The Evidence of Management Motivation to Revalue Property Plant and Equipment in Thailand

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Abstract

The objective of this study is to investigate the underlying incentives of management to upwardly revalue property plant and equipment. The study tests debt hypothesis and signaling hypothesis – for growth opportunity in particular. Sample firms are listed companies in the Stock Exchange of Thailand (SET) during 1994-2004. The final sample is composed of 73 match-pairs first time revaluing firms and non-revaluing firms. The matching criteria are size which is based on the nearest total revenues, and industry. Paired t-test and logistic regression analysis are used to analyze management motivations. The results indicate significantly results for both debt hypothesis and signaling hypothesis. The evidence shows management motivation to decrease debt ratio in order to avoid debt covenant violation. It also shows that sample firms revalue their assets upward to signal the firms' growth opportunity and liquidity improvement in order to decrease information asymmetry. The results contribute to the understanding of management incentives to choose accounting policies to improve the reported financial position.

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การศึกษาแรงจูงใจทางบริหารในการปรับมูลค่าที่ดิน อาคาร และอุปกรณ์ในประเทศไทย

บทคัดย่อ

การศึกษานี้มีวัตถุประสงค์คือเพื่อศึกษาถึงแรงจูงใจของผู้บริหารในการตัดสินใจตีราคาสินทรัพย์ที่ดินอาคารและอุปกรณ์เพิ่ม การศึกษานี้มีสมมติฐานว่ากิจการพยายามที่จะหลีกเลี่ยงการผิดสัญญาหรือข้อตกลงการกู้ยืมในการรักษาอัตราส่วนหนี้สินต่อทุนไว้ และสมมติฐานว่าการตีราคาสินทรัพย์เป็นการส่งสัญญาณถึงโอกาสเติบโตของกิจการ กลุ่มตัวอย่างประกอบด้วยบริษัทที่จดทะเบียนในตลาดหลักทรัพย์แห่งประเทศไทยในช่วงปี 1994-2004 จำนวน 73 กิจการที่มีการตีราคาสินทรัพย์เพิ่มเทียบกับบริษัทที่ไม่มีการตีราคาสินทรัพย์เพิ่ม เกณฑ์ที่ใช้ในการจับคู่เปรียบเทียบคือขนาดโดยดูจากรายได้และกิจการต้องอยู่ในอุตสาหกรรมเดียวกัน การวิเคราะห์ใช้วิธีการ t-test และใช้การวิเคราะห์สมการถดถอย ผลการศึกษาพบว่าแรงจูงใจในการตีราคาสินทรัพย์เพิ่มมาจากความพยายามที่จะหลีกเลี่ยงการผิดสัญญาหรือข้อตกลงการกู้ยืม และยังใช้เป็นการลดความเหลื่อมล้ำของข้อมูลโดยใช้การตีราคาสินทรัพย์เพิ่มเป็นการส่งสัญญาณถึงโอกาสการเติบโตของกิจการและการปรับปรุงสภาพคล่องของกิจการที่ดีขึ้น ผลการศึกษานี้ช่วยสร้างความเข้าใจเกี่ยวกับแรงจูงใจในการเลือกนโยบายบัญชีของผู้บริหารเพื่อให้การรายงานสถานะทางการเงินของกิจการดูดีขึ้น

1. Introduction

According to the Thai Accounting Standard No. 32 (TAS No. 32) which is consistent with the International Accounting Standard 16 Property Plant and Equipment, the revaluation model is an allowed alternative method (in addition to the historical cost model) to measure the property plant and equipment after the initial recognition of the asset. Management can freely choose to report the company's property plant and equipment either on historical cost basis or on a revalued amount. The historical cost model is relatively more reliable while revaluation model is perceived to be more relevant for making decisions since the revalued amount is based on the recent fair value. However, asset revaluation is not costless. Asset revaluation usually involves costs of obtaining the revalued amount. The major costs that 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. Thus, it is expected that management will revalue assets only if the benefits exceed these additional costs.

The asset revaluation also affects a company's financial statement. In the balance sheet, the first time upward revaluation increases the reported amount of assets and creates revaluation surplus which is reported in the equity section. Based on the IAS 16, it would subsequently decrease reported profits in the income statement due to the increase in depreciation expenses as well as the decrease in the gain on the sale of assets that are revalued. Consequently, asset revaluation improves the debt equity ratios but lowers the

efficiency and profitability ratios, such as return on assets (ROA), and return on equity (ROE).

Although the revaluation would lead to unfavorable reported profitable performance, firms still apply this accounting procedure. Thus, it is interesting to investigate what motivates management to revalue assets. According to the 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 debt covenant violation, signaling important information in order to mitigate the effect of information asymmetry, and reducing political pressures. This paper aims to investigate the management's motivations to upwardly revalue assets in order to reduce contracting cost and signal growth opportunity.

The sample consists of 76 first-time revaluated firms listed in the Stock Exchange of Thailand (SET) during 1994-2004. Data is collected from two sources. The financial information during 1994-1997 is collected from I-SIM CD-ROM, whereas information during 1998-2004 is collected from www.setsmart.com. T-test and logistic regression analysis are used to analyze management motivations. The results illustrate that there are two main motivations for asset revaluation. The first motivation is to decrease debt ratio in order to avoid debt covenant violation. The second motivation is to signal firm's growth opportunity and liquidity improvement in order to decrease the information asymmetry.

The paper is organized as follow. Section 2 describes theories and literature reviews. Section 3 discusses research hypothesis and designs. Section 4 contains the results and implication. Section 5 indicates research conclusion.

2. Literature Reviews

In 1989, the concept of asset revaluation was included in Thai Accounting Standard No. 9 (TAS No. 9) "Property, Plant, and Equipment". This standard stated that PPE should be recognized at historical cost. However, an entity was allowed to report PPE under other methods in order to reflect the impact of the change in price level. Appraisal value was a general accepted method whereas other methods, price index and current price, were also allowed. In case of upwardly revalued assets, TAS No. 9 required that depreciation expenses in the income statement should be calculated based on the original historical costs, whereas depreciation expenses from revaluation amounts should 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" in 1999. Consistent with the IAS 16 Property Plant and Equipment, TAS No. 32 provides two methods for PPE measurement. After PPE are initially recognized at its acquisition cost, TAS No. 32 allows for the PP&E revaluation, which is consistent with the fair value accounting concept. TAS No. 32 also 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.

According to the IAS 16, an upward asset revaluation will increase the firm's book value of equity (revaluation surplus) and the depreciation expenses subsequent to the revaluation should be calculated based on the

revalued amount. However, the Institute of Certified Accountant and Auditors of Thailand (ICAAT) has issued an announcement as an exception that up until the year 2006, the increase in the depreciation expenses from revaluation amounts will be realized directly to the retained earnings thus the revaluing firms will report depreciation expense based on the asset's historical cost. The sample used in this study covering 1994-2004 is abided by this exception. Nonetheless, after the year 2006, the depreciation expense should be calculated from the revalued amount.

2.1 Management Motivations: Positive Accounting Theory

Henderson and Goodwin (1992: 78-79) reported that there are three main unfavorable effects of upward revaluation on the financial statements. First, lower reported profits result from an increase in depreciation expenses from depreciable asset revaluation. However, this effect is not applicable to Thailand due to the exception by the ICAAT. Second, lower gains on the sale of the revalued assets come from an increase in its revaluating amount. Third, some financial ratios decrease. Return on total assets (ROA) is reduced due to the decrease 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.

Although there are some disadvantages, many firms decide to revalue their assets. In order to examine the hidden motivations for this accounting procedure, positive accounting is applied.

2.1.1 Debt Hypothesis

Debt hypothesis is constructed based on the conflict of shareholder-debtholder agency relationship, which is assumed that a manager is the sole

owner or acts for the interests of the owners. The manager usually attempts to transfer wealth away from debtholders to shareholders. In this circumstance, contracting could be used to mitigate potential conflicts of interest between debtholders and shareholders, debt covenants are also included in contracts as important tools to decrease the conflicts.

To avoid default costs, managers have incentives to adopt accounting procedures that enable them to get around debt covenants that are generally represented in terms of debt/equity ratio such as increasing assets, reducing liabilities, increasing revenue, and decreasing expenses etc. The asset revaluation is an accounting procedure that can be used to increase shareholders' equity for as long as the asset is held. 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.

2.1.2 Signaling Hypothesis

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 could lead to market failure.

The asset revaluation can be applied as a signal of future performance of the firm in order to resolve information asymmetry and eliminate under-

investment problem. This paper thus focuses on using asset revaluation as a signal for growth opportunity and liquidity problem.

2.1.3 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. 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 stakeholders for price or rate decreases and pressure from unions for wages rises (Godfrey et al., 2000: 305). Asset revaluation is often 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, based on the ICAAT exemption that the increase in the depreciation expenses from revaluation amounts should be realized directly to the retained earnings thus the revaluing firms will report depreciation expense based on the asset's historical cost. Consequently, before the year 2006, the firm cannot decrease its earnings via asset revaluation in order to reduce political pressures. Therefore, this study will not focus on political cost analysis

2.2 Literature Reviews

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. The authors use debt-proximity ratios as a proxy for debt hypothesis and use size and the strike-proneness of the industry as proxies for political cost hypothesis. In addition, Brown et al. also 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.

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. The sample is classified into two groups, revaluer and non-revaluer and the Probit model is applied. The result shows that debt hypothesis, political hypothesis, and signaling hypothesis can explain the factors which influence on asset revaluation decision.

Whittred and Chan (1992) 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. Thus, they investigate debt hypothesis and signaling hypothesis by examining the existence of borrowing limitations and financial leverage measured by debt to total assets, the value of growth opportunities measured by market value of equity to book value of equity and cash reserves measured by 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. The results from univariate and Probit regression analysis indicate that revaluated firms has high leverages, low cash reserves, and more growth opportunities.

Cotter and Zimmer (1999) 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, using cash flow from operations as a proxy. 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. The sample is randomly selected from the data obtained by Whittred and Chan (1992). Cross-sectional analysis is applied in order to compare revaluers with non-revaluers. The sample 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) 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. Therefore, 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 revaluers 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.

Additionally, Lin and Peasnell (2000) 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 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 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.

3. Research Hypotheses and Designs

3.1 Research Hypothesis

Increasing in net assets in order to decrease debt ratios by upward asset revaluation is an alternative choice to reduce the chances of a firm technically

breaching a debt covenant. In this paper, debt ratio is used as proxies for the debt hypothesis as follow.

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

Based on signaling theory, asset revaluation could be used as a signal of growth opportunity and liquidity problem. The signal could reduce information asymmetry. In this paper, market-to-book ratio is used as a proxy of growth opportunity whereas quick ratio is used as a proxy for the degree of liquidity problem.

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

H2b: There is a negative relation between revaluation of 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) 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, in this study net working capital ratio is initially introduced as an alternative measure of liquidity in order to accurately examine this relation with asset revaluation.

H2c: There is a negative relation between revaluation of 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 assets and firms' change in net working capital and change in quick ratio in next year.

3.2 The Sample and Data Collection

The sample is consisted of Thai listed firms in Stock Exchange of Thailand (SET) that revaluated their assets for the first time 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). 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. The sample initially includes seventy six revaluating firms.

3.3 Research Methodology

The sample used to study management motivations is composed of the first-time revaluated firms because first-time revaluation decisions exclusively depends on management motivation, whereas later revaluation decisions may occur because firms must comply with an accounting standard requirement to sufficient frequency approximate fair values as of each balance sheet date. For the reason that some revaluated firms can not be matched, the final sample is composed of 73 first-time revaluated firms and 73 non-revaluated firms which are chosen by matching a revaluated firm with a non-revaluated firm based on the nearest total revenues in the same sector. This study uses univariate

analysis (t-test) to compare the mean of each of the variables between revaluated firms and non-revaluated firms and also uses the binomial logit model to analyze the association between the revaluation variable and the variables of interest. The dependent variable (REV_t) 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). Two equations are set up to separately investigate the effects of different proxies for liquidity. $Size_{t-1}$ is included in both equations as a control variable.

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

and

$$\mathbf{REV_t = \delta_0 + \delta_1 DEBT_{t-1} + \delta_2 MVE_{t-1}/BVE_{t-1} + \delta_3 QUICK_{t-1} + \delta_4 \Delta QUICK_{t+1} + \delta_5 SIZE_{t-1} + e \quad (2)}$$

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

$DEBT_{t-1}$ = total liabilities / total assets at the beginning of the fiscal year

MVE_{t-1}/BVE_{t-1} = market value of common equity / book value of common equity at the beginning of the fiscal year

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

$\Delta QUICK_{t+1}$ = changes in quick ratio ($QUICK_{t+1}$ - $QUICK_t$)

NWC_{t-1} = (current assets – current liabilities) / total assets

ΔNWC_{t+1} = changes in net working capital (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 (1) uses NWC_{t-1} and ΔNWC_{t+1} as proxies for

liquidity, whereas the equation (2) uses $QUICK_{t-1}$ and $\Delta QUICK_{t+1}$ as proxies for liquidity.

4. Results

The descriptive statistics presented in Table 1 shows that revaluating firms' average value of debt is significantly higher than non-revaluating firms' average value (.64, and .50, respectively). It implies 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. The average size of revaluating firms which is one of the matching criteria is not statistically different.

Table 1 Descriptive Statistics

Variables	Revaluating firms				Non-revaluating firms				
	n	Minimum	Maximum	Mean (S.D)	n	Minimum	Maximum	Mean (S.D)	t-statistics p-value
$DEBT_{t-1}$	73	0.03	1.19	0.64 (0.24)	73	0.03	1.28	0.50 (0.28)	3.172 (0.002)
MVE_{t-1}/BVE_{t-1}	73	-4.05	6.04	1.22 (1.33)	73	-1.83	6.22	1.03 (1.21)	0.892 (0.374)
NWC_{t-1}	73	-0.73	0.73	-0.00 (0.30)	73	-0.90	0.68	0.06 (0.23)	-1.680 (0.095)
ΔNWC_{t+1}	73	-0.56	0.62	-0.01 (0.18)	73	-2.48	0.50	-.09 (0.37)	1.592 (0.114)
$QUICK_{t-1}$	73	0.05	19.87	1.12 (2.43)	73	0.00	7.74	1.30 (1.50)	-0.526 (0.599)
$\Delta QUICK_{t+1}$	73	-8.88	2.32	-0.10 (1.15)	73	-49.50	12.65	-0.69 (6.06)	0.812 (0.418)
$SIZE_{t-1}$	73	1.81	4.75	3.44 (0.61)	73	2.46	4.62	3.33 (0.50)	1.110 (0.269)

$DEBT_{t-1}$ 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 Pearson correlation among variables are presented in Table 2.

Table 2 Pearson Correlation

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

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 2 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.

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 is composed of 73 first-time revaluating firms and 73 non-revaluating firms. The result of management motivation analysis from the logistic regression (1), using net working capital ratio as a proxy for liquidity is represented in Table 3 as follow.

Table 3 Analysis of Management Motivations with Net Working Capital as Proxy for Liquidity

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

** significant at 5% level

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 3, $DEBT_{t-1}$, MVE_{t-1}/BVE_{t-1}, and ΔNWC_{t+1} are positively related to the revaluation decision (coefficient = 2.889, .309, and 1.945, respectively), whereas NWC_{t-1}, and $SIZE_{t-1}$ are insignificantly related. It implies that management decides to revalue or not revalue depending on debt hypothesis and signaling hypothesis for both growth opportunity (MVE_{t-1}/BVE_{t-1}) and for the improvement of the firm's liquidity ratio (change in net working capital in next year).

This study also investigates the influence of $QUICK_{t-1}$ and $\Delta QUICK_{t+1}$ on management decision to revalue. The analysis from the logistic regression (2), using quick ratio as a proxy for liquidity problem is represented in Table 4.

Table 4 Analysis of Management Motivations with Quick Ratio as Proxy for Liquidity

Equation (2) $REV_t = \beta_0 + \beta_1 DEBT_{t-1} + \beta_2 MVE/BVE_{t-1} + \beta_3 QUICK_{t-1} + \beta_4 \Delta QUICK_{t+1} + \beta_5 SIZE_{t-1} + e$ (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

** significant at 5% level
* significant at 10% level
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 3, Table 4 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. The coefficient of the quick ratio is not statistically significant. The results imply that the revaluation decision does not depend on the level of liquidity problems.

5. Conclusion

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 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. This result is consistent with Brown et al. (1992: 36-57) and Whittred and Chan (1992: 58-74). The findings also imply that revaluation costs should be less than the economic benefits which results from the revaluation.

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 reduce an 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. However, the revaluation decision does not depend on the level of liquidity problems.

Further study could examine the following issues. First, one could examine how the investors or other stakeholders react to the asset revaluation. Second, does the asset revaluation have impact on the loan approval decisions? Third, one could investigate the actual performance and growth of the revaluating firms whether they actually improve after the revaluation of asset.

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