CHAPTER 1

INTRODUCTION

1.1 Introduction

A firm in the modern business era is an independent entity which is separated from its owners or investors, creditors, and other interested parties. Although investors and creditors supply the funds to the firm, they are still seen as outsiders and cannot directly involve in the operations and conditions of the firm.

Therefore, they will need information about the financial status and performance of the firm in the form of accounting reports. This information helps investors and creditors to evaluate the effectiveness of management's ability to utilize the firm's resources. Besides this, accounting serves an important function which is to provide useful data for investors and creditors to use to make appropriate economic decisions.

Accounting Principle Board Statement No. 4 (Belkaoui, 2001: 32), Basic Concepts of Accounting Principles Underlying Financial Statement of Business Enterprises, gives the definition of accounting as follows:

> Accounting is a service activity. Its function is to provide quantitative information, primarily financial in nature about economic entities that is intended to be used in making economic decisions, in making a resolved choice among alternative courses of action.

The usefulness of accounting information depends on many factors which includes the reliability of the measurement procedure. The principle of objectivity is applied to justify the reliability of information. Generally, an objectivity measurement should be free from personal bias as well as be based on evidence. Therefore, historical

cost is applied to recognize the financial value of assets according to the objectivity concept. Historical cost is determined in terms of the price when an asset is acquired.

However, historical cost is highly criticized about its predictive ability and correcting expectation. In other word, relevance is a major concern for historical cost. The main reason is that current cost of using the assets (depreciation expenses) which is recognized on historical cost is increasingly less relevance due to no recognition the changing value of assets. Moreover, long life assets (such as land and building) which are recognized on historical cost are increasingly less relevance due to the effect of inflations. As a consequence, the fair value method is introduced in order to provide information for predicting future circumstance rather than the past. The fair value of an asset is the amount at which that asset could be bought or sold in a current transaction between willing parties, other than in a liquidation. It is expected that fair value will enhance relevance of accounting information.

In the past, fixed assets were only recognized in terms of historical costs. Until 1989, asset revaluation was allowed in Thai Accounting Standard No. 9: Property, Plant, and Equipment (TAS No. 9). Appraisal value was a generally accepted method that followed this standard, whereas other methods, such as price index and current price, were also allowed.

Later, at the beginning of 1999, TAS No. 9 was replaced by Thai Accounting Standard No. 32: Property, Plant, and Equipment. The concept of fair value is also included in this standard which takes into account the market prices of fixed assets. In case of plant and equipment, however, depreciated replacement cost is used when there is no determinable market value.

From the explanation above, relevance is a primary goal for the revaluation of assets. It is expected that the increase in relevance will enhance the usefulness of accounting information for investors to use in valuating a business.

Barth, Beaver, and Landsman (2001: 80) conclude that value relevance is one approach that proves the relevance of accounting information. Therefore, this dissertation attempts to examine the value relevance of fixed asset revaluation by reflecting on the state of the firm at a point in time in terms of the relation between listed firms' price and the asset revaluation reserve or price analysis and by reflecting

on the timeliness in terms of the relation between return and net increment to the asset revaluation reserve or return analysis.

When applying TAS No. 32, the revaluation of assets is one choice for asset value recognition. Management can independently decide to use or not to use this accounting procedure. Certainly, management will revalue assets for his or her firm if the benefits exceed additional costs. The major costs associate with the revaluation of assets are valuation costs for contracting independent appraisers and associated audit fees due to the increase in complexity in verifying subjective valuation.

In addition, the asset revaluation also affects a company's financial statement. It decreases stated profits in the financial statement by increasing depreciation expenses as well as decreasing the gain on the sale of assets that are revalued. Moreover, it also impacts the financial ratios, such as: return on assets (ROA) and return on equity (ROE).

In spite of many unfavorable outcomes of asset revaluation, many firms make a decision to apply this accounting procedure. As a consequence, it is interesting to find the hidden motivations of management as to why it would revalue its assets. In positive accounting theory, management selects an accounting procedure in order to reduce its contracting costs.

In case of asset revaluation, contracting costs can be decreased by reducing the risk of violating debt covenants, signaling important information in order to solve the problem of information asymmetry, and reducing political pressures. This dissertation examines what benefits motivate management's decision to revalue for Thai listed firms.

Due to an exception from TAS No. 32 until 2006 for recognizing depreciation expenses for revaluation amounts on the income statement, the motivations for reducing the political pressures do not exist. Therefore, this dissertation investigates management's motivations for asset revaluation only based on debt reduction and information signaling.

Therefore, there are two main objectives in this dissertation. The first objective is to find a value relevance of fixed asset revaluation. The second objective is to examine management's hidden motivations for deciding to upwardly revalue fixed assets. According to these two objectives, two research questions are set up as shown below.

Q1: Is there a value relevance of fixed asset revaluation?

Q2: What are the management's motivations for deciding to upwardly revalue fixed assets?

1.2 Contributions of the Study

First, this dissertation examines the value relevance of asset revaluation of the listed firms in the Stock Exchange of Thailand to confirm the usefulness of asset revaluation both for standard setters and investors. Normally, research in value relevance is designed to provide evidence to accounting standard setters which would allow them to update their prior beliefs about how accounting amounts are reflected in share prices, and thus, can be informative to their deliberations on accounting standards (Barth et al., 2001: 78).

In case of investors, they require accounting reports as a source of information for making investment and valuation decisions (Watts and Zimmerman, 1986: 197-198). Value relevance depicts the helpfulness of accounting information for decision making. Although Kittima Acaranupong (2003: 80-82) also investigates the value relevance of asset revaluation, she only uses price analysis whereas this dissertation applies both price and return analysis. Moreover, Kittima Acaranupong (2003: 80-82) uses quarterly data whereas this dissertation uses yearly data that is more consistent with asset revaluation which usually occurs only once a year.

Second, I examine the factors which influence management's motivations and the results of this dissertation are expected to explain the reasons for asset revaluations of listed firms in Thailand that may differ from the reasons for asset revaluations of listed firms in other countries.

For instance, debt ratio is found to explain the management motivations of asset revaluations in the UK, Australia, and New Zealand. But it may not do so for Thai firms in Thailand which hold more private debt (loans from banks) than public debt (issuing debt instruments). This is different from most firms in these three countries.

In addition, TAS No. 9 provided that depreciation expenses which occurred from asset revaluation were not to be included in the income statement but rather were to be deducted from the premium from the asset revaluation. Although TAS No. 9 was replaced by TAS No. 32, there is an exception for depreciation expenses recognition from revaluation amounts until 2006 (Angkarat Priebjrivat, 2005: 178-179). For this reason, the asset revaluation cannot be used as a tool for reducing political cost. Therefore, political hypothesis is not investigated in this dissertation.

In part of signaling hypothesis, the net working capital ratio is introduced to be a proxy for liquidity rather than of traditional ratios (current and quick ratio). This dissertation does not only study the liquidity problem but also investigates the improvement of future financial liquidity after the year of asset revaluation.

1.3 Organization of the Dissertation

The dissertation is organized as follows: Chapter 2 describes literature reviews in two areas of asset revaluation studies, value relevance and management motivations, Chapter 3 discusses research hypotheses and designs, Chapter 4 contains the results and implications, Chapter 5 indicates research conclusions and suggestions for future research.

CHAPTER 2

LITERATURE REVIEWS

2.1 Accounting Standard in Revaluation of Fixed Assets

Formerly, Property, Plant, and Equipment (PPE) were recognized in terms of historical costs as a part of permanent assets (Termsak Krisanamara, Panee Kaewsonthai, Virai Veerapeeraya and Vatanee Panachet, 1987:121-123). Until the beginning of 1989, the concept of asset revaluation was included in TAS No 9 "Property, Plant, and Equipment" which provided that PPE had to be recognized as historical cost, in general.

However, TAS No. 9 allowed recognizing PPE in other values in order to show the results of the change in price level. Appraisal value was a general accepted method provided by this standard. Other methods, such as price index and current price, were also allowed. In case of upwardly revalued assets, TAS No. 9 provided that depreciation expenses in the income statement were to be calculated based on the original historical costs, whereas depreciation expenses from revaluation amounts had to be directly deducted from the revaluation reserve or premium in the asset revaluation in balance sheet.

TAS No. 9 was superseded by TAS No. 32 "Property, Plant, and Equipment" at the beginning of 1999. Similar to International Accounting Standard No. 16 (IAS No. 16), TAS No. 32 sets two alternative methods for fixed asset recognition. Normally, fixed assets are initially recognized in terms of acquisition or construction costs (historical costs) and subsequently less any accumulated depreciation and any accumulated impairment losses. However, TAS No. 32 allows for the revaluation of fixed assets that is consistent with the fair value accounting concept.

Fair value can be defined as the amounts for which the asset could be exchanged between knowledgeable, willing parties in an arm's-length transaction. According to TAS No. 32, the fair value of land and building are the market prices of those assets. This value is determined by appraisal normally undertaken by professionally qualified valuers. Market prices are also used for plant and equipment; however, depreciated replacement cost may instead be used when there is no determinable market value. Belkaoui (2001: 277) explains that "replacement cost-used is equal to the amount of cash or other considerations that would be needed to obtain an equivalent asset on the second-hand market having the same remaining useful life"

Actually, market prices of land and building are hardly determined when compared with financial assets, such as bonds, stocks, and other trading investment securities. In following with the concept of Statement of Financial Accounting Standards No. 157 (SFAS 157): Fair value measurement, fair value is classified into three broad levels. The first level is fair value based on the quoted price in active markets for identical assets and liabilities at the measurement date. The second level is fair value based on the quoted price for similar or related assets and liabilities. The third level is fair value based on the estimation model. This model is used because there are no quoted prices for those assets.

In this circumstance, SFAS 157 suggests that the estimation model should be based on market prices as model inputs wherever possible (SFAS 157: 9-12). Normally, fixed assets are included in the third level in which quoted prices are not easily found for identical or similar assets. Landsman (2006: 14) argues that a fair value estimation in the third level will lack value relevance because it can be easily manipulated especially when an internal appraisal by management is done.

Unlike TAS No. 9, TAS No.32 requires that if a PPE item is revalued, the entire class of them should also be revalued. Moreover, revaluation should be done when the fair value differs materially from its carrying amount. In case of no or little movement in fair value, however, assets should be revalued every three to five years.

While in general revaluation adjustments are to be shown directly in stockholders' equity as a revaluation surplus, if a downward adjustment had previously been made to the asset and was recognized as an expense, the later upward revaluation

would also be reported as income. Any revaluation receiving this treatment would be limited to the amounts of expenses recognized previously.

If an asset's carrying amount is decreased by recognition of a permanent impairment, but the asset had previously been revalued upward by crediting a revaluation surplus, the decline should be reported as a reduction of that surplus account rather than being reported as income. Any decline in value in excess of the amount which is previously recognized as an upward revaluation should be reported in earnings currently.

After the assets are revalued, depreciation expenses have to be calculated based on the new fair value. For TAS 32, however, there is an exception for recognizing depreciation expenses from revaluation amounts. Angkarat Priebjrivat (2005: 178-179) concludes that:

> Until 2006, an entity that revalues property, plant, and equipment (PPE) is allowed to recognize depreciation expense equals to the depreciation amount calculated from the cost of PPE. After that, the depreciation expense will be calculated from the revaluation amounts.

It means that an upward asset revaluation will increase the firm's book value in terms of the premium in the asset revaluation but the increasing in the depreciation expenses from revaluation amounts will not be incorporated in the income statement until 2006.

2.2 Theories and Literature Reviews

Prior research in the asset revaluations can be classified into three main areas. The first area examines information content of revaluation. The second area examines value relevance and the final area examines management motivations.

2.2.1 Theories of information content and Value Relevance

Asset revaluation is an alternative accounting procedure which is introduced to enhance the usefulness of accounting information based on historical cost accounting. In order to find evidence to support this expectation, information content and value relevance analyses are used.

In the early of 1960s, a common hypothesis was that corporate accounting reports were the only source of information on the corporation. Due to accounting procedure flexibility, managers reported the results they wanted and misled the stock market. As a result, the market could not discriminate between efficient corporations from the less efficient corporations.

In this circumstance, earnings were calculated under different bases. Thus, earnings came to be considered as meaningless numbers and not useful information for investors. Based on this assumption, stock prices should not be useful signals for representing the results of the performances of firms.

Watts and Zimmerman (1986: 20) argues that "the Efficient Markets Hypothesis (EMH) suggests that this sole source hypothesis is unlikely to be descriptive and that the stock market is not systematically misled by accounting earnings". According to EMH, the usefulness of accounting information can be tested by finding the association between earnings and stock prices or change in stock price. For this reason, information content and value relevance is introduced.

In theory, the studies of the impacts of book value and earnings on stock prices are based on EMH, especially the Semi-strong form. Fama (1970: 413) explains that "the theory of efficient markets is concerned with whether prices at any point in time "fully reflect" available information". The test of EMH can be classified into three categories based on the characteristics of information.

1. Weak form tests – The information used in these tests include past security prices and/or past trading volumes. It is hypothesized that change in the present security prices only depend on past security prices. Moreover, the data is available to many people at very low costs. Therefore, no systematic abnormal rates of return are observed in these tests.

2. Semistrong form tests – The information in these tests include all publicly available information. Therefore, changes in the present security prices depend not only on past security prices but also on public information, including accounting information. Moreover, public information is available at low cost. Therefore, no systematic abnormal rates of return are observed in these tests.

3. Strong form tests – The information in these tests include all both publicly and privately available information. These tests are highly criticized because it is very difficult to access inside information.

In summary, EMH is applied to test the usefulness of accounting information. It is used to scrutinize the prices (returns) behaviors which respond to this information in terms of price or return reactions on the date of the accounting information disclosure or the association between prices (returns) and accounting information, especially earnings. Certainly, both of them are also used in studying of usefulness of asset revaluation.

2.2.2 Information content

Information content has two main definitions. The first definition is: information content causes a change in expectation about the outcome of an event. Whereas the second states that information content causes a change in the decision maker's behavior.

The motivation for the early studies is to verify the information value of earnings. Researchers investigate associated price reaction to released financial information. This type is called event studies.

Kothari (2001: 116) concludes that accounting information is considered information content when the level or variability of a stock price changes around the information announcement date. This price reaction confirms the efficiency of capital markets that security prices quickly respond to that new information.

Generally, information content can be tested by using four steps which include identifying the event of interest, modeling the security price reaction, estimating the excess returns, and analyzing the results (Bowman, 1983: 561-584). A major concern for all information content analysis is confounding effects, i.e. other non-interested

information that impact prices or returns. Therefore, the successes of many event studies will depend on the ability to control confounding events.

The first accounting information which is investigated for information content is earnings. Beaver (1968: 67-92) examines investors' reaction to earnings, as reflected in the volume and price movements of common stocks in weeks surrounding the announcement dates. The variance of abnormal returns is used as a measure of the information content of the annual earnings announcement. It is hypothesized that the weekly abnormal return variance increases at the time of an earnings announcement. This result supports the contention that earnings reports are information content.

After Beaver (1968: 67-92), a lot of studies investigate information content. For example, May (1971: 119-163) examines the information content of quarterly accounting data in the form of earnings announcement and compares the differences between the influence on investors of quarterly and annual earnings announcement. The result shows that price changes in the weeks during quarterly earnings announcements are greater than other periods, whereas the degrees of price change of quarterly earnings are not significantly less than degrees of annual earnings.

Amir, Jones, Leftwich and Zmijewski (1993: 230-264) investigate the price reaction to the announcement of U.S. GAAP earnings relative to non-U.S. GAAP earnings. The result illustrates that U.S. GAAP has more information content than from the measures from the aggregate mix of non-U.S. GAAP systems.

The dissimilar market responses to earnings announcement of each firm are investigated. Pincus (1983: 155-183) hypothesizes that differences in prior knowledge about firms are the main reason for differences in the speed of price reactions. The result shows that the variability of unexpected returns at the time of an earnings announcement is greater when "precision of earnings announcement" in terms of the ability to predict income is less.

Not only are earnings scrutinized for information content, but also other financial information as well. For example, dividend is examined by Riding (1984: 163-176). The author constructs an event study to find a dividend announcement effect. He finds that no information content is presented for dividend announcements.

In addition, changes in accounting procedures can be seen as information which influences on the perception of investors. Many studies have investigated the

price reactions on this topic. Ball (1972: 1-38) examines price reaction to income change that resulted from changes in accounting techniques. He wants to investigate the belief that changes in accounting procedures may mislead the stock market. The result shows that this belief is not true because price reaction to income change which is caused by changes in accounting techniques is in fundamentally different from the reaction to income change which is caused by a firm's operation.

Moreover, Sunder (1973: 1-45) also investigates price reaction which results from changes in the inventory costing method to and from the LIFO method. Although the adoption of LIFO will decrease earnings, the result shows the average 12-month stock price increases after the end of the adoption year. However, it cannot be concluded that accounting procedures can be used as a tool to manipulate market reactions.

2.2.3 Information content researches in the asset revaluation

Asset revaluation is an alternative accounting procedure that the manager can select to use over historical cost accounting. If the announcement of the revaluation conveys new information to investors, the market will immediately respond to this information. Therefore, the majority of prior research attempts to examine the importance of asset revaluation.

Information content of asset revaluation is examined by conducting an event study around the disclosure date. Investor reactions are investigated by studying stock prices' reactions after the announcement of asset revaluations (e.g., Sharpe and Walker, 1975: 293-310; Standish and Ung, 1982: 701-715 and Emanuel, 1989: 213-227).

Sharpe and Walker (1975: 293-310) firstly investigate stock prices' reactions after the asset revaluation announcement. Their sample is composed of 34 asset revaluations by 32 Australian public firms during the period 1960-70. The revaluation announcement dates are obtained from the Sydney Stock Exchange files which are cross-checked against newspaper reports. The market model is applied to find abnormal returns (difference between an expected return from the market model and actual return of the firm) for each firm. The estimation period which is lasted sixty

months excluded event period (twelve months before and twelve months after the announcement month) is constructed in order to estimate the coefficients. These coefficients are used to predict market model returns for the event period. These predicted returns are subtracted from the actual monthly returns and then averaged across all 34 revaluation cases and is called “the average abnormal return”. They find that the asset revaluation increases the returns during the event period when they are compared with the returns during the general state of the stock market (18% or 19%).

Moreover, Sharpe and Walker (1975: 293-310) attempt to eliminate the effects of earnings or dividend changes on stock prices. Their result illustrates that the market regards an announcement of an asset revaluation as information of significance.

However, the results of some of the following studies (e.g., Standish and Ung, 1982: 701-715 and Emanuel, 1989: 213-227) are not consistent with the result of Sharpe and Walker (1975: 293-310). Standish and Ung (1982: 701-715) also examine the behavior of stock prices of British companies during a period of months which surrounds a sample of announcements of asset revaluations.

Two alternative hypotheses explain the influence of asset revaluation on stock price movement. The first hypothesis is based on an information asymmetry. When outside investors use historical cost accounting, they cannot accurately determine future earnings and the true value of a firm’s assets. The announcements of asset revaluation can be used as a signal of the future performance of the firm and they provide additional information about asset values. The second hypothesis argues that there are other alternative sources of information that can be used to estimate the current value of an asset. Consequently, there is no association between the announcement of revaluation and stock price revisions.

The sample of Standish and Ung (1982: 701-715) is consisted of 232 revaluations, during 1964-1973. Similar to Sharpe and Walker (1975: 293-310), the authors investigate the movement of price in the announcement month as well as surrounding months (12 months before and after announcement month) by using both the market model and CAPM in order to find abnormal return and cumulative abnormal return. Moreover, the authors select non-revaluating firms as a control group based on similar risk which is measured by using beta and this control group is

compared with a sample group (revaluating firms) by using the Wilcoxon matched-pairs signed-rank non-parametric test.

Although the largest abnormal return occurs in the announcement month which indicated that the second hypothesis is rejected and positive association between revaluation announcement and stock price revision is found, the result also indicates that no any relation between the largest percentage of increasingly revaluating portfolio and the largest stock price revision. This means that revaluations by themselves are not reflected in unexpected returns after the sample is partitioned into sub-groups in order to control other signals, such as stock dividends and other subsequent capitalization changes, and changes in earnings or dividends. In conclusion, the result of Standish and Ung (1982: 701-715) does not confirm the information content of asset revaluation.

Emanuel (1989: 213-227) hypothesizes that the difference between historical cost and current value will generate a share price revision. The sample is consisted of 143 asset revaluations during the 1970 -1979 period. The author starts to scrutinize average residuals, cumulative average residuals, and scaled squared residuals over a 78-week event period. Moreover, 104 weeks, 52 each side of the event period, is the estimation period. The null hypothesis is that the average residual is not significantly different from zero, or the scaled squared residual is not significantly different from one. The result shows that the null hypothesis is rejected. It means that there is an impact of asset revaluation on share prices. However, Emanuel (1989: 220-222) attempts to eliminate the effects of the earnings and dividend announcement by separating the sample into six groups based on increasing, decreasing, or no change in earnings and dividend and comparing the group data with the control companies (non-revaluing), with the matching attribute being the beta coefficient. They find that there is no difference in price reaction between the sample and control group. In addition, the study compares the biggest revaluing companies with the smallest. The result shows that the residual returns of both groups are not significantly different.

In summary, only Sharpe and Walker (1975: 293-310) shows the association between the asset revaluation and returns during event period, whereas Standish and Ung (1982: 701-715) and Emanuel (1989: 213-227) do not find any relation between

them. As a consequence, the results of prior research are mixed and cannot be used as evidence to support the information content of asset revaluation.

2.2.4 Value relevance

To deeply understand the value relevance, one has to comprehend the importance of relevance in accounting information. Relevance is primarily a qualitative attribute of accounting information. According to the definition of Financial Accounting Standards Board (FASB: 1980) on Statement of Financial Accounting Concept No.2 or SFAC No.2, relevance accounting information is:

> Capability of making a difference in a decision by helping users to form predictions about the outcomes of past, present, and future events or to confirm or correct prior expectations. Information can make a difference to decisions by improving decision makers' capabilities to predict or providing feedback on either expectation

From the definition of FASB, information will be relevance if it can help users to make better decisions and predict or correct expectations. Moreover, relevance information should be timely. It means that information is available when it is needed. If it lacks timeliness, the information may lose its capability to influence decisions.

Tests of value relevance represent one approach to operationallizing the FASB's state criteria of relevance and reliability (Barth et al., 2001: 80). Generally, the main benefit of value relevance studies in accounting is to provide standard setters with information to be used to determine which accounting information should be used.

Beaver (1972: 428) suggests that the association of accounting numbers with security returns can be used to rank the order of alternative accounting methods as a means of determining the accounting method that should become a standard. He concludes that "the method which is more highly related to security prices ought to be the method reported in the financial statement"

The association analysis focuses on the view that financial statements are a summary of the events that have affected the firm over the fiscal period for which the report has been prepared. Ball and Brown (1968: 159-178) which is the first study in this area examine the importance of information which is contained in the firm's accounting income number. The result shows that accounting earnings can explain unexpected security returns.

Before Easton and Harris (1991: 19-36), most research examines the value relevance by investigating the relation between returns and changes in earnings or between abnormal returns and unexpected earnings. Easton and Harris (1991: 19-36) attempt to evaluate the relevance of earnings level variable and changes in earnings variable in terms of the association with stock returns. The result shows that both the current earnings level variable and changes in earnings variable are relevant for explaining returns, and these two variables are not just substitutes.

Later, other accounting information is also scrutinized. For example, cash flow and accrual components are examined by Wilson (1986: 165-200) who use association analysis to find the relative information. Many financial analysts question the reliability and relevance of earnings because of its accrual components that can be manipulated to alter reported earnings. The method of Wilson (1986: 165-200) is to link the association between accruals (cash flow components of earnings) and stock returns at the earnings announcement date to the association between stock returns and component information which is released at a later date when the annual report arrives at the SEC. The result shows that the incremental information content of both total accruals and cash flow and of only the total accruals have incremental information content beyond the cash flow components. However, only incremental information content of current accruals is found, whereas incremental information content of long term accruals is not found.

Moreover, Livnat and Zarowin (1990: 25-46) investigate value relevance of cash flow components (operating, financing, and investing cash flows) beyond net income. They find that cash flow from operation does not have incremental information content effect beyond net income.

Non-financial information is also investigated for value relevance. Amir and Lev (1996: 230-264) examine the value relevance of both financial (earnings, book

values, and cash flows) and non-financial information (population size and market penetration) on a stand-alone basis. They find that non-financial information has a high value relevance, whereas for financial information it is irrelevant. After both financial and non-financial information are investigated together, however, the result shows that earnings affect stock prices.

In theory, fair value accounting is used in order to solve the problem of the relevance of historical cost. Barth (1994: 1-25) attempts to prove this claim by using an association analysis with the market value of equity and market returns. She investigates the value relevance of fair value estimates of banks' investment securities and securities gains and losses in comparison with historical costs. The result shows that the fair value estimates of investment securities have explanatory power beyond historical costs, whereas historical costs have no explanatory power to fair values. However, the fair value of securities gains and losses do not have any value relevance.

The value relevance of the fair value of derivatives is also determined by Venkatachalam (1996: 327-355). He investigates the value relevance of bank's derivative disclosure under SFAS 119. The finding suggests that the fair value estimates for derivatives help explain cross-sectional variation in bank share prices and that the fair value has incremental explanatory power over and above notional amounts of derivatives.

In conclusion, value relevance can be measured as a statistical association between accounting information and market values or returns. The information will be value relevant if its estimated regression coefficient is significantly different from zero. The objective of the association studies is to test whether and how quickly accounting measures capture change in the information set that is reflected in security returns over a given period.

2.2.5 Value Relevance: Model development

Asset revaluation is a method that represents the fair value of fixed assets in order to enhance the relevance of historical costs. In this dissertation, price analysis and return analysis are constructed based on Ohlson's model. This model is developed in order to analyze the relation of a firm's market value with future earnings, book

values, and dividends. The development of Ohlson's model is explained by Easton (1999: 401-403) as shown below.

First of all, it is assumed that assets are determined by their market values using two methods. The first method is based on book value, whereas the second method is based on earnings. For the first method, it is assumed that the book value per share of firm j at time t ($BVPS_{jt}$) perfectly records the value of a share. Therefore, it is equal to the market value of the share ($PRICE_{jt}$). That is:

$$PRICE_t = BVPS_t \qquad (2.1)$$

In case of the second method, it is assumed that earnings are constant in perpetuity and all of them are paid out as dividend. In order to find the present value of earnings, the discounted cash flow method is used and the discount rate (r) is risk free rate. Then, cumulative-dividend price per share ($PRICE_t + DIVIDEND_t$) is a multiple of earnings per share (EPS_t).

$$PRICE_t + DIVIDEND_t = (1+r_i^{-1})EPS_t \qquad (2.2)$$

Given (1-k) as a proportion of assets which is valued by using the first method, and k as a proportion of assets which is valued by using the second method. Moreover, other important information in determining prices is classified as residual values (γ_{nt}). Thus, the value of a firm is:

$$PRICE_t = (1-k)BVPS_t + k\,[(1+r_i^{-1})EPS_t - DIVIDEND_t] + \alpha\,\gamma_t \qquad (2.3)$$

Then, Ohlson (1995: 670) argues that the unexpected dividend is not included in this equation in accordance with Miller and Modiglini's dividend irrelevance theory (commonly called "M and M"). The theory concludes that in a perfect world (no taxes, no transactions costs, and no other market imperfections), the value of the firm is unaffected by the distribution of dividends. M and M argue that the firm's value is determined solely by the earnings power and risk of its assets and that the manner in

which it splits its earnings stream between dividend and internally retained funds does not affect the value (Gitman, 2003: 573-574).

Based on the dividend irrelevance theory, the final model of Ohlson (1995) can be shown as follow:

$$PRICE_t = \phi_0 + \phi_1 BVPS_t + \phi_2 EPS_t + e \qquad (2.4)$$

In case of return analysis, Easton (1999: 402-403) takes the first difference in equation (2.3) and divides by the beginning-of-period price. The rearranged terms are shown below.

$$RETURN_t = (1-k)\,(EPS_t/PRICE_{t-1}) + k\,(1+r_i^{-1})\,(\Delta EPS_t/PRICE_{t-1}) + k\,(DIVIDEND_{t-1}/PRRICE] + \alpha\,\Delta v_t \qquad (2.5)$$

note: $BVPS_t$ is not shown in (2.5) because the first difference of $BVPS_t$ is $EPS_t - DIVIDEND_t$

According to the dividend irrelevance theory, then equation (2.5) can be written in return regression form as follows:

$$RETURN_t = \theta_0 + \theta_1 EPS_t/PRICE_{t-1} + \theta_2 \Delta EPS_t/PRICE_{t-1} + e \qquad (2.6)$$

Although both price analysis and return analysis are used to find the value relevance of accounting information, but they have different objectives. The objective of price analysis is to reflect the state of the firm at a point in time, whereas the objective of return analysis is to reflect the summary of change in the financial state or the timeliness.

2.2.6 Value relevance of asset revaluation

In case of asset revaluation, the primary objective of this accounting method is to provide information useful for investors in making predictions about enterprise performance or an increase in relevance. Godfrey, Hodgson and Scott (2000: 302)

argue that the more accurate accounting information is, the more useful it becomes for decision making.

However, using historical cost accounting is highly criticized because of questions about its relevance. This argument results from two main reasons. First, as asset gets older depreciation expenses based on historical cost is not a good proxy to be used for the current cost of using the assets. Second, long life assets such as land and building which are recognized in terms of historical costs are increasingly less relevant due to the effect of inflation. Therefore, the balance sheet can be viewed as a virtually meaningless agglomeration of dissimilar costs. It is also argued that historical cost information is relevant only on the date of acquiring the assets.

For example, ABC Corporation acquired two pieces of two-acre tracts of land in 1980 for $1 million and 2005 for $2 million. Even the two pieces of land were virtually identical, historical cannot be illustrated that economic values of these lands are the same (Shortridge, Schroeder and Wagoner, 2006: 38-39). Basically, accounting information has to be used in order to make better decisions. Accounting information should provide information that can be used to predict future circumstances rather than the past. This is why fair value accounting is finally introduced.

In theory, fair value accounting in terms of current value includes the concept of productive capital maintenance which discloses the value of assets and liabilities in the financial statements at their current value. This concept views income as the difference between the physical productive capacity of the enterprise at the end of the period and its physical productive maintenance at the beginning of the period. Physical productive capacity at a point in time is equal to the current value of the net assets employed to generate earnings. Using current value increases the usefulness of accounting information because it provides information for changes in the entity's future capacity to transact in the market (Godfrey et al., 2000: 149).

However, current value is also highly criticized about its reliability. Generally, current value results from alternative estimation methods. It provides an opportunity for management to manipulate accounting information in order to improve financial ratios. And the value of assets depends on independent expert judgment. Certainly, this method may lack objectivity. Godfrey et al. (2000: 185) argue that the objectivity of current value can be attenuated if those assets have market prices which are easily

obtained. However, only market prices for inventory can be easily obtained and is accepted by accountants, whereas for fixed assets there are no market prices available. Therefore, the current value of fixed assets is based on appraisals, calculated reproduction costs, and adjusted historical cost by using price index, etc.

Although there are many weaknesses in using historical costs, there are several reasons to support using them. First, historical cost is viewed as data which reflects the past performance of management. Second, historical cost is objective. Unlike current value, it provides lower opportunities to manipulate accounting numbers. Third, it is unreasonable if current cost is used for income information when the firm has no intention to sell its assets. Finally, changes in market prices can be shown in the supplement section of financial statements in order to increase the value relevance of the accounting information based on historical cost (Godfrey et al., 2000: 130-133).

In conclusion, the asset revaluation is introduced to reflect fair value in order to solve the problem from the insufficient value-relevance of historical cost accounting. In this dissertation, value relevance of asset revaluation is determined in terms of the associations between revaluation and stock prices or stock returns. (Easton, Eddey and Harris, 1993: 1-38; Barth and Clinch, 1996: 135-170; Ghicas, Hevas and Papadaki, 1996: 651-670; Barth and Clinch, 1998: 199-233; Aboody, Barth and Kasznik, 1999: 149-178 and Courtenay and Cahan, 2004: 219-243).

Easton et al. (1993: 1-38) attempt to find the value-relevance of using the asset revaluation which is reflected on stock prices and returns. In general, value relevance refers to the ability of revalued asset amounts to reflect information relevance to investors. Easton et al. (1993: 16) explain that price analysis depicts the state of a firm at a point in time. In case the asset has value relevance, variation in the price-to-adjusted book ratio should be explained by the variation in the reserve amount.

The authors apply the price to book ratio as a dependent variable, whereas earnings per share, the asset revaluation reserve per share, and net increment to the asset revaluation reserve per share which is divided by book value as independent variables. According to their hypotheses, it can be expected that the asset revaluation reserve per share and its net increment should have a positive relation with price to book ratio.

Furthermore, return analysis is also investigated in order to examine the information content of changes in financial statement items, especially the asset revaluation. Unlike the price model, change in earnings and changes in net increment to the asset revaluation reserve which are divided by prices are included in regression analysis as independent variables. Easton et al. (1993: 20) expects that the net increment to the asset revaluation should have a positive relation with returns. If change in the asset revaluation reserve is not timely, on the other hand, this variable will have no explanatory power for returns of the period.

The sample is composed of 674 firm-year observations of Australian listed firms for the period of 1981-1990. The result from the price model illustrates that the asset revaluation reserve and its net increment provide more information of the current state of the firm. However, the result from the return model illustrates that variation in the net increment to revaluation reserve is weakly related to variation in annual returns. Besides, Easton et al. (1993: 21-22) also extend the return intervals and anticipate that the relation between the net increment to the asset revaluation and return will increase as the return interval increases but will decline over longer intervals, since earnings will capture the value change over this longer period. The result shows such an association only when returns are measured over wider three-year intervals. The motivations of asset revaluation are also investigated by telephone interviews made to CFOs of the 100 firms which discuss their firms' revaluation policies. The result shows that the primary motivation for asset revaluation is to present true and fair financial statements as required by company law. Moreover, the other motivations are to prevent takeovers, to reduce debt-to-equity ratios, and to reduce political costs.

Barth and Clinch (1996: 135-170) confirm the significance of asset valuation in explaining share returns or prices. They compare the differences in accounting methods between domestic GAAP (UK, Australia, and Canada) and US GAAP and examine the impacts on firms' share returns and prices. The authors scrutinize accounting methods which include goodwill, asset revaluation, income taxes, pensions, interest capitalization, foreign currency, and extractive industry accounting.

The authors firstly investigate the relation between stock prices (stock returns) and aggregate net income. According to return model, return is calculated by using fifteen-month US share returns, ending three months after the fiscal year-ends. The

level of domestic GAAP and change in domestic GAAP net income and the difference between US GAAP net income and domestic GAAP net income are added as independent variables. Then, they also investigates the impacts of specific reconciling items by segregating the differences between US GAAP net income and domestic GAAP net income to be goodwill and other intangibles, deferred taxes, asset revaluation, pensions, interest capitalization, extractive industries, and others. The sample is consisted of listed firm in the UK, Australia, and Canada and it is also traded on US security markets and included in COMPUSTAT as of January, 1992. The final sample consists of 98, 22, and 229 return observations for UK, Australian, and Canada firms, and 139 and 36 price observations for UK, Australian firms, respectively. The results show that domestic GAAP net income provides explanatory power incremental to US GAAP net income. Additionally, they also find incremental information content for goodwill, asset revaluation, deferred income taxes, and pensions in explaining share returns or prices for either, or both, UK and Australian firms.

Ghicas et al. (1996: 651-670) examine the association between the stock returns and the tax benefits of mandated fixed asset revaluations of firms listed on the Athens Stock Exchange. Generally, the asset revaluation will increase depreciable cost and increase cash flow. It is expected that this tax benefit should have a positive relation with stock returns. As tax benefits are probably measured with error, they also use the amount of the revaluation to explain stock returns. Ghicas et al. (1996: 651-670) use the change in earnings, the level of earnings, the debt ratio, the change in cash dividends, and the distribution of bonus shares as controlled variables. Changes in earnings and the level of earnings are examined because prior research finds these variables affect on stock returns. In case of debt ratios, Ghicas et al. (1996: 652) argue that prior research finds that the limitation on borrowing capacity is the main factor that pressures the firms to voluntarily revalue their assets. They also explain that the changes in cash dividends and the distribution of bonus shares are controlled because it signals higher future earnings.

Ghicas et al. (1996: 651-670) use returns which are calculated during the six-month period before the end of the revaluation year and the six-month period after. The sample of firms under going revaluation during a specific year is composed of 59

firms in 1982, 46 firms in 1988, and 58 firms in 1992. The result shows that there is an association between returns and tax benefits but only in 1992.

Moreover, returns and the revaluation amounts are significantly related in the same period. When the return interval is extended from one year to two years, however, there is an association between return and revaluation amounts in 1992 and 1982. It can be concluded that fixed asset revaluations are important in that they affect stock returns. Additionally, this paper also investigates the value relevance in terms of price analysis by using the model suggested by Kothari and Zimmerman (1995: 155-192). The results show a significant positive relation between market price and revaluation amounts in 1992 and in 1982.

Barth and Clinch (1998:199-233) segregate the association between various categories of revalued assets (investments, property, PPE, and intangibles) with share prices, non market-based firm value, and returns. For non-market-based firms, the values of these firms are defined as asset values which are calculated by using the present value of analysts' expected future earnings plus the present value of dividends between time t and the earnings forecast period. The authors follow the concept of Bernard (1993: 39-45) who recommends using estimated future operating profitability to examine the value-relevance of asset revaluation.

For price and non-market-based firm value analysis, Barth and Clinch (1998:199-233) not only examines the value relevance of the level of book value and net income but they also investigates the value relevance of cost and revaluation amounts of investments, PPE, and intangibles. In this case of non-market-based firm value regression, the dependent variable is the present value of the forecasted abnormal earnings for a two-year period, plus the discounted abnormal earnings for the remaining years to infinity, assuming abnormal earnings for the remaining years equal t+2 abnormal earnings. Unlike the price and non-market-based firm value analysis, return analysis is determined in terms of the relation between return and the increment of revaluation reserve and the revaluation which is recognized in the earnings of three categories of revalued assets. Returns are defined as the firm's 12-month raw share returns ending at the fiscal year-end.

The sample data studied by Barth and Clinch (1998: 210) can be classified into two groups. One group is composed of the 100 largest companies listed on the

Australian Stock Exchange (ASX); another group is a random sample of 250 firms which are selected from the remaining Australian firms traded on the ASX with market value of equity greater than A$ 10 million. The sample period is 1991-1995. Due to the different relations across industries, the sample is separated into three groups (nonfinancial, mining, and financial industries). In addition, the sample is also classified into two types of appraisals done by two groups of appraisers (director and independent appraisers). It is argued that estimates done by independent appraisers are more reliable than those of the directors. Therefore, it is expected that independent appraiser-based revaluation should be more value relevant than those based on director-based valuations.

The results from price analysis shows that revalued investment and revalued intangible assets are significantly positively related to price, whereas revalued PPE are less consistent. In case of the non-market-based estimate of firm value analysis, the results generally confirm the results of price analysis.

For return analysis, the results show that revaluations which are recognized in earnings are significantly positively related to returns only for non-financial firms, but those which are recognized in equity are not. The reverse is true for mining and financial firms. Additionally, PPE and intangible asset revaluation recognized in earnings are positively related to returns. On the other hand, only investment revaluation which is recognized in equity is found to be positively related to returns.

In conclusion, the results show that investments, PPE, and intangibles are value relevance. However, plant and equipment are more value relevance than property because they are more closely related to firm's operations. Surprisingly, moreover, the results show no differences in value relevance for director and independent appraiser-based valuations.

Aboody et al. (1999: 150) argue that prior research using the relation between revaluation amounts and share prices and/or returns indirectly examines the reliability of revaluation. They explain that the movements in prices and returns depend not only on investors' assessments of firms' asset values and expectations about future operating performance but also on investing and financing decision. Therefore, they attempt to use the change in future performance in terms of operating income and cash flow from operations as dependent variables. Following the signaling hypothesis, they

argue that management can use asset revaluation in order to reflect their private information. They expect a positive association between revaluation and future change in firm performance if the asset revaluation reflects asset values on time. If they do not find any significant associations, however, it means that the revaluation amounts are unreliable.

Their sample is composed of 6,633 UK firm year observations for 738 firms from 1983-1995. They investigate the relation between upward fixed asset revaluations and the changes in operating performance over the subsequent one to three years because revalued assets influences on the future performance over a long-term period and, thus, the operating effects of change in their values occur over several years.

In case of a change in the operating income equation, changes in operating income of previous year, market to book ratio, and total asset are included as independent variables in order to control for potential effects of passage of time, for potential effects of risk and growth, and for potential effects of size, respectively. A change in the cash flow from the operation equation not only includes market to book ratio and total assets as controlled variables, but also additionally includes changes in cash flow from operation from previous year. Moreover, changes in working capital are added as a controlled variable because prior research finds the relation between changes in cash flow from operation and changes in working capital. The results indicate that a positive relation between upward revaluation of fixed assets and changes in the future performance in all three horizons (one, two, and three years subsequent to the revaluation) exists, whereas the relationship with changes in cash flow from operations is positive one and three years ahead.

Furthermore, Aboody et al. (1999: 151) also examine the value relevance with price and return analyses. Similar to other researches, they attempt to find the relationship of the total amounts of revaluation with prices, and the relationship of incremental revaluation with returns. For price analysis, the equation is constructed based on the Ohlson's valuation model or asset-based valuation equation. In case of return analysis, it provides direct evidence on asset revaluation timeliness. Unsurprisingly, the results of the relation between asset revaluation and price or return are significantly positive.

The difference in debt level is found to be a factor that impacts on value relevance of non-current asset revaluation. Courtenay and Cahan (2004: 219-243) argue that firms' revaluation may be based on different views. The main objective of revaluating firms with high debt levels is to avoid debt violation based on contracting theory, whereas the main objective of revaluating firms with low debt level is to reduce information asymmetry. Therefore, it is assumed that the value relevance of non-current asset revaluation depends on the amount of debt which is used by the firm.

Two hypotheses are tested. Firstly, low debt firms revalue in order to enhance their value relevance. Secondly, the value relevance of high debt revaluating firms may be diminished because investors believe that the incentive of a high debt firm is to avoid debt violation. The sample consists of 235 firm/year observations which are related to the 48 listed firms on the New Zealand Stock Exchange (NZSE) during 1992-1996. The methodology is composed of two methods. The first method is to consider the significance of interaction of variables between leverage and each class of non-current asset revaluation and the second method is to examine the value relevance of high and low-debt sub-samples.

The first method is to consider by using a return model which includes net income, change in net income, the revaluation increment of each class of assets (fixed assets, investment, intangibles, and other assets), long-term debt-to-equity, and interaction variables between leverage and each class of non-current asset revaluation. Returns are calculated by using the returns for firm i at the end of March after the end of the year t.

According to the results before leverage, the data shows that net income is positively related to returns, whereas changes in net income are not significant. Additionally, the revaluation of non-current assets is found to not be significant. It means that non-current asset revaluation does not have value-relevance.

Then, the authors investigate the interaction effect of leverage. The result shows that the coefficient for the interaction between revaluation of fixed assets and leverage is negative and significant. It means that value relevance of high debt firms decreases because of opportunistic behavior which is the main motivation for revaluating the firms with high debt levels.

The second method is to divide the sample into two groups – high debt and low debt firms – based on median leverage value and reexamine the relation between the revaluation increment of each class of assets and return. The results support the information asymmetry hypothesis. It can be concluded that revaluations of fixed assets are more value-relevant for firms with low leverage than for firms with high leverage. Furthermore, it can be concluded that the asset revaluation for high debt firm is driven by an opportunistic behavior rather than by any potential gain in efficiency. (consider summary of studies in value relevance in Table 2.1).

Table 2.1 Summary of Studies in Value Relevance of asset Revaluation

Dependent Variable	Area of studies
1. Price Analysis	-revaluation amounts (Easton et al., 1993) -incremental information content of asset revaluation (Barth and Clinch, 1996) -investigates the value relevance of cost and revaluation amounts of investments, PPE, and intangibles (Barth and Clinch, 1998)
2. Return Analysis	-revaluation amounts (Easton et al., 1993 and Ghicus, 1996) -incremental information content of asset revaluation (Barth and Clinch, 1996) -investigates the value relevance of cost and revaluation amounts of investments, PPE, and intangibles (Barth and Clinch, 1998) -comparing the value relevance of fixed assets between high debt firms and low debt firms (Courtenay and Cahan, 2004)
3. Non-market-based firm's value	-investigates the value relevance of cost and revaluation amounts of investments, PPE, and intangibles (Barth and Clinch, 1998)
4. Change in operating income and cash flow from operation	-revaluation amounts (Aboody et al., 1998)

2.2.7 Management Motivations: Positive Accounting Theory

In general, revaluation is done at the discretion of management. It means that management has alternative choices to revalue or not revalue. The objective of many studies in this area has been to explain why revaluation is made. Cotter and Zimmer (1999: 137) explain that a manager has to compare both costs associated with revaluation and costs associated without revaluation. Certainly, management will decide to revalue when costs of revaluation are less than the economic benefits resulting from the revaluation.

An asset revaluation enhances valuation costs for independent appraisers or opportunity costs for inside directors. In addition, there is also likely to be an increase in audit fees due to the increasing complexity in verifying subjective valuation which is compared to historical cost valuation.

Moreover, Henderson and Goodwin (1992: 78-79) conclude that there are three main unfavorable effects of upward revaluation that affects the financial statements. First, lower reported profits result from an increase in depreciation expenses from depreciable asset revaluation. Second, lower gains on the sale of the revalued assets come from a higher in its revaluating amount. Third, some financial ratios decrease. Return on total assets (ROA) is reduced due to the decease in reported profits and the increase in the value of assets. Return on equity (ROE) is also reduced due to the decrease in reported profits and the increase in shareholders' equity. An additional unfavorable effect which is explained by Standish and Ung (1982: 703) is the dilution of the confidence in the existing management because revaluation is sometimes applied to defense against takeover bids.

Although there are a lot of disadvantages, many firms decide to revalue their assets. In order to find the hidden motivations for this accounting procedure, positive accounting theory is applied.

2.2.7.1 Positive Accounting Theory

Positive theory was first introduced by Milton Friedman, a famous economist. It was the development of a “theory” or “hypothesis” which intended to explain or predict the occurrence of phenomena. Unlike normative theory which concerns with what should be done, positive theory is less subjective because the prediction can be refuted by evidence. Normally, positive theory is in the form of “If A then B” and are refutable, whereas normative theory is in the form of “Given the set of condition C, alternative D should be chosen.” Clearly, the normative form depends on individual opinion and it is not refutable (Watts and Zimmerman, 1986: 8).

Later, positive theory is applied to the accounting area in order to explain and predict accounting practices. For example, positive accounting theory should explain why firms use straight line depreciation method rather than use sum of the year digits to calculate depreciation expenses. In case of prediction, it means that the theory predicts unobserved phenomena (Watt and Zimmerman, 1986: 2).

In this dissertation, positive accounting theory is used to explain the reasons behind asset revaluation decisions. Lin and Peasnell (2000: 364) conclude that the first reason is to reduce the risk of violating accounting-based covenants such as a decrease in the debt ratio (debt hypothesis). The second reason is to signal the important information in order to resolve information asymmetry problems (signaling hypothesis). The last reason is to reduce the pressure from politicians, public demand for price or rate decease and union for wage rises (political hypothesis).

Basically, the main criterion for management who chooses an accounting procedure is to minimize contracting costs. A firm can be viewed as a legal nexus of contractual relationships among suppliers and consumers of factors of production. The objective of the firm is to reduce costs from transactions between individual and individual to be individual and a central organization. Normally, a firm will have many contracts with outsiders, such as contracts with lenders (debt hypothesis), contracts with investors (signaling hypothesis), and contracts with employees or government (political hypothesis).

2.2.7.2 Debt hypothesis

Debt hypothesis is constructed based on the conflict of shareholder-debtholder agency relationship that is one type of agency theory. It is an agency relationship arising where there is "…a contract under which one party (the principal) engages another party (the agent) to perform some service on the principal's behalf which involves delegating some decision-making authority to the agent…" (Jensen and Meckling, 1976: 308).

Theoretically, the agency problem incurs agency costs that can be divided into monitoring costs, bonding costs, and residual loss. Monitoring costs mean that the costs of monitoring the agent's behaviors, including mandatory audit costs, costs to establish management compensation plans, budget restrictions and operating rules.

However, the principal can transfer this cost by adjusting the remuneration paid to the agent, whereas the agent can also protect himself by establishing a mechanism to guarantee that he will behave in the interests of the principal, or to guarantee that the agent will compensate the principal if he acts in a manner contrary to the principal's interests. The costs of establishing this mechanism are called "bonding costs". Examples of agent's mechanisms are: providing shareholders (principals) with quarterly financial statements, or contracting not to disclose certain information to competitors. The objective of bearing bonding cost of the agents is to reduce the monitoring costs they bear (Godfrey et al., 2000: 289). However, both costs may not be adequate to solve all agency problems. However, there is a difference between the agent's interests and the principal's interests which is called residual loss.

Generally, agency theory explains that there are two types of relations. The first relation is the manager-shareholder agency relationship. Due to the separation of ownership and control, the manager (the agent) can act in his own interests which may conflict with the interests of the shareholders. If an individual owns 100 percent of a firm, for example, the individual will run it in order to maximize his wealth. However, this objective will continuously be tarnished, when the proportion of the individual's ownership decreases as finally there is no incentive for him to maximize other shareholders' wealth. If the shareholders do not carefully monitor the operation

of managers, they will have an opportunity to use the profits of firms to benefit themselves rather than return the money to the shareholders. As suppliers of capital, shareholders want to have some guarantees for their money by signing a contract with the manager (Shleifer and Vishny, 1997: 741).

In order to provide incentives to the manager to maximize the value of a firm, the manager's remuneration in terms of bonus is introduced. Generally, bonus is calculated based on the firm's profit rather than on the firm's value because it is directly linked to managerial performance (Godfrey et al., 2000: 294).

The second relation that is more important for explaining the asset revaluation decision is the shareholder-debtholder agency relationship. Following agency theory, it is assumed that a manager is the sole owner or acts for the interests of the owners. As a consequence, the manager usually attempts to transfer wealth away from debtholders to shareholders. In this circumstance, the principal is the debtholders, whereas the agent is the manager. Contracting is used in order to mitigate potential conflicts between them.

There are four main methods to transfer wealth from debtholders to shareholders. The first method is excessive dividend payment. It means that the firm issues a higher level of dividend than debtholders' expectation. It reduces the value of debt because cash is paid to shareholders and then it decreases the firm's ability to return its debts. The second method is asset substitution. It arises from investment of the firm in higher risk projects than debtholders' expectation. Certainly, the debtholders are risk averse because they do not receive additional returns, except the interests on debt contracts. If the high risk projects are losses, on the other hand, it will decrease the security available to meet their claims. The third method is underinvestment. It arises in case a firm faces bankruptcy. For example, a firm has negative shareholder's funds around $90,000. They may not interest to invest in a project with a positive NPV of $50,000 because all of the $50,000 will be returned to debtholders, whereas shareholders do not receive any additional returns. In this situation, the firm will voluntary invest only for a project with a NPV higher than $90,000. Thus, this investment behavior impacts the firm's ability to repay debts. The final method is claim dilution which occurs when the firm issues debts of a higher

priority than the existing debts. It will decrease the security and the value of existing debtholders (Smith and Warner, 1979: 117-161).

Due to the conflicts of interest between debtholders and shareholders, debt covenants are included in contracts as important tools to decrease the conflicts. Godfrey et al. (2000: 297) explain that "…debt covenants are terms and conditions written into debt contracts that restrict the activities of management or require management to take certain actions…"

Furthermore, Godfrey et al. (2000: 297) classify debt covenants into four categories. The first category is covenants which restrict the production-investment opportunities of the firm. The second category is covenants which restrict dividend policy and dividend payments to be a function of net income. The third category is covenants which control the financing policy of the firm. And the final category is bonding covenants which may require the firm to provide certain information to bondholders.

To avoid default costs, managers have incentives to adopt accounting procedure (increasing assets, reducing liabilities, increasing revenue, and decreasing expense) in order to enable them to get around debt covenants. Therefore, these incentives can be used to explain the variation in accounting procedures, including asset revaluation, and about the nature of firms that change accounting techniques. Watt and Zimmerman (1986: 216) conclude that "the larger a firm's debt/equity ratio is, the more likely the firm's manager is to select accounting procedures that shift earnings from future periods to the current periods".

Generally, the debt/equity ratio is usually used as a covenant that borrower has to meet. If the covenant is violated, the debt agreement may impose penalties such as constraints on dividends or additional borrowing (Scott, 2003:222). Moreover, costs of technical violation including refinancing and restructuring costs are also incurred. Beneish and Press (1993: 233-234) finds that increased interest costs which results from violation ranges between 0.84 and 1.63 percent of the market value of the sample firm's equity and the costs of restructuring debt average of 0.37 percent of the sample firms' market value of equity. As a consequence, the firms that violate the covenant attempts to choose accounting policies in order to increase their reported earnings.

Prior literature shows the incentives for changing accounting procedures resulting from debt hypothesis. For example, Bowen, Burgstahler and Daley (1981: 151-179) investigate the manager's choice between capitalizing and not capitalizing interest costs associated with capital projects. Generally, interest capitalization increases the current period's reported earnings. Bowen et al. (1981: 151-179) hypothesize that firms with higher debt/equity ratios are more likely to use interest capitalization. The result shows the association between procedure choice and debt contract variables, particularly leverage. Debt hypothesis is also used to explain changes in accounting methods of firms that borrow from banks. Beatty and Weber (2003: 121) find that borrowers take advantages of the flexibility of bank debt contracts to choose accounting policies in order to increase income. However, income increasing is diluted when expected costs of technical violation are lower.

Not only are income increases used as a tool to avoid debt default, but reported leverage reduction is also used to decrease the opportunity of breaching the firm's leverage-based debt covenants. The asset revaluation is an accounting procedure that can be used to increase shareholders' equity for as long as the asset is held. As a consequence, management decides to revalue in order to avoid a technical default that incurs debt violating costs or renegotiation costs. For this reason, a firm with a higher in debt ratio is expected to revalue its assets.

However, Henderson and Goodwin (1992: 82-83) argue that debt hypothesis may be not appropriately applied to loans from institutional lenders such as banks and financial companies. The reason is that institutional lenders should appraise the assets offered as security for a loan before they lend. It means that lenders cannot be falsified with only using accounting techniques. Therefore, it is unlikely that the borrowers capacity to borrow will be enhanced by an asset revaluation that is incorporated in the financial statements.

2.2.7.3 Signaling hypothesis

Fundamentally, signaling hypothesis is constructed from the information asymmetry which causes inappropriate investment decision of investors. Information asymmetry means the differences in the quantity and quality of a firm's information available to a firm's manager which is compared with the information that is available to others, especially investors. The existence of information asymmetry

results in people outside the firm being unsure of the true meaning and nature of the information that managers disclose (Godfrey et al., 2000: 302).

Because of uncertainty about the real business environment, information asymmetry leads to market failure. For example, take a business that is assumed to have an equal number of good and bad business ideas. If investors cannot distinguish between the good and bad business ideas because of information asymmetry, investors will value good and bad ideas at an average level. In this situation, the market mechanism is inappropriately functioning. Some good firms are undervalued, whereas some bad firms are overvalued (Healy and Palepu, 2001: 408). The good firms will encounter opportunity costs, such as an increase in interest rates or a decrease in share prices. These costs can be classified as one type of contracting costs. Therefore, those firms have to signal any information by corporate disclosure in order to reduce these costs and increase their creditability and then their share prices will increase and shareholders will benefit. If a firm changes its accounting method, in conclusion, then it should mean that the information has been changed and investment decision should change.

From signaling hypothesis, Trueman (1986: 53-72) argues that investor's perceptions of its manager' ability to anticipate and respond to future change in the firm's economic environment influences on a firm's market value.

Moreover, Pownall and Waymire (1989: 85-105) examine information on the voluntary disclosure in terms of management earnings disclosure. The results suggest that management forecasts are associated with, on average, a significantly larger stock price reaction. They conclude that voluntary forecasts are a timely mechanism for managers to convey relevant, and credible, information to investors.

Not only is good news disclosed but bad news is also voluntarily disclosed in order to maintain creditability. Skinner (1994: 39) argues that management voluntarily discloses bad news in order to avoid litigation costs and reputation costs. Litigation costs occur when shareholders allege that the manager fails to provide adverse earnings news promptly in case stock prices severely decrease after a negative earnings announcement, whereas reputation costs will be occurred if the manager fails to disclose bad news in a timely manner. The result of Skinner's

research depicts that a stock price reaction to bad news disclosure is larger than a stock price reaction to good news disclosure.

Moreover, Blacconiere and Patten (1994: 357-377) highlight the importance of information disclosure on the share price reaction to the 1984 Bhopal disaster. In this disaster, Union Carbide's chemical leak in Bhopal, India during December 1984 resulted in approximately 4,000 deaths and 200,000 injuries. The results show a negative stock price reaction. However, the firms with more extensive disclosures experience less negative stock price reactions than the firms with fewer disclosures. From investors' point of view, if firms do not report information whereas other firms report it, investors will assume that the failure to report news is bad news, and the firm's share price will suffer. It can be concluded that accounting disclosure is a signal for good news, whereas no disclosure is a signal for bad news.

According to signaling hypothesis, the asset revaluation can be also applied as a signal of future performance of the firm in order to resolve information asymmetry and eliminate under-investment problem. This dissertation focuses on using asset revaluation as a signal for growth opportunity and liquidity problem.

In contrast to signaling hypothesis, Henderson and Goodwin (1992: 82) explain that the asset revaluation is not the only source of the information available to the market because investors can use other sources to make their decisions. Moreover, the asset revaluation does not impact the firm's fundamentals. As a consequence, the asset revaluation should not have any material impacts on share price.

2.2.7.4 Political hypothesis

Political hypothesis is also used to explain the motivation behind asset revaluation. Basically, the firms, especially larger firms, are interested by other parties, such as government, trade unions and community groups. These parties closely scrutinize the firms' accounting information. If they have unusually highly profits, the employees may want a share of these profits via increasing in their salaries. In case of politicians, they may consider to abdicate government supports, such as subsidies or tariffs. As a consequence, management of larger firms rather than management of small firms use accounting choices to reduce profits because they attempt to reduce the pressures from politicians, public demands for price or rate decreases and pressure from unions for wages rises (Godfrey et al., 2000: 305).

Certainly, the incurring of these political costs is the result of the conflicts between the firms and other parties. There are two ways for firms to reduce these political pressures. The first way is to choose accounting procedures that defer reported earnings from a current period to a future period; also known as earnings management (Watts and Zimmerman, 1986: 235).

Jones (1991: 193) confirms the conclusion of Watts and Zimmerman (1986: 235). She investigates the behavior of the firms during import relief investigation done by International Trade Commission (ITC). Generally, the degree of a firm's injury is determined based on financial information. She hypothesizes that these firms that would benefit from import relief intent to reduce earnings by managing discretionary accruals. The result shows that earnings management takes place around the year of the investigation.

Another example for using accounting procedures to decrease earnings comes from Han and Wang (1998: 104). They examine the impact of the 1990 Gulf Crisis on oil companies. During the crisis, oil prices rapidly increase and reported earnings of these firms also dramatically increases. In order to decrease political scrutinies, these firms use accruals to reduce reported earnings. In this paper, oil firms are classified into three groups, Crude Petroleum, Natural Gas, and Petroleum Refining industry. But only petroleum refining firms use accruals to reduce reported earnings during the 1990 Gulf crisis.

Earnings management is not the only a tool that can be used to avoid political pressures. Asset revaluation is a second way that is used to avoid political cost by lowering the firm's return on equity and/or lowering the firm's profit via depreciation expenses. Therefore, larger firms are expected to have more potential to revalue their assets.

In summary, positive accounting theory is applied to explain the motivations for asset revaluation. It means that the firms will change their accounting methods to recognize their assets from historical cost to fair value in order to minimize their contracting costs. The asset revaluation can be used as a tool to lower the debt/equity ratio in order to avoid default costs (debt hypothesis). Moreover, it is also used as a signal to indicate growth opportunity as well as liquidity problem. The objective of this signal is to decrease the information asymmetric problem so that the

market can appropriately value the firms (signaling theory). Finally, the high profits of larger firms are of interested by employees, politicians, and other parties. Employees attempt to capture these profits by pressuring the firms in paying additional salaries, whereas politicians discard government' subsidies or tariffs. The asset revaluation can be used to reduce profitability ratios in order to lower political pressures (political hypothesis).

However, this dissertation only focuses on debt hypothesis and signaling hypothesis. The reason is that there is an exception from TAS No. 32 for recognizing depreciation expenses for the revaluation amount in income statement. A revaluating firm is allowed to recognize depreciation expense of PPE based on its historical costs until 2006 (Angkarat Priebjrivat, 2005: 178-179). Therefore, the firm cannot decrease its earnings via asset revaluation in order to reduce political pressures during the studying period (1994-2004). All three hypotheses are summarized in Figure 2.1.

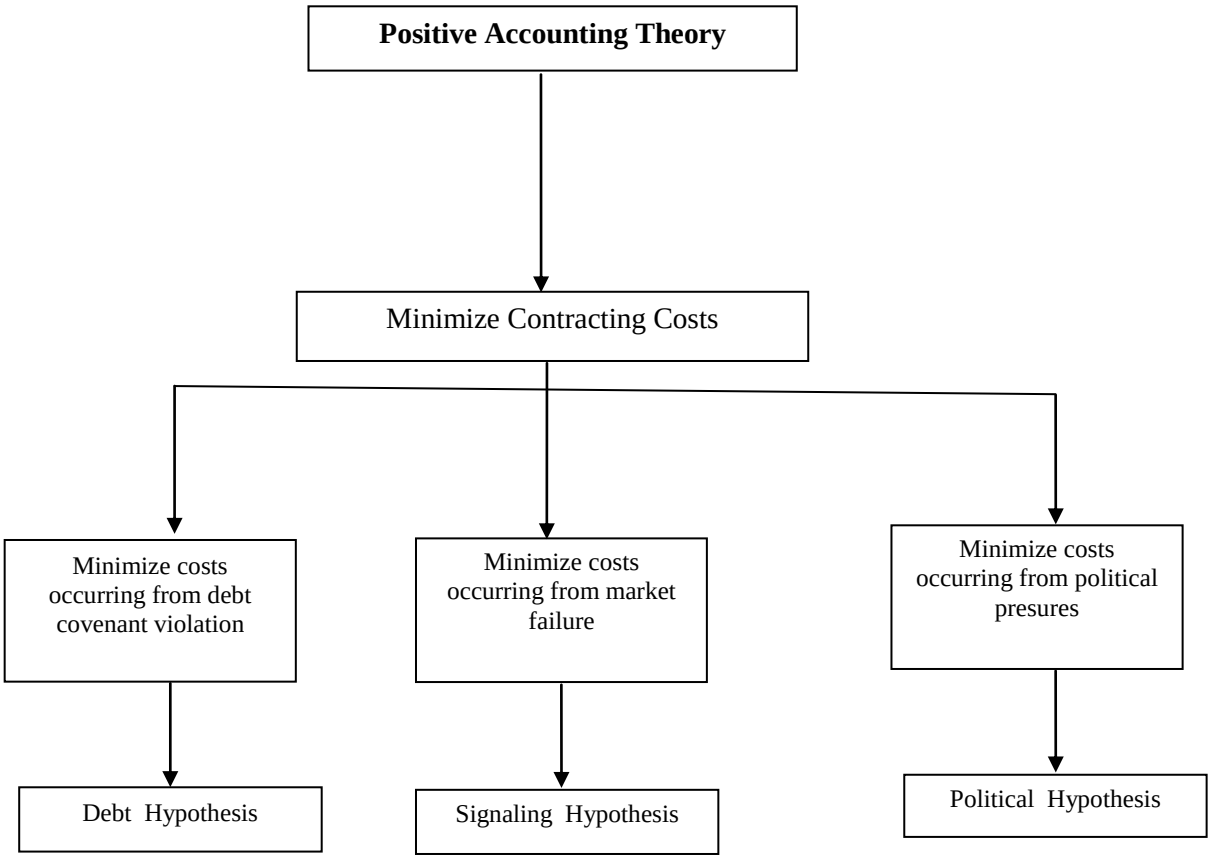

Figure 2.1 Three Main Hypotheses to Explain Management Motivation

2.2.8 Management motivations for asset revaluation

According to the prior section, the asset revaluation decision can be explained by using three main hypotheses; debt hypothesis, size hypothesis, and signaling hypothesis. Brown, Izan and Loh (1992: 36-57) examines the factors that influence the revaluation decisions made by management. In order to avoid a debt default, the firms have an incentive to revalue their assets. The main purpose is to increases the book value of their total tangible assets which then decreases the debt to total tangible asset ratio that are commonly used in debt agreements.

Moreover, Brown et al. (1992: 46) also uses debt-proximity ratios as a proxy for debt hypothesis. According to the political hypothesis, larger firms are closely scrutinized by various political parties. Thus, a manager decides to upwardly revalue to lower the firm's return on equity because a lower return can reduce political costs and increase the value of the firm. Size and the strike-proneness of the industry are applied as proxies for political cost hypothesis. In addition, Brown et al. (1992: 36-57) examine revaluation as a signal of financial slack and growth opportunity. Financial slack can be represented by the proportion of cash and marketable securities to total assets. Normally, it is expected that a firm which holds less cash and marketable securities has more probability to revalue except in a high inflation situation. Financial slack also is an important issue for firm with more growth options. It has to maintain sufficient slack in order to avoid potential underinvestment. Therefore, it is expected that the firm with more growth options has more probability to revalue. Moreover, a firm which holds a larger proportion of property than plant and equipment has a greater the probability to revalue this year.

The sample is composed of two random samples, 204 and 206 firms listed on the Industrial Board of the Australian Associated Stock Exchange, during 1974-7 (higher inflation) and 1984-1986 (lower inflation), respectively. Then, the sample is classified into two groups, revaluer and non-revaluer and the Probit model is applied to find the outcomes. The result shows that debt hypothesis, political hypothesis, and signaling hypothesis can be applied to explain the factors which influence on asset revaluation decision.

Whittred and Chan (1992: 62) argue that the asset revaluation is a low-cost tool used to mitigate underinvestment problems by facilitating investment or increasing a firm's ability to issue debt without violating any covenants. Moreover, the underinvestment problem can be avoided by maintaining enough internally generated funds. As a consequence, they intensively investigate debt hypothesis and signaling hypothesis by examining the existence of borrowing limitations and financial leverage in terms of debt to total assets, the value of growth opportunities in terms of market value of equity to book value of equity and cash reserves in terms of book value of cash and marketable securities to total assets. The sample consists of 160 revaluers and a control group of 496 non-revaluers from the Australian Stock Exchange for each of the five years 1980-1984. Whittred and Chan (1992: 66-67) uses both a univariate and Probit regression and find that revaluating firms has high leverages, low cash reserves, and more growth opportunities.

Cotter and Zimmer (1999:136-151) study the impact of borrowing capacity both public and private debt on asset revaluation, but they examine not only existing leverage but also the firm's ability to repay debt in terms of cash flow from operations. They argue that an undervaluation of assets need not reduce borrowing capacity if cash flows from operations indicate that the firm could repay further debt. The economic benefits associated with an upward asset revaluation will be higher for firms when cash flows from operation indicate possible problems in repaying further debt (Cotter and Zimmer, 1999: 139). As a consequence, they conclude that the decline of cash flow from operations represents problem in repaying debt which is a factor that influences on revaluation decision. According to prior research, leverage is also a factor which impacts borrowing capacity. It is expected that firm's with both lower cash flow from operation and high leverage will derive more benefits from revaluation than the firm's with low leverage.

Besides, the firm which issues secured debt has more potential to upwardly revalue because it will enhance the current values of its assets recorded in the financial report. The sample is randomly selected from the data obtained by Whittred and Chan (1992: 58-74). Cross-sectional analysis is applied in this paper in order to compare revaluers with non-revaluers. It is composed of 31 revaluing and 69 non-revaluing firms which are listed in Australian Stock Exchange during 1980-1984. The result

supports the hypotheses that revaluers, especially highly levered firms, have more declining in cash flow from operations than non-revaluers do. Furthermore, there is a positive relation between revaluation and an increase in secured borrowings.

Black, Sellers, and Manly (1998: 1287-1317) examine the different characteristics of revaluers and non-revaluers in term of debt-to-equity ratio, market-to-book ratio, and liquidity (current ratio). Besides, they also investigate the effects of accounting regulations on earnings management behavior by comparing them under different standards within the same country and across countries. They argue that all firms in Australia, New Zealand, and UK have the opportunity to recognize appreciation in investments and non-current assets through revaluation. Therefore, the management of those countries can use accounting methods, especially asset revaluation, in order to adjust balance sheet items and ratios without selling the assets and investments. The sample is consisted of 503 Australia and New Zealand firm-year observations (223 different firms) and 696 UK firm-year observations (527 different firms).

The result of the comparison of UK revaluers and non-revaluers shows that UK revalers have higher levels of leverage and market-to-book ratio, whereas differences in current ratios are not significant. For the Australia and New Zealand sample, all three variables are significantly different. In case of earnings management, it can be concluded that the choice for asset revaluation reduces the behavior to perform earnings management.

Although prior research which uses data from the 1970s and early 1980s finds an influence of debt contracting on asset revaluation, institutional changes (change in accounting and disclosure regulation, change in the market for debt, and change in macro economic environment) may have some impacts on this relation. Cotter (1999: 268-285) provides two main contributions. First, the author investigates asset revaluations during 1993-1995 which is from a different period from prior research in order to determine the impact of institutional change. Second, a new proxy for considering debt covenant is used. Cotter (1999: 268-285) investigates the relationship between asset revaluation and debt contracts with 171 listed Australian firms. However, missing data for some firms in some years reduces the number of observations to 145, 171, and 169 for 1993, 1994, and 1995, respectively. The total

sample is 485 firm-years. The author attempts to find the relation between the revaluation increment amount and the current proximity to default on leverage covenants which is a better proxy of debt contract variables. The author also examines the effects of the existence of leverage covenants, cash flows from operation, debt ratio, and levels of secured borrowing. Due to the multi-collinearity problem, three models are constructed. The result shows that there are no relations between asset revaluation and borrowing capacity or the probability of default on debt covenants in the current setting. Cotter (1999: 282) concludes that, in the current situation, costs of revaluation are greater than the reduction of costs of debt default. This result depicts the importance of institutional change on asset revaluation.

Gaeremynck and Veugelers (1999: 123-138) examine the signaling of asset revaluation in specific industries, including chemicals, metals, and constructions, that are characterized by a high variance in performance and also by a low equity to debt ratio by using an analytical model and an empirical analysis. Interestingly, the sample of this paper is non-listed firms on the Belgian Stock Exchange during 1989-1994. The sample is composed of 189 revaluers and 847 non-revaluers. It is expected that successful firms are less likely to revalue assets than unsuccessful firms are in industries with a high variance in performance and with low equity-to-debt ratios.

Usually, the market-to-book ratio is used as a measure of success for listed firms. But the ratio of cash flows which is realized in the next year to fixed assets is used as a proxy for success of non-listed firms. Univariate tests and a logistic regression are used to find the results. The result illustrates that the use of revaluation as a signaling device occurs but not in all circumstances. Comparing this with unsuccessful firms, successful firms are less likely to revalue with these environments. However, only the revaluation of fixed tangible assets and other non-financial assets seems to be a credible signal. Gaeremynck and Veugelers (1999: 135) conclude that firms will compare the efficiency of signaling tools with the cost of using signal in order to eliminate information asymmetry.

Equity depletion is examined by Lin and Peanell (2000: 359-394). It is defined in terms of the proportionate reduction in total capital employed caused by the amount charge directly to reserve (goodwill, foreign currency, translation losses, etc.). They argue that equity depletion enhances the risk of violating debt covenants and incurs re-

negotiation costs as well as distress costs. Furthermore, equity depletion increases the problem in financial flexibility. Lin and Peasnell (2000: 368) conclude that "…firms that have experienced a depletion of reserves in the period, or are expecting to suffer equity depletion in the near future, are more likely to revalue their asset upwards…".

In UK, equity depletion can occur in a variety of ways including by charging purchased goodwill direct to reserves. In the past, goodwill is included on the balance sheet as an asset without amortization due to its indefinite economic life. After the provisions of the EC Forth Directive and the subsequent issuance of SSAP 22 are incorporated into UK firm law, however, UK companies prefer to immediately eliminate it against its reserves. This equity depletion increases the firm's probability to violate debt covenants. As a consequence, firms with equity depletion are likely to revalue their assets upward. DEPLET is a proxy for equity depletion set equal to one if equity is depleted by more than five percent during the period, and zero otherwise.

Additionally, Lin and Peasnell (2000: 369-372) also extend their examination to the impact of financial liquidity and explain that poor liquidity limits firms' investment opportunity. Their study includes gearing (the ratio of long term debt and short term borrowing to total assets), market-to-book, firm size, quick ratio, and fixed asset intensity as controlled variables. The sample is randomly selected from the population of UK industrial and commercial companies traded on the London Stock Exchange and appearing in the Datastream UKQI list. The final sample is consisted of 1,106 firms in 1989 and 1,083 firms in 1991. The sample is separated into four groups. The first group is companies which revalued tangible fixed assets upwards in the review year. The second group is comprised of companies which did not revalue assets in the review year but did so during at least one of previous three years. The third group contains companies which did not revalue in either the current year or during the previous three years. The last group of companies is made up of companies which wrote off tangible fixed asset in the review year.

Comparing the four groups, the authors find the relation between upward revaluation and equity depletion. Moreover, revaluation is found to be positively associated with size, gearing, and fixed asset intensity and negatively associated with liquidity. However, the relation between revaluation and market-to-book value is significantly negative in 1989 but only weakly and inconsistently in 1991.

Jaggi and Tsui (2001: 160-187) extend their research to examine the motivations on asset revaluation of Hong Kong managers. They argue that the results may be different from prior research due to a dissimilar environmental setting, especially concentrated ownership compared with the widely dispersed ownership of Australian and UK firms.

Three motivations for revaluation are examined. The first motivation is to signal future profitability. This motivation is tested by determining the association between current year revaluations and future operating performance, by using the operating income with one, two, and three years ahead. Moreover, there are several variables included as control variables (change in income, change in working capital, market-to-book value of equity, and log of total assets). The second motivation is to avoid debt covenant violations. This motivation is tested by conducting T-Tests on revaluating and non-revaluating firms. It is expected that the average current debt-equity ratio of revaluating firms is higher than of non-revaluating firms. And the final motivation is to improve borrowing capacity. These motivations are tested by conducting T-Test on long term debts of revaluating and non-revaluating firms for the post-revaluation periods. It is expected that debt equity ratio of revaluating firms will be increased during the post-revaluation period. Moreover, Jaggi and Tsui (2001: 177-180) also investigate the relation between prices and the revaluation reserve to reflect value relevance of revaluation amounts. They question the value relevance of asset revaluation in the Hong Kong business environment where the comprehensiveness of disclosures and transparency of financial information are questionable.

The total numbers of the observations are 481 observations based on Hong Kong firms which are included in the EXTEL database of the Financial Times Information, London during 1991-1995.

The result shows that revaluation is positively associated with the firms' future operating performance for all three time horizons. It can be concluded that the revaluation is motivated to signal fair value of assets to financial statement users. In case of the borrowing capacity, it is found that the mean of debt-to-equity ratio for the post revaluation period of the revaluating firms is significantly higher than the mean of non-revaluating firms. It means that the firm revalues its assets in order to increase borrowing capacity. However, the T-Test for the current debt-to-equity ratio shows the

insignificant between both groups. In addition, Jaggi and Tsui (2001: 177) examine the impact of the debt-to-equity ratio on revaluation in conjunction with the motivations for signaling fair value of fixed assets by including an interaction term between revaluation and debt-to-equity ratio in the regression on future operating income. The result also shows no significant impacts this interaction. In addition, the result shows a positive relation between revaluation balance and prices. They argue that this inconsistent result when compared to Australia firms in debt hypothesis may have resulted from the difference in the debt structures because Hong Kong firms have higher levels of private debt rather than public debt.

Henderson and Goodwin (1992: 83-84) argue that institutional lenders demand current value of assets before they lend. Changing the debt ratio from asset revaluation is not likely to be relevant because lenders already know the true value of assets. In case of public debt issues, these are controlled by contracts such as trust deeds which contain restrictive covenants. Certainly, trust deeds are not falsified only when asset revaluations which dilute debt covenant are used. Lenders can forecast that the firms will revalue their assets, so restrictive covenants in trust deeds will be tighter in an environment where revaluation occurs.

Table 2.2 Summary of Variables Based on Positive Accounting Theory in Prior Research of Motivations for Asset Revaluation

Theory	Variable	Study
(1) Debt hypothesis	Debt Ratio	Brown et al. (1992), Whittred and Chan (1992), Black et al. (1998), Cotter (1999), Jaggi and Tsui (2001)
	Existence of Debt Covenant	Brown et al. (1992), Cotter (1999)

Table 2.2 (Continued)

Theory	Variable	Study
(1) Debt Hypothesis	Debt of Proximity Ratio	Brown et al. (1992), Cotter (1999)
	Equity to Debt Ratio	Gaermynck and Veugelers (1999)
(2) Political Hypothesis	Size	Brown et al. (1992), Lin and Peasnell (2000), Jaggi and Tsui (2001)
	Strike-Proneness of the Industry	Brown et al. (1992)
(3) Signaling Hypothesis	Growth Opportunity	
	-MVE/BVE	Whittred and Chan (1992), Black et al. (1998), Lin and Peasnell (2000)
	-P/E ratio	Brown et al. (1992)
	-rate of growth of assets	Brown et al. (1992)
	-the ratio of cash flow in next year to fixed assets	Gaeremynck and Veugelers (1999)

Table 2.2 (Continued)

Theory	**Variable**	**Study**
(3) Signaling Hypothesis	Liquidity	
	-cash flow from operation	Cotter and Zimmer (1995), and Cotter (1999)
	-cash and marketable securities / total assets	Brown et al. (1992), Whittred and Chan (1992), Cotter (1999)
	-current asset/current liabilities	Black et al. (1998)
	-quick asset/current liabilities	Lin and Peasnell (2000)
	Disparity Between Book and Market Value	Brown et al. (1992)
	Fixed Asset Intensity	Brown et al. (1992), Lin and Peasnell (2000)
	Level of Secured Borrowing	Cotter and Zimmer (1995), Cotter (1999)
	Equity Depletion	Lin and Peasnell (2000)

2.3 Asset Revaluation Study in Thailand

In case of the Thai environment, Kittima Acaranupong (2003: 1-182) investigates the value relevance of accounting information based on the changes in many new Thai accounting standards enacted in 1999, including TAS No. 32. She uses data based on quarterly financial statements of listed companies, except the firms in the financial institution industry, on The Stock Exchange of Thailand (SET) during the first quarter of year 1997 through the second quarter of year 2001. She expects that the value relevance of PPE will increases after using TAS No. 32 because PPE values are stated at net realizable value. Moreover, she also anticipates finding the value relevance of revaluation surplus (revaluation reserve). A regression model is used to investigate the value relevance of accounting information in order to find the relationship between a stock price and PPE and revaluation surplus. The value relevance is measured by the slope coefficients and adjusted R^2. Moreover, dummy variable (T) is added to the model to separate the data into two groups, before and after the change in accounting standard (1999). The result illustrates that the PPE and revaluation surplus are positively related to stock price. It means that investors use not only PPE stated at cost but also the revaluation surplus in valuing their securities. In addition, the coefficient of revaluation surplus is also positively related to stock prices like the coefficient before the change in accounting standard.

Unlike Kittima Acaranupong (2003: 1-182), this dissertation contributes to existing literature in three main areas. First, I investigate value relevance and management motivations of asset revaluation, whereas Kittima Acaranupong (2003: 1-182) only investigates value relevance. Second, Kittima Acaranupong (2003: 1-182) only studies value relevance by investigating the relation between stocks' prices and PPE stated at cost and revaluation surplus but this dissertation studies not only price analysis but also return analysis with net increment in revaluation surplus. Third, Kittima Acaranupong (2003: 1-182) examines the value relevance from quarterly financial statements of listed companies. Practically, this approach does not conform with asset revaluation in terms of time period because most of revaluations of each listed firm occur only one time in a year. It means that there is no variation in revaluation surplus from quarter to quarter. As a consequence, I examine data on a

yearly basis from 1994-2004 and expect that the results will be more appropriate than that obtained by Kittima Acaranupong (2003: 1-182).

Althought Panya Sumritpradit (2002: 1-198) does not directly investigate the value relevance of asset revaluation, but he attempts to explain the factors that influence on the ability of accounting earnings and book value in order to explain the price movement of listed firms in the Stock Exchange of Thailand. One of the factors is asset revaluation. The sample of this study is composed of 292 firm-years of revaluating firms and 2,052 firm-years of non-revaluating firms.

Feltham-Ohlson's model used in his dissertation determines the relation between price and financial information in order to find the increment of R^2 from earnings model and book value model. It is expected that book value will have a more incremental ability to explain stock prices than earnings for revaluating firms, whereas earnings will have more incremental ability to explain stock price than book value for non-revaluating firms. The main reason is that an asset revaluation will increase the book value of assets to closely fair value. Then, investors will focus on book value rather than on earnings. The results of Panya Sumritpradit (2002: 1-198) confirm his hypothesis.

2.4 Conceptual Frame Work

The conceptual frame work in asset revaluation from prior literature summarizes the scope of this dissertation as shown below.

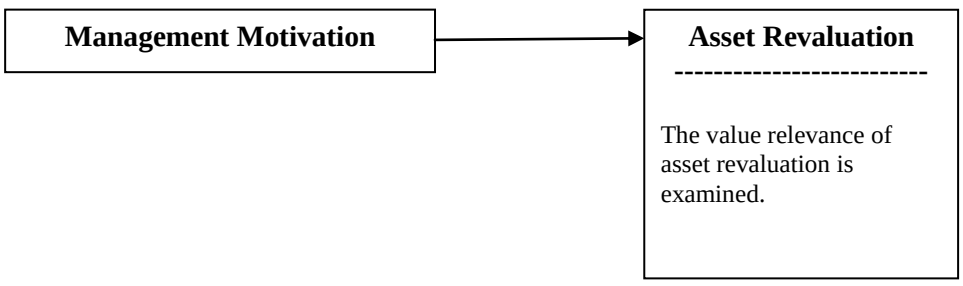

Figure 2.2 Conceptual Frame Work of This Dissertation

According to Figure 2.2, this dissertation examines the motivations based on positive accounting theory that urge the managers to make revaluation decisions. Then, this dissertation also examines the results of these decisions in terms of value relevance by investigating the association between price (return) and revaluation reserve (net increment of revaluation reserve).

CHAPTER 3

RESEARCH HYPOTHESES AND DESIGNS

This dissertation studies asset revaluation into two main parts. The first part investigates management motivations for revaluation. The hypotheses of this part are based on positive theory (debt hypothesis and signaling hypothesis). The political hypothesis is not investigated because of the exception of TAS No. 32 for recognizing depreciation expenses from revaluation amounts in income statement. Therefore, there is no motivation for using accounting procedures to reduce earnings in order to decrease political pressures. The second part of this dissertation investigates value relevance of asset revaluation in terms of price analysis and return analysis. The equations are constructed based on Ohlson's model.

3.1 Management Motivations for Revaluation Decision of Fixed Assets

One of the objectives of this dissertation is to determine the factors that influence on the motivations of management in making fixed asset revaluation decisions. According to prior research, the variables are constructed based on two main hypotheses (debt hypothesis, and signaling hypothesis). Unlike prior research, however, political hypothesis is not investigated because both TAS. 9 and TAS. 32 allow firms to not recognize depreciation expenses from revaluation amounts, during 1994-2004. It means that management does not have any incentives to use asset revaluation as a tool to lower reported income in order to reduce the pressures from interested parties (e.g. politicians, publics, and labor unions).

3.1.1 Debt hypothesis

Theoretically, debt hypothesis means that the larger a firm's debt ratio is, the more likely the firm's manager is to select accounting procedures that shift reported earnings from future periods to the current period in order to avoid the violation of a debt covenant (Godfrey et al., 2000: 297). Nevertheless, enhancing net assets in order to decrease debt ratios by upward asset revaluation rather than increasing earnings are an alternative choice to reduce the chances of a firm technically breaching a debt covenant. In this dissertation, debt ratio is used as proxies for the debt hypothesis.

Debt ratio has commonly been used in prior research (Brown et al., 1992: 36-57; Whittred and Chan, 1992: 58-74; Cotter, 1999: 268-285 Jaggi and Tsui, 2001: 160-187) in order to examine debt hypothesis. Generally, an upward revaluation increases the book value of total tangible assets and it decreases debt covenant restrictions. As a consequence, it is expected that a highly levered firm attempts to avoid debt default by asset revaluation. However, there are mixed results from previous research. Brown et al. (1992: 36-57) and Whittred and Chan (1992: 58-74) find a positive relation between asset revaluation and debt ratio, whereas Jaggi and Tsui (2001: 160-187) and Cotter (1999: 268-285) illustrate no such relations. Similar to the debt environment of Hong Kong firms (Jaggi and Tsui, 2001: 160-187), Thai firms carry more private debt (loans from banks) than public debt (issuing debt instruments). This is entirely different from UK, Australia, and New Zealand firms. Based on most of the results of prior research, the hypothesis is shown below.

H1: There is a positive relation between revaluation of fixed assets and debt-equity ratio.

Actually, Brown et al. (1992: 36-57) and Cotter (1999: 268-285) use current proximity to default on leverage covenants or debt proximity ratio as a proxy for debt hypothesis. They claim that this ratio is a better proxy of debt contract variables rather than debt ratio. I also try to find the leverage covenants in all revaluating firms' note of statements. However, the data is not available. As a consequence, I decide to use only debt ratio to examine debt hypothesis.

3.1.2 Signaling hypothesis

Signaling theory assumes that managers of all firms have incentives to maintain their creditability with the market through reporting the firm's performance. Therefore, signaling theory predicts that firms will disclose more information than is demanded (Godfrey et al., 2000: 302). They conclude that asset revaluation is a signal of important information which resolves information asymmetry. In this dissertation, the asset revaluation is used to reflect growth opportunity and liquidity problem.

3.1.2.1 Growth opportunity – Brown et al. (1992: 44) decide that a firm with high growth demand more external funds in order to finance its projects. Therefore, it will attempt to maintain its financial slack to avoid potential under-investment. Usually, market-to-book ratio is applied as a proxy for growth opportunity. It can be expected that high-growth firms have more opportunity to revalue than low-growth firms have. The results of Whittred and Chan (1992: 58-74) and Black et al. (1998: 1287-1317) confirm this expectation. On the other hand, market-to-book ratio can be viewed as a proxy for under-revaluation (Lin and Peasnell, 2000: 359-394). This under-revaluation may result from the improper determination in individual asset valuation of the market due to information asymmetry problems. If management believes that the market value of assets is undervalued, they will upwardly revalue in order to signal the true value of assets. As a result, the relation between revaluation and market-to-book ratio can be negative. However, Lin and Peasnell (2000: 359-394) show that there is an insignificant relation of market-to-book ratio with asset revaluation. In this dissertation, the relation between revaluation and market-to-book ratio is anticipated to be positive in line with the results of Whittred and Chan (1992: 58-74) and Black et al. (1998: 1287-1317).

H2a: There is a positive relation between revaluation of fixed assets and firms' market-to-book ratio.

3.1.2.2 Liquidity – A liquid firm means a firm can quickly obtain funds to meet obligations or to take advantage of investment opportunities (Hill and Sartoris, 1995: 263). High liquid firms have three advantages, obtaining lower financing costs,

taking advantage of business opportunities, and avoiding emergency adjustments in operations. Brown et al. (1992: 43) conclude that firms with liquidity problem or financial slack have a higher incentive to revalue their assets to maintain their borrowing capacity. Prior studies use more variables to measure liquidity, current ratio (Black et al., 1998: 1287-1317), quick ratio (Lin and Peanell, 2000: 359-394), and cash reserve (Brown et al., 1992: 36-57; and Whittred and Chan, 1992: 58-74). However, only the quick ratio is discovered a negative relation with asset revaluation, whereas the relation of cash reserve and current ratio are not conclusively significant. Therefore, this dissertation will investigate the influence of liquidity in terms of quick ratio.

H2b: There is a negative relation between revaluation of fixed assets and firms' quick ratio.

Nevertheless, two traditional measures of liquidity, the current ratio and quick ratio, have been severely criticized. Hill and Sartoris (1995: 268) argue that both ratios are the result of a conventional classification of assets and not the direct measures of actual liquidity of assets. Moreover, they do not consider the cash-flow-generating capability of operations. Therefore, a liquidity measure, net working capital ratio, is initially introduced in order to accurately examine this relation with asset revaluation.

H2c: There is a negative relation between revaluation of fixed assets and firms' net working capital ratio.

In addition, the improvement of future liquidity can be a motivation for asset revaluation. For the signaling approach, the asset revaluation can be used as a signal for liquidity problem as well as the future status of liquidity. Consequently, it can be anticipated that a change in net working capital and change in the quick ratio in the next year should be positively related with asset revaluation.

H2d: There are positive relations between revaluation of fixed assets and firms' change in net working capital and change in quick ratio in next year.

In order to avoid the multi-collinearity problem, quick ratio (change in quick ratio in next year) and net working capital ratio (change in net working capital in next year) are separately included in the different regression equations.

3.2 Value Relevance of Fixed Asset Revaluation

Theoretically, accounting information should be useful for investors to predict firms' performance. Fair value accounting is applied to solve problem in the value-relevance of historical cost accounting by ignoring price increases due to the passage of time. I investigate value relevance in terms of price analysis and return analysis.

3.2.1 Price analysis

In order to investigate the value relevance of asset revaluation, I begin to examine the relation between stock prices and asset revaluation reserve.

According to results of Easton et al. (1993: 1-38), Barth and Clinch (1998: 199-233) and Aboody et al. (1999: 149-178), all of them find that asset revaluation reserve is positively related to prices incremental to net income and book value of equity. Easton et al. (1993: 1-38) examine the aggregated asset revaluation reserve and find that it provides more understanding of the current state of the firm. Unlike Easton et al. (1993: 1-38), Barth and Clinch (1998: 199-233) investigate how asset revaluation differs across types of assets, including investments, PPE, and intangibles. The result shows that all three asset classes have value relevance. In accordance with Aboody et al. (1999: 149-178), they use the same methodology from Easton et al. (1993: 1-38) and find an impact of asset revaluation reserve on stock prices.

H4: There is a positive relation between revaluation reserve and firms' stock prices.

3.2.2 Return analysis

Return analysis is examined because it provides direct evidences on the timeliness of asset revaluation. Easton et al. (1993: 1-38) explain that returns are used to investigate change in financial statement items.

Unlike the price model, the results of the return model of prior research are mixed. Whereas Easton et al. (1993: 1-38) show a weak relation between the net increment to revaluation reserve and returns, Barth and Clinch (1998: 199-233) and Aboody (1999: 149-178) find a significantly positive relation.

H5: There is a positive relation between the net increment to asset revaluation reserve and stock returns.

3.3 The Sample and Data Collection

In order to examine the value relevance and management motivations the sample is constructed by using criteria as shown below.

1. The sample is consisted of Thai listed firms in Stock Exchange of Thailand (SET).

2. For revaluating firms, they had to revalue their assets during 1994-2004. The financial information from 1994-1997 was collected from I-SIM CD-ROM, whereas information from 1998-2004 was collected from www.setsmart.com (an online information web site of SET). This dissertation starts to study information from 1994 because of the unavailability of data. Moreover, there were a small number of revaluating firms before 1994. The main reason was that the increment of value of assets from revaluation had to be calculated for tax payment in that time period. After changing this regulation, many firms revalued their assets in accordance with Thai Accounting Standard No. 9 (TAS No. 9) (Punya Sunritpradit, 2002: 148).

3. All listed firms in Bank, Finance and Securities, and Insurance sectors were excluded in the sample because their accounting procedures differ from those of other sectors.

Finally, the sample of this dissertation is composed of seventy six revaluating firms listed in Stock Exchange of Thailand (SET) during the period 1994-2004. According to Table 3.1 and Table 3.2, it can be concluded that:

1. Total assets among the revaluating firms at the beginning of the valuating year show a high variance. The smallest firm, ROCK first-time revalued in 2000, had total assets of only 33 million baht, whereas the largest firm, SCC first-time revalued in 1997, had total assets of 96,960 million baht.

2. Similar to total assets, SCC had the highest market value at 179,784 million baht, whereas UV, first time revalued in 1995, had the lowest market value at 64.43 million baht.

3. Total debts of the revaluating firms at the beginning of the valuating year also show a high variance. The firm with the lowest total debts, CSR first-time revalued in 1994 had only 7.55 million baht, whereas the highest firm in total debts, SCC, had 137,516 million baht.

4. In 1999, SSF first time revalued its assets of only 1.32 million baht, the smallest of the revaluation amounts. On the other hand, SSC first time revalued its assets 77,460 million baht, the highest of the revaluation amounts.

5. All seventy six firms can be classified into 20 sectors. The most number of firms were in the Property Development sector (ten firms) and Construction Material sector (nine firms). The firms in both sectors mostly revalued their assets in 1999, the period that TAS No. 32 was implemented. On the other hand, there was only one firm in the Information and Communication and Technology, Electronic Components, and Professional Services sectors. The result is not surprising because firms in the Property Development sector and Construction Material sector usually hold more assets than those of other sectors.

6. Most of the firms first-time revalued their assets in 1997 and 1999 (seventeen firms in both years), whereas there was only one that revalued in 2002. Interestingly, Thailand's economic crisis occurred in 1997. It means that asset revaluation is a tool for some listed firms to strengthen their financial position via increasing value of assets when they encounter economic crisis, whereas income statements are not impacted because depreciation expenses from revaluation amounts

are not recognized. The increase in the firms' assets may have given the firms opportunities for finding new financial resources to survive in this situation.

For example, NPC was one of the listed firms that encountered the effects of Thailand's economic crisis in 1997. According to its note of financial statement from its 1998 annual report, the company's loans increased when translated into Thai Baht due to the economic crisis and the change in the foreign currency exchange system to a managed float system. As a consequence, the company was unable to maintain some of its financial ratios on December 31, 1997. Asset revaluation was used as a tool to decrease its debt ratio and allowed the company to maintain the financial ratios in accordance with the original condition as provided in the loan agreement.

Moreover, most of revaluating firms which encountered the financial problem used debt restructuring as a process to solve the problem with financial institutions. Normally, financial ratios were included in debt restructuring agreements. Therefore, these firms had to maintain the ratios to follow the agreements and asset revaluation was one way to accomplish this objective.

Table 3.1 The Main Characteristics of Revaluating Firms

	N	**MIN**	**MAX**	**MEAN**	**S.D.**
Total Assets	76	33.0	96960.00	4230.68	12530.46
Market Value	76	64.43	179784.96	9636.90	23156.70
Debt	76	7.55	137516.56	6926.24	17560.66
Revaluation amounts	76	1.32	77460.20	2639.01	9911.46

Table 3.2 Number of First-Time Revaluating Firm Segregated by Sector and Year

Sectors	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	Total
Agribusiness			1	2		1				1		5
Automotive		1								1		2
Commerce		1		1							1	3
Construction Materials			2	2		4	1					9
Electronic Components					1							1
Energy and Utilities				1						1	1	3
Fashion	1			1				1	1			4
Food and Beverage			1	1	1	2	2					7
Health Care Services			1	2		1				1		5
Home and Office Products				1	1		1					3
Industrial Materials and Machinrery			1	2								3
Information and Communication Technology			1									1
Media and Publishing						1	1	1				3
Packaging	1				1	1	1			1		5
Paper and Printing Materials				1		1						2
Petrochemicals and Chemicals				2	1	1						4
Professional Service											1	1
Property and Development		1	1	1		4		3				10
Tourism and Leisure	2		1									3
Transportation and Logistics						1					1	2
Total	4	3	9	17	5	17	6	5	1	5	4	**76**

3.4 Research Methodology

3.4.1 Management motivations for revaluation decision of fixed assets

3.4.1.1 Dependent variable

Dummy variable (1,0) - The dependent variable in the regression model is a dummy variable, 1 for a first-time revaluating firm and 0 for a non-revaluating firm (e.g. Brown et al., 1992: 36-57; Whittred and Chan, 1992: 58-74; Cotter and Zimmer, 1999: 136-151 and Black et al., 1998: 1287-1317). The objective of this variable is to investigate the factors that influence management to make decision in asset revaluation.

The sample used to study management motivations is composed of the first-time revaluating firms because first-time revaluation decisions exclusively depends on management motivations, whereas later revaluation decisions may occur because it is forced by an accounting standard requirement to sufficient frequency approximate fair values as of each balance sheet date. To study management motivations, the sample will be constructed in two ways. In the first way is that the sample is composed of 73 first-time revaluating firms and 73 non-revaluating firms which are chosen by matching a revaluating firm with a non-revaluating firm based on the nearest total revenues in the same sector. In the second way, the sample is composed of 73 first-time revaluating firms and all non-revaluating firms during 1994-2004.

3.4.1.2 Independent variable

1) Debt ratio (DEBT) – Debt ratio is measured by calculating the proportion of total liabilities to total assets at the beginning of the year (Brown et al., 1992: 36-57; Whittred and Chan, 1992: 58-74; and Cotter, 1999: 268-285). Based on the results from prior research, it is expected that there is positive association between upward fixed asset revaluation and DEBT.

2) Market-to-book ratio (MVE/BVE) – Certainly, high growth firms demand more external funds to finance their projects. So, they have to maintain their financial slack in order to avoid potential underinvestment. This variable is measured by calculating the proportion of market value of common equity to book value of common equity at the beginning of the year. According to Whittred and Chan

(1992: 58-74) and Lin and Peasnell (2000: 359-394), I anticipates that there is a positive relation between fixed asset revaluation and MVE/BVE.

3) Quick ratio (QUICK) – Quick ratio is a proxy for liquidity. Normally, many firms become bankrupt because of liquidity problems, i.e. the firm can no longer provide funds for its internal operations and debt repayments. For this reason, most firms have a higher incentive to revalue their assets due to maintaining their borrowing capacity. The Quick ratio is computed by dividing quick assets (current assets minus inventory and other current assets) by current liabilities at the beginning of the year. Quick ratio is expected to be negatively related to revaluation of fixed assets.

4) Net working capital ratio (NWC) – Net working capital ratio is examined because traditional variables (current ratio and quick ratio) are severely criticized in that they are not direct measures of the actual liquidity of assets. The Net working capital ratio is defined as current assets minus current liabilities and then is divided by total assets at the beginning of the year. Net working capital ratio is anticipated to be negatively related to the revaluation of fixed assets.

5) Change in the quick ratio and Change in the net working capital ratio in next year (ΔQUICK and ΔNWC) – Both variables are proxies for the improvement of future financial liquidity. These variables have not been investigated by prior research. But they are included in this dissertation because asset revaluation may be used as a tool for resolve liquidity problems. It means that the level of liquidity should increase after the year of an asset revaluation. In this dissertation, change in the net working capital and change in the quick ratio in following year are used as proxies for the future improvement in the liquidity level. Change in the quick ratio (change in net working capital ratio) in following year is defined as the difference between the current quick ratio (current net working capital ratio) and the following year quick ratio or (following year net working capital ratio), respectively.

6) SIZE – Size is included in the equation as a control variable to determine the impact on management motivations. Size is defined as the natural log of total assets at the beginning of the year.

There are two methods used to analyze motivations for asset revaluation. The first method uses t-test to compare the mean of each of the variables between revaluating firms and non-revaluating firms. The second method uses the binomial logit model because the dependent variable (REV) is a dummy variable and it avoids the unboundedness problem of the linear probability model by using a variant of the cumulative logistic function (Studenmund, 1992: 518). Moreover, the two equations are set up to separately investigate the effects of different proxies for liquidity, quick ratio and the change in quick ratio in next year and in the net working capital ratio and change in net working capital ratio in next year (summary of variables and expected signs in Table 3.1).

$$REV_t = \beta_0 + \beta_1 DEBT_{t-1} + \beta_2 MVE_{t-1}/BVE_{t-1} + \beta_3 NWC_{t-1} + \beta_4 \Delta NWC_{t+1} + \beta_5 SIZE_{t-1} + e \quad (3.2)$$

And

$$REV_t = \delta_0 + \delta_1 DEBT_{t-1} + \delta_2 MVE_{t-1}/BVE_{t-1} + \delta_3 QUICK_{t-1} + \delta_4 \Delta QUICK_{t+1} + \delta_5 SIZE_{t-1} + e \quad (3.3)$$

REV_t = 1 for an upwardly first-time revaluating firm, 0 for a non-revaluating firm.

$DEBT_{t-1}$ = total liabilities / total assets

MVE_{t-1}/BVE_{t-1} = market value of common equity / book value of common equity

$QUICK_{t-1}$ = (current assets – inventory- other current assets) / current liabilities

$\Delta QUICK_{t+1}$ = $(QUICK_{t+1} - QUICK_t)$

NWC_t-1 = (current assets – current liabilities) / total assets

ΔNWC_{t+1} = $(NWC_{t+1} - NWC_t)$

$SIZE_{t-1}$ = as natural log of total assets

Both equations investigate management motivations for asset revaluation. But the equation (3.2) uses NWC_{t-1} and ΔNWC_{t+1} as proxies for liquidity, whereas the equation (3.3) uses $QUICK_{t-1}$ and $\Delta QUICK_{t+1}$ as proxies for liquidity.

Table 3.3 Summary of Variables and Expected Signs Relative to Revaluation Decision

Variables	Expected Signs (Positive or Negative)
$DEBT_{t-1}$	+
MVE_{t-1}/BVE_{t-1}	+
$QUICK_{t-1}$	-
NWC_{t-1}	-
$\Delta QUICK_{t+1}$	+
ΔNWC_{t+1}	+

$DEBT_{t-1}$ is total liabilities/total assets
MVE_{t-1}/BVE_{t-1} is market value of common equity/book value of common equity
$QUICK_{t-1}$ is (current assets-inventory-other current assets)/current liabilities
NWC_{t-1} is (current assets – current liabilities)/total assets
ΔNWC_{t+1} is ($NWC_{t+1} - NWC_t$)
$\Delta QUICK_{t+1}$ is ($QUICK_{t+1} - QUICK_t$)

3.4.2 Value relevance

3.4.2.1 Development of empirical analysis: Price Analysis

The objective of price analysis is to examine the association between firms' stock prices and financial information (book value and earnings) including asset revaluation reserve.

Ohlson's model is used as a basic equation in order to construct price analysis in this dissertation. From Chapter Two, the final revised model (equation 2.4) of Ohlson's model is shown below.

$$PRICE_t = \phi_0 + \phi_1 BVPS_t^* + \Delta EPS_t + e \qquad (2.4)$$

$PRICE_t$ = price per share

$BVPS_t^*$ = the reported book value of owner's equity per share of firm j time t

EPS_t = the earnings per share of firm j at time t

In the countries that allow asset revaluation (Australia, UK, New Zealand, and Thailand), reported book value includes the asset revaluation component.

$$BVPS_t^* = BVPS_t + RR_t \qquad (3.6)$$

$BVPS_t$ = book value per share minus asset revaluation reserve.

RR_t = asset revaluation reserve per share

From the explanation above, value relevance from price analysis can be investigated by using the following equation.

$$PRICE_t = \phi_0 + \phi_1 RR_t + \phi_2 BVPS_t + \phi_3 EPS_t + e \qquad (3.7)$$

3.4.2.2 Development of empirical analysis: Return Analysis

The objective of return analysis is to examine the summary of changes in the financial state in terms of the relation between return and financial information, including net increment to asset revaluation reserve.

Similar to price analysis, return analysis uses Ohlson model's adjusted by Easton (1999: 399-412). From Chapter Two, the return model is shown below.

$$RETURN_t = \theta_0 + \theta_1 EPS_t/PRICE_{t-1} + \theta_2 \Delta EPS_t/PRICE_{t-1} + e \qquad (2.6)$$

This equation can be used to examine the relation between earnings and returns for both earnings level and changes in earnings. In case of residual value (e), it represents other unexpected information. In addition, unexpected revaluation reserve can be viewed as unexpected information. It is calculated by using net incremental to asset revaluation reserve per share or RRIPS. I separate unexpected revaluation reserve from unexpected information to determine the relationship with return.

$$RETURN_t = \theta_0 + \theta_1 RRIPS_t / PRICE_{t-1} + \theta_2 EPS_t / PRICE_{t-1} + \theta_3 \Delta EPS_t / PRICE_{t-1} + e \qquad (3.8)$$

3.4.2.3 Dependent variable

1) Price – Generally, Thai listed firms must disclose their annual financial statement within 2 months after the end of each year. Following this rule, therefore, share prices at the end of the year in this dissertation are measured on the last trading day of February in year t+1.

2) Return – Consistently, returns are measured from two months after year end for year t-1 to two months after year end for year t and they are calculated by the subsequent equation.

$$RETURN_t = ((PRICE_t - PRICE_{t-1}) + DIVIDEND_t)/PRICE_{t-1}.$$

DIVIDEND includes both cash dividends and stock dividends. For stock dividends, I assume that investors will immediately sell them at the dividend announcement date.

3.4.2.4 Independent variable

In each model, different independent variables are examined. Revaluation reserve is included in the price model, whereas net increment to asset revaluation is included in the return model.

From the conclusion above, two ordinary least square (OLS) regressions are investigated.

$$PRICE_t = \Phi_0 + \Phi_1 RR_t + \Phi_2 BVPS_t + \Phi_3 EPS_t + e \text{ ---------- } (3.7)$$

$PRICE_t$ = share price on the last trading day of February.

RR_t = revaluation reserve per share

$BVPS_t$ = book value of equity per share, excluding the revaluation reserve

EPS_t = earnings per share

It can be expected that RR_t should be positively related to $PRICE_t$.

$$RETURN_t = \theta_0 + \theta_1 RRIPS_t / PRICE_{t-1} + \theta_2 EPS_t / PRICE_{t-1} + \theta_3 \Delta EPS_t / PRICE_{t-1} + e \quad (3.8)$$

$RETURN_t$ = $((PRICE_t - PRICE_{t-1}) + DIVIDEND_t) / PRICE_{t-1}$, measured from the end of February after year end for year t-1 to the end of February after year end for year t. For stock dividend, it is assumed that investors will immediately sell them after receipt.

$RRIPS_t$ = net increment to asset revaluation reserve per share

EPS_t = earnings per share

ΔEPS_t = earnings per share at the end of the year minus earnings per share at the beginning year.

All variables ($RETURNS_t$, $RRIPS_t$, EPS_t, and ΔEPS_t) are adjusted for increases in the number of shares during each year for stock splits, management decision to increase a firm's equity, and others by using the year 2004 as a base year.

It can be expected that $RRIPS_t$ should be positively related to $RETURN_t$.

CHAPTER 4

RESULTS AND IMPLICATIONS

This chapter presents the results of this dissertation which can be classified into two main parts. The first part is the results of the study of value relevance of asset revaluation in terms of both association between price and revaluation reserve and association between return and net increment to asset revaluation reserve. The second part is the results of the study of management's motivation for asset revaluation which is based on debt hypothesis and signaling hypothesis.

4.1 Value Relevance

In part of price analysis, I start to examine the original model which is the association between price and two financial measures both earnings per share (EPS) and book value per share ($BVPS^*$) in accordance with Ohlson's model.

$$PRICE_t = \phi_0 + \phi_1 BVPS_t^* + \phi_2 EPS_t + e \qquad (2.4)$$

Later, book value per share ($BVPS^*$) is disaggregated into two parts that are book value per share after excluding revaluation reserve (BVPS) and revaluation reserve (RR) and these two variables are included in price analysis equation as shown below.

$$PRICE_t = \Phi_0 + \Phi_1 RR_t + \Phi_2 BVPS_t + \Phi_3 EPS_t + e \qquad (3.7)$$

Like price analysis, I also examine the original model of return analysis which is the association between return and two financial measures both earnings per share divided by price at the beginning of the year and change in earnings per share divided by price at the beginning of the year in accordance with adjusted Ohlson's model.

$$RETURN_t = \theta_0 + \theta_1 EPS_t/PRICE_{t-1} + \theta_2 \Delta EPS_t/PRICE_{t-1} + e \qquad (2.6)$$

Then, I include net increment to asset revaluation reserve per share divided by price at the beginning of the year or $RRIPS/PRICE_{t-1}$ in return analysis equation.

$$RETURN_t = \theta_0 + \theta_1 RRIPS_t / PRICE_{t-1} + \theta_2 EPS_t / PRICE_{t-1} + \theta_3 \Delta EPS_t / PRICE_{t-1} + e \quad (3.8)$$

4.1.1 Price Analysis - Descriptive Statistics

Table 4.1 Descriptive Statistics: Price Analysis

Variables	N	MIN	MAX	MEAN	S.D.
$PRICE_t$	620	.00	2700.00	41.55	161.15
RR_t	620	.00	645.50	15.34	54.95
EPS_t	620	-437.93	161.22	-0.06	23.62
$BVPS_t$	620	-169.65	200.65	16.73	27.83
$BVPS_t^*$	620	-104.68	732.76	30.65	61.25

$PRICE_t$ is share price on the last trading day of February
RR_t is revaluation reserve per share
EPS_t is earnings per share
$BVPS_t$ is book value of equity per share, excluding the revaluation reserve
$BVPS_t^*$ is book value of equity per share, including the revaluation reserve

The sample of price analysis is composed of 620 firm-year observations. According to Table 4.1, it presents that $PRICE_t$ has a quite high in standard deviation (161.15). The minimum value of $PRICE_t$ in this sample is .00 and the maximum value is 2700.00. Like $PRICE_t$, RR_t also has a high standard deviation (54.95). The minimum value of RR_t is .00 and the maximum value is 645.50. In case of EPS_t, it shows average loss (-0.06), whereas standard deviation is quite high (23.62). The value of EPS_t ranges from -437.93 to 161.22. On average, $BVPS_t$ shows positive value (16.73) during 1994-2004. A minimum value of $BVPS_t$ is -169.65 and a maximum value is 200.65. Like $BVPS_t$, a mean value of $BVPS_t^*$ is positive (30.65). In comparison to the standard deviation of BVPS (27.83), $BVPS_t^*$ has a higher standard deviation (61.25). It means that $BVPS_t^*$ has higher variations. The value of $BVPS_t^*$ ranges from -104.68 to 732.76.

4.1.2 Price Analysis (Original model) – Pearson Correlation

Table 4.2 Pearson Correlation - Price Analysis (Original model)

	$PRICE_t$	$BVPS_t^*$	EPS_t
$PRICE_t$	1.000		
$BVPS_t^*$	.315	1.000	
(p-value, two tailed)	(.000)		
EPS_t	.223	.348	1.000
(p-value, two tailed)	(.000)	(.000)	

$PRICE_t$ is share price on the last trading day of February
$BVPS_t^*$ is book value of equity per share, including the revaluation reserve
EPS_t is earnings per share

In order to investigate multi-collinearity problem, Studenmund (1992: 273-274) suggests that multi-collinearity is a potential problem when the correlation coefficient between two independent variables is high in absolute value (correlation coefficient > 0.5). In addition, another measure of the severity of this problem is the Variance Inflation Factor (VIF). A common rule of thumb is that if VIF > 5, the multi-collinearity is severe.

Table 4.2 presents Pearson correlation among these three variables. Both $BVPS_t^*$ and EPS_t are significantly positively related to $PRICE_t$ (correlation coefficient = .315 and .223, respectively. Although $BVPS_t^*$ is significantly positive with EPS_t (p-value < 0.5), the correlation coefficient (.348) is less than 0.5 and VIFs of $BVPS_t^*$ and EPS_t are only 1.109. It implies that there is not a serious problem in multi-collinearity.

4.1.3 Price Analysis (Original model) – Regression Analysis

Table 4.3 Regression Analysis - Price Analysis (Original model)

$PRICE_t = \phi_0 + \phi_1 BVPS_t^* + \phi_2 EPS_t + e$ (significant at 5% level) (n=620)				
	Expected	Coefficient	t-statistic	p-value
(Constant)		18.597	9.938	.000
$BVPS_t^*$	+	.322	5.585	.000
EPS_t	+	.367	3.069	.002

$PRICE_t$ is share price on the last trading day of February
$BVPS_t^*$ is book value of equity per share, including the revaluation reserve
EPS_t is earnings per share

Predictably, the result which has been considered and solved for heteroskedastiscity problem follows the results of prior research. Both $BVPS_t^*$ and EPS_t are significantly positively related to $PRICE_t$ (coefficient = .322 and .367, respectively).

4.1.4 Price Analysis (including RR) – Pearson Correlation

Table 4.4 Pearson Correlation - Price Analysis (including RR)

	$PRICE_t$	RR_t	$BVPS_t$	EPS_t
$PRICE_t$	1.000			
RR_t	.206	1.000		
(p-value, two tailed)	(.000)			
$BVPS_t$	-.002	.038	1.000	
(p-value, two tailed)	(.481)	(.194)		
EPS_t	.105	.051	.229	1.000
(p-value, two tailed)	(.009)	(.122)	(.000)	

$PRICE_t$ is share price on the last trading day of February
RR_t is revaluation reserve per share
$BVPS_t$ is book value of equity per share, excluding the revaluation reserve
EPS_t is earnings per share

Table 4.4 shows that RR_t and EPS_t are significantly positively related to $PRICE_t$ (correlation coefficient = .206 and .105, respectively), whereas $BVPS_t$ is not. In case of independent variables, EPS_t is significantly positively related to $BVPS_t$ (p-value < 0.5) but the correlation coefficient (.229) is less than 0.5 and VIFs of RR_t, $BVPS_t$ and EPS_t are 1.032, 1.322 and 1.290, respectively. It means that the multi-collinearity problem is not found.

4.1.5 Price Analysis (including RR) – Regression Analysis

Table 4.5 Regression Analysis - Price Analysis (including RR)

$PRICE_t = \Phi_0 + \Phi_1 RR_t + \Phi_2 BVPS_t + \Phi_3 EPS_t + e$ (significant at 5% level) (n=620)				
	Expected	Coefficient	t-statistic	p-value
(Constant)		9.886	2.484	.013
RR_t	+	1.154	5.960	.000
$BVPS_t$	+	.836	3.646	.000
EPS_t	+	.748	2.147	.032

$PRICE_t$ is share price on the last trading day of February
RR_t is revaluation reserve per share
$BVPS_t$ is book value of equity per share, excluding the revaluation reserve
EPS_t is earnings per share

The objective of price analysis is to investigate the ability of fixed asset revaluation reserve (RR_t) to explain the stock price behavior of each firm in order to reflect on the state of the firm at a point in time. According to hypothesis 4, it is expected that there is a positive relation between revaluation reserve and firms' stock prices.

After considering heteroskedasticity as well as autocorrelation and solving the problem by using White heteroskedasticity consistent covariance, it can be concluded that the positive association between $PRICE_t$ and $BVPS_t$ (EPS_t) is found (p-value < 0.5) as illustrated in Table 4.5. This result is similar to the result of original model in Table 4.3. In addition, RR_t is also significantly positively related to $PRICE_t$ as expected (p-value < 0.5).

According to the result, it can be concluded that there is value relevance for fixed asset revaluation because price analysis demonstrates that asset revaluation can be used to explain stock price movements. In other words, it can reflect on the state of the firm at a point in time. It means that asset revaluation is important information that investors can use to make better decisions on about enterprise performance. Therefore, the asset revaluation should be included in the financial statement to reflect fair value in order to solve lack of relevant problem of historical cost accounting.

4.1.6 Return Analysis – Descriptive Statistics

Table 4.6 Descriptive Statistics: Return Analysis

Variables	N	MIN	MAX	MEAN	S.D.
$RETURN_t$	526	-1.00	22.58	0.70	2.17
$RRIPS_t/PRICE_{t-1}$	526	-57.48	7.31	-0.43	2.94
$EPS_t /PRICE_{t-1}$	526	-6.24	31.21	0.17	2.12
$\Delta EPS_t/PRICE_{t-1}$	526	-19.28	16.91	0.27	2.02

$RETURN_t$ is $((PRICE_t – PRICE_{t-1}) + DIVIDEND_t) / PRICE_{t-1}$, measured from two months after year end for year t. For stock dividend, it is assumed that investors will immediately sell them after receiving.
$RRIPS_t/PRICE_{t-1}$ is net increment to asset revaluation reserve per share divided by price at the beginning of the year
$EPS_t/PRICE_{t-1}$ is earnings per share divided by price at the beginning of the year
$\Delta EPS_t/PRICE_{t-1}$ is earnings per share at the end of the year minus earnings per share at the beginning year divided by price at the beginning of the year

The sample of return analysis is composed of 526 firm-year observations. In comparison to the standard deviation of $PRICE_t$ (161.15), the standard deviation of $RETURN_t$ is lower in variation (2.17). The $RETURN_t$ value ranges from -1.00 to 22.58. In cases of $RRIPS_t/PRICE_{t-1,}$ it has a mean value at -0.43; with a minimum value at -57.48 and a maximum value at 7.31. The $EPS_t/PRICE_{t-1}$ value ranges from -6.24 to 31.21 and a mean value is 0.17; with standard deviation at 2.12. For the last variable, $\Delta EPS_t/PRICE_{t-1}$, it rages from -19.28 to 16.91; with a mean value at 0.27.

4.1.7 Return Analysis – Pearson Correlation

Table 4.7 Pearson Correlation - Return Analysis

	$RETURN_t$	$RRIPS_t/PRICE_{t-1}$	$EPS_t/PRICE_{t-1}$	$\Delta EPS_t/PRICE_{t-1}$
$RETURN_t$	1.000			
$RRIPS_t/PRICE_{t-1}$	-.007	1.000		
(p-value, two tailed)	(.874)			
$EPS_t/PRICE_{t-1}$	.147	-.218	1.000	
(p-value, two tailed)	(.001)	(.000)		
$\Delta EPS_t/PRICE_{t-1}$	-.050	-.135	.718	1.000
(p-value, two tailed)	(.255)	(.001)	(.000)	

$RETURN_t$ is $((PRICE_t - PRICE_{t-1}) + DIVIDEND_t) / PRICE_{t-1}$, measured from two months after year end for year t. For stock dividend, it is assumed that investors will immediately sell them after receiving.
$RRIS_t/PRICE_{t-1}$ is net increment to asset revaluation reserve per share divided by price at the beginning of the year
$EPS_t/PRICE_{t-1}$ is earnings per share divided by price at the beginning of the year
$\Delta EPS_t/PRICE_{t-1}$ is earnings per share at the end of the year minus earnings per share at the beginning year divided by price at the beginning of the year

Table 4.7 presents that only $EPS_t/PRICE_{t-1}$ is significantly positively related to $RETURN_t$ (correlation coefficient =.147), whereas $RRIPS_t/PRICE_{t-1}$ and $\Delta EPS_t/PRICE_{t-1}$ are not. $EPS_t/PRICE_{t-1}$ and $\Delta EPS_t/PRICE_{t-1}$ are highly correlated (correlation coefficient = .718). However, VIFs of all independent variables are less than 5. As a result, it implies that there is not a serious problem in multi-collinearity.

4.1.8 Return Analysis (Original model) – Regression Analysis

Table 4.8 Regression Analysis – Return Analysis (Original model)

$RETURN_t = \theta_0 + \theta_1 EPS_t/PRICE_{t-1} + \theta_2 \Delta EPS_t/PRICE_{t-1} + e$ (significant at 5% level)
(n=526)

	Expected	Coefficient	t-statistic	p-value
(Constant)		-.318	-.594	.552
$EPS_t/PRICE_{t-1}$	+	.121	.402	.687
$\Delta EPS_t/PRICE_{t-1}$	+	-.126	-.749	.453

$RETURN_t$ is $((PRICE_t - PRICE_{t-1}) + DIVIDEND_t) / PRICE_{t-1}$, measured from two months after year end for year t. For stock dividend, it is assumed that investors will immediately sell them after receiving.
$EPS_t/PRICE_{t-1}$ is earnings per share divided by price at the beginning of the year
$\Delta EPS_t/PRICE_{t-1}$ is earnings per share at the end of the year minus earnings per share at the beginning year divided by price at the beginning of the year

After considering heteroskedasticity and autocorrelation, the result shows that both $EPS_t/PRICE_{t-1}$ and $\Delta EPS_t/PRICE_{t-1}$ are not significantly related to $RETURN_t$. It means that both level of earnings and earnings surprise do not have value relevance in terms of timeliness.

4.1.9 Return Analysis (including RRIPS) – Regression Analysis

Table 4.9 Regression Analysis – Return Analysis (including RRIPS)

$RETURN_t = \theta_0 + \theta_1 RRIPS_t / PRICE_{t-1} + \theta_2 EPS_t / PRICE_{t-1} + \theta_3 \Delta EPS_t / PRICE_{t-1} + e$
(significant at 5% level) (n=526)

	Expected	Coefficient	t-statistic	p-value
(Constant)		-.306	-.571	.568
$RRIPS_t/PRICE_{t-1}$	+	.029	.160	.873
$EPS_t/PRICE_{t-1}$	+	.130	.228	.820
$\Delta EPS_t/PRICE_{t-1}$	+	-.128	-.450	.653

$RETURN_t$ is $((PRICE_t - PRICE_{t-1}) + DIVIDEND_t) / PRICE_{t-1}$, measured from two months after year end for year t. For stock dividend, it is assumed that investors will immediately sell them after receiving.
$RRIS_t/PRICE_{t-1}$ is net increment to asset revaluation reserve per share divided by price at the beginning of the year
$EPS_t/PRICE_{t-1}$ is earnings per share divided by price at the beginning of the year
$\Delta EPS_t/PRICE_{t-1}$ is earnings per share at the end of the year minus earnings per share at the beginning year divided by price at the beginning of the year

The objective of this regression is to investigate the ability of net increment to asset revaluation reserve divided by price at the beginning of the year to explain stock returns of each firm in order to evidence the asset revaluation timeliness. According to hypothesis 5, there is a positive relationship between the net increment to asset revaluation reserve and stock returns.

Unsurprisingly, the result from Table 4.9 shows that there are no independent variables that are significantly related to return. It can be interpreted that asset revaluation does not have value relevance for timeliness in terms of return analysis. This result is the same as Easton et al. (1993: 1-38) and Courtenay and Cahan (2004: 219-243).

In summary, no relation between return and net increment in asset revaluation reserve per share divided by price at the beginning of the year means that revaluation reliably reflect asset value change but do not occur in the year of the change. In other word, the revaluation is not timely.

4.1.10 Return Analysis – Robustness Investigation

The result from 4.1.9 that shows no relation between return and net increment in asset revaluation may cause by the characteristic of net increment in asset revaluation itself. The revaluation reserve may not be changed after the first-time revaluation because TAS No. 32 does not require the firm to revalue every year but the standard requires revaluation only when the book values of fixed assets are significantly different from the current prices. As a consequence, this dissertation attempts to confirm the result of return analysis by investigating the association between return and the level of revaluation reserve or RR_t only in the first-time of asset revaluation. Therefore, the sample in robustness investigation is composed of 76 observations.

Table 4.10 Pearson Correlation – Robustness Investigation

	$RETURN_t$	$RR_t/PRICE_{t-1}$	$EPS_t/PRICE_{t-1}$	$\Delta EPS_t/PRICE_{t-1}$
$RETURN_t$	1.000			
$RR_t/PRICE_{t-1}$	.124	1.000		
(p-value, two tailed)	(.304)			
$EPS_t/PRICE_{t-1}$	.410	-.073	1.000	
(p-value, two tailed)	(.000)	(.546)		
$\Delta EPS_t/PRICE_{t-1}$	-.084	-.243	.186	1.000
(p-value, two tailed)	(.489)	(.043)	(.124)	

$RETURN_t$ is $((PRICE_t - PRICE_{t-1}) + DIVIDEND_t) / PRICE_{t-1}$, measured from two months after year end for year t. For stock dividend, it is assumed that investors will immediately sell them after receiving.
$RR_t/PRICE_{t-1}$ is asset revaluation reserve per share divided by price at the beginning of the year
$EPS_t/PRICE_{t-1}$ is earnings per share divided by price at the beginning of the year
$\Delta EPS_t/PRICE_{t-1}$ is earnings per share at the end of the year minus earnings per share at the beginning year divided by price at the beginning of the year

Table 4.10 shows that only $EPS_t/PRICE_{t-1}$ is significantly positively related to $RETURN_t$ (correlation coefficient = .410). Besides, $RR_t/PRICE_{t-1}$ is negatively related to $\Delta EPS_t/PRICE_{t-1}$ (correlation coefficient = -2.43). In case of the relations among independent variables, only $RR_t/PRICE_{t-1}$ is significantly negatively related to $\Delta EPS_t/PRICE_{t-1}$ (p-value < 0.5) but the absolute value of correlation coefficient (-.243) is less than .5 and the VIFs of all independent variable are less than 5. It implies that the multi-collinearity is not a serious problem in the interpretation of the results from multi-variate analysis.

Table 4.11 Regression Analysis - Robustness Investigation

$RETURN_t = \theta_0 + \theta_1 RR_t / PRICE_{t-1} + \theta_2 EPS_t / PRICE_{t-1} + \theta_3 \Delta EPS_t / PRICE_{t-1} + e$

(significant at 5% level) (n=76)

	Expected	Coefficient	t-statistic	p-value
(Constant)		.085	.899	.371
$RR_t/PRICE_{t-1}$	+	.013	1.637	.106
$EPS_t/PRICE_{t-1}$	+	.092	4.206	.000
$\Delta EPS_t/PRICE_{t-1}$	+	-.096	-.749	.456

$RETURN_t$ is $((PRICE_t - PRICE_{t-1}) + DIVIDEND_t) / PRICE_{t-1}$, measured from two months after year end for year t. For stock dividend, it is assumed that investors will immediately sell them after receiving.
$RR_t/PRICE_{t-1}$ is asset revaluation reserve per share divided by price at the beginning of the year
$EPS_t/PRICE_{t-1}$ is earnings per share divided by price at the beginning of the year
$\Delta EPS_t/PRICE_{t-1}$ is earnings per share at the end of the year minus earnings per share at the beginning year divided by price at the beginning of the year

The result from Table 4.11 confirms that there is no value relevance for timeliness because $RR/PRICE_{t-1}$ is not significantly related to $RETURN_t$. However, $EPS_t/PRICE_{t-1}$ is significantly positively related to $RETURN_t$ (coefficient = .092 and p-value = .000).

4.2 Management Motivations for Asset revaluation

4.2.1 Descriptive Statistics

Table 4.12 Descriptive Statistics: Management Motivations

Variables in management revaluation										
Variables	revaluating firms					Non-revaluating firms				
	N	MIN	MAX	MEAN	S.D.	N	MIN	MAX	MEAN	S.D.
$DEBT_{t-1}$	73	.03	1.19	.64	.24	73	.03	1.28	.50	.28
MVE_{t-1}/BVE_{t-1}	73	-4.05	6.04	1.22	1.33	73	-1.83	6.22	1.03	1.21
NWC_{t-1}	73	-.73	.73	-.00	.30	73	-.90	.68	.06	.23
ΔNWC_{t+1}	73	-.56	.62	-.01	.18	73	-2.48	.50	-.09	.37
$QUICK_{t-1}$	73	.05	19.87	1.12	2.43	73	.00	7.74	1.30	1.50
$\Delta QUICK_{t+1}$	73	-8.88	2.32	-.10	1.15	73	-49.50	12.65	-.69	6.06
$SIZE_{t-1}$	73	1.81	4.75	3.44	.61	73	2.46	4.62	3.33	.50

$DEBT_{t-1}$ is total liabilities/total assets
MVE_{t-1}/BVE_{t-1} is market value of common equity/book value of common equity
NWC_{t-1} is (current assets – current liabilities)/total assets
ΔNWC_{t+1} is $(NWC_{t+1} - NWC_t)$
$QUICK_{t-1}$ is (current assets-inventory-other current assets)/current liabilities
$\Delta QUICK_{t+1}$ is $(QUICK_{t+1} - QUICK_t)$
$SIZE_{t-1}$ is the natural log of total assets at the beginning of the year

The sample used in the management motivation analysis is composed of seventy three first-time revaluing firms and seventy three non-revaluing firms which are matched by the nearest total revenue in the same sector. Table 4.12 presents that revaluating firms have higher debt ratios (.64) than non-revaluating firms (.50). This result could basically indicate that revaluating firms use asset revaluation as a tool for decreasing their debt ratio in order to avoid debt covenants. In order to intensively investigate, however, the logistic regression analysis will be conducted. In case of standard deviations in $DEBT_{t-1}$ of both revaluating and non-revaluating firms, they are indifferent (.24 and .28, respectively). On average, revaluating firms have higher MVE_{t-1}/BVE_{t-1} (1.22) than non-revaluating firms (1.03). Similar to $DEBT_{t-1}$, standard deviations in MVE_{t-1}/BVE_{t-1} for both groups are indifferent (1.22 and 1.03, respectively). In case of firm's liquidity, the average value of NWC_{t-1} of revaluating firms is .00, whereas the NWC_{t-1} of the non-revaluating firms is .06. The ΔNWC_{t+1} of revaluating firms is -.01 and the ΔNWC_{t+1} of non-revaluating firms is -.09. Additionally, standard deviations of both groups are quite low (.18, and .37, respectively). Similar to NWC_{t-1} and ΔNWC_{t+1}, the difference in values of $QUICK_{t-1}$ for both revaluating firms and non-revaluating firms is small (1.12 and 1.30, respectively). However, the standard deviation of revaluating firms is higher than non-revaluating firms (2.43 and 1.50, respectively). In case of $\Delta QUICK_{t+1}$, it is expected that $\Delta QUICK_{t+1}$ of revaluating firms should be higher than $\Delta QUICK_{t+1}$ of non-revaluating firms and the result confirms this expectation (-.10 and -.69, respectively). Interestingly, the difference of standard deviation of both groups is highest when compared with other variables (1.15 for revaluating firms and 6.06 for non-revaluating firms). Due to matching revaluating firms with non-revaluating firms based on the nearest size, therefore the difference in $SIZE_{t-1}$ (natural log of total assets) for both revaluating firms and non-revaluating firms is small (3.44 and 3.33, respectively).

Moreover, the standard deviations are small (.61 and .50, respectively). This result confirms the effectiveness of matching firm by firm via revenues.

4.2.2 Pearson Correlation

Table 4.13 Pearson Correlation: management motivations

	REV_t	$DEBT_{t-1}$	MVE_{t-1}/BVE_{t-1}	$ASSET_{t-1}$	NWC_{t-1}	ΔNWC_{t+1}	$QUICK_{t-1}$	$\Delta QUICK_{t+1}$	$SIZE_{t-1}$
REV_t	1.000								
$DEBT_{t-1}$ (p-value, two tailed)	.256 (002)	1.000							
MVE_{t-1}/BE_{t-1} (p-value, two tailed)	.074 (.374)	-.210 (.011)	1.000						
$ASSET_{t-1}$ (p-value, two tailed)	-.034 (.682)	-.032 (.699)	.258 (.002)	1.000					
NWC_{t-1} (p-value, two tailed)	-.139 (.095)	-.575 (.000)	.253 (.002)	.084 (.315)	1.000				
ΔNWC_{t+1} (p-value, two tailed)	.132 (.114)	-.232 (.005)	-.033 (.693)	-.006 (.945)	.083 (.317)	1.000			
$QUICK_{t-1}$ (p-value, two tailed)	-.044 (.599)	-.445 (.000)	.165 (.047)	.003 (.974)	.482 (.000)	.068 (.411)	1.000		
$\Delta QUICK_{t+1}$ (p-value, two tailed)	.068 (.418)	.127 (.126)	.030 (.717)	.015 (.853)	.009 (.918)	.098 (.237)	-.159 (.055)	1.000	
$SIZE_{t-1}$ (p-value, two tailed)	.092 (.269)	.346 (.000)	.028 (.738)	.113 (.173)	-.069 (.406)	-.112 (.180)	-.253 (.002)	.088 (.288)	1.000

REV_t is 1 for first-time revaluating firms and 0 for non-revaluating firms
$DEBT_{t-1}$ is total liabilities/total assets
MVE_{t-1}/BVE_{t-1} is market value of common equity/book value of common equity
NWC_{t-1} is (current assets – current liabilities)/total assets
ΔNWC_{t+1} is ($NWC_{t+1} – NWC_t$)
$QUICK_{t-1}$ is (current assets-inventory-other current assets)/current liabilities
$\Delta QUICK_{t+1}$ is ($QUICK_{t+1} – QUICK_t$)
$SIZE_{t-1}$ is the natural log of total assets at the beginning of the year

Table 4.13 shows that only $DEBT_{t-1}$ is significantly related to REV_t (correlation coefficient = .256). Moreover, $DEBT_{t-1}$ is highly negatively related to liquidity ratios (both NWC_{t-1} (correlation coefficient = -.575) and $QUICK_{t-1}$ (correlation coefficient = -.445)). This negative relation illustrates that $DEBT_{t-1}$ can be seen not only as a proxy for debt hypothesis but also as an indirect proxy for signaling hypothesis. According to prior research, Brown et al. (1992) and Cotter (1999) suggest that debt proximity ratio

is more suitable. I examined this variable by considering the data from note to financial statement. Although many firms informed that debt covenants were included in their debt contracts, the targeted debt ratios were not clearly disclosed. Consequently, debt proximity ratios could not be calculated. Due to high correlation between NWC_{t-1} and $QUICK_{t-1}$ (correlation coefficient = .482), this dissertation investigates the impact of liquidity ratios on revaluation decision making by separating NWC_{t-1} and ΔNWC_{t+1} in the equation 3.2 and $QUICK_{t-1}$ and $\Delta QUICK_{t+1}$ in the equation 3.3.

4.2.3 T-Test analysis

In order to compare the means of each variable between revaluating firms and non-revaluating firms, the T-Test is used.

Table 4.14 T-Test : Management Motivations

	REV_t	N	MEAN	t	P-value
$DEBT_{t-1}$	1	73	.644	3.172	.002
	0	73	.505		
MVE_{t-1}/BE_{t-1}	1	73	1.222	.892	.374
	0	73	1.034		
NWC_{t-1}	1	73	-.008	-1.680	.095
	0	73	.068		
ΔNWC_{t+1}	1	73	-.019	1.592	.114
	0	73	-.097		
$QUICK_{t-1}$	1	73	1.129	-.526	.599
	0	73	1.306		
$\Delta QUICK_{t+1}$	1	73	-.109	.812	.418
	0	73	-.696		
$SIZE_{t-1}$	1	73	3.440	1.110	.269
	0	73	3.337		

REV_t is 1 for first-time revaluating firms and 0 for non-revaluating firms
$DEBT_{t-1}$ is total liabilities/total assets
MVE_{t-1}/BVE_{t-1} is market value of common equity/book value of common equity
NWC_{t-1} is (current assets – current liabilities)/total assets
ΔNWC_{t+1} is $(NWC_{t+1} - NWC_t)$
$QUICK_{t-1}$ is (current assets-inventory-other current assets)/current liabilities
$\Delta QUICK_{t+1}$ is $(QUICK_{t+1} - QUICK_t)$
$SIZE_{t-1}$ is the natural log of total assets at the beginning of the year

According to Table 4.14, only the mean of $DEBT_{t-1}$ is significantly different between revaluating firms and non-revaluating firms. Revaluating firms' average value of debt is significantly higher than non-revaluating firms' average value (.642, and .505, respectively). It means that the firm revalues its assets in order to decrease its debt ratio. The objective is to avoid costs incurred from debt default. In case of other variables, there are no differences between two groups. It can be concluded from the T-Test that only the debt hypothesis can be used to explain the motivations for asset revaluation.

4.2.4 Logistic Regression

In order to analyze management motivations for asset revaluation, a dummy variable is used (1 for revaluating firm and 0 for non-revaluating firm). The binomial logit model is used to avoid the unboundedness problem of the linear probability model. The sample will be constructed in two ways. In the first way is that the sample is composed of 73 first-time revaluating firms and 73 non-revaluating firms which are chosen by matching a revaluating firm with a non-revaluating firm based on the nearest total revenues in the same sector. In the second way, the sample is composed of 73 first-time revaluating firms and all non-revaluating firms during 1994-2004. However, only the result from first way shows statistically significant variables, whereas the second way cannot find any relations between them.

Generally, total asset is a basic measure which is used to match firms. In this dissertation, however, total revenue is used rather than total asset because total asset has been already included in the logistic regression as a control variable. In order to confirm the appropriate measure of total revenue, I investigate the correlation between total asset and total revenue. The result from Table 4.15 shows the highly related

between both measures (correlation coefficient = .678). It supports the appropriately matched measure of total revenue.

Table 4.15 Pearson Correlation between Total Asset and Total Revenue

	Total Asset	Total Revenue
Total Asset	1.000	
(p-value, two tailed)		
Total Revenue	.678	1.000
(p-value, two tailed)	(.000)	

4.2.4.1 The result from the first equation of Management Motivation Analysis

Table 4.16 Logistic Regression: Management Motivations I

The First Equation: $REV_t = \beta_0 + \beta_1 DEBT_{t-1} + \beta_2 MVE/BVE_{t-1} + \beta_3 NWC_{t-1} + \beta_4 \Delta NWC_{t+1} + \beta_5 SIZE_{t-1} + e$ (significant at 5% level) (n=146)

	expected	coefficient	S.E.	Wald	Df	p-value	Exp(B)
(Constant)		-2.171	1.163	3.484	1	.062	.114
$DEBT_{t-1}$	+	2.889	.953	9.197	1	.002	17.980
MVE/BVE_{t-1}	+	.309	.156	3.913	1	.048	1.362
NWC_{t-1}	-	-.191	.825	.54	1	.817	.826
ΔNWC_{t+1}	+	1.945	.856	5.157	1	.023	6.991
$SIZE_{t-1}$	?	.078	.351	.049	1	.824	1.081

REV_t is 1 for first-time revaluating firms and 0 for non-revaluating firms
$DEBT_{t-1}$ is total liabilities/total assets
MVE_{t-1}/BVE_{t-1} is market value of common equity/book value of common equity
NWC_{t-1} is (current assets – current liabilities)/total assets
ΔNWC_{t+1} is $(NWC_{t+1} – NWC_t)$
$SIZE_{t-1}$ is the natural log of total assets at the beginning of the year

According to Table 4.16, $DEBT_{t-1}$, MVE_{t-1}/BVE_{t-1}, and ΔNWC_{t+1} are positively related (coefficient = 2.889, .309, and 1.945, respectively), whereas NWC_{t-1},

and $SIZE_{t-1}$ are insignificantly related. It can be concluded that management decides to revalue or not revalue depending on debt hypothesis and signaling hypothesis in terms of both growth opportunity (MVE_{t-1}/BVE_{t-1}) and the improvement of the firm's liquidity ratio (change in net working capital in next year). However, this paper also investigates the influence of $QUICK_{t-1}$ and $\Delta QUICK_{t+1}$ on management decision to revalue.

4.2.4.2 The result from the second equation of Management Motivation Analysis

Table 4.17 Logistic Regression: Management Motivations II

The Second Equation: $REV_t = \beta_0 + \beta_1 DEBT_{t-1} + \beta_2 MVE/BVE_{t-1} + \beta_3 QUICK_{t-1} + \beta_4 \Delta QUICK_{t+1} + \beta_5 SIZE_{t-1} + e$ (significant at 5% level) (n=146)

	expected	coefficient	S.E.	Wald	Df	p-value	Exp(B)
(Constant)		-1.520	1.194	1.620	1	.203	.219
$DEBT_{t-1}$	+	2.259	.844	7.167	1	.007	9.571
MVE/BVE_{t-1}	+	.284	.150	3.562	1	.054	1.328
$QUICK_{t-1}$	-	-.176	.187	.883	1	.347	.839
$\Delta QUICK_{t+1}$	+	.165	.142	1.351	1	.245	1.179
$SIZE_{t-1}$	?	.023	.339	.005	1	.946	1.023

REV_t is 1 for first-time revaluating firms and 0 for non-revaluating firms
$DEBT_{t-1}$ is total liabilities/total assets
MVE_{t-1}/BVE_{t-1} is market value of common equity/book value of common equity
$QUICK_{t-1}$ is (current assets-inventory-other current assets)/current liabilities
$\Delta QUICK_{t+1}$ is ($QUICK_{t+1} - QUICK_t$)
$SIZE_{t-1}$ is the natural log of total assets at the beginning of the year

Unlike the results from Table 4.16, the Table 4.17 shows that only the $DEBT_{t-1}$ ratio is significantly positively related to revaluation decision (coefficient =2.259), whereas other variables are insignificant. This result confirms the importance of DEBT to influence on management motivations for asset revaluations.

From both regression analyses, it can be concluded that the motivation of management for asset revaluation of listed firms in Thailand can be explained by two main reasons. The first reason is that management decides to upwardly revalue in

order to avoid a technical default which would cause the firm to incur debt violating costs or renegotiation costs. It means that revaluation costs should be less than the economic benefits which results from the revaluation. This result is consistent with Brown et al. (1992: 36-57) and Whittred and Chan (1992: 58-74), but it is inconsistent with Jaggi and Tsui (2001: 160-187). Because of high correlation between $DEBT_{t-1}$ and liquidity ratios (both $QUICK_{t-1}$ and NWC_{t-1}) shown in Table 4.13, however, the results should be interpreted with care. I also investigate an additional proxy (Debt proximity ratio) for debt hypothesis by reviewing note to financial statement of the sample. Although the data in some firms shows the existing of debt covenants including in debt contracts, it does not illustrate targeted debt ratio. As a consequence, debt proximity ratio can not be found.

The second reason for asset revaluation is that the management decides to upwardly revalue in order to signal their opportunity for growth and the firm's improvement in liquidity in order to resolve an information asymmetry. However, the revaluation decision does not depend on the level of liquidity problems. In general, market failure can result from information asymmetry. The firm uses voluntary disclosure to be as a tool to reduce this problem. Certainly, this information may impact the firm's value. However, the manager also has the incentive to report bad news in order to maintain creditability.

The result which depicts asset revaluation as a signal for growth opportunity is consistent with Whittred and Chan (1992: 58-74) and Black et al. (1998: 1287-1317), whereas it is inconsistent with Lin and Peasnell (2000: 359-394). On the other hand, the result which does not illustrate asset revaluation as a signal for liquidity problem is consistent with Brown et al. (1992: 36-57) and Black et al. (1998: 1287-1317), whereas it is inconsistent with Whittred and Chan (1992: 58-74) and Lin and Peasnell (2000: 359-394).

CHAPTER 5

CONCULSION AND FUTURE RESEARCH

Basically, reporting PPE is based on historical cost. It means that a fixed asset is accounted for at its acquisition cost until its sale is realized. Certainly, historical cost is more objective but it lacks value relevance in determining price change. Due to this problem, the asset revaluation is introduced.

The objective of this dissertation is to examine the value relevance of asset revaluation by reflecting on the state of the firm at a point in time in terms of the relation between price and the asset revaluation reserve or price analysis and by reflecting on the timeliness in terms of the relation between return and net increment to the asset revaluation reserve or return analysis.

Moreover, asset revaluation is an alternative method to recognize asset value. Certainly, accounting procedures will be changed when the benefits exceed additional costs. According to positive accounting theory, three main hypotheses are used to explain these changes. In this dissertation, however, management motivations for asset revaluation are examined by applying only the debt hypothesis and signaling hypothesis, whereas the incentive to decrease earnings in order to avoid political pressure does not exist because there is an exception for recognizing depreciation expenses from revaluation amounts until the end of 2006.

5.1 Result Conclusion

According to the results from Chapter 4, it can be concluded as below.

5.1.1 Value Relevance

Similar to the results from prior research (Easton et al., 1993; Aboody et al., 1999 and Jaggi and Tsui, 2001: 160-187), the result from price analysis of this

dissertation confirms the value relevance of fixed asset revaluation because the association between price and revaluation reserve is found. It means that asset revaluation reflects the state of a firm at a point in time. Theoretically, fixed assets are recorded in terms of historical costs. It is criticized that historical cost lacks value relevance in determining price change. Therefore, the asset revaluation is introduced in order to solve this problem. The result can be interpreted that asset revaluation is considered as important information that investors can use to make better decisions about a firm's performance. Although asset revaluation can be viewed as an accounting procedure that management can be used it for management's own interests (such as decreasing debt ratio in order to avoid debt violation), but investors perceives it as a value-added information rather than management's opportunistic behavior. Therefore, the asset revaluation should be included in the financial statement.

However, the results from return analysis do not confirm the timeliness of asset revaluations because a relation between return and net increment in the asset revaluation reserve has not been found. It is unsurprising because Easton et al. (1993: 1-38) and Courtenay and Cahan (2004: 219-243) also find the same result.

5.1.2 Management Motivations of asset Revaluation

The result illustrates that the motivations for management consists of two reasons. The first reason is to decrease debt ratio in order to avoid debt covenant violations. It is consistent with debt hypothesis which explains that a firm with high debt-to-equity ratio will have more incentive to select accounting procedures in order to decrease its potential to violate debt covenants. Normally, a debt-to-equity ratio can be reduced in two ways. The first way is to transfer earnings from a future period to the current period like earnings management, whereas the second way is to increase equity by an upwardly asset revaluation. This result is consistent with Brown et al. (1992: 36-57) and Whittred and Chan (1992: 58-74). However, the results should be interpreted with care because the high relation between debt ratio and liquidity ratios in accordance with the results from Table 4.13.

To confirm this finding, I investigate the financial situation of revaluating firms from the note of financial statement in annual reports. Many firms encountered

financial problems before revaluation, especially during Thailand economic crisis. Debt restructuring agreements were normally used in order to solve the problem and financial ratios were included as covenants in these agreements. In accordance with loan agreements, asset revaluation was used as a tool to avoid debt defaults and it increased firms' financial strength as well.

The second reason of asset revaluation is to signal growth opportunity and the improvement of the firm's liquidity in order to resolve information asymmetry. The result is consistent with Whittred and Chan (1992: 58-74) and Black et al. (1998: 1287-1317), whereas it is inconsistent with Lin and Peasnell (2000: 359-394) for growth opportunity.

Table 5.1 Result Conclusion

Hypothesis	Result	Meaning
Price analysis		
There is a positive relation between revaluation reserve and firms' stock prices	Fail to reject	The asset revaluation can be used to explain stock price or it reflects state of the firm at the point in time.
Return analysis		
There is a positive relation between the net increment to asset revaluation reserve and stock return	Reject	The asset revaluation does not have value relevance for timeliness.

Table 5.1 (Continued)

Hypothesis	Result	Meaning
Management motivations		
1. There is a positive relation between revaluation of fixed assets and debt equity ratio	Fail to reject	The management decides to upwardly revalue in order to avoid a technical default incurring debt violating costs or renegotiation costs
2. There is positive relations between revaluation of fixed assets and firms' growth	Fail to reject	The asset revaluation is a tool to signal firms' growth opportunity.
3. There is a negative relation between revaluation of fixed assets and firms' level of liquidity ratios	Reject	The asset revaluation is not a tool to signal firms' liquidity problem.
4. There are positive relations between revaluation of fixed assets and firms' change in liquidity ratio	Fail to reject for ΔNWC Reject for ΔQUICK	The result shows that the asset revaluation is used as a tool to increase the firm's future financial liquidity

5.2 The Benefits of This Research

The study of value relevance and management motivations on asset revaluation has four main benefits. The fist benefit is that value relevance of asset revaluation illustrates the importance information for investors which allows them to make better decisions. Moreover, investors also profoundly understand the motivations of asset revaluation that may occur because of managements' opportunistic behavior rather than reflecting only on the fair value of assets. Therefore, investors should carefully interpret the asset revaluation of a firm. The second benefit is that regulators can use

this result to develop or improve accounting standards. Moreover, regulators should be concerned about the potential for opportunistic behavior of management using accounting procedures to manage accounting information. The third benefit is that not only can investors benefits from this study, but lenders can also more fully understand that decrease in debt ratio may be caused from accounting techniques rather than from direct operations. Therefore, they should more carefully scrutinize the financial reports of their borrowers. Due to resolving information asymmetry, the final benefit is that preparers can use asset revaluations as a tool to amplify the quality of financial accounting information.

5.3 Research Limitation

Although asset revaluations really began to be boom since 1992, the period of this study was during 1994-2004. The main reason is a lack of information during 1992-1993 because I-SIM CD-ROM which contained financial reports of listed firms on SET has been produced since 1994 (Punya Sumritpradit, 2002: 183). As a consequence, the data during 1992-1993 is not available.

5.4 Future Research

Unlike prior research, this dissertation does not study the impact that the political hypothesis has on management valuation for firms listed on the Stock Exchange of Thailand (SET) because there is the exception of TAS No. 32 which recognizes incremental depreciation expenses from the asset revaluation until 2006. Interestingly, management will have a new incentive to revalue in order to decrease their profits to reduce political pressures after 2006. It is expected that a larger firm has more incentive to revalue its assets.

According to Gaermynck and Veugelers (1999: 123-138), industry specific factors play a key role in influencing the asset revaluation decision. Successful firms are less likely to revalue assets than unsuccessful firms are. Further studies should deeply examine industry factors. For example, industry should be included in management revaluation analysis as a control variable. In value relevance analysis, the

asset revaluation of firms in high performance industries may have more value relevance than firms in low performance industries. The main reason is that firms in high performance industries revalue assets based on the signaling hypothesis, whereas firms in low performance industries revalue assets based on debt opportunistic behavior.

In addition, debt hypothesis and political hypothesis should be added into the value relevance analyses in order to compare the value relevance of asset revaluation between high debt firms and low debt firms and between large firms and small firms.

Moreover, the future research can be linked to corporate governance problems. Asset revaluation can be used by the managements of the firms with low corporate governance as a tool to expropriate wealth from the creditors to large shareholders and themselves. As a consequence, it is an interesting issue to determine the effects of corporate governance on managements' asset revaluation decisions.

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