# THE RELATIONSHIP BETWEEN CAPITAL STRUCTURE AND PERFORMANCE OF VIETNAMESE FIRMS IN AGRICULTURAL SECTOR

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# THE RELATIONSHIP BETWEEN

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## ABSTRACT

This study examines the capital structure and firm's performance of Vietnamese agricultural firms for the period from 2010 to 2014. In addition, this study also examines the relationship between capital structure and the firm's performance. Capital structure is represented by four variables, which are (i) short term debt to total assets, (ii) long term debt to total assets, (iii) total debt to total assets and (iv) total debt to total equity. Firm's performance is represented by five variables, which are (i) return on asset, (ii) return on equity, (iii) gross profit margin, (iv) earnings per share and (v) price earnings ratio. This study uses secondary data obtained from 51 agricultural firms listed on the Hanoi Stock Exchange and the Ho Chi Minh Stock Exchange. The correlation coefficients between the variables of capital structure and firm's performance indicate there is a relationship between capital structure and firm's performance. Specifically, the findings of the study show that capital structure has positive relationships with return on equity and price earnings ratio but negative relationship with return on assets, gross profit margin and earnings per share.



**Keywords:** capital structure, firm's performance, agricultural sector.

## ABSTRAK

Kajian ini mengkaji struktur modal dan prestasi firma bagi firma-firma pertanian di Vietnam untuk tempoh dari 2010 hingga 2014. Di samping itu, kajian ini juga mengkaji hubungan antara struktur modal dan prestasi firma. Struktur modal diwakili oleh empat pembolehubah, iaitu nisbah (i) hutang jangka pendek kepada jumlah aset, (ii) hutang jangka panjang kepada jumlah aset, (iii) jumlah hutang kepada jumlah aset dan (iv) jumlah hutang kepada jumlah ekuiti. Prestasi firma diwakili oleh lima pembolehubah, iaitu (i) pulangan ke atas aset, (ii) pulangan ke atas ekuiti, (iii) margin keuntungan kasar, (iv) pendapatan sesaham dan (v) nisbah pendapatan harga. Kajian ini menggunakan data sekunder yang diperolehi daripada 51 buah firma pertanian yang disenaraikan di Bursa Saham Hanoi dan Bursa Saham Ho Chi Minh. Pekali korelasi antara pemboleh ubah struktur modal dan prestasi firma menunjukkan terdapat hubungan antara struktur modal dan prestasi firma. Secara khususnya, hasil kajian itu menunjukkan bahawa struktur modal mempunyai hubungan positif dengan pulangan ke atas ekuiti dan pendapatan harga nisbah tetapi mempunyai hubungan negatif dengan pulangan atas aset, margin keuntungan kasar dan pendapatan sesaham.



**Kata kunci**: struktur modal, prestasi firma, sektor pertanian.

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Following the established Buddhist tradition: May the writing of this thesis benefit all sentient beings without exception.

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# CHAPTER ONE

# INTRODUCTION

## 1.1 Introduction

This chapter presents background of the study, problem statements research questions and research objectives. In addition, scope of the study, significance of the study and organization of the study are presented.

## 1.2 Background of Study

The capital structure is a financial term that describes method of raising capital to run businesses. According to Titman and Grinblatt (1998), capital structure can include both the outside and inside funds of the firm. The capital structure refers to the way businesses seeking financing plans through a combination of debt and equity. In other words, the capital structure is the combination of different kinds of equities and liabilities (Culp, 2011). For example, a combination of short term debt and long term debt with preference shares and ordinary shares (Riahi-Belkaonui, 1999). Optimal capital structure is a plan, in which businesses may a minimal capital expenditure and the highest return (Bierman Jr & Smidt, 2012). Besides that, the firm will have higher profits if optimal ratio of debt to equity could be achieved (maximizing firm's value and minimizing the cost of capital). Thus, obtaining optimal capital structure is the important task of the firm.

There are a great number of studies on the relationship between the firm's capital structure and its performance (Roden & Lewllen, 1995; Staking & Babbel, 1995; Singlintan & Chen, 2009; Pratheepkanth, 2010; Hamid, 2011; Fang & Song, 2014).

Nevertheless, majority of the studies are carried out in the United States and European countries. There is a lack of study on this topic conducted in Vietnam, especially a study that examines capital structure in the agriculture sector (LiPuma, Newbert, & Doh, 2013).

### 1.2.1 Status and Performance of Agricultural Sector around the Globe

Based on a report of the 2015 World Bank, 78% poor of world population depend on agriculture. The forecast on world population also shows that agricultural sector must increase about 50% to feed 9 billion people (World Bank, 2015). For that reason, countries around the world should raise capital investment and development in agricultural sector. This is an essential and important issue. However, the agricultural value around the world is found to have a low growth and even decreased for a period of 5 years from the year 2010 to 2014. Figure 1.1 shows a recent statistics of agricultural value ratio to gross domestic product (GDP) of ASEAN in comparison to Africa. The figure shows that agriculture is one of the main sector in Africa countries and the agriculture value ratio to GPD is slightly decreased from 2010 to 2014. ASEAN member countries have a lower agriculture value ratios to GPD as compared to that of Africa. The ratio even reduced from 17.22 % in 2010 to 15.68% in 2013 but increased the value to 17.32 % in year 2014.

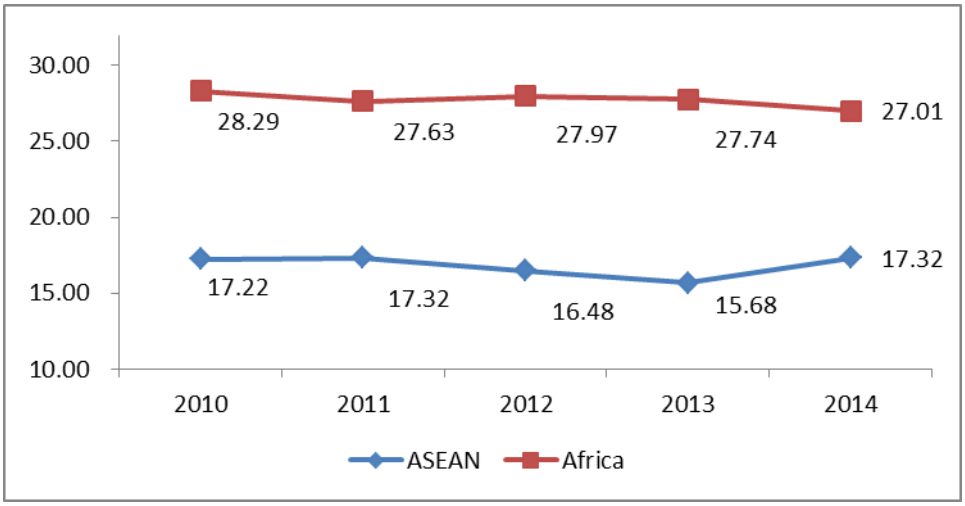


*Figure 1.1*
*Agriculture value ratio to GDP, source World Bank, 2015*

### 1.2.2 Status and Performance of Vietnam's Agricultural Sector

#### 1.2.2.1 History of economic development in Vietnam

Vietnam is a developing country and has been recognized as one of the most dynamic economies in the Asia-Pacific region. History of economic development in Vietnam has experienced some many turmoil as a result of series of events. After the Vietnam war-1975, Vietnamese economics faced period due to trade embargo imposed by the United States. As a result of that, the between 1976 to 1986, the economy experienced less productivity and high unemployment rate. In 1986, Vietnam has implemented economic renovation called the Doi Moi policy, which created socialist-oriented market economy aimed to reform the country's economy landscape. Vietnam gradually joined numerous organizations of world economy and established business relationships with other countries in the Southeast Asian region as well as worldwide.

In the mid-year of 1990, Vietnam acceded the Association of Southeast Asian Nations (ASEAN). In 1994, American's President Bill Clinton informed an important decision to lift the trade embargo against Vietnam, which was a welcoming development to Vietnam. In 2007, Vietnam became the member of the World Trade Organization (WTO). In 2008, Vietnam also acceded the Trans-Pacific Partnership (TPP). On 5th October 2015, TPP has been negotiated and signed controversial trade agreement between twelve countries. Vietnam continues to transform and join the global economic organization in other to boost the country's economy.

In addition, policies and laws are adjusted and implemented in order to attract local and foreign capital. Some of this policies includes; Law of Enterprises (1999), Foreign Investment Law (2001), Interest Rate Liberalization Law (2002), Law on Investment (2005), Law on Securities (2006) and Decree 58 of the Law On Securities (2012). On September 1st 2015, the government issued Government Decree 60/2015, which states foreign investors may held more than 49%, or even up to 100% of shares a company. The new rule has a purpose to attract more foreign investment and foreign capital inflow. After nearly thirty years of opening up and change with the continuous efforts from Doi Moi policy-1986, Vietnam's economic frame has changed greatly with ample excellent achievements.



According to the information above, Vietnam policymakers always create the preferential policy of capital for domestic and foreign firms, so that they can grow their business efficiently. According to (Nguyen, 2006). majority of Vietnamese firms use short-term liabilities to finance their operations A better plan of capital structure needs to be established in order to attract long-term capital rather than

short-term one. This is very important issue, because it will help firms to have the efficient financial operations and increase the value of business as well as maximize the firms' value.

### 1.2.2.2 Status and Performance of Vietnam's Agricultural Sector

With a tropical and a temperate climate, Vietnam's agriculture possesses great advantages on natural conditions, ecological conditions, rich resources and fertile land. Labor resource also plays a key role in the development of Vietnam's agriculture. Vietnam's farmers are hardworking, absolute effort and diligence spirit (Unz, 2013). These advantageous factors help Vietnam to be successful in agriculture sector, and contributes importantly to Vietnamese economy. During the five years period from 2010 to 2014, the average agricultural value ratio to gross domestic product (GDP) of Vietnam equal 19.03%. The highest of GDP was 20.08% in the year 2011, and the lowest of GDP was 18.12% in the year 2014 (refer to in Table 1.1).



*Table 1.1*

*Agriculture value ratio to GDP of Vietnam (2010 -2014)*

| **Year** | 2010 | 2011 | 2012 | 2013 | 2014 | Average |
|---|---|---|---|---|---|---|
| **% GDP** | 18.89% | 20.08% | 19.67% | 18.38% | 18.12% | 19.03% |

Source: World Bank, 2015

Considered as one of the largest exporters of agriculture's products in the world, Vietnam provides high quality products of pepper, coffee, rice, rubber, tea, cashew nuts, fruits and vegetables, wood products and fisheries. In addition, Vietnam is the second biggest coffee exporter after Brazil and the second largest rice exporters after

Thailand. Besides, fishery products, wood and wooden products also are one of the important products in the Vietnam's agricultural export industry (Vietnam Report, 2015). Details of agriculture's export value is shown in Figure 1.2. The highest agricultural exports were fishery products with net income of $7.5 billion and tea was the lowest with $229 million (Vietnam Report, 2015).

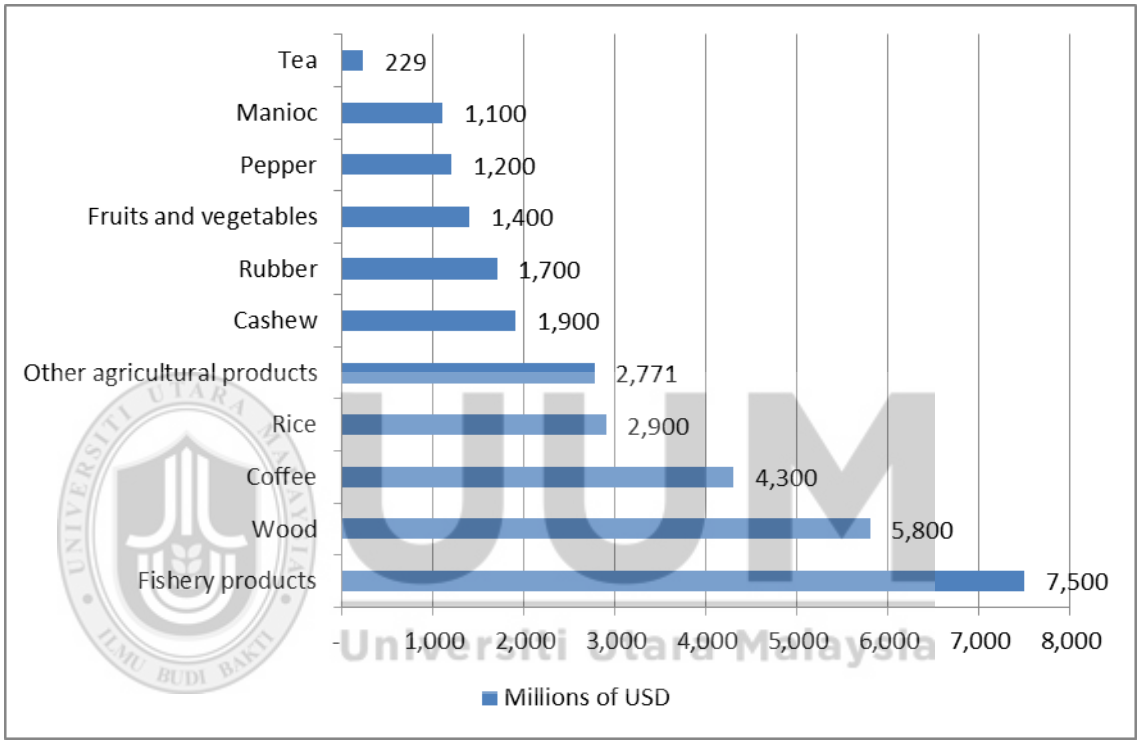


*Figure 1.2*
*The agriculture's export value in 2014, source Vietnam report, 2015*

Between the period of 2010 to 2014, Vietnam's agricultural sector experienced a low growth, which reduced significantly from 27.81% in 2011, 9.24% in 2012; and even dropped to 0.70% in 2013. The growth was turned up in 2014 and achieved 11.20% resulted in a slightly increase in value exports was obtained from the year of 2011 to 2014. The agriculture's export value was $30.8 billion in 2014, (as seen in Table 1.2)

*Table 1.2:*
*The agriculture's value exports (million USD) 2010 -2014.*

| Year | 2010 | 2011 | 2012 | 2013 | 2014 |
|---|---|---|---|---|---|
| **Value exports (million USD)** | 19,560 | 25,000 | 27,309 | 27,500 | 30,800 |
| **% growth per year** | | 27.81% | 9.24% | 0.70% | 11.20% |

Source: Vietnam Report, 2015

The bilateral agreement of TPP on 5th October 2015 between the ASEAN member states is seen as a good step for Vietnam agriculture. Regarding to the merchandising process, the TPP members obligate to eradicating most of the prices on industrial goods and increasingly on agricultural products among the countries (Lardy, 2004).

Additionally, foreign direct investment (FDI) has helped the development of Vietnam's agricultural sector. After Vietnam joined Free Trade Agreement (FTA), foreign countries such as United States, Europe Union, Australia, Japan, Israel, and Korea have increased investment into Vietnam's agricultural sector.



**1.3 Problem Statement**

The Vietnam financial market is still young and developing. Sometimes, the fund is not enough for the economy's activities, which causes the interest rate or the cost in Vietnam is higher than other countries (Vuong, 2014). In 2015, the short-term interest rate of Vietnam is 9% per years and the long-term interest rate 11% per years. In comparison to other Asian countries, the interest rate of Indonesia is 7.5%; Malaysia's interest rate is 3.25% while in Thailand the interest rate is 2.5%. As such, this huge difference between the countries makes the financing and capital structure decisions of Vietnam companies' debt ratio to be very important because it directly affects the efficiency of operations and profitability of the firm.

Economy of Vietnam is just really prospered less than 30 years from 1986. Even though agriculture is one of the main sectors in Vietnam (average value of GDP was 19.03%), but it has only 3,500 firms investment in the agricultural sector (equal 1 percent of Vietnamese firms), and only 59 firms are listed in Vietnam stock market (Que, 2015). Most of the agricultural firms are small and privately owned equity. Majority of agricultural firms are domestic to cover the low domestic demand. After having chance to join international organizations, Vietnamese agricultural firms have started to establish branches and develop in order to respond to the international market demand. However, available fund for agricultural sector remains limited. Thus, debt is an important source of financing for Vietnamese agricultural firms. If the firm can effectively use debt, they will get higher profits and maximizing shareholders wealth at same time. In order to establish the role of Vietnamese agricultural sector in the area and global market, the status and performance of Vietnamese agricultural firms is very essential to be reviewed and analyzed. Through this, practical lessons and experience could be gained to improve the effectiveness of Vietnamese agricultural firms.

To the best of knowledge, there are limited researches on the firm's capital structure in Vietnam due to the infancy stage of the country's economy. These researches focused on the data collection from Vietnamese stock market, which has been established at end of 2000. Therefore, data for capital structure and performance are less and could not be representative for the actual image of Vietnamese economy. Previous studies could only focus on capital structure of Vietnam's small and medium-sized firms (Nguyen & Neelakantan, 2006), or reported the equity capital and total debt of firms listed on the Vietnam's stock market (Anh & Jeremy, 2011).

Recently, analyzation of capital structure and performance in Vietnamese firms has been carried out by Nguyen et al., (2012); Quang & Wu, (2013); Hang, (2015). The results show that Vietnam's firms prefer to employ short-term funds more than other funds.

A few studies have investigated on Vietnamese agricultural firms performance and capital structure (Nguyen, Le, & Bryant, 2013). Analyzing the capital structure in Vietnamese agricultural sector is also neglected. It is still not a clear view on how the structure of capital in Vietnamese agricultural firms (Cox & Le, 2014). The measurement on the performance of Vietnamese agricultural firms is less (Tran & Santarelli, 2014). Assessment and evaluation the relationship between capital structure and performance of Vietnamese agricultural firms have not been carried out and reported (Nimtrakoon & Chase, 2015). Therefore, this study will look at these points to analyze the capital structure, measure the performance, examine their relationship so that this essential information could be useful for investors, and contribute to the development of Vietnamese agricultural firms.



**1.4 Research Questions**

The research raises the question on capital structure, firm's performance and their relationship in Vietnamese agricultural sector. In details, the important questions are as follows:

1. How is the structure of capital in Vietnamese agricultural firms, especially on debt ratios?

2. What is the performance of Vietnamese agricultural firms based on accounting measures and market measures?

3. What is the relationship between debt ratios and firm's performance?

## 1.5 Research Objectives

The main objectives of this study is to figure out the relationship between capital structure and firm's performance of Vietnam's agriculture sector. Specifically:

1. To examine the capital structure of Vietnamese agricultural firms using the debt ratios values.

2. To examine the performance of Vietnamese agricultural firms based on accounting measures and market measures.

3. To examine the relationship between capital structure (debt ratios) and performance.

## 1.6 Scope of the Study

The study examines the relationship between capital structure and performance of listed agricultural firms on Vietnam stock exchange. The scope of this study work covers 51 Vietnamese agriculture firms. There are 38 firms of Ho Chi Minh Securities Exchange (HOSE), while 13 other firms of Hanoi Securities Exchange (HASE). The period of data are five years from 2010 to 2014.

## 1.7 Significance of the Study

This study attempts to examine the relationship between capital structure and performance of Vietnamese listed agriculture firms. The findings of this study hope to provide into motion regarding the importance of capital structure in influencing firm's performance. Thus, may help the managers to make better decision to improve the efficiency of firm and achieve higher profits. In addition, the findings may help

the investors to know the link between firm performance and capital structure in order to assist them in making investment decisions.

### 1.8 Organization of the Study

The paper is organized in five chapters. Chapter one is the introduction that covers the background of the study, overview of capital structure of Vietnamese agricultural firms. It addition, problem statement, research questions and research objectives, scope of the study as well as significance of the study are also presented. Chapter two has two parts discussing about capital structure theoretical and reviewing on the empirical studies. Chapter three presents research framework and methodology, including research layout, measurements of variables and data collection. Chapter four presents and discusses the findings of the study. Chapters five concludes the study, also indicates the limitation of the study and suggest recommendation for Vietnamese agricultural firms and for future research.

# CHAPTER TWO

# LITERATURE REVIEW

## 2.1 Introduction

This study aims to investigate the relationship between firm performance and capital structure of Vietnamese agricultural firms. This chapter discusses prevalent theories that used to explain capital structure. In addition, this chapter also discusses past empirical evidence about the relationship between capital structure and firm performance. Specifically, section 2.1 presents the theories and section 2.2 critically reviews the past empirical studies.

## 2.2 Theoretical Review

One of the most debated corporate finance issues is the capital structure and has drawn the lot of attentions from corporate finance literature nowadays. The theories discussed below, are commonly used to explain the behavior of the management in making the capital structure decisions.



### 2.2.1 Modigliani and Miller Theory (without tax and tax)

Modigliani and Miller (1958) showed the insignificance of capital structure to firm performance. In other words, there was no relation between firm values and its financing mix (debt to equity ratio) or capital structure. To prove the theory, Modigliani and Miller (M&M) hypothesized with the assumptions: (i) there are no taxes, (ii) markets are frictionless, (iii) no transaction costs, (iv) no direct or indirect bankruptcy costs and (v) no agency costs. If capital markets were perfect, then M&M argued that firms which had the same business opportunities and interest were

expected to have similar value regardless of the capital structure employed (DeAngelo & Stulz, 2014). In brief, the value of a firm depends on the current value of its activities, not on how it is funded. From here, they drew that if all such firms expect the same interest and the same value, they must have the same WACC at every level of the ratio between debt and equity. In addition, they also proposed that the normal rate of firm's future income is independent of its firm capital structure. However, the full set of pre-conditions of the M&M theory was not likely to exist in the real world. As a result, many studies have been conducted and many different hypotheses have been conducted based on this theory (Koller, Goedhart, & Wessels, 2010). Modigliani and Miller launched a follow-up study with the exclusion of the assumption of corporate income tax.

According to Modigliani and Miller (1963), the use of debt will increase the value of the business due to the corporate income tax. This is because interest expenses are deductible when calculating corporate income tax. Thus, according to M&M tax model (1963) capital structure related to the value of the firm. In brief, the higher the level of debt used; the higher the value of the firm. Additionally, Lim (2011) argued that taxes have an effect on the cost of capital and thus, have an effect on shareholder wealth. Temporarily debt was tax deductible, the more usage of debt will decrease the total cost of capital (Fan, Titman, & Twite, 2012). This argument was in line with the idea that the value of a firm was dependent of its capital structure (Lim, 2011; Ng, Tan, Khor, & Yap, 2012).

### 2.2.2 Trade-off theory

The theory of trade-off capital structure deliberates the idea that the firm chooses how much debt and equity to implement in order to utilize the advantages from tax. Nevertheless, increases in debt can lead to higher financial risk. Hence, resulting in high cost of capital. The present value of the tax savings of the firm is offset by the high level of debt. Interest on debts is tax deductible, whereas dividend payments, which are related to equity, are not deductible. So, when the whole debt rises, additional tax expenses can be deducted. But, higher debt level can lead to higher levels of bankruptcy risk (Whitehurst, 2003). In general, the trade-off theory shapes that the finance styles of capital structure of the firms are explained as tax benefits and bankruptcy cost related with the use of debt. For that reason, the decision on capital structure is usually based on the tradeoff between benefits and costs of tax defenses.



The trade-off theory of capital structure for businesses that need to carefully reflect the benefits increased from the tax protection and cost risks in the case of financial exhaustion. According to this theory, the optimal capital structure is achieved when the present value of the marginal tax shield due to additional debt financing sufficient to offset the increase in the present value of the marginal cost of exhaustion (Beard, 2011). In general, firms that have more tangible assets and taxable income to be deducted should have a high debt ratio target.

On the contrary, the firms with more intangible assets should be based primarily on equity financing. As for firms that have an excessive debt burden; they should issue more shares, sell the business assets, or raise additional resources to rebalance the

capital structure. In conclusion, the trade-off theory of capital structure states that businesses need to carefully consider the benefits gained from taxable income with the bankruptcy risks that arise from the use of excessive leverage.

### 2.2.3 Activity cost theory

Activity cost theory is another important theory of capital structure (Ballwieser et al., 2012). Ballwieser et al. (2012) review theory M&M with investment decisions independent of the capital structure. Jensen & Meckling (1976) theory refers to structural problems, which are not only affected by external factors but also may come from the firm. Activity costs also are the relationship between owners and managers, and those between creditors and owners (Meade, 2015).

The question is how managers will do to maximize the benefit to the owners if the managers themselves are not the shareholders or the owners. Accordingly, Jensen & Meckling (1976) concluded that the information in imperfect market imperfections would lead to two issues:



I. Whatever choice interest (as the case entrepreneurs cannot know for sure if that manager was hired business executive can afford to take good job or not, and whether the money to rent a representative deserved or not).

II. Moral hazard (the case of business owners are not sure whether the representative can promote optimal ability to take on the job or not, or whether they will make the decision to risk and risk to maximize the value of their own).

Theoretically, costs can also occur as a result of the collision of interest between the owners and managers with the debt-holders. Indeed, conflicts often occur during the optimal investment project (Shleifer & Vishny, 1997). The creditors are entitled to interest rate, which is determined in accordance with the original agreement. While, the profits that the shareholders receive are uncertain and depend on the final business results. With investment decision big project, managers will choose to maximize his or her own interest rather than maximize shareholder's wealth. They will do like that, because if the high-risk project fails, they will lose their job, even though there is a possibility if the project succeeds it would maximize shareholder's wealth. (Jensen & Meckling, 1976; Myers, 1977; Myers & Majluf, 1984).

In summary, Jensen and Meckling (1976) highlighted the point that the problems arising within the organization also have a huge impact on the capital structure of the firms.



### 2.2.4 Pecking order theory

The Pecking order theory is one of the important theories to determine a firm's capital structure (Adair, Adaskou, & McMillan, 2015). In general, financing comes from three sources, internal funds, debt and new equity. According to pecking order theory, companies prioritize their sources of financing. First, they prefer internal financing, and then debt, and lastly raising equity (Arnold, 2008). In other words, internal financing is used first; when that is depleted, then debt is issued; and when it is no longer sensible to issue any more debt, equity is issued. In brief, this theory states that businesses adhere to a hierarchy of financing sources and prefer internal financing when available, and debt is preferred over equity if external financing is

required. Thus, the form of debt a firm chooses can act as a signal of its need for external finance (Madhou, 2011). Overall, the theory shows the behavior of the firm's manager, they prefer firm's retained earnings for the maintenance than debt and debt is better than equity (Gajurel, 2005).

## 2.3 Review of Empirical Studies

### 2.3.1 Empirical evidence of capital structure and firm performance in developing countries

Some studies have evaluated the relationship between capital structure and financial performance in different sectors. Among them are Chen et al., (2009), Tan and Hamid, (2011); Gupta, Srivastav and Sharma, (2011); Pontoh and Ilat, (2013); Musiega and Chitiavi, (2013); Taani ,(2013); Hasan et al., (2014).



Chen, Chen, Liao and Chen (2009) observe the local life insurance industry in Taiwan from 1993 to 2003. They investigate capital structure positively influences or negative influences the profitability of the life insurance industry in Taiwan. They found that capital structure exerts a significantly negative effect on profitability. It means that firm had higher profitability when the equity ratio increased or debt ratio decreased. Before that, a study by Staking and Babel (1995) also had the similar results, that is capital structure has a significant negative effect on profitability. Specifically, as the firm increases its equity ratio or decreases its liability ratio, it will have higher profitability.

Tan and Hamid (2011) examine the relationship and influence of capital structure on firms' performance. The study is conducted using three accounting based measures (ROE, ROA and GPM) and two market based measures (EPS, PE) as proxies for

firm's performance. The sample of the study consists of 41 plantation firms listed on Bursa Malaysia from year 2007 to year 2011. The results show that there is a significant relationship between capital structure and corporate performance in Malaysian plantation sector firms. Specifically, the results are as follows: first, capital structure (measured by debt, include: total debt to total assets - TDTA, short-term debt to total assets - STDTA, long term debt to total assets - LTDTA) had significant positive relationships with ROE and ROA and significant negative relationships with GPM. The results are consistent with the results of Jong, Kabir, & Nguyen, (2008). Jong et al., (2008) examine the relationship between firm specific factors with capital structure of firms from 42 countries for the period from 1997 to 2001. The finding is in most countries, capital structure was affected by firm specific factors, which are profitability, company size, asset tangibility and sales growth. Nonetheless, Pratheepkanth and Lanka, (2011) found that gross profit has a positive relationship with capital structure. Second, capital structure (that measured by TDTE) had significant positive relationships with ROE, and significant negative relationships with GPM and ROA. Second, capital structure (that measured by TDTE) had significant positive relationships with ROE, and significant negative relationships with GPM and ROA. In addition, ROE and PE were influenced TDTE; EPS was only significant influence by TDTA, STDTA. Similarly Liang, Li, and Song, (2014) found that the leverage ratio of listed property firms in China has an impact on the state-own shares, the fixed asset values, the total size of assets and profitability. The study was conducted for the period from 1997 to 2001.

Gupta, Srivastava and Sharma (2011) studied the relationship between capital structure and firm's performance. The authors used the data from Indian firms. For

the period from 2006 to 2010, 100 Indian firms registered on the National Stock Exchange were used in this study. They investigate the market value and the book value of debt and equity with firm's performance. The findings showed performance of a firm had a significant relationship with market value and book value.

According to Pontoh and Ilat (2013) when firm paid its debt, firm's capital structure will change. Specifically, the debt ratios reduced. As the result, the risk of bankruptcy was lower and profit may higher. This was very important for firm capital structure. In this study, the authors used data of 247 companies in industries from listed on the Indonesian Stock Exchange for 3 years from 2009 to 2011. The companies were from various industries including: trade, services, and investment (75 companies), infrastructure, utilities, transportation (23 companies), consumer goods industry (29 companies), agriculture (12 companies), basic industry and chemicals (49 companies), miscellaneous industry (such as automotive, components, textile, garments, footwear, cable, electronics, total 38 companies); mining (21 companies), the result shows the relationship between debt asset ratios with ROA was significant negative; and the relationship between debt equity ratios with ROE also was negative. Moreover, the debt asset ratio also had significant negative relationship with a company's size. That means when the company's size increases, the ROA also would increase and debt asset ratio of company would decrease. Besides, the finding of study concludes that firms in Indonesia tended to follow pecking order theory. The firm's managers have been usually very cautious in deciding to borrow or repay loans. Thus, large firms depended funding from internal (retained earnings) more than long-term debt. (Danthine & Donaldson, 2014).

Taani (2013) examines the relationship between capital structure and firm performance of 45 Jordanian manufacturing firms listed on the Amman Stock Exchange for a period of 5 years from 2005 to 2009. The results indicated there is no statistically significant relationship between capital structure and firm performance. In particular, the study concluded that statistically, capital structure, which was represented, by STDTA, LTDTA and TDE were not major determinants of firm performance.

Musiega and Chitiavi (2013) used data from 30 firms listed on the Nairobi Securities Exchange (NSE) from 2007 to 2011 to consider the relationship between a firm's capital structure and performance. The study found that most firms on NSE would like to use short-term debt to finance their activities on projects.

Hasan, Ahsan, Rahaman, and Alam (2014) studied the influence of capital structure on firm's performance. They used 36 Bangladeshi firms listed on the Dhaka Stock Exchange during the years from 2007 to 2012. The authors had used four dependent variables to measure performance. The variables are EPS, ROE, ROA, and Tobin's Q. While, the three independent variables of capital structure ratios were represented by SDTA, LDTA and TDTA. The results showed that ROA and ROE had statistically significant negative relationship with all debt proxies (STD, LTD and TDTA), but Tobin's Q and capital structure showed no statistically significant relationship.

### 2.3.2 Empirical evidence in Vietnam

Viet Nam is a developing country with capital markets that have not been fully developed. This may be the reason why not many studies on firms' capital structure

are carried out in Viet Nam. Nguyen, (2006) studied capital structure in Vietnam's small and medium-sized firms using data of 558 firms from 1998 to 2001. Their finding is Vietnam's firms have a high ratio of short term in total debt, without collateral.

Anh and Jeremy (2011) also studied the relationship between firms' characteristics, effectiveness of equity capital and total debt of firms listed on the Vietnam's stock market with data of 427 firms in the period 2007 to 2009. The findings indicated that returns on asset (ROA) was negatively related short-term debt. It means when firms increase short-term debt, ROA will decrease. However, ROA was positively correlated with the long-term debt.

Nguyen, Diaz-Rainey, and Gregoriou (2012) used a debt ratio of 116 nonfinancial firms in Vietnam's stock market in the period 2007 to 2010. The findings showed that: although, Vietnam's capital market shows a growth trend before year 2007, Vietnam's firms still holding short-term funds, which was an important capital of firms. Besides that, stable firms did not have the habit of issuing share capital; instead, they prefer to borrow from funds of foreign. In addition, firms' profitability has a negative relationship with liquidity and leverage financial ratio.

Vietnam's stock market has two stock exchanges: Ho Chi Minh Stock Exchange (HOSE) and Ha Noi Stock Exchange (HNX). Quang and Xin (2014) used 134 non-financial firms in the period 2009 to 2012 to examine the effect of equity funds and debt on return on assets and return on equity of the firms. The results of research showed capital structure and performance have a negative relationship. This finding support the pecking order theory, if Vietnamese firms needed funds, they also

prioritize using retained earnings first, then debs and finally equities. The fundraising determinants of State-owned enterprises (SOEs) are different from Non-SOEs. SOEs had higher financial performance than businesses of other types (Non-SOEs). That is SOEs have advantages in tapping external debt funds; because, investors have high believe SOEs more than Non-SOEs. Nevertheless, in research for listed manufacturing firms in Vietnam's stock market in the period 2008 to 2012, Hang (2015) found a positive relationship between short term debt and total debt to assets with performance. On the contrary, the long-term debt did not affect to the firm's performance.

## 2.4 Summary

This chapter discusses definitions of capital structure and performance of the firm. Then, four main theories, which are M&M propositions, trade-off theory, pecking-order theory and activity cost theory are presented. Past studies on the relationship between capital structure and firm's performance show inconclusive findings. Some studies found negative relationship. While, some studies showed positive relationship. Tables 2.1 and table 2.2 summarize the empirical studies of capital structure and firm performance in a few selected developing countries and Vietnam.

*Tables 2.1*
*Summary of empirical studies of capital structure and firm performance in developing countries*

| NO | Author | Period of Study | Sample | Major Findings |
|---|---|---|---|---|
| 1 | Jong, Kabir, & Nguyen, (2008) | 1997 - 2001 | Firms from 42 countries | Profitability has a negative relationship with capital structure |
| 2 | Chen, Chen, Liao, & Chen (2009) | 1993-2003 | The life insurance industry in Taiwan | Capital structure exerts a significantly negative effect on profitability |
| 3 | Tan & Hamid (2011) | 2007- 2011 | 41 plantation listed firms on Bursa Malaysia | Capital structure had significant positive relationships with ROE and ROA and significant negative relationships with GPM |
| 4 | Gupta, Srivastava & Sharma (2011) | 2006-2010 | 100 Indian firms listed on National Stock Exchange | Firm's profitability was uncertain correlated with financial leverage |
| 5 | Pontoh & Ilat (2013) | 2009-2011 | 247 companies in industries from listed on Indonesia Stock Exchange | Debt asset ratios had negative significant relationship with ROA, ROE, also with company's size |
| 6 | Taani (2013) | 2005-2009 | 45 Jordanian manufacturing firms listed on the Amman Stock Exchange | The study's results had found no statistically significant relationship between capital structure and firm performance |
| 7 | Musiega & Chitiavi (2013) | 2007 - 2011 | 30 firms listed on the Nairobi Securities Exchange (NSE) | The study found that most firms on NSE would like to use short term debt for finance activities |
| 8 | Liang, Li, & Song, (2014) | 2006-2010 | listed property firms in China | There has an impact on the state-own shares, the fixed asset values, the total size of assets and profitability |
| 9 | Hasan, Ahsan, Rahaman, & Alam (2014) | 2007 - 2012 | 36 Bangladeshi firms listed on Dhaka Stock Exchange | ROA and ROE had statistically significant negative relation with all debt levels |

*Tables 2.2*
*Summary of empirical studies of capital structure and firm performance in Vietnam*

| NO | Author | Period of Study | Sample | Major Findings |
|---|---|---|---|---|
| 1 | Nguyen, (2006) | 1998-2001 | 558 Vietnam's small and medium-sized firms | Vietnam's firms have a high ratio of short term in total debt. short term debt of firms is positively with development of firms |
| 2 | Anh & Jeremy (2011) | 2007 - 2009 | 427 firms listed on the Vietnam's stock market | Returns on asset (ROA) was negatively with short-term debt, but ROA positively correlated with the long-term debt. |
| 3 | Nguyen, Diaz-Rainey, & Gregoriou (2012) | 2007 - 2010 | 116 nonfinancial firms in Vietnam's stock market | Vietnam's firms still holding short-term funds. Firms' profitability has negative relationship with liquidity and leverage financial ratio |
| 4 | Quang & Xin (2014) | 2009-2012 | 134 non-financial firms | Showed capital structure and performance had a negative relationship |
| 5 | Hang (2015) | 2008 - 2012 | Listed manufacturing firms in Vietnam's stock market | There is a positive relationship between short-term debt and total debt to assets with performance; long-term debt did not affect so much to the firm's performance. |

# CHAPTER THREE

# METHODOLOGY

## 3.1 Introduction

This chapter presents data collection, research framework and hypotheses development. This chapter also discusses the methodology used to examine the relationship between capital structure and firm performance.

## 3.2 Theoretical Framework

This study attempts to examine the capital structure and firm performance of Vietnamese agricultural firms listed on Ho Chi Minh Securities Exchange and Hanoi Securities Exchange for a period from 2010 to 2014. Four variables are used as proxies for capital structure. There are: (i) short term debt to total assets – SDTA, (ii) long term debt to total assets – LDTA, (iii) total debt to total assets – TDTA and (iv) total debt to total equity – TDTE. Five variables are used as proxies for firm performance. They are: (i) return on asset – ROA, (ii) return on equity – ROE, (iii) gross profit margin – GPM, (iv) earnings per share – EPS and (v) price earnings ratio (PE). Figure 3.1 shows the variables employed in the study.

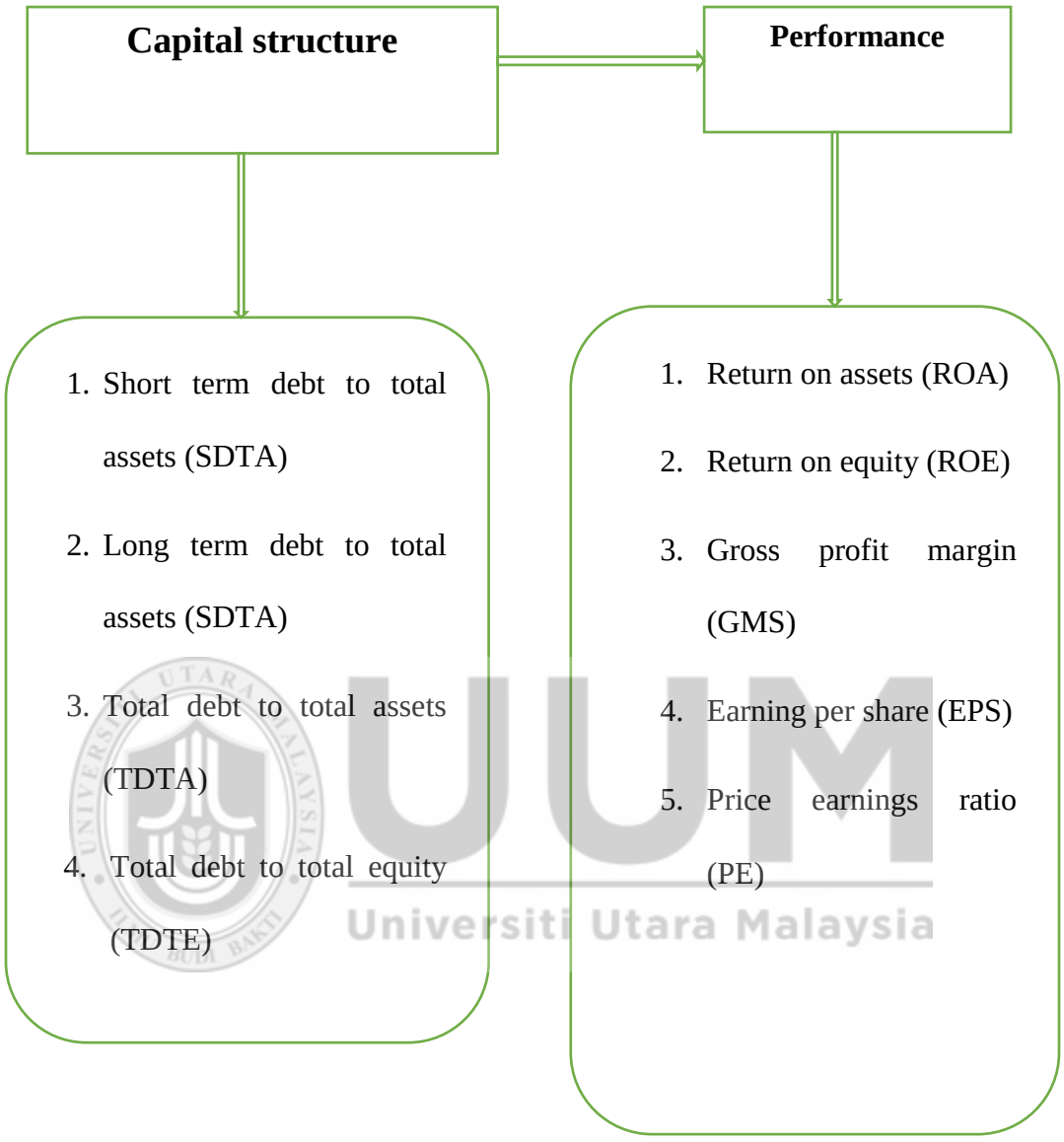


*Figure 3.1*
*Research framework.*

### 3.3 Measurement of Variables

#### 3.3.1 Variables of Capital Structure

Debt ratio is a major feature of capital structure; it measures the level of financial leverage of a firm (Brealey, Myers & Marcus, 2007). This study examine four capital structure ratios, which include: short term debt to total assets, long term debt to total assets, total debt to total assets, and total debt to total equity.

##### 3.3.1.1 Short-term debt to total asset ratio (SDTA)

The short-term debt is the debts with maturity of less than one year. In general, it has lower cost than long-term debt. This value is very important when determining a company's financial health. If the firm has short-term debt, which is higher than its cash or cash equivalent, the firm may not have enough cash to pay off its short-term debts. Additionally, due to maturities less than 12 months, the firm is always under pressure for the payment.



SDTA is calculated as by short-term debt divided by total asset.

$$SDTA = \frac{Short\ term\ Debt}{Total\ Assets}$$

Khan (2012) examined the relationship between capital structure and firm performance of Pakistan firms during the period from 2003 to 2009. The study used SDTA to measure financial leverage. The findings showed that firm performance had a significant negative relationship with SDTA. Other studies that had used SDTA as a proxy for

capital structure include Le and Phung, (2012); Norvaisiene, (2012); Salim and Yadav, (2012); Taani, (2013); Sheikn and Wang, (2013); Toraman et al., (2013).

### 3.3.1.2 Long-term debt to total asset ratio (LDTA)

Long-term debt consists of loans and financial obligations, which are due over one year. It has higher cost than short-term debt. The firm that has a high level of long-term debt ratio also has high risk of financial and risk bankruptcy. If long-term debt is high, firm may face difficulty to pay off these debts and continue to thrive because the capital need to be devoted for interested payment and may be have not enough money to allocate for other accounts of the firm. Thus, investors usually tend to avoid investing in firm that has too high long-term debt ratio. Therefore, the managers always control the firm's capital structure, because they would like to get an optimal long-term debt ratio.

LDTA is calculated as by long- term debt divided by total asset.



$$LDTA = \frac{Long - term\ Debt}{Total\ Assets}$$

Le and Phung (2012) examined the relationship between capital structure and firm performance of Vietnamese firms during the period from 2007 to 2011. The result of the study shows that LDTA had a significant negative relationship with Tobin's Q, ROA, and ROE. Other studies that used LDTA include Salim and Yadav, (2012); Khan, (2012); Norvaisiene, (2012); Taani, (2013); Sheikn and Wang, (2013**).**

### 3.3.1.3 Total debt to total asset ratio (TDTA)

The total debt to total asset ratio takes into account all debt of all maturities to all creditors. It can be defined in several ways, the easiest of which is the total debt divide by the total asset (Ross et al., 2010). TDTA reflects the firm's financial risk. The higher the TDTA ratio, the higher the financial risk is. Thus, investors will be more cautious in their investment decisions. Especially in difficult economic times, investors should be careful to consider the possibility of future debt payments by the firm.

TDTA is calculated as by total debt divided by total asset.

$$TDTA = \frac{Total\ Debt}{Total\ Assets}$$

Ebimobowei et al. (2013) used data of firms listed on the Nigerian stock market to analyze operating performance and capital structure (measure by total debt to total asset). The study found that TDTA had a significant negative relationship with firm's performance. Many authors used TDTA for their researches: Salim and Yadav, (2012); Nirajini and Priya, (2013); Adewale and Ajibola, (2013); Kajananthan and Nimalthasan, (2013); Muritala and Ajibola, (2013).

### 3.3.1.4 Total debt to total equity ratio (TDTE)

Total debt to total equity ratio is one of factors to evaluate firm's financial leverage. TDTE shows how much debt-financing assets compared to how much to equity finance assets. The firm has a high TDTE, also has high business risk. Therefore, managers are

actively managing TDTE at an optimal level. TDTE is calculated as by total debt divided by total equity

$$TDTE = \frac{Total\ Debt}{Total\ Equity}$$

Taani (2013) used total debt to total equity to examine the relationship between capital structure and firms performance in Jordan. This study found that TDTE was positively relationship with ROA. While, findings of Kodongo and Maina (2014) was a negative relationship between TDTE and ROA, Tobin's Q.

### 3.3.2 Variables of Firm Performance

Two types of measurements are used to measure the firm's performance. They are accounting measures and market measures. For accounting measures, three variables are employed. They are return on assets (ROA), return on equity (ROE), gross profit margin (GPM). For market measures, earnings per share (EPS) and price earnings (PE) are used.

#### 3.3.2.1 Return on assets (ROA)

Return on assets (ROA) is derived from net income (revenue less expenses) divided by assets (Ross, Westerfield & Jaffe, 2010). Thus, if a firm would like to improve the return on assets, it will try to increase net income without acquiring new assets or improve the effectiveness of existing assets. ROA contains all of the firm's assets, including transactions of accounts receivable, debt to lender and additional capital from investors. The high value of ROA exhibits that the firm is good in account receivables or debt to

lend. The deposits with high interest rates at the appropriate time (e.g. overnight deposits) or invest money in beneficial projects also contributed to the increased rate of ROA. The slow recovery of receivables, debt to the lender or inefficient investments will make ROA decreased (Brealey et al., 2007).

Total assets calculate ROA as by dividing net income

$$ROA = \frac{Net\ Income}{Total\ Assets}$$

A study by Ngoc (2011) on the capital structure of firms listed on the Vietnam's stock exchange found that the relationship between ROA with debt ratio was negative. The findings of Winston (2013) and Maniagi (2013) also indicate similar results. However, Tan and Hamid, (2011); Abu-Rub, (2012) and Taani, (2013) found that debt ratios had positive relationship with ROA. Thus, it is hypothesized that:



$H_1$: There is a significant relationship between ROA and debt ratios.

### 3.3.2.2 Return on equity (ROE)

Return on equity (ROE) is one of the main financial ratios, which is derived from net income and equity (be formed from owner equity and retained earnings). ROE is a measure of how the stockholders fared during the year (Ross et al., 2010). From information on the balance sheet and income statement, ROE shows how much profitability a firm earned-income compares with the total equity. ROE also measures the firm's profitability of the owner's investment. The high ROE of firm shows effective

use of equity capital, that mean firm achieving an optimal ratio between equity and debt. It will be very useful in raising funds and attract an investment of investors.

It is calculated as net income divided by total equity

$$ROE = \frac{Net\ Income}{Total\ Equity}$$

Uluyol, Lebe, and Akbas, (2014) examined the effect of financial leverage on firm's performance in Turkey. The results indicate ROE had a positive relationship with debt ratio. The finding is similar to the findings of other studies (Pratheepkanth, 2010 and Jian, 2014). While, the study of Abor, (2005) showed that ROE of listed firms in Ghana was negatively with long-term debt. Also, Mohamad and Abdullah, (2012); Khan, (2012) found that ROE negatively related with debt ratios. Therefore, it is hypothesized that:



$H_{2:}$ There is a significant relationship between ROE and debt ratios.

**3.3.2.3 Gross Profit Margin (GPM)**

Gross profit margin focuses on the firm's earnings. Profit margin shows the profit generated by each dollar of sales. If all factors remain unchanged, the firm would prefer a high profit margin, but that is impossible. If firm has a high-price and high-margin strategy, the result will be in lower sales. Therefore, the firm has a low-margin, but high volume strategy, the firm is considered quite successful (Brealey et al., 2007). In one

form, owners and shareholders are intended to measure how efficiently the firm uses its assets and how efficiently the firm manages its operation (Ross et al., 2010).

GPM is calculated as gross profit divided by total assets

$$GPM = \frac{Gross\ Profit}{Total\ Sales}$$

According to Staking and Babbel (1995), gross profit margin had a significantly negative relationship with capital structure. Also, Chen et al., (2009) and Velnampty, (2013) found similar results. However, Ebai (2009) examined the impact of capital structure on performance of 64 firms in Egyptian during the period from 1997 to 2005 found that GPM had no effect on capital structure. Thus, it is hypothesized that:

$H_3$: There is a significant relationship between GPM and debt ratios



**3.3.2.4 Earnings per share (EPS)**

Earnings per share is another market measures, it calculated directly only for listed firms. EPS is often used in evaluating a share for investment decision. In addition, investors use EPS to compare the value of firms in the same industry. In reality, two firms can have the same EPS, but capital and profits may not be the same.

EPS is calculated by dividing net income to number of shares outstanding

$$EPS = \frac{Net\ Income}{Shares\ Outstanding}$$

Sivathaasan and Rathike (2013) examined the relationship between earnings per share (EPS) with capital structure ratio. The finding of the study showed that debt ratio had a negative relationship with EPS. This result is similar to the finding of Schwartz (1959), Ronal (1983), and Rajan et al. (1959). On the contracy, Ali and Iman (2011) and Hasan, et al. (2014) found that capital structure had positive relationship with EPS.

Thus, it is hypothesized that:

$H_4$: There is a significant relationship between EPS and debt ratios

**3.3.2.5 Price earnings ratio (PE)**

PE shows how much investors are willing to pay per dollar of current earnings. The high PE means that investors have strongly believed the firm will be higher earnings growth in the future compared to firm with a lower PE.

PE is calculated by dividing price per share to earnings per share

$$PE = \frac{Price\ Per\ Share}{Earning\ Per\ Share}$$



Chowdhury (2010), Tan and Hamid (2011) and Chinemerem (2012) show that PE has a negative relationship with debt ratio. While, Abor (2005) and Tsangaao, et.al. (2009) found that there were both positive and negative relationship between capital structure and performance of firm. Therefore, it is hypothesized that:

$H_{5:}$ there is a significant relationship between PE and debt ratios

### 3.4 Data and Data Collection

#### 3.4.1 Data

The agriculture sector is acknowledged an important economic contributor towards GDP growth, and an indispensable of the Vietnamese economy. In the past time, the agricultural sector contributed an amount of money to GDP of Vietnam. The value of agricultural exports is around US$ 30 billion per year accounts for about 20 percent of nation's total exports from 2010 to 2014 (Vietnam report, 2015). Currently, there are 59 listed agricultural firms on Vietnam stock exchange. 42 of them are from Ho Chi Minh Securities Exchange (HOSE), while 17 others are from Hanoi Securities Exchange (HASE). However, there are four firms of HOSE and four firms of HASE are listed after 2010. For that reason, these firms do not have enough five years financial data as required. Therefore, data collection and analyses are carried out only 51 listed agriculture firms. The final sample consists of 13 listed firms on HASE (refer to Appendix A) and 38 listed firms on HOSE (refer to Appendix B).



#### 3.4.2 Data collection

The study uses secondary data gathered from financial reports from the firm's website and from cafef.vn; cophieu68.com website. Eview 8 processed the data then. Data from 51 listed firms (38 firms of HOSE and 13 firms of HASE) focuses on the following variables, which are: total debt (short term debt, long term debt), total assets, total equity, total sales, net income, gross profit margin to get ratios: debt to equity ratio, debt

to assets ratio, ROA, ROE, PE, EPS. In during the period of data are five years from 2010 to 2014.

### 3.5 Correlation coefficient

The correlation coefficient is as formula.

$$(r) = \frac{n\Sigma xy - (\Sigma x)(\Sigma y)}{Sqrt([n\Sigma x2 - (\Sigma x)2][n\Sigma y2 - (\Sigma y)2]}$$

Where:

r: the correlation coefficient

n: number of sample.

x, y: variable

Correlation is a statistical measure of how two variables fluctuate in relation to each other. A range of correlation from one (perfect negative relationship) to one (perfect positive relationship) use to reflect the relationship between the variables. However, perfect correlation are very rarely, reject a case when a variable is correlated with itself. If a correlation equal zero, it means the two variables are not linear relationship (Jackson, 1995). The correlation matrix will use to test the relationship between capital structure and performance. According to Dancey and Reidy (2004), the categorization of the correlation range is described as follows:

*Table 3.1:*
*Value of the Correlation Coefficient*

| Value of the Correlation Coefficient | Strength of correlation |
|---|---|
| (-1) | A perfect negative relationship |
| (-0.70) – ( - 0.99) | A strong negative relationship |
| (- 0.40) – (-0.69) | A moderate negative relationship |
| (-0.10) – (-0.39) | A weak negative relationship |
| 0 | No linear relationship |
| (+0.10) – (+0.39) | A weak positive relationship |
| (+0.40) – (+0.69) | A moderate positive relationship |
| (+0.70) – (+0.99) | A strong positive relationship |
| (+1) | A perfect positive relationship |

*Source Dancey & Reidy (2004)*



## 3.6 Summary

This chapter shows a succinct explanation of data extraction and measure of variables. In addition, this chapter also develops five hypotheses to analyze the relationship between capital structure and performance; and the method use in this study. The specific data, the variables analyzed and the results of the study will be discussed in the next chapter. Table 3.2 is summarizes of measurement of variables.

*Table 3.2:*

*Summary of Measurement of Variables.*

| No | Variable | Measurement | Previous Studies |
|---|---|---|---|
| 1 | SDTA | Short term debt / Total assets | Khan, (2012); Norvaisiene, (2012); Salim and Yadav, (2012). |
| 2 | LDTA | Long term debt / Total assets | Le and Phung (2012); Sheikn and Wang, (2013); Norvaisiene, (2012). |
| 3 | TDTA | Total debt / Total assets | Ebimobowei et al. (2013), Kajananthan and Nimalthasan, (2013); Muritala and Ajibola, (2013). |
| 4 | TDTE | Total debt / Total equity | Tan & Hamid, (2011); Taani, (2013); Kodongo and Maina (2014). |
| 5 | ROA | Net income / Total assets | Ngoc, (2011); Winston, (2013); Maniagi, (2013). |
| 6 | ROE | Net income / Total equity | Uluyol, Lebe, and Akbas, (2014); Pratheepkanth, (2010); Jian, (2014). |
| 7 | GPM | Gross profit / Total sales | Chen et al. (2009); Ebai (2009); Velnampty (2013). |
| 8 | EPS | Net income / Share Outstanding | Sivathaasan and Rathike, (2013); Ali and Iman, (2011); Hasan, et al., (2014). |
| 9 | PE | Price per share / Earning per share | Tsangaao, et.al. (2009) Chowdhury, (2010); Chinemerem, (2012). |

# CHAPTER FOUR

# RESULTS AND DISCUSSION

## 4.1 Introduction

This chapter presents the results of the correlation between capital structure and performance of the 51 listed agricultural firms in Vietnam. Specifically, section 4.2 and 4.3 present the descriptive statistical analysis of all variables. Section 4.4 presents the correlation coefficient analysis to show the relationships between the variables of capital structure and the variables of performance of Vietnamese firms in agricultural sector during the period from 2010 to 2014.

## 4.2 Descriptive statistics analysis of Vietnamese agricultural firm's capital structure

Table 4.1 presents the descriptive statistics of Vietnamese agricultural firms' capital structure through the debt ratio values.

Basically, it provides values of the variables' mean, maximum value, minimum value and standard deviation. This information provides an overview of capital structure and performance of Vietnamese agricultural firms.

*Table 4.1*
*Summary statistic of the capital structure*

| | Minimum | Maximum | Mean | Standard Deviation |
|---|---|---|---|---|
| **SDTA** | 0.0404 | 0.9308 | 0.4374 | 0.2115 |
| **LDTA** | 0.0001 | 0.3792 | 0.0477 | 0.0693 |
| **TDTA** | 0.0855 | 0.9434 | 0.4791 | 0.2126 |
| **TDTE** | 0.0935 | 16.6706 | 1.4910 | 1.8979 |

### 4.2.1 Descriptive statistics analysis of short-term debt to total asset.

From table 4.1, it can be seen that short term to total asset has the minimum value of 0.0404, and the maximum value of 0.9308. The minimum value belongs to An Phu Irradiation Joint Stock Company (APC) in 2010. The main activities of APC is to provide sterilization services for seafood, fruits, and vegetables. It also supplies medical equipment for sterilization purposes. Other activities are trading and exporting seafood, meats and fruits, which have an income accounted 14% of APC total income. APC has the lowest short-term debt ratio because it applies the pecking order theory where is uses retained earnings for their operations. The maximum value belongs to Camau Frozen Seafood Processing Import Export (CMX) in 2013. The main activity of CMX is doing manufacturing and exporting products from shrimps (such as fresh, fried, processed, frozen). CMX has one company, which based in the United States of America.

In addition, the mean value is 0.4374. It indicates that Vietnamese agricultural firms has 0.4374 Vietnam dong (VND) in short-term debt for each VND in assets.

The figure 4.1 illustrates the information of short-term debt to total asset. The line graph of SDTA is fluctuate trend increase year by year from 2010 to 2012. It begin by 0.3915% in 2010, and increase to over 0.4500% in 2011, and highest is 0.4688% in 2012. However, SDTA drop around 2% each year from 2012 to 2014. The rate of short-term debt is increased in 2012 because some of long-term debt is on due and paid in 2012. Firms increase the short-term debt to pay for long-term debt. Generally, the total debt of firms is not changed but there are a movement from long-term debt to short-term debt. There are firms produce fish (Ben Tre – ABT, Cuulong – ACL, Incomfish – ICF, Vinhhoan – VHC), firms produce rice (An Giang – AGM, Vinaseed – NSC, Vinh Long – VNS) and firms produce sugar (Ninh Hoa – NHS, Thanh Cong – SBT).

Financial reports from statistical data of 51 listed firms show that: the firms produce rice, rubber; agricultural chemicals, aquaculture and fishing have average value of SDTA above 0.4373. On the other hand, SDTA of the firms produce sugar, seafood's, fish and phantasies, have lower, it below 0.437. In addition, the data shows that short-term debt structure of Vietnamese agricultural firms has short-term loan (mean 75%), accounts payable (mean 13%), prepayment (mean 5%) and other short-debt (mean 7%). This practice has advantages and disadvantages for firms. For advantages, their accounts payable and advance from the customer are good. It helps the financing of firms is better because the firm could take a supplier and customer funds for their own use. However, the disadvantage is that short-term loan of firm is high. Firms have to pay a high financial cost. Besides, it affects negatively significant to the liquidity of the firm. It

creates pressure firms financial condition because due date of short-term debt come fast (deadline is under 12 months).

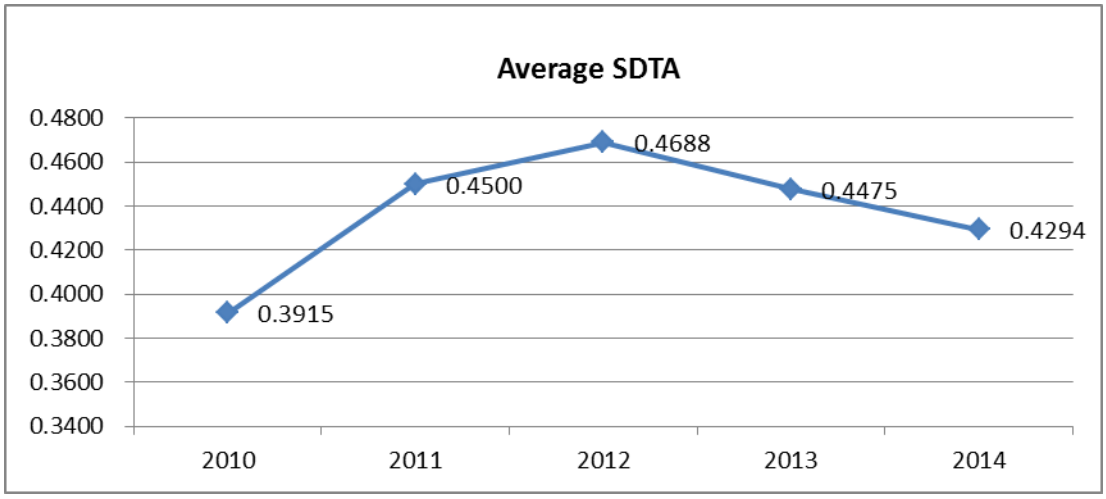


*Figure 4.1*
*The average value of SDTA.*



**4.2.2 Descriptive statistics analysis of long-term debt to total asset.**

The table 4.1 shows that long-term debt to total asset (LDTA) value is in the range of 0.0001 (minimum) to 0.3792 (maximum). The minimum value belongs to the three firms (Long An Food Processing Export Joint Stock Company, Techno - Agricultural Supplying Joint Stock Company and Quang Nam Rubber Investment Joint Stock Company). Cai Lay Veterinary Pharmaceutical Joint Stock Company (MKV) has maximum value. MKV provides aquaculture and fishing activities. Therefore, it needs long-term debt for the long time plan.

In terms of long-term debt, the mean value of long-term debt to total asset (LDTA) is only 0.0477. The mean value is 0.0477, which indicates that Vietnamese agricultural

firms has 0.0477 VND in long-term debt for each VND in assets. It is very lower. It can be concluded that Vietnamese agricultural firms use short-term debt rather than long-term debt.

The figure 4.2 illustrates the information of long-term debt to total asset. The line graph of LDTA is fluctuate trend from 2010 to 2014. It begin by 0.0506% in 2010, and decreased less at 0.0545% in 2011, and lowest is 0.0375% in 2012. From 2012 to 2014, LDTA increase each year. The rate of long-term debt is decreased in 2012 because some of long-term debt is on due and paid in 2012. The list firms are same and has been analyzed in the short-term debt. From statistical data, Vietnam agricultural firms in plantation sector (rubber, coffee, rice) and firm's product agricultural chemicals have higher long term debt ratio than firms of other sector in agricultural.

The low of LDTA is advantages and may help Vietnam agricultural firms can save cost financial, because long-term interest rate in Vietnam is too high (11% per year). However, the main disadvantage that is firm cannot use loan funds in the long period for implement projects, which are more than one year.

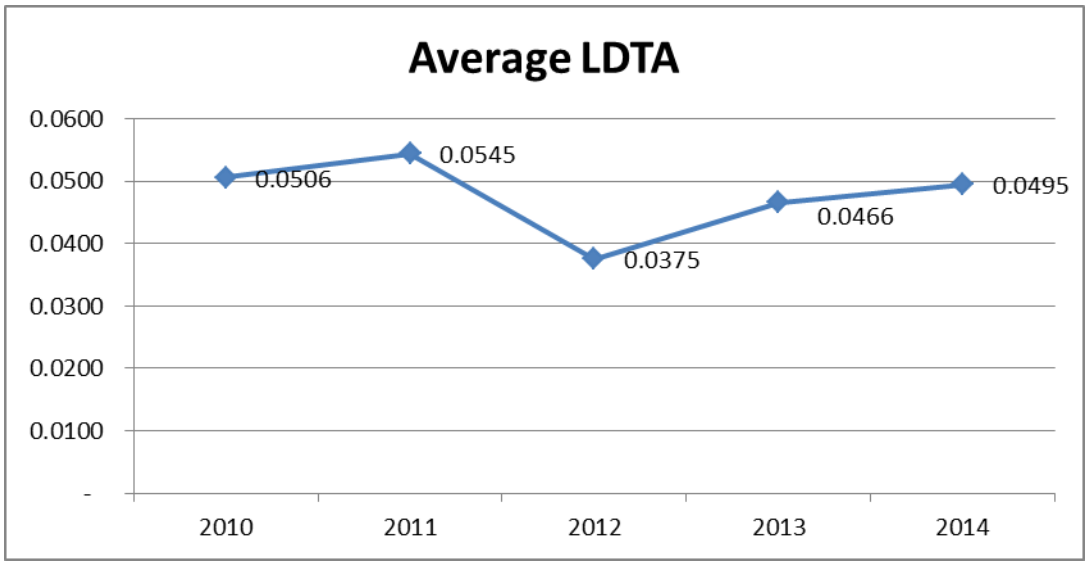


*Figure 4.2*
*The average value of LDTA.*

### 4.2.3 Descriptive statistics analysis of total debt to total asset.

The LDTA value is considered to be significantly low compared to the SDTA value. Low value of LDTA caused the total debt to total asset (TDTA) would depend more on SDTA. It is as expected, TDTA exhibits a similar trend to SDTA. In details, its minimum and maximum values are 0.0855 and 0.9434, respectively. CMX also had a maximum value of TDTA, while the minimum value belongs to Thanh Cong Tay Ninh Joint Stock Company (SBT). SBT is the firm manufactures and trades refined sugar. Sugar cane is one of the popular plants in Vietnam because the tropical weather is suitable for sugar cane to grow up. Production of sugar in Vietnam is one of the traditional works. Therefore, the SBT could have lowest debt to their capital structure. Total debt of SBT is only 167,279 million Vietnam dong (VND) while total assets equal to 1,956,882 million VND, so it have minimum value total debt.

TDTA has standard deviation of 0.2126 and the mean value of 0.4791. The mean value is 0.4791, which indicates that Vietnamese agricultural firms has 0.4791 VND in total term debt for each VND in assets. It is so high and reflects the financial risk of Vietnamese agriculture firms. Besides, TDTA is high, cost of interest also high and may make lower profit. That is the reason investors are more cautious in their investment for agricultural sector and the financing investment for agricultural sector are limited.

The figure 4.3 illustrates the information of total term debt to total asset. From 2010 to 2011, TDTA increase over 5% because SDTA and LTDT in 2010 increase. On an other hand, the line graph of TDTA is fluctuate low trend from 2011 to 2013, because, SDTA increase but LDTA reduce in 2012. Because TDTA would depend more on STDA than LDTA so SDTA increase around 2%, TDTA also increase equivalent 2% in 2014. The similar result that the statistics of SDTA, which is the firms, produce sugar, seafood's, fish and pangasius have TDTA lower than the firms produce rice, rubber and agricultural chemicals.



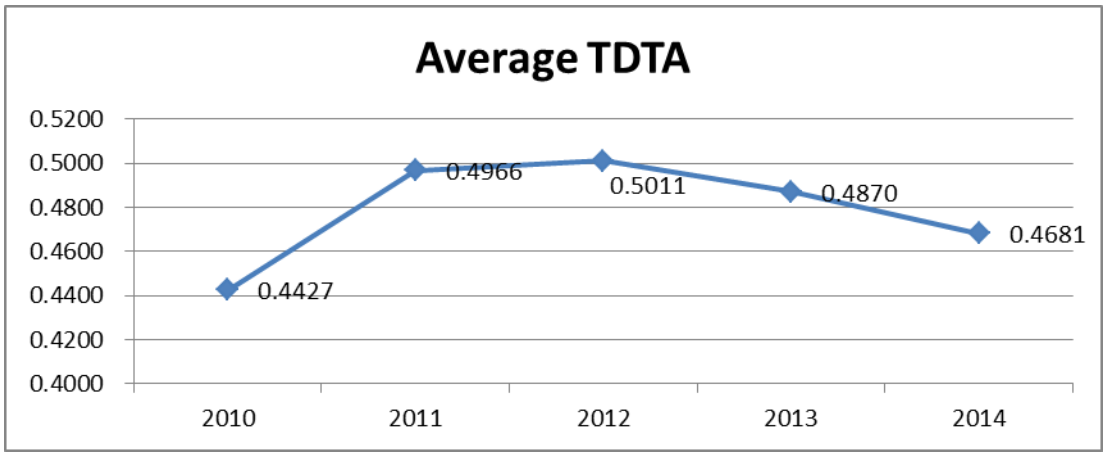


*Figure 4.3 The average value of TDTA.*

### 4.2.4 Descriptive statistics analysis of total debt to total equity

In order to see the whole view of capital structure, total debt to total equity (TDTE) should be taken into account to be analyzed. Analysis of 51 listed Vietnamese agricultural firm shows that value ranes from the maximum value of 16.6706 to the minimum value of 0.0935. TDTE of SBT has a minimum value in 2010. Total equity of SBT equal to 1,789,602 million VND and total debt of SBT is only 167,279 million. In 2013, TDTE of CMX has maximum and too high value because it has total debt equal to 574,769 million VND but total equity is only 34,478 million VND (within losses 99,729 million).

In addition, TDTE has the mean ratio of 1.4910 shows that total debt of Vietnamese agriculture firms have higher than total equity; financial leverage in the agricultural firms of Vietnam is too high and risky. It means they will not be able to cause enough money to pay their debt obligations. It is very cautious and dangerous for a firm to have high TDTE, which will be very easily lead the firm to bankruptcy. Investors and owner usually use low total debt to total equity ratios to less the risk of bankruptcy and their profit protected better. Thus, Vietnamese agriculture firms are difficult to attract additional investors (domestic and foreign). Therefore, the measurement of firm's performance is necessary which focuses on the accounting measures and market measures.

The figure 4.4 illustrates the information of total debt to total equity. From 2010 to 2011, TDTE increase over 3% (from 1.2244 to 1.5773). After 2011, TDTE have very small percentage change (equivalent 1%), except TDTE during the period from 2012 to 2014.

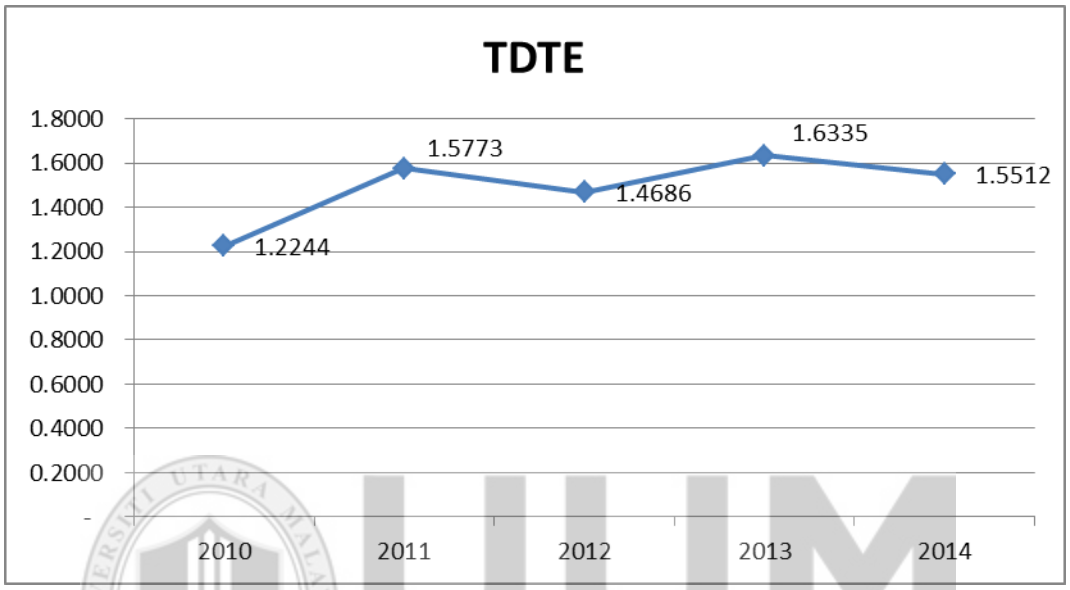


*Figure 4.4*
*the average value of TDTE.*



### 4.3 Assessment on the performance of Vietnamese agricultural firms

Table 4.2 is used to assess the performance of Vietnamese agricultural firms based on the accounting measures (ROA, ROE, and GPM) and market measures (EPS, PE).

*Table 4.2*
*Summary statistic of the performance*

| | Minimum | Maximum | Mean | Standard Deviation |
|---|---|---|---|---|
| **ROA** | -0.6473 | 1.4458 | 0.1134 | 0.1561 |
| **ROE** | -3.6443 | 18.6996 | 0.2731 | 1.274 |
| **GPM** | -2.4625 | 1.8003 | 0.0923 | 0.229 |
| **EPS** | -10,332 | 18,663 | 2,833 | 3,117 |
| **PE** | -21 | 144 | 9 | 14 |

### 4.3.1 Accounting measures (ROA, ROE and GPM)

The three values of accounting measures such as return on assets (ROA), return on equity (ROE) and gross profit margin (GPM) are reported in Table 4.2. The average value of ROA of 51 firms is 0.1134 with the standard deviation of 0.1561. It means 1% invested capital assets of Vietnamese agriculture firm's generated 11.34% earnings. It shows that effectively of Vietnamese agriculture firms is so low. From statistical data, most ROA of 51 firms is low, except ROA of SBT has higher value more than 1. The maximum value of ROA is 1.4458. It belongs to Thanh Cong Tay Ninh Joint Stock (SBT) in 2011, which had net income higher than the total assets. The minimum value is –0.6473 belongs to long a Food Processing Export Joint Stock Company (LAF) in 2012. During the period from year 2010 to the year 2014, there are nine firms, which had negative ROA (their net income were negative). They are firms, which have business in manufacturing and trading rice, corn and fruits. Actually, farming firms still use the old process in producing and not use the modern technology. Their quantity and quality of

product still depends upon the climate change. They usually export raw products in low price. The range value of ROA is from zero to 0.3, which have by 34 firms, which are firms in the agricultural chemicals, animal feeds, seafood, rice, fruit and other products from agricultural. The range value of ROA is above 0.3 which belongs to seven firms which are firms manufacturing and trading the refined sugar, rubber and seafood. Generally that return on assets of Vietnamese agricultural firms are low. It means that their performance still not good but there is potential that it will be improved in the future.

Besides, ROE has a minimum value of -3.6443, which belongs to Camau Frozen Seafood Processing Import Export (CMX) in 2011. CMX sells its product domestic and export to Japan, Europe, and the United States. They are the high-density market so CMX is not easy to get profit. During the period from year 2012 to 2014, profits of CMX are negative. ROE has a maximum value of 18.6996 that belongs to Thanh Cong Tay Ninh Joint Stock (SBT) in 2011 which also has maximum value of ROA and minimum value of debt ratio in the sample. It has profit and its increase year by year during the period from 2010 to 2014. In addition, the mean of ROE equal 0.2731. It means 1% common stockholders' equity of Vietnamese agriculture firms generated 27.31% earnings. It shows efficiently of their is not high, Vietnamese agriculture firms need improve ROE to attract an investment of investors. As similar statistics of ROA, low value of ROE is belong to the firms in rice and fruits; high value of ROE is belong to rubber and seafood sector.

For gross profit margin (GPM), it also used to measure the firm's performance, the mean is 0.0923 and the standard deviation is 0.229. The GPM has the range value from -2.4625 to 1.8003. Hung Vuong Corporation (HVG) has the maximum value and Viet Nhat Seafood Corporation (VNH) has minimum value in 2014. Hung Vuong Corporation (HVG) is manufacturing and exporting fresh, frozen pangasius products. HVG export to Europe, Brazil, Mexico, Australia, the USA, Middle East and Asian countries. Their profit is high and increase during 5 years from the year 2010 to year 2014. The main products of Viet Nhat Seafood Corporation (VNH) are octopuses, cuttlefish, swimming crabs, shrimps, clams and fish. VNH exports to Japan as its main market, the USA and other markets. Their profit has consecutive negative amount during three years from the year 2012 to year 2014. In addition, the mean of GPM by 0.0923. It means 1% of revenue of Vietnamese agriculture firms got 9.23% gross profit, which is low. Low gross profit margin indicates that Vietnamese agriculture firms is not good to manager and control their operating cost and production expenses.



During the period from 2010 to 2014, figure 4.5 shows average ROA of Vietnamese agricultural firms dropped too high in three years 2012, 2013 and 2014 (over 0.05 in 2012). By contrast, in 2010 ROA increased 0.02 with highest rate by 0.16 in 2011. ROE and GPM also increase in 2011 and decrease from 2012 to 2014.

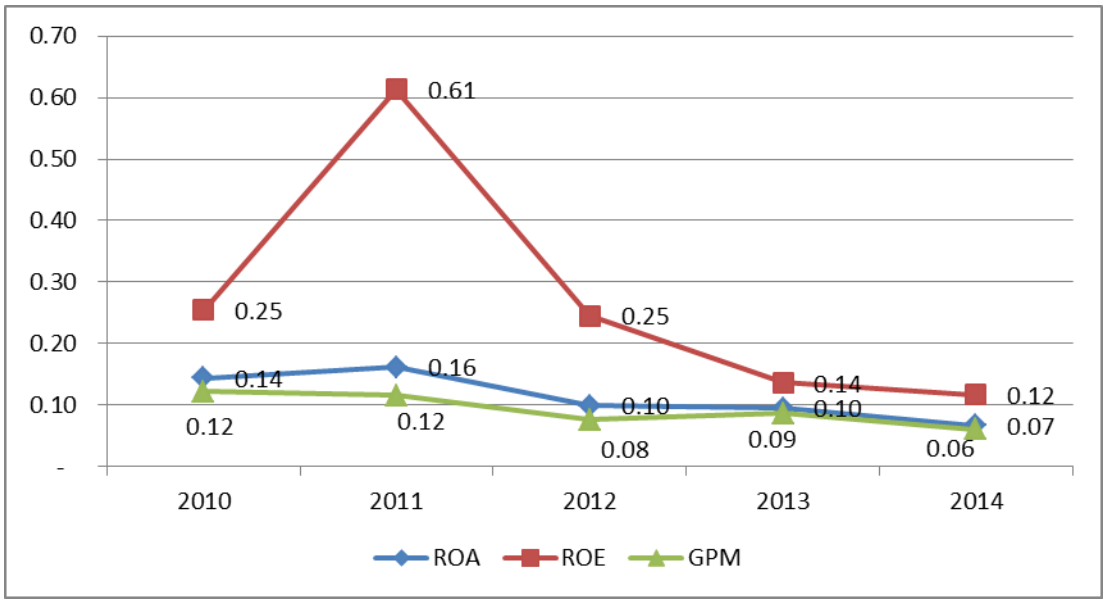


*Figure 4.5*
*The average value of ROA, ROE and GPM.*

In summary, these figures of table 4.2 shows that agricultural firms in the sample have a medium accounting performance during the period from year 2010 to the year 2014. Some firms have high performance that are in rubber, sugar and seafood's sector. However, firms of rice and fruit sector have low performance.

### 4.3.2 Market measures (EPS, PE)

Earnings per share (EPS) is one of the market measures used to gauge firm's performance. The results of mean for EPS is 2,833 Vietnam dong (VND) and the standard deviation is 3,117 VND. EPS has the range value from -10,332 VND to 18,663 VND. Long a Food Processing Export Joint Stock Company (LAF) has minimum value in 2012. A total shares outstanding of LAF is 14,728,019 shares, and profit was -152,176 million VND in 2012. In the other side, Dong Phu Rubber Joint Stock Company (DPR)

has the maximum value in 2011. DPR engage in the manufacturing of rubber products. It also involved in farm operations, agricultural product processing. DPR has shares outstanding equal 43,000,000 shares, and profit was 802,490 million VND in 2011. DPR has profit during 5 years from the year 2010 to year 2014, and profit of year 2011 is the highest profit in the period. These figures proved that the performance of firms in rubber sector is high. In fact, rubber is planted in Vietnam from 1897 by French and Vietnam which is well known for its rubber plantations (Ladenburg, 2007).

The mean of EPS by 2,833. It shows that shareholder can got 2,833 Vietnam dong for each share of their. The figure 4.6 illustrates the information of earnings per share; the volatility of EPS was similar volatility of ROA, ROE and GPM. In 2011, average EPS was highest (3,814 VND). After that, average EPS decrease year-by-year, equal 2.265 VND in 2014 (equivalent 41% reduction by 2011).



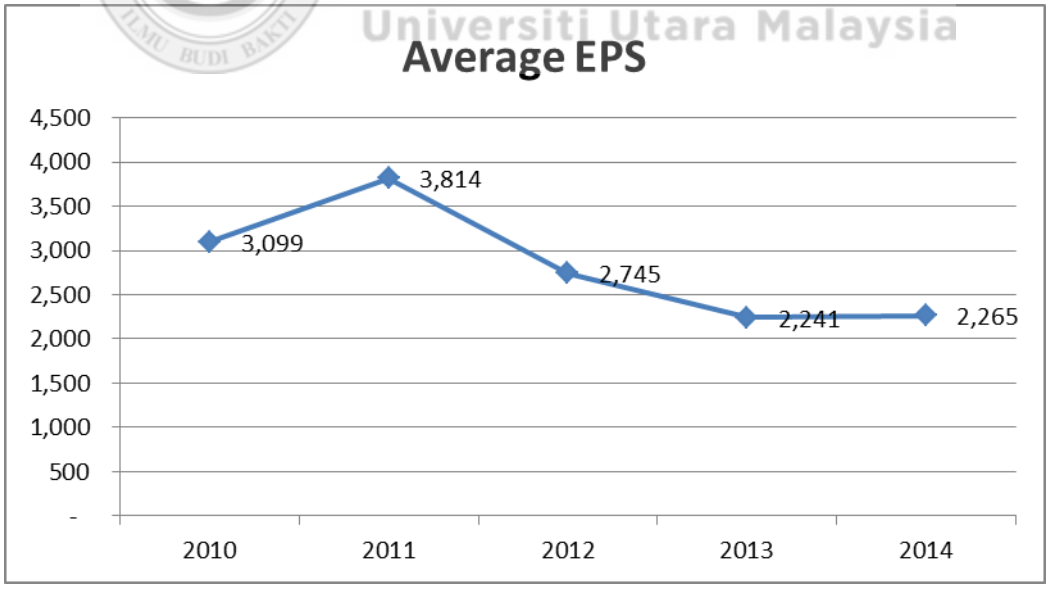


*Figure 4.6 The average value of ROA, ROE and GPM.*

Price earnings ratio (PE) is the second market measures of the firm's performance. The mean of PE of 51 Vietnamese agricultural firms is nine and the standard deviation is 14. It is so low because the range value of PE is from 15 to 25 in Vietnam stock market (source from website cophieu68.com). The maximum value of PE is 144, which belongs to NTACO Corporation (ATA) in 2013. The main activity of ATA is processing of frozen pangasius and other value-added fish products (fish powder, fat and bone). It obtains profit during 4 years, but it decrease year by year from 2010 to 2013. It suffered losses in year 2014. In 2013, EPS of ATA is only 27 VND because the profit of ATA is low (321 million), shares outstanding (11,999,998 shares). Even a profit of ATA is low and decreased, PE is still high. It means that investors and shareholder have strong confidence in the development of pangasius sector in particular, fish and seafood sector in general.



### 4.4 Relationship of Vietnamese agricultural firms capital structure and performance

Table 4.3 presents the coefficient correlation matrix of the relationship between four independent variables of capital structure and five dependent variables of firm's performance during the period from the year 2010 to 2014.

*Table 4.3*

*Correlation coefficient analysis in average*

| Performance Variables | Capital Structure Variables | | | |
|---|---|---|---|---|
| | **SDTA** | **LDTA** | **TDTA** | **TDTE** |
| ROA | -0.207** | -0.118* | -0.229** | -0.032 |
| ROE | +0.118* | -0.050 | +0.107* | +0.245** |
| GPM | -0.246** | -0.015 | -0.226** | -0.144* |
| EPS | -0.431** | -.152** | -0.464** | -0.386** |
| PE | +0.100 | +0.121* | +0.102 | +0.053 |

**Correlation is significant at the 0.01 level.

*Correlation is significant at the 0.05 level.

### 4.4.1 The relationship between debt ratios and return on assets.

Based on the figures presented in table 4.3, it is observed that return on assets (ROA) has a weak negative relationship with SDTA (-0.207) and TDTA (-0.229) and statistically significant at 1 percent level. ROA also has a weak negative relationship with LDTA (-0.118) and statistically significant at 5 percent level.



The findings are in line with this Anh and Jeremy (2011) and Quang and Xin (2014). These authors also examine the capital structure of Vietnamese firms listed and found the significantly negatively correlated between debt ratio with ROA. The finding is also consistent with some other previous studies, such as Saleh et al., (2010); Tan and Hamid, (2011); Khan, (2012). Tan and Hamid, (2011) who found that TDTE is significantly influenced by ROA. Tan and Hamid, (2011) suggested that if the firm would like to have profit from the assets administration firm's management should keep total debt to total equity steady and manage well the money spent for the assets of the

firm. This finding clearly shows that the firms will have achieved higher asset utilization and good ROA if they know how to control debt ratio. Thus, this study accepted hypotheses 1 ($\mathbf{H_1}$).

### 4.4.2 The relationship between debt ratios and return on equity

The result shows that return on equity (ROE) has weak positive significant correlation with debt ratio. Specifically, ROE has a weak positively relationship with SDTA (0.118), TDTA (0.107) and statistically significant at 5 percent level. ROE has positive relationship to TDTE (0.245) though weak form statistically significant at 1 percent level. Therefore, the finding point out ROE and debt ratios has positive relationship exclude LDTA.



It also in agreement to study of Onaolapo and Kajola, (2010); Nawaz et al, (2011); Tan and Hamid (2011). The results of Tan and Hamid (2011) indicate that ROE of plantation sector is significantly affected by TDTE. Besides, Aburub (2012) also found that debt ratio had a positive effect to return on equity, when Aburub (2012) studied the impact of capital structure to firm performance of 28 firms listed on Palestine Stock Exchange during the period from year 2006 to year 2010. Generally, this study indicates that ROE is significantly influenced by TDTE. However, ROE is not influenced by other debt ratio (SDTA, LDTA, and TDTA). Consequently, firms should manage and maintain good TDTE to get higher profits for the owner and shareholders, because ROE is important. It will affect the investment decisions of shareholders and investors for firm's capital. To

conclude, the hypotheses 2 ($\mathbf{H_2}$) of this study is confirmed; there is a positive relationship between ROE and debt ratio.

### 4.4.3 The relationship between debt ratios and gross profit margin

The relationship between gross profit margin (GPM) and capital structure is negatively correlated. Particularly, GPM has negative relationship to TDTE (-0.144) though weak form and statistically significant at 5 percent level. GPM has a weak negative relationship with SDTA (-0.246), TDTA (-0.226) and statistically significant at 1 percent level. Thus, this study accepts the hypotheses 3 ($\mathbf{H_3}$).

The result of this study is consistent with previous studies using data from Japan and US, Kester (1968) found that there is the negative relationship between capital structure and profits. It also supported by Friend and Lang (1988), Rajan and Zingales (1995), Shergill and Sarkaria (1999) who had similar results. Besides that, the study of Huang and Song (2006) shows a negative relationship between profits and debt ratios of Chinese firms. In addition, Chen et al., (2009) found that debt ratio and firm's profits have negative relationship, firm has less profitability when it has higher cost of debt. Therefore, the firms should control and manage the total debt. It will be good for them and by having, lower costs can increase gross profit margin. In summary, the results find that there is a negative relationship between GPM and short-term debt and long-term debt.

### 4.4.4 The relationship between debt ratios and earning per share.

The results explain that earnings per share (EPS) is negatively significant in relation with debt ratios. Specifically, EPS is moderate negatively relationship to SDTA (-0.431) and TDTA (-0.464). Besides, EPS is weak negatively relationship to LDTA (-0.152), and TDTE (-0.386). They are statistically significant at 5 percent level.

This finding is consistent with the findings of some other studies such as Schwartz, (1959); Ronal, (1983); Rajan et al., (1959); Chowdhury and Chowdhury, (2010); Sivathaasa, (2013). In addition, Zeitun and Tian, (2007); Abor and Biekpe, (2009) also found that capital structure has negative relationship with the firm performance. Moreover, Pouraghajan and Malekian, (2012) revealed that EPS of all firms listed on Tehran Stock Exchange during 5 years from the year 2006 to year 2010 was negatively impact by capital structure. However, some previous studies (Berger & Patti, 2006; Tan & Hamid, 2011; Aburub, 2012) indicated that a firm performance has a positive impact to capital structure. All in all, the hypotheses 4 ($H_4$) is accepted, there is a negative relationship between EPS and debt ratios. Most shareholders and investors usually care about EPS because EPS is their income. Therefore, the firms would like to hold shareholders and get new investors; they should make higher EPS and increase year by year. The finding of this study shows debt ratio has an impact to the EPS. Thus, the leverage decisions are important to improve firm's profit and EPS.

### 4.4.5 The relationship between debt ratio and price earnings ratio.

The results of table 4.3 show that price earnings ratio (PE) has positive coefficient correlation to LDTA (0.121) though weak form and statistically significant at 5 percent level. Meanwhile, there is an insignificant relationship between PE and other debt ratios (SDTA, TDTA, and TDTE).

The finding is also consistent with some other previous studies. Rutland and Zhou (2005) found a positively between financial leverage with price earnings of small firms. In addition, Ou and Penman (1989) explained the impact of leverage to PE ratio. From the result of study, the hypothesis 5 (**$H_5$**) is accepted.

## 4.5 Summary

This chapter discusses the results of this study. First, the analysis of this chapter presents a descriptive analysis (by using statistics mean, standard deviation, minimum value and maximum value) of capital structure and firm's performance in the Vietnamese agricultural firms. Second, this chapter explains and discusses the findings of the relationship between capital structure and performance of Vietnamese agricultural firms.

*Table 4.4*
*Summary of hypotheses tests results*

| Hypothesis | Relationship | Finding | Reject/Accept Hypotheses |
|---|---|---|---|
| $H_1$ | There is a significant relationship between ROA and debt ratios | Negative | Accepted |
| $H_2$ | There is a significant relationship between ROE and debt ratios. | Positive | Accepted |
| $H_3$ | There is a significant relationship between GPM and debt ratios | Negative | Accepted |
| $H_4$ | There is a significant relationship between EPS and debt ratios | Negative | Accepted |
| $H_5$ | There is a significant relationship between PE and debt | Positive | Accepted |

# CHAPTER FIVE

# CONCLUSION AND RECOMMENDATION

## 5.1 Introduction

This chapter concludes this study. Section 5.2 is a summary of the findings. Section 5.3 explains the study's limitations. Lastly, section 5.4 suggests some key recommendation for Vietnamese agricultural firms and for the future researches.

## 5.2 Summary of the study

This study analyses the relationship between capital structure and performance of 51 listed agricultural firms on the Hanoi Stock Exchange and the Ho Chi Minh Stock Exchange for years from 2010 to 2014. It is found that listed Vietnamese agricultural firms have high ratio of SDTA with average value amounted to 0.4374. Significant low value of LDTA of is 0.0477 obtained. It could be concluded that capital structure of Vietnamese agricultural firms is majority built based on the short-term debt. It means that agricultural firms prefer to use short-term debt than long-term debt. In general, view, aquaculture and fishing firms normally have high ratio of SDTA and LDTA. For example, Camau Frozen Seafood Processing Import Export (CMX) has the highest SDTA and Cai Lay Veterinary Pharmaceutical Joint Stock Company (MKV) with the highest LDTA. In addition, financial leverage in the agricultural firms of Vietnam is too high and risky.

By looking at the performance of 51, Vietnamese agricultural firms, the firms that produce rubber, coffee and sugar usually have better performance while firms that produce rice and fruit have lower performance. ROA of Vietnamese agricultural firms are not high. It means that their performance still not good but there is potential that it will be improved in the future. There are nine firms having negative ROA, which has manufacturing and trading rice, corn and fruit products. The low return may be due to inefficiency because they still use the old way in producing their products. These agricultural sectors also obtain low values of ROE. Camau Frozen Seafood Processing Import Export (CMX) even has a negative ROE value of -3.6443. This firm products are shrimps (such as fresh, fried, processed, frozen) and exported to high-density markets such as Japan, European and the United States. Similar negative effect is also occurred for Viet Nhat Seafood Corporation (VNH) which the exports mainly to the Japan market. It has a negative GPM of -2.4625. The study also indicates that EPS and PE of Vietnamese agricultural firms are too low compared to other sectors in Vietnamese stock market. In general, Vietnamese agricultural firms related to breeding aquiculture and seafoods section, normally have low profit. Vietnamese agricultural firms exhibit high effective performance in plantation agriculture such as rubber and coffee. In addition, fishery product, especially pangasius also exhibits of the effective performance but could be not maintained the earning profit rate.

Correlation coefficient analysis is used to assess the relationship between capital structures and the firm's performance. Each of the performance variables shows different dependence on the four variables of capital structures. Particularly, return on assets

(ROA) has negative influence by debt ratios. Therefore, ROA is sensible to SDTA, LDTA and TDTA with negative effect and hypothesis 1 is accepted with negative relationship of debt ratio and ROA. In a different pattern, return on equity (ROE) shows dependence on debt ratios. Therefore, it could be proposed that hypothesis 2 is accepted with positive relationship of debt ratio and ROE. Gross profit margin (GPM) shows the negative debt ratios. It leads to a conclusion that hypothesis 3 is accepted with negative relationship of debt ratio and GMS. For market measures, EPS also depends on debt ratios. Hence, hypothesis 4 is accepted with negative relationship of debt ratios and EPS. Exhibiting different behavior, price earnings ratio (PE) is affected debt ratios. Therefore, hypothesis 5 also is accepted. In summary, all 5 hypotheses are accepted ($H_1$, $H_2$, $H_3$, $H_4$ and $H_5$).



**5.3 Limitations of the Study**

There are some limitations in conducting this study. First is data limitation. The data of Vietnam's agricultural sector are not available in the financial reports for all firms during the period from 2010 to 2014. Therefore, the sample size has to be reduced. In addition, this study only examine the capital structure and firms' performance of agricultural firms. For that reason the findings cannot be used to explain the relationship between capital structure and firm performance for all firms in Vietnamese. Thus, the result of study cannot reflect the capital structure and firm performance of all firms on Vietnam Stock Exchange.

The second limitation is on the variables employed. Capital structure has debt (long-term debt, short-term debt) and equity (common equity, preferred equity, retained earnings). However, this study only focuses debt ratio (SDTA, LDLA, TDTA, and TDTE). Besides, there are many other factors, which have relationship with capital structure, such as business risk, sales growth, firm size, tax rate, corporate income, market interest, rate expectations, investment behavior, the impact of market, management policies of the state. Firm's performance can also be measured as total assets, profit, revenue growth, profitability growth, and productivity growth. However, this study only conducts analysis on the relationship between capital structure with firm's performance (ROA, ROE, GPM, PE and EPS).

## 5.4 Recommendations

### 5.4.1 Recommendation for Vietnamese agricultural firms

According to results of this study, the impact of debt ratios to return on assets and gross profit margin (GPM), earnings per share (EPS) are negative. Therefore, if Vietnamese agricultural firms would like to improve performance, firms should reduce debt ratios or use the debt in an efficient way (lower cost). Moreover, a short-term ratio is too high, which give impacts a negative effect to the liquidity of the firm. This fact will also create pressure financial of firms because due date of short-term debt will come fast. Therefore, agricultural firms should reduce short-term debt. The firms could use other funds, which is less risky and has lower cost such as capital owners retain earnings. In addition, the firms can have high account payable and repayment because firms can use the fund of suppliers and customers for their own usage in short-term.

### 5.4.2 Recommendations for Future Research

This study used the correlation coefficient analysis to assess the relationship between capital structure and the firm's performance. The future research can use multiple linear regressions to be have better analyses.

This study concentrates on the analysis capital structure and performance of listed agricultural firms in Vietnam in the period from 2010 to 2014. Data collection could be based on the periods more than five years. Besides, the future research can use another variables of performance. For example: total assets, revenue growth, profitability growth, productivity growth.

A study on long-term debt policy in Vietnam for agriculture could be conducted so that capital structure could have higher long-term debt ratio. Comparison of specific sector in Vietnamese agricultural sector could be carried out to identify the strong area of Vietnamese agricultural such as breed farm, fishery manufacturing and plantation.

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