THE IMPACT OF CORPORATE DIVERSIFICATION TO CAPITAL STRUCTURE: AN EMPIRICAL STUDY FROM THE MANUFACTURING FIRMS IN INDONESIAN STOCK EXCHANGE 2014-2018

THESIS

Presented as Partial Fulfillment of the Requirements for the Degree of Sarjana Akuntansi (S1)

Faculty of Business and Economics Universitas Atma Jaya Yogyakarta

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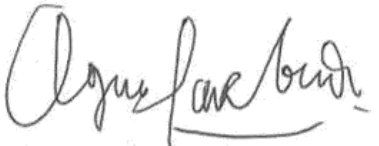
Is really my own thinking and writing. I fully know that my writing does not contain other parts of the writing written by others, except otherwise cited and mentioned in the references.

Yogyakarta, June 02, 2020



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THE IMPACT OF CORPORATE DIVERSIFICATION TO CAPITAL STRUCTURE: AN EMPIRICAL STUDY FROM THE MANUFACTURING FIRMS IN INDONESIAN STOCK EXCHANGE 2014-2018

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Abstract

This research aims to find the impact of corporate diversification to capital structure in Indonesian manufacturing firms listed in Indonesian Stock Exchange on 2014 up to 2018. The sample used in this research is 40 manufacturing companies listed in Indonesian Stock Exchange in 5 years, which is 2014-2018. In this case, capital structure is measured using leverage by using debt to equity ratio. Diversification is measured using Herfindahl-Hirschman Index (HHI). There are two control variables in this research: profitability, measured using return on assets; and dividend policy, measured using dividend payout ratio. The result is that diversification gives negative and significant impact to capital structure. The control variable, profitability and dividend policy both gives negative and significant impact to capital structure.

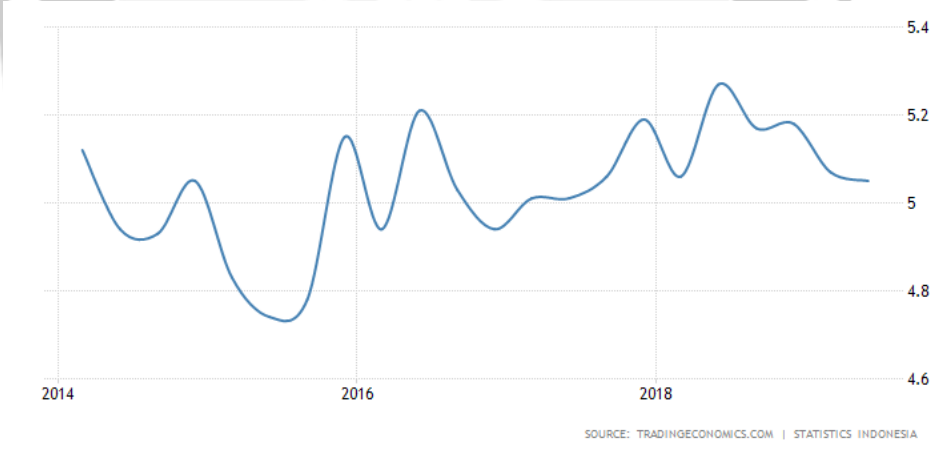
Keywords: diversification, capital structure, leverage, HHI, segments.

CHAPTER 1

INTRODUCTION

1.1. Research Background

As a developing country, Indonesia has a relatively high percentage of economic growth (Gross Domestic Product). According to TradingEconomics.com (2019), the Gross Domestic Product (GDP) Growth in Indonesia was around 5 percent in last five years, precisely 5% in 2014 and 2016; 4.9% in 2015; and 5.1% in 2017 and 2018. With high levels of economic growth, the opportunity the firms create new businesses increase, therefore the firms can expand their businesses into some new businesses. There is a strategy in order for the firms can expand their businesses into some new businesses. The strategy, according to Wheelen and Hunger (2012), is diversification.



Graph 1: Indonesian GDP Growth from 2014 up to 2018

Source: TradingEconomics.com (2019)

Wheelen and Hunger (2009) define diversification as a corporate growth strategy that expands product lines by moving into another industry. Indonesian Financial Accounting Standard (PSAK) No. 05 defines diversification as the

companies which have business segments or geographical segments reported in the segmented report of the firms. Wheelen and Hunger (2009) stated that firms diversify if the growth of the firms have been reached and opportunities for growth have been depleted. Kusmawati (2005) said that firms diversify when the distribution channels available can be used to market the new products to some main consumers; and when the firms have some capital and managerial power which are needed to compete in the industry. Firms diversify, according to Haberberg and Rieple (2003) in Kusmawati (2005) in order to seek growth of the firms and capture value added of the firms, to spread risk of the firms, to prevent competitors from gaining ground, to achieve synergy of the firms, to control the distribution system of the firms, and to fulfill the ambition of the senior managers. However, diversification could give some negative impacts, which are: the product lines in diversified firms can weaken another product lines in the same industry, the competitors can weaken brand loyalty from the produced diversified products, the competitors can use the opportunity to create similar segments, and diversification can create agency costs from suboptimal investments. Diversification is calculated using Herfindahl-Hirschman Index (HHI), which follows the writing by Ajay and Madhumathi (2015) and Kristarti and Worokinasih (2018), in which HHI has inverse impact due to the higher the diversification, the lower the HHI. The reasons for using HHI as the measurement of diversification are: diversification can be differentiated into three parts: no diversification, low-level of diversification, and high level of diversification accurately by using HHI; and HHI is based from Indonesian Financial Accounting Standard (PSAK) No. 05 as it uses segmented sales to measure diversification.

Diversification is considered as the most complex strategy to be implied in the business. There are two reasons that tells this statement. The first reason is that, according to Hermawan (2015), companies which have done diversification strategy will have new experience, either from the market or from the products,

which can lead to high level of business risks. Therefore, before doing diversification, according to Hermawan (2015), the companies should have done some research of whether the segmented diversified firms give benefits to the customers. The second reason is that, every diversified products, according to Hermawan (2015), gives demand to customers because the diversified products are considered as new, unique, and having good quality. As a result, before doing product diversification, the companies should have done test market, therefore the companies will understand whether the products will be accepted in the market.

In Indonesia, there are several types of diversified firms, either can be from foreign firms, domestic firms, or even public-owned firms, according to Brahmana (2019). For foreign firms, an example is Jardine Matheson (UK). In this case, Jardine Matheson diversifies into Astra Internasional Tbk. Astra Internasional Tbk, diversifies into five firms, which are: Astra Agro Lestari Tbk, ownership percentage = 80%; United Tractors Tbk, ownership percentage = 60%; Astra Otoparts, ownership percentage = 96%; Astra Graphia, ownership percentage = 77%; and Permata Bank, ownership percentage = 45%. For Indonesian government companies, an example is Semen Indonesia Tbk. Indonesian government owns Semen Indonesia Tbk, which is diversified into three companies: KIG Real Estate by 65% ownership, Semen Tonasa by 100% ownership, and UTSG Mining by 55% ownership. For family firms, an example is Salim Family. Salim Family owns three firms: First Pacific, DUFIL (international firms), and SAWAB (international firms). First Pacific diversifies into Indofood by 50% ownership. Indofood diversifies into three firms: PIPS Investment by 100%, Bogasari Flour by 100%, and Indofood Singapore (international firms) by 100%. Indofood Singapore diversifies into IFAR Singapore by 100%. IFAR Singapore diversifies into Salim Ivomas, by 60% ownership. Salim Ivomas only diversifies by 29% to London Sumatra Plantations.

Subramanyam and Wild (2010) define capital structure as the funding of debts and equities calculated based on the relative amount of various types of sources of funds. According to Subramanyam and Wild (2010), capital structure can be gotten from relatively permanent equity capital up to the riskier short-term source of fund. There are two purposes of capital structure, which are to differentiate debts and equities and to protect the borrowers from the probability of failure of payment of the firms and financial pressures by using debts. Capital structure is measured using leverage, because leverage, according to Subramanyam and Wild (2010), is related with the funding of the firms. In this case, leverage is measured using debts to equity ratio because both debts, in the form of liabilities, and equities, are considered as a way of financing and borrowing of the firms by using both liabilities and equities.

Agency theory is the theory which said that there should be a balance and synchronization between the wants of the principals and the wants of the agents. Agency theory can give negatitve impact to capital structure, in which, according to La Rocca (2009), debts can make the shareholders restrict the diversification decision making. Jensen (1986) in La Rocca *et al.* (2009) said that debts can be used to decrease managerial discretion in free cash flow which result that debts can be used to decrease unbeneficial diversification strategy. This can give impact as diversification, funded either using debts or equities, is interpreted to monitoring effect, in which the shareholders are assumed to have the capacity to effect the strategic decisions of managers in order to avoid diversification strategy because of opportunistic behaviors done by the managers. As a result, shareholders will promote the use of debts to create the discipline of the behavior of the managers, limiting diversification decisions.

There are two factors that influence capital structure, which are profitability and dividend policy. The first factor is profitability. Fathan and Saragih (2014) said that profitability, measured by return on assets using net

income per total assets, gives negative and significant impact to book debt to total assets, market value of debt to total assets and total value of debt to total assets. Ismawati *et al.* (2018) said that profitability, measured by return on equity using earning after tax per equity, gives positive and significant impact to capital structure, measured using debt to equity ratio. La Rocca *et al.* (2009) said that profitability, measured using return on assets using earning before interests and taxes per total assets gives negative impact to capital structure in related-diversified firms and positive impact to capital structure in unrelated-diversified firms, in which the debts are measured using total financial debts divided by total debts plus total equity. Febriyani and Srimindarti (2010) said that profitability, measured using return on assets using net income per total assets, gives negative and insignificant value to capital structure, measured using book value of total debts to total assets. Ajay and Madhumathi (2015) gives significant and negative relationship between profitability, measured by using return on assets by using earnings before interests and taxes to total assets; to capital structure, measured by using debt to total assets ratio. Kusmawati (2005) said that profitability, mesured using return on sales (net income before interests and taxes per total sales) gives negative and insignificant result to capital structure, measured using debt to equity ratio. Profitability is measured using return on assets because return on assets is considered as measurement of profits of assets, measured in monetary amount, which is related to the benefits of the firms measured in financial statement, precisely income statement.

The second factor is dividend policy. Aisjah (2010) said that dividend policy, measured using dividend payout ratio using dividends per share to earnings per share, gives negative and insignificant impact in both related diversification and unrelated diversification to capital structure, measured using debts to total assets. Dividend policy, measured using dividend payout ratio, is measured by the division of dividend per shares divided by earning per shares based from the trade-

off theory, in which the retained earnings are measured from the earnings per share as the shares are considered as the benefits from dividend to make shareholders happy.

There is a case from Indonesian firms, named as Kalbe Farma Tbk. In this case, the firm has small capital structure, precisely 0.2740 in 2014, 0.2522 in 2015, 0.2216 in 2016, 0.1959 in 2017, and 0.1864 in 2018. However, the diversification was 0.2616 in 2014, 0.2603 in 2015, 0.2603 in 2016, 0.2616 in 2017, and 0.2621 in 2018. This example reflects that the higher the firms diversified does not guarantee that the capital structure is also high. This can guarantee that this topic is considered as important topic.

Several researches have been made in order to give the impact between corporate diversification and capital structure. Ajay and Madhumathi (2015) said that there is a negative and insignificant impact between corporate diversification, measured using HHI; and capital structure, measured using debt to total assets ratio; in Indian firms during 2014 up to 2013 as HHI gives inverse impact with the capital structure, which means that the higher the diversification, the lower the HHI. Low and Chen (2004) said that there is a positive and significant impact between corporate product diversification, measured using product diversification index in Volume 1 of CIFAR Handbook and capital structure, measured using book value of debts to total assets, in CIFAR 500 during 1986 up to 1990. As a result, diversification gives positive and insignificant impact to capital structure. In Indonesia, Kusmawati (2005) said that there is a positive and insiginificant effect of corporate diversification, measured using the inverse of Specialization Index as Specialization Index gives inverse effect of corporate diversification; to leverages, measured using debt to equity ratio during 1999 up to 2003 in Indonesian firms.

In this case, the writer is curious to know whether there is any positive or negative impact of corporate diversification to capital structure. In this case, the writer wants to make a re-writing from the writing made by Ajay and Madhumathi (2015), Low and Chen (2004), and Kusmawati (2005). The writer uses manufacturing firms from Indonesian stock exchange from 2014 up to 2018. The reason for using manufacturing firms is because nowadays there are opportunities for manufacturing firms as those firms produce goods in line with the technology and taste of the consumers nowadays, while both technology and taste of consumers are getting more and more developed. The reason for using the year from 2014 up to 2018 is because there were some economic events occur in those years, such as Indonesian presidential election in 2014, Indonesian bushfire in 2015, British Exit in 2016, Jakarta governor election in 2017, and Asian Games held in Indonesia in 2018, which give impact to the amount of shares traded in Indonesian stock exchange.

1.2. Research Problem

Diversification can benefit the firms. The benefit size of diversification are: to seek growth and capture value added, to spread risk, to prevent a competitor from gaining ground, to achieve synergy, to control the distribution system, and to fulfill the ambition of the senior managers. However, diversification also can give costs to the managers. The negative impacts are: the product lines in diversified firms can weaken the existing product lines, diversification can make consumers look for variability in other products which can weaken brand loyalty, and diversification can create more competitors, in which the competitors create similar products to diversified firms.

In agency theory, capital structure could give negative impact to diversification. The reason is that, in agency theory, according to La Rocca (2009), debts can make the shareholders restrict the diversification decision making. Jensen

(1986) in La Rocca *et al.* (2009) said that debts can be used to decrease managerial discretion in free cash flow, which means debts can be used to decrease unbeneficial diversification strategy, which can give impact to diversification as diversification, funded either using debts or equities, is interpreted to monitoring effect. As a result, shareholders are assumed to have the capacity to effect the strategic decisions of managers in order to avoid diversification strategy because of opportunistic behaviors done by the managers. This means the shareholders will promote the use of debts to create the discipline of the behavior of the managers, limiting diversification decisions.

Previous case such as what happen to Kalbe Farma Tbk proven that diversification and capital structure sometimes can not be in line. The reason is that Kalbe Farma Tbk, a diversified firm, does not guarantee to have high amount of debts. This means that diversification and capital structure gives negative impact due to different direction given by the company.

Several previous research give three different impacts from diversification and capital structure. Regarding with total diversification, Herfindahl-Hirschman Index (HHI) written by Ajay and Madhumathi (2015) gives negative and significant impact to diversification due to the inverse impact given by HHI. Regarding with the information in Low and Chen (2004), information from CIFAR gives positive impact to capital structure as information from CIFAR does not use inverse calculation. Kusmawati (2005) gives a positive and insignificant impact to diversification by using specialization ratio, although the specialization ratio is already inversed, as the specialization ratio gives inverse impact to capital structure.

From here, the research question is formulated. The research question is as follows:

"**Does corporate diversification impacts capital structure in Indonesian manufacturing corporates?**"

1.3. Research Objective

The main motive of this study is:

To give empirical evidence about the impact of corporate diversification to capital structure using a sample of all manufacturing firms listed in Indonesian Stock Exchange on 2014 up to 2018.

1.4. Research Contribution

There are two contributors for this research, which are:

1. Researchers

   The contribution of this thesis is to contribute to the related literature of the impact of corporate diversification to capital structure in manufacturing firms listed in Indonesian Stock Exchange on 2014 up to 2018, and hopes that it will be reference material for some researchers.

2. Investors

   This research also give contributions to investors in order to find information related to capital structure of the firms, therefore they can create decision whether the firm is good regarding with its capital structure.

1.5. Writing Systematic

This research is prepared systematically as follows:

CHAPTER I INTRODUCTION

Chapter I is the introduction of the research that includes: research background, research problem, research objective, research contribution, and writing systematic.

CHAPTER II THEORITICAL REVIEW AND HYPOTHESIS CONSTRUCTION

Chapter II is the theoritical review and hypothesis construction, which consists of literature review, previous researches, and its hypothesis construction.

CHAPTER III DATA AND METHODOLOGY

Chapter III is the data and methodology used in the research, which includes type of research; population and sample criteria; data collection method; research variable; data analysis techniques; and hypothesis testing method.

CHAPTER IV RESULT AND DISCUSSION

Chapter IV is the result and discussion, which include: descriptive statistics, classic assumption test, hypothesis testing, and discussion.

CHAPTER V CONCLUSION

Chapter V is the conclusion, which includes: conclusion, limitation, and suggestion.

CHAPTER 2

THEORITICAL REVIEW AND HYPOTHESIS CONSTRUCTION

2.1. Diversification

2.1.1. Definition of Diversification

Wheelen and Hunger (2012) define diversification as a firm growth strategy which extends product lines by shifting to another industry. Wheelen and Hunger (2012) said that a company diversifies if the growth has been reached and opportunities for the growth have been depleted. In other words, companies will do the diversification strategy if the companies are already at the peak level of growth and there are no more opportunities for the companies to grow.

Indonesian Financial Accounting Standard (PSAK) No. 05 defines diversification as the companies which have more than one business segments or geographical segments reported in the financial or annual report. Those companies should either report their segmented goods or services in the segmented report in financial or annual report. Usually, the reporting of goods and services are reported differently in the annual or financial report because firms producing goods and/or services have different way to market the firms and different usage of using technologies.

2.1.2. Types of Diversification

There are several types of diversification strategies, according to Herfindahl-Hirschman Index (HHI) mentioned by Kristarti and Worokinasih (2018). Those types of diversification are named as: no diversification, low level of diversification, and high level of diversification.

1. No diversification, or can be called as concentration, which occurs if the Herfindahl-Hirschman Index level is equal to 100% from the division

between total squared segmented sales of the firms and the total sales of the firms.

2. Low level of diversification, which occurs if the diversification level is more than or equal to 50% up to below 100% from the division between total squared segmented sales of the firms and the total sales of the firms.
3. High level of diversification, which occurs if the diversification level is less than 50% from the division between total squared segmented sales of the firms and the total sales of the firms.

2.1.3. Reasons of Diversification

There are some reasons why corporates diversify. Haberberg and Rieple (2003) in Kusmawati (2005) stated several reasons of diversification are as follows:

1. To seek growth and capture value added

   The purpose of growth and value added of the firms is fulfilled if the corporations invest in benefitable business, such as doing acquisitions of the firms and having strategic resources such as suppliers which produce main raw materials for the company or distributors which have a wide distribution channels. This diversification strategy through such acquisitions can increase operations of the companies and can increase revenues therefore the growth of the firms can happen. The positive effect from this acquisition is that companies can get a profit from the gain from that acquisized companies.

2. To flatten the risk

   The purpose of flattening the risk means that by investing in some businesses therefore the risk that the businesses have do not give any effects totally to the companies as those effects can be equalized by return which is gotten from other business. The companies which move in more than one business units therefore can get return from different sources and can cover

the risk from other business units. This happens due to every businesses have different risks and returns one among each other.

3. To prevent a competitor from gaining ground

   From domination from strategic resources of the businesses other than giving positive value is preventing domination from competitors. The domination from competitors and distributors from related diversification strategy can ease the companies in controlling the price and quality of the product in order to be competitive. This domination can increase the strength of the companies from the resulted product market.

4. To achieve synergy

   The synergy which becomes the purpose of diversification strategy means that the relationship to achieve goals by using combinations between the unachieved business segments if every business segments works themselves. There are several reasons with this synergy. Haberberg and Rieple (2003) in Kusmawati (2005) shows the synergy as a sharing in ability; information; access for financial sources; the distribution and sales channel; resources and facilities; economies of scale and economies of scope; and sharing system.

5. To control the distribution system

   The growth of the firms which is equalized with synergy between business segments will also give positive effects by the firms, such as giving efficiencies which can increase earnings of the firm. The domination to suppliers by achieving scale and economies of scope will probably make the companies getting a guarantee from the quality and on time in receiving raw materials, even the companies can get at a cheaper price. The efficiencies occur from operational costs and raw materials cost can increase cost of

goods sold and raw materials cost therefore increasing earnings before interest and taxes can be achieved.

6. To fulfill the ambition of senior managers

   The fulfillment of personal ambitions of senior managers are related with the reward received from the employees. The rewards are given by managers in accordance with the business. If the business diversify, the managers will have more jobs to be done therefore managers can achieve bigger rewards.

2.1.4. Negative Effects of Diversification

Despite from the positive impacts, diversification can create negative impacts. There are three negative impacts, according to Hermawan (2015) and Singh (2003). The negative impacts are mentioned below:

1. The product lines in diversified firms can weaken the other product lines (segments) in the same firms

   Diversified firms, according to Hermawan (2015), does not guaranteeed that the firms only produce many type of products in the similar percentage. An anomaly happens if the firms tend to create specialized products in its segments. The production of the products in one segment can defeat other segments. In this case, the products will create much percentage in one line compared to another product lines.

2. The competitors can weaken brand loyalty from the existing produced diversified products.

   Diversification can make consumers look for variability in other products. The reason is that the products with brand expansion are consumed products that already exist. Other than that, the existing

consumed products have a poor marketing concept, therefore the competitors can indirectly weaken brand loyalty.

3. The competitors can use the opportunity of diversification to create similar products to the product segment of the firms.

   The third impact is that diversification can create more competitors. The reason is that because the marketer is either focusing more on producing new products or focusing in producing the main products. Therefore, the available product segments have less attention. As a result, the competitors can use them and can use this opportunity to create similar products or to increase the revenues in producing the diversified segmented products or services.

4. Diversification creates agency cost through suboptimal investments

   Singh (2003) said that the higher degree of product diversification, the probability the agency cost is created through suboptimal investments. In this case, the investments that the companies have are only little, therefore, the companies are considered as not ready in doing the diversification strategy. However, in order to repair the image to the customers and shareholders, the companies are forced to use a diversification strategy in order to make the companies look good. As a result, the debt market will be less willing to lend to firms that engage in value-destroying diversification.

2.1.5. Concentration

2.1.5.1. Definition of Concentration

Wheelen and Hunger (2012) define concentration as a corporate growth strategy that focuses on the resources of the companies on competing on one industry. In this case, the companies are concentrated if the companies only

have one segment in the industry. Concentrated industry is considered as potential if the growth of the companies have real growth potential.

PSAK No. 05 defines concentration as any companies which only have one business segment in the financial or annual reports. The total sales of the segment companies are equal to the total sales of the main companies. The reason is that these companies only have one segment, therefore these companies usually only report one segment and the companies usually use the segmented sales as the total sales of the companies.

2.1.5.2. Relationship between Diversification and Concentration

Diversification and concentration, according to Herfindahl-Hirschman Index, are considered as two strategies that are related. The reason is that, HHI is used to measure both diversification and concentration by using one type of hypothesis and formula of diversification. As a result, Kristarti and Worokinasih (2018); and PSAK No. 05 said that concentration can be said as 'no diversification' in the type of diversification of the firms.

2.1.5.3. Difference between Diversification and Concentration

Although diversification and concentration are considered as one strategy, both strategies have differences. There are four differences in these strategies. The differences are based on the information from Wheelen and Hunger (2012); the Herfindahl-Hirschman Index (HHI) from Kristarti and Worokinasih (2018), and PSAK No. 05. The differences are as follows:

1. Wheelen and Hunger (2012) said that diversification, according to expands product lines by moving to another industry, while concentration focuses on producing the resources done by one corporation in one type of industry.

2. Wheelen and Hunger (2012) said that diversification strategy is valid when the growth of the company has been reached at the top level and all of the opportunities for growth have been used up, while concentration strategy is valid when the current product lines of the companies have potential to create real growth.
3. Kristarti and Worokinasih (2018) said that, in Herfindahl-Hirschman Index, diversification occurs if the companies use partial amount of the sales of the whole industry, while concentration occurs if the companies use all of the amount of the sales of the whole industry.
4. PSAK No. 05 written in Fathan and Saragih (2014) said that diversified companies have some segments from the parent company, while concentrated companies do not have any segments, therefore all of the transactions are only done by the parent company.

2.1.6. Measurement of Diversification

2.1.6.1. Herfindahl-Hirschman Index

Herfindahl-Hirschman Index (HHI) was actually firstly founded by Albert C. Hirschman in 1945, in a journal called "National Power and the Structure of Foreign Trade." In this case, according to Naldi and Flamini (2014), Hirschman wrote the formula of HHI as the sum of the segmented sales per total sales without squaring the ratio. However, there was a cost with the formula written by Hirschman. In this case, most of the contributors of the writing written by Hirschman said that Hirschman need to untangle the paternity dispute since this ratio is linked to Gini, a scientist whom also measure concentration ratio. As a result, five years later, Naldi and Flamini (2014) said that Orris C. Herfindahl re-researched the journal written by Albert C. Hirschman. In this case, in order to deal with the cost that the index made by Hirschman is linked to Gini, Herfindahl squared the Hirschman Index. In this

case, the new formula is named as Herfindahl-Hirschman Index because Herfindahl was just revising what Hirschman had been made.

Herfindahl-Hirschman Index (HHI), according to Kristarti and Worokinasih (2018), is defined as an index which gives information about how far the concentration level of operational segment of the companies using segmented sales to the total sales of the parent companies. In this case, if the HHI equals to 1, the company only have one segment and if the HHI equals to less than 1, the companies have more than one segments. In this case, HHI is suitable for product diversification because the segmented sales are based on the operational segment of the parent companies.

The usage of HHI to calculate corporate diversification follows Indonesian Financial Accounting Standard (PSAK) No. 05. PSAK no. 05 is the Indonesian Financial Accounting Standard related with the information of the segments of the parent companies, either operational or geographical; and also the relationship between diversified firms and how the parent firms report the segmented firms. In HHI, as the calculation uses segmented sales of the segmented companies based on the financial or annual report from the parent company in order to calculate the level of diversification of the firms, therefore, the usage follows PSAK No. 05.

From previous researches, similar results occur. The journal written by Ajay and Madhumathi (2015) said that in Indian firms from 2014 up to 2013, the companies are lowly diversified because in this case, the mean of the firms was 0.917. Other than that, Kristarti and Worokinasih (2018) said that the mean of the firms in Indonesia was 0.57566, therefore, the firms in Indonesian Stock Exchange during 2013 up to 2016 were low-level diversified firms.

HHI is calculated as folows:

$$\text{HHI} = \sum \left(\frac{\text{Total Sales of the Business Segments}}{\text{Total Sales of the Firms}} \right)^2$$

The advantages of using HHI as a measurement for corporate diversification are:

1. Easy to be implemented

   The reason is that the calculation is just by dividing every segmented sales of the segmented companies with the total sales of the parent company; then squaring the division; and the last is summing from the whole segments the companies have. This method of calculating is considered as easy because this method does not require much formulas to be done. Other than that, the calculation of HHI is considered as easy because this type of measurement can be used in one type of hypothesis.

2. The requirement of the data is not much

   The data needed are the segmented sales from the parent company and the total sales of the parent company. As a result, the prerequisite of the data is not much because the data consists of only two variables need to be researched. The samples needed are available in the audited financial report and annual report.

However, there is one biggest drawback of HHI. The drawback is that HHI gives inverse relationship in its calculation. The inverse relationship is that the more the firms diversified, the lower the percentage of the HHI. The reason is that the more the firms diversified means that the companies have more sectors compared to not diversified. Therefore, most of the contributors or re-writers need to be careful in calculating diversification by using this type of calculation.

2.2. Capital Structure

2.2.1. Definition of Capital Structure

Subramanyam and Wild (2010) define capital structure as the funding of debts and equities calculated based on the relative amount of various types of sources of funds. It is also defined as the source of funds of the companies. In this case, the funds can be gotten from permanent up to riskier short-term funds.

2.2.2. Purpose of Capital Structure

Subramanyam and Wild (2010) said that the importance to analyze capital structure is based on many perspectives as follows:

- To analyze the difference of liabilities and equities
    1. The risk that the equities have and liabilities have are different. Equities are based on the capital risk of the company while liabilities show the risk of loss of investments offset by potential gains from financial leverage.
    2. The characteristic of capital equities are having no repayment patterns while liabilities need to be repaid. The reason is that equities permanent nature while liabilities have no permanent nature. As a result, liabilities need to be repaid in order to prevent from legal procedings in which shareholders could lose their control for the companies and some or the whole of their investments.
- To protect the borrowers from the probability of failure of payment of the firms and financial pressures by using debts.

The debt terms are set conditions of default – usually based on accounting measures – at a level that give lenders the opportunity to collect loans before severe financial difficulties occur. This prerequisite of debts are

done in order to: (1) give emphasize for debt to equity ratio; (2) avoid additional issuance of debt; and (3) make sure that there is no availability of resources that the firms have from additional dividends or acquisitions. As loans are given a period of time to be paid and the companies could be fined if the loans are paid lately, therefore, the companies can pay the debts at a fixed amount of period of time in order not to get fined.

2.2.3. Measurement of Capital Structure

Capital structure is measured by using leverage. Leverage is the use of debts to increase the earnings. Leverage can be referred to the total debt financing in capital structure of the firms. The reason of using debt to equity ratio in measurement of leverage is that, according to Subramanyam and Wild (2010), both equities and liabilities, according to Subramanyam and Wild (2010), are considered as financing tool. As a result, according to Subramanyam and Wild (2010) and Amit and Livnat (1998) in Kusmawati (2005), companies can compare between the use of borrowings by using liabilities and the use of borrowings by using equities.

2.3. Related Theories to Capital Structure

2.3.1. Agency Theory

Agency theory was popularly introduced by Michael C. Jensen and William C. Meckling in 1976, in a journal called as "Theory of the Firm: Managerial Behavior, Agency Costs, and Ownership Structure." Jensen and Meckling (1976) define agency theory as a bond in which one or more people (the principals) involve other people (the agents) to do some service on their importance. Rankin *et al.* (2012) said that this process also bestowing some decision making responsibility to the agents, which in other words, it is defined as agency relationship. In this case, the principal can decrease the risk of digressions from their wants by giving suitable incentives to agent and by

overseeing monitoring costs arise to restrict divergent activities which agents do. Other than that, in some conditions, the principal will pay the agent to issue resources in order to ensure that the agents will not adopt some behaviors which could harm the principals or to guarantee that the principals will get some compensations if the principals do some actions.

Rankin *et al.* (2012) stated that agency cost occurs if the wants of agents and principal are not in line, in which managers might give incentives to do in a way in which for the principal is not the best way. There are three types of agency cost: monitoring costs, bonding costs, and residual loss. Monitoring costs, according to Rankin (2012), are the costs certified by the principal to measure, seek, and control the agents behavior. Bonding costs, according to Rankin (2012), are the cost that owner-manager spend for resources in order for outside equity holders can be guaranteed which resulted that it would cost non-monetary firm benefits. Residual loss, according to Rankin (2012), occurs when agents are more costly to be monitored or guaranteed to make optimum decision than getting the expected benefits from monitoring.

Agency theory can give impact to capital structure. This agency theory, in the form of agency relationship, actually create negative impact. The negative impact is that, according to La Rocca (2009), debts can make the shareholders restrict the diversification decision making. Jensen (1986) in La Rocca *et al.* (2009) said that debts can be used to decrease managerial discretion in free cash flow. As a result, debts can be used to decrease unbeneficial diversification strategy. This can give impact as diversification, funded either using debts or equities, is interpreted to monitoring effect. Shareholders are assumed to have the capacity to effect the strategic decisions of managers in order to avoid diversification strategy because of opportunistic behaviors done by the managers. As a result, shareholders will promote the use of debts to create the discipline of the behavior of the managers, limiting diversification decisions.

2.4. Factors affecting Capital Structure

2.4.1. Profitability

Subramanyam and Wild (2010) define profitability as the effectiveness of the usage of the resources of the firms. Profitability, according to Sartono (2001) in Febriyani and Srimindarti (2010) is defined as the ability of the firms in granting the earnings related with the sales, total assets, or their own capital. Mai (2006) in Febriyani and Srimindarti (2010) define profitability as the ability of the firms to get profits.

Companies with higher profitability will give positive impact to capital structure, according to Mai (2006) in Febriyani and Srimindarti (2010) because those companies tend to use more amounts of borrowings in order to get the benefits from taxes as of the probability of getting lower level of profits by interest borrowings will be smaller compared to if the firms use the capital, precisely external capital, which has no interests, but the revenues from taxable income is high. However, Kartini and Arianto (2008) in Febriyani and Srimindarti (2010) and La Rocca *et al.* (2009) gives negative impact for the theories to the capital structure. The reason is that, according to Kartini and Arianto (2008) in Febriyani and Srimindarti (2010), if the financing decision is done inaccurately, low level of financing decision will cause fixed amount of costs in the form of high level of capital costs, which will be caused to low level of profitability granted by the firms.

Profitability is measured using return on assets. Return on assets, according to Ross (2019), is defined as the measure of profits of assets, measured in monetary amount. In this case, return on assets, according to Ross (2019); Su (2010); and Febriyani and Srimindarti (2010) is calculated as the division of earnings after interests and taxes divided by total assets. The reason is that earnings after interest and taxes are related to the net profit of the firms,

which are already deducted by expenses. As deducted by expenses, this reflects the earnings of the firms, which are considered as net earnings.

2.4.2. Dividend Policy

Dividend policy, according to Brigham (2009) in Bramarawilasita (2018), is defined as a decision of profits allocation, whether distribute it or hold it for reinvestment in the company. Profits are allocated as retained earnings and dividend payout is the main aspect of dividend policy. The dividend policy is a decision to determine how much the revenue of the companies will be paid to shareholders, reinvested or held in the companies.

In agency theory, according to Kusmawati (2005), debts can give positive impact to capital structure, because debts can be used, other than external capital, also to control the management decision making, which can increase investments from businesses built to increase the revenues, which result to the companies can increase the earnings and the liquidity levels and therefore they can pay high dividends to shareholders.

Dividend policy is measured using dividend payout ratio. Brigham (2009) in Bramarawilasita (2018) and Aisjah (2010) said that dividend payout ratio is the division between dividend per share and earning per share. The reason is that this calculation is related with the profit allocation, in this case, earnings from the firms per shares, as profit allocation is the main aspect of dividend policy.

2.5. Previous Research

Year	Author(s)	Title	Variables	Result
2004	Low, Pek Yee and	Diversification and Capital Structure:	Dependent variable: Capital structure	Low and Chen (2004) use a sample of 331 industrial

	Chen, H. Kung	Some International Evidence	Independent variable: Product diversification, international diversification	firms from CIFAR 500. The period use is from 1986 up to 1990. The final sample size after trimming method consist of 232 manufacturing firms listed in CIFAR 500. Capital structure is measured using the book values of debts to total assets. The measurement for product diversification follows the product diversification index in Volume 1 of CIFAR Handbook. The measurement for international diversification uses four types of measurement: foreign tax ratio,

				foreign sales ratio, and the number of countries in which the firm operates. The result is that product diversification gives positive and significant impact to capital structure. Other than that, international diversification gives negative and significant effect to capital structure.
2005	Kusmawati	*Pengaruh Diversifikasi Usaha*, Leverage, *dan Ukuran Perusahaan terhadap Profitabilitas pada Perusahaan Industri Terbuka di*	Dependent variable: Diversification, Leverage, and Firm Size Independent variable: Leverage, Profitability, and Fim Value	Kusmawati (2005) gives sample of 48 companies with total of 240 samples. The period used is 1999 up to 2003. Diversification is measured using inverse of specialization ratio. Leverage is measured using total

		Bursa Efek Jakarta		debt to total equity ratio. Firm size is measured using natural logarithm of the total assets. Profitability is measured using return on sales. The result is that there is a negative and significant impact of diversification to profitability. There is also a negative and significant impact of leverage to profitability of the firms. There is a positive and insignificant impact of firm size to profitability. There is positive and insignificant impact of diversification to capital structure. There is a significant and

				positive impact of diversification to firm size. There is a negative and insignificant impact of diversification to profitabilities using leverage as mediating variable. There is a positive and insignficant impact of diversification to profitability using firm size as mediating variable.
2009	La Rocca, Maurizio; La Rocca, Tiziana; Gerace, Dionigi; Smark, Ciorstan J.	The Effect of Diversification on Capital Structure	Dependent variable: Capital structure Independent variable: total diversification, which is then divided into related diversification and unrelated diversification	La Rocca *et al.* (2009) use a sample of 180 Italian firms from 1980 up to 2016. The leverage is measured using the ratio of total financial debt to total financial debt plus equity. The diversification is measured using

				Entropy Index. As a result, the diversification is divided into two parts: related diversification, and unrelated diversification. In this case, the result is that related diversified firms move more slowly towards their capital structure while unrelated diversified firms move quickly to adjust the capital structure at equilibrium level. Therefore, related-diversified firms give negative and significant impact to capital structure. However, unrelated-diversified firms give positive and

				significant impact to capital structure.
2014	Fathan; and Saragih, Ferdinand D.	*Pengaruh* Corporate Diversification *terhadap Keputusan Struktur Modal pada Perusahaan Non Keuangan yang terdaftar di Bursa Efek Indonesia Periode 2008 – 2012*	Dependent variable: Book leverage, market leverage ratio, and long-term market leverage ratio. Independent variable: total diversification, related diversification, and unrelated diversification	Fathan and Saragih (2014) use a sample of 675 companies from Indonesian Stock Exchange. The companies are from the years of 2008 up to 2012. Capital structure is measured using book value of debts per total assets for book leverage; market value of debts per total assets for market leverage; and market value of long-term debts per total assets for long-term market leverage. Total diversification, related diversification, and unrelated diversification are

				measured and differentiated using Entropy Index. The result is that, in Indonesian firms, there is a positive and insignificant relationship between total diversification and book leverage ratio and market leverage ratio. However, there is a positive and significant relationship between total diversification and long-term market leverage ratio. This positive and insignificant relationship also happens to market leverage ratio. However, related diversified firms give positive and

				insgnificant relationship to book leverage ratio, market leverage ratio, and long-term market leverage ratio. Similar case also happen with the relationship between unrelated diversified firms with book leverage ratio, market leverage ratio, and long-term market leverage ratio, in which the relationship is positive and insignificant.
2015	Ajay, Ranjitha and Madhumathi, R.	Do Corporate Diversification and Earnings Management affect Capital Structure?	Dependent variable: capital structure Independent variable: product diversification, international	Ajay and Madhumathi (2015) use samples of 13,910 firm-year observations from Indian Stock Exchange. The year of the research are

			diversification, asset-based earnings management, project-based earnings management, and earnings smoothing.	from 2004 up to 2013. Leverage (capital structure) is measured using debt to total assets ratio. International diversification is measured using investment outside india as percentage of total assets. Product diversification is measured using Herfindahl-Hirschman Index. Asset-based earnings management is measured using depreciations and amortizations divided by total assets. Project-based earnings management is measured using research and

				development divided by total sales. Earnings smoothing is measured using standard deviation of cash flow from operations (three years) scales down by average asset over three-years period. The results are: multinational diversification gives negative and significant impact to capital structure. Product diversification gives a negative and significant impact to capital structure. Asset-based earnings management gives a significant and positive impact to capital structure.

				Project-based earnings management has a negative and significant impact to capital structure. Earnings smoothing is negatively and significantly related to product diversification.
2019	Benz, Andreas and Hoang, Daniel	Corporate Diversification and Capital Structure	Dependent variable: Capital Structure Independent variable: corporate diversification	Benz and Hoang (2019) use the sample of 11,568 firms from 1981 up to 2015. Capital structure is measured using the difference between the actual leverage of the firms with the inputed leverages. Diversification is measured using the binary measurements from SIC code. The result is that there is a

				positive and significant impact of corporate diversification to capital structure.

2.6. Hypothesis Construction

Wheelen and Hunger (2012) said that diversification is the strategy in which firms can expand the existing businesses. Wheelen and Hunger (2012) said that capital structure is the amount of debt ratio of the firms. Different opinion about diversification and capital structure based on different researches or theories are given below.

Agency theory gives information that the principals need some agents to do some service based on their importance. This theory can be used as a reference for the impact of corporate diversification to capital structure. In this case, agency theory can give negative impact to capital structure. This agency theory, in the form of agency relationship, actually create negative impact. The negative impact is that, according to La Rocca (2009), debts can make the shareholders restrict the diversification decision making. Jensen (1986) in La Rocca *et al.* (2009) said that debts can be used to decrease managerial discretion in free cash flow. As a result, debts can be used to decrease unbeneficial diversification strategy. This can give impact as diversification, funded either using debts or equities, is interpreted to monitoring effect. Shareholders are assumed to have the capacity to effect the strategic decisions of managers in order to avoid diversification strategy because of opportunistic behaviors done by the managers. As a result, shareholders will promote the use of debts to create the discipline of the behavior of the managers, limiting diversification decisions.

However, according to Singh (2003), agency theory gives a negative relationship between diversification and capital structure. The reason is that, according to Singh (2003), the higher degree of product diversification, the more probability of agency cost is created through suboptimal investments. Usually, the investments the companies have are only little, therefore, the companies are actually not ready for doing some diversification strategy. However, in order to repair the image to the customers and shareholders, the companies are forced to use a diversification strategy in order to make the companies look good. As a result, the debt market will be less willing to lend to firms that engage in value-destroying diversification.

From here, the hypothesis 1 is made. The hypothesis is called as:

H1: Corporate diversification gives negative impact to capital structure in Indonesian manufacturing corporates.

CHAPTER 3

DATA AND METHODOLOGY

3.1. Type of Research

The type of research is empirical research. The reason is that in this case, the hypothesis testing is used in order to find evidence regarding the impact of corporate diversification to capital structure. The hypothesis testing uses three types of tests: F Test, T Test, and Coefficient of Determination (R^2) Test.

3.2. Population and Sample

3.2.1. Population

The population is all Indonesian manufacturing firms listed in the Indonesian Stock Exchange from 2014 up to 2018. The reason for using manufacturing industry is because those kinds of firms produce goods in line with increase in technology and the taste of the consumers, while the technology and the taste of the consumers nowadays are more and more developed, therefore the industry can increase opportunities in the market. In this case, the manufacturing industry are divided into three main sectors: basic industry and chemicals, miscellaneous industry, and consumers good industry. Basic industry and chemicals are divided into some subsectors: cement; ceramics, glass, and porcelain; metal and allied products; chemicals; plastics and packaging; animal feed; wood industries; and pulp and paper. Miscellaneous industry sector is divided into several subsectors: machinery and heavy equipment; automotive and component; textile and garment; footwear; cable; and electronics. Consumers good industry sector is divided into several subsectors: food and beverages; tobacco manufacturers; pharmaceuticals; cosmetics and household; and houseware. All the name of the selected samples of the firms and the datas of the sectors used in this research are put in the appendix.

The research period is all Indonesian manufacturing firms listed in Indonesian Stock Exchange from 2014 up to 2018. The reason for using the year as 2014 up to 2018 is that in those years there were some economic events occur, such as Indonesian presidential election in 2014, Indonesian bushfire in 2015, British Exit in 2016, Jakarta governor election in 2017, and Asian Games held in Indonesia in 2018. Those economic events give impact to the amount (increase or decrease) of shares traded in Indonesian Stock Exchange.

3.2.2. Sample

The sampling method is done using purposive sampling. The reason is that there are some criterias chosen in selecting the data in this sampling method. The criterias in this case are:

1. Manufacturing corporates that are published before January 01, 2014.
2. Manufacturing corporates that have segment information in their financial statement from 2014 up to 2018 simultaneously as a prerequisite to calculate corporate diversification measured by Herfindahl-Hirschman Index (HHI).
3. Manufacturing corporates that declare dividends from 2014 up to 2018 simultaneously as a prerequisite for the control variable, dividend payout ratio (DPR).
4. Manufacturing corporates that start the annual or financial report from January 01.

As a result, some samples are selected from the companies. The sample selection for the companies are as follow:

Table 3.1.

Sample Selection Process

Manufacturing corporates listed in Indonesian Stock Exchange from 2014 up to 2018	153
Eliminated:	
1. Corporates published after January 01, 2014	(14)
2. Corporates which do not have segment information in the report from 2014 up to 2018 simultaneously as a prerequisite of independent variable, diversification.	(3)
3. Corporates do not produce dividends from 2014 up to 2018 simultaneously as a prerequisite for control variable, dividend payout ratio.	(97)
4. Corporates which do not start the financial statement as of January 01	(1)
Total sample of firms researched	40
Total observation in year	5
Total number of sample during research period	200

Below here is the table showing the segments that the samples have:

Table 3.2.

Amounts of Business Segments

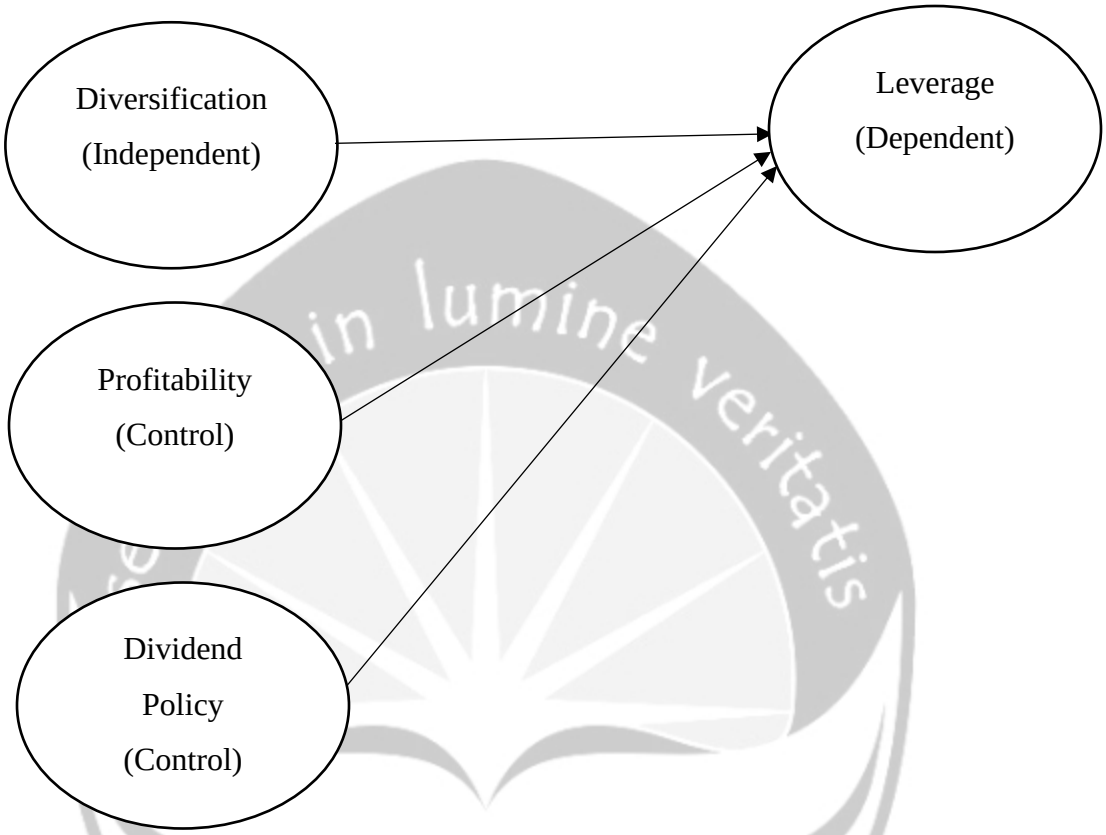
No	Code	Segment 2014	Segment 2015	Segment 2016	Segment 2017	Segment 2018
1	INTP	3	3	3	3	3
2	SMGR	2	2	2	2	2
3	AMFG	2	2	2	2	2
4	TOTO	4	4	4	4	4
5	LION	2	2	2	2	2
6	DPNS	1	1	1	1	1
7	TPIA	5	5	5	5	5
8	CPIN	4	4	4	5	5
9	INKP	2	2	2	2	2
10	TKIM	2	2	2	2	2
11	ASII	6	7	7	7	7
12	AUTO	2	2	2	2	2
13	BRAM	3	3	3	3	3
14	IMAS	4	4	4	4	3
15	SMSM	5	5	5	5	5
16	PBRX	2	2	2	2	2
17	RICY	3	3	3	3	3
18	SRIL	4	4	4	4	4
19	TRIS	2	2	2	2	2
20	BATA	1	1	1	1	1
21	KBLI	3	3	4	4	4
22	KBLM	3	3	2	2	2
23	SCCO	3	3	3	3	3

24	DLTA	2	1	1	1	1
25	ICBP	6	6	6	6	6
26	INDF	4	4	4	4	4
27	MLBI	2	2	2	2	2
28	MYOR	2	2	2	2	2
29	ROTI	6	6	4	4	4
30	SKLT	6	6	6	6	6
31	GGRM	3	3	3	3	3
32	HMSP	2	2	2	2	2
33	DVLA	3	3	3	3	3
34	KAEF	4	4	4	4	4
35	KLBF	4	4	4	4	4
36	MERK	3	3	3	2	3
37	SIDO	3	3	3	3	3
38	TSPC	3	3	3	3	3
39	TCID	4	4	4	4	4
40	UNVR	2	2	2	2	2

3.3. Data Collection Method

The data collection method uses secondary data. There are two websites used to find this secondary data. The websites are: IDX (www.idx.co.id) and PT RTI Analytics (http://analytics2.rti.co.id).

3.4. Conceptual Framework Modelling



3.5. Research Variable

3.5.1. Dependent Variable

3.5.1.1. Leverage

Subramanyam and Wild (2010) define leverage as the use of debts to increase the earnings. Leverage can be referred to the total debt financing in capital structure of the firms. Leverage can be referred to the total debt financing in capital structure of the firms. The reason of using debt to equity ratio in measurement of leverage is that, according to Subramanyam and Wild (2010), both equities and liabilities, according to Subramanyam and Wild

(2010), are considered as financing tool. As a result, according to Subramanyam and Wild (2010) and Amit and Livnat (1998) in Kusmawati (2005), companies can compare between the use of borrowings by using liabilities and the use of borrowings by using equities. As a result, this type of calculation follows the writing by Ismawati *et al.* (2018) and Kusmawati (2005). Therefore, this type of calculation does not follow the calculation written by Aisjah (2010), Low and Chen (2014), Febriyani and Srimindarti (2010), and Ajay and Madhumathi (2015), which uses debt to total assets ratio; Fathan and Saragih (2014), who uses market value, book value, and total debt to asset ratio; and La Rocca *et al.* (2009) who uses total debt to total debts plus total equity ratio. In this case, leverage is measured by using debt to equity ratio, which is as follows:

$$\text{Total Debt to Equity} = \frac{\text{Total Debt}}{\text{Total Equity}}$$

3.5.2. Independent Variable

3.5.2.1. Diversification

Wheelen and Hunger (2012) define diversification as corporate growth strategy which extends product lines by shifting to another industry. Junior and Funchal (2013); Ajay and Madhumathi (2015); and Kristarti and Worokinasih (2018) said that diversification can be calculated by using Herfindahl-Hirschman Index (HHI). Herfindahl-Hirschman Index (HHI), according to Kristarti and Worokinasih (2018), is defined as an index which gives information about how far the concentration level of operational segment of the companies using segmented sales to the total sales of the parent companies. The level of concentration gives distinction in whether the firms are highly diversified, lowly diversified, or concentrated, or in other words, measurement for level of diversification. In this case, the HHI uses the formula from Ajay

and Madhumathi (2015); and Kristarti and Worokinasih (2018) because the HHI formula mentioned by these researchers is related with PSAK No. 05, in which the calculation of diversification uses the segmented information, in this case, the sales of the firms. As a result, the formula does not follow the calculation written by Kusmawati (2005) who uses Specialization Index and Low and Chen (2004) who calculated directly from CIFAR 500. The calculation for HHI is as follows:

$$\text{HHI} = \sum \left(\frac{\text{Total Sales of the Business Segments}}{\text{Total Sales of the Firms}} \right)^2$$

Classifications, according to Junior and Funchal (2013):

- Concentrated firms, if the Herfindahl-Hirschman Index (HHI) = 1
- Low level of product diversified firms, if $1 < \text{HHI} \leq 0.5$
- High level of product diversified firms, if the < 0.5.

There are two cases in HHI. The first case is that, if the HHI equals to 1, means that the companies do not implement any diversification strategy as the companies only have one segment. The second case, if the HHI is less than 1, means that the companies implement diversification strategy as the companies have more than one segments.

3.5.3. Control Variable

3.5.3.1. Profitability

Profitability, according to Sartono (2001) in Febriyani and Srimindarti (2010) is defined as the ability of the firms in granting the earnings related with the sales, total assets, or their own capital. Profitability is measured by return on assets. Return on assets, according to Ross (2019), is defined as the measure of profits of assets, measured in monetary amount. The reason for using return on asset is that return on assets is considered as measurement of profits of

assets, measured in monetary amount, which is related to the benefits of the firms measured in financial statement, precisely income statement. As a result, the formula below follows the formula written in Ross *et al.* (2019); Su (2010); and Febriyani and Srimindarti (2010). As a result, the formula does not follow the formulas from La Rocca *et al.* (2009) and Ajay and Madhumathi (2015), which is earnings before interest and taxes per total assets; Kusmawati (2005) who uses return on sales; and Ismawati *et al.* (2018), who uses return on equity. The calculation for return on assets is mentioned as follows:

$$\text{Return on Assets} = \frac{\text{Earning after Interest and Taxes}}{\text{Total Assets}}$$

3.5.3.2. Dividend Policy

Dividend policy, according to Brigham (2009) in Bramarawilasita (2018), is defined as a decision of profits allocation, whether distribute it or hold it for reinvestment in the company, in which the profits can be allocated as retained earnings and dividend payout is the main aspect of dividend policy. The dividend policy is measured using dividend payout ratio. The reason for using dividend payout ratio is that the calculation of dividend payout ratio is related with the profit allocation, in this case, earnings from the firms per shares, as profit allocation is the main aspect of dividend policy. Therefore, the calculation of dividend payout ratio is mentioned below:

$$\text{Dividend Payout Ratio} = \frac{\text{Dividend per Share}}{\text{Earning per Share}}$$

3.6. Data Analysis

3.6.1. Descriptive Statistics

Descriptive statistics, according to Ghozali (2009) in Tandiono (2018) give a picture and description of the data based on the mean, standard deviation,

maximum, and minimum of the data. The reason for using the mean, standard deviation, maximum, and minimum of the data because mean, standard deviation, maximum, and minimum of the data are considered as the most basic measurement of the descriptive statistics. Descriptive statistics are done before doing the data regression.

Descriptive statistics can also be used to find the fluctuation of the data. The fluctuation of the data can either be in significant amount of the samples or not in significant amount of the samples. The comparison is by comparing the mean and the standard deviation of the data. The comparison is as follows:

- If the mean of the variable < standard deviation of the variable, the variable is fluctuated not in the significant amount of the sample of the firms.
- If the mean of the variable > standard deviation of the variable, the variable is fluctuated in the significant amount of the sample of the firms.

3.6.2. Classic Assumption Test

A good regression model occurs if the datas are normal, no relationships between independent variables, no heteroscedasticity (homoscedasticity), and no correlation between the t period and t-1 period. To deal with this, classic assumption test needs to be done. There are four tests of classic assumption test, according to Ghozali (2018), which are: normality test, multicollinearity test, heteroscedasticity test, and autocorrelation test.

3.6.2.1. Normality Test

The normality test, according to Ghozali (2018), is used to test whether in the regression model, the dependent, independent and control variable will have normal distribution or not. The test for normality test is

using Kolmogorov Smirnov One-Sample Test. There are two conditions for this test. The conditions are as follows:

- A data is considered to be normally distributed if the probability value (p-value) is more than or equal to 0.05 (p-value ≥ 0.05).
- A data is said to be as not normally distributed if the probability value (p-value) is less than 0.05 (p-value < 0.05).

3.6.2.2. Multicollinearity Test

Ghozali (2018) said that multicolinearity test is used to test the correlation among the independent variable. The test for multicollinearity is using Variance Inflation Factor (VIF). There are two conditions for this test. The conditions are as follows:

- If the tolerance value < 0.1, VIF > 10, multicolinearity exists, means the regression model is not good.
- If the tolerance value > 0.1, VIF < 10, multicolinarity does not exist, means the regression model is good.

3.6.2.3. Heteroscedasticity Test

Ghozali (2018) said that heteroscedasticity test is used to test whether in the regression model there is a variance inequality of the residual observation to another observation. Heteroscedasticity test is using Glejser test. Glejser test is done by creating regression of the absolute residual value to independent variable. There are two conditions regarding with the test. The conditions are:

- If significance value of Glesjer test ≤ 0.05 (α = 0.05), heteroscedasticity occurs.
- If significance value of Glesjer test > 0.05 (α = 0.05), heteroscedasticity does not occur.

3.6.2.4. Autocorrelation Test

Ghozali (2018) said that autocorrelation test is used to test whether in the regression model there is a correlation between the errors of the t period with the errors in the t-1 period. Ghozali (2018) said that the test for autocorrelation is using Durbin-Watson Test. There are five conditions related with this test. Ghozali (2018) gives following conditions related to autocorrelations (Durbin-Watson Test):

Null Hypothesis	Decision	If
There is no positive autocorrelation	Rejected	$0 < d < dl$
There is positive autocorrelation	No decision	$dl \leq d \leq dU$
There is no negative correlation	Rejected	$4 - dl < d < 4$
There is a negative correlation.	No decision	$4 - dU \leq d \leq 4 - dl$
There is no autocorrelation, positive or negative	Not rejected	$du < d < 4 - du$

3.7. Hypothesis Testing

In this study, the writer uses multiple regression model. The reason is that there are several independent variables and a dependent variable. Multiple regression equation used to test the effect of corporate diversification to capital structure. The multiple regression is as follows:

$$LEV = \alpha 0 + \beta 1DIVit + \beta 2PROFit + \beta 3DPOit + e$$

whereas:

LEV = Leverage

DIV = Corporate Diversification

PROF = Profitability

DPO = Dividend Policy

e = Error

3.7.1. Value t test

The statistical t test, according to Ghozali (2018), is the test that indicates how far the influence of one independent variable individually, in explaining the variation of the dependent variable. The test is done by comparing t-significance with Alpha (α). Other than that, the test measures whether the Beta is positive or negative. The test is as follows:

a. If siginificance level of $t \leq \alpha = 5\%$ → Ha is accepted
b. If siginificance level of $t > \alpha = 5\%$ → Ha is rejected
c. If Beta is positive → Ha is rejected
d. If Beta is negative → Ha is accepted

In this case, the test of Beta is the opposite side of ordinary Beta test. The reason is that in this case, diversification measured using Herfindahl-

Hirschman Index (HHI) is considered as having inverse relationship. As a result, the Beta follows what happens to the diversification.

In this case, hypothesis testing is tested by using the significance level equals to 0.05 ($\alpha = 5\%$).

The hypotheses to be conducted are as follows:

Ho^1: There is no positive and significant impact of corporate diversification to capital structure in Indonesian corporates.

Ha^1: There is a positive and significant impact of corporate diversification to capital structure in Indonesian corporates.

3.7.2. Value F test

Ghozali (2018) said that value F test is used to measure whether all the independent variables and control variables simultaneously give relationship to the dependent variables. This test is done by comparing F-count with F-table. There are two conditions in this test. The conditions are as follows:

a. If siginificance level of $F \leq \alpha = 5\%$ → Ha is accepted
b. If siginificance level of $F > \alpha = 5\%$ → Ha is rejected

In this case, hypothesis testing is tested by using the significance level equals to 0.05 ($\alpha = 5\%$).

The hypotheses to be conducted are as follows:

Ho: There is no positive impact of corporate diversification, profitability, and dividend policy to capital structure in Indonesian manufacturing corporates simultaneously.

Ha: There is a positive impact of corporate diversification, profitability, and dividend policy to capital structure in Indonesian manufacturing corporates simultaneously.

3.7.3. Coefficient of Determination

Ghozali (2018) stated that coefficient of determination is used to measure how far the ability of the model in describing the variation of dependent variable. It is symbolized as R-Square (R^2), and is measured between zero and one. This research is using adjusted R^2 rather than R^2 as adjusted R^2 can increase or decrease if one independent variable is added to regression model.

The test, according to Ghozali (2018) is as follows:

1. If R Square = 0, the independent variables can not explain the variance of dependent variable.
2. If 0 < R Square < 0.5, the independent variables can weakly explain the variance of dependent variable.
3. If 0.5 ≤ R Square ≤ 1, the independent variables can strongly explain the variance of dependent variable.
4. If R Square = 1, the independent variables can carefully explain the variance of dependent variable.

CHAPTER 4

RESULT AND DISCUSSION

4.1. Descriptive Statistics

Ghozali (2018) defines descriptive statistics as the picture or description of the datas which can be observed from their mean, standard deviation, maximum, and the minimum of the sample data. In this case, the descriptive statistics are used for dependent variable, independent variable, and control variable. The descriptive statistics is shown below.

Table 4.1.

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
Leverage	68	0.0743	0.7169	0.4243	0.1697
Corporate Diversification	68	0.2603	0.8167	0.5127	0.1528
Profitability	68	0.0136	0.2615	0.1092	0.0598
Dividend Policy	68	0.0757	0.8621	0.4583	0.1994
Valid N (listwise)	68				

Based on the analysis above, as a dependent variable, leverage ratio has a minimum of 0.0743, maximum of 0.7169, mean of 0.4243, and standard deviation of 0.1697. The independent variables, diversification has a

minimum of 0.2603, maximum of 0.8167, mean of 0.5127, and standard deviation of 0.1528. The control variable, profitability, gives a minimum of 0.0136, maximum of 0.2615, mean of 0.1092, and standard deviation of 0.0598. Dividend policy gives a minimum of 0.0757, maximum of 0.8621, mean of 0.4583, and standard deviation of 0.1994.

From the table above, the conclusion is formed. The conclusion is that the mean of leverage, corporate diversification, profitability, and dividend policy, are higher then the standard deviation. It means, leverage, corporate diversification, profitability, and dividend policy are fluctuated in significant amount of samples of the firms.

4.2. Classic Assumption Test

4.2.1. Normality Test

Normality Test, according to Ghozali (2018), is the test which decides whether the dependent, independent, and control variables will have normal distribution or not. The test for normality test is using One-Sample Kolmogorov-Smirnov Test. The result of normality test is shown below:

Table 4.2.

Normality Test before Trimming

One-Sample Kolmogorov-Smirnov Test

		Unstandardized Residual
N		200
Normal Parameters	Mean	0.0000000
	Std. Deviation	0.64785377
Most Extreme Differences	Absolute	0.142
	Positive	0.142
	Negative	-0.116
Test Statistic		0.142
Asymp. Sig. (2-tailed)		0.000

A data is considered as normal if the probability value (p value) of One Sample Kolmogorov-Smirnov-Z > 0.05. However, the data is considered as not normal if the probability value (p value) of One Sample Kolmogorov-Smirnov-Z ≤ 0.05. The first result shows that Asymp. Sig (2-tailed), which equals to 0.000, is lower than 0.05. This is an indication that the data is not normally distributed. It might happen due to extreme value from other data.

In order to make the data normal, the trimming method is used in order to make the data becomes normally distributed. Trimming method is a method of eliminating the outliers. The trimming method is done by reducing the leverage to less than 0.75; corporate diversification to less than 0.85; and dividend policy to less than 1. In this case, the data at first were amounted to 200 datas. There were 132 datas trimmed. As a result, the value of n becomes 68.

Table 4.3.

Normality Test after Trimming

One-Sample Kolmogorov-Smirnov Test

		Unstandardized Residual
N		68
Normal Parameters	Mean	0.0000000
	Std. Deviation	0.14124618
Most Extreme Differences	Absolute	0.070
	Positive	0.042
	Negative	-0.070
Test Statistic		0.070
Asymp. Sig. (2-tailed)		0.200

The second normality test has been done and the result shows that the Assymp. Sig (2-tailed) is 0.200. In this case, the Assymp. Sig (2-tailed) is more than 0.05. This means that the data has been normally distributed.

4.2.2. Multicolinearity Test

Multicolinearity test is the test used to test the correlation among the independent variables. The test is using Variance Influence Factor (VIF) Test. Regression model is considered as free from multicolinearity if the tolerance value is more than 0.10. The Variance Influence Factor (VIF) should result to no independent variables which result to more than 10. The result for multicollinearity test is shown below.

Table 4.4.

Multicolinearity Test

Variable	Collinearity Statistics	
	Tolerance	VIF
Corporate Diversification	0.963	1.038
Profitability	0.870	1.149
Dividend Policy	0.855	1.169

In this case, all the VIF (Variance Influence Factor) are less than 10. Other than that, all of the Tolerance values are more than 0.1. Therefore, the conclusion is that there is no multicolinearity between independent variables in regression model.

4.2.3. Heteroscedasticity Test

Ghozali (2018) said that heteroscedasticity test is used to measure whether there is a variance inequality of the residual observation to another observation. The test is using Glejser Test. The result of heteroscedasticity test (Glejser Test) is shown below:

Table 4.5.

Heteroscedasticity Test

Glejser Test

Variable	**Sig.**
(constant)	0.024
Corporate Diversification	0.780
Profitability	0.937
Dividend Policy	0.763

In this case, all of the siginificance probability of both independent and control variables: corporate diversification, profitability, and dividend policy, are all more than its confidence level. In this case, the confidence level is 0.05. This means that there are no independent variables which gives impact to variable dependent in absolute amount. Therefore, the conclusion is, there is no heteroskedasticity for these variables.

4.2.4. Autocorrelation Test

Ghozali (2018) said that autocorrelation test is used to test whether in the regression model there is a correlation between the errors of the t period with the errors in the t-1 period. A data is set to be free from autocorrelation if in a regression model there is a error in the t period compared with the error in the t-1 period. The test here is using Durbin Watson Test. A data is said to be autocorrelated if the Durbin Watson data is dU < DW < 4-dU, or between 1.66784 < dU < 2.33216. The result is shown below:

Table 4.6.
Autocorrelation Test Result
Durbin-Watson Test

Model	R	R Square	Adjusted R Square	Standard Error of The Estimate	Durbin-Watson
1	0.555	0.308	0.275	0.1445187	2.269

In this case, the autocorrelation test, the Durbin-Watson Test equals to 2.269. As the result of Durbin Watson Test, 2.269, is between dU, which equals

to 1.66784 and 4-dU, which equals to 2.33216. As a result, the regression model is free from autocorrelation.

4.3. Multiple Regression Analysis

To test the hypothesis of this study, the researcher uses multiple regression analysis. The analysis is in obtaining the F statistics value, adjusted R Square value, coefficient value, and the significant value.

Table 4.7.

Multiple Regression Analysis

Variable	Beta	t_{count}	Sig.	Notes
Constant	0.445	5.279	0.010	
Corporate Diversification	0.314	2.668	0.010	Significant
Profitability	-0.755	-2.386	0.020	Significant
Dividend Policy	-0.216	-2.252	0.028	Significant
Adjusted R Square	0.275			
F_{count}	9.475			
Probability	0.000			Significant

Based on the regression analysis, the multiple linear regression model is made. The multple regression model is as follows:

$$LEV = 0.445 + 0.314DIVit - 0.755PROFit - 0.216DPOit$$

Description:

LEV = Leverages

DIV = Corporate Diversification

PROF = Profitability

DPO = Dividend Policy

The interpretation for this formula is that:

- Constant = 0.445, means that if the value of diversification, profitability, and dividend policy not available or equals to zero, therefore the value of dependent variable, leverage, will equal to 0.445.
- Corporate Diversification = 0.314, means that if the value of corporate diversification increase by one point, therefore the value of leverage will decrease by 0.314 due to the inverse impact created by diversification, measured by Herfindahl-Hirschman Index, in which the higher the diversification, the lower the Herfindahl-Hirschman Index.
- Profitability = -0.755, means that if the value of profitability increases by one point, therefore the value of leverage will decrease by 0.755, assume all variables remain the same.
- Dividend policy = -0.216, means that if the value of dividend policy increases by one point, therefore the value of leverage will decrease by 0.216, assume all variables remain the same.

Below here shows the result of the F Test, T Test, and coefficient of determination test:

1. F Test

   F Test is used to test whether all the independent variables give simultaneous effect to the dependent variable simultaneously. The model is considered as passing the F test if F significance is less than equal to the α which equals to 5%. In this case, F test is used to test the effect of corporate diversification, profitability, and dividend policy to leverage ratio simultaneously. In this case, the significance of F test results to 0.000. The significance of F test equals to 0.000, which is less than 0.05. As a result, the alternate hypothesis is accepted. Therefore this can be concluded that "There is a positive impact between corporate diversification, profitability, and dividend policy to leverage ratio simultaneously."

2. T Test

   T Test is used to test how far the effect (impact) between one dependent variable in order to explain the independent variable. As diversification is measured using Herfindahl-Hirschman Index (HHI), the alternative hypothesis is accepted if $\alpha < 0{,}05$ and $\beta < 0$. The reason is that HHI gives an opposite order of diversification. In HHI, the more diversified the firms, the lower the ratio of HHI the firms have. The test is using significance value of α equals to 0.05. Based on the multiple regression in table 4.7., this can be seen that the significance amount equals to 0.010, is less than the α, which equals to 0.05. Therefore, as the significance amount of diversification is less than the α, it is said that corporate diversification gives a significant effect to capital structure. In this case, the β, equals to 0.314, which is considered as more than 0. This

means that there is a negative impact between corporate diversification and capital structure. As a result, the alternate hypothesis is rejected, which gives conclusion as: "There is a negative impact of corporate diversification to capital structure."

3. Coefficient of Determination (R^2)

Ghozali (2018) said that coefficient of determination is used to measure how far the ability of the model in describing the variation of dependent variable. Based on the amount of coefficient of regression, the Adjusted R Square amounted to 0.275. This means that corporate diversification, profitability, and dividend policy can explain the dependent variable as of 27.5%. The rest, 72.5%, should be explained by other factors.

4.4. Discussion

From the output described above, the larger size of diversification means that companies tend to have higher Herfindahl-Hirschman Index (HHI). The reason is that Herfindahl-Hirschman Index (HHI) gives opposite order of whether the firms are highly diversified, lowly diversified, and concentrated. The more amount of HHI, the more possibility the companies are less diversified, even concentrated. According to HHI written by Junior and Funchal (2013), companies are considered as highly diversified if the HHI is closer to 0, lowly diversified if the amount of HHI is closer to 1, and concentrated if the HHI is equal to 1. In this case, the average of corporate diversification is 0.5127. This means that, even after being trimmed to 68 samples and lowering the diversification amount to less than 0.85, most of the Indonesian companies are considered as lowly diversified corporates. The reason is that, 0.5127, if rounded off, the result is closer to 1 rather than to 0, therefore, the result of Indonesian companies are considered as lowly diversified firms.

In this case, the result of diversification shows that Indonesian firms are considered as less diversified. This result shows that the answer follows the result made of Ajay and Madhumathi (2015) in Indian firms; and Kristarti and Worokinasih (2018) in Indonesian firms. In this case, as Indonesia as considered as developing countries, therefore, the firms will have high level of Herfindahl-Hirschman Index. As a result, most of the companies in Indonesia have most percentage of their segments in one type of segments compared to the other segments.

During sample checking, there are 31 datas that gives positive impact between diversification and capital structure. This positive impact can either be negative diversification, which is above 0.50, and negative capital structure, which is below 0.50, or positive diversification which is below 0.50 and positive capital structure, which is above 0.50. As a result, the other 37 datas gives negative impact between diversification and capital structure. The result equals to 54.4118% datas that gives negative impact. As a result, there is a negative impact between diversification and capital structure.

As a result, the answer is that there is a negative and significant impact between corporate diversification and capital structure. According to agency theory, this statement support the statement by Singh (2003) and La Rocca *et al.* (2009), which said that, in agency theory, there is a negative impact between diversification and capital structure. As a result, both papers are also not supported. However, this research supports the statement made by Ajay and Madhumathi (2015), which said that there is a negative impact between corporate diversification and capital structure. As a result, this statement supports hypothesis 1. The reason of Singh (2003) is shown below.

In agency theory, according to Jensen and Meckling (1976), the definition is a bond in which one or more people (the principals) involve other people (the

agents) to do some service on their importance. Regarding with agency theory, this research support the statement made by Singh (2003). In this case, the higher the degree of product diversification, the more probability of agency cost is created through suboptimal investments. In this case, this sentence support to what happened in Indonesian firms. As Indonesia is considered as developing country, therefore, the investments made by Indonesian firms are considered as not having a high quality. As a result, the risk created from this investments are not as low as from the risk created by developed countries. Therefore, as the investments are considered as suboptimal, Indonesian companies, especially diversified companies in Indonesian firms, will still have some risks regarding to their diversification. The reason is that some companies are forced to diversify even though those companies are still not ready to be diversified due to less investment is owned by the companies. As a result, due to this reason, some firms will be value-destroyed, especially those with higher risks such as high level of diversified companies.

In agency theory written by La Rocca *et al.* (2009), there is a negative impact between diversification and leverage in the form of debts. Debts can make the shareholders restrict the diversification decision making. Jensen (1986) in La Rocca *et al.* (2009) said that debts can be used to decrease managerial discretion in free cash flow, which means debts can be used to decrease unbeneficial diversification strategy, which can give impact to diversification as diversification, funded either using debts or equities, is interpreted to monitoring effect. As a result, shareholders are assumed to have the capacity to effect the strategic decisions of managers in order to avoid diversification strategy because of opportunistic behaviors done by the managers. This means the shareholders will promote the use of debts to create the discipline of the behavior of the managers, limiting diversification decisions.

The result of this research shows that there is a negative impact between corporate diversification and capital structure. This means it is important for

managers to report information and check information related to the segments which is done by the managers of the companies in financial statements. The information related to the segments can be used by the users of the financial statements (research contributors), especially investors, to value the overall companies, especially related to the corporate diversification. By checking the segments of the companies, and calculating the number of segments (or ignoring if the companies do not have), the contributors could know whether the companies are considered as diversified or concentrated. If the companies have segments, therefore the companies are considered as diversified. However, if the companies do not have segments, therefore the companies are considered as concentrated.

The first control variable, profitability, gives negative and significant impact to capital structure. In this case, the Beta equals to -0.755, which is considered as less than 0, and the significance equals to 0.020, which is considered as less than the α, which equals to 5%. In accordance with data checking, 35 datas out of 68 datas, which amounted to 51.4706% of the total samples, are considered as giving a negative impact to capital structure. This statement follows the writing from Kartini and Arianto (2008) in Febriyani and Srimindarti (2010)., who said that if the financing decision is done inaccurately, this will give negative impact to profitability. The reason is that low level of financing decision will cause fixed amount of costs in the form of high level of capital costs. This will cause to low level of profitability granted by the firms. However, this statement does not follow the statement by Mai (2006) in Febriyani and Srimindarti (2010), which gives positive impact between profitability and capital structure. Other than that, the result of the writing supports the answer from Fathan and Saragih (2014) for book debt to total assets, market value of debt to total assets and total value of debt to total assets; La Rocca *et al.* (2009) in related-diversified firms; and Ajay and Madhumathi (2015). The result also do not follow the writing made by Ismawati *et al.* (2018), which gives positive and significant impact to capital structure and

Febriyani and Srimindarti (2010) and Kusmawati (2005), which gives negative and insignificant value between profitability and capital structure.

The third control variable, dividend policy, gives negative and significant impact to capital structure. In this case, the Beta equals to -0.216, which is less than 0 and the amount of significance is 0.056, which is more than α, which equals to 0.028. During data checking, 39 datas out of 68 datas, which equals to 57.3529%, gives negative impact to capital structure. This statement does not give support by Kusmawati (2005) which said there is a positive impact between dividend policy and capital structure. This also do not follow the answer written by Aisjah (2010), who said that there is a negative and insignificant impact between dividend policy and capital structure. As a result, further research is needed for this variable.

As a result, further research need to be done in giving the factors that influence capital structure, other than corporate diversification itself. The reason is that because in this case, most of the factors give insignificant impact to capital structure. Therefore, the contributors for this research should pay attention in choosing the control variables of capital structure.

CHAPTER 5

CONCLUSION

5.1. Conclusion

The objective of the research is to give empirical evidence about the impact between corporate diversification to capital structure using a sample of all manufacturing firms listed in Indonesian Stock Exchange on 2014 up to 2018. This study uses Herfindahl-Hirschman Index (HHI) to calculate corporate diversification. The samples used are a study of 40 manufacturing companies, with the research period of 2014 up to 2018. The total sample is 200 companies. After the trimming method is done, the sample becomes 68 datas.

Based on the analysis which was told in the previous chapter, the conclusion is that there is a negative impact of corporate diversification to capital structure in Indonesian manufacturing firms from 2014 up to 2018. The other reason is that in this research, by using HHI, the more the companies diversified, the lesser amount of HHI the companies have. In this case, if the segment ratio of HHI is considered as highest (equal to 100%; or 1) therefore the companies are considered as concentrated. If the segment ratio of Herfindahl-Hirschman Index is considered as high (more than or equal to 50%; or more than or equal to 0.5), therefore the companies are considered as low level diversified. If the segment ratio of HHI is considered as low (less than 50%; or less than 0.5), therefore the companies are considered as high level diversified. As a result, this give opposite side to the impact of corporate diversification to capital structure, regarding with the amount.

Other than that, this research uses the trimming method to 68 firms. The reason is that because this type of trimming method fulfills the normality from the histogram and autocorrelation. In this case, even after trimming method, there is still a negative and significant result between diversification and capital structure.

The reason is that because, in Indonesian firms, the firms are considered as lowly diversified, and most of the companies are either having high capital structure with low diversification or vice versa.

Based on this reason, the investors should check carefully regarding to the segment information in the financial statement or reports of the companies. Segment information can help the investors understand whether the companies are highly diversified, lowly diversified, or concentrated. Diversified companies have some segments from the parent company. Other than that, if the companies have no information in the segments, or in the segment information is only written as the company only produce the goods from the parent company, therefore, the companies are considered as concentrated.

There are two control variables used in this research. The first one, profitability. gives negative and significant amount to capital structure. The same case occurs to dividend policy, which also gives negative and significant impact to capital structure. As this occurs, further research is needed in finding the factors affecting capital structure.

5.2. Limitation

The limitations of this research are:

1. Herfindahl-Hirschman Index use the inverse impact in order to calculate diversification.
2. The trimmed datas, which are totaled to 132 datas, are more than the datas that are not trimmed, which totaled to 68 datas.

5.3. Suggestion

The suggestions for the next research are:

1. Use dummy variable to calculate diversification in order to make the inverse impact become not inverse impact (in-line impact).
2. Add the control variables, such as firm size, in order the trimming data will be less than not trimmed.

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APPENDICES

Appendix A.

List of Manufacturing Companies in Indonesian Stock Exchange Used as Sample

No	Code	Name	Type	Published Year
1	INTP	Indocement Tunggal Prakasa Tbk	Cement	December 5, 1989
2	SMGR	Semen Indonesia (Persero) Tbk	Cement	July 08, 1991
3	AMFG	Asahimas Flat Glass Tbk	Ceramics, Glass, Porcelain	November 08, 1995
4	TOTO	Surya Toto Indonesia Tbk	Ceramics, Glass, Porcelain	October 30, 1990
5	LION	Lion Metal Works Tbk	Metal and Allied Products	August 20, 1993
6	DPNS	Duta Pertiwi Nusantara Tbk	Chemicals	August 08, 1990
7	TPIA	Chandra Asri Petrochemical Tbk	Chemicals	June 24, 1996
8	CPIN	Charoen Pokphand Indonesia Tbk	Farm Feeding	March 18, 1991
9	INKP	Indah Kiat Pulp and Paper Tbk	Pulp and Paper	July 16, 1990
10	TKIM	Pabrik Kertas Tjiwi Kimia Tbk	Pulp and Paper	April 03, 1990
11	ASII	Astra Internasional Tbk	Automotive and Component	April 04, 1990
12	AUTO	Astra Otoparts Tbk	Automotive and Component	June 15, 1998

13	BRAM	Indo Kordsa Tbk	Automotive and Component	September 05, 1990
14	IMAS	Indomobil Sukses Internasional Tbk	Automotive and Component	September 15, 1993
15	SMSM	Selamat Sempurna Tbk	Automotive and Component	September 09, 1996
16	PBRX	Pan Brothers Tbk	Textile and Garment	August 16, 1990
17	RICY	Ricky Putra Globalindo Tbk	Textile and Garment	January 22, 1990
18	SRIL	Sri Rejeki Isman Tbk	Textile and Garment	June 17, 2013
19	TRIS	Trisula Internasional Tbk	Textile and Garment	June 28, 2012
20	BATA	Sepatu Bata Tbk	Footwear	March 24, 1982
21	KBLI	KMI Wire and Cable Tbk	Cable	July 06, 1992
22	KBLM	Kabelindo Murni Tbk	Cable	June 01, 1992
23	SCCO	Supreme Cable Manufacturing Co Tbk	Cable	July 20, 1982
24	DLTA	Delta Djakarta Tbk	Food and Beverages	February 12, 1984
25	ICBP	Indofood CBP Sukses Makmur Tbk	Food and Beverages	October 07, 2010
26	INDF	Indofood Sukses Makmur Tbk	Food and Beverages	July 14, 1994
27	MLBI	Multi Bintang Indonesia Tbk	Food and Beverages	January 17, 1994

28	MYOR	Mayora Indah Tbk	Food and Beverages	July 04, 1990
29	ROTI	Nippon Indosari Corpindo Tbk	Food and Beverages	June 28, 2010
30	SKLT	Sekar Laut Tbk	Food and Beverages	September 08, 1993
31	GGRM	Gudang Garam Tbk	Tobacco Manufacturers	August 27, 1990
32	HMSP	H.M. Sampoerna Tbk	Tobacco Manufacturers	August 15, 1990
33	DVLA	Darya Varia Laboratoria Tbk	Pharmaceuticals	November 11, 1994
34	KAEF	Kimia Farma Tbk	Pharmaceuticals	July 04, 1991
35	KLBF	Kalbe Farma Tbk	Pharmaceuticals	July 30, 1991
36	MERK	Merck Tbk	Pharmaceuticals	July 23, 1981
37	SIDO	Industri Jamu dan Farmasi Sido Muncul Tbk	Pharmaceuticals	December 18, 2013
38	TSPC	Tempo Scan Pacific Tbk	Pharmaceuticals	June 17, 1994
39	TCID	Mandom Indonesia Tbk	Cosmetics and Household	September 30, 1993
40	UNVR	Unilever Indonesia Tbk	Cosmetics and Household	January 11, 1992

Appendix B

Name of Business Segments

No	Code	Name of Segments
1	INTP	Cement
		Ready-Mix Concrete
		Aggregates and Quaries
2	SMGR	Cement Production
		Non-Cement Production
3	AMFG	Flat Glass
		Automotive Glass
4	TOTO	Sanitary
		Fittings
		Kitchen Systems
		Electrical Appliance and Accessories
5	LION	Office Equipment
		Building Materials
6	DPNS	Glue Industry
7	TPIA	Olefin
		Polyolefin
		Styrene monomer
		Butadiene
		Tanks and Jetty Rental
8	CPIN	Feed
		Broiler
		Day-Old chicks
		Processed Chicken
		Others

9	INKP	Paper and Pulp
		Packaging Product and Others
10	TKIM	Paper Products
		Packaging Products and Others
11	ASII	Automotive
		Financial Services
		Heavy equipment and mining
		Agribusiness
		Infrastructure Logistics and Others
		Information Technology
12	AUTO	Property
		Component Manufacturing
13	BRAM	Tire Cord Fabric
		Nylon Yam
		Polyester Yam
14	IMAS	Automotive (Including Workshops)
		Financial Services
		Rental and Services
		Others
15	SMSM	Filter
		Radiator
		Body Maker
		Trading
		Others
16	PBRX	Garment
		Textile
17	RICY	Manufacturing of Underwear and Fashion Wear

		Trading
		Spinning Manufacturing
18	SRIL	Spinning
		Weaving
		Finishing
		Garment
19	TRIS	Retail
		Garment
20	BATA	Footwear Manufacturing
21	KBLI	Medium Voltage Electrical Cable
		Low Voltage Electrical Cable
		Others
22	KBLM	Electrical Cables
		Telecommunication Cables
		Hotel Services
23	SCCO	Cable
		Insulation
		Melamine
24	DLTA	Alcoholic Business Products
		Non-Alcoholic Business Products
25	ICBP	Noodles
		Dairy
		Snack Foods
		Food Seasonings
		Nutrition and Special Foods
26	INDF	Beverages
		Bogasari

		Agribusiness
		Distribution
27	MLBI	Beer
		Soft Drink
28	MYOR	Food processing
		Processing of Coffee Powder, Instant Coffee, and ocoa beans
29	ROTI	White Bread Sari Roti
		Sweet Bread Sari Roti
		Sari Cake
		Mini Bun
		Dorayaki
		Others
30	SKLT	Cracker
		Sauce
		Bread
		Merchandise Goods
		Restaurant
		Services
31	GGRM	Cigarettes
		Paperboard
		Others
32	HMSP	Manufacturing of Trading and Cigarettes
		Others
33	DVLA	Prescription Recipe
		Consumer Health Products
		Export and Toll Manufacturing
34	KAEF	Manufacture

		Distribution
		Retail
		Others
35	KLBF	Prescription
		Consumer health
		Nutritionals
		Distribution and Logistic
36	MERK	Biopharma
		Consumer Health
		Others
37	SIDO	Herbal Medicine
		Food and Beverages
		Pharmacy
38	TSPC	Pharmaceutical
		Consumer Products and Cosmetics
		distribution services
39	TCID	Hair Care
		Skin Care and Make-Up
		Fragrance
		Others
40	UNVR	Home and Personal Care
		Foods and Refreshements

Appendix C

List of Variables

Dependent Variable

Leverage

Measured using Debt to Equity Ratio

No	Code	2014	2015	2016	2017	2018
1	INTP	0.1753	0.1581	0.1535	0.1754	0.1967
2	SMGR	0.3730	0.3904	0.4465	0.6086	0.5627
3	AMFG	0.2724	0.2596	0.5294	0.7661	1.3446
4	TOTO	0.8318	0.6356	0.6940	0.6687	0.5015
5	LION	0.4208	0.4064	0.4573	0.5077	0.4651
6	DPNS	0.1392	0.1375	0.1248	0.1518	0.1602
7	TPIA	1.2128	1.1000	0.8651	0.7901	0.7929
8	CPIN	0.8756	0.9486	0.7096	0.5616	0.4257
9	INKP	1.7158	1.6832	1.4398	1.3726	1.3203
10	TKIM	1.9098	1.8070	1.6548	1.5875	1.4006
11	ASII	0.9638	0.9397	0.9316	0.8902	0.9770
12	AUTO	0.4185	0.4136	0.3868	0.3721	0.4107
13	BRAM	0.7351	0.5953	0.4972	0.4027	0.3451
14	IMAS	2.4932	2.7122	2.8203	2.3819	3.2943
15	SMSM	0.5664	0.5415	0.4270	0.3365	0.3027
16	PBRX	0.8234	1.0516	1.2821	1.4419	1.3108
17	RICY	2.0031	1.9949	2.1241	2.1944	2.4605
18	SRIL	1.9992	1.8306	1.8606	1.6979	1.6427
19	TRIS	0.6907	0.7104	0.8455	0.5298	0.7770
20	BATA	0.8207	0.4534	0.4444	0.4771	0.3770

21	KBLI	0.4470	0.5105	0.4163	0.6867	0.5977
22	KBLM	1.2297	1.2072	0.9931	0.5607	0.5805
23	SCCO	1.0446	0.9224	1.0075	0.4714	0.4310
24	DLTA	0.3117	0.2221	0.1832	0.1714	0.1864
25	ICBP	0.7169	0.6208	0.5622	0.5557	0.5135
26	INDF	1.1373	1.1296	0.8649	0.8768	0.9340
27	MLBI	3.0286	1.7409	1.7723	1.3571	1.4749
28	MYOR	1.5259	1.1836	1.0626	1.0282	1.0593
29	ROTI	1.2472	1.2770	1.0237	0.6168	0.5063
30	SKLT	1.4541	1.4803	0.9188	1.0687	1.2029
31	GGRM	0.7575	0.6708	0.5911	0.5825	0.5310
32	HMSP	1.1026	0.1872	0.2438	0.2647	0.3180
33	DVLA	0.3101	0.4137	0.4185	0.4699	0.4020
34	KAEF	0.7505	0.6702	1.0307	1.3697	1.8186
35	KLBF	0.2740	0.2522	0.2216	0.1959	0.1864
36	MERK	0.3065	0.3550	0.2768	0.3763	1.4371
37	SIDO	0.0743	0.0761	0.0833	0.0906	0.1499
38	TSPC	0.3742	0.4490	0.4208	0.4630	0.4486
39	TCID	0.4884	0.2141	0.2254	0.2709	0.2396
40	UNVR	2.0087	2.2585	2.5598	2.6546	1.5762

Independent Variable

Diversification

Measured Using Herfindahl-Hirschman Index (HHI)

No	Code	2014	2015	2016	2017	2018
1	INTP	0.8568	0.8511	0.8627	0.8723	0.8671
2	SMGR	0.9326	0.9318	0.9098	0.9087	0.8828
3	AMFG	0.6588	0.6853	0.6488	0.6406	0.6411
4	TOTO	0.4903	0.4808	0.4679	0.4619	0.4530
5	LION	0.5592	0.5335	0.5131	0.5131	0.5131
6	DPNS	1.0000	1.0000	1.0000	1.0000	1.0000
7	TPIA	0.4225	0.4800	0.4066	0.3958	0.4059
8	CPIN	0.7832	0.7330	0.7609	0.7247	0.6881
9	INKP	0.5579	0.5715	0.5493	0.5454	0.5560
10	TKIM	0.8882	0.8783	0.8672	0.8354	0.8189
11	ASII	0.3742	0.3638	0.3627	0.3345	0.3407
12	AUTO	0.6264	0.6117	0.6032	0.5984	0.6217
13	BRAM	0.9707	0.8167	0.8753	0.8905	0.8982
14	IMAS	0.7719	0.7430	0.6502	0.6428	0.5873
15	SMSM	0.6594	0.6273	0.6629	0.6264	0.6197
16	PBRX	0.8148	0.8722	0.9517	0.9223	0.9385
17	RICY	0.7479	0.7936	0.8828	0.7564	0.6675
18	SRIL	0.2913	0.2899	0.2898	0.2916	0.3216
19	TRIS	0.7390	0.7823	0.8310	0.7563	0.7607
20	BATA	1.0000	1.0000	1.0000	1.0000	1.0000
21	KBLI	0.7601	0.6639	0.5901	0.4750	0.4076
22	KBLM	0.8763	0.9116	0.9536	0.9672	0.9874

23	SCCO	0.7646	0.7242	0.9347	0.9292	0.9230
24	DLTA	0.9972	1.0000	1.0000	1.0000	1.0000
25	ICBP	0.5300	0.4811	0.4783	0.4702	0.5506
26	INDF	0.3806	0.3871	0.3960	0.3886	0.4042
27	MLBI	0.8711	0.8283	0.7927	0.8194	0.8110
28	MYOR	0.5540	0.5373	0.5347	0.5317	0.5372
29	ROTI	0.6526	0.6421	0.6786	0.7566	0.7423
30	SKLT	0.6938	0.7024	0.6433	0.7524	0.7046
31	GGRM	0.9704	0.9766	0.9766	0.9764	0.9762
32	HMSP	0.9960	0.9960	0.9980	0.9980	0.9980
33	DVLA	0.3816	0.3578	0.3597	0.3748	0.3047
34	KAEF	0.4549	0.4511	0.4485	0.4453	0.4623
35	KLBF	0.2616	0.2603	0.2603	0.2616	0.2621
36	MERK	0.6221	0.4210	0.4266	0.7652	0.7473
37	SIDO	0.4881	0.4697	0.4939	0.5279	0.5344
38	TSPC	0.3616	0.3579	0.3615	0.3588	0.3476
39	TCID	0.3268	0.3332	0.3398	0.3622	0.3494
40	UNVR	0.5914	0.5774	0.5733	0.5667	0.5700

Control Variables

Profitability

Measured using Return on Asssets

No	Code	2014	2015	2016	2017	2018
1	INTP	0.1833	0.1576	0.1284	0.0644	0.0412
2	SMGR	0.1622	0.1186	0.1025	0.0417	0.0603
3	AMFG	0.1176	0.0799	0.0473	0.0062	0.0008
4	TOTO	0.1435	0.1143	0.0653	0.0987	0.1197
5	LION	0.0805	0.0720	0.0617	0.0136	0.0211
6	DPNS	0.0540	0.0359	0.0338	0.0193	0.0291
7	TPIA	0.0096	0.0141	0.1410	0.1068	0.0574
8	CPIN	0.0828	0.0735	0.0919	0.1019	0.1646
9	INKP	0.0194	0.0316	0.0295	0.0541	0.0672
10	TKIM	0.0076	0.0005	0.0031	0.0124	0.0829
11	ASII	0.0938	0.0636	0.0699	0.0782	0.0794
12	AUTO	0.0663	0.0225	0.0331	0.0371	0.0428
13	BRAM	0.0533	0.0431	0.0753	0.0807	0.0654
14	IMAS	-0.0028	-0.0009	-0.0122	-0.0019	0.0024
15	SMSM	0.2396	0.2078	0.2227	0.2273	0.2262
16	PBRX	0.0254	0.0195	0.0256	0.0136	0.0281
17	RICY	0.0129	0.0112	0.0109	0.0120	0.0120
18	SRIL	0.0723	0.0711	0.0627	0.0570	0.0620
19	TRIS	0.0714	0.0765	0.0394	0.0261	0.0311
20	BATA	0.0913	0.1629	0.0525	0.0627	0.0775
21	KBLI	0.0537	0.0743	0.1787	0.1191	0.0726
22	KBLM	0.0316	0.0195	0.0332	0.0356	0.0313

23	SCCO	0.0831	0.0897	0.1390	0.0672	0.0610
24	DLTA	0.2892	0.1850	0.2125	0.2087	0.2219
25	ICBP	0.1028	0.1101	0.1256	0.1121	0.1172
26	INDF	0.0607	0.0404	0.0637	0.0577	0.0514
27	MLBI	0.3563	0.2365	0.4317	0.5267	0.4239
28	MYOR	0.0398	0.1102	0.1075	0.1093	0.1001
29	ROTI	0.0880	0.1000	0.0958	0.0297	0.0289
30	SKLT	0.0500	0.0532	0.0363	0.0361	0.0428
31	GGRM	0.0933	0.1016	0.1060	0.3207	0.3294
32	HMSP	0.2086	0.1652	0.1644	0.1597	0.1564
33	DVLA	0.0657	0.0784	0.0993	0.0989	0.1192
34	KAEF	0.0856	0.0773	0.0589	0.0544	0.0425
35	KLBF	0.1706	0.1502	0.1544	0.1476	0.1376
36	MERK	0.2562	0.2222	0.2068	0.1708	0.9210
37	SIDO	0.1480	0.1565	0.1608	0.1690	0.1989
38	TSPC	0.1044	0.0842	0.0828	0.0750	0.0687
39	TCID	0.0943	0.2615	0.0742	0.0758	0.0708
40	UNVR	0.4018	0.3720	0.3816	0.3705	0.4666

Dividend Policy

Measured by using Dividend Payout Ratio

No	Code	2014	2015	2016	2017	2018
1	INTP	0.9427	0.3508	0.8839	1.3861	1.7685
2	SMGR	0.4001	0.4001	0.4002	0.3995	0.4001
3	AMFG	0.0757	0.1017	0.1333	0.3371	2.0000
4	TOTO	0.4000	0.4286	0.5000	0.4815	0.5294
5	LION	0.4255	0.4545	0.4938	0.8333	0.3571
6	DPNS	0.3191	0.1515	0.1765	0.1429	0.1935
7	TPIA	0.2727	0.3750	0.5000	0.8441	0.3024
8	CPIN	0.1682	0.2589	0.4148	0.3684	0.4245
9	INKP	0.0870	0.0445	0.0603	0.0978	0.0642
10	TKIM	0.1044	0.7249	0.1283	0.2171	0.0263
11	ASII	0.4557	0.4958	0.4492	0.3970	0.4002
12	AUTO	0.3978	0.4091	0.4023	0.1140	0.4016
13	BRAM	0.2618	0.3923	0.2608	0.5953	0.9159
14	IMAS	-0.1887	-0.5882	-0.0476	-0.1250	0.6250
15	SMSM	0.4596	0.5068	1.3924	0.5977	0.5979
16	PBRX	0.0502	0.1036	0.0677	0.1054	0.0493
17	RICY	0.1667	0.1765	0.1667	0.1500	0.1667
18	SRIL	0.1602	0.0240	0.0698	0.1595	0.0512
19	TRIS	0.4130	0.3636	0.8333	5.0000	0.3333
20	BATA	0.4033	0.0645	0.7428	0.5180	0.2742
21	KBLI	0.2353	0.2414	0.1205	0.0889	0.1270
22	KBLM	0.2778	0.2727	0.2632	0.2564	0.2778
23	SCCO	0.2990	0.2911	0.1812	0.2672	0.2734
24	DLTA	0.3409	0.5042	0.5678	0.7450	1.1327

25	ICBP	0.4978	0.4981	0.4984	0.4969	0.4974
26	INDF	0.4966	0.4970	0.4979	0.4989	0.4979
27	MLBI	0.0068	1.4576	1.0000	1.0000	1.0034
28	MYOR	0.3556	0.2182	0.3443	0.3803	0.3766
29	ROTI	0.1495	0.2002	0.2496	0.2425	0.3493
30	SKLT	0.2000	0.2000	0.1667	0.2121	0.1957
31	GGRM	0.2867	0.7773	0.7493	0.6452	0.6420
32	HMSP	1.2022	1.0000	0.9791	0.9844	1.0103
33	DVLA	0.5556	0.6771	0.4779	0.7241	0.5978
34	KAEF	0.2012	0.1991	0.2006	0.2993	0.1997
35	KLBF	0.4318	0.4419	0.4490	0.4902	0.5000
36	MERK	0.8025	10.6918	0.8017	0.8050	0.9877
37	SIDO	0.8571	0.8621	0.8125	0.8056	0.8182
38	TSPC	0.4961	0.4310	0.4202	0.3306	0.3509
39	TCID	0.4498	0.1514	0.5087	0.4602	0.4878
40	UNVR	1.0000	0.9987	0.9964	0.9967	0.9925

Appendix D

SPSS Data

1. Descriptive Statistics

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
LEV	68	.0743	.7169	.424313	.1697393
DIV	68	.2603	.8167	.512684	.1528287
PROF	68	.0136	.2615	.109213	.0598139
DPO	68	.0757	.8621	.458341	.1994372
Valid N (listwise)	68				

Source: SPSS

2. Normality Test before Trimming

One-Sample Kolmogorov-Smirnov Test

		Unstandardized Residual
N		200
Normal Parameters[a,b]	Mean	.0000000
	Std. Deviation	.64785377
Most Extreme Differences	Absolute	.142
	Positive	.142
	Negative	-.116
Test Statistic		.142
Asymp. Sig. (2-tailed)		.000[c]

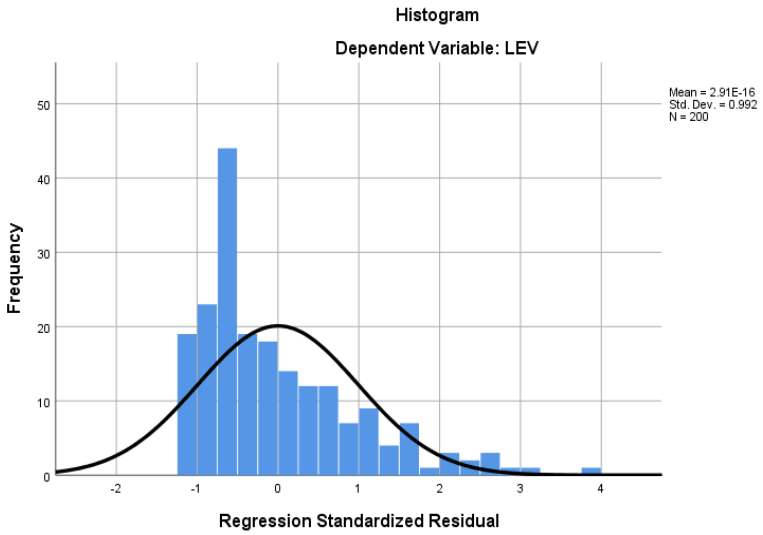
a. Test distribution is Normal.

b. Calculated from data.

c. Lilliefors Significance Correction.

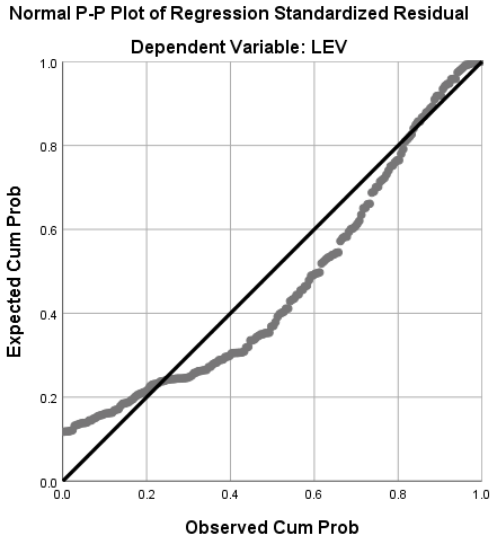
Source: SPSS

3. Histogram before Trimming



Source: SPSS

4. Scatterplot before Trimming



Source: SPSS

5. Normality Test after Trimming

One-Sample Kolmogorov-Smirnov Test

		Unstandardized Residual
N		68
Normal Parameters[a,b]	Mean	.0000000
	Std. Deviation	.14124618
Most Extreme Differences	Absolute	.070
	Positive	.042
	Negative	-.070
Test Statistic		.070
Asymp. Sig. (2-tailed)		.200[c,d]

a. Test distribution is Normal.

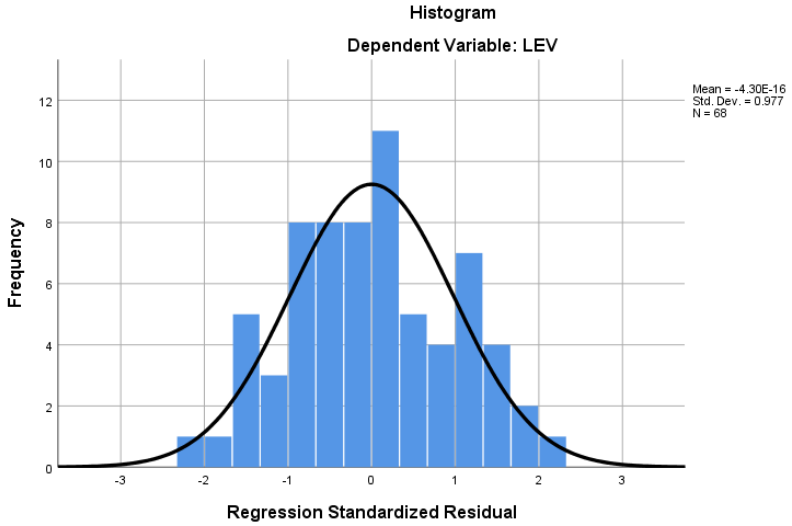
b. Calculated from data.

c. Lilliefors Significance Correction.

d. This is a lower bound of the true significance.

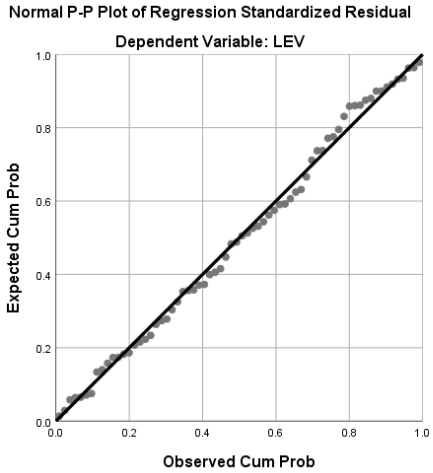
Source: SPSS

6. Histogram after Trimming



Source: SPSS

7. Scatterplot after Trimming



Source: SPSS

8. Multicollinearity Test

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients			Collinearity Statistics	
		B	Std. Error	Beta	t	Sig.	Tolerance	VIF
1	(Constant)	.445	.084		5.279	.000		
	DIV	.314	.118	.283	2.668	.010	.963	1.038
	PROF	-.755	.316	-.266	-2.386	.020	.870	1.149
	DPO	-.216	.096	-.253	-2.252	.028	.855	1.169

a. Dependent Variable: LEV

Source: SPSS

9. Heteroscedasticity Test

		Sig.
1	(Constant)	.024
	DIV	.780
	PROF	.937
	DPO	.763

Source: SPSS

10. Autocorrelation Test

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.555[a]	.308	.275	.1445187	2.269

a. Predictors: (Constant), DPO, DIV, PROF

b. Dependent Variable: LEV

Source: SPSS

11. Regression Analysis

1. F Test

Model		F	Sig.
1	Regression	9.475	.000[b]
	Residual		
	Total		

Source: SPSS

2. T Test

Model		Unstandardized Coefficients		
		B	Std. Error	Sig.
1	(Constant)	.445	.084	.000
	DIV	.314	.118	.010
	PROF	-.755	.316	.020
	DPO	-.216	.096	.028

Source: SPSS

3. Coefficient of Determination

Model	Adjusted R Square
1	.275

Source: SPSS