

# Accounting Practices and Value Relevance of Investment Property: Evidence from Firms Listed on the Stock Exchange of Thailand

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## ABSTRACT

**Manuscript type:** Research paper.

**Research aims:** The objectives of this research are to study the accounting practices of investment property (IP) for the subsequent measurement, to investigate and compare the value relevance of the IP under the fair value model and cost model and to examine the factors affecting the accounting choices of the IP of firms listed on the Stock Exchange of Thailand.

**Design/ Methodology/ Approach:** The regression models used in this research are based on the works of Ohlson (1995) and Feltham and Ohlson (1995) which linked the accounting information of firms with stock prices. The models are applied to test and compare the value relevance of the IP under the fair value model and cost model for the years 2011-2012.

**Research findings:** The findings indicate that the number of Thai listed firms choosing the cost model for the subsequent measurement of the IP is considerably higher than those choosing the fair value model. The results also show that the IP is value relevant information in 2012 and in the two years' analysis combined (2011-2012) but not in 2011. This paper reveals that the cost model of the IP is more significantly value relevant than the fair value model and that the

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accounting choices of the IP are significantly affected by profitability and size.

**Theoretical contribution/ Originality:** This paper suggests that the accounting information of the IP is useful for valuing securities in the Thai stock market. The outcome also supports the bonus plan hypothesis under the Positive Accounting Theory (PAT) where higher earnings firms would predominantly use the cost model for the IP. It is further noted that larger firms in Thailand are more likely to use the fair value model for the IP, thereby supporting the size hypothesis.

**Practitioner/ Policy implication:** The outcome drawn from this paper provides information to the Federation of Accounting Professions (FAP) in Thailand when deliberating on the revision of the accounting standards related to fair value measurements. The FAP may consider taking steps to increase the reliability of fair value so as to encourage firms to select the fair value model for use. The results can also act as a catalyst for the Securities and Exchange Commission (SEC) such that when issuing the regulation on fair value disclosures, transparency and the reliability of financial statements are further increased.

**Research limitation/ Implication:** This paper examines the value relevance of only recognised IPs in the Statements of Financial Position. Future studies therefore, may need to investigate the relative value relevance of fair value disclosures in the notes to financial statements compared with the recognised fair value amounts of investment properties.

**Keywords:** Accounting Practices, Investment Property, Value Relevance  
**JEL Classification:** M41, G14

## 1. Introduction

Thailand began adopting the International Accounting Standards (IAS) and International Financial Reporting Standards (IFRS) after the Asian financial crisis in 1998. This is evidenced by the emergence of some accounting standards in the years 1999-2008. At that time, some of the Thai Accounting Standards (TAS) and Thai Financial Reporting Standards (TFRS) were consistent with the IAS/IFRS while some were still following the U.S. Generally Accepted Accounting Principles (U.S. GAAP). However, since 2009, the TAS and TFRS have almost fully converged with the IAS/IFRS. As this was happening, the domestic

accounting standards of other countries such as the member countries in the Association of Southeast Asian Nations (ASEAN) also began to converge their practices with the IAS/IFRS (Ibarra & Suez-Sales, 2011; Hla & Isa, 2015). In this regard, it can be said that the evidence drawn from Thailand's condition will also serve some implications for other ASEAN countries. The main impact of adopting the IAS/IFRS by firms is that many types of assets and liabilities will be stated at fair values and this reflects the firms' true financial position. Therefore, when used, the application of the IAS/IFRS will enhance the qualitative characteristics of the accounting information in terms of relevance (Barth, Landsman, & Lang, 2008).

The TAS 40 (Revised 2009) Investment Property is important for accountants, auditors and financial statement users in this regard because it will be the first time which the Federation of Accounting Professions (FAP) of Thailand had introduced a fair value accounting model for investment properties. The TAS 40 (Revised 2009) is mandated to be applied in financial statements beginning on or after 1 January 2011. Prior to 2011, investment properties were recognised as property, plant and equipment (PPE) in the Statement of Financial Position. A gain or loss due to a change in the fair value of the IP is considered as a new accounting item in the Income Statement. Further, the TAS 40 also allows firms to choose either the fair value model or the cost model for valuing their IPs, after the initial recognition is made. These accounting choices will make the comparability of the financial statements more difficult for financial statement users because the earnings of fair value model firms will include the gain or loss due to a change in the fair value of the IP while the cost model does not. Therefore, the earnings of these firms would be more volatile than those of the cost model firms. In addition, there are major differences noted among Thai listed firms in how they value their IPs which form a significant portion of the firms' total assets.

As there is no previous study that investigated the accounting practices and value relevance of the IPs available in Thailand, the current research is thus conducted to study the accounting practices for the subsequent measurement of firms' IPs. It also aims to test and compare the value relevance of the IP under the fair value model and the cost model respectively. Finally, this study also aims to examine the determinants of the accounting choices made by firms listed on the

Stock Exchange of Thailand in selecting the fair value model and the cost model of their IPs.

Prior studies (Lourenco & Curto, 2008; Pappu & Devi, 2011) in other countries found conflicting evidence about the effect of using fair value model in valuing assets. Pappu and Devi (2011), for instance, observed that the cost model of the IP is more relevant than the fair value model. However, Lourenco and Curto (2008) revealed that investors tend to distinguish the recognised cost, the recognised fair value and the disclosed fair value of the IP in listed firms in France, Germany, Sweden and the U.K. Based on this, Herrmann, Saudagaran, and Thomas (2006) concluded that the fair values of the property, plant and equipment (PPE) are more relevant for decision makers.

The adoption of the TAS 40 (Revised 2009) by Thailand provides researchers with the opportunity to examine whether valuing firms' IPs through the fair value model or the cost model, can affect the value relevance of the IPs concerned. Therefore, the findings of this research will be able to provide evidence that can demonstrate whether the adoption of the IFRS (which predominantly uses the fair value model) would give more value relevant information when compared with the cost model. If the results of this research proved that the fair value model of the IP increases the value relevance of the IP when compared to that of the cost model, then it can be deduced that managers should select the fair value model for measurement. This is because adopting this accounting standard can enhance the ability of users to predict future stock prices. The current research is important because it is expected to provide the policy direction to the FAP as well as the regulatory bodies of Thailand with regard to fair value measurement and disclosure. This research also has managerial implications on decision makers who select the fair value model or the cost model for the subsequent measurements of the IPs.

The organisation of this paper will be as follows. Section 2 reviews prior literature. Section 3 explains the research methodology. Section 4 discusses the empirical results and Section 5 concludes the paper by providing some discussion and implications.

## **2. Literature Review**

This section explains the accounting practices of investment property in Thailand, theories related to the current research, previous research and the development of the research hypotheses.

## 2.1 *Accounting Practices of Investment Property in Thailand*<sup>1</sup>

Prior to 2011, none of the TAS and TFRS requirements had indicated any specific accounting practices for investment property (IP). At that time, investment properties were included under property, plant and equipment (PPE). Therefore, the accounting practices of the IP then were the same as those practiced for the PPE. Following the TAS 16 Property, Plant and Equipment, the main measurement principle of the IPs was the cost model. Nonetheless, a firm can revalue its IP after an initial recognition. For example, if the IP's carrying amount was increased as a result of the revaluation, the increase should be recognised in another comprehensive income and accumulated in equity, under the heading of revaluation surplus. However, the FAP in Thailand had issued the TAS 40 (Revised 2009) Investment Property which requires all firms to apply, beginning on or after 1 January, 2011. This standard is consistent with the IAS 40 (Bound Volume 2009) without any significant differences. The main content of the TAS 40 (Revised 2009) requirement is summarised as follows.

Investment property is property (land or a building – or part of a building – or both) held by the owner or the lessee under a financial lease to earn rentals or for capital appreciation or both, rather than for (a) use in the production or supply of goods or services or administrative purposes; or (b) sales in the ordinary course of business.

After the initial recognition, a firm shall select, as its accounting policy, either the fair value model or the cost model. A firm shall apply that policy to all of its IPs. The TAS 40 (Revised 2009) requirement permits firms to choose either the fair value model or the cost model for application. In the fair value model, the IP is measured after the initial recognition, at a fair value. A gain or loss arising from a change in the fair value of the IP shall be recognised as a profit or loss for the period in which it arises. In the cost model application, the firm should measure all of its IPs in accordance with the TAS 16 Property, Plant and Equipment except for those that meet the criteria to be classified as held for sale, which is in accordance with the TFRS 5 – Non-current Assets Held for Sale and Discontinued Operations. The cost model, as specified in the TAS 16, requires an IP to be measured after the initial recognition,

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<sup>1</sup> TFRS 13 Fair Value Measurement should be applied for annual periods beginning on or after 1 January 2015. Therefore, TFRS 13 does not affect the valuation of IP in this study since the period of this research is 2011-2012.

at a depreciated cost (less any accumulated impairment losses). A firm that chooses the cost model for the recognition of the IP in the Statement of Financial Position should disclose the fair value of its IPs in its note to financial statement.

## **2.2 Theories Related to the Research**

### *2.2.1 Efficient Market Hypothesis (EMH)*

The Efficient Market Hypothesis (EMH) assumes that all available information is fully reflected in the stock prices at any point of time (Malkiel & Fama, 1970; Fama, 1991). The EMH uses the information set to test the level of efficient markets (Watts & Zimmerman, 1986). Under the EMH, the accounting numbers in the financial statements can be used to determine whether they can convey useful information to the investors in the stock market (value relevance test) or not. If the accounting information is useful for valuing the market values of the equities, then the accounting information is significantly related to the stock prices. Based on this, it can be inferred that the accounting information is value relevant (e.g., Francis & Schipper, 1999; Landsman, 2007).

Guidi and Gupta (2011) examined the EMH for selected ASEAN stock markets from January 2000 until April 2011. From their findings, they concluded that the stock market in Thailand is weak form efficient. In another study, Munir, Ching, Furouka, and Mansur (2012) tested the EMH of selected Asian countries from 1990 until 2009. Their findings are consistent with Guidi and Gupta (2011) thereby, supporting that the stock prices in Thailand which are in the non-stationary process is compatible with the weak form of the EMH. In another study, Yu, Nartea, Gan, and Yao (2013) investigated the predictive ability and profitability of two trading rules: the moving average (MA) and the trading range breakout (TRB) for five selected members of the ASEAN countries. Their results suggested that the average return generated by each trading signal decreased dramatically over the study period for Malaysia and Thailand. This implies that these markets have informational efficiency over the years.

The previous studies mentioned above indicated that the stock market in Thailand is weak form efficient but this is contradicted by Chancharas, Sektrakul, and Chancharas (2009) who examined the Thai stock market. Their results suggested that the Standardized Unexpected Earnings (SUE), the Price-Earnings (the P/E Anomaly) and the Book

to Market (B/M Anomaly) cannot be used to predict future security returns. Thus, they concluded that the Thai stock market is semi-strong form efficient.

### 2.2.2 Positive Accounting Theory (PAT)

The Positive Accounting Theory (PAT) is used to investigate the determinants affecting the accounting choices. Watts and Zimmerman (1986) described three main hypotheses about the manager's accounting choices: the bonus plan hypothesis, the debt/equity hypothesis and the size (political cost) hypothesis.

The bonus plan hypothesis: *Ceteris paribus*, managers of firms with bonus plans are more likely to choose accounting procedures that shift the reported earnings from future periods to the current period. Under the bonus plan hypothesis, the managers' compensation depends on the firms' earnings. The bonus gives the managers' incentives for selecting the accounting policies which increase or decrease the earnings. The incentives also depend on whether the earnings are below the target, between the target and upper bound, or above upper bound. If the current earnings are above upper bound, the managers have the incentive to use the accounting procedures to reduce and defer the current earnings. If the current earnings are between the target and upper bound, the managers have the incentives to select the accounting methods which enable the current earnings to increase to upper bound. Managers of firms where the bonus plans are linked to the firms' earnings are more likely to choose the income increasing strategy (see, Aitken & Loftus, 1994). However, if the current earnings are far below the target and the loss of bonus is highly possible, the managers have the incentives to use the accounting choices for decreasing the current earnings so that future earnings are expected to increase. This is called the "Big Bath" behaviour.

The debt/equity hypothesis: *Ceteris paribus*, the larger the firms' debt/equity ratio, the higher the possibility for the firms' managers to select the accounting procedures that can shift the reported earnings from future periods to the current period. The debt/equity hypothesis predicts that the firms are more likely to select the accounting choices that increase current earnings for higher debt to equity's firms (tighter the debt covenant constraint firms). This means that managers are likely to select an income increasing strategy to relax the debt constraints and to reduce the cost of the technical defaults. Highly leveraged firms are

more likely to increase earnings to avoid the breach of debt covenant which concurs with the debt/equity hypothesis (see, Daley & Vigeland, 1983; Dhaliwal, Heninger & Hughes II, 1999).

The size (political cost) hypothesis: *Ceteris paribus*, the larger the firms, the more likely the managers will choose the accounting procedures that defer the reported earnings from the current period to future periods. The size (political cost) hypothesis predicts that larger firms are more likely to choose the accounting choices that reduce current earnings. Size is a measure for political attention. It is costly for firms to become informed about whether accounting earnings really represent the monopoly profits and to contract with others in the political process to enact laws and regulations that can improve their wealth. Moreover, size as a measure of the political cost, is negatively related to the income increasing strategy (see, Skinner, 1993; Dhaliwal et al., 1999). This means that smaller firms tend to use the income increasing strategy while larger firms tend to use the income decreasing technique.

### **2.3 Prior Research and Development of Research Hypotheses**

#### **2.3.1 Accounting Choices and Factors Affecting the Accounting Choices of Investment Property**

Prior research (Christensen & Nikolaev, 2009; Quagli & Avallone, 2010; Taplin, Yuan, & Brown, 2014) have examined whether firms prefer fair value model over the historical cost model. As an example, Christensen and Nikolaev (2009) noted that firms in the U.K. and Germany use the historical cost model and the fair value accounting models equally. This observation also concurs with the findings of Taplin et al. (2014) that half of their random samples in the Chinese domestic stock exchange use the fair value model for the subsequent measurement of the IP while the other half use the historical cost model for their IP valuations. In contrast, Quagli and Avallone (2010) revealed that firms in Finland, Greece and Sweden tend to adopt the fair value model whereas Italian and Spanish firms prefer the historical cost model for their IPs. A further observation indicates that firms in France use both the fair value and historical cost models on an equal basis. Some previous studies (Cairns, Massoudi, Taplin, & Tarca, 2011; Christensen & Nikolaev, 2013; Isa, 2014) found that very few firms use the fair value model for their IPs. For instance, firms in the U.K. and Australia do not generally subscribe to

the fair value model for their IPs because of the countries' conservative approach and their lack of incentives to use the fair value measurement (Cairns et al., 2011). It appears that only 23 per cent of firms in Germany select the fair value model for their IP valuations (Christensen & Nikolaev, 2013) while only 23.3 per cent of firms in Nigeria endorse the fair value model for their IPs (Isa, 2014). This can be attributed to the lack of reliability for the fair value model. Laux and Luez (2009) indicated that the fair value accounting practices tend to carry implication problems and other litigation risks. Likewise, Nellesen and Zuelch (2011) also observed that the net asset value tend to depart from the market capitalisations of the European properties' firms. They indicated that the deviation is a result of the fair value model's inadequate reliability which is caused by the limitation of appraisals and the diversity of applied approaches. Comparatively, some previous studies noted some contradicting results. For instance, Dietrich, Harris, and Muller III (2001) investigated the reliability of the mandatory annual fair value estimates for the U.K. investment property. They found that the appraisal estimates have understated the actual selling prices which are considerably less bias and carry more accurate measures of the selling prices than the historical cost model.

Previous studies (Aitken & Loftus, 1994; Demaria & Dufour, 2007) have also examined the determinants of the accounting choices between the fair value model and the cost model of the IPs. Aitken and Loftus (1994) noted that the compensation or bonus plan is a determinant of the accounting choices of the IP. However, Demaria and Dufour (2007) found that there is no relationship between the compensation plan and the fair value option of the IP.

Besides the above, another important determinant of the accounting practices of the IPs has been attributed to leverage. Various findings looking at the effects of leverage on the accounting choices of the PPE and the IP can be traced to Missonier-Piera (2004) who studied the determinants of the accounting choices of ten types of accounting policies. One of the types of accounting policies is the valuation of the PPE (IP is included as a portion of the PPE in the period of this study). Missonier-Piera (2004) defined the historical base of the PPE as an income increasing technique and upward revaluation of the PPE as an income delaying technique, and found that the income accelerating accounting policies are positively related to the recourse to bank and private loans (external financing). This outcome supports the debt/equity hypothesis. Other contradictory findings can be traced to Astami

and Tower (2006) and Israeli (2015). According to Astami and Tower (2006), lower financial leverage firms tended to pursue the income increasing strategy of the PPE. Likewise, the results drawn from Israeli's (2015) study showed that firms with higher leverage have a greater probability of adopting the fair values of the IP. Other studies (e.g., Aitken & Loftus, 1994; Demaria & Dufour, 2007; Quagli & Avallone, 2010; Waweru, Ntui, & Mangena, 2011; Taplin et al. 2014; Isa, 2014) found that the level of the debt does not affect the accounting choices of the IPs.

Besides leverage, size is also a likely factor to influence the accounting choices of the IPs. Previous studies (Demaria & Dufour, 2007; Quagli & Avallone, 2010; Waweru et al., 2011; Taplin et al. 2014; Isa, 2014) showed different results regarding the size factor. In her study, Isa (2014) defined the fair value model of the IP as an income decreasing strategy and the cost model of the IP as an income increasing strategy. Isa (2014) found that larger firms tend to use the fair value model for their IPs as an income decreasing strategy, thereby, supporting the size (political cost) hypothesis of the Positive Accounting Theory. Quagli and Avallone (2010), Waweru et al. (2011) and Taplin et al. (2014) however, noted that larger firms are more likely to adopt the income increasing strategy by using the cost model of the IPs. Other studies (Aitken & Loftus, 1994; Astami & Tower, 2006; Demaria & Dufour, 2007) revealed an insignificant relationship between firm size and the accounting policy choices of the IPs.

The contradicting results of the determinants affecting the accounting choices of IPs can be explained by the different samples used for

Table 1: Relationship between Positive Accounting Theory (PAT) and Accounting Choices of Investment Property

Positive Accounting Theory	Accounting Choices of Investment Property*	Strategy
Bonus plan hypothesis	Cost model	Income increasing strategy
Debt/equity hypothesis	Cost model	Income increasing strategy
Size (Political cost) hypothesis	Fair value model	Income decreasing strategy

Note: \* Waweru et al. (2011) and Isa (2014) defined the cost model of IP as income increasing strategy and the fair value model of IP as income decreasing strategy. In addition, Missonier-Piera (2004) and Astami and Tower (2006) also indicated the use of historical cost valuation of the PPE as income increasing strategy and revaluation based method of the PPE as income decreasing strategy (the IPs are included in the PPE in the periods of their studies).

examination, the variations in the research methodologies employed as well as the different accounting choices being examined. Based on the Positive Accounting Theory (PAT) (see details in section 2.2.2) and the related literature review, the relationship between the PAT and the accounting choices of the IPs is further summarised in Table 1.

### *2.3.2 Value Relevance of Investment Property*

The value relevance of the IP has been investigated in many countries such as New Zealand (Owusu-Ansah & Yeoh, 2006), Hong Kong (So & Smith, 2009), Portugal (Selas, 2009), Malaysia (Pappu & Devi, 2011; Ishak, Saringat, Ibrahim, & Wahab, 2012; Zi, Hassan, & Embong, 2014) and other European countries (Lourenco & Curto, 2008; Israeli, 2015; Muller, Riedl, & Sellhorn, 2015). The results of these studies, however, are not consistent. It appears that the unrealised gains on the investment properties in New Zealand (NZ) are not significantly different from the recognition of the unrealised gains in the revaluation reserves in terms of their value relevance (Owusu-Ansah & Yeoh, 2006). Nonetheless, So and Smith (2009) found otherwise. Examining the value relevance of the revisions made in Hong Kong Accounting Standard (HKKS) 40 (Revised 2004) Investment Property, the researchers found a significantly higher market price reaction and returns when changes in the fair values of the IPs are presented in the Income Statements. Consistent with the findings of So and Smith (2009), the outcome noted by Selas (2009) also implied that the fair value of the IP for Portuguese listed firms have value relevance, even in firms where the investment properties are not considered as the core business.

Pappu and Devi (2011) investigated the value relevance of the IP under the IAS 40 in the context of Malaysia. They found that the IP is significantly related to the market value of equity. Zi et al. (2014) studied the value relevance of the IP in the Malaysian Real Estate Investment Trusts. They revealed that the fair values of the IP in the Balance Sheet are significantly related to the share prices while the changes in the fair values presented in the income statements are not significantly related to the share prices. In contrast, Ishak et al. (2012) provided evidence which showed that there is an insignificant association between the fair values of the IP and the share prices.

In the European context, Lourenco and Curto (2008) examined the value relevance of the IPs of listed real estate firms in France, Germany,

Sweden and the U.K. They found that the IPs recognised at cost or fair values are value relevant. Similarly, Israeli's (2015) investigation on the value relevance of the IPs which either recognised fair values or disclosed fair values of firms in the European Union showed that the IPs are value relevant. Consistent with the findings in Lourenco and Curto (2008) and Israeli (2015), Muller et al.'s (2015) study also indicated that the fair values of the IPs stated in the Statement of Financial Position or the disclosed fair values in the notes to financial statements are related to the market value of equity.

### *2.3.3 Comparative Value Relevance of Investment Property Between the Fair Value Model and the Cost Model*

The IAS 40 requirement allows firms to either recognise fair values or the cost of the IP in the Statement of Financial Position and to disclose the fair value amounts of the IP in the notes to financial statements. Due to this, previous studies investigated the comparative value relevance of the IP between the fair value model and the cost model. Pappu and Devi (2011) tested the relative value relevance of the IP in Malaysia and found that the cost model is more value relevant than the fair value model. They noted that the fair value disclosure is more value relevant than the fair value numbers recognised in their accounts. Similarly, Ishak et al. (2012) examined the value relevance of the fair value model as a treatment and they summarised that the fair value model of the IP is perceived by the capital market as having no value relevance in the developing countries; it is also no different from the cost model outcome.

Lourenco and Curto (2008) investigated whether the recognised cost, the recognised fair value and the disclosed fair value of the IP are priced differently by investors. They deduced that investors in European countries distinguish the recognised cost, the recognised fair value and the disclosed fair values of the IP. Selas (2009) also indicated that investors value the shares' prices differently when firms choose either the cost model or the fair value model of the IP. However, Israeli (2015) noted that investors pay less attention to the disclosed fair values of IPs in the notes to financial statements as compared to the recognised fair values of the IPs in the financial statements while determining the firms' market values in the European Union. In the same manner, Muller et al. (2015) who studied the differences in value relevance across recognised and disclosed fair values of the IPs, revealed that the disclosed fair values of IP firms have lower associations with the market values of

equity when compared with the recognised fair values of IP firms. In other words, investors place a smaller valuation weight on the disclosed IP amounts in the notes to financial statements relative to the recognition of the IP amounts stated in the financial statements. The smaller valuation of the disclosed fair values of the IP is removed by the lower information processing cost and the higher reliability of the fair values.

#### *2.3.4 Development of Research Hypotheses*

No previous research has examined the value relevance of the IP in Thailand. Based on the findings of previous studies (see details in section 2.3.2 above), the IP is expected to be value relevant information after the TAS 40 (Revised 2009) was adopted. Based on this, the first hypothesis set in terms of the alternative hypothesis is stated as follows:

H<sub>1</sub>: Investment property is significantly related to stock price.

From what has been discussed above, it seems clear that there are supporting and contradictory evidence about the comparative value relevance of fair value model and the cost model of the IP (see details in section 2.3.3 above). Due to this discrepancy, this paper is unable to predict whether the fair value model is more value relevant than the cost model of the IP or vice versa. Therefore, the second hypothesis set in terms of the alternative hypothesis is stated as follows:

H<sub>2</sub>: There is a difference in the value relevance between the fair value model and the cost model of investment property.

### **3. Research methodology**

#### *3.1 Sample Selection and Data Collection*

The sample data retrieved for the purpose of this paper are made up of firms listed on the Stock Exchange of Thailand (SET); they are from all industries and sectors except the financial industry (e.g., banking, finance and securities and insurance sectors). This is because the accounting regulations of such industry are significantly different. This study selected the 31 December year-ending firms as samples for controlling the effect of the stock prices from external environments in different time periods. Previous studies (Mitra & Hossain, 2009; Omokhudu & Ibadin, 2015) looking at value relevance have also employed the 31 December year-ending firms as samples. As there are

only 5 per cent of non-December year-ending firms, their exclusion from the sample data will not affect the findings of the current research.

This research uses the stock price as of 31 March of the following year-ending because Thai listed firms need to send their yearly financial statements to the Securities and Exchange Commission (SEC) within three months after the fiscal year ended. Thus, the available accounting information disclosed will be reflected in the stock prices as of 31 March. The sample firms were not listed on the Rehabilitation Sector or the Non-performing Groups (NPG). The firms listed on the Stock Exchange of Thailand (SET) as of 30 May 2013 composed of seven industries and 23 sectors. The total number of firms listed was 401 excluding firms with negative book values of equities. The period of study is the year 2011 and 2012. This research uses accounting data from the year 2011 ending 2012 and the reasons are as follows: (1) TAS 40 (Revised 2009) requires the IP to be separated from the PPE as a new accounting item in the Statement of Financial Position since the year 2011; and (2) the FAP had revised 18 Thai Accounting Standards and Thai Financial Reporting Standards and 15 Thai Standing Interpretations and Thai Financial Reporting Interpretations in 2012 and their draft forms were issued in 2013.

As a result of these changes noted in the accounting standards, the value relevance of the accounting information may be affected (Barth et al., 2008). This is also attributed to the fact that all the accounting information between 2011 and 2012 was prepared under the same revised version of the accounting standards (TAS/TFRS: Revised 2009) including the TAS 40 (Revised 2009). Even though the FAP has revised the TAS 40 Investment Property in 2014 which becomes effective on or after 1 January 2015, the TAS 40 (Revised 2014) requirement has changed the definition and measurement of the fair values of investment properties according to the introduction of the TFRS 13 Fair Value Measurement. Nonetheless, the fair values of investment properties are determined by the external and independent appraisers for both the TAS 40 (Revised 2009) and the TAS 40 (Revised 2014). In this regard, the findings of this paper are still relevant as the differences between the TAS 40 (Revised 2009) and the TAS 40 (Revised 2014) are minor.

The main data were extracted from the yearly financial statements and notes to financial statements of the sample firms. These were accessed from the website of the Securities and Exchange Commission (SEC) ([www.sec.or.th](http://www.sec.or.th)) and directly accessed from the listed firms' websites. The stock price data were collected from SETSMART (SET Analysis and Reporting Tools) which is the online database of the Stock

Exchange of Thailand. The samples collected amounted to 345 firms. A detailed information of these sample firms is summarised in Table 2.

Table 2: Sample Characteristics

Sample Characteristics	Number of Firms
Number of listed companies on SET	401
<u>Less</u> Non-December year-ending firms*	21
Negative book value of equities	7
Missing data**	22
Outlier data***	6
<b>Total</b>	<b>345</b>

Notes: \* See explanation in section 3.1 Sample selection and data collection.

\*\* Missing data may occur because some firms enter the rehabilitation plan (or classified as the non-performing groups: NPG). Therefore, stock price data of these firms are unavailable. In addition, some firms are delisted from the stock exchange during the years of study. Further, some firms are newly listed firms in year 2012, thus there are no financial statements covering throughout the years of study.

\*\*\* Outlier data are excluded from the sample because their values are extreme approximately +/-1%.

Since the period of the study was 2011-2012, the amount of data used for analysis amounted to 690 firm-year observations. The main criterion used for sample selection of IP firms was that the firms should present the IPs in the Statements of Financial Position. The number of investment property firms (IP firms) and non-investment property firms (Non-IP firms) are further summarised in Table 3.

Table 3: The Number of Investment Property Firms and Non-Investment Property Firms

Type of Firms	Year 2011		Year 2012		Two years (2011-2012)	
	Number of Firms	Percentage (%)	Number of Firms	Percentage (%)	Number of Firms	Percentage (%)
IP Firms	171	49.57	174	50.43	345	50.00
Non-IP Firms	174	50.43	171	49.57	345	50.00
<b>Total</b>	<b>345</b>	<b>100.00</b>	<b>345</b>	<b>100.00</b>	<b>690</b>	<b>100.00</b>

Note: \* The classification of investment property firms (IP firms) and non-investment property firms (Non-IP firms) is based on the presentation of investment property in Statement of Financial Position.

Table 3 highlights the number of IP firms in 2011 and 2012 to be 171 firms (49.57 per cent of total samples) and 174 firms (50.43 per cent of total samples), respectively. The final sample extracted for the purpose of this research thus focused on the IP firms only (firms which presented their IPs in the Statements of Financial Position). Overall, these samples comprise a total of 345 firm-years (171 firm-years in 2011 and 174 firm-years in 2012). Further to that, the classification also shows that most of the IP firms are in the Property and Construction industry while the least number of IP firms are from the Technology industry.

### 3.2 Research Model and Research Methodology

#### 3.2.1 Testing the Value Relevance of Investment Property

As mentioned before, the current research aims to investigate the value relevance of the IP of public listed firms in Thailand by developing the research models that are based on the works of Ohlson (1995) and Feltham and Ohlson (1995). Model (1) and model (2) were used to test the first hypothesis and they are set as follows:

$$P_{it} = \alpha_0 + \alpha_1 \text{EPS}_{it} + \alpha_2 \text{BVEIP}_{it} + \alpha_3 \text{IP}_{it} + \varepsilon_{it} \quad (1)$$

$$P_{it} = \alpha_0 + \alpha_1 \text{EPS}_{it} + \alpha_2 \text{BVEIP}_{it} + \alpha_3 \text{IP}_{it} + \alpha_4 \text{SIZE}_{it} + \alpha_5 \text{LEV}_{it} + \alpha_6 \text{GROWTH}_{it} + \varepsilon_{it} \quad (2)$$

$P_{it}$  = stock price of firm  $i$  year  $t$  as of the three months after the fiscal year-ended;

$\text{EPS}_{it}$  = earnings per share of firm  $i$  year  $t$ ;

$\text{BVEIP}_{it}$  = book value of equity per share (exclude the investment property) of firm  $i$  year  $t$ ;

$\text{IP}_{it}$  = investment property per share of firm  $i$  year  $t$ ;

$\text{SIZE}_{it}$  = size of firm  $i$  year  $t$  (measured by log of total assets);

$\text{LEV}_{it}$  = leverage of firm  $i$  year  $t$  (measured by total debt to total asset ratio);

$\text{GROWTH}_{it}$  = growth of firm  $i$  year  $t$  (measured by market to book value of equity ratio); and

$\varepsilon_{it}$  = error term.

Model (2) is adjusted from Model (1) by adding three control variables: size, leverage and growth. This is because the value relevance of the accounting information may be affected by the fundamental economic factors and firm specific factors. Most prior studies (Collins,

Maydew, & Weiss, 1997; Charitou, Clubb, & Andreou, 2001; Habib & Azim, 2008; Shamki, 2013) tended to use firm size as the control variable. However, firm leverage may be used as the control variable in cases where its risk level is associated with its moderating role. This is in accordance with the factors that may influence the value relevance of the accounting information of firms (Kothari, 2000; Habib & Azim, 2008). With regard to firm growth, the valuation implications of the accounting earnings and book values are expected to be high for high growth firms (Charitou et al., 2001).

### 3.2.2 *Testing the Differences in Value Relevance and Comparative Value Relevance of Investment Property between the Fair Value Model and the Cost Model*

The samples being analysed in this study comprise a total of 345 firm-years. These were divided into: Group 1 – fair value model firms (firms selecting the fair value model for the subsequent measurement of the IP) and Group 2 – cost model firms (firms selecting the cost model for the subsequent measurement of the IP). The regression model (1) was used to analyse all the IP firms, the fair value model firms and the cost model firms. The differences of the value relevance of the accounting information noted between the fair value model and the cost model were then compared using the F-test (see, Zar, 1984). F-value was calculated as follows:

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

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 square of regression model (1) of the fair value model firms and the cost model firms;

$k$  = number of regression models; and

$DF_p$  = number of pooled residuals degree of freedom.

If the F-test was rejected, it could be inferred that the independent variables in model (1) have affected the stock prices between the fair value model and the cost model differently. Following this, model (3) was employed to test the comparative value relevance of the IP between

the fair value model and the cost model. This was achieved by adding the dummy variable which partitioned the firms into the fair value model group and the cost model group. Model (4) was then applied for the same test with the control variables. Model (3) and model (4) were subsequently used to test the second hypothesis. Models (3) and (4) are presented below:

$$P_{it} = \beta_0 + \beta_1 D + \beta_2 EPS_{it} + \beta_3 BVEIP_{it} + \beta_4 IP_{it} + \beta_5 D * IP_{it} + \varepsilon_{it} \quad (3)$$

$$P_{it} = \beta_0 + \beta_1 D + \beta_2 EPS_{it} + \beta_3 BVEIP_{it} + \beta_4 IP_{it} + \beta_5 D * IP_{it} + \beta_6 SIZE_{it} + \beta_7 LEV_{it} + \beta_8 GROWTH_{it} + \varepsilon_{it} \quad (4)$$

D = dummy variable indicating the choices of the valuation of investment property between the fair value model and the cost model, if the firm chose the fair value model D = 1, otherwise if the firm chose the cost model D = 0;

Other variable definitions are same as models (1) and (2).

### 3.2.3 *Testing the Factors which Affect the Accounting Choices for the Subsequent Measurement of Investment Property*

The current research tests the factors which may determine the accounting choices of firms using the fair value model and the cost model for the subsequent measurement of their IPs. Based on the Positive Accounting Theory (PAT) and previous studies (see details in sections 2.2.2 and 2.3.1), a test was conducted to determine whether the earnings per share (EPS), debt to equity (DE ratio) and size (political cost) have any impact on the accounting choices of firms. The current research defines the fair value model as income decreasing strategy and the cost model as income increasing strategy, based on the definitions of Missonier-Piera (2004), Astami and Tower (2006), Waweru et al. (2011) and Isa (2014). The binary logit regression model was then used for testing the factors (EPS, DE ratio and Size). This binary logit regression model is then presented as follows:

$$Y_{it} = \beta_0 + \beta_1 EPS_{it} + \beta_2 DE_{it} + \beta_3 SIZE_{it} + \varepsilon_{it} \quad (5)$$

$Y_{it}$  = accounting choices for subsequent measurement of IP of firm  $i$  year  $t$  (=1 if the firm selects the fair value model; and = 0 if the firm selects the cost model);

$EPS_{it}$  = earnings per share of firm  $i$  year  $t$ ;

$DE_{it}$  = total debt to total equity of firm  $i$  year  $t$ ;

$SIZE_{it}$  = size of firm  $i$  year  $t$  (measured by log of total assets); and  
 $\varepsilon_{it}$  = error term.

#### 4. Empirical Results

The aim of the current research is to investigate the accounting practices and the value relevance of the IP of public listed firms in Thailand. In addition, the value relevance of the IPs between the fair value model firms and the cost model firms will also be compared. This is followed by the examination of the determining factors that may affect the accounting choices of firms using the fair value model and the cost model of the IP. The results are presented according to the research objectives noted above.

##### 4.1 *Descriptive Statistics and Correlation Analysis for Investment Property Firms*

Table 4 presents the descriptive statistics for all the variables noted in the IP firms (Panel A) and the descriptive statistics of the proportion of the IP to the total assets classified by the industry (Panel B). Table 5 shows the results of the correlation analysis between all the variables in the research model.

Panel A in Table 4 shows the descriptive statistics of all the variables. The mean of the stock price at the end of March 2013 is more than that at the end of March 2012. The minimum value of the earnings per share (EPS) and the book value of equity per share excluding the IP (BVEIP) is negative, both in 2011 and 2012. The mean of the EPS and the BVEIP for year 2012 is more than that of year 2011 whilst the mean of the investment property per share for year 2012 is slightly lower than that of year 2011. The mean of proportion of the IP to the total assets is 7.28 per cent in 2011, 7.33 per cent in 2012 and 7.31 per cent for the two years' analysis combined. Panel B in Table 4 indicates that a high proportion of IP to the total asset mean is found in the Property and Construction industry, Services industry and Consumer Products industry, respectively. The maximum proportion of the IP to total asset is 71.88 per cent in 2011 and 69.34 per cent in 2012. This outcome is noted in the Property and Construction industry whose core business deals with the trading of IPs. Nonetheless, the minimum proportion of IP to total assets is only 0.02 per cent in 2011 and 2012 and this is noted in the Property and Construction industry, Consumer Products industry and Services industry.

Table 4: Descriptive Statistics for Investment Property Firms

Panel A: Descriptive Statistics of All Variables

Variables	Year 2011 (171 firm-years)			Year 2012 (174 firm-years)			Two Years (2011-12) (345 firm-years)					
	Mean	Std	Min	Max	Mean	Std	Min	Max	Mean	Std	Min	Max
$P_{it}$	25.4758	58.1828	0.02	608.00	36.4426	59.7659	0.22	377.00	31.0069	59.1562	0.02	608.00
$EPS_{it}$	2.0464	6.6511	-5.6700	73.8200	2.1581	5.1130	-13.4700	36.6400	2.1028	5.9171	-13.4700	73.8200
$BVEIP_{it}$	16.9216	35.9315	-9.3145	325.8393	18.2448	37.7183	-9.3821	325.6573	17.5889	36.7959	-9.3821	325.8393
$IP_{it}$	2.7882	12.0281	0.0014	145.1531	2.6461	11.6428	0.0014	145.8213	2.7166	11.8183	0.0014	145.8213
$IPTA_{it}$	0.0728	0.1229	0.0002	0.7188	0.0733	0.1257	0.0002	0.6934	0.0731	0.1241	0.0002	0.7188
$SIZE_{it}$	9.7349	0.6344	8.2699	12.1469	9.7706	0.6534	8.1682	12.2125	9.7529	0.6434	8.1682	12.2125
$LEV_{it}$	0.4668	0.2270	0.0100	0.9860	0.4526	0.2160	0.0118	0.9387	0.4596	0.2213	0.0100	0.9860
$GROWTH_{it}$	1.7336	2.3140	0.1782	23.2715	2.2700	2.6919	0.3227	25.3169	2.0041	2.5224	0.1782	25.3169

Panel B: Descriptive Statistics of Proportion of Investment Property to Total Assets Classified by Industry

Industry	Year 2011 (171 firm-years)			Year 2012 (174 firm-years)			Two Years (2011-12) (345 firm-years)					
	Mean	Std	Min	Max	Mean	Std	Min	Max	Mean	Std	Min	Max
Agro & Food	0.0276	0.0600	0.0016	0.2822	0.0253	0.0562	0.0014	0.2651	0.0264	0.0575	0.0014	0.2822
Consumer Products	0.0634	0.0716	0.0002	0.3133	0.0638	0.0697	0.0002	0.3189	0.0636	0.0697	0.0002	0.3189
Industrials	0.0383	0.0585	0.0003	0.2033	0.0371	0.0559	0.0003	0.1832	0.0377	0.0568	0.0003	0.2033
Property & Construction	0.1258	0.1786	0.0003	0.7188	0.1202	0.1799	0.0002	0.6934	0.1229	0.1784	0.0002	0.7188

Table 4: (continued)

Industry	Year 2011 (171 firm-years)			Year 2012 (174 firm-years)			Two Years (2011-12) (345 firm-years)					
	Mean	Std	Min	Max	Mean	Std	Min	Max	Mean	Std	Min	Max
Resources	0.0235	0.0654	0.0005	0.2403	0.0194	0.0543	0.0005	0.2074	0.0214	0.0588	0.0005	0.2403
Services	0.0838	0.1161	0.0002	0.5354	0.0931	0.1268	0.0002	0.4894	0.0885	0.1208	0.0002	0.5354
Technology	0.0483	0.0641	0.0004	0.1419	0.0439	0.0393	0.0003	0.1024	0.0459	0.0481	0.0003	0.1419
Total	0.0728	0.1229	0.0002	0.7188	0.0733	0.1257	0.0002	0.6934	0.0731	0.1241	0.0002	0.7188

Notes: Definition of variables is as follows.

- $P_{it}$  = stock price of firm  $i$  year  $t$  as of three months after the fiscal year ended;  
 $EPS_{it}$  = earnings per share of firm  $i$  year  $t$ ;  
 $BVEIP_{it}$  = book value of equity per share (exclude investment property) of firm  $i$  year  $t$ ;  
 $IP_{it}$  = investment property per share of firm  $i$  year  $t$ ;  
 $IPTA_{it}$  = investment property divided by total asset of firm  $i$  year  $t$ ;  
 $SIZE_{it}$  = size of firm  $i$  year  $t$  (measured by log of total assets);  
 $LEV_{it}$  = leverage of firm  $i$  year  $t$  (measured by total debt to total asset ratio);  
 $GROWTH_{it}$  = Growth of firm  $i$  year  $t$  (measured by market to book value of equity ratio).

All variables are in Baht except investment property divided by total asset, size, leverage and growth are in ratio value.

Table 5: Correlation Analysis between All Variables

Panel A: Year 2011 (171 firms-years)									
	P <sub>it</sub>	EPS <sub>it</sub>	BVEIP <sub>it</sub>	IP <sub>it</sub>	IPTA <sub>it</sub>	SIZE <sub>it</sub>	LEV <sub>it</sub>	GROWTH <sub>it</sub>	
P <sub>it</sub>	1.000								
EPS <sub>it</sub>	0.955***	1.000							
BVEIP <sub>it</sub>	0.891***	0.884***	1.000						
IP <sub>it</sub>	0.085	0.049	0.090	1.000					
IPTA <sub>it</sub>	-0.051	-0.064	-0.123	0.482***	1.000				
SIZE <sub>it</sub>	0.361***	0.303***	0.271***	0.018	-0.043	1.000			
LEV <sub>it</sub>	-0.080	-0.069	-0.226	-0.044	0.025	0.223***	1.000		
GROWTH <sub>it</sub>	0.040	-0.002	-0.114	-0.064	-0.035	0.042	0.243***	1.000	
Panel B: Year 2012 (174-firms years)									
	P <sub>it</sub>	EPS <sub>it</sub>	BVEIP <sub>it</sub>	IP <sub>it</sub>	IPTA <sub>it</sub>	SIZE <sub>it</sub>	LEV <sub>it</sub>	GROWTH <sub>it</sub>	
P <sub>it</sub>	1.000								
EPS <sub>it</sub>	0.808***	1.000							
BVEIP <sub>it</sub>	0.802***	0.808***	1.000						
IP <sub>it</sub>	0.213***	0.121	0.149**	1.000					
IPTA <sub>it</sub>	-0.023	-0.050	-0.117	0.429***	1.000				
SIZE <sub>it</sub>	0.301***	0.288***	0.274***	0.038	-0.035	1.000			
LEV <sub>it</sub>	-0.166**	-0.161**	-0.205***	-0.063	0.003	0.306***	1.000		
GROWTH <sub>it</sub>	0.129*	0.041	-0.140*	-0.060	-0.015	0.073	0.174**	1.000	

Table 5: (continued)

	$P_{it}$	$EPS_{it}$	$BVEIP_{it}$	$IP_{it}$	$IPTA_{it}$	$SIZE_{it}$	$LEV_{it}$	$GROWTH_{it}$
$P_{it}$	1.000							
$EPS_{it}$	0.877***	1.000						
$BVEIP_{it}$	0.842***	0.840***	1.000					
$IP_{it}$	0.148***	0.079	0.120**	1.000				
$IPTA_{it}$	-0.036	-0.057	-0.119**	0.455***	1.000			
$SIZE_{it}$	0.331***	0.293***	0.273***	0.028	-0.039	1.000		
$LEV_{it}$	-0.125**	-0.108**	-0.215***	-0.053	0.014	0.264***	1.000	
$GROWTH_{it}$	0.098*	0.019	-0.126**	-0.062	-0.024	0.062	0.201***	1.000

Notes: \*\*\* significant level at 0.01.

\*\* significant level at 0.05.

\* significant level at 0.10.

Definition of variables is as follows.

 $P_{it}$  = stock price of firm  $i$  year  $t$  as of three months after the fiscal year ended; $EPS_{it}$  = earnings per share of firm  $i$  year  $t$ ; $BVEIP_{it}$  = book value of equity per share (exclude investment property) of firm  $i$  year  $t$ ; $IP_{it}$  = investment property per share of firm  $i$  year  $t$ ; $IPTA_{it}$  = investment property divided by total asset of firm  $i$  year  $t$ ; $SIZE_{it}$  = size of firm  $i$  year  $t$  (measured by log of total assets); $LEV_{it}$  = leverage of firm  $i$  year  $t$  (measured by total debt to total asset ratio); $GROWTH_{it}$  = Growth of firm  $i$  year  $t$  (measured by market to book value of equity ratio).

All variables are in Baht except investment property divided by total asset, size, leverage and growth are in ratio value.

Table 5 indicates that stock prices are positively and significantly correlated with EPS, BVEIP and SIZE for 2011, 2012 and the two years' analysis combined. In addition, the stock prices are positively and significantly related to the IP and GROWTH but negatively correlated with LEV in 2012 and the two years' analysis combined. The findings presented in this table suggest that some explanatory variables are highly and significantly correlated such as EPS and BVEIP, EPS and SIZE, BVEIP and SIZE, SIZE and LEV, LEV and GROWTH for 2011, 2012 and the two years' analysis combined. However, some of the significant correlations (between EPS and LEV, BVEIP and LEV, BVEIP and GROWTH) only appear in 2012 and the two years' analysis combined. The findings in Table 5 indicate the high correlation for some explanatory variables which may cause multicollinearity problems in the regression analysis. Therefore, the statistical analysis for multicollinearity will be discussed in section 4.3.

#### 4.2 Number of Fair Value Model Firms and Cost Model Firms

The TAS 40 (Revised 2009) has identified the option for IP measurement after its initial recognition. Firms can choose either the fair value model or the cost model (see details in Section 2.1) for valuing their IPs. Table 6 summarises the number of public listed firms in Thailand that has selected the fair value model or the cost model for their IP practices in 2011, 2012 and the two years' analysis combined (2011-2012).

From Table 6, it can be seen that 21 firms (12.28 per cent) in 2011 and 24 firms (13.79 per cent) in 2012 have selected the fair value model for their subsequent measurement of investment property. In total, 150

Table 6: The Number of Firms Choosing the Fair Value Model or the Cost Model of Investment Property

Alternative of Investment Property Valuation	Year 2011		Year 2012		Two Years (2011-2012)	
	Number of Firms	Percentage (%)	Number of Firms	Percentage (%)	Number of Firms	Percentage (%)
Fair Value Model	21	12.28	24	13.79	45	13.04
Cost Model	150	87.72	150	86.21	300	86.96
Total	171	100.00	174	100.00	345	100.00

firms (87.72 per cent in 2011 and 86.21 per cent in 2012) choose the cost model instead. Since the number of firms choosing the cost model is significant, it can be deduced that the main accounting practices for the firms' subsequent measurement of the IP in Thailand is the cost model. This outcome matches those of Cairns et al. (2011), Christensen and Nikolaev (2013) and Isa (2014).

### ***4.3 Regression Results for the Value Relevance of the Investment Property***

The current research uses the regression analysis models, Models (1) and (2) for the IP Firms. The results are shown in Panel A and Panel B of Table 7<sup>2</sup> respectively.

Panels A and B in Table 7 indicate that the overall model is significant at the 0.01 level for 2011, 2012 and the two years' analysis combined. The adjusted R<sup>2</sup> of model (1) are as follows: 92 per cent in 2011, 72.1 per cent in 2012, and 80.9 per cent for the two years' analysis combined. For model (2), the adjusted R<sup>2</sup> are 92.9 per cent in 2011, 75.4 per cent in 2012 and 83.1 per cent for the two years' analysis combined. The adjusted R<sup>2</sup> noted in both models are considerably high. Previous studies (Selas, 2009; Pappu & Devi, 2011; Zi et al., 2014) have also observed high adjusted R<sup>2</sup> in their research models for testing the value relevance of the IPs. Further to this, Table 7 also shows that the earnings per share ( $\alpha_1$ ) and the book value of equity per share (exclude IP) ( $\alpha_2$ ) in model (1) and model (2) are positively and significantly related to the stock prices in 2011, 2012 and the two years' analysis combined. This implies that the firms' earnings and book values are useful information for investors to use when valuing their securities. This outcome is also consistent with those of previous studies (e.g., Collins et al., 1997; Francis & Schipper, 1999). Interestingly, the earnings coefficients shown in Table 7 are largely relative with the book values coefficients. This outcome is also compatible with those of Francis and Schipper (1999), Graham and King (2000), Chen, Chen, and Su (2001), Kadri, Aziz, and Ibrahim (2009) and Kwong (2010).

The findings in the current research indicate that the coefficient of the IP ( $\alpha_3$ ) in 2011 is not significantly related to stock price but the IP is positively and significantly related to stock price in 2012 and the two

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<sup>2</sup> Results from multiple regressions of model (1) and model (2) reveal that no multicollinearity problem exists because the tolerance values of all explanatory variables in both models are not less than 0.1 and Variance Inflation Factor (VIF) values are not more than 10.



Table 7: (continued)

Panel B: Regression Results of Model (2) with Control Variables

$$P_{it} = \alpha_0 + \alpha_1 EPS_{it} + \alpha_2 BVEIP_{it} + \alpha_3 IP_{it} + \alpha_4 SIZE_{it} + \alpha_5 LEV_{it} + \alpha_6 GROWTH_{it} + \epsilon_{it} \quad (2)$$

Variables	Year 2011 (n=171)		Year 2012 (n=174)		Two years (2011-2012) (n= 345)	
	Coefficients	t value	Coefficients	t value	Coefficients	t value
SIZE <sub>it</sub>	7.180	3.520	5.408	1.381	6.375	2.818
LEV <sub>it</sub>	-2.685	-0.455	-14.394	-1.235	-7.509	-1.146
GROWTH <sub>it</sub>	1.748	3.259	4.317	4.865	3.367	6.176
F-test	374.353***		89.571***		283.263***	
Adj. R <sup>2</sup>	0.929		0.754		0.831	

Notes: \*\*\* significant level at 0.01.

\*\* significant level at 0.05.

\* significant level at 0.10.

The definition of variables is as follows.

P<sub>it</sub> = stock price of firm *i* year *t* as of three months after the fiscal year-ended;

EPS<sub>it</sub> = earnings per share of firm *i* year *t*;

BVEIP<sub>it</sub> = book value of equity per share (exclude investment property) of firm *i* year *t*;

IP<sub>it</sub> = investment property per share of firm *i* year *t*;

SIZE<sub>it</sub> = size of firm *i* year *t* (measured by log of total asset);

LEV<sub>it</sub> = leverage of firm *i* year *t* (measured by total debt to total asset ratio);

GROWTH<sub>it</sub> = growth of firm *i* year *t* (measured by market to book value of equity ratio); and

ε<sub>it</sub> = error term.

years' analysis combined for both models (1) and (2). The results of the value relevance of the IP in 2012 and the two years' analysis combined appear to be consistent with the first hypothesis, thereby supporting Lourenco and Curto (2008), Pappu and Devi (2011), Zi et al. (2014), Israeli (2015) and Muller et al. (2015). The findings also support the Efficient Market Hypothesis (EMH) of Thailand's stock market. This means that the IP (one type of publicly available information) can convey useful information to investors in Thailand. However, the IP in 2011 is not value relevant and this is possibly because 2011 was the first year where Thailand was adopting the TAS 40 (Revised 2009) which had introduced the IP as a new accounting item to be included in the Statement of Financial Position. Consequently, the Thai investors were not aware of using this information in valuing their securities in that particular year.

With regard to the control variables noted in model (2), the findings suggest that leverage is insignificantly associated with stock price whereas growth is positively and significantly related to stock price in 2011, 2012 and the two years' analysis combined. Size is positively and significantly related to stock price in 2011 and the two years' analysis combined but not significantly related to stock price in 2012. The findings highlight the significant association between the control variables and stock prices. This outcome is also consistent with the findings of Collins et al. (1997), Charitou et al. (2001), Habib and Azim (2008) and Shamki (2013).

#### ***4.4 Testing the Differences of the Value Relevance of Investment Property between the Fair Value Model and the Cost Model***

The differences of the value relevance of the IP between the fair value model and the cost model, under the TAS 40 (Revised 2009) requirement, are examined by using the F-test. The results are presented in Table 8.

The F-values for 2011, 2012 and the two years' analysis combined are 126.94, 62.81 and 200.48, respectively. These are then compared with the F-value presented in the Table of Critical Values of the F-distribution at the confidence level of 95 per cent for the degree of freedom 1, 163 (in 2011); 1, 166 (in 2012); and 1, 337 (for the two years' analysis combined: 2011-2012). The F-value shown approximates to 3.84.<sup>3</sup> Based on this, it

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<sup>3</sup> The degree of freedom of denominator is more than 120 for 2011, 2012 and the two years' analysis combined. The F in the Table of Critical Values of the F-distribution shows the same value which approximately equals to 3.84 (as the denominator equals to infinity).

Table 8: Differences of Value Relevance of Investment Property between the Fair Value Model and the Cost Model

	Year 2011 (n=171)	Year 2012 (n=174)	Two Years (2011-2012) (n=345)
SS <sub>c</sub>	69,030.527	202,876.485	333,196.961
SS <sub>p</sub>	38,808.116	147,188.108	208,912.571
k-1	1	1	1
DF <sub>p</sub>	163	166	337
F-value	126.94	62.81	200.48

Notes: The definition of variable is as follows.

SS<sub>c</sub> = 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<sub>p</sub> = pooled residual sum of square of regression model (1) if fair value model and cost value model;

k = number of regression models; and

DF<sub>p</sub> = number of pooled residuals degree of freedom.

can be concluded that all the independent variables in model (1) affect the stock prices differently. This means that the value relevance of the IP between the fair value model and the cost model is significantly different and this is consistent with the second hypothesis.

#### 4.5 Regression Results for the Comparative Value Relevance of Investment Property under the Fair Value Model and the Cost Model

The results of the comparative value relevance of the IP under the fair value model and the cost model are presented in Table 9.<sup>4</sup>

Panels A and B in Table 9 show the consistent findings: the overall model (3) and model (4) are statistically significant at 0.01 level. The adjusted R<sup>2</sup> of model (3) are as follows: 92.6 per cent in 2011, 75.1 per cent in 2012 and 82.3 per cent for the two years' analysis combined. For model (4), the adjusted R<sup>2</sup> are: 93.5 per cent in 2011, 78.6 per cent in 2012 and 84.5 per cent for the two years' analysis combined. The adjusted R<sup>2</sup> of both models are quite high, concurring with the results presented in Table 7. Both model (3) and model (4) indicate that earnings ( $\beta_2$ ) and

<sup>4</sup> Results from multiple regressions of model (3) and model (4) reveal that no multicollinearity problem exists because the tolerance values of all explanatory variables in both models are not less than 0.1 and Variance Inflation Factor (VIF) values are not more than 10.

Table 9: Regression Results of Model (3) and Model (4)

Panel A: Regression Results of Model (3)				Panel B: Regression Results of Model (4) with Control Variables					
$P_{it} = \beta_0 + \beta_1 D + \beta_2 EPS_{it} + \beta_3 BVEIP_{it} + \beta_4 IP_{it} + \beta_5 D*IP_{it} + \epsilon_{it}$ (3)				$P_{it} = \beta_0 + \beta_1 D + \beta_2 EPS_{it} + \beta_3 BVEIP_{it} + \beta_4 IP_{it} + \beta_5 D*IP_{it} + \beta_6 SIZE_{it} + \beta_7 LEV_{it} + \beta_8 GROWTH_{it} + \epsilon_{it}$ (4)					
Variables	Year 2011 (n=171)		Year 2012 (n=174)		Year 2011 (n=171)		Year 2012 (n=174)		
	Coefficients	t value	p value	Coefficients	t value	p value	Coefficients	t value	
Constant	3.356	2.232	0.027*	6.771	2.400	0.017**	4.861	2.926	0.004***
D	10.894	2.811	0.006***	12.566	1.833	0.069*	11.091	2.661	0.008***
EPS <sub>it</sub>	6.671	16.692	0.000***	4.808	6.301	0.000***	5.550	13.086	0.000***
BVEIP <sub>it</sub>	0.344	4.673	0.000***	0.699	6.806	0.000***	0.584	8.603	0.000***
IP <sub>it</sub>	0.819	3.252	0.001***	3.071	5.174	0.000***	1.708	5.521	0.000***
D*IP <sub>it</sub>	-0.873	-3.151	0.002***	-2.947	-4.686	0.000***	-1.684	-5.041	0.000***
F-test	427.622***			105.521***			320.223***		
Adj. R <sup>2</sup>	0.926			0.751			0.823		
Variables	Two years (2011-2012) (n= 345)		Two years (2011-2012) (n= 345)		Two years (2011-2012) (n= 345)		Two years (2011-2012) (n= 345)		
	Coefficients	t value	p value	Coefficients	t value	p value	Coefficients	t value	p value
Constant	-67.351	-3.630	0.000***	-49.757	-1.466	0.145	-61.493	-3.026	0.003***
D	8.692	2.365	0.019**	9.089	1.418	0.158	8.137	2.072	0.039**
EPS <sub>it</sub>	6.229	15.614	0.000***	3.644	4.922	0.000***	4.834	11.743	0.000***

Table 9: (continued)

Panel B: Regression Results of Model (4) with Control Variables

$$P_{it} = \beta_0 + \beta_1 D + \beta_2 EPS_{it} + \beta_3 BVEIP_{it} + \beta_4 IP_{it} + \beta_5 D*IP_{it} + \beta_6 SIZE_{it} + \beta_7 LEV_{it} + \beta_8 GROWTH_{it} + \varepsilon_{it} \quad (4)$$

Variables	Year 2011 (n=171)			Year 2012 (n=174)			Two years (2011-2012) (n= 345)		
	Coefficients	t value	p value	Coefficients	t value	p value	Coefficients	t value	p value
BVEIP <sub>it</sub>	0.387	5.149	0.000***	0.821	8.151	0.000***	0.664	9.859	0.000***
IP <sub>it</sub>	0.896	3.781	0.000***	3.165	5.739	0.000***	1.799	6.209	0.000***
D*IP <sub>it</sub>	-0.936	-3.593	0.000***	-2.992	-5.122	0.000***	-1.741	-5.568	0.000***
SIZE <sub>it</sub>	7.169	3.635	0.000***	5.571	1.516	0.132	6.552	3.006	0.003***
LEV <sub>it</sub>	-3.898	-0.686	0.494	-15.870	-1.455	0.147	-8.761	-1.394	0.164
GROWTH <sub>it</sub>	1.744	3.378	0.001***	4.336	5.214	0.000***	3.376	6.441	0.000***
F-test		306.371***			80.263***			235.227***	
Adj. R <sup>2</sup>		0.935			0.786			0.845	

Notes: \*\*\* significant level at 0.01.

\*\* significant level at 0.05.

\* significant level at 0.10.

The definition of variables is as follows.

P<sub>it</sub> = stock price of firm *i* year *t* as of three months after the fiscal year-ended;

D = dummy variable, D = 1 if firm chooses the fair value model and D = 0 if firm chooses the cost model;

EPS<sub>it</sub> = earnings per share of firm *i* year *t*;BVEIP<sub>it</sub> = book value of equity per share (exclude investment property) of firm *i* year *t*;IP<sub>it</sub> = investment property per share for firm *i* year *t*;SIZE<sub>it</sub> = size of firm *i* year *t* (measured by log of total asset);LEV<sub>it</sub> = leverage of firm *i* year *t* (measured by total debt to total asset ratio);GROWTH<sub>it</sub> = growth of firm *i* year *t* (measured by market to book value of equity ratio); andε<sub>it</sub> = error term.

book values ( $\beta_3$ ), are positively and significantly related to stock prices. In other words, they are value relevant information.

Further to this, the coefficients of the IP ( $\beta_4$ ) are related to stock prices in 2011, 2012 and the two years' analysis combined. This means that Thai investors use the IP to value their stock prices and this outcome is consistent with many previous studies (e.g., Pappu & Devi, 2011; Zi et al., 2014). The coefficients of the interaction term between the dummy variable and the investment property per share ( $\beta_5$ ) in both model (3) and model (4) are negatively significant. This means that there is a significant difference in the value relevance of the fair value model and the cost model of the IP, thereby supporting the second hypothesis. In addition, the value relevance of the fair value model is significantly less than that of the cost model. This outcome is consistent with the findings of Pappu and Devi (2011), thereby supporting the conclusion that the cost model of the IP is more significant value relevance than that of the fair value model. Based on this, it can be deduced that Thai investors recognise the importance of cost valuation because it is more objective and more reliable than the fair value. The reliability of the fair value model of the IP depends on the judgment of the management and other external appraisers (Landsman, 2007; Laux & Luez, 2009; Nellesen & Zuelch, 2011). The fair value of the IP has low reliability because there are diverse approaches in appraising the fair values of the IP (Nellesen & Zuelch, 2011) and also because of the lack of official exchange market of the IP in Thailand.

#### ***4.6 Factors Affecting the Accounting Choices between the Fair Value Model and the Cost Model***

Very few Thai listed firms have selected the fair value model (see details in section 4.2) in their accounting practices but what are the factors affecting this outcome have not been examined. Therefore, based on the Positive Accounting Theory (PAT) and previous studies, this research has proposed that the bonus plans, debt to equity and size (political cost) hypothesis could affect the manager's decision of selecting the measurement choices of the IP. The result of the binary logit regression model is presented in Table 10.

As can be noted in Table 10, the EPS, DE and SIZE can explain the accounting choices of the IP with the Nagelkerke  $R^2$  which indicates a reading of 9.4 per cent in 2011, 2.5 per cent in 2012 and 4.2 per cent for the two years' analysis combined. The findings in 2011 are similar to the

Table 10: Results of Binary Logit Regression

$$Y_{it} = \beta_0 + \beta_1 \text{EPS}_{it} + \beta_2 \text{DE}_{it} + \beta_3 \text{SIZE}_{it} + \varepsilon_{it} \quad (5)$$

Variables	Year 2011 (n= 171)		Year 2012 (n=174)		2011-2012 (n=345)	
	Coefficient	Sig.	Coefficient	Sig.	Coefficient	Sig.
Constant	-9.238	0.027**	-6.416	0.075*	-7.353	0.006***
EPS <sub>it</sub>	-0.341	0.050**	-0.053	0.348	-0.101	0.093*
DE <sub>it</sub>	-0.150	0.431	-0.113	0.470	-0.109	0.330
SIZE <sub>it</sub>	0.799	0.065*	0.492	0.184	0.588	0.033**
Cox & Snell R <sup>2</sup>	0.049		0.014		0.023	
Nagelkerke R <sup>2</sup>	0.094		0.025		0.042	

Notes: \*\*\* significant level at 0.01.

\*\* significant level at 0.05.

\* significant level at 0.10.

Definition of variables is as follows.

$Y_{it}$  = accounting choices for subsequent measurement of IP of firm  $i$  year  $t$   
(=1 if the firm selects the fair value model, and = 0 if the firm selects the cost model);

EPS<sub>it</sub> = earnings per share of firm  $i$  year  $t$ ;

DE<sub>it</sub> = total debt to total equity ratio of firm  $i$  year  $t$ ;

SIZE<sub>it</sub> = size of firm  $i$  year  $t$  (measured by log of total assets); and

$\varepsilon_{it}$  = error term.

two years' analysis combined (2011-2012). The EPS is negatively and significantly related to the accounting choices whilst size is positively and significantly related to the accounting choices. This means that higher EPS firms tend to use the cost model more than the fair value model. In addition, larger firms are more likely to select the fair value model than smaller firms.

The results shown for 2011 and the two years' analysis combined, as noted in this paper, support the bonus plan and size hypothesis under the Positive Accounting theory (PAT). It appears that higher EPS firms in Thailand select the cost model for the income increasing strategy and this outcome is consistent with Aitken and Loftus (1994). When the bonus is linked to earnings, the Thai managers have the incentives to select the accounting choices to boost their current earnings. Further, larger firms pursue the income decreasing accounting technique to reduce political attention. This outcome supports the findings of Skinner (1993), Dhaliwal et al. (1999) and Isa (2014). Nonetheless, the DE ratio

is not significantly related to the accounting choice and this concurs with Aitken and Loftus (1994), Demaria and Dufour (2007), Quagli and Avallone (2010), Waweru et al. (2011); Taplin et al. (2014) and Isa (2014).

In 2012, none of the three variables (EPS, DE and Size) are found to affect the accounting choices between the fair value model and the cost model of the IP in the two-tailed test. Only the size variable in the binary logit regression is observed to be positively and significantly related to the accounting choices at 0.1 level ( $p$  value =  $0.184/2 = 0.092$ ) for the one-tailed test in 2012. The result in 2012 also seems to support the size (political cost) hypothesis, i.e. larger firms listed in Thailand choose the fair model for the income decreasing strategy.

## **5. Conclusion, Discussion and Implication**

### *5.1 Conclusion*

The findings in this paper imply that about half of the listed firms have shown the IP in their Statement of Financial Position. More than 85 per cent of the samples select the cost model for their IP valuation. In 2012 and the two years' analysis combined, the investment property is found to be value relevant but it is not related to stock price in 2011. In addition, the value relevance of the fair value model of IP is less than that of the cost model. Finally, the determinants of the accounting choices of the IP are profitability and size.

### *5.2 Discussion*

The result of this paper indicates that Thai listed firms prefer the cost model for the subsequent measurement of their IPs. This finding is consistent with Cairns et al. (2011), Christensen and Nikolaev (2013) and Isa (2014). The limited use of the fair value of the IP in Thailand may be due to the reliability problems, as mentioned above. The result of this paper also reveals that the IP is not value relevant information in 2011. The reason is traced to the TAS 40 (Revised 2009) which required firms to present their IP in the Statement of Financial Position in 2011. Thai investors might not be familiar with the new accounting item; and thus they did not use the IP in valuing their stock prices in 2011. However, the opposite result is found in 2012 and the two years' analysis combined. This outcome implies that in 2012, the Thai investors used the IP in valuing the securities of the Thai stock market. This outcome is

consistent with many past studies (e.g., Lourenco & Curto, 2008; Pappu & Devi, 2011; Zi et al., 2014; Israeli, 2015; Muller et al., 2015). Moreover, the results also suggest that the cost model of the IP carries more value relevance than the fair value model. These findings are consistent with those of Pappu and Devi (2011). The plausible reason that can explain this phenomenon is that the fair values of the IP in Thailand are still rarely practiced due to unavailable reliable sources caused by a lack of the official trading market of the IPs.

The results also note that the main determinants affecting the accounting choices of the IPs in Thai listed firms are profitability and size. It appears that the executive compensation plans in Thailand are positively and significantly associated with the current earnings (Wanna, 2011). Thus, managers of Thai listed firms with higher profitability have the incentives to select the income increasing method (cost model for IP) as compared to firms with lower profitability (Aitken & Loftus, 1994). The result also observes that larger listed firms in Thailand are more likely to select the income decreasing method (fair value model of IP). This outcome is also noted in many past literatures (e.g., Skinner, 1993; Dhaliwal et al., 1999; Isa, 2014). It is found that leverage is not a determinant for the accounting choices of the IP and this outcome also concurs with many previous studies (e.g., Aitken & Loftus, 1994; Demaria & Dufour, 2007). Therefore, it can be said that the evidence drawn from this paper confirms the importance of the bonus plan and size (political cost) hypothesis under the Positive Accounting Theory. These factors also act as the determinants of the accounting choices of the IP in Thailand's business environment. However, there is no evidence to demonstrate that a debt contract is a significant factor for selecting the subsequent measurement of the IP.

### ***5.3 Implication***

The results of this paper should serve as fundamental information to the Federation of Accounting Professions (FAP) in Thailand who can use it to revise the existing accounting standards especially for the fair value measurement. Increasing the fair values' reliability is the main concern of the FAP in encouraging firms to select the fair value model. Moreover, the results can act as a policy direction for the Securities and Exchange Commission (SEC) when issuing regulations regarding the IP disclosure for firms. The cost model contains more reliable information although it may not reflect the current financial position of the firms

concerned. The fair value model provides the current price information which reflects the current financial position. However, it is less reliable and needs more managerial discretions (e.g., Landsman, 2007; Nellesen & Zuelch, 2011). There are no specific markets or trading prices for IP in Thailand, a scenario that is similar to all non-financial assets (e.g., PPE). To encourage the Thai listed firms to select the fair value model for the measurement of all non-financial assets, the FAP should endeavour to issue a general guidance for measuring fair values. Most Thai listed firms select the cost model which supports the bonus plan hypothesis. The findings of this paper offer managerial implications to firms for selecting the appropriate accounting policies.

In addition, the accounting choices of the TAS 40 make the comparability of the financial statements more difficult. The earnings of the recognised fair values of the IP firms are more volatile than those of firms choosing the cost model due to the changes in the fair values of IPs as presented in the Income Statement. Investors should be aware of the differences in the accounting practices of the IP especially when making their investment decisions.

#### ***5.4 Limitation and Suggestion for Future Research***

This research has studied the usefulness of the IP in terms of its value relevance as noted in the Statement of Financial Position. Further studies may investigate the relative value relevance of the fair value disclosures in the notes to financial statements (if firms choose the cost model) compared with the recognised fair value amounts of IPs (if firms select the fair value model). In addition, future studies should examine the value relevance of unrealised gains or losses that arise from changes in the fair values of the IPs in the Income Statement. Future research can be extended into investigating the value relevance of other assets under the fair value measurement such as the PPE, trading securities and available-for-sales securities. Tentative future topics should include comparative international studies by comparing the accounting practices and value relevance of IP in other countries, especially among members of the ASEAN Economic Cooperation (AEC) countries.

#### **References**

- Aitken, M.J., & Loftus, J.A. (1994). Determinants of accounting policy choice in the Australian property industry: A portfolio approach. *Accounting and Finance*, 34(2), 1-21. doi: 10.1111/j.1467-629X.1994.tb00266.x

- Astami, E.W., & Tower, G. (2006). Accounting-policy choice and firm characteristics in the Asia Pacific region: An international empirical test of Costly Contracting Theory. *The International Journal of Accounting*, 41(1), 1-21. doi: 10.1016/j.intacc.2005.12.004
- Barth, M.E., Landsman, W., & Lang, M. (2008). International accounting standards and accounting quality. *Journal of Accounting Research*, 46(3), 467-498. doi: 10.1111/j.1475-679X.2008.00287.x
- Cairns, D., Massoudi, D., Taplin, R., & Tarca, A. (2011). IFRS fair value measurement and accounting policy choice in the United Kingdom and Australia. *The British Accounting Review*, 43(1), 1-21. doi: 10.1016/j.bar.2010.10.003
- Chancharas, N., Sektrakul, K., & Chancharas, S. (2009). Examining the market efficiency of the Thai stock market: SUE, P/E and B/M Anomalies models. *Journal of Accountancy and Management, Mahasarakham University*, 1(1), 1-21. Available at [http://www.acc.msu.ac.th/newsEventAcc-biz/Event/Up\\_journal/Journal13\\_id82.pdf](http://www.acc.msu.ac.th/newsEventAcc-biz/Event/Up_journal/Journal13_id82.pdf) (accessed on 21 May 2013).
- Charitou, A., Clubb, C., & Andreou, A. (2001). The effect of earnings permanence, growth, and firm size on the usefulness of cash flows and earnings in explaining security returns: Empirical evidence for the UK. *Journal of Business Finance and Accounting*, 28(5&6), 563-594. doi: 10.1111/1468-5957.00385
- Chen, C.J.P., Chen, S., & Su, X. (2001). Is accounting information value-relevant in the emerging Chinese stock market? *Journal of International Accounting, Auditing, and Taxation*, 10(1), 1-22. doi: 10.1016/S1061-9518(01)00033-7
- Christensen, H.B., & Nikolaev, V.V. (2009). *Who uses fair value accounting for non-financial assets after IFRS adoption?* Unpublished SSRN working paper. Available at [http://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=1269515](http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1269515) (accessed on 21 May 2013).
- Christensen, H.B., & Nikolaev, V.V. (2013). Does fair value accounting for non-financial assets pass the market test? *Review of Accounting Studies*, 18(3), 734-775. doi: 10.1007/s11142-013-9232-0
- Collins, D.W., Maydew, E.L., & Weiss, I.S. (1997). Changes in the value-relevance of earnings and book values over the past forty years. *Journal of Accounting and Economics*, 24(1), 39-67. doi: 10.1016/S0165-4101(97)00015-3
- Daley, L.A., & Vigeland, R.L. (1983). The effects of debt covenants and political costs on the choice of accounting methods: The case of accounting for R&D costs. *Journal of Accounting and Economics*, 5, 195-211. doi: 10.1016/0165-4101(83)90012-5
- Demaria, S., & Dufour, D. (2007). *First time adoption of IFRS, fair value option, conservatism: Evidences from French listed companies*. Proceedings of 30 ème colloque de l'EAA held in April 2007 at Lisbon, Portugal. Available at <https://halshs.archives-ouvertes.fr/halshs-00266189> (accessed on 2 February 2015).

- Dhaliwal, D.S., Heringer, W.G., & Hughes II, K.E. (1999). The investment opportunity set and capitalization versus expensing methods of accounting choice. *Accounting and Finance*, 39(2), 151-175. doi: 10.1111/1467-629X.00022
- Dietrich, J.R., Harris, M.S., & Muller III, K.A. (2001). The reliability of investment property fair value estimates. *Journal of Accounting and Economics*, 30(2), 125-158. doi: 10.1016/S0165-4101(01)00002-7
- Fama, E.F. (1991). Efficient capital markets: II. *The Journal of Finance*, 46(5), 1575-1617. doi: 10.1111/j.1540-6261.1991.tb04636.x
- Federation of Accounting Professions (FAP). (2010). *Thai Accounting Standard 16 (Revised 2009) Property, Plant and Equipment*. Available at [http://www.fap.or.th/images/column\\_1450920465/TAS%2016.pdf](http://www.fap.or.th/images/column_1450920465/TAS%2016.pdf) (accessed on 20 April 2011).
- Federation of Accounting Professions (FAP). (2010). *Thai Accounting Standard 40 (Revised 2009) Investment Property*. Available at [http://www.fap.or.th/images/column\\_1450920465/TAS%2040.pdf](http://www.fap.or.th/images/column_1450920465/TAS%2040.pdf) (accessed on 20 April 2011).
- Federation of Accounting Professions (FAP). (2015). *Thai Accounting Standard 40 (Revised 2014) Investment Property*. Available at [http://www.fap.or.th/images/column\\_1450922956/TAS%2040%20-web.pdf](http://www.fap.or.th/images/column_1450922956/TAS%2040%20-web.pdf) (accessed on 2 February 2015).
- Federation of Accounting Professions (FAP). (2015). *Thai Financial Reporting Standard 13 Fair Value Measurement*. Available at [http://www.fap.or.th/images/column\\_1450922956/TFRS%2013-web.pdf](http://www.fap.or.th/images/column_1450922956/TFRS%2013-web.pdf) (accessed on 2 February 2015).
- Feltham, G.A., & Ohlson, J.A. (1995). Valuation and clean surplus accounting for operating and financial activities. *Contemporary Accounting Research*, 11(2), 689-731. doi: 10.1111/j.1911-3846.1995.tb00462.x
- Francis, J., & Schipper, K. (1999). Have financial statements lost their relevance? *Journal of Accounting Research*, 37(2), 319-352. doi: 10.2307/2491412
- Graham, R., & King, R. (2000). Accounting practices and the market valuation of accounting numbers: Evidence from Indonesia, Korea, Malaysia, the Philippines, Taiwan, and Thailand. *The International Journal of Accounting*, 35(4), 445-470. doi: 10.1016/S0020-7063(00)00075-3
- Guidi, F., & Gupta, R. (2011). *Are ASEAN stock markets efficient? Evidence from univariate and multivariate variance ratio tests*. Discussion papers, Griffith Business School, Griffith University.
- Habib, A., & Azim, I. (2008). Corporate governance and the value-relevance of accounting information: Evidence from Australia. *Accounting Research Journal*, 21(2), 167-194. doi: 10.1108/10309610810905944
- Herrmann, D., Saudagaran, S.M., & Thomas, W.B. (2006). The quality of fair value measures for property, plant and equipment. *Accounting Forum*, 30(1), 43-59. doi: 10.1016/j.accfor.2005.09.001
- Hla, D.T., & Isa, A.H.B. (2015). Globalisation of financial reporting standard of listed companies in ASEAN two: Malaysia and Singapore. *International Journal of Business and Society*, 16(1), 95-106. Available at <http://www.>

- ijbs.unimas.my/repository/pdf/Vol16-no1-paper6.pdf (accessed on 15 February 2016).
- Ibarra, V., & Seuz-Sales, M.G. (2011). A comparison of the International Financial Reporting Standards (IFRS) and Generally Accepted Accounting Principles (GAAP) for small and medium-sized entities (SMEs) and compliances of some Asian countries to IFRS. *Journal of International Business Research*, 10(3), 35-62. Available at <http://www.abacademies.org/articles/jibrvol10nosi32011.pdf> (accessed on 21 May 2013).
- International Accounting Standard Board (IASB). (2012). *International Accounting Standard 40 Investment Property*. Available at <http://eifrs.ifrs.org/eifrs/bnstandards/en/2013/ias40.pdf> (accessed on 21 May 2013).
- Isa, M.A. (2014). Determinants of accounting choice of noncurrent assets at IFRS first adoption among Nigerian firms. *Procedia-Social and Behavioral Sciences*, 164, 378- 383. doi: 10.1016/j.sbspro.2014.11.091
- Ishak, H.S., Saringat, S.M., Ibrahim, M.K., & Wahab, W.A.E. (2012). Value relevance of fair value model on accounting for investment property (FRS 140). *Proceedings on 3rd International Conference on Business and Economic Research*, held on 12-13 March 2012 at the Golden Flower Hotel, Bandung, Indonesia. Available at [http://www.internationalconference.com.my/proceedings/3rd\\_icber2012\\_proceeding\\_PG3048\\_3069.pdf](http://www.internationalconference.com.my/proceedings/3rd_icber2012_proceeding_PG3048_3069.pdf) (accessed on 21 May 2013).
- Israeli, D. (2015). Recognition versus disclosure: Evidence from fair value of investment property. *Review of Accounting Studies*, 20(4), 1457-1503. doi: 10.1007/s11142-015-9335-x
- Kadri, M.H., Aziz, R.A., & Ibrahim, M.K. (2009). Value relevance of book value and earnings: Evidence from two different financial reporting regimes. *Journal of Financial Reporting & Accounting*, 7(1), 1-16. doi: 10.1108/19852510980000638
- Kothari, S.P. (2000). The role of financial reporting in reducing financial risks in the market. In E.S. Rosengren, & J.S. Jordan (Eds.), *Building an infrastructure for financial stability*. Federal Reserve Bank of Boston Conference Series No. 44, 89-112.
- Kwong, L.C. (2010). The value relevance of financial reporting in Malaysia: Evidence from three different financial reporting periods. *International Journal of Business and Accountancy*, 1(1), 1-19. Available at <http://ijba.intimal.edu.my/Acc01-2010IJBA%20LauCK.pdf> (accessed on 21 May 2013).
- Landsman, W.R. (2007). Is fair value accounting information relevant and reliable? Evidence from capital market research. *Accounting and Business Research*, 37(Supplement 1), 19-30. doi: 10.1080/00014788.2007.9730081
- Laux, C., & Luez, C. (2009). The crisis of fair-value accounting: Making sense of the recent debate. *Accounting, Organizations and Society*, 34(6), 826-834. doi: 10.1016/j.aos.2009.04.003
- Lourenco, I., & Curto, J. D. (2008). *The value relevance of investment property fair values*. Unpublished SSRN working paper. Available at [http://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=1301683](http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1301683) (accessed on 21 May 2013).

- Malkiel, B.G., & Fama, E.F. (1970). Efficient capital markets: A review of theory and empirical work. *The Journal of Finance*, 25(2), 383-417. doi: 10.1111/j.1540-6261.1970.tb00518.x
- Missonier-Piera, F. (2004). Economic determinants of multiple accounting method choices in a Swiss context. *Journal of International Financial Management and Accounting*, 15(2), 118-144. doi: 10.1111/j.1467-646X.2004.00104.x
- Mitra, S., & Hossain, M. (2009). Value-relevance of pension transition adjustments and other comprehensive income components in the adoption year of SFAS No. 158. *Review of Quantitative Finance and Accounting*, 33(3), 279-301. doi: 10.1007/s11156-009-0112-4
- Muller, M.A., Riedl, E.J., & Sellhorn, T. (2015). Recognition versus disclosure of fair values. *The Accounting Review*, 90(6), 2411-2447. doi: 10.2308/accr-51044
- Munir, Q., Ching, K.S., Furouka, F., & Mansur, K. (2012). The efficient market hypothesis revisited: Evidence from the five small open ASEAN stock markets. *The Singapore Economic Review*, 57(3), 1-12. doi: 10.1142/S021759081250021X
- Nellessen, T., & Zuelch, H. (2011). The reliability of investment property fair values under IFRS. *Journal of Property Investment & Finance*, 29(1), 59-73. doi: 10.1108/14635781111100209
- Ohlson, J.A. (1995). Earnings, book values, and dividends in equity valuation. *Contemporary Accounting Research*, 11(2), 661-687. doi: 10.1111/j.1911-3846.1995.tb00461.x
- Omokhudu, O.O., & Ibadin, P.O. (2015). The value relevance of accounting information: Evidence from Nigeria. *Accounting and Finance Research*, 4(3), 20-30. doi: 10.5430/afr.v4n3p20
- Owusu-Ansah, S., & Yeoh, J. (2006). Relative value relevance of alternative accounting treatments for unrealized gains: Implications for the IASB. *Journal of International Financial Management & Accounting*, 17(3), 228-255. doi: 10.1111/j.1467-646X.2006.00128.x
- Pappu, R., & Devi, S.S. (2011). The value relevance of International Accounting Standard 40 on investment property: Evidence from Malaysia. *E-Proceedings for 2011 International Research Conference and Colloquium: Contemporary Research Issues and Challenge in Emerging Economies held on 10-11 October 2011 at Unirazak, Capital Square, Kuala Lumpur, Malaysia*. Available at <http://www.unirazak.edu.my/Colloquium2011/e proceedings/4.%20FIN-Regina.pdf> (accessed on 21 May 2013).
- Quagli, A., & Avallone, F. (2010). Fair value or cost model? Drivers of choice for IAS 40 in the real estate industry. *European Accounting Review*, 19(3), 461-493. doi: 10.1080/09638180.2010.496547
- Selas, D.C. (2009). *The value relevance of investment property fair value: Portuguese case*. Master degree dissertation, Faculty of Economics, University of Nova de Lisboa.

- Shamki, D. (2013). The influence of economic factors on the value relevance of accounting information in Jordan. *International Journal of Business Management*, 8(6), 89-104. doi: 10.5539/ijbm.v8n6p89
- Skinner, D.J. (1993). The investment opportunity set and accounting procedure choice: Preliminary evidence. *Journal of Accounting and Economics*, 16(4), 407-445. doi: 10.1016/0165-4101(93)90034-D
- So, S., & Smith, M. (2009). Value relevance of presenting changes in fair value of investment properties in the income statement: Evidence from Hong Kong. *Accounting and Business Research*, 39(2), 103-118. doi: 10.1080/00014788.2009.9663352
- Taplin, R., Yuan, W., & Brown, A. (2014). The use of fair value and historical cost accounting for investment properties in China. *Australasian Accounting Business & Finance Journal*, 8(1), 101-113. doi: 10.14453/aabfj.v8i1.6
- Wanna, P. (2011). *The relation between accounting earnings, corporate ownership, nonrecurring items and executive compensation: Evidence of Thailand*. Unpublished independent study, Thammasat University.
- Watts, R.L., & Zimmerman, J.L. (1986). *Positive accounting theory*. New Jersey: Prentice Hall International Edition.
- Waweru, N.M., Ntui, P.P., & Mangena, M. (2011). Determinants of different accounting methods choice in Tanzania: A positive accounting theory approach. *Journal of Accounting in Emerging Economies*, 1(2), 144-159. doi: 10.1108/20421161111138503
- Yu, H., Nartea, G.V., Gan, C., & Yao, L.J. (2013). Predictive ability and profitability of simple technical trading rules: Recent evidence from Southeast Asian stock markets. *International Review of Economics and Finance*, 25, 356-371. doi: 10.1016/j.iref.2012.07.016
- Zar, H. (1984). *Biostatistical analysis*. Englewood Cliffs, New Jersey: Prentice Hall.
- Zi, T.M., Hassan, M.S., & Embong, Z. (2014). Value relevance of investment properties' fair value and board characteristics in Malaysian real estate investment trusts. *Asian Journal of Accounting and Governance*, 5, 1-13. doi: 10.17576/ajag-2014-5-01

