

FACTORS AFFECTING DIVIDEND PAYOUT IN THAILAND:  
A USE OF TOBIT REGRESSION ANALYSIS

By  
PORNUMPAI KOMRATTANAPANYA

An Independent Study  
Submitted in partial fulfillment of the requirements  
for the Degree of

MASTER OF SCIENCE IN FINANCIAL ECONOMICS

MARTIN DE TOURS SCHOOL OF MANAGEMENT AND ECONOMICS

Assumption University  
Bangkok, Thailand

December 2012

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**MARTIN DE TOURS SCHOOL OF MANAGEMENT AND ECONOMIC S**  
**MASTER OF SCIENCE IN FINANCIAL ECONOMICS**  
**ASSUMPTION UNIVERSITY**

This Study by: Ms. Pornumpai Komrattanapanya

Entitled: "Factor Affecting Dividend Payout in Thailand:  
A Use of Tobit Regression Analysis"

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DEGREE OF MASTER OF SCIENCE IN FINANCIAL ECONOMICS



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**Declaration of Authorship Form**

**I, MS. PORNUMPAI KOMRATTANAPANYA**

declare that this independent study and the work presented in it are my own and has been generated by me as the result of my own original research.

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A USE OF TOBIT REGRESSION ANALYSIS**

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I confirm that this independent study has been carried out under my supervision and it represents the original work of the candidate.

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Dr. Phassawan Suntraruk, Advisor

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13 DEC 2012

## ACKNOWLEDGMENT

This part is important for me because there are many people who supported and assisted me in completing this study.

I would like to thank my advisor, Dr. Phassawan Suntraruk who is very patient with my fool paper and also all committees, Dr. Wiyada Nittayagasetwat, Dr. Suppanuata Romprasert, and Dr. Vesarach Aumeboonsuke who kindly give me guidance and recommend to improve my study. I have learned a lot about research from them. I would like to thank my classmates of MScFE batch 1 who always give me the knowledge and friendship. I also would like to thank Thanachart Bank Pcl., for providing me all financial data since the first year to last year.

Pornumpai Komrattanapanya

December 2012



## ABSTRACT

The aim of this paper is to determine the factors that affect the dividend payout of all firms listed in the Stock Exchange of Thailand during year 2006 to 2010 by using the TOBIT regression analysis. The dependent variable in this paper is dividend payout ratio; whereas the independent variables are profitability ratio, liquidity ratio, financial leverage ratio, investment opportunity ratio, sales growth, business risk, firm size, dummy variables of eight industries (agro & food industry, consumer products, financials, industrials, property & construction, resources, services and technology) and interaction dummies (small firms with profit, small firms with loss, medium firms with profit, medium with loss, large firms with profit and large firms with loss). The data consists of 2,098 sample firms.

The study finds that the financial leverage ratio, sales growth, firm size, interaction dummies have impact to dividend payout of Thai listed firms. The financial leverage ratio and sales growth have negative relationship with dividend payout; on the other hand, the firm size is related positively to dividend payout. In addition, evidence shows interaction effect has an impact on dividend payout. Small firms and large firms that are profitable tend to pay dividend; meanwhile, medium firms with profit are less likely to pay dividend.

This paper provides benefit to investors to make a right decision regarding stock investment. Moreover, financial managers can use the results from this study to develop dividend policy in order to archive the maximize shareholder's wealth. Those financial managers can decide whether company should keep the profits for investing or to pay them out as dividend back. In term of academic contribution, results from this study add more updated empirical evidences to existing financial literature in Thailand.

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## CHAPTER I

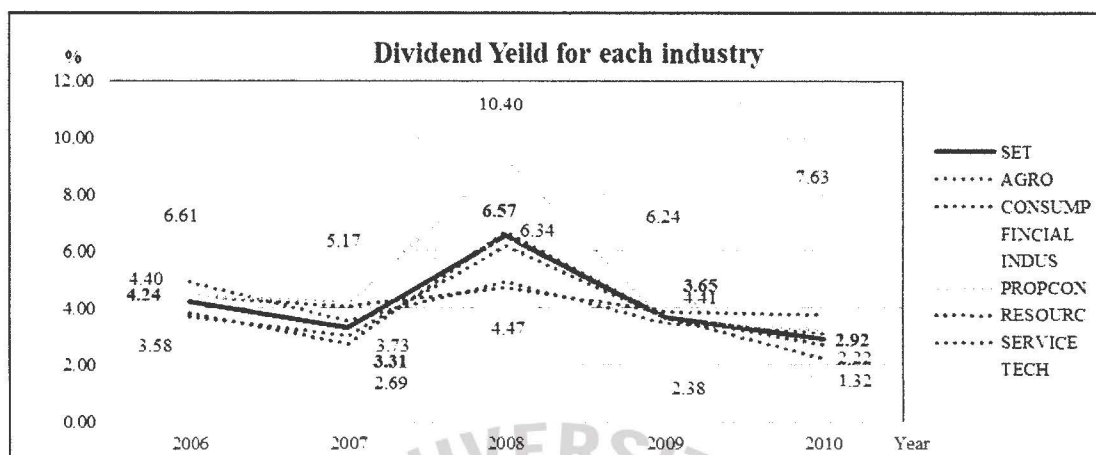
### GENERALITIES OF THE STUDY

#### 1.1 Background of the Study

The recent world economic recession has affected the world economy, including Thailand's. Therefore, business sectors and household sectors have to change their ways and needs to create more valuable investment to sustain their wealth and propensity. During economic crisis, money market is likely to turndown (low deposit rate) while capital market is now acting as an alternative investment, which is preference to the most firms and individuals. Hence, investing in capital market is another alternative that people are interested because advantages from capital gains and/or dividends are much more than interest from the deposit.

Indeed, it seems that people who invest in stocks have an opportunity to receive more returns than from savings their money in the banks. According to Figure 1.1, from 2006 to 2010, the dividend yield in the Stock Exchange of Thailand is approximately 3% - 4%. Especially, in year 2008, the dividend yield of the Stock Exchange of Thailand is 6.57%; whereas the savings interest rate is extremely low. As shown in table 1.1, the savings rate from five commercial banks, which are Bangkok Bank, Krung Thai Bank, Kasikornbank, Siam Commercial Bank and Bank of Ayudhya has decreased from 0.75% in year 2006 to 0.50% in the year 2010. Hence, people who want to invest in stocks are likely to consider characteristics and dividend policy of the company carefully in order to maximize their benefits.

**Figure 1.1: Dividend Yield for Each Industry in Stock Exchange of Thailand**



Source: Stock Exchange of Thailand (2011)

**Table 1.1: Savings Rate from 2006 to 2010**

unit : percentage

Bank	2006	2007	2008	2009	2010
Bangkok Bank	0.7500	0.7500	0.7500	0.5000	0.5000
Krung Thai Bank	0.7500	0.7500	0.7500	0.5000	0.5000
Kasikornbank	0.7500	0.7500	0.7500	0.5000	0.5000
The Siam Commercial Bank	0.7500	0.7500	0.7500	0.5000	0.5000
Bank of Ayudhya	0.7500	0.7500	0.7500	0.5000	0.5000

Source: Bank of Thailand (2011)

Dividend policy is one of the interesting topics in recent financial literature. In classical studies, Miller and Modigliani (1961) proposed a theory of dividend irrelevance. They stated that a firm value and shareholders' wealth are not related to dividend payout in a perfect capital market. However, another group of researchers argued that such M&M assumptions are not practical in the real world because a capital market is imperfect. Gordon (1959) and Lintner (1956) proposed the theory of bird-in-the-hand in which a dividend paying firm will increase its value and investors prefer high dividend stocks than capital gains. Nevertheless, some investors ignore a high dividend stock. They believed that the costs of dividend payout diminished its value by the tax effect. Therefore, investors prefer more on

capital gain, supporting the theory of tax-preference (Brennan, 1970; Elton & Gruber, 1970; Kalay, 1982; John & Williams, 1985; Miller & Rock, 1985). Besides the tax factor, the difference in dividend demand of investors may affect firm's dividend policy. According to the clientele effect (Pettit, 1977), if most of the firm's shareholders have high dividend demand, the firm considers to pay high dividend policy accordingly. Inversely, if most of firm's shareholders have low demand for dividend, the firm should consider keeping profit as retained earnings more than paying high dividend. Recently, Baker and Wurgler (2004) proposed a new theory called as the 'Catering theory of dividend' in which it explains a firm tends to pay dividend due to dividend premium. The tendency to pay dividends is higher as the dividend premium increases.

As the matter of fact, the questions of what determines the dividend policy are still unsolved and financial theories have been argued. This study will, therefore, focus on the determinants of dividend payout in case of Thailand.

## 1.2 Statement of the Problem

*"The harder we look at the dividends picture, the more it seems like a puzzle with pieces that just do not fit together."* (Black, 1976, p.8) This statement points out there are many unclear questions about the dividend policies in each company and why dividend policies are different across companies, countries and time.

Many of researchers try to prove what Black (1976)'s mentions in for finding the factors of dividend payout. Baker and Powell (1999) also investigated this with unsolved issue and found inconsistent results due to countries' effect. However, Aivazian, Booth, and Cleary (2003) investigated the comparison of the dividend policy between the firms from eight emerging markets, and firms in the U.S. Their results indicated that the dividend policy of firms in the emerging market is similar to firms in the U.S., adding confusion to the financial literature. Chay and Suh (2008) argued that the difference of rules, regulations and cultures in each country



will affect the dividend policy. Dividend policies in those different countries should be different.

Although the financial debate is still called for attention, financial researchers continuously study this topic for the purpose of determining consistent factors that affect dividend payout and reach the consistent results in both developed countries and developing countries. Therefore, the main purpose of this study is to investigate the determinants of dividend payout of the listed firms in Thailand, which is one of developing countries.

### **1.3 Research Objective**

The study is aimed to determine the factors that affect the dividend payout of the firms listed on Stock Exchange of Thailand.

### **1.4 Research Question**

What are the factors that affect the dividend payout of the firms listed on Stock Exchange of Thailand?

### **1.5 Scope of the Research**

To examine the determinants of dividend payout, the sample companies select based on companies listed on Stock Exchange of Thailand (SET), based on annual data of a 5-year period from 2006 to 2010. The independent variables are the ratios of profitability, liquidity, financial leverage, investment opportunities, sales growth, business risk, firm size, industry dummies (Agro & food Industry, Consumer products, Financials, Industrials, Property & Construction, Resources, Services and Technology) and interaction dummies (small firms with profit, small firms with loss, medium firms with profit, medium with loss, large firms with profit and large firms with loss). The dependent variable is dividend payout ratio. All data were gathering from SETSMART database and together with Bloomberg database.

## 1.6 Limitations of the Research

### 1. Focusing only on financial information of the firms.

Macroeconomic data, such as inflation, gross domestic products (GDP), or other economic data are ignored in this study; even though, Tobias (2009) stated that higher inflation is a major driver of dividend increases. However, the study includes only financial information of the firm in dividend payout analysis.

### 2. The effect of European economic crisis.

The market price of stocks listed on Stock Exchange of Thailand was decreased severely in the year 2008 because of the effect of European economic crisis. According to Charest (1978), the market price is consistent with dividend payout decisions; therefore, this factor may affect dividend payout analysis. However, the effect of European economic crisis in year 2008 is also overlooked.

### 3. Excluding the other factors (Missing data, lacking of hidden data)

Other factors are involved in the dividend payout decisions such as corporate governance, structure of board and management attitude. The previous research found that a quality of company's corporate governance and dividend payout decision are related. La Porta, Lopez-De-Silanes, Shleifer, and Vishny (2000) stated that the shareholder's rights are protected strongly by the firm that has better management. In other words, the managers are prevented to use company's excess cash for their own benefits. Therefore, paying higher dividends is the way to better control management's behavior and increase firm value. In addition, the ownership (shareholder) should be separated from control (manager) to reduce agency conflicts. Although corporate governance, structure of board and management attitude is related to dividend payout policy, this study will not consider these factors in the analysis.

## 1.7 Significance of the Research

Results from this study are beneficial to investors in which they are able to make a right decision regarding stock investment and determine dividend payout. This study also benefits to the financial managers. With the results from this study, financial manager can use the developed model to estimate year-end financial status and establish dividend policy in order to archive the objective of the maximization of the shareholder's wealth and to set the proper strategic plan on the financial budgeting. Then, the financial manager can decide whether company should keep retained earning for investing or to be paid out as dividend back to investors. In term of academic contribution, results from this study add more updated empirical evidence to existing financial literature in the context of developing countries.

## 1.8 Definition of Terms

Bird-in-the-hand	A theory mentions that investors prefer dividends from a stock to potential capital gains because of uncertainty of the latter (Gordon, 1959; Lintner, 1956).
Catering theory	A theory mentions that firms are willing to pay dividends to satisfy the investors' demand as dividend premium rises. (Baker & Wurgler, 2004)
Dividend irrelevance theory	A theory mentions that a firm value and shareholders' wealth are not related to dividend payout in a perfect capital market (Miller & Modigliani, 1961).
Dividend payout	The amount of cash that is distributed to shareholders as a part of profits (Investorwords, 2011).

Interaction effect	Two independent variables interact to see whether the effect of one variable differs depending on the level of the other variable (GLIMO, 2012).
Tax preference theory	Firms should pay few dividends to maximize its prices because costs of dividend payout diminished its value by the tax effect (Brennan, 1970).
Tobit model	A statistical model that shows the relationship between a non-negative number (dependent variable) and its related independent variables (Wikipedia, 2012).





## CHAPTER II

### REVIEW OF RELATED LITERATURE

This section presents theories related to dividends. It also explains about the dividend payout which is the dependent variable in this study. Moreover, some debates on factors determining dividend payout policy are discussed.

#### 2.1 Theories Related to the Study

There are five theories mentioning about dividends.

##### 1) Dividend irrelevance theory

Dividend irrelevance theory is proposed by Miller and Modigliani (1961) (M&M). They stated that a firm value and shareholders' wealth are not related to dividend payout in a perfect capital market. On the other hand, investors are indifferent between dividends and capital gains. If they want cash, they can sell stocks. If they don't want cash, they can use dividends to buy stock.

##### 2) Bird-in-hand theory

The dividend irrelevance theory (M&M assumptions) involved many unrealistic assumptions, i.e. taxes and brokerage costs do not exist. In reality, the M&M assumptions are inconsistent in the real world (Gordon, 1959; Lintner, 1956). If dividends are part of capital gains, why firms still pay dividend and investors pay attention to dividends (Baker & Powell, 1999). In addition, because a capital market is imperfect, Gordon (1959) and Lintner (1956) proposed the theory of bird-in-the-hand in which investors prefer high dividend stocks than capital gains. They argued that the dividend yield is less risky than capital gains. As a result, value of dividend paying firm increases if dividend is higher.

### **3) Tax preference theory**

Tax preference theory suggested that firms should pay few dividends to maximize its prices (Brennan, 1970). Because of tax related reasons, investors favor more capital gains instead of high dividends. Eventually, they believed that the costs of dividend payout diminished its value by the tax effect.

### **4) Signaling theory**

Dividend payout by the firm is reflecting company's prospect about future outlook for both insider's and outsider's view point. As evidenced by Bhattacharya (1979), John and Williams (1985), and Miller and Rock (1985), insider (manager) prefers to signal firm's performance by using dividends to outside investors.

### **5) Catering theory**

Catering theory is related to a dividend payout by explaining the relationship of investor's demand and the tendency of firm to distribute dividends. Baker and Wurgler (2004) stated that the incentive for a firm to pay dividends to satisfy the investor's demand depends on a dividend premium, which is measured by the difference of a market-to-book (M/B) ratio between dividend-paying firms and non-dividend paying firms. Baker and Wurgler (2004) asserted when the dividend premium increases (as investors who prefer dividends pay high price for firm's stocks), a firm has more tendency to pay dividends. On the other hand, a firm tends not to pay dividends when the dividend premium drops.

## **2.2 Dependent Variable: Dividend Payout Ratio**

The main purpose of the business is to make profit for its owners. The firm profits are divided into two parts: reinvest in the business as retained earnings or distributed to shareholders as dividends. According to Steven (2003), dividend is a portion of the firm's earnings that is distributed or paid to its shareholders. Dividends are normally paid quarterly or annually based on each firm's strategy and cash flow. Firms which provide constant dividends are attractive for investors who look to secure current income. According to bird-in-the-hand theory, investors focus return from

dividend more than return from capital gains as dividend yield is less risky than the return from capital gain (Gordon, 1959; Lintner, 1956).

Total dividend payment is presented in firm's statement of cash flow's financing activities. The amount of firm's cash available is reduced by dividend payment based on dividend payout policy in each firm. The leftover cash available would be reinvested in the firm's further projects. High dividend payout is important for investors as dividends provide certainty about the firm's financial well-being. However, dividend payment is not tax deductible while interest payment to borrowers is tax deductible. Therefore, having a lot of dividend payment may eliminate firm's opportunity to reinvest and increase cost of capital. Dividend payout ratio is represented as dependent variable in this model.

## **2.3 Independent Variables**

### **2.3.1 Profitability**

The first variable included in several empirical studies of determinants of dividend is profitability. It can be treated as a key indicator of firms' earning ability and signaling to investor for expecting high dividend payout by the firms. The variables commonly used to proxy profitability are return on assets (ROA) and return on equity (ROE). This study uses the ROA, defined as measure of earnings since it captures the accounting profits available for distribution to the firm's shareholders.

In recent studies, Aivazian, Booth, and Cleary (2003) examined the relationship between dividend payout and profitability of the companies in both emerging market and U.S. markets. They found consistent results in dividend payout for both markets in which profitability is able to explain the dividend behavior. In addition, Kim and Gu (2009) investigated the financial features of dividend paying firms and non-dividend paying firms in hospital industry in the U.S. by using logistic regression analysis. The findings showed that large and profitable firms tend to distribute the profits as dividends. Omar and Juhmani (2009) examined the



determinants of cash dividend change of companies listed on Bahrain Stock Exchange with a sample of 35 companies. The results explained that cash dividend is significantly associated with the profitability change in the dividends paid in the previous years. The positive relationship between dividend payout and a firm's profitability is also found by Al-Kuwari, (2009), Al-Shubiri (2011), Edward and Samuel (2011), Muhammad, Nousheen, and Noman (2011).

In contrast, many researchers found that profitability is negatively related to dividend payout. Kania and Bacon (2005) examined the research topic of what motivates a corporation to issue cash dividends. They derived a sample of 542 firms from Multex Investor Database and used Ordinary Least Square (OLS) regression method. The findings indicated that profitability, measured by return on equity, relates negatively to the dividend payout ratio at the 1% level of significance. This means that the firms with higher return on equity pay lower dividends. Amarjit, Biger, and Tibrewala (2010) also found the different results of dividend payout relations in each industry. They studied the determinants of dividend payout ratios of service and manufacturing firms in the U.S. The samples are 266 financial firms taken from Mergent Online in year 2007. The analysis showed that the standard dividend payout ratio is negatively related to profitability in entire sample and particularly in manufacturing industry.

However, other financial researchers found insignificant relationship between profitability and dividend payout (Anil & Kapoor, 2008; Amitabh & Charu, 2010).

### 2.3.2 Liquidity

Liquidity measures the extent to which a firm is able to meet its payment obligations. Inuwa (2009) defined cash flow as the proxy of liquidity. Indeed, the importance of cash flow is to appraisal liquidity and solvency of the firm.

Jensen (1986) stated that the managers may utilize themselves with cash surplus; therefore, a firm should pay dividend out to reduce highly free cash flow and



protect the managers to spend more cash in unavailing projects. As a result, paying dividend is a mechanism to control the agency problem. Alli, Khan, and Ramirez (1993) examined determinants of corporate dividend policy by using the sample of 105 firms listed on the New York Stock Exchange in 34 industries, except regulated utilities and Banks. Using a Factors analysis, their findings indicated that the firms with high cash flow have lower systematic risk, which is the signal of high quality to pay more dividends. On the other hand, the firms with cash deficit are less likely to pay dividend. Anil and Kapoor (2008) investigated determinants of dividend payout ratios in Indian Information Technology Sector in the period of 2000-2006 by using cash flows as liquidity. The findings showed a positive relationship between cash flows and dividend payout ratio significantly. A good and stable cash flow increases the firm to pay dividend easily.

However, Kania and Bacon (2005) proposed the opposite results since they found a negative relationship between dividend payout decision and liquidity, measured by current ratio. Moreover, Muhammad, Nousheen, and Noman (2011) investigated the analysis of determinants of dividend payout of 100 firms listed on Karachi Stock Exchange by measuring operating cash flow as liquidity. The results showed that the regression coefficient for operating cash flow is negative which implies that if the operating cash flow increases, dividend payout will decrease.

Nonetheless, adding confusion to the existing literature, Kim and Gu (2009), Amarjit et al. (2010), Al-Kuwari (2009); Edward and Samuel (2011), Al-Shubiri (2011) found that liquidity did not affect dividend payout.

### 2.3.3 Financial Leverage

Debt ratio shows total debts as a percentage of shareholders' funds. It measures the extent to which a firm is financed by external funds. A firm's capital structure comprises of debt and equity. Jensen (1986) asserted that debt financing is a tool that reduces agency cost. Debt can be a proxy of free cash flow to reduce the

agency cost because to take debt is to make a fixed obligation to a creditor, decreasing the funds available and attending managers to debt-suppliers consideration.

However, by using highly debt financing in capital structure, the firm will face financial leverage as a risk. Rozeff (1982) stated that a firm with high leverage avoids paying more dividends to reserve their cash. Consistent with Rozeff (1982), Jensen (1986) stated that highly leverage firms are expected to have low dividend payment. Moreover, Aivazian et al. (2003) also found that higher debt ratios correspond to lower dividend. Therefore, the negative relationship is explained in their research. Furthermore, Amitabh and Charu (2010) concluded that the firm relying on highly external financing has no or lower dividend payout decisions.

On the other hand, another group of researchers found that the relationship between leverage and dividend payout is positive. Kapoor, Anil, and Misra (2010) examined dividend determinants of Indian service (FMCG) sector trading on the National Stock Exchange during the period of 2000-2008. The results of the Factors analysis showed that dividend payout ratio is positively related to long term solvency at 10% level of significance. They concluded that the level of firm's debt in FMCG sector is very low; meanwhile, the firm's liquidity is high. Therefore, an increase in debt in appropriate portion of capital structure does not affect the capacity of firms to pay dividends. As a result, dividend payout ratio and debt equity ratio are positively related. Moreover, Edward, and Samuel (2011) examined the determinants of dividend payout of sixteen banks in Ghana during the period of 1999-2003. Their research showed that the bank's debt is positively related to the dividend payout. It is possible that the debt can eliminate the agency cost and later increase the profitability. As a result, Ghana banks have highly level of debt and can pay more dividends.

However, many studies concluded that there is no significant relationship in financial leverage and dividend payout policy (Kim & Gu, 2009; Omar & Juhmani, 2009; Al-Kuwari, 2009; Amarjit et al., 2010).

#### 2.3.4 Investment Opportunities

Investment opportunity is ongoing opportunity to generate income. A firm with the increase in investment tends to limit dividend for reserving internal finance to its investment (Rozeff, 1982). According to the pecking order theory, Myers and Majluf (1984) mentioned that a firm that has more investment tends to use their internal finance in order to minimize the costs of external borrowings. Kim and Gu (2009) also found such negative relationship between investment opportunities and dividend payout. They asserted that when U.S hospital firms, having fixed assets-intensive, acquire large amounts of new capital, they prefer investing in their projects to paying dividends. This finding then supports the pecking order theory (Myers & Majluf, 1984) in which retained earnings is the first alternative of new finance due to the lowest internal costs of capital. As a result, U.S. hospital firms tend to extend their projects rather than to pay dividend.

On the other hand, Al-Shubiri (2011) examined the determinants of changes in dividend behavior policy in Jordanian industrial firms and found the positive relationship between investment opportunities and dividend payout by using a linear regression model. The strong positive relationship between growth opportunities and dividend payment shows that Jordanian firms, both having high growth opportunities and facing different choices of financing, still pay more dividends to shareholders in Pakistani market. Moreover, Aivazian et al. (2003) found such positive relationship between market-to-book value ratio and dividend payments, suggesting that firms with higher investment opportunities rather pay higher dividends.

However, Anil and Kapoor (2008), Amarjit et al. (2010) asserted that investment opportunity is not an important factor influencing dividend payout decisions.



### **2.3.5 Sales Growth**

Sales growth indicates the positive sign of firms' operations on the ongoing smoothly. Increasing level of sales growth in a consistent manner means that company potentially enters into stage of expansion of business cycle and would expect positive cash earning power in the future year. A firm with high growth then requires a large amount of financing to invest in its projects. Rozeff (1982) found that, a growth firm tries to retain internal finance and limit dividend because of the costs from external borrowings. In addition, Edward and Samuel (2011) concluded that sales growth is negatively related to dividend payment because they found that Ghana's banks having high growth rather use funds from financing to expand their projects. They tend to retain a large amount of earnings for future investment, not for dividend payment. Moreover, Amarjit et al. (2010) found negative relationship between historical sales growth and dividend payout for entire sample and particularly in service industry.

In contrast, Amitabh and Charu (2010) found that the sales growth, measuring by annual sales growth, return on net worth, and retained earnings to equity ratio, is the main factor of dividend payout. The firms with high sales growth are more likely to pay high dividend to make shareholders be satisfied. Kania and Bacon (2005) also revealed that when the firms have higher profits growth, they distribute higher dividend payment.

However, many studies concluded that there is no significant relationship between sales growth and dividend payout policy (Kim & Gu, 2009; Anil & Kapoor, 2008; Al-Kuwari, 2009).

### **2.3.6 Business Risk**

Business risk is a situation that may have a negative impact on the operations or profitability of a given company (Wisegeeek, 2012) When current profits and expected future profits are uncertain, a firm confronts to the business risk. Hence, a



firm is impossible to pay high dividend as profits increase (Jensen, Solberg, & Zorn, 1992). Rozeff (1982) investigated that the sign of business risk is in accordance with high cash flow fluctuation and the company needs to minimize the costs of external borrowings. Hence, the firms with violent cash flow are reluctant to pay more dividends. Aivazian et al. (2003) also mentioned that during the declining period or entering into any business risk, dividend payout should be reduced in order to maintain company's equity level. Al-Shubiri (2011) stated that the firms with highly business risk are possible to go bankrupt; therefore the firms may choose to pay lower dividend. Jensen et al. (1992), Rozeff (1982), Aivazian et al. (2003), and Al-Shubiri (2011) found the inverse relationship between business risk and dividend payouts.

However, Anil and Kapoor (2008) found the firms' profitability in IT sector is very high. Even if the firms face a risk of year-to-year earnings variability, they still pay more dividends. They showed that in the year 2004, Infosys Technologies paid as high dividend as 2.590 during the period of high profitability, and high volatile earnings.

Many researchers studied the relationship between business risk and dividend payouts, and showed the results of insignificant relationship. (Kim & Gu, 2009; Al-Kuwari, 2009; Edward & Samuel, 2011.)

### **2.3.7 Firm Size**

Firms can be categorized according to their size (measured by market capitalization, total sales or total assets) for the purpose of statistical analyses. In this study, the market capitalization is used as a proxy for the firm size. Firm size has become a key variable in prior literature to explain the firm's decision to pay dividends.

Holder, Langrehr, and Hexter (1998) indicated that large firms are able to get access to market capital easier than small firms and they raise funds of external

financing with the lower costs than small firms do. This is why large firms are more preferable to have high dividend payment than the small firms. According to their findings, it can be concluded that firm size is positively related to dividend payout. In addition, Al-Kuwari (2009) examined the determinants of dividend policies for firms listed on Gulf Co-operation Council (GCC) country Stock Exchanges between the years of 1999 and 2003. The results showed that a firm's size is positively related to dividend payout ratio. Moreover, Kim and Gu (2009) found the positive relationship between hospitality firms and dividend payout. They concluded that large hospitality firm is possible to reach a mature stage with few new investment opportunities. When they are profitable, they tend to distribute the profits, at least partially, as dividends. Furthermore, Al-Shubiri (2011) found the positive relationship between firm size and dividend payout decision in a linear regression model by examining the determinants of changes in dividend behavior policy in Jordanian industrial firms. This point out that large Jordanian firms tend to be more diversified than smaller firms and hence less likely to be sensitive to financial distress, and more able to pay dividends to the shareholders.

The reason that there exists high dividend payment in large firms is due to agency cost theory. In agency cost theory, shareholders are unable to closely monitor firm's operations because of the ownership dispersion in large firms. Therefore, large firms should pay large amount of dividend to deter agency costs (Jensen & Meckling, 1976). Another reason is the weak control in monitoring management. By using external financing to distribute a large amount of dividend in large firms, the creditors have ability to monitor firm's management. Hence, shareholders would appreciate management with a strong control (Sawicki , 2005.)

However, the empirical results of Kapoor et al. (2010), in consistent with the study of Holder et al. (1998), revealed a negative relationship between firm size and dividend payout. Kapoor et al. (2010) mentioned that large firms have an opportunity to easily access to market capital with avoiding the costs of external financing. Furthermore, small firms have higher risk than large firms; therefore, in order to attract investors, small firm's stocks should pay high dividend payouts.

Nonetheless, Muhammad et al. (2011) examined the analysis of determinants of dividend payout of 100 firms listed on Karachi Stock Exchange and found that firm size is not significant to dividend payout.

### **2.3.8 Industry Dummies**

Glen, Karmokolias, Miller and Shah (1995) proposed that the industry differences should have an effect on the dividend policy decisions. They revealed that some industries affect significantly the price fluctuations, and thus earnings. This prior evidence is later supported by Manos (2001), who examined the dividend payout ratios of Indian industries in 1990 and 1994. Manos (2001) suggested that the firms in different industries with the difference in regulations, levels of risk and growth potential have a different effect of dividend payout decisions. In addition, Amarjit et al. (2010) pointed out that the different characteristics between service and manufacturing industries in the U.S. make the relationships between dividend payout decisions and the independent variables for service firms differ from those of the firms in the manufacturing industry. Anil and Kapoor (2008) stated that the firm in manufacturing industry requires large capital assets for their operations, unlike the firm in service industry. The nature of service industry is a human intensive industry; therefore, the major asset of service industry depended on manpower. The fund for investment in capital assets is more required than the funds for recruitment and retention of manpower. Thus, the service firm has high liquidity. This is an important determinant of dividend payout ratio. Since the profitability of the companies is also high even if there is year-to-year variability in the earnings of the firms, they can easily pay huge dividends.

However, Al-Malkawi (2007) examined the dividend payout relationships of all firms listed on the Amman Stock Exchange, consisting of four industries: industrial, service, insurance, and banks. The results showed that the industry effect is not important to dividend payout policy.



### 2.3.9 Interaction Dummies

Prior studies have no clear evidence that only size of company is enough to be used as the direction to the decision of dividend payout in the predictable pattern. Dividend decision will be made up by the management and depending on many factors. An important factor as company's net income would be a criteria to the management's decision. As a result, this study will further add interaction categories between size and net income which are SFP (Small firms and profit), SFL (Small firms but loss), MFP (Medium firms and profit), MFL (Medium firms but loss), LFP (Large firms and profit), and LFL (Large firms but loss), consistent with Manoj and Manasvi (2007). This concept will explain why sometimes large firms with profit do not grant the dividend; while sometimes small firms with loss pay dividend.

Prezas (1988) and Ravid (1988) suggested that the interaction between investment and financing decisions affected dividend payment of firm. However, this study will use the interaction between firm's profitability and size.

Table 2.1 shows a summary of the relationship between the dividend payout ratio and its independent variables mentioned in prior studies.



**Table 2.1: Summary of the empirical evidences from the prior studies**

Independent Variables	Relationship with dividend payout		
	Positive	Negative	Insignificant
1. Profitability	<ul style="list-style-type: none"> <li>• Aivazian et al., 2003</li> <li>• Kim and Gu, 2009</li> <li>• Omar and Juhmani, 2009</li> <li>• Al-Kuwari, 2009</li> <li>• Al-Shubiri, 2011</li> <li>• Edward and Samuel, 2011</li> <li>• Muhammad et al., 2011</li> </ul>	<ul style="list-style-type: none"> <li>• Kania and Bacon, 2005</li> <li>• Amarjit et al., 2010 (entire sample and manufacturing industry)</li> </ul>	<ul style="list-style-type: none"> <li>• Amarjit et al., 2010 (service industry)</li> <li>• Amitabh and Charu, 2010</li> <li>• Anil and Kapoor, 2008</li> </ul>
2. Liquidity	<ul style="list-style-type: none"> <li>• Alli et al., 1993</li> <li>• Anil and Kapoor, 2008</li> </ul>	<ul style="list-style-type: none"> <li>• Kania and Bacon, 2005</li> <li>• Muhammad et al., 2011</li> </ul>	<ul style="list-style-type: none"> <li>• Kim and Gu, 2009</li> <li>• Amarjit et al., 2010</li> <li>• Al-Kuwari, 2009</li> <li>• Edward and Samuel, 2011</li> <li>• Al-Shubiri, 2011</li> </ul>

Independent Variables	Relationship with dividend payout		
	Positive	Negative	Insignificant
3. Financial leverage	<ul style="list-style-type: none"> <li>• Kania and Bacon, 2005</li> <li>• Kapoor et al., 2010</li> <li>• Edward and Samuel, 2011</li> </ul>	<ul style="list-style-type: none"> <li>• Rozeff, 1982</li> <li>• Jensen, 1986</li> <li>• Aivazian et al., 2003</li> <li>• Amitabh and Charu, 2010</li> </ul>	<ul style="list-style-type: none"> <li>• Kim and Gu, 2009</li> <li>• Omar and Juhmani, 2009</li> <li>• Amarjit et al., 2010</li> <li>• Al-Kuwari, 2009</li> </ul>
4. Investment opportunities	<ul style="list-style-type: none"> <li>• Aivazian et al., 2003</li> <li>• Al-Shubiri, 2011</li> </ul>	<ul style="list-style-type: none"> <li>• Rozeff, 1982</li> <li>• Myers and Majluf, 1984</li> <li>• Kim and Gu, 2009</li> </ul>	<ul style="list-style-type: none"> <li>• Anil and Kapoor, 2008</li> <li>• Amarjit et al., 2010</li> </ul>
5. Sales growth	<ul style="list-style-type: none"> <li>• Kania and Bacon, 2005 (growth in EPS)</li> <li>• Amitabh and Charu, 2010</li> </ul>	<ul style="list-style-type: none"> <li>• Rozeff, 1982</li> <li>• Amarjit et al., 2010 (entire sample and service industry)</li> <li>• Edward and Samuel, 2011</li> </ul>	<ul style="list-style-type: none"> <li>• Kim and Gu, 2009</li> <li>• Amarjit et al., 2010 (manufacturing industry)</li> <li>• Anil and Kapoor, 2008</li> <li>• Al-Kuwari, 2009</li> </ul>
6. Business risk	<ul style="list-style-type: none"> <li>• Anil and Kapoor, 2008</li> </ul>	<ul style="list-style-type: none"> <li>• Rozeff, 1982</li> <li>• Jensen et al., 1992</li> <li>• Aivazian et al., 2003</li> <li>• Al-Shubiri, 2011</li> </ul>	<ul style="list-style-type: none"> <li>• Kim and Gu, 2009</li> <li>• Al-Kuwari, 2009</li> <li>• Edward and Samuel, 2011</li> </ul>

Independent Variables	Relationship with dividend payout		
	Positive	Negative	Insignificant
7. Firm Size	<ul style="list-style-type: none"> <li>• Holder et al., 1998</li> <li>• Kim and Gu, 2009</li> <li>• Al-Kuwari, 2009</li> <li>• Al-Shubiri, 2011</li> </ul>	<ul style="list-style-type: none"> <li>• Kapoor et al., 2010</li> </ul>	<ul style="list-style-type: none"> <li>• Muhammad et al., 2011</li> </ul>

Independent Variables	Relationship with dividend payout	
	Significant	Insignificant
8. Industry dummies	<ul style="list-style-type: none"> <li>• Glen et al., 1995</li> <li>• Amarjit et al., 2010</li> <li>• Anil and Kapoor, 2008</li> </ul>	<ul style="list-style-type: none"> <li>• Al-Malkawi, 2007</li> </ul>
9. Interaction dummies	<ul style="list-style-type: none"> <li>• Prezas, 1988</li> <li>• Ravid, 1988</li> </ul>	

## CHAPTER III

### RESEARCH METHODOLOGY

The data collection, methodology and hypotheses testing will be explained in this chapter.

#### 3.1 Data Collection

The data in this study is from the SETSMART database of Stock Exchange of Thailand (SET) and Bloomberg database. Data used are from the annual consolidated financial statement and some stock market data of all SET companies listed during the year 2006 – 2010. As a result, a total of 435 companies are employed in this study after deducting incomplete financial data (not found data in both SET and Bloomberg database).

To reduce the industry effect, the sample data are categorized into 8 industries consisting of Agro & food Industry, Consumer products, Financials, Industrials, Property & Construction, Resources, Services and Technology. To reduce the size effect, the firm is classified as S (small), M (medium) or L (large) firm according to its market capitalization which is less than 540 million baht, between 540 to 4,400 million baht, or more than 4,400 million baht, respectively (Kapoor, Dlabay, & Hughes, 2007).

#### 3.2 Methodology

Due to the unique characteristic of dividend payout ratio (dependent variable) that can have only two possible values; zero value (not pay) and positive value (pay), TOBIT technique is required (Wilson & Tisdell, 2002). The OLS technique is not appropriate as when dealing with too many zero values, it will create the bias. As in the normal process, before running the TOBIT regression, the variable should be



checked for the correlation between each variable by using Pearson's Correlation Test.

### 3.2.1 Pearson's Correlation Coefficient

Pearson's correlation testing is the general testing technique to check the relationship among variables to reduce the multicollinearity. The relationship expressed in the numeric value range between -1.0 to +1.0. The formula is described as below: (Spearman, 1904)

$$r_{xy} = \frac{\sum XY - \frac{(\sum X)(\sum Y)}{n}}{\sqrt{\left[\left(\sum X^2 - \frac{(\sum X)^2}{n_x}\right)\left(\sum Y^2 - \frac{(\sum Y)^2}{n_y}\right)\right]}}$$

The implication of the result is that -1.0 implies that the two variables have perfectly opposite relationship and direction to each other and +1.0 implies that the two variables have perfectly the same relationship and direction to each other. While 0 implies that variables have no relationship to each other. The result of the Pearson's correlation testing will be the correlation matrix table. This test will help improve effectiveness to the model by explaining which variable can be explained by other variables and should be dropping out from the model which will reduce the loss of the explanatory power.

### 3.2.2 TOBIT Regression Model

In order to test the factors that affect the dividend payout for the Thai corporations, a best fit model has to be constructed. Since there are so many factors that can affect the dividend payout decision for the companies, the TOBIT regression model is able to answer which factors can most affect the model. The variables can be dropped or added in to the model to get the results that can best fit to the model and then apply an analysis using the TOBIT test as testing technique which will be described in the part.

As stated earlier, the model will be adding dummy variables to handle the problem of industry effect and size effect. Be noted that for the industry effect, the industry dummy will be used. However, the dummy of financial sector will be dropped out from the dummy variables due to finance sector operates differently from any other sectors. Also, for the size effect, this study will set up interaction terms on profitability variables (Profit or Loss) in conjunction with size variables (Small, Medium, and Large) (Manoj & Manasvi, 2007). The TOBIT regression model for this study is as follows:

$$\begin{aligned} \text{DIV}_{i,t} = & \alpha + \beta_1 \text{PROF}_{i,t} + \beta_2 \text{OCF}_{i,t} + \beta_3 \text{DTE}_{i,t} + \beta_4 \text{MTB}_{i,t} + \beta_5 \text{GROW}_{i,t} + \beta_6 \text{RISK}_{i,t} + \\ & \beta_7 \text{SIZE}_{i,t} + \beta_8 \text{INDUS1}_{i,t} + \beta_9 \text{INDUS2}_{i,t} + \beta_{10} \text{INDUS4}_{i,t} + \beta_{11} \text{INDUS5}_{i,t} + \\ & \beta_{12} \text{INDUS6}_{i,t} + \beta_{13} \text{INDUS7}_{i,t} + \beta_{14} \text{INDUS8}_{i,t} + \beta_{15} \text{dSFP}_{i,t} + \beta_{16} \text{dSFL}_{i,t} + \\ & \beta_{17} \text{dMFP}_{i,t} + \beta_{18} \text{dMFL}_{i,t} + \beta_{19} \text{dLFP}_{i,t} + \varepsilon_{i,t} \end{aligned}$$

where,	$\text{DIV}_{i,t}$	=	dividend payout ratio
	$\alpha$	=	the intercept of the regression equation
	$\beta_1$	=	coefficient of profitability
	$\beta_2$	=	coefficient of liquidity
	$\beta_3$	=	coefficient of financial leverage
	$\beta_4$	=	coefficient of investment opportunities
	$\beta_5$	=	coefficient of sales growth
	$\beta_6$	=	coefficient of business risk
	$\beta_7$	=	coefficient of firm size
	$\beta_8$	=	coefficient of agro & food industry dummy
	$\beta_9$	=	coefficient of consumer products industry dummy
	$\beta_{10}$	=	coefficient of industrials industry dummy
	$\beta_{11}$	=	coefficient of property & construction industry dummy
	$\beta_{12}$	=	coefficient of resources industry dummy
	$\beta_{13}$	=	coefficient of services industry dummy
	$\beta_{14}$	=	coefficient of technology industry dummy
	$\beta_{15}$	=	coefficient of small firm with profit dummy
	$\beta_{16}$	=	coefficient of small firm with loss dummy

$\beta_{17}$	=	coefficient of medium firm with profit dummy
$\beta_{18}$	=	coefficient of medium firm with loss dummy
$\beta_{19}$	=	coefficient of large firm with profit dummy
PROF	=	profitability
LIQ	=	liquidity
DTE	=	financial leverage
MTB	=	investment opportunities
GROW	=	sales growth
RISK	=	business risk
SIZE	=	firm size
INDUS1	=	dummy for agro & food industry
INDUS2	=	dummy for consumer products industry
INDUS4	=	dummy for industrials industry
INDUS5	=	dummy for property & construction industry
INDUS6	=	dummy for resources industry
INDUS7	=	dummy for services industry
INDUS8	=	dummy for technology industry
dSFP	=	dummy for small firm with profit
dSFL	=	dummy for small firm with loss
dMFP	=	dummy for medium firm with profit
dMFL	=	dummy for medium firm with loss
dLFP	=	dummy for large firm with profit

Table 3.1 summarizes a measurement of each variable.

**Table 3.1: Measurement of all variables**

Symbol	Description	Measurement
DIV (Dividend payout)	Dividend payout ratio (in percentage)	Cash dividends of Common Stock / Income before <i>Extraordinary Items</i> – Minority Interest – Cash Dividends of Preferred Stock) * 100
PROF (Profitability)	Return on Assets (in percentage)	Trailing 12M Net Income / Average of the beginning balance and ending balance) * 100
LIQ (Liquidity)	Cash flow per share	(Net Income + Depreciation & Amortization + Other Noncash Adjustments + Changes in Non-cash Working Capital) / Average total number of shares outstanding
DTE (Financial leverage)	Debt to Equity ratio	(Total Liabilities/Total Common Equity)*100
MTB (Investment opportunities)	Ratio of the stock price to the book value per share.	Price to Book Ratio = Last Price / Book Value Per Share
GROW (Sales growth)	Change in sales per year (in percentage)	((Net sales for the current period / Net sales for the last period) -1)*100



Symbol	Description	Measurement
RISK (Business risk)	Variability in return on asset	The standard deviation of the firm's return on assets in time $t$ and $t-1$
SIZE (Firm's size)	The natural logarithm of current market capitalization	The natural logarithm of current market capitalization time $t$
INDUS (Industry dummies)	Industry dummies representing industry $j$ where $j = 1, 2, 3, 4, 5, 6, 7, 8$ .	INDUS1 = agro & food Industry , INDUS 2 = consumer products, INDUS 3 = financials, INDUS 4 = industrials INDUS 5 = property & construction, INDUS 6 = resources INDUS 7 = services, INDUS 8 = technology
INT (Interact dummies)	dSFP = Small firms with profit dSFL = Small firms with loss dMFP = Medium firms with profit dMFL = Medium firms with loss dLFP = Large firms with profit dLFL = Large firms with loss	

### 3.2.3 TOBIT Estimation

The main reason that this study adopts the TOBIT analysis to the regression model is because the nature of dividend payout ratio cannot have negative value and most of the time can be zero value (not pay dividend). While ordinary OLS analysis is not suitable to this study when dealing with too many zero values (Wilson & Tisdell, 2002). The formula function of TOBIT is expressed as below:

$$y_{it}^* = x_{it}' \beta + \alpha_i + \varepsilon_{it} ,$$

with the observed dependent variables being as:

$$y_{it} = \begin{cases} 0, & \text{if } y_{it}^* \leq 0, \\ y_{it}^*, & \text{if } y_{it}^* > 0. \end{cases}$$

The TOBIT estimation will analyze and compute the best nested result of MLE (Maximum Likelihood Estimation) with the significant level of each explanatory variable. The MLE can conclude which factor is significant to the dividend payout ratio and also explain that the whole model is significant to reject the null hypothesis by using the Wald statistic with a critical value of Chi-Square ( $\chi^2$ ) statistics at each degree of freedom (restriction variables).

### 3.2.4 Testing Procedure

The process to find the determinants of dividend payout is as follows:

Firstly, Pearson's correlation coefficient is used to test the multicollinearity problem. A variable should be dropped out when the correlation between two variables has the result of correlation more or less than  $\pm 80\%$ . Secondly, TOBIT Regression Model will be constructed to get a general-to-specific model (Unrestricted in model 1 and Restricted in model 2) and check the t-statistic result of each variables with significance level at 5% level as criteria to drop insignificant

variables from general model (including all independent variables) to generate a final model (including only significant variables). Finally, the TOBIT coefficients of independent variables in the final model are used to answer the research questions and the following research hypotheses that which variables can be significantly explain and have positive or negative relationship to dividend payout.

### 3.3 Research Hypotheses

Despite of the inconsistency of prior evidences in Chapter 2, all independent variables are likely to affect dividend payout. The following hypotheses are then tested:-

#### **Variables-level hypothesis:**

H1<sub>0</sub>: There is no significant relationship between dividend payout and profitability.

H1<sub>a</sub>: There is a significant relationship between dividend payout and profitability.

H2<sub>0</sub>: There is no significant relationship between dividend payout and liquidity.

H2<sub>a</sub>: There is a significant relationship between dividend payout and liquidity.

H3<sub>0</sub>: There is no significant relationship between dividend payout and financial leverage.

H3<sub>a</sub>: There is a significant relationship between dividend payout and financial leverage.

H4<sub>0</sub>: There is no significant relationship between dividend payout and investment opportunities.

H4<sub>a</sub>: There is a significant relationship between dividend payout and investment opportunities.

H5<sub>0</sub>: There is no significant relationship between dividend payout and sales growth.

H5<sub>a</sub>: There is a significant relationship between dividend payout and sales growth.

H6<sub>0</sub>: There is no significant relationship between dividend payout and a business risk.

H6<sub>a</sub>: There is a significant relationship between dividend payout and a business risk.

H7<sub>0</sub>: There is no significant relationship between dividend payout and firm size.

H7<sub>a</sub>: There is a significant relationship between dividend payout and a firm size.

H8<sub>0</sub>: There is no significant relationship between dividend payout and industry dummies.

H8<sub>a</sub>: There is a significant relationship between dividend payout and industry dummies.

H9<sub>0</sub>: There is no significant relationship between payout and interaction dummies (between profitability and size)

H9<sub>a</sub>: There is a significant relationship between payout and interaction dummies (between profitability and size)

**Model-level hypothesis:**

Nevertheless, this study is not only considered individual factors that affect dividend payout but also to combine all factors to the model. Then, hypothesis model is then tested:-

H10<sub>0</sub>: Profitability, Liquidity, Financial leverage, Investment opportunities, Sales growth, Business risk, Firm's size, Industry dummies and Interaction dummies are not significant related to dividend payout.

H10<sub>a</sub>: Profitability, Liquidity, Financial leverage, Investment opportunities, Sales growth, Business risk, Firm's size, Industry dummies and Interaction dummies are significant related to dividend payout.



## CHAPTER IV

### PRESENTATION AND CRITICAL DISCUSSION OF RESULTS

The empirical results based on the methodology in Chapter 3 are explained separately in 3 parts. Part 1 reports the results of correlation testing to check the multicollinearity. Part 2 displays the results of the TOBIT regression analysis with the estimated coefficients for entire variables. Part 3 discusses the results of TOBIT results with MLE estimation.

#### 4.1 Pearson's Correlation Coefficient

The robust correlation test is needed to detect the multicollinearity problem. The Pearson's correlation matrix table with all variables is also shown in the appendix B. It is found that no serious multicollinearity problem exists. The couple of variables that has highest correlation at 0.765 levels is large profit firm (dLFP) and Size. However, dLFP variable is dummy variable and dummy variable will not have meaning related to Size. So, all variables still valid to use for further analysis.

#### 4.2 TOBIT Regression Results

The TOBIT regression model is developed by using the generalized model to specific model. The model is started by putting all variables (unrestricted) including the dummy variable of industry (except financials industry dummy: INDUS3) and interaction dummy variable (except large loss firm dummy: dLFL). The model is run to get the result for the single and entire significance level, coefficient estimation and sign of each variable. Later, the model is rerun to eliminate some insignificant variables. The results of regression are shown in Table 4.1:

**Table 4.1: TOBIT Regression Results**

PROF = profitability, LIQ = liquidity, DTE = financial leverage, MTB = investment opportunities, GROW = sales growth, RISK = business risk, SIZE = firm size, INDUS1 = dummy for agro & food industry, INDUS2 = dummy for consumer products industry, INDUS4 = dummy for industrials industry, INDUS5 = dummy for property & construction industry, INDUS6 = dummy for resources industry, INDUS7 = dummy for services industry, INDUS8 = dummy for technology industry, dSFP = dummy for small firm with profit, dSFL = dummy for small firm with loss, dMFP = dummy for medium firm with profit, dMFL = dummy for medium firm with loss, dLFP = dummy for large firm with profit

	Coefficient							
	Model 1				Model 2			
	Coefficient	Std. Error	z Value	Sig.	Coefficient	Std. Error	z Value	Sig.
(Intercept)	-71.709	31.849	-2.252	.024	-62.993	25.487	-2.472	.013
PROF	.158	.391	.403	.687	--	--	--	--
LIQ	.109	.255	.427	.669	--	--	--	--
DTE	-2.265	.629	-3.602	.000	-2.242	.601	-3.729	.000
MTB	-5.518	2.595	-2.127	.033	--	--	--	--
GROW	-.207	.077	-2.689	.007	-.238	.077	-3.099	.002
RISK	-.966	.525	-1.841	.066	--	--	--	--
SIZE	15.023	4.215	3.564	.000	15.549	3.437	4.524	.000
INDUS1	-3.065	13.833	-.222	.825	--	--	--	--
INDUS2	-.252	14.003	-.018	.986	--	--	--	--
INDUS4	-11.816	11.962	-.988	.323	--	--	--	--
INDUS5	25.995	11.839	2.196	.028	--	--	--	--
INDUS6	6.593	15.939	.414	.679	--	--	--	--
INDUS7	-7.413	11.858	-.625	.532	--	--	--	--
INDUS8	22.708	13.992	1.623	.105	--	--	--	--
dSFP	118.786	28.977	4.099	.000	114.961	12.367	9.296	.000
dSFL	10.927	30.173	.362	.717	--	--	--	--
dMFP	-103.122	25.387	-4.062	.000	-96.597	9.797	-9.859	.000
dMFL	25.127	27.434	.916	.360	--	--	--	--
dLFP	84.968	24.603	3.454	.001	73.429	14.698	4.996	.000
Log(scale)	4.906	.018	269.414	0.000	4.909	.018	269.660	0.000
Log likelihood:	-10424.543				-10424.543			
D.f.:	21				8			
Wald statistic:	208.894				189.412			
D.f.:	19				6			

From the table 4.1, the coefficient sign can explain the effect to the dividend payout that the positive sign means that the effect will increase the possibility of company's dividend payout; while negative sign means that the effect will reduce the possibility of company's dividend payout. The model and coefficients produce the results using Thai companies listed on Stock Exchange of Thailand during year 2006-2010. The TOBIT results in Table 4.1 will be explained in detail in the next section.

### **4.3 Discussion of Results**

TOBIT statistic will be used to check the robustness of the model constructed from TOBIT Regression Model in prior section. The TOBIT will be run against the result of MLE (Maximum likelihood estimation).

#### **4.3.1 Model development**

The result shows that for the first step, where 19 variables are included, there are only 6 variables that are significant at both 5% and 1% significance level and model can achieve the Wald statistic test for 208.894. The analysis concludes that the model 1 with 19 variables is unable to explain the dependent variable well. Therefore, the insignificant variables are removed from the model.

After excluding the insignificant variables, the second model with 6 variables (they are significant at the 1<sup>st</sup> step) can provide the better result which is significant at 10%, 5% and 1% level. This means that the second model is better fit to data and it will be used to determine the factors that affect the dividend payout of Thai firms listed in the Stock Exchange during 2006-2010. The second model has the Wald statistic at 189.41 in which the null hypothesis can be rejected at 95% confidence interval with 13 degrees of freedom.

#### **4.3.2 The relationship between dividend payout and each independent variable**

##### **4.3.2.1 Profitability**

For the profitability variable (PROF), it is found that the coefficient is insignificant as the null hypothesis cannot be rejected at 5% significance level. This means that the firm's profitability (ROA) is not significantly related to dividend payout. This finding is consistent with the finding of Anil and Kapoor (2008) and Amitabh and Charu (2010). This can be reasonable because companies with high level of profitability (ROA) will not always pay dividend because companies may still have high level of debt ratio due to huge investment for the long-term project.



#### **4.3.2.2 Liquidity**

For the liquidity variable (LIQ), it is found that the coefficient is insignificant as the null hypothesis cannot be rejected at 5% significance level. This means that firm's liquidity (Cash flow per share) is not significantly related to dividend payout. This result is consistent with the findings of Kim and Gu (2009), Amarjit et al. (2010) and Al-Kuwari, (2009). This makes sense for the Thai firms that want to keep cash for some short-term investment rather than payout as dividend. (Edward & Samuel, 2011).

#### **4.3.2.3 Financial leverage**

For the financial leverage variable (DTE), it is found that the coefficient is significant because the null hypothesis can be rejected at 5% and 1% significance level. This means that firm's leverage (Debt-to-Equity ratio) is significantly negative related to dividend payout. This result is consistent with the findings of Rozeff (1982) and Jensen (1986). This implies that the debt-to-equity ratio will be one of the main concerns for the management when considering not to pay dividend out. The leverage (Debt-to-Equity ratio), shows negative sign to the dividend payout, means that as firm's debt-to-equity ratio increases, dividend payout tends to decrease.

#### **4.3.2.4 Investment Opportunities**

For the investment opportunities variable (MTB), it is found that the coefficient is insignificant as the null hypothesis cannot be rejected at 5% significance level. This means that firm's investment opportunities (Market-to-BookValue ratio) is not significantly related to dividend payout. This result is consistent with the findings of Rozeff (1982), Myers and Majluf (1984), Kim and Gu (2009). This market to book value ratio is often used with investor predicting overvalues or undervalues of stock rather than dividend payout decision purpose.

#### **4.3.2.5 Sales Growth**

For the sales growth variable (GROW), it is found that the coefficient is significant because the null hypothesis can be rejected at 5% and 1% significance level. This means that firm's sales growth (change in sales per year) is significantly



negative related to dividend payout. This result is consistent with the findings of Edward and Samuel (2011). This factor is robust to influence to the dividend payout of the companies due to sales growth can send the signal about the future outlook of the company. Sometimes, companies decide not to pay the dividend when they want to keep earnings into future project investment to sustain sales growth in the long-run. The sales growth (change in sales per year) showing negative sign to the dividend payout, means that as firm's sales growth increases, dividend payout tends to decrease.

#### **4.3.2.6 Business Risk**

For the business risk variable (RISK), it is found that the coefficient is insignificant as the null hypothesis cannot be rejected at 5% significance level. This means that firm's business risk (SD of ROA) is not significantly related to dividend payout. This result is consistent with the findings of Kim and Gu (2009), Edward and Samuel (2011). This factor has negative effect to the dividend due to the fact that risk may have an impact on the payout decision; however, this risk is sometimes not obvious and cannot be used as a determinant for the management.

#### **4.3.2.7 Firm Size**

For the firm size variable (SIZE), it is found that the coefficient is significant as the null hypothesis can be rejected at 5% and 1% significance level. This means that firm's size (Log of Market Capitalization) is significantly positive related to dividend payout. This result is consistent with the findings of Kim and Gu (2009), Al-Kuwari, (2009). High market capitalization can help firms seek external financing easier than those companies with low market; and also sometimes dividend cost is cheaper than interest cost.

#### **4.3.2.8 Industry Dummies**

For the industry dummies variable (INDUS1, INDUS2, INDUS4, INDUS5, INDUS6, INDUS7, INDUS8), it is found that coefficients of all industry dummies are insignificant as the null hypothesis cannot be rejected at 5% significance level. This means that industry dummy is not significantly related to dividend payout. This

result is consistent with the findings of Al-Malkawi (2007). This can be concluded that listed companies on the SET do use different criteria across industries when determining the dividend policy even though they operate differently.

#### **4.3.2.9 Interaction Dummies**

For the interaction dummies (dSFP, dMFP, dLFP), it is found that the coefficient is significant and the null hypothesis can be rejected at 5% and 1% significance level. On the other hand, the interaction dummies (dSFL, dMFL) are found to be insignificant because the null hypothesis cannot be rejected at 5% significance level. This means that small profit firm (dSFP) and large profit firm (dLFP) are significantly positively related to dividend payout; meanwhile, medium profit firm (dMFP) shows the negative relationship with dividend payout. This result is consistent with the findings of Prezas (1988) and Ravid (1988). The interaction term helps improve the importance of profitability variable (Insignificant when determine as single variable). The positive significant interaction dummies (dSFP, dLFP) mean that when small firms and large firms make profit, dividend payout tends to increase; while, the negative significant interaction dummies (dMFP) means that as medium firms make profit, dividend payout tends to decrease.

The reason behind is that the managers of small firms and large firms want to create positive perception to the market when having profits. This manager wishes to show that the company is performing outstanding and better the market average, so that the market price of stock will increase. This can later increase the company's value and make the company receive financial support from the financial institution easier. Be noted that this finding is in the same direction with the previous study of Kapoor et al. (2010). On the other hand, medium firms with profit are less likely to pay dividend (negative significant) because they are more likely to keep retained earnings for project investment in the future.

## CHAPTER V

### CONCLUSION, IMPLICATION AND FURTHER STUDY

#### 5.1 Conclusion

The purpose of this study is to determine the factors that affect the dividend payout for Thai listed firms. Results from the study may help stakeholders understand the rational decision of dividend payout pattern of Thai firms. The findings may also help stockholders to develop the better investment portfolio and help prevent loss from investment. Also, financial manager of the companies can use the results from this study as a tool in making decision on properly dividend payout policy that can do best response to the market and competitors.

The results from this study indicate that the financial leverage, growth and firm size have an impact on dividend payout of the Thai companies. The firm size is positively related to dividend payout decision which concluded in the same direction with previous studied of Rozeff (1982) and Jensen (1986), whereas two independent variables (financial leverage and growth) have negative relationship which support with previous results found by Edward and Samuel (2011), Kim and Gu (2009) and Al-Kuwari, (2009). This implies that investors can consider firm size as investment criteria when investing in dividend-paying companies. In addition, investors shall avoid investing in the companies that have high financial leverage because it signals the internal problem. Moreover, investors shall avoid investing in the high growth companies because it signals that these companies tend to have the huge investment project in the future and are less likely to pay dividend. Furthermore, financial manager shall monitor to the competitors in the same industry using size, financial leverage and growth as main criteria to develop financial strategy to decide that companies should announce to pay out the dividend or not and by how much should be announced.



In addition, evidence shows interaction effect also has an impact on dividend payout decision. Small firms and large firms with profit are positively related to dividend payout, meanwhile, medium firm with profit and dividend payout have negative relationship.

However, profitability (Anil and Kapoor; 2008, Amitabh and Charu; 2010), liquidity (Kim and Gu; 2009, Amarjit et al.; 2010 and Al-Kuwari; 2009), investment opportunity (Rozeff; 1982, Myers and Majluf; 1984, Kim and Gu; 2009), business risk (Kim and Gu; 2009, Edward and Samuel; 2011) and all industries (Al-Malkawi; 2007) are insignificantly related to dividend payout decision. The result finding conveys the same direction to the previous studied.

## **5.2 Implication**

The results of the study can benefit to investor and financial managers to help make a proper decision on stock investment and to help determine the dividend payout of selected firms. Using the most 6 significant variables can help investor achieve the maximize return of portfolio investment and can help financial manger to predict year-end financial strategy to maximize shareholder's wealth and react to the market perception and competitors in the same industry properly.

## **5.3 Further Study**

The further study would be recommended to solve the limitation of this study that is focusing only on financial information of the firm and impact from the European economic crisis and other hidden factors. Moreover, future study should be more consider to focus on industry variation, year effect, macroeconomic effect and corporate governance analysis which would be helpful to fulfill the more contribution on the dividend payout analysis. Lastly, with newly emerging secondary market of Thailand, Market for Alternative Index (MAI). MAI has officially operated since June, 1999 and consists with small and medium sized companies and still less research mention regarding on factors affecting dividend payout for this market.



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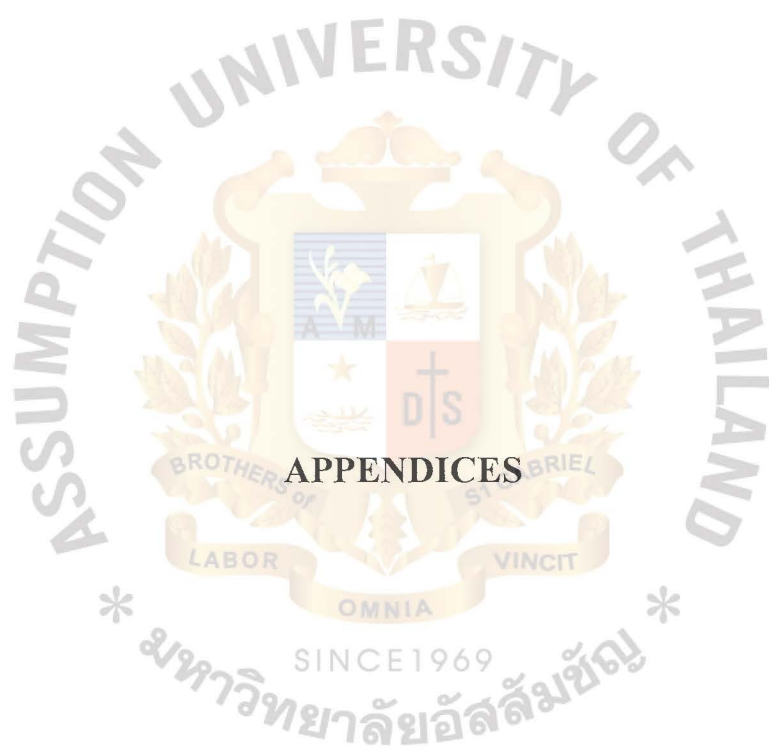


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## APPENDICES

## APPENDIX A

### Descriptive Statistical all variables

PROF = profitability, LIQ = liquidity, DTE = financial leverage, MTB = investment opportunities, GROW = sales growth, RISK = business risk, SIZE = firm size, INDUS1 = dummy for agro & food industry, INDUS2 = dummy for consumer products industry, INDUS3 = dummy for financial industry, INDUS4 = dummy for industrials industry, INDUS5 = dummy for property & construction industry, INDUS6 = dummy for resources industry, INDUS7 = dummy for services industry, INDUS8 = dummy for technology industry, dSFP = dummy for small firm with profit, dSFL = dummy for small firm with loss, dMFP = dummy for medium firm with profit, dMFL = dummy for medium firm with loss, dLFP = dummy for large firm with profit

Variable	Mean	Std. Error of Mean	Std. Deviation	Minimum	Maximum
DIV	53.431	2.501	114.578	0.000	2509.313
PROF	4.120	0.292	13.363	-177.072	378.233
LIQ	3.401	0.261	11.939	-80.178	247.568
DTE	3.203	0.504	23.089	-162.736	1014.584
MTB	1.533	0.074	3.407	0.102	127.526
GROW	9.666	1.272	58.271	-98.267	1645.473
RISK	3.695	0.216	9.891	0.000	268.457
SIZE	7.587	0.037	1.705	2.398	13.873
INDUS1	.093	.006	.290	0	1
INDUS2	.092	.006	.289	0	1
INDUS3	.122	.007	.327	0	1
INDUS4	.177	.008	.382	0	1
INDUS5	.183	.008	.387	0	1
INDUS6	.057	.005	.232	0	1
INDUS7	.191	.009	.393	0	1
INDUS8	.085	.006	.279	0	1
dSFP	.133	.007	.340	0	1
dSFL	.094	.006	.292	0	1
dMFP	.411	.011	.492	0	1
dMFL	.079	.006	.269	0	1
dLFP	.259	.010	.438	0	1
dLFL	.023	.003	.151	0	1

## APPENDIX B

### Pearson's Correlation Coefficient of all variables

PROF = profitability, LIQ = liquidity, DTE = financial leverage, MTB = investment opportunities, GROW = sales growth, RISK = business risk, SIZE = firm size, INDUS1 = dummy for agro & food industry, INDUS2 = dummy for consumer products industry, INDUS3 = dummy for financial industry, INDUS4 = dummy for industrials industry, INDUS5 = dummy for property & construction industry, INDUS6 = dummy for resources industry, INDUS7 = dummy for services industry, INDUS8 = dummy for technology industry, dSFP = dummy for small firm with profit, dSFL = dummy for small firm with loss, dMFP = dummy for medium firm with profit, dMFL = dummy for medium firm with loss, dLFP = dummy for large firm with profit

Correlations

		DIV	PROF	LIQ	DTE	MTB	GROW	RISK	SIZE
DIV	Pearson Correlation	1	.046*	.019	-.022	-.013	-.034	-.043*	.061**
	Sig. (2-tailed)		.035	.389	.325	.540	.115	.048	.005
	N	2098	2098	2098	2098	2098	2098	2098	2098
PROF	Pearson Correlation	.046*	1	.081**	-.070**	-.022	.177**	.164**	.262**
	Sig. (2-tailed)	.035		.000	.001	.313	.000	.000	.000
	N	2098	2098	2098	2098	2098	2098	2098	2098
LIQ	Pearson Correlation	.019	.081**	1	-.001	.018	-.010	-.042	.164**
	Sig. (2-tailed)	.389	.000		.971	.397	.652	.056	.000
	N	2098	2098	2098	2098	2098	2098	2098	2098
DTE	Pearson Correlation	-.022	-.070**	-.001	1	.029	-.028	-.002	-.032
	Sig. (2-tailed)	.325	.001	.971		.182	.195	.913	.144
	N	2098	2098	2098	2098	2098	2098	2098	2098
MTB	Pearson Correlation	-.013	-.022	.018	.029	1	-.003	.062**	.115**
	Sig. (2-tailed)	.540	.313	.397	.182		.894	.004	.000
	N	2098	2098	2098	2098	2098	2098	2098	2098
GROW	Pearson Correlation	-.034	.177**	-.010	-.028	-.003	1	.110**	.058**
	Sig. (2-tailed)	.115	.000	.652	.195	.894		.000	.008
	N	2098	2098	2098	2098	2098	2098	2098	2098
RISK	Pearson Correlation	-.043*	.164**	-.042	-.002	.062**	.110**	1	-.068**
	Sig. (2-tailed)	.048	.000	.056	.913	.004	.000		.002
	N	2098	2098	2098	2098	2098	2098	2098	2098
SIZE	Pearson Correlation	.061**	.262**	.164**	-.032	.115**	.058**	-.068**	1
	Sig. (2-tailed)	.005	.000	.000	.144	.000	.008	.002	
	N	2098	2098	2098	2098	2098	2098	2098	2098
INDUS1	Pearson Correlation	.004	.079**	-.005	.063**	.012	-.011	-.016	-.009
	Sig. (2-tailed)	.869	.000	.811	.004	.597	.614	.469	.673
	N	2098	2098	2098	2098	2098	2098	2098	2098
INDUS2	Pearson Correlation	.006	.003	.033	-.020	-.043*	-.051*	-.023	-.174**
	Sig. (2-tailed)	.780	.875	.129	.355	.047	.019	.287	.000
	N	2098	2098	2098	2098	2098	2098	2098	2098
INDUS3	Pearson Correlation	.023	-.040	.053*	.033	-.039	.053*	-.081**	.067**
	Sig. (2-tailed)	.284	.069	.016	.131	.072	.014	.000	.002
	N	2098	2098	2098	2098	2098	2098	2098	2098
INDUS4	Pearson Correlation	-.023	-.017	.016	-.021	-.033	-.008	.010	-.151**
	Sig. (2-tailed)	.285	.449	.452	.339	.133	.724	.646	.000
	N	2098	2098	2098	2098	2098	2098	2098	2098
INDUS5	Pearson Correlation	-.044*	-.006	-.093**	-.009	.017	.034	.052*	.024
	Sig. (2-tailed)	.046	.778	.000	.668	.443	.119	.017	.263
	N	2098	2098	2098	2098	2098	2098	2098	2098
INDUS6	Pearson Correlation	.042	.026	.050*	-.010	.009	.016	.011	.218**
	Sig. (2-tailed)	.053	.232	.021	.637	.670	.475	.625	.000
	N	2098	2098	2098	2098	2098	2098	2098	2098
INDUS7	Pearson Correlation	-.026	-.021	-.008	-.037	.042	-.022	.015	.025
	Sig. (2-tailed)	.239	.348	.708	.089	.052	.312	.479	.244
	N	2098	2098	2098	2098	2098	2098	2098	2098
INDUS8	Pearson Correlation	.056*	-.001	-.015	.019	.033	-.016	.019	.066**
	Sig. (2-tailed)	.010	.949	.493	.384	.128	.453	.395	.002
	N	2098	2098	2098	2098	2098	2098	2098	2098
dSFP	Pearson Correlation	.049*	.004	-.002	-.011	-.094**	-.014	-.022	-.448**
	Sig. (2-tailed)	.026	.855	.933	.611	.000	.522	.312	.000
	N	2098	2098	2098	2098	2098	2098	2098	2098
dSFL	Pearson Correlation	-.089**	-.368**	-.081**	.050*	-.008	-.082**	.108**	-.405**
	Sig. (2-tailed)	.000	.000	.000	.021	.709	.000	.000	.000
	N	2098	2098	2098	2098	2098	2098	2098	2098
dMFP	Pearson Correlation	.035	.194**	-.023	-.042	-.076**	.063**	-.087**	-.131**
	Sig. (2-tailed)	.114	.000	.283	.054	.000	.004	.000	.000
	N	2098	2098	2098	2098	2098	2098	2098	2098
dMFL	Pearson Correlation	-.071**	-.282**	-.057**	.006	.080**	-.060**	.092**	-.082**
	Sig. (2-tailed)	.001	.000	.009	.768	.000	.006	.000	.000
	N	2098	2098	2098	2098	2098	2098	2098	2098
dLFP	Pearson Correlation	.042	.238**	.130**	.000	.106**	.029	-.016	.765**
	Sig. (2-tailed)	.053	.000	.000	.994	.000	.188	.454	.000
	N	2098	2098	2098	2098	2098	2098	2098	2098
dLFL	Pearson Correlation	-.045*	-.119**	-.038	.053*	.025	.010	.007	.144**
	Sig. (2-tailed)	.038	.000	.086	.016	.244	.647	.741	.000
	N	2098	2098	2098	2098	2098	2098	2098	2098

\* Correlation is significant at the 0.05 level (2-tailed).

\*\* Correlation is significant at the 0.01 level (2-tailed).



**Correlations**

		INDUS1	INDUS2	INDUS3	INDUS4	INDUS5	INDUS6	INDUS7	INDUS8
DIV	Pearson Correlation	0	0.00609805	.023	-.023	-.044*	.042	-0.0257443	.056*
	Sig. (2-tailed)	0.86926846	.780	.284	.285	.046	.053	.239	.010
	N	2098	2098	2098	2098	2098	2098	2098	2098
PROF	Pearson Correlation	.079**	0	-0.03970712	-0.01653804	-.006	0.02609409	-0.02051876	-0.00140833
	Sig. (2-tailed)	.000	0.87513452	.069	.449	.778	.232	.348	.949
	N	2098	2098	2098	2098	2098	2098	2098	2098
LIQ	Pearson Correlation	-.005	0.03313363	.053*	.016	-.093**	.050*	-.008	-0.01495933
	Sig. (2-tailed)	.811	.129	0.01570224	.452	.000	.021	.708	.493
	N	2098	2098	2098	2098	2098	2098	2098	2098
DTE	Pearson Correlation	.063**	-0.02022095	.033	0	-.009	-.010	-.037	.019
	Sig. (2-tailed)	.004	.355	.131	0.33869668	.668	.637	.089	.384
	N	2098	2098	2098	2098	2098	2098	2098	2098
MTB	Pearson Correlation	.012	-.043*	-.039	-.033	0	.009	0.04241487	0.033211158
	Sig. (2-tailed)	.597	.047	.072	.133	0.44297141	.670	.052	.128
	N	2098	2098	2098	2098	2098	2098	2098	2098
GROW	Pearson Correlation	-.011	-.051*	.053*	-.008	.034	0	-0.02207411	-0.01639695
	Sig. (2-tailed)	.614	.019	.014	.724	.119	0.47480706	.312	.453
	N	2098	2098	2098	2098	2098	2098	2098	2098
RISK	Pearson Correlation	-0.01580182	-0.02325052	-.081**	.010	.052*	0.01068121	0	0.018598355
	Sig. (2-tailed)	.469	.287	.000	.646	.017	.625	0.47942183	.395
	N	2098	2098	2098	2098	2098	2098	2098	2098
SIZE	Pearson Correlation	-0.00922046	-.174**	.067**	-.151**	0.02444035	.218**	0.02543866	.066**
	Sig. (2-tailed)	.673	.000	.002	.000	.263	.000	.244	0.002316007
	N	2098	2098	2098	2098	2098	2098	2098	2098
INDUS1	Pearson Correlation	1.000	-.102**	-.119**	-.149**	-.152**	-.079**	-.156**	-.097**
	Sig. (2-tailed)	.000	.000	.000	.000	.000	.000	.000	.000
	N	2098	2098	2098	2098	2098	2098	2098	2098
INDUS2	Pearson Correlation	-.102**	1.000	-.118**	-.148**	-.151**	-.078**	-.155**	-.097**
	Sig. (2-tailed)	.000	.000	.000	.000	.000	.000	.000	.000
	N	2098	2098	2098	2098	2098	2098	2098	2098
INDUS3	Pearson Correlation	-.119**	-.118**	1	-.173**	-.176**	-.092**	-.181**	-.113**
	Sig. (2-tailed)	.000	.000	.000	.000	.000	.000	.000	.000
	N	2098	2098	2098	2098	2098	2098	2098	2098
INDUS4	Pearson Correlation	-.149**	-.148**	-.173**	1.000	-.220**	-.114**	-.226**	-.141**
	Sig. (2-tailed)	.000	.000	.000	.000	.000	.000	.000	.000
	N	2098	2098	2098	2098	2098	2098	2098	2098
INDUS5	Pearson Correlation	-.152**	-.151**	-.176**	-.220**	1.000	-.117**	-.230**	-.144**
	Sig. (2-tailed)	.000	.000	.000	.000	.000	.000	.000	.000
	N	2098	2098	2098	2098	2098	2098	2098	2098
INDUS6	Pearson Correlation	-.079**	-.078**	-.092**	-.114**	-.117**	1.000	-.120**	-.075**
	Sig. (2-tailed)	.000	.000	.000	.000	.000	.000	.000	.001
	N	2098	2098	2098	2098	2098	2098	2098	2098
INDUS7	Pearson Correlation	-.156**	-.155**	-.181**	-.226**	-.230**	-.120**	1.000	-.148**
	Sig. (2-tailed)	.000	.000	.000	.000	.000	.000	.000	.000
	N	2098	2098	2098	2098	2098	2098	2098	2098
INDUS8	Pearson Correlation	-.097**	-.097**	-.113**	-.141**	-.144**	-.075**	-.148**	1
	Sig. (2-tailed)	.000	.000	.000	.000	.000	.001	.000	.000
	N	2098	2098	2098	2098	2098	2098	2098	2098
dSFP	Pearson Correlation	-0.0286774	.099**	.030	.064**	-.055*	-.054*	-.026	-0.03864425
	Sig. (2-tailed)	.189	.000	.163	.003	.012	.013	.231	.077
	N	2098	2098	2098	2098	2098	2098	2098	2098
dSFL	Pearson Correlation	-0.00787937	.044*	-0.03525521	-0.00045984	.029	-.051*	.046*	-.057**
	Sig. (2-tailed)	.718	.044	.106	.983	.192	.018	.034	.009
	N	2098	2098	2098	2098	2098	2098	2098	2098
dMFP	Pearson Correlation	.066**	0.02885845	-.017	.081**	-0.01241481	-.081**	-.091**	0.023571288
	Sig. (2-tailed)	.002	.186	.424	.000	.570	.000	.000	.281
	N	2098	2098	2098	2098	2098	2098	2098	2098
dMFL	Pearson Correlation	-.057**	-0.01334834	-0.02739176	.008	0.03113675	0.01191372	0.00658758	0.031778966
	Sig. (2-tailed)	.009	.541	.210	.711	.154	.585	.763	.146
	N	2098	2098	2098	2098	2098	2098	2098	2098
dLFP	Pearson Correlation	.002	-.113**	0.03621363	-.155**	0.01808758	.159**	.078**	0.018913179
	Sig. (2-tailed)	.940	.000	.097	.000	.408	.000	.000	0.387
	N	2098	2098	2098	2098	2098	2098	2098	2098
dLFL	Pearson Correlation	-0.038633	-.049*	.000	0.02736522	.000	.003	.029	0.009544488
	Sig. (2-tailed)	.077	.024	.984	.210	.991	.902	.182	.662
	N	2098	2098	2098	2098	2098	2098	2098	2098

\* Correlation is significant at the 0.05 level (2-tailed).

\*\* Correlation is significant at the 0.01 level (2-tailed).

**Correlations**

		dSFP	dSFL	dMFP	dMFL	dLFP	dLFL
DIV	Pearson Correlation	.049*	-.089**	.035	-.071**	.042	-.045*
	Sig. (2-tailed)	.026	.000	.114	.001	.053	.038
	N	2098	2098	2098	2098	2098	2098
PROF	Pearson Correlation	.004	-.368**	.194**	-.282**	.238**	-.119**
	Sig. (2-tailed)	.855	.000	.000	.000	.000	.000
	N	2098	2098	2098	2098	2098	2098
LIQ	Pearson Correlation	-.002	-.081**	-.023	-.057**	.130**	-.038
	Sig. (2-tailed)	.933	.000	.283	.009	.000	.086
	N	2098	2098	2098	2098	2098	2098
DTE	Pearson Correlation	-.011	.050*	-.042	.006	.000	.053*
	Sig. (2-tailed)	.611	.021	.054	.768	.994	.016
	N	2098	2098	2098	2098	2098	2098
MTB	Pearson Correlation	-.094**	-.008	-.076**	.080**	.106**	.025
	Sig. (2-tailed)	.000	.709	.000	.000	.000	.244
	N	2098	2098	2098	2098	2098	2098
GROW	Pearson Correlation	-.014	-.082**	.063**	-.060**	.029	.010
	Sig. (2-tailed)	.522	.000	.004	.006	.188	.647
	N	2098	2098	2098	2098	2098	2098
RISK	Pearson Correlation	-.022	.108**	-.087**	.092**	-.016	.007
	Sig. (2-tailed)	.312	.000	.000	.000	.454	.741
	N	2098	2098	2098	2098	2098	2098
SIZE	Pearson Correlation	-.448**	-.405**	-.131**	-.082**	.765**	.144**
	Sig. (2-tailed)	.000	.000	.000	.000	.000	.000
	N	2098	2098	2098	2098	2098	2098
INDUS1	Pearson Correlation	-.029	-.008	.066**	-.057**	.002	-.039
	Sig. (2-tailed)	.189	.718	.002	.009	.940	.077
	N	2098	2098	2098	2098	2098	2098
INDUS2	Pearson Correlation	.099**	.044*	.029	-.013	-.113**	-.049*
	Sig. (2-tailed)	.000	.044	.186	.541	.000	.024
	N	2098	2098	2098	2098	2098	2098
INDUS3	Pearson Correlation	.030	-.035	-.017	-.027	.036	.000
	Sig. (2-tailed)	.163	.106	.424	.210	.097	.984
	N	2098	2098	2098	2098	2098	2098
INDUS4	Pearson Correlation	.064**	.000	.081**	.008	-.155**	.027
	Sig. (2-tailed)	.003	.983	.000	.711	.000	.210
	N	2098	2098	2098	2098	2098	2098
INDUS5	Pearson Correlation	-.055*	.029	-.012	.031	.018	.000
	Sig. (2-tailed)	.012	.192	.570	.154	.408	.991
	N	2098	2098	2098	2098	2098	2098
INDUS6	Pearson Correlation	-.054*	-.051*	-.081**	.012	.159**	.003
	Sig. (2-tailed)	.013	.018	.000	.585	.000	.902
	N	2098	2098	2098	2098	2098	2098
INDUS7	Pearson Correlation	-.026	.046*	-.091**	.007	.078**	.029
	Sig. (2-tailed)	.231	.034	.000	.765	.000	.182
	N	2098	2098	2098	2098	2098	2098
INDUS8	Pearson Correlation	-.039	-.057**	.024	.032	.019	.010
	Sig. (2-tailed)	.077	.009	.281	.146	.387	.662
	N	2098	2098	2098	2098	2098	2098
dSFP	Pearson Correlation	1	-.126**	-.327**	-.114**	-.232**	-.061**
	Sig. (2-tailed)		.000	.000	.000	.000	.006
	N	2098	2098	2098	2098	2098	2098
dSFL	Pearson Correlation	-.126**	1	-.270**	-.094**	-.191**	-.050*
	Sig. (2-tailed)	.000		.000	.000	.000	.022
	N	2098	2098	2098	2098	2098	2098
dMFP	Pearson Correlation	-.327**	-.270**	1	-.244**	-.495**	-.129**
	Sig. (2-tailed)	.000	.000		.000	.000	.000
	N	2098	2098	2098	2098	2098	2098
dMFL	Pearson Correlation	-.114**	-.094**	-.244**	1	-.173**	-.045*
	Sig. (2-tailed)	.000	.000	.000		.000	.039
	N	2098	2098	2098	2098	2098	2098
dLFP	Pearson Correlation	-.232**	-.191**	-.495**	-.173**	1	-.091**
	Sig. (2-tailed)	.000	.000	.000	.000		.000
	N	2098	2098	2098	2098	2098	2098
dLFL	Pearson Correlation	-.061**	-.050*	-.129**	-.045*	-.091**	1
	Sig. (2-tailed)	.006	.022	.000	.039	.000	
	N	2098	2098	2098	2098	2098	2098

\* Correlation is significant at the 0.05 level (2-tailed).

\*\* Correlation is significant at the 0.01 level (2-tailed).



