durbin-Watson stat		2.117979

Appendix 10: Results of Panel Data Regression and Significance Test (Cont)

- Model 1 (Equation 3- Equation 4)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	2.071819	1.291095	1.604699	0.1091
DER	0.003871	0.008968	0.431590	0.6662
DERSQ	-5.78E-06	1.11E-05	-0.522914	0.6012
LIQ	-0.123513	0.208367	-0.592766	0.5536
FAR	1.416469	0.277758	5.099652	0.0000
SGR	-0.002424	0.001490	-1.627232	0.1042
MR	0.032577	0.015800	2.061862	0.0397

Effects Specification			S.D.	Rho
Cross-section random			3.772955	0.3998
Idiosyncratic random			4.622495	0.6002

Weighted Statistics			
Root MSE	4.596051	R-squared	0.055018
Mean dependent var	0.963718	Adjusted R-squared	0.045123
S.D. dependent var	4.732033	S.E. of regression	4.624039
Sum squared resid	12251.74	F-statistic	5.560122
Durbin-Watson stat	1.339504	Prob(F-statistic)	0.000013

Unweighted Statistics			
R-squared	-0.010879	Mean dependent var	3.647414
Sum squared resid	20200.06	Durbin-Watson stat	0.812436

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-15.43472	7.464279	-2.067811	0.0391
DER	0.030274	0.050636	0.597880	0.5502
DERSQ	-1.75E-05	7.21E-05	-0.242304	0.8086
LIQ	1.990018	1.452798	1.369783	0.1713
FAR	4.929668	1.951138	2.526560	0.0118
SGR	-0.003208	0.011679	-0.274697	0.7836
MR	1.022463	0.125851	8.124419	0.0000

Effects Specification			S.D.	Rho
Cross-section random			12.81338	0.1077
Idiosyncratic random			36.87944	0.8923

Weighted Statistics			
Root MSE	36.63063	R-squared	0.120674
Mean dependent var	2.071461	Adjusted R-squared	0.111467
S.D. dependent var	39.09707	S.E. of regression	36.85370
Sum squared resid	778245.7	F-statistic	13.10593
Durbin-Watson stat	0.702056	Prob(F-statistic)	0.000000

Unweighted Statistics			
R-squared	0.118762	Mean dependent var	3.827603
Sum squared resid	860095.8	Durbin-Watson stat	0.635245

Appendix 11: Results of Panel Data Regression and Significance Test (Cont)

- Model 1 (Equation 5- Equation 6)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.913422	0.165094	5.532728	0.0000
DER	0.001039	0.000699	1.487272	0.1375
LIQ	0.131656	0.038798	3.393403	0.0007
FAR	-0.201581	0.054775	-3.680177	0.0003
SGR	0.000460	0.000381	1.207175	0.2279
MR	0.014827	0.004213	3.519558	0.0005
Effects Specification				
			S.D.	Rho
Cross-section random			0.170443	0.0186
Idiosyncratic random			1.237342	0.9814
Weighted Statistics				
Root MSE	1.234259	R-squared		0.053160
Mean dependent var	1.067479	Adjusted R-squared		0.044912
S.D. dependent var	1.269529	S.E. of regression		1.240693
Sum squared resid	883.5694	F-statistic		6.445350
Durbin-Watson stat	1.905051	Prob(F-statistic)		0.000008
Unweighted Statistics				
R-squared	0.051637	Mean dependent var		1.253776
Sum squared resid	900.0035	Durbin-Watson stat		1.870265

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-17.44379	7.476809	-2.333052	0.0200
DER	0.030175	0.050735	0.594765	0.5522
DERSQ	-1.69E-05	7.22E-05	-0.234057	0.8150
LIQ	2.075742	1.454479	1.427138	0.1541
FAR	4.902028	1.953344	2.509557	0.0124
SGR	-0.003204	0.011684	-0.274222	0.7840
MR	1.013977	0.125887	8.054629	0.0000
Effects Specification				
			S.D.	Rho
Cross-section random			12.86960	0.1085
Idiosyncratic random			36.88996	0.8915
Weighted Statistics				
Root MSE	36.63118	R-squared		0.119283
Mean dependent var	1.051663	Adjusted R-squared		0.110061
S.D. dependent var	39.06678	S.E. of regression		36.85426
Sum squared resid	778269.3	F-statistic		12.93442
Durbin-Watson stat	0.702657	Prob(F-statistic)		0.000000
Unweighted Statistics				
R-squared	0.117078	Mean dependent var		1.948879
Sum squared resid	860331.5	Durbin-Watson stat		0.635635

Appendix 12: Results of Panel Data Regression and Significance Test (Cont)

- Model 2 (Equation 1- Equation 2)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-2.883294	2.236120	-1.289418	0.1978
DAR	0.192916	0.084594	2.280499	0.0230
DARSQ	-0.001630	0.000786	-2.074190	0.0385
LIQ	0.003415	0.148951	0.022929	0.9817
FAR	0.049202	0.192205	0.255989	0.7981
SGR	-8.23E-05	0.000989	-0.083284	0.9337
MR	0.002799	0.010415	0.268795	0.7882

Effects Specification

Cross-section fixed (dummy variables)

Root MSE	2.952404	R-squared	0.260519
Mean dependent var	1.972914	Adjusted R-squared	0.214386
S.D. dependent var	3.436269	S.E. of regression	3.045731
Akaike info criterion	5.123807	Sum squared resid	5055.681
Schwarz criterion	5.387093	Log likelihood	-1450.904
Hannan-Quinn criter.	5.226454	F-statistic	5.647164
Durbin-Watson stat	2.148862	Prob(F-statistic)	0.000000

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-68.71584	365.9991	-0.187749	0.8511
DAR	9.556386	14.06245	0.679568	0.4971
DARSQ	-0.090069	0.146375	-0.615333	0.5386
LIQ	24.09770	37.44213	0.643598	0.5201
FAR	-73.86601	47.59826	-1.551864	0.1212
SGR	-0.045876	0.349016	-0.131444	0.8955
MR	0.426213	3.905752	0.109124	0.9131

Effects Specification

	S.D.	Rho
Cross-section random	63.79617	0.0031
Idiosyncratic random	1147.272	0.9969

Weighted Statistics

Root MSE	1137.435	R-squared	0.005613
Mean dependent var	129.9205	Adjusted R-squared	-0.004799
S.D. dependent var	1141.625	S.E. of regression	1144.361
Sum squared resid	7.50E+08	F-statistic	0.539093
Durbin-Watson stat	2.125703	Prob(F-statistic)	0.778605

Unweighted Statistics

R-squared	0.005695	Mean dependent var	133.8775
Sum squared resid	7.52E+08	Durbin-Watson stat	2.120206

Appendix 13: Results of Panel Data Regression and Significance Test (Cont)

- Model 2 (Equation 3- Equation 4)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.291326	2.816435	-0.103438	0.9177
DAR	0.102790	0.106661	0.963708	0.3356
DARSQ	-0.000878	0.001056	-0.831054	0.4063
LIQ	-0.071961	0.215781	-0.333493	0.7389
FAR	1.429461	0.277697	5.147565	0.0000
SGR	-0.002484	0.001489	-1.667720	0.0959
MR	0.032701	0.015768	2.073941	0.0385
		Effects Specification		
			S.D.	Rho
Cross-section random			3.789867	0.4025
Idiosyncratic random			4.617479	0.5975
		Weighted Statistics		
Root MSE	4.591875	R-squared		0.056340
Mean dependent var	0.958747	Adjusted R-squared		0.046459
S.D. dependent var	4.731044	S.E. of regression		4.619838
Sum squared resid	12229.48	F-statistic		5.701708
Durbin-Watson stat	1.342501	Prob(F-statistic)		0.000009
		Unweighted Statistics		
R-squared	-0.012682	Mean dependent var		3.647414
Sum squared resid	20236.09	Durbin-Watson stat		0.811327

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-18.99440	16.75293	-1.133796	0.2574
DAR	0.149322	0.652964	0.228684	0.8192
DARSQ	-0.000234	0.006719	-0.034801	0.9723
LIQ	2.129872	1.530679	1.391456	0.1646
FAR	4.973664	1.960214	2.537306	0.0114
SGR	-0.003333	0.011695	-0.285001	0.7757
MR	1.023238	0.125776	8.135385	0.0000
		Effects Specification		
			S.D.	Rho
Cross-section random			12.92450	0.1093
Idiosyncratic random			36.88672	0.8907
		Weighted Statistics		
Root MSE	36.62196	R-squared		0.120645
Mean dependent var	2.059109	Adjusted R-squared		0.111437
S.D. dependent var	39.08717	S.E. of regression		36.84497
Sum squared resid	777877.3	F-statistic		13.10236
Durbin-Watson stat	0.702782	Prob(F-statistic)		0.000000
		Unweighted Statistics		
R-squared	0.118098	Mean dependent var		3.827603
Sum squared resid	860744.4	Durbin-Watson stat		0.635122

Appendix 14: Results of Panel Data Regression and Significance Test (Cont)

- Model 2 (Equation 5- Equation 6)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.854903	0.265557	3.219284	0.0014
DAR	0.003926	0.003952	0.993246	0.3210
LIQ	0.129405	0.042397	3.052255	0.0024
FAR	-0.199314	0.054802	-3.637014	0.0003
SGR	0.000455	0.000381	1.195643	0.2323
MR	0.014871	0.004215	3.527771	0.0005
Effects Specification				
			S.D.	Rho
Cross-section random			0.169088	0.0183
Idiosyncratic random			1.237788	0.9817
Weighted Statistics				
Root MSE	1.235701	R-squared		0.051140
Mean dependent var	1.069917	Adjusted R-squared		0.042874
S.D. dependent var	1.269659	S.E. of regression		1.242143
Sum squared resid	885.6352	F-statistic		6.187262
Durbin-Watson stat	1.902378	Prob(F-statistic)		0.000013
Unweighted Statistics				
R-squared	0.049821	Mean dependent var		1.253776
Sum squared resid	901.7272	Durbin-Watson stat		1.868428

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-20.77747	16.78074	-1.238174	0.2162
DAR	0.140090	0.654049	0.214188	0.8305
DARSQ	-0.000144	0.006730	-0.021384	0.9829
LIQ	2.206395	1.532257	1.439964	0.1504
FAR	4.944566	1.962290	2.519793	0.0120
SGR	-0.003323	0.011699	-0.284018	0.7765
MR	1.014754	0.125811	8.065718	0.0000
Effects Specification				
			S.D.	Rho
Cross-section random			12.97848	0.1101
Idiosyncratic random			36.89656	0.8899
Weighted Statistics				
Root MSE	36.62341	R-squared		0.119224
Mean dependent var	1.045520	Adjusted R-squared		0.110002
S.D. dependent var	39.05718	S.E. of regression		36.84643
Sum squared resid	777938.9	F-statistic		12.92717
Durbin-Watson stat	0.703358	Prob(F-statistic)		0.000000
Unweighted Statistics				
R-squared	0.116423	Mean dependent var		1.948879
Sum squared resid	860970.4	Durbin-Watson stat		0.635527