Value Relevance and Components of Deferred Tax Assets and Liabilities: Evidence from the Listed Companies on SET 100 in Thailand

Kittima Acaranupong*

Abstract

This paper examines the components of deferred tax assets and liabilities for early adopters of the proposed Thai Accounting Standard (TAS) No. 12 Income Taxes which is expected to be adopted in 2013. It also investigates the value relevance of deferred tax assets and liabilities information for early adopters and non-early adopters of the proposed standard. The result indicates that the main components of deferred tax assets are taxable loss carryforward while those of deferred tax liabilities are deprecation. Using the Feltham- Ohlson (1995) Model for the period from 2004 to 2008, this research reveals that deferred tax assets and deferred tax liabilities are value relevant information for early adopters whilst only deferred tax assets are value relevant information for non-early adopters. The results from this study also support the notion that the adoption of International Accounting Standards (IAS) and International Financial Reporting Standards (IFRS) in Thailand will improve the relevance of financial statements. Furthermore, it will enhance the comparability of the financial statements of the Thai listed companies with that of listed companies in foreign countries.

Keywords: Deferred Tax Assets, Deferred Tax Liabilities, Value Relevance

JEL Classification: G14, M41

1. Introduction

The Federation of Accounting Professions of Thailand (FAP), the accounting regulatory body in Thailand, has announced the full adoption of the International Accounting Standards (IAS) and International Financial Reporting Standards (IFRS) for firms listed on the Stock Exchange of Thailand (SET), Market for Alternative Investment (MAI), as well as for non-listed companies in 2011. The harmonisation of Thai Accounting

* Corresponding author. Kittima Acaranupong is an Assistant Professor at the School of Accountancy, University of the Thai Chamber of Commerce, 126/1 Vibhavadee-Rangsit Road, Dindaeng, Bangkok 10400, Thailand, e-mail: kittima_aca@utcc.ac.th.

Standards (TAS) with IAS/IFRS will increase the transparency, relevance and comparability of the financial statements of these companies. Users of the financial statements can evaluate the performance of the local and foreign companies without the need to adjust for differences in accounting policies and practices.

The main effect of the adoption of IAS/IFRS is that many types of assets and liabilities will be stated in the balance sheet at fair value, which will reflect the companies' true financial positions. This will enhance the qualitative characteristic of the accounting information, especially for relevance. Studies have shown that the associations between equity prices and book value and earnings/returns in the post adoption of IAS periods are more than those of pre adoption periods (Barth, Landsman, & Lang, 2008).

IAS No. 12 Income Taxes (Revised 2008: Bound Volume 2009) is one of the important accounting standards which are in the process of being adopted by FAP. This standard prohibits the deferral method and allows only the balance sheet liability method in recording deferred tax assets and liabilities. As at 30 June 2009, this standard is still in a draft form (draft Thai Accounting Standard No. 56 Income Taxes) in Thailand, and upon adoption, it will be known as Thai Accounting Standard (TAS) No. 12 Income Taxes. In 2009, FAP announced that this standard would become effective from 1 January 2011; however, in 2010 FAP postponed its implementation to 1 January 2013.

In Thailand, one hundred and thirty six (136) listed companies on SET adopted the deferred tax accounting policy during 1995-2006. As mentioned above, the new TAS No. 12 Income Taxes, upon implementation, will prohibit the deferral method. Although this accounting standard is not effective yet, some listed companies on SET decided to be proactive and adopted it before it is mandated. Thus, some companies use the balance sheet liability method (the required accounting treatment prescribed in the proposed TAS No. 12) for recording deferred tax assets and liabilities. Some companies still continue to use the deferral method. Moreover, it should be noted that there are the reciprocal changes of accounting policies between *the deferral method* and the *balance sheet liability method* during the time period of 1995-2006 (Toommanon, 2007). Therefore, these differences of accounting practices as well as the potential impacts of the soon-to-be adopted proposed TAS No. 12 provide motivation and opportunity to investigate and compare the value relevance of deferred taxes for early adopters and non-early adopters of TAS No. 12.

Most prior studies which examined the incentives of early adoption revealed that the main reasons for early adoption are earnings manipulation

incentives (Gujarathi & Hoskin, 1992), and in some cases, better future performances (Moyer, 1990). For example, as mentioned by Moyer (1990), increasing and maintaining the 'capital adequacy ratio' in accordance with the banking regulations were among the benefits enjoyed by companies which early adopted the Statement of Financial Accounting Standard No. 96 (Accounting for Income Taxes) in the US.

However, the effects of the deferred tax accounting policy adoption on value relevance are still under-explored in Thailand. Thus, the main objective of this study is to examine the deferred tax accounting policy and the components of deferred tax assets and liabilities in the balance sheets of early adopters of the proposed TAS No. 12 Income Taxes.

In this study, the early adopters are those companies which use the balance sheet liability method while non-early adopters are the companies which do not adopt the deferred tax accounting policy or companies which use the deferral method. This study further investigates the value relevance of deferred tax assets and liabilities, and compares the value relevance of deferred tax assets and liabilities of early adopters and non-early adopters of the proposed TAS No. 12. The scope of this study is the top 100 companies listed on SET's main board in terms of large market capitalisation, high liquidity, and compliance with requirements regarding the distribution of shares to minor shareholders (see details in 2.2) as at 30 June 2009.

This study is significant as it is expected to provide policy directions to the FAP regarding the efficacy of the proposed TAS No. 12 Income Taxes for the Thai capital market. If the results of this study prove that the value relevance of deferred tax assets and liabilities of early adopters is more than those of non-early adopters, it can be foreseen that the adoption of this standard will enhance the ability of users to predict the true firm values. In other words, the early adoption of this accounting standard will be beneficial to companies and users of the financial statements. Therefore, the merits of early adoption outweigh the costs incurred. This study has also managerial implications in that its results provide incentives for managers to make necessary decisions as to whether to early adopt this proposed accounting standard or not.

The outline of this paper is as follows. Section 2 reviews the previous studies and develops the research hypotheses. Section 3 presents the data used and the research design of this study. The empirical results are provided in section 4. The final section concludes this paper and provides some suggestions.

For ease of reference, the term "companies" and "firms" will be used interchangeably throughout this paper.

2. Literature review

2.1 Proposed Thai Accounting Standard (TAS) No. 12 Income Taxes

The objective of the proposed TAS No. 12 Income Taxes is to prescribe the accounting treatment for income taxes. The principal issue in accounting for income taxes is how to account for the current and future income tax consequences of future recovery (settlement) of the carrying amount of assets (liabilities) that are recognised in an entity's balance sheet and transactions and other events of the current period that are recognised in an entity's financial statements. The main content of this proposed standard is the same as IAS No. 12 (Revised 2008: Bound Volume 2009). According to this proposed standard, income taxes include not only domestic and foreign taxes which are based on taxable profits, but also taxes such as withholding taxes, which are payable by a subsidiary, associate or joint venture on distributions to the reporting entity.

2.1.1 Definitions

The following items are used in the proposed TAS No. 12 with their meanings specified:

Deferred tax assets are the amounts of income taxes recoverable in future periods in respect of first, deductible temporary differences; secondly, carryforward of unused tax losses; and lastly, carryforward of unused tax credits.

Deferred tax liabilities are the amounts of income taxes payable in future periods in respect of taxable temporary differences. Temporary differences are the differences between the carrying amount of an asset and liability in the balance sheet and its tax base. Temporary differences may be either:

1. Taxable temporary differences which are the temporary differences that will result in taxable amounts in determining taxable profit (tax loss) of future periods when the carrying amount of the asset or liability is recovered (settled); or

2. Deductible temporary differences which are the temporary differences that will result in amounts that are deductible in determining taxable profit (tax loss) of future periods when the carrying amount of the asset or liability is recovered (settled).

The proposed TAS No. 12 requires an entity to account for deferred tax using the balance sheet liability method and prohibits the deferral

method. The deferral method focuses on timing differences whereas the balance sheet liability method focuses on temporary differences. Timing differences are differences between taxable profit and accounting profit that originate in one period and reverse in one or more subsequent periods. Temporary differences are differences between the tax base of an asset or liability and its carrying amount in the balance sheet. The tax based of an asset or liability is the amount attributed to that asset or liability for tax purposes.

In 2009, the proposed TAS No. 12 was still in its exposure period, inviting comments from stakeholders and the public. If there is a need, the standard will be revised before being implemented on 1 January 2013. Therefore, it is timely to investigate whether opting for the proposed TAS No. 12 will provide value relevant information to the financial statement users of Thai companies.

2.2 SET 100 characteristics

SET 100 companies are the top hundred (100) listed companies on SET in terms of three important aspects, namely, large market capitalisation, high liquidity and compliance with requirements regarding the distribution of shares to minor shareholders. The stocks to be included in the SET 100 index are selected based on three main criteria. Firstly, eligible stock should have been listed and traded on the SET for a minimum of six (6) months and ranked in the top two hundred (200) on the SET's main board in terms of average daily market capitalisation for the past twelve (12) months. Secondly, they must be 'actively' traded and must maintain their share distribution of free-float qualifications, i.e. their ordinary shareholders hold shares in aggregation of no less than 20 per cent of the paid-up capital of the listed firms. Thirdly, if there are more than hundred (100) stocks selected using the above selection criteria, the top fifty (50) stocks ranked by average daily market capitalisation will be chosen for the SET 50 index (the 51st – 55th stocks will be treated as the replacements for the SET 50 index). Then, the top fifty (50) stocks, together with the next fifty (50) stocks, (i.e. the top 100 stocks) will be included in the SET 100 index (the 101st-105st stocks will be treated as replacements for the SET 100 index).

There are previous researches that investigated the efficiency of the Thai Stock Market. For example, Karemera, Ojah, and Cole (1999) found that most of the emerging markets including the Thai Stock Market were weak-form efficient. Yongsawadvanich (2001) examined the efficiency of the Thai Stock Market since its inception to December 2000. This study employed various methodologies such as the Variance Ratio Test, the

Autocorrelation Coefficients Test, the Ljung-Box Test, and the Run tests. Yongsawadvanich (2001) indicated that a clear conclusion could not be drawn whether the market was efficient or not due to its mixed results. Moreover, Kim and Shamsuddin (2006) also indicated that the Thai Stock Market attained efficiency after the 1997 Asian financial crisis period (1999-2000). However, Lim, Brooks, and Kim (2008) found that the crisis adversely affected the efficiency of most Asian Stock Markets including Thailand.

As these studies produced contradictory results, one cannot draw a consistent conclusion on whether the Thai Capital Market is efficient or not. However, it is agreed that the level of market efficiency of the Thai Stock Market has improved significantly since the Asian financial crisis period. The only clear inference which can be made based on the prior research is that the Stock Exchange of Thailand is least weak-form efficient and the efficiency level has increased after the Asian financial crisis period.

2.2.1 The number of listed companies on SET 100 classified by industries and sectors

The listed companies on SET are classified into eight (8) industries and twenty-six (26) sectors. Table 1 presents the number of listed companies on SET 100 classified by industries and sectors.

From Table 1, it can be seen that the majority of the listed companies on SET 100 are in Resources Industry-Energy and Utilities Sector (18 companies) and Property and Construction Industry-Property Development Sector (16 companies). There is no company in the following sectors that is listed on SET 100: Consumer Products Industry-Home and Office Products Sector, Consumer Products Industry-Personal Products and Pharmaceuticals Sector, Financials Industry-Insurance Sector, Industrials Industry-Paper and Printing Materials Sector, Property and Construction Industry-Property Fund Sector, Resources Industry-Mining Sector, and Services Industry-Professional Services Sector.

2.3 The effects of IFRS adoption on value relevance of accounting information

There are many studies conducted on the effects of IFRS adoption on equity pricing. For example, Wang, Young, and Zhuang (2007) examined stock market reaction to the elaborate bureaucracy that was involved in the adoption of IFRS in the European Union (EU). Their findings suggested that the EU stock market reacted positively to the events which increased the likelihood of IFRS adoption. Similarly, Negash (2008) examined the IAS adoption effect on companies listed on the Johannesburg Securities

Table 1: The number of listed companies on SET 100* classified by industries and sectors

Industry	Sector		Numbers of Listed Companies on SET 100
Agro and Food Industry	AGRI	Agribusiness	3
	FOOD	Food and Beverage	4
Consumer Products	FASHION	Fashion	1
	HOME	Home and Office Products	0
	PERSON	Personal Products and Pharmaceuticals	0
Financials	BANK	Banking	11
	FIN	Finance and Securities	3
	INSUR	Insurance	0
Industrials	AUTO	Automotive	2
	IMM	Industrials Materials and Machinery	3
	PAPER	Paper and Printing Materials	0
	PETRO	Petrochemicals and Chemicals	2
	PKG	Packaging	1
Property and Construction	CONMAT	Construction Materials	6
	PFUND	Property Fund	0
	PROP	Property Development	16
Resources	ENERG	Energy and Utilities	18
	MINE	Mining	0
Services	COMM	Commerce	6
	HELTH	Health Care Services	3
	MEDIA	Media and Publishing	3
	PROF	Professional Services	0
	TOURISM	Tourism and Leisure	1
	TRANS	Transportation and Logistics	6
Technology	ETRON	Electronic Components	3
	ICT	Information and Communication Technology	8

* Listed companies on SET 100 are based on the selection criteria as at 30 June 2009.

Exchange (JSE). Negash used the Ohlson (1995) model (book value plus earnings and dividends), and applied a four-year window period to examine the value relevance of accrual accounting information in pre liberalisation (pre IAS adoption of 1989-1993) and post IAS adoption period

(1998-2004). The study had a liberalisation (integration) perspective, and concluded that when scaled effects were controlled the difference in panel regression r-squares vanished. This suggested that the value relevance of accounting information did not improve in the post IAS adoption period.

In contrast, Barth et al. (2008) developed a comprehensive index for financial reporting quality. It composed of: (1) earnings management (including earnings smoothing) indicators; (2) timely recognition of losses; and (3) value relevance of accrual accounting information. They examined these indicators using cross countries data, pooled regressions, control variables and matched samples, in both pre and post IAS adoption periods. From the results it can be concluded that IAS adoption is associated with lower earnings management, more timely recognition of large losses and more association between equity prices and book value and earnings/ returns.

2.4 Value relevance of deferred tax assets and deferred tax liabilities

Prior research has also examined the relationship between deferred taxes and stock prices, but most of these studies focused on companies listed on the New York Stock Exchange (NYSE) (Chaney & Jeter, 1992; Amir, Kirschenheiter, & Willard, 1997; Ayers, 1998). Chaney and Jeter (1992) found that there was a negative relationship between amortisation of deferred taxes and stock's returns. In addition, Givoly and Hayn (1992) carried out a research study focusing on the information content of the announcement of the 1986 TAX Reform Act. The result showed that the market reacted to deferred tax information, and changes of stock prices occurred when there were reversals of deferred taxes.

Amir et al. (1997) studied the incremental value relevance of deferred tax after the adoption of SFAS No. 109 Income Taxes (repealed SFAS No. 96). SFAS No. 109 required companies to disclose the components of deferred tax assets and deferred tax liabilities separately. The researchers used the Feltham and Ohlson (1995)'s model to investigate the relationship between stock prices and net operating assets, net financial assets and unexpected operating income. They added the deferred tax items into the model. The results indicated that the deferred taxes were related significantly to stock prices.

Ayers (1998) ran the regression analysis between stock prices and the components of balance sheet items of companies' adoption of SFAS No. 109. The model included the net deferred tax assets (liabilities). Net deferred tax assets (liabilities) were composed of the deferred taxes according to APB No. 11 and the cumulative effect of changes in the accounting standard

on SFAS No. 109. The result showed that the deferred taxes and the cumulative effect of changes in accounting standards were related significantly to the stock prices.

Tang (2006) examined the relationship between the book-tax difference (BTD) and one-year ahead earnings, indicating that analysts and investors rely on the information impounded in BTD to assess companies' future performances. Tang used the sample of companies listed on the Stock Exchange of China. The study divided BTD into normal and abnormal components. Normal BTD (NBTD) was defined as the mechanical differences due to different income reporting requirements in GAAP and tax laws whereas Abnormal BTD (ABTD) referred to the opportunistic differences due to earnings management and tax management. The evidence showed that this decomposition provided incremental information to investors. The results indicated that there was a negative association between BTD and future earnings. The larger BTD signified that the current earnings were more transitory and less persistent, thereby suggesting poorer performance in the following years. On the other hand, smaller BTD signified the contrary.

Lynn, Seethamraju, and Seetharaman (2006) tested the incremental value relevance of unrecognised deferred tax amounts report under UK SSAP No. 15 (now superseded by UK FRS No. 19) of companies listed on the London Stock Exchange. UK SSAP No. 15 required the partial method of accounting of deferred taxes. Under the partial method, a company recognises only that portion of deferred tax that is projected to reverse in a horizon of a few years. The unrecognised portion of deferred tax must, however, be reported in footnotes. Their study examined empirically whether the use of the partial method provides incremental use to investors. They found positive associations between prices and net deferred tax assets -both recognised and unrecognised. They also found that both types of deferred tax have similar multiples. That is, both recognised and unrecognised deferred tax assets were value relevant information.

Jackson (2009) investigated the relationship between book-tax difference (BTDs) and earnings growth of listed companies in the USA. The study hypothesised that non-temporary component of BTDs (permanent differences and tax accruals) was negatively related to future changes in tax expenses whereas the temporary component of BTDs (deferred taxes) was negatively related to changes in future pre-tax earnings. The results confirmed the predictions in the hypotheses. Jackson's study also looked at the relationship between BTDs and earnings growth with and without earnings management. The result showed little evidence that earnings management drives BTD/earnings growth relation. Overall, the

researcher suggested that the various components of BTDs capture underlying economic events and transaction that predict future changes in pre-tax earnings and tax expenses.

2.5 The adoption of deferred tax accounting policy in Thailand

Toommanon (2007) examined the auditors' reports and accounting policies of deferred tax assets and liabilities from the notes to financial statements of companies listed on the Stock Exchange of Thailand during 1995-2006. The researcher discovered that one hundred and thirty six (136) companies adopted the deferred tax accounting policy. As discussed above, the TAS No. 12 Income Taxes will become effective in 2013, thus, companies could choose the deferral method or the balance sheet liability method. As at 31 December 2006, none of the companies listed on the Market for Alternative Investment (MAI) early adopted this standard except for Chuo Senko (Thailand) Public Firm and Goldfine Manufactures Public Limited Firm. The result also indicated that seventy five (75) companies changed the deferred tax accounting method from the balance sheet liability method to the deferral method, and nineteen (19) companies changed from the deferral method to the balance sheet liability method during 1995-2006. Most of the companies which adopted the deferred tax accounting policy were in the following sectors: Financials, Property and Construction, Services, Agro and Food, Industrials, Consumer Products, Technology, and Resources Industries.

It was also observed that there were the reciprocal changes between the deferral method and the balance sheet liability method during 1995-2006. The change from the balance sheet liability method to the deferral method has effects on the firm's net income. The net incomes of forty nine (49) companies increased whereas the net incomes of three (3) companies decreased. However, the net incomes of twenty three (23) companies remained unchanged. In addition, the change from the balance sheet liability method to the deferral method also affected the debt to equity ratio. The debt to equity ratio of twenty (20) companies increased while that of twenty eight (28) companies decreased. The change from the deferral method to the balance sheet liability method also affected some of the companies' net income. As a result, three (3) companies' net incomes increased whereas three (3) companies' net incomes decreased. However, thirteen (13) companies did not experience any effect on their net incomes.

Furthermore, Toommanon (2007)'s study also investigated the market reaction to the change of accounting policy from the balance sheet liability method to the deferral method. The result indicated that thirteen (13) firms

had positive cumulative abnormal returns and eleven (11) firms had negative cumulative abnormal returns. The moving average of cumulative abnormal return twenty one (21) days around the changes of accounting policy dates[1] was -6.09. That is, the market reacted negatively to the change of accounting policy from the balance sheet liability method to the deferral method. However, the market reaction which occurred twenty one (21) days around the change date was not statistically significant. Toommanon (2007) did not test the market reaction to the change from the deferral method to the balance sheet liability method.

Even if there are studies in the past which examined the effects of the deferred tax accounting policy adoption on value relevance, this area is still under-explored in Thailand. Therefore, this gap in the literature provides the opportunity to test the value relevance of deferred tax assets and liabilities for early adopters and non-early adopters of TAS No. 12 Income Taxes and to compare the differences in value relevance of early adopters and non-early adopters. The outcome of this study can be used as a guideline to FAP to enhance and improve the efficacy of this proposed standard.

2.6 Research hypotheses development

Previous researches showed that the deferred tax assets and liabilities were related to stock prices (Amir et al., 1997; Ayers, 1998; Lynn, et al., 2006). Jackson (2009) found that the deferred taxes were related to future earnings. A book-tax difference (BTD) between accounting income and taxable income is the information used to predict the earnings before tax and future tax expenses. Deferred tax assets and liabilities which arise from temporary differences between accounting income and taxable income will reflect future taxable benefits and sacrifices. The balance sheets of early adopters should reflect their true financial positions, compared to those of non-early adopters. The deferred taxes are expected to be value relevant information, deferred tax assets and liabilities are expected to be significantly related to stock prices. Thus, this study proposes the following hypothesis:

> H_1: *Deferred tax assets and liabilities are significantly related to stock prices.*

[1] This refers to the market reaction 10 days before the date of the change in accounting policy, the day of the change itself and 10 days after the change date.

3. Data collection and research design

3.1 Data collection

The data for this study is obtained from the financial statements (including the notes) of the listed firms on SET 100 during the years 2004-2008. Listed firms on SET 100 in this study are based on the selection criteria as at 30 June 2009 (see details in section 2.2). The data is extracted from SETSMART (SET Market Analysis and Reporting Tool) which is the online database from SET. This study excludes the Non-December financial year ended firms for controlling the same accounting period and deletes the outliers by cutting the extreme values of variables (+/-1% of samples). Thus, the final sample in this study comprises three hundred and ninety four (394) firms-years. Table 2 presents the detailed information of the sampled companies.

Table 2: The number of samples*

Sample Characteristics	No. of Firms-Years
Listed firms on SET 100 during the years 2004-2008	500 firms-years
Less Non-December Year ended	45 firms-years
Less outlier and missing data	61 firms-years
Total Number of Samples	394 firms-years

* Listed firms on SET 100 in this study are based on the selection criteria as at 30 June 2009.

3.2 Research design

The main objective of this study is to investigate the components of deferred tax assets and liabilities of the early adopters of TAS No. 12 Income Taxes. The early adopters of the proposed TAS No. 12 are identified from the notes to financial statements describing the adoption of deferred tax accounting policy using the balance sheet liability method. Components of deferred tax assets and liabilities are analysed from the notes of the early adopters. Then, the study categorises the types of presentation of deferred tax assets and liabilities (e.g. separate report or offsetting balance). The accounting items which are the components of deferred tax assets and liabilities are classified according to sectors and industries.

Further, this study investigates whether the deferred tax assets and liabilities information is value relevant. Model (1) is based on Feltham and

Ohlson (1995)'s model, which models the linearity of the relationship between companies' market values and their accounting information. It is based on the security valuation framework propounded by Ohlson (1995). According to Ohlson, under clean surplus accounting the market value of equity is equal to book value of shareholders' equity plus net present value of expected future abnormal earnings (unrecorded goodwill). Feltham and Ohlson (1995)'s model extended the Ohlson (1995)'s model by classifying a company's net assets into financial and operating assets. The distinguishing feature was that the former was assumed to be fairly valued on the balance sheet such that abnormal earnings for financial assets were zero (0). In addition, Lo and Lys (2000) indicated that the Feltham and Ohlson (1995)'s model was distinct from the Ohlson (1995)'s model because of the analysis of growth and conservatism; i.e. the Feltham and Ohlson (1995)'s model incorporated conservative accounting in equity valuation process.

However, Callen and Segal (2005) tested the Feltham and Ohlson (1995)'s model by transforming the undefined other information variables into expectational variables, as suggested by Liu and Ohlson (2000). The empirical test rejected the Ohlson (1995)'s model in favour of the Feltham and Ohlson (1995)'s model, thereby conforming the importance of incorporating conservatism into accounting valuation. The empirical analysis also indicated that signs of the valuation coefficient were consistent with the prediction of the Feltham and Ohlson (1995)'s model for almost all empirical variations of the model, including panel data techniques, non-parametric estimation, reverse regression, and portfolio regressions. Nevertheless, the one year ahead equity pricing predictions of the Feltham and Ohlson (1995)'s model were no more accurate than that of the Ohlson (1995)'s model or a naive earnings valuation model.

Previous research has also used the Feltham and Ohlson (1995)'s model to test value relevance of earnings and book values (Amir et al., 1997; Sumritpradit, 2002; Chludek, 2010). Model (1) presents the relationship between stock prices, earnings, book value, deferred tax assets and deferred tax liabilities.

$$P_{it} = \alpha_0 + \alpha_1 E_{it} + \alpha_2 BVA_{it} + \alpha_3 DTA_{it} + \alpha_4 DTL_{it} + \varepsilon_{it} \quad (1)$$

where

P_{it} = stock's price per share of firm i year t;
E_{it} = earnings per share of firm i year t;

BVA_{it} = net book value per share of total asset deducted from total liability of firm i year t excluding deferred tax asset and deferred tax liability;
DTA_{it} = deferred tax asset per share of firm i year t;
DTL_{it} = deferred tax liability per share of firm i year t; and
ε_{it} = error term.

The sample in this study includes three hundred and ninety four (394) firms-years and it is divided into two groups: Group 1 (early adopters of TAS No. 12) and Group 2 (non-early adopters of TAS No. 12). Firms in Group 1 are either firms which use the balance sheet liability method (the required accounting treatment described in TAS No. 12) in recording deferred tax assets and liabilities for the first time (they never recognised deferred tax assets and liabilities before); or firms which recognise the deferred tax assets and liabilities and change their accounting policies from the deferral method to the balance sheet liability method.

Firms in Group 2 are either firms which have not adopted the deferred tax accounting policy and therefore, do not record deferred tax assets and liabilities in their balance sheets; or firms which use the deferral method in recording deferred tax assets and liabilities and do not change to the balance sheet liability method.

The regression model in model (1) examined all samples, early adopters and non-early adopters of TAS No. 12. Then, the differences of value relevance of the accounting information between the early adopters and the non-early adopters are compared by using the F test (Zar, 1984).

$$F = \frac{(SS_c - SS_p)/\ k\text{-}1}{SS_p/DF_p}$$

with k-1 and DF_p , degree of freedom

SS_c = combined residual sum of squares from multiple regression analysis on sum of square and sum of cross products of explanatory variables in model (1);
SS_p = pooled residual sum of squares of regression model (1) of early adopters and non-early adopters;
k = numbers of regression models; and
DF_p = numbers of pooled residuals degree of freedom.

If the F test is rejected, it can be inferred that the independent variables in model (1) affect stock prices in the different levels between early adopters and non-early adopters. That is, the value relevance of accounting information of early adopters differs from that of non-early adopters. Then, Model (2) is used to test whether the value relevance of deferred tax assets and liabilities of early adopters are more than those of non-early adopters. Dummy variable (1 = early adopters; 0 = non-early adopters) is added into model (1). Model (2) is as follows:

$$P_{it} = \beta_0 + \beta_1 D + \beta_2 E_{it} + \beta_3 BVA_{it} + \beta_4 DTA_{it} + \beta_5 DTL_{it} + \beta_6 D^* E_{it} + \beta_7 D^* BVA_{it} + \beta_8 D^* DTA_{it} + \beta_9 D^* DTL_{it} + \varepsilon_{it} \quad (2)$$

where

P_{it} = stock's price per share of firm i year t;
D = 1 if the firm is an early adopter of TAS No. 12, and 0 otherwise,
E_{it} = earnings per share of firm i year t;
BVA_{it} = net book value per share of total asset deducted from total liability of firm i year t excluding deferred tax asset and deferred tax liability;
DTA_{it} = deferred tax asset per share of firm i year t;
DTL_{it} = deferred tax liability per share of firm i year t; and
ε_{it} = error term.

4. Empirical results

This study identifies the listed companies on SET 100 which adopt the proposed TAS No. 12 before the effective date. The study investigates the deferred tax accounting policy of early adopters. It categorises the types of presentation of deferred tax assets and liabilities (e.g. separate report or offsetting balance as net deferred tax assets or liabilities) and classifies the accounting items which are the components of deferred tax assets and liabilities according to sectors and industries. In addition, this study examines whether deferred tax assets and liabilities information are value relevant and compares the differences of value relevance of deferred tax assets and liabilities between early adopters and non-early adopters. The results are presented in this section.

4.1 The number of early adopters of TAS No.12 Income Taxes

Table 3 shows the detailed number of the firms on SET which have adopted TAS No. 12 during the years 2004-2008. According to this Table, the number of early adopters was on an upward trend during the period of 2004-2008. The number of early adopters of TAS No. 12 in 2008 almost doubled that in 2004. Furthermore, most of them have both deferred tax assets and liabilities in their balance sheets. Some firms show the offsetting balances of deferred tax assets and liabilities as net deferred tax assets or liabilities depending on which values of assets and liabilities are more. However, a very small number of firms have only deferred tax assets or liabilities in their balance sheets.

Table 3: The number of early adopters of TAS No. 12 Income Taxes

Year	Total Firms	Have only Deferred Tax Asset (DTA)	Have only Deferred Tax Liabilities (DTL)	Have Both Deferred Tax Asset (DTA) and Deferred Tax Liability (DTL)		
				Total	Net DTA/DTL	Separate Shown DTA and DTL
2004	12	2	–	10	4	6
2005	13	3	–	10	2	8
2006	17	3	1	13	3	10
2007	22	5	2	15	4	11
2008	22	4	1	17	4	13

In addition, Tables 4 and 5 present the number of the listed firms on SET 100 which have only deferred tax assets, only deferred tax liabilities, or both deferred tax assets and liabilities in their balance sheets. They are classified by industries and sectors.

Table 4 shows the industries and sectors of the sampled firms which have only deferred tax assets or deferred tax liabilities in the years 2004-2008. Firms which have only deferred tax assets are all from specific industries and sectors such as Financials Industry (Banking Sector), Property and Construction Industry (Construction Materials Sector and Property Development Sector), and Services Industry (Transportation and Logistics Sector). None of the SET 100 firms recorded deferred tax liability during the period 2004-2005. However, during the period 2006-2008, there are firms in the Resources Industry (Energy and Utilities Sector) and

Table 4: The number of early adopters of TAS No. 12 which have only Deferred Tax Assets (DTA) or Deferred Tax Liabilities (DTL) classified by industries and sectors

Year	Listed Firms on SET 100 which have only DTA in their Balance Sheets			Listed Firms on SET 100 which have only DTL in their Balance Sheets		
	Industry	Sector	Number of Firms which have only DTA	Industry	Sector	Number of Firms which have only DTL
2004 (DTA= 2 firms; DTL = none)	Financials	Banking	1	None	None	0
	Property and Construction	Construction Materials	1			
2005 (DTA= 3 firms; DTL = none)	Financials	Banking	1	None	None	0
	Property and Construction	Construction Materials	2			
2006 (DTA= 3 firms; DTL = 1 firm)	Property and Construction	Construction Materials	2	Resources	Energy and Utilities	1
		Property Development	1			
2007 (DTA= 5 firms; DTL = 2 firms)	Financials	Banking	1	Resources	Energy and Utilities	1
	Property and Construction	Construction Materials	1			
		Property Development	2	Services	Commerce	1
	Services	Transportation and Logistics	1			
2008 (DTA= 4 firms; DTL = 1 firm)	Property and Construction	Construction Materials	1	Services	Commerce	1
		Property Development	2			
	Services	Transportation and Logistics	1			

Services Industry (Commerce Sector) sectors which reported only deferred tax liabilities in their balance sheets.

Table 5 shows the number of firms which have both deferred tax assets and liabilities in their balance sheets. It is found that firms from the following industries and sectors have deferred tax assets and liabilities in almost all the years in this study: Agro and Food Industry (Agribusiness Sector and Food and Beverage Sector), Financials Industry (Banking Sector

Table 5: The number of early adopters of TAS No. 12 which have both deferred tax assets (DTA) and deferred tax liabilities (DTL) classified by industries and sectors*

Year	Industry	Sector	Numbers of Listed Firms on SET 100
2004 (total 10 firms)	Agro and Food Industry	Agribusiness	1
		Food and Beverage	1
	Property and Construction	Construction Materials	1
		Property Development	1
	Resources	Energy and Utilities	5
	Technology	Information and Communication Technology	1
2005 (total 10 firms)	Agro and Food Industry	Agribusiness	1
		Food and Beverage	1
	Property and Construction	Property Development	2
	Resources	Energy and Utilities	5
	Technology	Information and Communication Technology	1
2006 (total 13 firms)	Agro and Food Industry	Agribusiness	1
		Food and Beverage	1
	Financials	Banking	1
	Industrials	Petrochemicals and Chemicals	1
	Property and Construction	Property Development	1
	Resources	Energy and Utilities	4
	Technology	Information and Communication Technology	4
2007 (total 15 firms)	Agro and Food Industry	Agribusiness	1
		Food and Beverage	1
	Financials	Finance and Securities	1
	Industrials	Petrochemicals and Chemicals	1
	Property and Construction	Construction Materials	1
		Property Development	1
	Resources	Energy and Utilities	5
	Technology	Information and Communication Technology	4
2008 (total 17 firms)	Agro and Food Industry	Agribusiness	1
		Food and Beverage	1
	Financials	Banking	1
		Finance and Securities	1
	Industrials	Petrochemicals and Chemicals	1
	Property and Construction	Construction Materials	1
		Property Development	1
	Resources	Energy and Utilities	6
	Technology	Information and Communication Technology	4

* Firms with both deferred tax assets and deferred tax liabilities are divided into two types. Firms which offset deferred tax assets and liabilities and show only net deferred tax assets or liabilities in their balance sheets; and firms that show both deferred tax assets and liabilities in their balance sheets, i.e. they do not offset the balance of deferred tax assets and liabilities.

and Finance and Securities Sector), Industrials Industry (Petrochemicals and Chemicals Sector), Property and Construction Industry (Construction Materials Sector and Property Development Sector), Resources Industry (Energy and Utilities Sector), and Technology Industry (Information and Communication Technology Sector). The largest number of firms which recorded both deferred tax assets and liabilities are from the Resources Industry (Energy and Utilities Sector).

4.2 Descriptive statistics of the deferred tax assets and deferred tax liabilities

Table 6 presents the descriptive statistics of the deferred tax assets and liabilities of the early adopters of TAS No. 12.

According to Table 6, the values of deferred tax assets and liabilities show high volatility between 2004 and 2008. Interestingly, the values of

Table 6: Descriptive statistics of deferred tax assets and liabilities of early adopters of TAS No. 12

Panel A: Deferred tax assets

Year	Deferred Tax Assets			
	Mean	Standard Deviation	Min	Max
2004	1,820,166,636.08	2,919,041,851.86	22,286,532	8,131,128,441
2005	1,183,388,538.08	1,569,732,767.46	27,267,312	4,507,110,000
2006	2,284,933,915.13	3,355,107,066.42	574,394	9,958,063,974
2007	1,970,634,413.11	2,975,683,153.78	811,945	10,031,066,153
2008	2,473,126,300.21	3,181,120,725.03	6,995,813	10,075,260,360

The amounts mentioned in the table are in Baht.

Panel B: Deferred tax liabilities

Year	Deferred Tax Liabilities			
	Mean	Standard Deviation	Min	Max
2004	4,254,905,905.70	4,756,712,859.00	32,713,699	10,257,015,755
2005	4,003,014,803.75	5,400,058,856.83	1,196,304	12,685,241,571
2006	3,621,941,107.27	5,047,662,390.72	19,447,000	13,839,224,531
2007	2,618,714,592.05	5,136,662,867.53	22,899,589	14,738,003,160
2008	3,156,743,876.14	6,226,870,533.63	1,750,000	19,924,960,086

The amounts mentioned in the table are in Baht.

Notes: The firms which have net deferred tax assets or net deferred tax liabilities in their balance sheets are also used in the calculation of mean and standard deviation of deferred tax assets and liabilities. If firms have net deferred tax assets, the firms will be included in the calculation of mean and standard deviation of deferred tax assets. If firms have net deferred tax liabilities, the firms will be included in the calculation of mean and standard deviation of deferred tax liabilities.

the standard deviation of deferred tax assets and liabilities are more than their mean for every year. In other words, the range between the maximum value and the minimum value of deferred tax assets and liabilities are different significantly.

4.3 Components of deferred tax assets and deferred tax liabilities

Deferred tax assets are the amounts of income taxes recoverable in the future periods in respect of deductible temporary differences, the carryforward of unused tax losses, and the carryforward of unused tax credits. Thus, a deferred tax asset should be recognised when it is probable that taxable profits will be available against which the deferred tax asset can be utilised. When an entity has a history of tax losses, the entity recognises a deferred tax asset only to the extent that the entity has sufficient taxable temporary differences or there is other convincing evidence that sufficient taxable profit will be available.

On the contrary, deferred tax liabilities are the amounts of income taxes payable in future periods in respect of taxable temporary differences. From the notes to financial statements of the early adopters of TAS No. 12 in 2008, the components of deferred tax assets and liabilities are described in Appendix A.

Some accounting items which are components of deferred tax assets and liabilities result from business transactions which are common in most industries. Common transactions which are deductible temporary differences include allowance for impairment loss of assets, depreciation, allowance for doubtful accounts, allowance for inventory obsolescence, taxable loss carryforward, amortisation of intangible assets, and deposits from customers. The early adopters of TAS No. 12 which have the following accounting items will record deferred tax assets in their balance sheets. Accounting items which are the main components of deferred tax assets are taxable loss carryforward, allowance for doubtful accounts, allowance for impairment loss of assets, and depreciation.

For deferred tax liabilities, the common accounting items which are taxable temporary differences are surplus from asset revaluation, depreciation, allowance for decline in value of inventories, and unrealised gain from investment. The accounting items which are the main components of deferred tax liabilities are depreciation, allowance for decline in value of inventories, unrealised gain from investment, and surplus from asset revaluation.

These results correspond with the findings of Poterba, Rao, and Seidman (2007). The researchers in this study examined the components

of deferred tax assets and liabilities of the large US corporations. As a result, they found that firms differ substantially in the compositions of their deferred tax assets and liabilities. The largest components of deferred tax assets were loss and credit carryforwards and employment and post-employment benefits. The largest components of deferred tax liabilities were depreciation of property, plant and equipment and leases (Poterba et al., 2007).

Furthermore, Appendix A shows that nineteen (19) firms do not indicate the specific accounting items which are the components of deferred tax assets; and six (6) firms do not list liabilities, instead, they presented "others" as the components of deferred tax assets and liabilities.

In addition, Appendix A also indicates that there are some accounting items which are components of deferred tax assets and liabilities peculiar to certain industries. Some examples are as follows. Firstly, amortisation of decommissioning costs is specific to the Resources Industry (Energy and Utilities Sector). Secondly, unrealised gain on the transfer of property to property fund and unearned revenue from construction services are transactions found in Property and Construction Industry (Property Development Sector). Thirdly, non-accrual of interest income is peculiar with the transactions in Financials Industry (Banking Sector). Fourthly, the amortisation of the differences of assets under the agreement for operation and income recognised difference of unearned income of mobile services are among the transactions found in the Technology Industry (Information and Communication Technology Sector).

4.4 Results of test value relevance of deferred tax assets and liabilities

Regression of model (1) is applied to the whole sampled firms (394 firms-years) including both early adopters of TAS No. 12 (77 firms–years) and non-early adopters (317 firms-years). Descriptive statistics of variables in model (1) are shown in Table 7. The results show that the mean of stock prices is less than the standard deviation of prices for all the groups within the sample, i.e. both early adopters and non-early adopters of TAS No. 12. The ranges of stock price of the listed firms on SET 100 are wide, from the lowest 0.12 baht to the highest of 322 baht; earnings per shares' values are -2.72 to 22.40 baht; and book values range from 0.0772 to 91.9945 baht per share. For early adopters, the range of stock prices is from 1.60 baht to 322 baht; earnings per share range from 3.5332 to 22.40 baht and the book value's range is from 19.3443 to 69.1810 baht per share. For non-early adopters, the stock price is from 0.12 baht to 187 baht; earnings per share's value are from -2.72 to 15.96 baht; and book value's range is from 0.2465 to 91.9945 baht per share.

The book values of total assets deducted from total liabilities (excluding deferred tax assets and deferred tax liabilities) are positive for all listed firms on SET 100. None of the listed firms on SET 100 has negative book value of equities. The deferred tax assets per share and deferred tax liabilities per share also have high value of standard deviation with respect to their mean value. The minimum value of deferred tax assets and liabilities is zero (0). Interestingly, the mean value of deferred tax assets is much more

Table 7: Descriptive statistics of variables in model 1

Panel A: All samples (n = 394 firms-years)

Variables	Mean	SD	Min.	Max.
P_{it}	26.0239	40.2146	0.1200	322.0000
E_{it}	2.4559	3.6639	-2.7200	22.4000
BVA_{it}	14.6904	17.7761	0.0772	91.9945
DTA it	0.1119	0.4603	0.0000	3.5881
DTL_{it}	0.0810	0.4607	0.0000	4.6059

The amounts mentioned in the Table are in Baht.

Panel B: Early adopters of TAS No.12 (n = 77 firms-years)

Variables	Mean	SD	Min.	Max.
P_{it}	44.7372	66.6573	1.6000	322.0000
E_{it}	3.5332	5.1111	3.5332	22.4000
BVA_{it}	19.3443	17.8699	19.3443	69.1810
DTA_{it}	0.5564	0.8659	0.0000	3.4018
DTL $_{it}$	0.3052	0.7122	0.0000	3.9735

The amounts mentioned in the Table are in Baht.

Panel C: Non-early adopters of TAS No.12 (n = 317 firms-years)

Variables	Mean	SD	Min.	Max.
P_{it}	21.0557	28.0951	0.1200	187.0000
E_{it}	2.1206	3.0130	-2.7200	15.9600
BVA_{it}	13.3564	17.1874	0.2465	91.9945
DTA_{it}	0.0113	0.2015	0.0000	3.5881
DTL $_{it}$	0.0284	0.3572	0.0000	4.6059

The amounts mentioned in the Table are in Baht.
P_{it} = stock's price per share;
E_{it} = earnings per share;
BVA_{it} = net book value per share of total asset deducted from total liability excluding deferred tax asset and deferred tax liability;
DTA_{it} = deferred tax asset per share; and
DTL_{it} = deferred tax liability per share.

than the mean value of deferred tax liabilities for the whole sample as well as for the early adopters. On the other hand, the mean value of deferred tax assets is less than that of deferred tax liabilities for non-early adopters.

The regression results of the model (1) are presented in Appendix B. The results from regression model (1) show that there are significant relationships between stock prices and earnings per share, book value of total assets less total liabilities (excluding deferred tax assets and deferred tax liabilities), deferred tax assets per share and deferred tax liabilities per share for all sample, i.e. both early adopters and non-early adopters of TAS No. 12. For the results of the whole sample, the adjusted R^2 of model (1) equals to 0.761. This means that the independent variables in the model account for 76.1 per cent of the variance in the dependent variable which is the *stock price*. Furthermore, the results show that α_1, α_2 are positively and significantly related with stock price at 1 per cent level of significance. It can be inferred that earnings and book value of total assets deducted from total liabilities (excluding deferred tax assets and deferred tax liabilities) are value relevant information. These results corroborate the findings of other researchers (Easton & Harris, 1991; Feltham & Ohlson, 1995; Francis & Schipper, 1999).

Furthermore, α_3 is positively and significantly related to stock price. Value of α_4 is also positively related to stock price; but this is not statistically significant. Thus, deferred tax assets are value relevant information while deferred tax liabilities are not.

These results reveal that deferred tax assets are information which investors use in valuing their investments. However, deferred tax liabilities are not used in the same manner. The plausible reason could be that the number of early adopters of TAS No.12 which have deferred tax liabilities is much less than those that have deferred tax assets. In fact, the number of firms which has only deferred tax liabilities (or net deferred tax liabilities) in their balance sheets is very small when compared with the whole sample size. Therefore, investors pay less attention to deferred tax liabilities than deferred tax assets. Overall, these results reveal that deferred tax assets information is value relevant but this cannot be said of the deferred tax liabilities information.

Furthermore, as far as the early adopters of TAS No. 12 are concerned, the adjusted R^2 from model (1) is 0.815. The values of α_1 and α_2 are both positive and significant at 1 per cent and 10 per cent significance level, respectively. This means that earnings and book value of total assets deducted from total liabilities (excluding deferred tax assets and deferred tax liabilities) are both value relevant information. The value of α_3 is also positive and significant at 5 per cent level of significance. Therefore, deferred

tax assets are also positively related to stock prices. These results correspond with the findings of the whole sample size which includes both early adopters and non-early adopters of TAS No. 12. This shows that investors perceive deferred tax assets as useful information in valuing their investments. Interestingly, the value of α_4 is negatively significant at 1 per cent level of significance which infers that deferred tax liabilities are also value relevant information. Thus, investors also use deferred tax liabilities in valuing their investments. In summary, the results of the regression analysis confirm that both *deferred tax assets* and *deferred tax liabilities* are value relevant information and investors perceive deferred tax assets as the future taxable benefits and deferred tax liabilities as future taxable sacrifices. Both reflect the true firm values.

For non-early adopters, the adjusted R^2 from model (1) is 0.786. The values of α_1 and α_2 are both positive and significant at 1 per cent significance level. This means that earnings and book value of total assets deducted from total liabilities (excluding deferred tax assets and deferred tax liabilities) are value relevant information. The value of α_3 is also positive and significant at 5 per cent significance level. Therefore, deferred tax assets are value relevant information. The value of α_4 is positive; but it is insignificant. This shows that deferred tax liabilities are not value relevant information.

These results contrast with those of the early adopters of TAS No. 12, where it was found that deferred tax liabilities are value relevant information for them. The plausible reason could be that the early adopters use the balance sheet liability method to record deferred tax liabilities. Deferred tax liabilities are the amounts of income tax payable in future periods in respect of taxable temporary differences. Thus, the recognition of deferred tax liabilities in the balance sheet of early adopters reflects the true sacrifices of economic future benefits.

4.4.1 Additional test: Differences of value relevance of deferred tax assets and deferred tax liabilities between early adopters and non-early adopters of TAS No. 12

The differences of value relevance of deferred tax assets and liabilities between early adopters and non-early adopters of TAS No. 12 are examined by F test. Firstly, the multiple regression analysis are run by sum square and cross product of explanatory variables in model (1) to obtain the combined residual sum of squares (SS_c)= 127,372.590. Secondly, we calculate the pooled residual sum of squares (SS_p) of model (1) of early adopters and non-early adopters.

$$SS_p = 52{,}702.924+59{,}256.875= 111{,}959.799$$

$$F = \frac{(SS_c - SS_p)/ k\text{-}1}{SS_p/DF_p}$$

$$F = \frac{(127{,}372.590\text{-}111{,}959.799)/1}{111{,}959.799/384}$$

$$F = \frac{15{,}412.791}{291.56} = 52.86$$

F value is 52.86. It is compared with F in the Table of Critical Values of the F Distribution (Zar, 1984) for degree of freedom 1, 384 (α=0.05) which approximates to 3.87. This result leads us to conclude that all independent variables in model (1) affect the dependent variable (which is stock price) differently between early adopters and non-early adopters of TAS No. 12.

Model (2) is used to test whether there are any differences of value relevance of deferred tax assets and liabilities between early adopters and non-early adopters. The regression results of Model (2) are presented in Table 8.

The results of model (2) indicate that earnings, book values, and deferred tax assets are related to stock prices positively and significantly. Deferred tax liabilities are related to stock prices, but this is not statistically significant.

The effects of adopting TAS No. 12 on the value relevance of accounting information are investigated. The value of β_6 is positively significant. It is also found that the value relevance of earnings of the early adopters is significantly more than non-early adopters. The value of β_7 and β_8 are negative and statistically insignificant. Further, the value relevance of book value of equities and deferred tax assets of early adopters and non-early adopters do not differ. Interestingly, the value of β_9 is negative and statistically significant. This means that deferred tax liabilities of early adopters are more value relevant compared to non-early adopters and the direction in relation to the dependent variable or stock prices is negative. These results confirm the findings presented in Appendix B.

Therefore, deferred tax liabilities of early adopters of TAS No. 12 are value relevant information while those of non-early adopters are not. This leads us to the interpretation that the balance sheet liability method (which is the required accounting treatment prescribed in TAS No. 12) makes the deferred tax liabilities in balance sheets reflect the true sacrifices of future economic benefits more than that of the deferral method.

Table 8: Regression results of stock prices on earnings, net book values, DTA and DTL with dummy variables[2]

Variable	Coefficient	t-value	Sig.
Constant	2.413	1.975	0.049**
D	-5.198	-1.526	0.128
E_{it}	3.466	5.546	0.000***
BVA_{it}	0.814	7.652	0.000***
DTA_{it}	9.029	1.843	0.066*
DTL_{it}	3.853	1.512	0.133
$D*E_{it}$	7.061	7.113	0.000***
$D*BVA_{it}$	-0.216	-0.921	0.358
$D*DTA_{it}$	-0.769	-0.141	0.888
$D*DTL_{it}$	-22.950	-5.117	0.000***
F value = 194.316***			
Adjusted R^2 = 0.817			

n = 394 firms-years
* sig. at 0.10 level;** sig. at 0.05 level; ***sig. at 0.01 level
P_{it} = stock's price per share of firm i year t;
D = 1 if the firm is an early adopter of TAS No.12, 0 otherwise;
E_{it} = earnings per share of firm i year t;
BVA_{it} = net book value of total asset deducted from total liability of firm i year t excluding deferred tax asset and deferred tax liability;
DTA_{it} = deferred tax asset per share of firm i year t;
DTL_{it} = deferred tax liability per share of firm i year t; and
ε_{it} = error term.

5. Conclusions and suggestions

This study was set out to investigate the impacts of voluntary, early adoption of the proposed accounting standard TAS No. 12 Income Taxes in Thailand. It is found that the early adoption of deferred tax accounting policy arguably makes the firms' balance sheets reflect their true financial positions. The deferred tax assets reflect the future taxable benefits while deferred tax liabilities reflect the future taxable sacrifices. Also, more listed firms on SET 100 record deferred tax assets as compared to those which record deferred tax liabilities.

The results of our investigation of the value relevance of deferred tax assets and liabilities indicate that deferred tax assets and liabilities are significantly related to stock price, especially for the early adopters of TAS No. 12. The findings correspond with the results of previous studies (Amir et al., 1997; Ayers, 1998; Lynn et al., 2006). Their results reveal that there were significant relationships between stock prices and deferred taxes.

[2] $P_{it} = \beta_0 + \beta_1 D + \beta_2 E_{it} + \beta_3 BVA_{it} + \beta_4 DTA_{it} + \beta_5 DTL_{it} + \beta_6 D*E_{it} + \beta_7 D*BVA_{it} + \beta_8 D*DTA_{it} + \beta_9 D*DTL_{it} + \varepsilon_{it}$ (2)

Thus, it can be inferred that deferred tax assets and liabilities are useful information to investors.

Moreover, the findings in this study indicate that value relevance of deferred tax assets of early adopters and non-early adopters do not differ, whereas deferred tax liabilities of early adopters have more value relevance than those of non-early adopters. The adoption of TAS No. 12 makes the deferred tax liabilities reflect the true sacrifice of the future tax benefits. The merits of early adoption outweigh the cost of the standard applied. The findings in this paper will provide the managerial incentives to early adopt the proposed TAS No.12.

These results support the balance sheet liability method in recognition of deferred tax assets and liabilities; and they can be used as a guideline to provide constructive feedback to the Federation of Accounting Professions of Thailand to improve Draft No. 56 before implementing TAS No. 12 Income Taxes. The application of TAS No. 12 for all listed firms will be beneficial for users of the firms' financial statements. It will also enhance the comparability of financial statements of all listed firms as all will then be required to apply the same accounting policies.

In addition, the results from this study also support the adoption of IAS and IFRS in Thailand, for it will improve the relevance of financial statements and assist international investors in making more efficient investments in Thailand. Furthermore, it will enhance the comparability of Thai listed firms' financial statements with other listed firms on a global basis.

References

Amir, E., Kirschenheiter, M., & Willard, K. (1997). The valuation of deferred taxes. *Contemporary Accounting Research, 14*(4), 597-622.

Ayers, B. C. (1998). Deferred tax accounting under SFAS No.109: An empirical investigation of its incremental value-relevance relative to APB No.11. *The Accounting Review, 73*(2), 195-212.

Barth, M., Landsman, W., & Lang, M. (2008). International accounting standards and accounting quality. *Journal of Accounting Research, 46*(3), 467-498.

Callen, J. L., & Segal, D. (2005). Empirical tests of the Feltham and Ohlson (1995) model. *Review of Accounting Studies, 10*, 409-429.

Chaney, P. K., & Jeter, D. C. (1992). The effects of deferred taxes on security prices. *Journal of Accounting, Auditing and Finance, 7*, 91-116.

Chludek, A.K. (2010). Perceived versus actual cash flow implications of deferred taxes- An analysis of value relevance and reversal under IFRS. Retrieved September 30, 2010, from http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1603183

Easton, P. D., & Harris, T. S. (1991). Earnings as explanatory variables for returns. *Journal of Accounting Research*, *29*, 19-36.

Federation of Accounting Professions. *Draft Thai accounting standard No.56 income taxes*. Retrieved February 10, 2009, from http://www.fap.or.th/fap/?q=node/427

Federation of Accounting Professions. *Thai accounting standard No.12 income taxes*. Retrieved September 10, 2010, from http://www.fap.or.th/fap/?q=node/427

Feltham, G. A., & Ohlson, J. A. (1995). Valuation and clean surplus accounting for operating and financial activities. *Contemporary Accounting Research*, *11*(2), 689-732.

Francis, J., & Schipper, K. (1999). Have financial statements lost their value relevance? *Journal of Accounting Research, 37*, 319-382.

Givoly, D., & Hayn, C. (1992). The valuation of the deferred tax liability: Evidence from the stock market. *The Accounting Review*, *67*(2), 394-410.

Gujarathi, M. R., & Hoskin, R. E. (1992). Evidence of earnings management by the early adopters of SFAS No. 96. *Accounting Horizons*, *6*(4), 18-31.

International Accounting Standards Board. *International accounting standard No.12 Income Taxes*. Retrieved February 10, 2009, from http://www.ifrs.org/IFRSs/IFRS.htm

Jackson, M. (2009). Book-tax differences and earnings growth. Retrieved January 22, 2010, from http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1410790

Karemera, D., Ojah, K., & Cole, J.A. (1999). Random walks and market efficiency tests: Evidence from emerging equity markets. *Review of Quantitative Finance and Accounting*, *13*, 171-188.

Kim, J. H., & Shamsuddin, A. (2006). *Are Asian stock markets efficient? Evidence from new multiple variance tests*. Unpublished working paper, Department of Econometrics and Business Statistics, Monash University.

Lim, K. P., Brooks, R. D., & Kim, J.H. (2008). Financial crisis and stock market efficiency: Empirical evidence from Asian countries. *International Review of Financial Analysis*, *17*(3), 571-591.

Liu, J., & Ohlson, J.A. (2000). The Feltham-Ohlson (1995) model: Empirical implications. *Journal of Accounting, Auditing and Finance*, *15*(3), 321-331.

Lo, K., & Lys, T. (2000). The Ohlson model: Contribution to valuation theory, limitations, and empirical applications. *Journal of Accounting, Auditing, and Finance*, *15*(3), 337-367.

Lynn, S., Seethamraju, C., & Seetharaman, A. (2006). Incremental value relevance of unrecognized deferred taxes: Evidence from United Kingdom. Retrieved June 15, 2009, from http://papers.ssrn.com/sol3/papers.cfm?abstract_id=902081

Moyer, S. E. (1990). Capital adequacy ratio regulations and accounting choices in commercial banks. *Journal of Accounting and Economics*, *13*(2), 123-154.

Negash, M. (2008). Liberalization and the value relevance of accrual accounting information: Evidence from the Johannesburg Securities Exchange. *Afro Asian Journal of Finance and Accounting*, *1*(1), 84-101.

Ohlson, J. A. (1995). Earnings, book values, and dividends in equity valuation. *Contemporary Accounting Research*, *11*(2), 661-687.

Poterba, J. M., Rao, N., & Seidman, J. (2007). The significance and composition of deferred tax assets and liabilities. Retrieved September 10, 2010, from http: //www.nber.org/papers/w12923

Sumritpradit, P. (2002). *A study of factors influencing value-relevance of earnings and book value in the Stock Exchange of Thailand*. Unpublished doctoral dissertation, Chulalongkorn University, Bangkok, Thailand.

Tang, T.Y. H. (2006). The market perception of book-tax differences-An empirical study in China's capital market. Retrieved June 15, 2009, from http://papers.ssrn.com/sol3/papers.cfm?abstract_id=927167

Toommanon,V. (2007). The effects of the adoption of deferred taxes accounting policy during B. E. 2538-2549. *Journal of Accounting Professions, 3*(7), 27-47.

Wang, X., Young, D., & Zhuang, Z. (2007). The effects of mandatory adoption of international financial reporting standards on information environments. Retrieved June 15, 2009, from http://aaahq.org/AM2008

Yongsawadvanich, R. (2001). Thai stock market efficiency: Random walk, mean reversion or mean aversion? Retrieved September 10, 2010, from http://library.tu.ac.th/acc-pdf/mif/mif-18.pdf

Zar, J. H. (1984). *Biostatistical analysis* (2nd ed.). Englewood Cliffs, NJ: Prentice Hall.

Appendix A

Components of deferred tax assets and deferred tax liabilities of early adopters of TAS No.12

Panel A: Components of deferred tax assets

Components of Deferred Tax Assets	Industry	Sector	No. of Firms
Amortisation of Difference of Assets Under the Agreement for Operation	Technology	Information and Communication Technology	1
Income Recognised Difference for Unearned Income-Mobile Services	Technology	Information and Communication Technology	1
Pension Fund Reserves	Resources	Energy and Utilities	2
Taxable Loss Carryforward (total 9 firms)	Agro and Food Industry	Agribusiness	1
	Agro and Food Industry	Food and Beverage	1
	Property and Construction	Property Development	1
	Property and Construction	Construction Materials	1
	Resources	Energy and Utilities	4
	Technology	Information and Communication Technology	1
Differences of Exchange Rates From Forward Exchange Contracts	Agro and Food Industry	Agribusiness	1
Allowance for Doubtful Accounts (total 8 firms)	Agro and Food Industry	Food and Beverage	1
	Financials	Banking	1
	Property and Construction	Property Development	1
	Resources	Energy and Utilities	1
	Services	Transportation and Logistics	1
	Technology	Information and Communication Technology	3
Allowance for Impairment Loss of Assets (total 8 firms)	Agro and Food Industry	Agribusiness	1
	Agro and Food Industry	Food and Beverage	1
	Financials	Banking	1
	Financials	Finance and Securities	1
	Property and Construction	Property Development	1
	Resources	Energy and Utilities	1
	Services	Transportation and Logistics	1
	Technology	Information and Communication Technology	1
Building under Consignment Sale	Property and Construction	Property Development	1
Deposits from Customers (total 4 firms)	Property and Construction	Property Development	3
	Technology	Information and Communication Technology	1
Advance Receipts from Customers	Technology	Information and Communication Technology	1
Provision for Loss on Account Receivable from Assignment of Right	Technology	Information and Communication Technology	1
Allowance for Inventory Obsolescence/ Provision in Decline in Value of Inventories (total 6 firms)	Agro and Food Industry	Food and Beverage	1
	Resources	Energy and Utilities	1
	Services	Transportation and Logistics	1
	Technology	Information and Communication Technology	3
Depreciation (total 7 firms)	Financials	Banking	1
	Industrials	Petrochemicals and Chemicals	1
	Resources	Energy and Utilities	3
	Technology	Information and Comm. Tech.	2

Pensions and Employee Benefits	Resources	Energy and Utilities	1
Deferred Gain on Sale and Leaseback Transaction	Resources	Energy and Utilities	1
Interest on Zero Coupon Bonds	Resources	Energy and Utilities	1
Accrued Expense/Estimated Accrued Expense (total 2 firms)	Services	Transportation and Logistics	1
	Technology	Information and Communication Technology	1
Amortisation of Intangible Assets (total 3 firms)	Financials	Finance and Securities	1
	Industrials	Petrochemicals and Chemicals	1
	Technology	Information and Communication Technology	1
Revaluation Loss on Investment	Financials	Finance and Securities	1
Property Development Projects	Property and Construction	Property Development	1
Provision for Long-term Employee Benefits	Property and Construction	Property Development	1
Refund Receivable from the Oil Stabilisation Fund	Resources	Energy and Utilities	1
Financial Lease Assets (total 3 firms)	Financials	Banking	2
	Industrials	Petrochemicals and Chemicals	1
Net Gain on Remeasurement to Fair Value of Interest Swap Contracts	Industrials	Petrochemicals and Chemicals	1
Bonds and Expenses Relating to Bond Insurance	Resources	Energy and Utilities	1
Unrealised Gain/Loss on Investments in Subsidiaries and Associates (total 2 firms)	Agro and Food Industry	Agribusiness	1
	Property and Construction	Construction Materials	1
Contribution to Staff Pension Fund	Services	Transportation and Logistics	1
Frequent Flyer Program	Services	Transportation and Logistics	1
Deferred Loss on Foreign Currency Exchange	Services	Transportation and Logistics	1
Interests Expense	Technology	Information and Communication Technology	1
Unrealised Gain on Transfer of Properties to TICON Property Fund	Property and Construction	Property Development	1
Unearned Revenue from Construction Services	Property and Construction	Property Development	1
Non-Accrual of Interests Income	Financials	Banking	1
Revaluation Deficit (Surplus) on Changes in the Value of Investments	Financials	Banking	1
Unrealised Gain on Derivatives	Financials	Banking	1
Deferred Commissions and Direct Expenses of Incurred at the Initiation of Hire Purchase	Financials	Banking	1
Loss on Disposal of Property Foreclosed	Financials	Banking	1
Deferred Subsidised Income	Financials	Banking	1
Gain on Cross Currency Swap and Interest Rate Swap Contracts	Resources	Energy and Utilities	1
Borrowings	Technology	Information and Communication Technology	1
Negative Goodwill	Technology	Information and Communication Technology	1
Accrued Liabilities	Agro and Food Industry	Food and Beverage	1
Inventory Cost Capitalisation	Agro and Food Industry	Food and Beverage	1

Others (Firms do not indicate the specific accounting items which are the components of DTA. They present "others" as the components of DTA) (total 19 firms)	Agro and Food Industry	Agribusiness	1
	Agro and Food Industry	Food and Beverage	1
	Financials	Banking	1
	Financials	Finance and Securities	1
	Industrials	Petrochemicals and Chemicals	1
	Property and Construction	Property Development	5
	Property and Construction	Construction Materials	1
	Resources	Energy and Utilities	4
	Services	Transportation and Logistics	1
	Technology	Information and Communication Technology	3

Panel B: Components of deferred tax liabilities*

Components of Deferred Tax Liabilities	Industry	Sector	No. of Firms
Expense Recognised Difference for Prepaid Expense under the Agreement for Operation and Exercised Tax	Technology	Information and Communication Technology	1
Amortisation Difference of Accelerated Tax	Technology	Information and Communication Technology	1
Surplus from Asset Revaluation (total 3 firms)	Agro and Food Industry	Agribusiness	1
	Resources	Energy and Utilities	1
	Services	Commerce	1
Revaluation Increments in Land and Equities in Associates of the Subsidiary on Subsidiary Acquisition Date	Agro and Food Industry	Agribusiness	1
Portion of subsidiaries	Agro and Food Industry	Agribusiness	1
Unrealised Gain from Investment (total 4 firms)	Agro and Food Industry	Agribusiness	1
	Resources	Energy and Utilities	1
	Financials	Finance and Securities	2
Effects from Translation of Financial Statements of Foreign Associates	Agro and Food Industry	Agribusiness	1
Share of Profits from Investments in Associates Accounted for using the Equity Method	Agro and Food Industry	Agribusiness	1
Unearned Revenue	Property and Construction	Property Development	1
Gain on Financial Leases	Property and Construction	Property Development	1
Unrealised Gain from Derivative Instruments for Long-term Loans and Bonds	Technology	Information and Communication Technology	1
License on Mobile Money Business (Premium from Subsidiary Acquisition)	Technology	Information and Communication Technology	1
Depreciation (total 5 firms)	Resources	Energy and Utilities	3
	Technology	Information and Communication Technology	2
Amortisation of Decommissioning Costs	Resources	Energy and Utilities	2
Unrealised Gain on Revaluation of Decommissioning Costs	Resources	Energy and Utilities	2

Allowance for Decline in Value of Inventories (total 4 firms)	Resources	Energy and Utilities	3
	Industrials	Petrochemicals and Chemicals	1
Provision for Employee Benefits	Resources	Energy and Utilities	1
Provision for Impairment Loss	Resources	Energy and Utilities	1
Net Loss on Remeasurement to Fair Value of Interest Swap Contracts	Industrials	Petrochemicals and Chemicals	1
Deferred Charges	Technology	Information and Communication Technology	1
Amortisation Assets Under Agreement for Operation	Technology	Information and Communication Technology	1
Amortisation of Intangible Assets	Technology	Information and Communication Technology	1
Gain on Foreign Exchange	Technology	Information and Communication Technology	1
Financial Leases	Financials	Banking	1
Allowance for Doubtful Accounts	Financials	Banking	1
Loss Carryforward	Financials	Banking	1
Allowance for Impairment of Other Assets	Financials	Banking	1
Provision for Hedging on Foreign Exchange and Forward Contracts	Resources	Energy and Utilities	1
Amortisation of Transmission Facility transferred to EGAT	Resources	Energy and Utilities	1
Account Receivable-Billed Customer	Technology	Information and Communication Technology	1
Debt Issuance Cost	Technology	Information and Communication Technology	1
Others (Firms do not indicate the specific accounting items which are the components of DTL. They present "others" as the components of DTL) (total 6 firms)	Agro and Food Industry	Agribusiness	1
	Financials	Finance and Securities	1
	Industrials	Petrochemicals and Chemicals	1
	Property and Construction	Construction Materials	1
	Technology	Information and Communication Technology	2

* Two firms do not show the components of deferred tax assets and liabilities. It shows the balance of deferred tax assets (liabilities) at the beginning of the year, current year temporary differences, utilised during the year and the balance of deferred tax assets (liabilities) at the end of the year.

Appendix B

Regression results of stock prices on earnings, net book values, deferred tax assets and deferred tax liabilities

$$P_{it} = \alpha_0 + \alpha_1 E_{it} + \alpha_2 BVA_{it} + \alpha_3 DTA_{it} + \alpha_4 DTL_{it} + \epsilon_{it} \quad (1)$$

Variables	All Samples (n=394)			Early Adopters of TAS No.12 (n=77)			Non Early Adopters of TAS No.12 (n=317)		
	Coefficient	t-value	Sig.	Coefficient	t-value	Sig.	Coefficient	t-value	Sig.
Constant	0.461	0.358	0.721	-2.785	-0.521	0.604	2.413	2.595	0.010***
E_{it}	6.666	12.404	0.000***	10.527	8.124	0.000***	3.466	7.286	0.000***
BVA_{it}	0.492	4.730	0.000***	0.598	1.700	0.093*	0.814	10.053	0.000***
DTA_{it}	15.748	6.971	0.000***	8.260	2.017	0.047**	9.029	2.422	0.016**
DTL_{it}	2.444	1.051	0.294	-19.097	-3.495	0.001***	3.853	1.221	0.143
F-value = 313.998***				F-value = 84.575***			F-value = 291.155***		
Adjusted R^2 = 0.761				Adjusted R^2 = 0.815			Adjusted R^2 = 0.786		

* sig. at 0.10 level
** sig. at 0.05 level
*** sig. at 0.01 level
P_{it} = stock's price per share of firm i year t;
E_{it} = earnings per share of firm i year t;
BVA_{it} = net book value of total asset deducted from total liability of firm i year t excluding deferred tax asset and deferred tax liability;
DTA_{it} = deferred tax asset per share of firm i year t ;
DTL_{it} = deferred tax liability per share of firm i year t; and
ϵ_{it} = error term.