DETERMINANTS OF FINANCIAL PERFORMANCE OF PUBLICLY LISTED COMPANIES IN THAILAND

DETERMINANTS OF FINANCIAL PERFORMANCE OF PUBLICLY LISTED COMPANIES IN THAILAND

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ABSTRACT

This study aims to validate the existing theories of the determinants of financial performance of publicly listed companies in Thailand during the period 2005 to 2008. Firm size, age, free float, leverage, and working capital ratio were hypothesized to have relationships with company financial performance measured by various dimensions. Sixty five public companies were sampled for this study. By using linear mixed model analysis, the results reveal that all of the proposed factors, except for firm age, have the influences on some dimensions of corporate performance. The working capital ratio was found to be positively related to the majority of the profitability measures tested in this study. The company leverage level is another factor that is found to have the strong relationships with price-to-book value in a positive way and return on equity in a negative direction. Firm size is a negative determinant of price-to-book value and sales-to-assets ratio. Similarly, the percentage of free float negatively affects price-to-book value and net profit margin.

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CHAPTER 1

INTRODUCTION

1.1 Rationale and Problem Statement

To survive, sustain, and succeed in today's business, it is necessary to consider a root question, what do companies compete for? The ultimate answer, which is a goal of most companies, is to maximize wealth to the present shareholders (Eun & Resnick, 2007, p. 4; Rachman, Mescon, Bovee, & Thill, 1997, p. 568). The basic representative of shareholders' wealth is the company financial performance (Kakani, Saha, & Reddy, 2001, p. 3). To achieve the best financial corporate objective, corporate management has to be concerned with judgment and decision making in long-term investment, financing policy, and working capital management (Eun & Resnick, 2007, p. 4; Ross, Westerfield, & Jordan, 2008, pp. 5-7). That is the reason why the research area about firm performance has been heavily paid attention by the top business people (Naser & Mokhtar, 2004, p. 3).

At present, there are many opinions, comments, and theories from knowledgeable people about the factors that affect the firm financial performance. However, there are some doubts about their accuracy. A test to verify the relationships between the factors and the operation results using the figures from the real existing companies can create more reliability to those theories. Confidence in accuracy of the theories about determinants of the company financial performance will be beneficial from applying them as a decision support tool (Ross et al., 2008, p. 77).

This research arises to fulfill the aforementioned requirements. Several operating factors expected to affect the company performance were selected for the study. The financial performance was measured in terms of shareholder value creation, profitability, risk, and growth. Although the majority of studied variables are accounting-based, this study also contains some market-based variables. This is because both current and prospective future results of operations can be examined (Kakani et al., 2001, p. 3).

1.2 Objective of the Study

The objective of this study is to validate the existing theories of the determinants of financial performance of publicly listed companies in Thailand.

1.3 Scope of the Study

This research involves public companies listed in The Stock Exchange of Thailand (SET). Companies that have large market capitalization, excluding the companies in financial industry, were selected for the study. The financial data come from yearly data from 2005 to 2008.

1.4 Significance of the Study

One of the benefits from testing the hypotheses proposed in this study is for the company management. They may not be able to control all of the determinants influencing the company performance such as age of the company. They, however, can completely or incompletely control over some such as capital structure and the free float number of shares. This study will reveal the relationship between the

company characteristics and the financial performance. The findings obtained from the study can be used as guidelines for the firm management to formulate the best strategies through manipulating some of the controllable characteristics so that the company can achieve better financial performance (Ross et al., 2008, p. 77).

In addition, the equity investors benefit from the validation of the hypotheses of this study. To make the most possibly profitable investment, they can consider the studied determinants for selecting the companies that tend to perform best. Alternatively, they may avoid investing in companies that are likely to be poor performers.

CHAPTER 2

LITERATURE REVIEW

2.1 Review of Related Literature

There are plenty of available theories about the determinants influencing corporate financial performance. These determinants could be the factors related to the company attributes, operating characteristics, executed strategy, and other parameters (Kakani et al., 2001, p. 2). Some of the mentioned causal factors are the areas concerning the corporate financial management such as capital budgeting, capital structure, and working capital management (Ross et al., 2008, pp. 5-7). Several previous studies suggested that organizational factors, rather than environmental factors, significantly influence company performance (Naser & Mokhtar, 2004, p. 3). Company size, which is one of the organizational factors, impacts the firm performance in various ways (Majumdar, 1997, p. 233). The relationship between them has been a significantly interesting area of researches (Prasetyantoko & Parmono, 2008, p. 4). Besides aforementioned organizational and strategic characteristics; capital structure, working capital, and size; the firm attributes affecting the performance also include the age (Naser & Mokhtar, 2004, p. 8) and the proportion of minority public shareholders of the firm (Kakani et al., 2001, p. 7).

There are multiple perspectives to evaluate the firm performance (Naser & Mokhtar, 2004, pp. 6-9). Financial measures are one of the assessing tools that have a long history of being used (Rejc & Slapnicar, 2004, p. 1). The firm financial performance can be measured in various dimensions including growth, profitability, and other measures related to equity value, assets, sales, and cash flow (Capon,

Farley, & Hoenig, 1990, p. 1144). A business can be considered to be successful and has a good financial performance if it is able to achieve the goal of maximizing the market value of shareholders' equity (Ross et al., 2008, p. 11). The market value of the company's stock representing the shareholder value created (Van Horne & Wachowicz, 1995, p.4) is closely impacted by the firm profitability (Gibson, 2007, p. 283). Growth and risk of the companies are also connected to the potential firm performance (Kakani et al., 2001, pp. 3-4).

2.2 Dependent Variables

Weiner and Mahoney (1981, as cited in Naser & Mokhtar, 2004, p. 6) stated that there are a number of dimensions of firm performance measures that are able to be used as dependent variables. In this section, the selected 15 variables from four dimensions; shareholder value creation, profitability, risk, and growth; of financial performance measures used in this research will be defined.

2.2.1 Shareholder Value Creation

Tobin's Q has been used to represent the corporate performance in many previous studies (Corbett, Montes, Kirsch, & Alvarez-Gil, 2002, as cited in Naser & Mokhtar, 2004, p. 7). This ratio is computed as the market value of a firm divided by the book value of its assets, while the firm's market value is defined as the sum of the market value of its equity and the book value of its debt (Investopedia online dictionary, n.d.).

Apart from Tobin's Q, price-to-book value is another ratio that can be measured only for the public companies listed in the stock markets as the calculation

requires the market value (Ross et al., 2008, p. 62). Whether a firm achieves the goal of benefiting shareholders can be discovered by this ratio (Ross et al., 2008, p. 63). It has been used as a measure of shareholder value creation in several earlier researches (Kakani et al., 2001, p. 12).

2.2.2 Profitability

The ability of a company to create earnings is called profitability (Reeve & Warren, 2008, p. 570). This number is desirable for a business to be high as it means that the firm is able to run the operations efficiently and effectively with its available resources (Reeve & Warren, 2008, p. 577). Profitability is an important indicator because the profits are typically used as a firm performance measure (Gibson, 2007, p. 283). Seven measures; cash flow measure, return on assets, return on capital employed, return on equity, sales-to-assets ratio, gross profit margin, and net profit margin; are used for financial performance analysis in terms of profitability in this study.

The cash that a firm generates from its normal operating activities is called operating cash flow (Ross et al., 2008, p. 34). It is an important measure of a company's profits. A company with positive net profits probably cannot pay its debts (Investopedia online dictionary, n.d.) while positive operating cash flow guarantees the firm's ability in paying day-to-day bills (Ross et al., 2008, p. 35). That is because companies are required to follow accrual-basis accounting to determine net income. Revenues are recognized when they are earned rather than when the cash is received. Expenses are also recognized when they are incurred rather than when the cash is paid (Weygandt, Kieso, & Kimmel, 2006, pp. 94-95). Net profits or net income is

difference between revenues and expenses. Therefore, positive net income does not mean that a company has sufficient cash to pay its debts. In this study, the ratio of the sum of net income and depreciation to total assets is devised as a cash flow measurement.

Return on assets, one of the well-known profitability measures, is defined as how much profit generated for every dollar in assets (Ross et al., 2008, p. 62). It shows the ability of the company to use its assets to generate profits regardless of the type of financing for the assets (Gibson, 2007, p. 285; Reeve & Warren, 2008, p. 578). That is the reason why, in this study, interest expense was added back to net income to compute the firm operating returns before cost of borrowing (Investopedia online dictionary, n.d.).

Some earlier researchers (Lewis and Thomas, 1990, as cited in Naser & Mokhtar, 2004, p. 9) selected return on capital employed as one of their studied performance variables. It shows how much profit a firm earns from the capital investment in the business (Investopedia online dictionary, n.d.).

The measure of how much profit generated for every dollar in equity is called return on equity (Reeve & Warren, 2008, p. 579; Ross et al., 2008, p. 62). Several researchers including Gupta (1969, as cited in Naser & Mokhtar, 2004, p. 9) have been using return on equity as a financial variable representing the firm performance.

Sales-to-assets ratio represents the company's ability to generate sales through the use of the assets (Gibson, 2007, p. 284). It is a measure of how effectively a business utilizes its assets (Reeve & Warren, 2008, p. 577). This ratio was included in this study because it has an impact on the corporate profitability (Kakani et al., 2001, pp. 3-4).

There are a number of management and industrial organization studies using the margin on sales to measure profitability (Majumdar, 1997, p. 233). Gross profit margin indicates a company's financial health computed as gross profit, which is the difference between revenues and cost of goods sold, divided by revenues (Investopedia online dictionary, n.d.).

Similarly, net profit margin gives a measure of how much net profit generated for every dollar in sales (Gibson, 2007, p. 284; Ross et al., 2008, p. 61). As this ratio affects the corporate profitability (Kakani et al., 2001, p. 14), it is expected by a business to be high (Gibson, 2007, p. 284).

2.2.3 Risk

Risk is one of the dimensions of firm performance that has an influence on the firm market value (Kakani et al., 2001, p. 4). Coefficient of variance of earnings is used as a measure of risk. This is because the company market value depends on the earnings generated. The dispersion of return then becomes an indicator of risk (Fruhan, 1979, as cited in Kakani et al., 2001, p. 4). Better financial performers will show the lower coefficient of variance of earnings (Kakani et al., 2001, p. 13). Coefficient of variance of cash flow measure (CVCFM), coefficient of variance of return on assets (CVROA), coefficient of variance of return on capital employed (CVROCE), and coefficient of variance of return on equity (CVROE) are used as the measures of risk in this study.

2.2.4 Growth

Growth represents the firm performance that has an influence on the firm market value (Kakani et al., 2001, p. 4). It is believed that a company with high growth rate will create high profits leading to high value of the firm (Kakani et al., 2001, p. 4). The compound annual growth rate of assets and sales are used the most as a measure of company growth (Dess & Robinson, 1984, as cited in Kakani et al., 2001, p. 13; Gupta, 1969, as cited in Naser & Mokhtar, 2004, p. 9). Therefore, this study used annual growth rate of total assets and total sales to measure the growth.

2.3 Independent Variables and Hypotheses

The five selected determinants of firm financial performance; firm size, firm age, free float, leverage, and working capital ratio; used as independent variables in this study are defined in this section.

2.3.1 Firm Size

One of the reasons that corporate size is considered to be a factor inducing company performance is that the size represents company resources (Naser & Mokhtar, 2004, p. 8). Theoretically, numerous resources and various capabilities will enable larger companies to perform more effectively compared to smaller companies (Penrose, 1959, as cited in Majumdar, 1997, p. 233). However, several researches including the meta-analysis of 320 studies by Capon et al. (1990, p. 1148) found no relationship between corporate size and financial performance while others found divergent relationships (Naser & Mokhtar, 2004, p. 11; Prasetyantoko & Parmono, 2008, p. 9). The findings of positive relationship indicated that larger companies earn

higher profits compared to smaller firms (Gupta, 1969, as cited in Naser & Mokhtar, 2004, p. 9; Majumdar, 1997, p. 236; Prasetyantoko & Parmono, 2008, p. 9).

There is a close relationship between company size and corporate growth, which is one of the firm performance dimensions (Prasetyantoko & Parmono, 2008, p. 4). Interestingly, growth theories are diverse. One theory expects a negative relationship between firm size and its growth because large companies almost reach the optimal size. Therefore, there is a possibility that they are unable to grow further and eventually shrink. The other theory believes in a positive relationship. That is because managers in large modern companies pay more attention on the firm growth compared to the owners of small companies (Singh & Whittington, 1975, p. 16). The study by Singh and Whittington (1975, p. 23) is one of many studies pointing out that firm size was positively related to the growth whereas few others found a negative relationship.

Gupta (1969, as cited in Naser & Mokhtar, 2004, p. 9) stated that corporate size depends on its total assets. Therefore, this study defines the firm size as the natural log of total assets and proposes that:

Hypothesis 1: Size would be positively related to firm financial performance.

2.3.2 Firm Age

Many researchers; including Aldrich (1972), Gupta (1969), Meyer (1968), and Thompson (1967), as cited in Naser & Mokhtar (2004, p. 8); confirmed that the age of a company is an important factor affecting the corporate performance. Some theories suggested that older companies tend to perform better because of their experiences (Stinchcombe, 1965, as cited in Majumdar, 1997, p. 233) while others claimed that

younger firms are more flexible for changes resulting in being superior performers (Marshall, 1920, as cited in Majumdar, 1997, p. 233). Based on the study by Majumdar (1997, p. 231), the findings pointed out that older companies are less profitable in India. Therefore, this study proposes that:

Hypothesis 2: Age would be negatively related to firm financial performance.

2.3.3 Free Float

Free Float is the number of shares in public ownership and tradable on the stock market computed by deducting restricted shares from the outstanding shares (Investopedia online dictionary, n.d.). In other words, it is public holding or the shares in minor shareholders (Kakani et al., 2001, p. 7). Sommer, Zlotnikov, Parizer, and Gupta (2007, pp. 3-14) stated that a company with high level of free float could perform better during their studying time. Based on the theories, higher free float level, however, leads to poorer governance and worse financial performance of the company (Kakani et al., 2001, p. 7). This study, therefore, proposes that:

Hypothesis 3: Free float would be negatively related to firm financial performance.

2.3.4 Leverage

Financial leverage involves the use of debt in a company's capital structure. The leverage increases the potential payoffs to shareholders. It, however, may increase the likelihood of experiencing financial problems to the company (Rachman et al., 1997, p. 569; Ross et al., 2008, p. 26). Based on the study by Gupta (1969, as cited in Naser & Mokhtar, 2004, p. 9), leverage was found to has a positively relationship with the company growth. However, many previous researches found that

high proportion of debt means high risk to business failure (Prasetyantoko & Parmono, 2008, p. 3). As a result of being one of the important causal factors influencing company value, debt proportion in terms of leverage was included in this study, which proposes that:

Hypothesis 4: Leverage would be negatively related to firm financial performance.

2.3.5 Working Capital Ratio

Working capital is the excess of the firm's current assets over its current liabilities (Reeve & Warren, 2008, p. 571). It indicates the ability of a business to meet its short-term obligations (Reeve & Warren, 2008, p. 571). In this research, working capital ratio was defined to be working capital divided by sales. This ratio shows the ability of a company to have more sales without incurring more debts. Although a rise of the working capital ratio could come from inefficient operations of the firm, a falling ratio over the long period is a sign of the business troubles (Investopedia online dictionary, n.d.). That is the reason why this study proposes that:

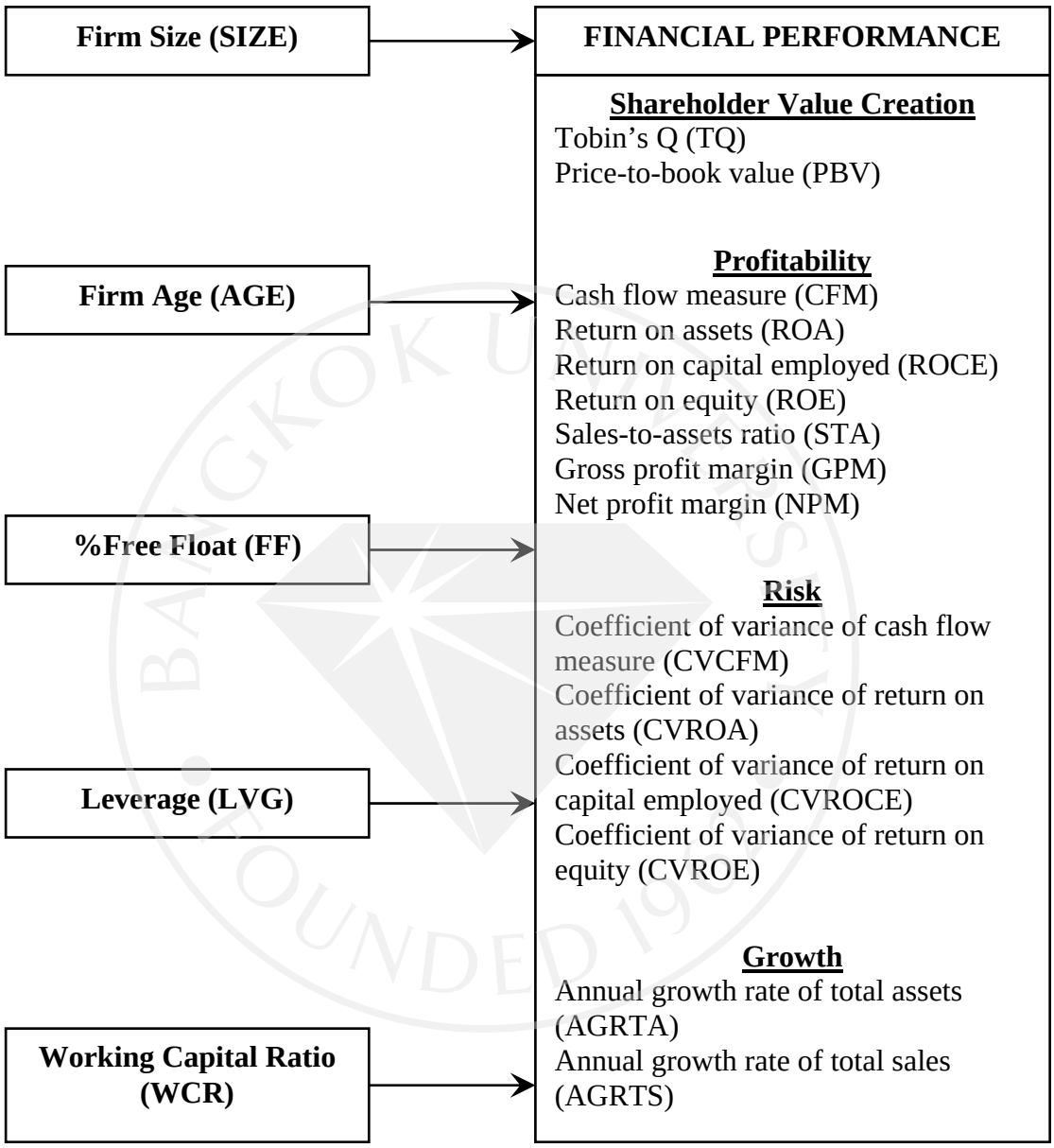
Hypothesis 5: Working capital ratio would be positively related to firm financial performance.

2.4 Conceptual Framework

This study is conducted to test the theories by examining the relationship between the causal factors; including firm size in terms of total assets (SIZE), age of firm (AGE), the percentage of free float (FF), leverage (LVG), and working capital ratio (WCR); and the company financial performance divided into four dimensions; shareholder value creation, profitability, risk, and growth. The measures of

shareholder value creation consist of Tobin's Q ratio (TQ) and price-to-book value (PBV). The measures of profitability contain cash flow measure (CFM), return on assets (ROA), return on capital employed (ROCE), return on equity (ROE), sales-to-assets ratio (STA), gross profit margin (GPM), and net profit margin (NPM). Risk is measured by coefficient of variance of cash flow measure (CVCFM), coefficient of variance of return on assets (CVROA), coefficient of variance of return on capital employed (CVROCE), and coefficient of variance of return on equity (CVROE). The Growth measures are defined as annual growth rate of total assets (AGRTA) and annual growth rate of total sales (AGRTS). Figure 1 shows the proposed conceptual model in this study.

Figure 1: Proposed conceptual model



CHAPTER 3

METHODOLOGY

3.1 Research Design

This study is designed to be an exploratory research in order to meet the objective of this study. Significant insight of the problem can be gained from this type of the research. To observe the relationships according to the proposed hypotheses, the data were analyzed using linear mixed model technique. In this study model, the company financial performance is a function of firm size, age, the percentage of free float, leverage, and working capital ratio.

As aforementioned in Chapter 2, the firm financial performance was measured through four dimensions; shareholder value creation, profitability, risk, and growth. The measures of shareholder value creation comprise Tobin's Q ratio (TQ) and price-to-book value (PBV). The measures of profitability consist of cash flow measure (CFM), return on assets (ROA), return on capital employed (ROCE), return on equity (ROE), sales-to-assets ratio (STA), gross profit margin (GPM), and net profit margin (NPM). The risk measures are defined as coefficient of variance of cash flow measure (CVCFM), coefficient of variance of return on assets (CVROA), coefficient of variance of return on capital employed (CVROCE), and coefficient of variance of return on equity (CVROE). Growth is measured by annual growth rate of total assets (AGRTA) and annual growth rate of total sales (AGRTS). The formulas used for calculating all of the variables in this study are listed in Appendix A.

3.2 Population and Sample

The targeted population for this study is defined as all public companies listed in The Stock Exchange of Thailand (SET). As of March 13, 2009, there are 495 companies listed in the SET (The Stock Exchange of Thailand [SET], 2009).

The selected sample is the companies that their stocks were the constituents in calculation of the SET100 index used during July 1, 2008 to December 31, 2008. SET100 index is a composite index computed from the prices of the top 100 SET stocks in terms of large market capitalization, high liquidity, and requirement compliance. This index compares the current market value of the selected stocks with their market value on the base date on April 30, 2005 (The Stock Exchange of Thailand [SET], 2008). Obviously, the sample in this study mainly consists of large and profitable companies in Thailand. The companies that nearly go bankrupt should not be included because they operate their business in a different way from the normal companies.

Subsequently, the firms in financial industry consisting of banking, finance and securities, and insurance were excluded. The main reason for removing financial institutions from the study is that they work differently from other businesses (Crane & Biafore, n.d.). Because of the dissimilar business model, the unique measures are used to analyze their financial performance.

Another criterion of sample selection is that all of the selected sample must have been listed in the SET before January 1, 2005. That is because the data used in this study are from 2005 to 2008.

Based on the aforementioned above criteria, the sample size then was reduced from 100 firms to 65 firms. The sample include four firms from agro and food

industry, five from industrials, 22 from property and construction, nine from resources, 16 from services, and nine from technology. The complete lists of the companies selected in the sample for this study is shown in Appendix B.

3.3 Data Collection Procedure

The data used in this study were collected through the SET web-based application called SET Market Analysis and Reporting Tool (SETSMART). Its URL is http://www.setsmart.com. Financial statements, company profile, and other historical data are available on the website. Although the source directly provides some calculated variables, only raw data from financial statements were gathered. Later, the variables were calculated using their respective formulas. This is to ensure that the variables are computed with the formulas that are consistent with the goal of this study.

3.4 Time Frame

The data of four years, from 2005 to 2008, were used in this study. The rationale for selecting the four-year period is to avoid the fluctuation occurring from business cycles and other temporally causal factors (Kakani et al., 2001, p. 11). According to Pring Research (n.d.), the typically average 3.6-year business cycle has been constantly occurring since the beginning of the 19th century. The sufficiently long time frame of this study would help enable the findings more reliable.

3.5 Statistical Methods and Analysis

SPSS Statistics 17.0 program was used to analyze the relationships of the data. The linear mixed model (LMM) technique applied in this study models the company financial performance as a function of the firm size, age, leverage, the percentage of free float, and working capital ratio. The relationship between these five independent variables and the firm performance was tested for each of the 15 dependent variables. The acceptable confidence level in this study was set to be at 95%.

Although several linear models could be applied in this study based on the assumption that the dependent variables are linearly related to the independent variables, LMM was selected. The primary reason was that it can deal with the data that are correlated and show non-constant variability while other general linear models cannot (Garson, 2008; SPSS, 2008). This feature of LMM supported the analysis in this study which contains repeated measure data over the four-year period that are not assumed to be independent.

CHAPTER 4

FINDINGS

4.1 Findings

The linear mixed model estimates of independent variables affecting each dependent variable are displayed in this section. The complete estimated value tables generated by SPSS program are provided in Appendix C.

4.1.1 Dimension of Shareholder Value Creation

Table 1: Mixed model estimates with Tobin's Q (TQ) and Price-to-book value (PBV) as dependent variables

Variable	**TQ**	**PBV**
Firm Size	-0.000588	-0.293343*
Firm Age	-0.000746	0.007458
%Free Float	-0.003310	-0.011027*
Leverage	0.001013	0.457917**
Working Capital Ratio	-0.029472	-0.037070

Note: *, ** denote significance at confidence level of 95% and 99%, respectively.

Table 1 shows the linear mixed model estimates of independent variable effects with Tobin's Q and Price-to-book value as dependent variables. All five independent variables have no significant relationship with Tobin's Q. Firm size and the percentage of free float have a significant negative effect on Price-to-book value. Leverage is positively related to Price-to-book value with the stronger degree of confidence level. Firm age and working capital ratio do not affect shareholder value creation.

4.1.2 Dimension of Profitability

Table 2: Mixed model estimates with Cash flow measure (CFM), Return on assets (ROA), Return on capital employed (ROCE), and Return on equity (ROE) as dependent variables

Variable	CFM	ROA	ROCE	ROE
Firm Size	-0.010449	-0.003387	-0.014532	0.004336
Firm Age	0.000156	9.900870E-5	0.000319	0.000246
%Free Float	-0.000585	-0.000439	-0.000569	-0.000486
Leverage	-0.000133	-0.000161	-0.000370	-0.005656**
Working Capital Ratio	0.020769**	0.018318**	0.025223**	0.028550*

Note: *, ** denote significance at confidence level of 95% and 99%, respectively.

As shown in Table 2, working capital ratio has a strong positive impact on Cash flow measure, Return on assets, Return on capital employed, and Return on equity. Leverage is negatively related to Return on equity. However, it does not show any significant relationship with Cash flow measure, Return on assets, and Return on capital employed. Among the rest of the variables, no significant relationships are found.

Table 3: Mixed model estimates with Sales-to-assets ratio (STA), Gross profit margin (GPM), and Net profit margin (NPM) as dependent variables

Variable	STA	GPM	NPM
Firm Size	-0.132468*	0.032004	0.004205
Firm Age	0.005071	-0.001273	-0.000956
%Free Float	-0.001111	0.000493	-0.001434*
Leverage	-0.000225	-0.000118	-0.000182
Working Capital Ratio	-0.006166	0.009179	0.152090**

Note: *, ** denote significance at confidence level of 95% and 99%, respectively.

The mixed model estimated values results with Sales-to-assets ratio, Gross profit margin, and Net profit margin as dependent variables are displayed in Table 3. Firm size and the percentage of free float negatively influence Sales-to-assets ratio and Net profit margin, respectively. Working capital ratio does not play an important role in determining Sales-to-assets ratio and Gross profit margin. It, however, positively influences Net profit margin with the strong degree of confidence level. The remaining independent variables do not have any significant impact on these three profitability measures.

4.1.3 Dimension of Risk

Table 4: Mixed model estimates with Coefficient of variance of cash flow measure (CVCFM), Coefficient of variance of return on assets (CVROA), Coefficient of variance of return on capital employed (CVROCE), and Coefficient of variance of return on equity (CVROE) as dependent variables

Variable	**CVCFM**	**CVROA**	**CVROCE**	**CVROE**
Firm Size	0.050095	-0.012239	0.088639	0.065287
Firm Age	-0.003630	0.009600	-0.012227	-0.007085
%Free Float	-0.001041	-0.001400	-0.004023	-2.128217E-5
Leverage	-1.401466E-5	0.008438	0.005413	-0.050891
Working Capital Ratio	-0.022839	-0.040105	0.294772**	0.127588

Note: *, ** denote significance at confidence level of 95% and 99%, respectively.

Table 4 presents the estimates of independent variable effects with four measures of Coefficient of variance as dependent variables. Working capital ratio has a significant positive effect on Coefficient of variance of return on capital employed. It, however, does not have any significant relationship with Coefficient of variance of

cash flow measure, Coefficient of variance of return on assets, and Coefficient of variance of return on equity. The rest of the independent variables; firm size, firm age, the percentage of free float, and leverage; are not found to have any significant influence on all of the risk measures.

4.1.4 Dimension of Growth

Table 5: Mixed model estimates with Annual growth rate of total assets (AGRTA) and Annual growth rate of total sales (AGRTS) as dependent variables

Variable	**AGRTA**	**AGRTS**
Firm Size	-0.009383	-0.010449
Firm Age	-0.001093	-0.000848
%Free Float	0.001055	0.001269
Leverage	-0.000279	-0.000224
Working Capital Ratio	0.011330	0.011214

Note: *, ** denote significance at confidence level of 95% and 99%, respectively.

The mixed model results with growth as dependent variable are reported in Table 5. All of the independent variables do not show any significant effect on the growth measures.

4.2 Results of the Hypothesis Testing

4.2.1. Hypothesis 1

Hypothesis 1 proposed that firm size would be positively related to firm financial performance. The firm size was found to have a significant negative influence on Price-to-book value and Sales-to-assets ratio. The company performance in terms of the other dimensions, risk and growth, was not affected by company size.

As better financial performers will show the higher Price-to-book value and higher Sales-to-assets ratio, another way to state the finding was that company size was found to have a negative influence on company financial performance. Therefore, Hypothesis 1 was not supported.

4.2.2 Hypothesis 2

Hypothesis 2 stated that firm age would be negatively related to firm financial performance. Firm age was the only independent variable in this study that was not found any significant relationship with financial performance in all dimensions measured. Thus, Hypothesis 2 was not supported.

4.2.3 Hypothesis 3

Hypothesis 3 proposed that free float would be negatively related to firm financial performance. The results showed that the percentage of free float has a significant negative effect on Price-to-book value and Net profit margin, which was in line with the hypothesized relationship. The free float did not display any significant relationship with firm financial performance in terms of risk and growth. Therefore, Hypothesis 3 was supported if the company performance was defined as shareholder value creation in terms of Price-to-book value and profitability in terms of Net profit margin.

4.2.4 Hypothesis 4

Hypothesis 4 proposed that leverage would be negatively related to firm financial performance. Leverage had a significant positive effect on Price-to-book

value, which is one of the measures of shareholder value dimension of firm performance. This relationship was not in line with Hypothesis 4. However, leverage showed the interesting behavior because it significantly affected Return on equity, one of the profitability dimension measures of company performance, in an inverse direction, which was in line with the hypothesized relationship. Both opposite effects were confirmed by over 99% confidence level. Therefore, Hypothesis 4 was strongly supported only if the company financial performance was determined by Return on equity.

4.2.5 Hypothesis 5

Hypothesis 5 stated that working capital ratio would be positively related to firm financial performance. Working capital ratio was a positive determinant of Cash flow measure, Return on assets, Return on capital employed, Return on equity, and Net profit margin. However, its effect on Coefficient of variance of return on capital employed also showed a positive relation. The other dimension measures of firm performance measures, shareholder value creation and growth, were not impacted by working capital ratio. Thus, Hypothesis 5 was supported only if the firm performance is determined as Cash flow measure, Return on assets, Return on capital employed, Return on equity, and Net profit margin.

4.3 Conclusion

Hypothesis 1 was not supported because firm size was not positively related to firm financial performance. Hypothesis 2 was not supported as firm age was not negatively related to firm financial performance. Hypothesis 3 was partially supported

since the percentage of free float was negatively related to firm financial performance if the performance was defined as Price-to-book value and Net profit margin. Hypothesis 4 was partially supported only if the company financial performance was determined by Return on equity. Similarly, Hypothesis 5 was partially supported because working capital ratio was positively related to the company performance only in terms of Cash flow measure, Return on assets, Return on capital employed, Return on equity, and Net profit margin. Table 6 summarizes the results of this study.

Table 6: The resulted determinants of firm financial performance

Financial Performance	Determinants
Shareholder Value Creation	
• TQ	-
• PBV	Firm Size (-); %Free Float (-); Leverage (+)
Profitability	
• CFM	Working Capital Ratio (+)
• ROA	Working Capital Ratio (+)
• ROCE	Working Capital Ratio (+)
• ROE	Leverage (-); Working Capital Ratio (+)
• STA	Firm Size (-)
• GPM	-
• NPM	%Free Float (-); Working Capital Ratio (+)
Risk	
• CVCFM	-
• CVROA	-
• CVROCE	Working capital ratio (+)
• CVROE	-
Growth	
• ATRGA	-
• AGRTS	-

CHAPTER 5

DISCUSSION

5.1 Discussion

5.1.1 Firm Size

According to Table 1, the negative sign of the size-effect estimate significantly indicates that a larger company creates lower shareholder value than a smaller company. This effect is not in line with the proposed hypothesis of this study and the previous research done by Kakani et al. (2001, p. 17). The possible explanation could be that smaller companies publicly listed in the SET still have higher potential to grow while larger companies difficultly struggle to sustain their growth pace (Lawler, McNish & Monier, 2004). The investors then have more confidence and desire to invest in the smaller firms. As a result of high demand, the smaller companies will achieve higher market-based performance compared to the larger firms (Investing School, 2008).

In terms of profitability, the finding based on Thai companies does not agree with the previous studies which found that corporate size had a positive relationship with company profitability. One of these disagreed studies was based on Indonesian companies conducted by Prasetyantoko and Parmono (2008, p. 9) and another was based on Indian firms conducted by Majumdar (1997, p. 236).

The size of the companies selected in the sample does not have any significant relationship with risk and growth of the companies. It agrees with the meta-analysis of 320 studies regarding determinants of financial performance conducted by Capon et

al. (1990, p. 1156), who found no significant impact of corporate size on firm growth. By aforementioned evidences, it can be said that the company size is not positively related to firm financial performance.

5.1.2 Firm Age

The age of the sample of the publicly listed Thai companies does not show any significant effect on the firm financial performance measured by the dimension of market value, ability to create earnings, dispersion of return, and growth rate of the companies.

5.1.3 Free Float

The proportion of free float of a firm has a significant negative impact on Price-to-book value. However, this influence is not stable across the other measure of shareholder value creation dimension, Tobin's Q. It can be implied that a company with higher proportion of free floating stocks creates lower value to shareholders, which is in line with the hypothesized relationship. Basically, a small proportion of the firm's stocks freely available to the public will make the stock price go up (TD Waterhouse, n.d.).

In addition, the percentage of free float has a negative influence on Net profit margin. It means that a company with higher percentage of minority public holding stocks is less effective at transforming the sales into the net profit. This finding on Net profit margin, based on the sample of publicly listed Thai firms, is in line with the proposed hypothesis and the study of Indian firms conducted by Kakani et al. (2001, p. 23).

5.1.4 Leverage

Leverage or the ratio of long-term debt to equity has a significant positive relationship with Price-to-book value. However, this impact is not stable across the other measure of shareholder value creation, which is Tobin's Q. Leverage inversely has a significant negative effect on Return on equity while it does not show any relationship with the other measures of profitability. The findings can be interpreted as a company with higher leverage has higher Price-to-book value, but has lower Return on equity. Leverage, price-to-book value, and return on equity have the same denominator, which is the book value of equity. The numerators of these three variables are long-term debt, market value of equity, and net income, respectively. Based on this knowledge, the finding can also imply that a company with higher long-term debt has higher market value of the stocks, but has lower net income. The explanation for this finding can be that a company that uses financial leverage to create the wealth to shareholders is likely to attract the investors (Investopedia online dictionary, n.d.). Subsequently, high demand for stocks results in high stock price (Investing School, 2008). However, the company tends to fail to generate the earnings exceeding the interest expense. The evidence is shown through the lower net income. Leverage is not found to have any significant relationship with firm risk and growth.

5.1.5 Working Capital Ratio

Working capital ratio, based on the estimated value results of the sample of Thai firms, has a positive effect on Cash flow measure, Return on assets, Return on capital employed, Return on equity, and Net profit margin. It is an outstanding factor affecting five out of seven profitability measures. These findings support the

hypothesized relationship. The positive effect of working capital ratio on Cash flow measure, Return on assets, and Net profit margin was also confirmed by Kakani et al. (2001, p. 23).

However, working capital ratio also shows significant positive relationship with Coefficient of variance of return of capital employed. This significant effect is not stable across the other three risk measures; Coefficient of variance of cash flow measure, Coefficient of variance of return on assets, and Coefficient of variance of return on equity. This finding implies that a firm with higher working capital ratio has higher dispersion of return, particularly, return on capital employed. This effect does not support the hypothesized relationship.

5.2 Recommendation for Further Application

The measures of firm performance in dimension of shareholder value creation are the most important factors in this study that the stock investors should consider in making investment decisions. The first priority should put on leverage. The investors should select a highly leveraged company. The second determinants of the market value of the stocks that they should consider are free float and firm size in terms of total assets. A smaller company with low proportion of minority public holding will create more value to the investors. Age and working capital ratio of the firm are not the strong determinants of the value creation to the stockholders.

The company management is another group of people that can benefit from applying the findings of this study to formulate the firm strategies through manipulating some controllable factors in order to achieve better financial performance. To generate higher value to stockholders, the management can increase

the leverage level of the company and decrease the percentage of free float and firm size. Theoretically, they should increase long-term debt, reduce equity, decrease the proportion of the free float, and lessen the firm assets.

If the company focuses on profitability, the management should increase the working capital ratio of the firm. Particularly rising Return on equity, Sale-to-assets ratio, and Net profit margin can be resulted from lower leverage level, size in terms of total assets, and the percentage of free float of the firm, respectively. According to the calculating formulas, they can increase the working capital ratio by increasing current assets, decreasing current liabilities, or decreasing total sales and can decrease the leverage level by either reducing long-term debt or increasing equity.

The management should reduce the company working capital ratio with the expectation that the company has less dispersion of return on capital returned.

Although the recommendations indicate various adjustments, the appropriate target of those factors toward which the company has to adjust based on many conditions like the industry that the company is in. Besides, some factors are relatively difficult or unable to be adjusted in reality.

5.3 Recommendation for Further Research

This study defined the company size based on total assets. Further research should include total market capitalization and total sales as the independent variables representing the size of the company. Other determinants can be added into the study such as the company industry, the export figure, marketing expenses, dividend policy, and the proportion of foreign shareholders.

The similar study can be conducted using the four-year data from different period to see whether the findings are in line with this study. By comparing the findings from two different periods; the effect of some factors such as the change of policy on the company performance also can be observed.

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APPENDIX A

FORMULAS USED IN THE CALCULATION OF VARIABLES

Table 7: Formulas used in the calculation of variables

Variable Name	Notation	Formula
Firm size	SIZE	Natural logarithm of total assets
Firm age	AGE	Year – (Establishment year)
%Free float	FF	%Shares in minor shareholders
Leverage	LVG	(Long-term debt)/(Equity)
Working capital ratio	WCR	(Current assets – Current liabilities)/(Total sales)
Tobin's Q ratio	TQ	(Market value of equity + Book value of liabilities)/(Book value of assets)
Price-to-book value	PBV	(Market value of equity)/(Book value of equity)
Cash flow measure	CFM	(Net income + Depreciation)/(Total assets)
Return on assets	ROA	(Net income + Interest)/(Total assets)
Return on capital employed	ROCE	(EBIT)/(Total assets – Current liabilities)
Return on equity	ROE	(Net income)/(Equity)
Sale-to-assets ratio	STA	(Total sales)/(Total assets)
Gross profit margin	GPM	(Sales – Cost of sales)/(Total sales)
Net profit margin	NPM	(Net income)/(Total sales)

Table 7 (continued): Formulas used in the calculation of variables

Variable Name	Notation	Formula
Coefficient of variance of cash flow measure	CVCFM	$\left[\sqrt{\sum_{k=1}^{n}\left(CFM_k - CFM_{expected}\right)^2 / (n-1)}\right] / \text{expected CFM}$
Coefficient of variance of return on assets	CVROA	$\left[\sqrt{\sum_{k=1}^{n}\left(ROA_k - ROA_{expected}\right)^2 / (n-1)}\right] / \text{expected ROA}$
Coefficient of variance of return on capital employed	CVROCE	$\left[\sqrt{\sum_{k=1}^{n}\left(ROCE_k - ROCE_{expected}\right)^2 / (n-1)}\right] / \text{expected ROCE}$
Coefficient of variance of return on equity	CVROE	$\left[\sqrt{\sum_{k=1}^{n}\left(ROE_k - ROE_{expected}\right)^2 / (n-1)}\right] / \text{expected ROE}$
Annual growth rate of total assets	AGRTA	$\left[\left(\frac{\text{Ending total assets}}{\text{Beginning total assets}}\right)^{(1/\text{Number of years})}\right] - 1$
Annual growth rate of total sales	AGRTS	$\left[\left(\frac{\text{Ending total sales}}{\text{Beginning total sales}}\right)^{(1/\text{Number of years})}\right] - 1$

APPENDIX B

THE COMPANIES SELECTED IN THE SAMPLE

Table 8: The companies selected in the sample

Industry Group	Company Name	Symbol
Agro and Food Industry	Charoen Pokphand Foods Public Company Limited	CPF
	Minor International Public Company Limited	MINT
	Thai Union Frozen Products Public Company Limited	TUF
	Thai Vegetable Oil Public Company Limited	TVO
Industrials	Thai Stanley Electric Public Company Limited	STANLY
	G J Steel Public Company Limited	GJS
	Sahaviriya Steel Industries Public Company Limited	SSI
	Polyplex (Thailand) Public Company Limited	PTL
	Thai Plastic and Chemicals Public Company Limited	TPC
Property and Construction	Samchai Steel Industries Public Company Limited	SAM
	The Siam Cement Public Company Limited	SCC
	Siam City Cement Public Company Limited	SCCC
	TPI Polene Public Company Limited	TPIPL
	Tata Steel (Thailand) Public Company Limited	TSTH
	Amata Corporation Public Company Limited	AMATA
	Asian Property Development Public Company Limited	AP
	Bangkok Land Public Company Limited	BLAND
	CH. Karnchang Public Company Limited	CK
	Central Pattana Public Company Limited	CPN
	Hemaraj Land and Development Public Company Limited	HEMRAJ
	Italian-Thai Development Public Company Limited	ITD
	Land and Houses Public Company Limited	LH
	L.P.N. Development Public Company Limited	LPN

Table 8 (continued): The companies selected in the sample

Industry Group	Company Name	Symbol
Property and Construction	Power Line Engineering Public Company Limited	PLE
	Quality Houses Public Company Limited	QH
	Rojana Industrial Park Public Company Limited	ROJNA
	SC Asset Corporation Public Company Limited	SC
	Sansiri Public Company Limited	SIRI
	Supalai Public Company Limited	SPALI
	Sino-Thai Engineering and Construction Public Company Limited	STEC
	Ticon Industrial Connection Public Company Limited	TICON
Resources	Banpu Public Company Limited	BANPU
	The Bangchak Petroleum Public Company Limited	BCP
	Electricity Generating Public Company Limited	EGCO
	IRPC Public Company Limited	IRPC
	The Lanna Resources Public Company Limited	LANNA
	PTT Public Company Limited	PTT
	PTT Exploration and Production Public Company Limited	PTTEP
	Ratchaburi Electricity Generating Holding Public Company Limited	RATCH
	Thai Oil Public Company Limited	TOP
Services	CP All	CPALL
	Home Product Center	HMPRO
	Loxley	LOXLEY
	Siam Makro	MAKRO
	Bangkok Dusit Medical Services	BGH
	Bumrungrad Hospital	BH
	BEC World	BEC
	Major Cineplex Group	MAJOR
	MCOT	MCOT
	The Erawan Group	ERAWAN

Table 8 (continued): The companies selected in the sample

Industry Group	Company Name	Symbol
Services	Airports of Thailand Public Company Limited	AOT
	Bangkok Expressway Public Company Limited	BECL
	Precious Shipping Public Company Limited	PSC
	Regional Container Lines Public Company Limited	RCL
	Thai Airways International Public Company Limited	THAI
	Thoresen Thai Agencies Public Company Limited	TTA
Technology	Cal-Comp Electronics (Thailand) Public Company Limited	CCET
	Delta Electronics (Thailand) Public Company Limited	DELTA
	Hana Microelectronics Public Company Limited	HANA
	Advanced Info Service Public Company Limited	ADVANC
	Jasmine International Public Company Limited	JAS
	Samart Corporation Public Company Limited	SAMART
	Thaicom Public Company Limited	THCOM
	True Corporation Public Company Limited	TRUE
	TT&T Public Company Limited	TT&T

APPENDIX C

LINEAR MIXED MODEL RESULTS

Table 9: Mixed model estimates with Tobin's Q (TQ) as the dependent variable

Estimates of Fixed Effects[a]

Parameter	Estimate	Std. Error	df	t	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
Intercept	.901845	.542314	89.994	1.663	.100	-.175557	1.979248
SIZE	-.000588	.053117	85.478	-.011	.991	-.106191	.105014
AGE	-.000746	.004252	76.679	-.175	.861	-.009214	.007722
FF	-.003310	.002311	174.769	-1.433	.154	-.007871	.001250
LVG	.001013	.001563	64.040	.648	.519	-.002110	.004136
WCR	-.029472	.026782	93.198	-1.100	.274	-.082654	.023710

a. Dependent Variable: Tobin's Q.

Table 10: Mixed model estimates with Price-to-book value (PBV) as the dependent variable

Estimates of Fixed Effects[a]

Parameter	Estimate	Std. Error	df	t	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
Intercept	3.824120	1.152680	95.644	3.318	.001	1.535959	6.112280
SIZE	-.293343	.113267	91.451	-2.590	.011	-.518318	-.068368
AGE	.007458	.009077	83.279	.822	.414	-.010594	.025511
FF	-.011027	.005090	193.194	-2.167	.031	-.021066	-.000988
LVG	.457917	.002799	64.013	163.582	.000	.452325	.463509
WCR	-.037070	.065303	93.177	-.568	.572	-.166745	.092604

a. Dependent Variable: Price-to-book value.

Table 11: Mixed model estimates with Cash flow measure (CFM) as the dependent variable

Estimates of Fixed Effects[a]

Parameter	Estimate	Std. Error	df	t	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
Intercept	.263129	.098356	80.500	2.675	.009	.067413	.458844
SIZE	-.010449	.009732	77.362	-1.074	.286	-.029826	.008928
AGE	.000156	.000797	68.081	.195	.846	-.001435	.001746
FF	-.000585	.000408	208.238	-1.434	.153	-.001389	.000219
LVG	-.000133	.000284	63.687	-.469	.640	-.000701	.000434
WCR	.020769	.004827	83.604	4.303	.000	.011169	.030369

a. Dependent Variable: Cash flow measure.

Table 12: Mixed model estimates with Return on assets (ROA) as the dependent variable

Estimates of Fixed Effects[a]

Parameter	Estimate	Std. Error	df	t	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
Intercept	.151191	.074296	72.735	2.035	.045	.003111	.299272
SIZE	-.003387	.007325	70.128	-.462	.645	-.017996	.011223
AGE	9.900870E-5	.000590	65.444	.168	.867	-.001080	.001278
FF	-.000439	.000358	181.265	-1.225	.222	-.001146	.000268
LVG	-.000161	.000291	63.705	-.553	.582	-.000743	.000421
WCR	.018318	.004332	81.080	4.228	.000	.009699	.026937

a. Dependent Variable: Return on asset.

Table 13: Mixed model estimates with Return on capital employed (ROCE) as the dependent variable

Estimates of Fixed Effects[a]

Parameter	Estimate	Std. Error	df	t	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
Intercept	.341836	.115162	77.200	2.968	.004	.112529	.571142
SIZE	-.014532	.011291	73.789	-1.287	.202	-.037030	.007966
AGE	.000319	.000916	70.277	.349	.728	-.001507	.002145
FF	-.000569	.000597	178.364	-.952	.342	-.001748	.000610
LVG	-.000370	.000361	64.522	-1.023	.310	-.001092	.000352
WCR	.025223	.007868	96.385	3.206	.002	.009606	.040839

a. Dependent Variable: Return on capital employed.

Table 14: Mixed model estimates with Return on equity (ROE) as the dependent variable

Estimates of Fixed Effects[a]

Parameter	Estimate	Std. Error	df	t	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
Intercept	.145151	.121751	70.871	1.192	.237	-.097622	.387923
SIZE	.004336	.011842	69.415	.366	.715	-.019285	.027957
AGE	.000246	.000948	68.212	.260	.796	-.001645	.002138
FF	-.000486	.000746	105.227	-.651	.516	-.001965	.000993
LVG	-.005656	.000699	62.665	-8.090	.000	-.007053	-.004259
WCR	.028550	.013721	71.697	2.081	.041	.001196	.055905

a. Dependent Variable: Return on equity.

Table 15: Mixed model estimates with Sales-to-assets (STA) as the dependent variable

Estimates of Fixed Effects[a]

Parameter	Estimate	Std. Error	df	t	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
Intercept	2.052371	.500795	114.827	4.098	.000	1.060377	3.044365
SIZE	-.132468	.050996	111.211	-2.598	.011	-.233518	-.031418
AGE	.005071	.004705	78.948	1.078	.284	-.004293	.014436
FF	-.001111	.001385	195.947	-.802	.423	-.003842	.001620
LVG	-.000225	.000683	63.999	-.330	.742	-.001589	.001138
WCR	-.006166	.018550	100.652	-.332	.740	-.042965	.030634

a. Dependent Variable: Sales-to-assets ratio.

Table 16: Mixed model estimates with Gross profit margin (GPM) as the dependent variable

Estimates of Fixed Effects[a]

Parameter	Estimate	Std. Error	df	t	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
Intercept	-.012358	.219596	109.435	-.056	.955	-.447572	.422855
SIZE	.032004	.022207	106.975	1.441	.152	-.012018	.076027
AGE	-.001273	.001933	76.878	-.658	.512	-.005123	.002578
FF	.000493	.000655	152.042	.752	.453	-.000802	.001787
LVG	-.000118	.001130	65.154	-.104	.917	-.002374	.002139
WCR	.009179	.007882	110.225	1.165	.247	-.006441	.024799

a. Dependent Variable: Gross profit margin.

Table 17: Mixed model estimates with Net profit margin (NPM) as the dependent variable

Estimates of Fixed Effects[a]

Parameter	Estimate	Std. Error	df	t	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
Intercept	.103625	.149917	76.718	.691	.492	-.194916	.402165
SIZE	.004205	.014842	75.901	.283	.778	-.025355	.033765
AGE	-.000956	.001179	71.241	-.811	.420	-.003306	.001395
FF	-.001434	.000638	161.944	-2.247	.026	-.002695	-.000174
LVG	-.000182	.000349	63.811	-.522	.604	-.000880	.000516
WCR	.152090	.008706	88.698	17.469	.000	.134790	.169390

a. Dependent Variable: Net profit margin.

Table 18: Mixed model estimates with Coefficient of variance of cash flow measure (CVCFM) as the dependent variable

Estimates of Fixed Effects[a]

Parameter	Estimate	Std. Error	df	t	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
Intercept	-.242937	.659334	74.386	-.368	.714	-1.556574	1.070701
SIZE	.050095	.063680	74.592	.787	.434	-.076774	.176964
AGE	-.003630	.005075	73.906	-.715	.477	-.013742	.006482
FF	-.001041	.004422	77.241	-.235	.814	-.009845	.007763
LVG	-1.401466E-5	.007274	62.404	-.002	.998	-.014552	.014524
WCR	-.022839	.114215	119.688	-.200	.842	-.248983	.203305

a. Dependent Variable: Coefficient of variance of cash flow measure.

Table 19: Mixed model estimates with Coefficient of variance of return on assets (CVROA) as the dependent variable

Estimates of Fixed Effects[a]

Parameter	Estimate	Std. Error	df	t	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
Intercept	.198284	.928455	72.012	.214	.831	-1.652552	2.049120
SIZE	-.012239	.090269	72.107	-.136	.893	-.192182	.167705
AGE	.009600	.007130	71.547	1.346	.182	-.004615	.023815
FF	-.001400	.006190	77.032	-.226	.822	-.013725	.010925
LVG	.008438	.020053	69.132	.421	.675	-.031565	.048440
WCR	-.040105	.124335	83.636	-.323	.748	-.287375	.207165

a. Dependent Variable: Coefficient of variance of return on assets.

Table 20: Mixed model estimates with Coefficient of variance of return on capital employed (CVROCE) as the dependent variable

Estimates of Fixed Effects[a]

Parameter	Estimate	Std. Error	df	t	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
Intercept	-.164772	.821434	93.137	-.201	.841	-1.795945	1.466402
SIZE	.088639	.079371	92.825	1.117	.267	-.068980	.246257
AGE	-.012227	.006374	92.397	-1.918	.058	-.024886	.000431
FF	-.004023	.005299	98.434	-.759	.450	-.014539	.006492
LVG	.005413	.003766	59.746	1.437	.156	-.002122	.012947
WCR	.294772	.073739	68.372	3.997	.000	.147643	.441902

a. Dependent Variable: Coefficient of variance of return on capital employed.

Table 21: Mixed model estimates with Coefficient of variance of return on equity (CVROE) as the dependent variable

Estimates of Fixed Effects[a]

Parameter	Estimate	Std. Error	df	t	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
Intercept	-.453489	.998710	62.854	-.454	.651	-2.449341	1.542364
SIZE	.065287	.096884	62.572	.674	.503	-.128345	.258919
AGE	-.007085	.007662	61.629	-.925	.359	-.022402	.008232
FF	-2.128217E-5	.006645	71.257	-.003	.997	-.013270	.013227
LVG	-.050891	.034250	73.514	-1.486	.142	-.119142	.017361
WCR	.127588	.183632	128.646	.695	.488	-.235743	.490919

a. Dependent Variable: Coefficient of variance of return on equity.

Table 22: Mixed model estimates with Annual growth rate of total assets (AGRTA) as the dependent variable

Estimates of Fixed Effects[a]

Parameter	Estimate	Std. Error	df	t	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
Intercept	.153561	.105927	76.066	1.450	.151	-.057408	.364530
SIZE	-.009383	.010306	75.018	-.910	.366	-.029913	.011148
AGE	-.001093	.000815	74.387	-1.341	.184	-.002717	.000531
FF	.001055	.000666	103.659	1.584	.116	-.000266	.002375
LVG	-.000279	.001013	63.936	-.276	.784	-.002302	.001744
WCR	.011330	.011352	101.374	.998	.321	-.011189	.033849

a. Dependent Variable: Annual growth rate of total assets.

Table 23: Mixed model estimates with Annual growth rate of total sales (AGRTS) as the dependent variable

Estimates of Fixed Effects[a]

Parameter	Estimate	Std. Error	df	t	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
Intercept	.155409	.117987	64.950	1.317	.192	-.080230	.391049
SIZE	-.010449	.011496	64.458	-.909	.367	-.033412	.012514
AGE	-.000848	.000913	63.697	-.929	.357	-.002673	.000977
FF	.001269	.000755	80.203	1.681	.097	-.000233	.002771
LVG	-.000224	.001015	62.827	-.220	.826	-.002253	.001805
WCR	.011214	.012543	74.168	.894	.374	-.013776	.036205

a. Dependent Variable: Annual growth rate of total sales.

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