Comparative Value Relevance of Earnings, Book Values and Cash Flows: Empirical Evidence from Listed Companies on SET100 in Thailand

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ABSTRACT

The main research objective is to examine and compare the value relevance of earnings, book values, and cash flows. The sample in this study is the companies listed on SET 100. The period of study is years 2011–2015. The main model in this paper is based on Ohlson (1995) model; Feltham and Ohlson (1995) model. The findings indicate that accounting earnings, book values of equities, and operating cash flows are positively related to stock prices. That is, they are value relevant information. The combined value relevance of earnings and book values is greater than that of cash flows and book values. In addition, the results also show that earnings are the best value relevant information compared with book values and cash flows. Thai investors pay the attention to use earnings in valuing their securities more than book values and cash flows. Moreover, three control variables (size, leverage and growth of firm) will be added in the research model. The findings indicate that size and growth of firms are positively and significantly related to stock price while leverage is negatively and significantly related to stock price.

Keywords: Value Relevance, Earnings, Book Values, Cash Flows

การเปรียบเทียบความเกี่ยวข้องในการกำหนดมูลค่า หลักทรัพย์ของกำไร มูลค่าตามบัญชี และกระแสเงินสด: หลักฐานเชิงประจักษ์จากบริษัทจดทะเบียนในกลุ่ม SET100 ในประเทศไทย

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บทคัดย่อ

งานวิจัยนี้มีวัตถุประสงค์ในการตรวจสอบและเปรียบเทียบความเกี่ยวข้องในการกำหนดมูลค่าหลักทรัพย์ของกำไร มูลค่าตามบัญชีและกระแสเงินสด กลุ่มตัวอย่างที่ใช้ในการศึกษานี้คือ บริษัท จดทะเบียนในกลุ่ม SET100 ในประเทศไทย ช่วงเวลาที่ศึกษาคือ ปี ค.ศ. 2011 ถึงปี ค.ศ. 2015 ตัวแบบที่ใช้ในการศึกษานี้ปรับมาจากตัวแบบของ Ohlson (1995) และตัวแบบของ Feltham และ Ohlson (1995) ผลการศึกษาพบว่า กำไรทางบัญชี มูลค่าตามบัญชีของส่วนของผู้ถือหุ้น และกระแสเงินสดจากกิจกรรมดำเนินงานมีความเกี่ยวพันธ์เป็นบวกกับราคาหลักทรัพย์อย่างมีนัยสำคัญทางสถิติ กล่าวคือ กำไร มูลค่าตามบัญชีและกระแสเงินสดเป็นข้อมูลที่มีความเกี่ยวข้องในการกำหนดมูลค่าหลักทรัพย์ ความเกี่ยวข้องใน การกำหนดมูลค่าหลักทรัพย์ของกำไรและมูลค่าตามบัญชี มากกว่าความเกี่ยวข้องในการกำหนดมูลค่าหลักทรัพย์ของ กระแสเงินสดและมูลค่าตามบัญชี นอกจากนี้ ผลการศึกษายังพบว่ากำไรทางบัญชีถือเป็นข้อมูลที่มีความเกี่ยวข้อง ในการตัดสินใจมากที่สุด เมื่อเปรียบเทียบกับมูลค่าตามบัญชีและกระแสเงินสด ซึ่งแสดงว่านักลงทุนไทยให้ความสนใจ ในการใช้ข้อมูลกำไรในการกำหนดมูลค่าหลักทรัพย์มากกว่ามูลค่าตามบัญชีและกระแสเงินสด อีกทั้งการศึกษานี้มีการ เพิ่มตัวแปรควบคุม 3 ตัวแปรในตัวแบบซึ่งประกอบด้วยขนาด ความเสี่ยงและการเติบโตของกิจการ ผลที่ได้พบว่าขนาด และการเติบโตของกิจการมีความสัมพันธ์เป็นบวกกับราคาหลักทรัพย์อย่างมีนัยสำคัญทางสถิติ ในขณะที่ความเสี่ยง ในการก่อหนี้มีความสัมพันธ์เป็นลบกับราคาหลักทรัพย์อย่างมีนัยสำคัญทางสถิติ

คำสำคัญ: ความเกี่ยวข้องในการกำหนดมูลค่าหลักทรัพย์ กำไร มูลค่าตามบัญชี กระแสเงินสด

1. Introduction

Previous studies both in developed markets and developing markets have found that accounting information are value relevant (e.g. Collins, Maydew and Weiss, 1997; Francis and Schipper, 1999; Kothari, 2001; Saeedi and Ebrahimi, 2010; Vitchitsarawong, 2011; Elshandidy, 2014). Value relevance is defined as the ability of accounting numbers to summarize the information underlying the stock prices and returns (e.g. Francis and Schipper, 1999; Kothari, 2001). Therefore, investors can use the accounting information in financial statements for making their investment decision. In addition, the adoption of International Accounting Standards (IAS) and International Financial Reporting Standards (IFRS) will affect the quality of accounting information in terms of value relevance (e.g. Barth, Landsman and Lang, 2008). Thailand is one country in The Association of South Eastern Asia Nations (ASEAN) which adopt the IAS/IFRS as the main concept of Thai Accounting Standards (TAS) and Thai Financial Reporting Standards (TFRS) development. However, some TAS and TFRS were still followed the U.S. Generally Accepted Accounting Principle (U.S.GAAP) for such as TAS 104 Accounting for Trouble Debt Restructurings (TDR). The Federation of Accounting Professions (FAP) in Thailand continues to revise and update TAS/TFRS continuously. The accounting information in Thailand has adopted the concept of fair value more than previous accounting practices for such as the revaluation of property, plant and equipment, the fair value model of investment property for subsequent measurement, the fair value measurement of investment in securities and biological assets. Most prior research studied the value relevance of earnings and book values (e.g. Collins et al., 1997; Ohlson, 1995), or value relevance of earnings and operating cash flows (e.g. Biddle, Seow and Siegel, 1995). None of previous studies in Thailand investigated and compared the bottom lines of three main financial statements (earnings, book values and cash flows from operation). Therefore, the objectives of this research is to investigate and compare the value relevance of earnings, book values of equities and operating cash flows of companies listed on SET 100 in Thailand. The study selects the companies listed on SET100 as the sample because they are top hundred listed companies in terms of large market capitalization, high liquidity and compliance with the requirement regarding to the distribution of shares of minor shareholders. The contribution of this paper is to provide the evidence of value relevance of accounting information in Thailand. Other countries in ASEAN also adopt IAS/IFRS as the main concept of issuance of their domestic accounting standards for such as Singapore, Malaysia, Vietnam, and Indonesia. The evidence in Thailand also provides the implication of adoption of IAS/IFRS to other countries in Asia. It also elaborates some guidelines for the FAP in revising or improving the accounting standards regarding to the recognition and measurement of earnings, book values and cash flows from operation.

The remainders of the article is as followed. Section 2 presents the literature review. Section 3 shows the research methodology. Empirical results are discussed in Section 4. Lastly, the final sections provides the conclusion of results and discussion.

2. Literature Review

2.1 Related Theories

2.1.1 Efficient Market Hypothesis (EMH)

Efficient Market Hypothesis (EMH) assumes that all available information fully reflected in stock prices any points of time. EMH can be categorized into three level (Watts and Zimmerman, 1986, pp. 18–19). These categories are as follows: weak form, semi-strong form, and strong form. Under weak form, the information set contains only past security prices and/or past trading volume. It indicates that future stock prices cannot be predicted by the analysis of information of past prices. Under semi-strong form, the information set contains all published information. It assumes that share prices fully reflect all publicly information. It is impossible to employ the fundamental analysis to earn abnormal return in semi-strong form efficiency. Strong form indicates that the information set contains all information known to anyone. Share prices fully reflect all information know to anyone including the private information, therefore the use of private information, fundamental analysis and technical analysis does not gain the excess return in strong form efficiency.

Some previous researches investigated the efficiency of the Thai stock market. Karemera,

Ojah, and Cole (1999) found that most of the emerging markets including the Thai stock market were weak form efficient. This result was consistent with Guidi and Gupta (2011). They investigated the efficiency of the ASEAN stock markets which composed of Indonesia, Malaysia, Philippine, Vietnam and Thailand. They summarized that Thai stock market was weak form efficiency. Moreover, Kim and Shamsuddin (2006) also indicated that the Thai stock market attained efficiency after the 1997 Asian financial crisis period (1999-2000). Chancharus, Sektrakul and Chancharus (2009) also studied the EMH of the Stock Exchange of Thailand using the standardized unexpected earnings (SUE), the Price Earnings (P/E Anomaly) and the book-to-market (B/M Anomaly). They concluded that the Stock Exchange of Thailand was semi-strong form efficient. As these studies produced the contradictory results, one cannot draw a consistent conclusion which level of Thai capital market efficiency is. However, it is agreed that the level of market efficiency of Thai stock market is least weak form efficient and the efficiency level has increased after the Asian financial crisis period (Kim and Shamsuddin, 2006; Chancharus et al. (2009)).

2.1.2 Qualitative Characteristics of Usefulness of Financial Information and Definition of Value Relevance

International Accounting Standard Board (IASB) (2015) has identified the qualitative characteristics of useful financial information which are divided into two main types: fundamental and enhancing qualitative characteristics. Fundamental

qualitative characteristics are relevance and faithful representation while enhancing qualitative characteristics are comparability, verifiability, timeliness, and understandability. That is, the financial information will be useful when it is relevant and faithfully represent. The usefulness of financial information is enhanced if it is comparable, verifiable, timely and understandable (IASB, 2015, QC4). Only relevance characteristics is discussed in this paper. The definition of relevance is that relevant financial information is capable of making difference in the decisions made by users (IASB, 2015, QC6).

Therefore, the value relevance can be defined as an accounting information is value relevant if it has a predicted significant relation with share price, only if the amounts reflected information relevant to investors in valuing the firm and it is measured reliably enough to be reflected in share prices, only if an accounting amount is relevant to a financial statement user can it be capable of making a difference to that user's decisions (Barth, Beaver and Landsman, 2001, p. 80). Francis and Schipper (1999, pp. 325–326) discussed the value relevance into four perspectives. Interpretation 1 is that value relevance can be measured by the profits generated from implementing accounting-based trading rules. Under interpretation 2, financial information is value relevant if it contains the variables used in valuation model or assists in predicting the variables. Under interpretation 3, the statistical association measures whether investors actually use the information in question

in setting prices, so value relevance could be measured by the ability of financial statement information to change the total mix of information in the marketplace. Under the last interpretation, value relevance is measured by the ability of financial statement information to capture or summarize information regardless of source, that affect the share values. Moreover, Holthausen and Watts (2001, pp. 5–6) classified the value relevance studies into three main types: relative association studies, incremental association studies and marginal information content studies. The relative association studies compare the relationship between stock market values and alternative bottom line measures (e.g. earnings, book values). Incremental association studies examine whether the accounting number of interest is helpful in explaining the stock prices or security return given the other specified variables. Marginal information content studies examine if the accounting information provides investors with the additional information. The market reacts the accounting information announced to public, this accounting information has information content properties and value relevance evidence.

Most previous value relevance research measures the usefulness of accounting information from the perspective of equity investors. The value relevance research examines the association between accounting numbers and equity market values (e.g. Francis and Schipper, 1999; Holthausen and Watts, 2001; Barth et al., 2001).

2.2 Prior Research Related to Value Relevance of Accounting Information

2.2.1 Value Relevance of Earnings and Book Values

Many previous studies investigated the value relevance of earnings and book values using Ohlson (1995) model and Feltham and Ohlson (1995) model (e.g. El Shamy and Kayed, 2005; Kadri, Aziz and Ibrahim, 2009; Suadiye, 2012). Their models present the linear relation between the firms' market values of equities, earnings, book values, and other information. Most prior research found that both earnings and book values are positively related to stock price. They are value relevant information. The investors use both earnings and book values in valuing their securities (e.g. Collins et al., 1997; Kwon, 2009). Some previous studies indicated that earnings provide the incremental value relevance beyond book values (e.g. El Shamy and Kayed, 2005) whereas some of them showed that book values provide the incremental value relevance beyond earnings (e.g. Kwon, 2009).

Moreover, some prior research examined the effects of IFRS adoption on value relevance of earnings and book values. The findings are mixed. Bartov, Goldberg and Kim (2005) found that value relevance of earnings has increased when firms change from German GAAP to IFRS. Jermakowicz, Prather-Kinsey and Wulf (2007) also showed an increased in value relevance of earnings after the adoption of IFRS for listed companies on German DAX-30. Barth et al. (2008) also summarized that value relevance of earnings and book values has

increased and quality of accounting information is higher after the adoption of IFRS. Suadiye (2012) compared the value relevance of book values and earnings under Turkish accounting standards (before adoption of IFRS) and after the adoption of IFRS. The results show that value relevance of accounting information after adoption of IFRS has improved significantly. Elshandidy (2014) investigated the value relevance of accounting information of different segment of Chinese stock markets: A-shares, B-shares, H-shares. The findings show that the convergence of CAS with IFRS is more value relevance for A-shares and B-shares. However, it is partially more value relevance with H-shares market. All above studies show the consistent findings which value relevance of accounting information has improved after the adoption of IFRS (Bartov et al., 2005; Jermakowicz et al. 2007; Barth et al., 2008; Suadiye, 2012; Elshandidy, 2014). Nonetheless, all above findings are contrast to Hung and Subramanyam (2007) and Kadri et al. (2009). Hung and Subramanyam (2007) summarized that combined value relevance of earnings and book values of equities has decreased after switch to IAS/IFRS. Kadri et al. (2009) examined combined value relevance of earnings and book values under two financial reporting regimes in Malaysia: MASB sample (1997-2005) and FRS sample (after adoption of IFRS in 2006). They show that only book values of equites are significant in explaining the variation of market values of equities while earnings of FRS sample are not significant in explaining the variation of market values of equities.

2.2.2 Value Relevance of Earnings and Cash Flows

Most previous studies investigated and compared the value relevance of earnings and cash flows in terms of incremental and/or relative value relevance. Most of them found the same results in that earnings provide the incremental value relevance beyond cash flows (e.g. Biddle et al., 1995; Bartov, Goldberg and Kim, 2001; Haw, Qi and Wu, 2001). Biddle et al. (1995) showed that net income provides the greater relative information content than net sales and cash flows. Bartov et al. (2001) indicated that earnings have greater ability in the explanation of stock returns than those of cash flows for the Anglo-Saxon countries (the U.S., the UK. and Canada) while earnings are not superior to cash flows in explaining the stock returns for Non Anglo-Saxon countries (Germany and Japan), except non-consolidated samples in Japan. Haw et al. (2001) concluded that earnings have both relative and incremental information content over operating cash flows for listed companies on the Stock Exchange of China. Charitou and Vlittis (2010) compared the value relevance of earnings and cash flows in France. The results show that level and change in earnings are value relevant beyond cash flows. Investors in France place more attention to earnings and less attention to cash flows. However, the contradict findings are presented by Saeedi and Ebrahimi (2010). They examined the incremental value relevance of earnings and cash flows and studied the role of firms' specific factors (growth opportunities, financial leverage and firms' size) in explaining the stock's return in

Iran. The findings indicate that earnings and book values have no incremental value relevance in explaining the security's returns and earnings and cash flows are not affected by the moderating effects of firm specific factors.

2.2.3 Value Relevance of Earnings, Book Values and Cash Flows

Very few previous studies examined the value relevance of earnings, book values and cash flows simultaneously. Kwon (2009) examined the relative and incremental value relevance of earnings, book values and cash flows in explaining the stock prices. They used the valuation model based on Ohlson (1995) and Feltham and Ohlson (1995). The results show that book value is the most value relevant information and cash flows have more value relevance properties than earnings in all samples. In addition, the combined value relevance of book values and cash flows is more value relevant than that of book value and earnings. However, this result is contradicted with Mostafa (2016). The researcher examined the value relevance of earnings, cash flows and book values in Egypt. The findings reveal that earnings are value relevant information. Earnings have the incremental information content beyond book values while book values do not. In addition, cash flows cannot be used for explanation of stock returns.

2.2.4 Value Relevance of Accounting Information in Thailand

Very few prior research investigated the value relevance of accounting information in Thailand. Graham, King and Bailes (2000) examined the value

relevance of accounting information in Thailand around the 1997 decline in value of Baht. Their results show that earnings and book values are positively and significantly related to stock prices, although there is the low relationship than that of the U.S. and British. The value relevance of book values in Thailand has increased significantly after the decline in value of Baht. However, they find no evidence that value relevance of earnings has changed. Vichitsarawong (2011) compared the value relevance of earnings and cash flows in Thailand by three different sub periods: pre-crisis (1995–1996); crisis (1997–1998); and post-crisis (1999–2004). The results indicate that earnings better explains stock returns during the pre-crisis period. In addition, ability of earnings in explaining the stock returns dramatically declines during the financial crisis period, but slightly improves after the financial crisis period. The findings also reveal that the relationship between stock returns and cash flows is very low in the pre-crisis period. The cash flows can better explain the stock returns during the crisis and post-crisis period. Jindasiwatwong and Suntraruk (2013) examined whether current earnings and current operating cash flows have the ability to predict future operating cash flows and future stock prices. Their results show that current earnings and current operating cash flows are positively associated with future operating cash flows and future stock prices.

All previous research in Thailand showed the same result that earnings, book values and cash flows are value relevant information. However, some points of findings are contradicted. Graham

et al. (1997) indicated that value relevance of book values has increased while the value relevance of earnings has not changed. Vichitsarawong (2011) showed that value relevance of earnings declines during the financial crisis period, but slightly improves after the financial crisis period.

3. Research Methodology
3.1 Sample Selection and Data Collection

Sample of this research is the listed companies on SET100. They are top 100 companies in terms of large market capitalization and high liquidity on SET's main board. Listed companies on SET100 in this study are based on the selection criteria for calculating the SET100 Index during July 1, 2015 to December 31, 2015. The sample in this study should be the companies listed on SET100 all available of time of study (year 2011-year 2015). The sample excludes the banking, finance and securities, and insurance companies because of their different accounting practices from other industries It also excludes the Non-December year-ended firms for controlling the different time period of study which can affect the valuation of stock prices (e.g. Mitra and Hossain, 2009; Omokhudu and Ibadin, 2015). Number of samples which have met all above criteria are 67 listed companies. Therefore, total number of samples are 335 firms-years (67 firms × 5 years). However, the results from regression analysis (discussed later) show that nine outlier firms-years have the unstandardized residual (error term) more than three times of standard deviation. Hence, these outlier firms-years will be deleted from the sample.

Hence, final sample in this research is 326 firms-years. The financial statements of this sample are collected from the website of Securities Exchange Commission. The stock price data is collected from SETSMART (SET Market Analysis and Reporting Tool) which is online database from the Stock Exchange of Thailand.

3.2 Research Model

The research uses the Ohlson (1995) model; Feltham and Ohlson (1995) model which stock price is dependent variable and accounting information (e.g. earnings, book values) are independent variables. The stock price is used as dependent variable because it reflects the cumulative information content for both surprise component and expected component of earnings and the price model does not suffer from the bias specification (Kothari and Zimmerman, 1995; Liu and Thomas, 2000). The study uses the level of earnings instead of changes in earnings which is consistent with Easton and Harris (1991), Ohlson and Shroff (1992), Cheng, Lee and Yang (2013). In addition, value relevance of accounting information can be affected from firm specific factors. Many previous studies used firms size as the control variable (Collins et al., 1997; Charitou, Clubb and Andreou, 2001; Habib and Azim, 2008). Moreover, leverage will be used as the control variables because the risk level will influence the value relevance of accounting information (Kothari, 2000; Habib and Azim, 2008). Finally, the growth is also employed as the control variable because the valuation implications of accounting earnings, book

values and cash flows are expected to be high for high growth firms (Charitou et al., 2001) Therefore, this research employs three main control variables which composed of size, leverage and growth of firm. Model (1)–(5) are used for the value relevance of accounting information test without the control variables. Nonetheless, models (6)–(10) are also employed for the same test, but they are added up with three control variables. Model (1)–(10) are presented as follow:

$$P_{it} = \alpha_0 + \alpha_1 E_{it} + \alpha_2 BVE_{it} + \varepsilon_{it} \quad \ldots(1)$$

$$P_{it} = \alpha_0 + \alpha_1 CF_{it} + \alpha_2 BVE_{it} + \varepsilon_{it} \quad \ldots(2)$$

$$P_{it} = \alpha_0 + \alpha_1 E_{it} + \varepsilon_{it} \quad \ldots(3)$$

$$P_{it} = \alpha_0 + \alpha_1 BVE_{it} + \varepsilon_{it} \quad \ldots(4)$$

$$P_{it} = \alpha_0 + \alpha_1 CF_{it} + \varepsilon_{it} \quad \ldots(5)$$

$$P_{it} = \beta_0 + \beta_1 E_{it} + \beta_2 BVE_{it} + \beta_3 SIZE_{it} + \beta_4 LEV_{it} + \beta_5 GROWTH_{it} + \varepsilon_{it} \quad \ldots(6)$$

$$P_{it} = \beta_0 + \beta_1 CF_{it} + \beta_2 BVE_{it} + \beta_3 SIZE_{it} + \beta_4 LEV_{it} + \beta_5 GROWTH_{it} + \varepsilon_{it} \quad \ldots(7)$$

$$P_{it} = \beta_0 + \beta_1 E_{it} + \beta_2 SIZE_{it} + \beta_3 LEV_{it} + \beta_4 GROWTH_{it} + \varepsilon_{it} \quad \ldots(8)$$

$$P_{it} = \beta_0 + \beta_1 BVE_{it} + \beta_2 SIZE_{it} + \beta_3 LEV_{it} + \beta_4 GROWTH_{it} + \varepsilon_{it} \quad \ldots(9)$$

$$P_{it} = \beta_0 + \beta_1 CF_{it} + \beta_2 SIZE_{it} + \beta_3 LEV_{it} + \beta_4 GROWTH_{it} + \varepsilon_{it} \quad \ldots(10)$$

where

P_{it}	=	Stock's price per share of firm i three month after fiscal year ended t;
E_{it}	=	Earnings per share of firm i year t;
BVE_{it}	=	Book value of equity per share of firm i year t;
CF_{it}	=	Net cash flow from operation per share of firm i year t; and

SIZE$_{it}$	= Size of firm i year t measured by log of total assets of firm i year t;
LEV$_{it}$	= Leverage of firm i year t measured by total liability/total equity of firm i year t;
GROWTH$_{it}$	= Growth of firm i year t measured by market value of equity/ book value of equity of firm i year t; and
ε$_{it}$	= error term.

Model (1) – model (10) are analyzed by pooled sample (326 firms-years). The significance of coefficient of α_1 and α_2 in model (1), (2); coefficient of α_1 in model (3), (4) and (5); coefficient of β_1 and β_2 in model (6), (7) and coefficient of β_1 in model

(8), (9) and (10) are tested whether the earnings book values and cash flows are significantly related to stock prices. The t test is used for examining the significant of each coefficient referred above.

4. Empirical Results
4.1 Descriptive Statistics

This section presents the descriptive statistics of variables in model (1) – model (10) which composes of mean, standard deviation, minimum, maximum and coefficient of variation (C.V.) of all variables. The results are presented in Table 1.

Descriptive statistics in Table 1 shows the high value of standard deviation of stock price which

Table 1 Descriptive Statistics of All Variables

Variables	Mean	Standard Deviation	Minimum	Maximum	C.V.
P$_{it}$ (Baht)	38.0725	62.0065	0.0200	466.0000	1.6286
E$_{it}$ (Baht)	2.2656	5.2129	-8.2377	37.8331	2.3009
BVE$_{it}$ (Baht)	18.7843	43.6138	0.0051	380.8030	2.3221
CF$_{it}$ (Baht)	3.9024	10.4153	-12.4535	102.6799	2.6689
TA$_{it}$ (Baht)	94,819,873,739.34	217,679,945,206.07	1,217,736,622	2,173,996,186,034	2.2957
SIZE$_{it}$	10.5644	0.5652	9.0856	12.3373	0.0535
LEV$_{it}$ (Times)	1.7200	2.6362	0.1316	42.5009	1.5327
GROWTH$_{it}$ (Times)	2.9809	2.6805	0.3737	23.0290	0.8992

Definition of variables are as follows.

P$_{it}$	= Stock's price per share of firm i three month after fiscal year ended t;
E$_{it}$	= Earnings per share of firm i year t;
BVE$_{it}$	= Book value of equity per share of firm i year t;
CF$_{it}$	= Net cash flow from operation per share of firm i year t;
TA$_{it}$	= Total assets of firm i year t which is the measure of size of firm i year t;
SIZE$_{it}$	= Size of firm i year t measured by log of total assets of firm i year t;
LEV$_{it}$	= Leverage of firm i year t measured by total liability/total equity of firm i year t; and
GROWTH$_{it}$	= Growth of firm i year t measured by market value of equity/ book value of equity of firm i year t.

indicates the wide range between the minimum (0.02 baht) and maximum stock prices (466 baht). Means of earnings per share and cash flows from operation per share are 2.2656 baht and 3.9024 baht, respectively. The minimum values of earnings per share and cash flows from operation per share have the negative signs. That is, some listed companies have the operating losses or have the operating cash outflows more than operating cash inflows. Moreover, the wide range of book values of equities and total assets are also shown among the sample firms. Although the sample are the top hundred ranking of trading volume companies in SET, the sizes of sample firms are also significant different. Furthermore, the mean of leverage is 1.720 times which shows that on average Thai listed firms raise their funds by borrowings and/ or issues debt instruments more than issuing the common stocks. Mean of market value to book value of equity ratio (MV/BV) is 2.2809 times which shows that on average Thai listed companies have the market value of equity higher than book value of equity. Interestingly, all variables (except size and growth) have the coefficient of variation (C.V.) more than 1 which indicate the high distribution of all variables.

The correlation analysis of all variables is presented in Table 2.

Table 2 Pearson Correlation of All Variables

	Pit	Eit	BVEit	CFit	SIZEit	LEVit	GROWTHit
P_{it}	1.000						
E_{it}	0.906***	1.000					
BVE_{it}	0.846***	0.781***	1.000				
CF_{it}	0.809***	0.700***	0.890***	1.000			
$SIZE_{it}$	0.499***	0.417***	0.533***	0.536***	1.000		
LEV_{it}	−0.082	−0.110*	−0.076	−0.050	0.163***	1.000	
$GROWTH_{it}$	0.062	−0.034	−0.176***	−0.070	−0.100*	0.407***	1.000

*** = significant level at 0.01 level;
** = significant level at 0.05 level;
* = significant level at 0.10 level
Definition of variables are as follows.

P_{it} = Stock's price per share of firm i three month after fiscal year ended t;
E_{it} = Earnings per share of firm i year t;
BVE_{it} = Book value of equity per share of firm i year t;
CF_{it} = Net cash flow from operation per share of firm i year t;
$SIZE_{it}$ = Size of firm i year t measured by log of total assets of firm i year t;
LEV_{it} = Leverage of firm i year t measured by total liability/total equity of firm i year t; and
$GROWTH_{it}$ = Growth of firm i year t measured by market value of equity/ book value of equity of firm i year t.

Pearson correlation in Table 2 shows the positive and significant correlations between stock price and many variables. Stock price is positively and significantly related to earnings per share, book value of equity per share, cash flows from operation per share and size of firm. However, there are the insignificant negative relationship between stock price and leverage and insignificant positive relationship between stock price and growth of firm. In addition, earnings per share are positively and significantly related to book value of equity per share, cash flows from operation per share and size while it is negatively and significantly related to leverage. Book value of equity is positively and significantly correlated with cash flows from operation and size. In opposite, it is negatively and significantly related to growth. Net operating cash flows per share is also correlated with size positively and significantly, but it is insignificantly related to leverage and growth. Size of firm is positively and significantly related to leverage while it is negatively and significantly related to growth. There is also a positive and significant association between leverage and growth of firm. It can be inferred that stock prices are positively and significantly correlated with all accounting information (earnings, book values and cash flows). In addition, the larger firms will have higher stock prices, higher EPS, higher book values, higher cash flows, higher leverage and lower growth than those of smaller firms.

4.2 Regression Results

The regression results of model (1)–(5) are presented in Table 3 Panel A and Panel B.

Table 3 Panel A shows that the F statistics of model (1) and model (2) is significant at 0.05 level with adjusted R^2 86.9% and 72.8%, respectively. Model (1) shows that earnings and book values are positively and significantly related to stock prices. Thai investors use both earnings and book values for making their investment decision. Cash flows from operation and book values are positively and significantly related to stock prices in model (2). Both operating cash flows and book values are also value relevant information. However, the adjusted R^2 of model (1) is higher than model (2). Combined value relevance of earnings and book values is more than that of cash flows and book values. It can be also concluded that earnings can better explain the variation in stock price that that of cash flows in Thailand. This results are consistent with Biddle et al. (1995); Bartov et al. (2001); Haw et al. (2001); Charitou and Vlittis (2010). All above research's findings indicate the same results which earnings provide the incremental value relevance beyond cash flows.

Table 3 Panel B indicates the univariate analysis between stock price and each bottom line information in three main financial statements which composes of earnings per share, book value of equity per share and cash flows from operation per share. The results in all three models indicate the same findings. That is, earnings, book values and cash flows, each of them is positively and significantly related to stock price. They are all

Table 3 Regression Results of Model (1) – Model (5)

Panel A: Regression Results of Model (1) and Model (2)

$$P_{it} = \alpha_0 + \alpha_1 E_{it} + \alpha_2 BVE_{it} + \varepsilon_{it} \quad \text{...(1)}$$
$$P_{it} = \alpha_0 + \alpha_1 CF_{it} + \alpha_2 BVE_{it} + \varepsilon_{it} \quad \text{...(2)}$$

Variables	Model (1)		Variables	Model (2)	
	Coefficient	t statistics		Coefficient	t statistics
Constant	11.656	8.517***	Constant	15.637	8.022***
E_{it}	7.483	19.563***	CF_{it}	1.565	4.223***
BVE_{it}	0.504	11.019***	BVE_{it}	0.843	9.557***
F statistics	1,077.369***		F statistics	433.830***	
Adjusted R^2	0.869		Adjusted R^2	0.728	
n = 326			n = 326		

Panel B: Regression Results of Model (3) – Model (5)

$$P_{it} = \alpha_0 + \alpha_1 E_{it} + \varepsilon_{it} \quad \text{...(3)}$$
$$P_{it} = \alpha_0 + \alpha_1 BVE_{it} + \varepsilon_{it} \quad \text{...(4)}$$
$$P_{it} = \alpha_0 + \alpha_1 CF_{it} + \varepsilon_{it} \quad \text{...(5)}$$

Variables	Model (3)		Variables	Model (4)		Variables	Model (5)	
	Coefficient	t statistics		Coefficient	t statistics		Coefficient	t statistics
Constant	13.661	8.599***	Constant	15.492	7.750***	Constant	19.289	8.923***
Eit	10.775	38.502***	BVEit	1.202	28.523***	CFit	4.813	24.734***
F statistics	1,482.372***		F statistics	813.569***		F statistics	611.749***	
Adjusted R^2	0.820		Adjusted R^2	0.714		Adjusted R^2	0.653	
n = 326			n = 326			n = 326		

*** = significant level at 0.01 level;

** = significant level at 0.05 level;

* = significant level at 0.10 level

Definition of variables are as follows.

P_{it} = Stock's price per share of firm i three month after fiscal year ended t;

E_{it} = Earnings per share of firm i year t;

BVE_{it} = Book value of equity per share of firm i year t;

CF_{it} = Net cash flow from operation per share of firm i year t;

$SIZE_{it}$ = Size of firm i year t measured by log of total assets of firm i year t;

LEV_{it} = Leverage of firm i year t measured by total liability/total equity of firm i year t;

$GROWTH_{it}$ = Growth of firm i year t measured by market value of equity/book value of equity of firm i year t; and

ε_{it} = error term.

value relevant information. Thai investors uses earnings, book values of equities and operating cash flows in valuing the securities. The adjusted R^2 of model (3), (4), (5) are 0.820, 0.714 and 0.653, respectively. That is, earnings per share, book value of equity per share, cash flows from operation per share can explain the changes in stock price at 82%, 71.4% and 65.3%, respectively.

In addition, the findings from Table 3 show that the incremental explanatory power provided by earnings beyond book values is 0.155 (adjusted R^2 of model (1)-adjusted R^2 of model (4)) while the incremental explanatory power provided by book values beyond earnings is 0.049 (adjusted R^2 of model (1)-adjusted R^2 of model (3)). Moreover, the results also reveal that the incremental explanatory power of cash flows beyond book values is 0.014 (adjusted R^2 of model (2) - adjusted R^2 of model (4)) while the incremental explanatory power of book values beyond cash flows is 0.075 (adjusted R^2 of model (2)-adjusted R^2 of model (5)). It can be inferred that earnings can better explain the variation in stock price than book values and operating cash flows. Earnings is the most important information in valuing the stock prices compared with book values of equities and cash flows. Moreover, book values of equities are more value relevant than cash flows. It also concluded that Thai investors pay the great attention to earnings and the least attention to cash flows information in valuing their securities.

The results which earnings provide the incremental value relevance beyond book values are consistent with El Shamy and Kayed (2005).

The findings which ability of earnings in explaining the stock price dominates operating cash flows are also consistent with Biddle et al. (1995); Barton et al. (2001); and Vichitsarawong (2007). However, the results are contrasts with Kwon (2009) which summarized that book value is the most value relevant information and cash flows have more value relevance than earnings for listed companies in Korean stock market.

The regressions results of model (6) to model (10) are presented in Table 4 Panel A and Panel B.

Table 4 Panel A shows that the F statistics in model (6) and model (7) are statistically significant with adjusted R^2 0.899 and 0.783, respectively. Model (6) shows that earnings and book values are positively and significantly related to stock price. Therefore, earnings and book values are value relevant information which is constistent with the findings of model (1). Cash flows from operation and book values of equities are also positively and significantly related to stock price in model (7). Hence, this can be concluded that operating cash flows and book values of equities are value relevant information. The findings in model (7) concurs with the result of model (2). The adding the control variables do not affect the value relevance of earnings, book values, and cash flows. The control variables' results in model (6) and model (7) are consistent. That is, size and growth is positively and significantly correlated with stock prices whereas the leverage is negatively and significantly related to stock price. This result is consistent with Collin et al. (1997); Kothari (2000); Charitou et al. (2001); Habib

and Azim (2008). Moreover, the adjusted R^2 of model (6) is more than that of model (7). The combined value relevance of earnings and book values is more than that of operating cash flows and book values.

Model (8), (9) and (10) are used to test the relationship between the stock price and each of bottom line of three main financial statements, but three control variables are added up to these models. Table 4 panel B shows that model (8), (9) and (10)'s findings are the same as model (3), (4), (5). That is, earnings, book values and operating cash flows, each of them is positively and significantly related to stock price. The results of control variables in model (8), (9) and (10) are same as model (6) – model (7). That is, size and growth are positively and significantly related

to stock prices while leverage is negatively and significantly related to stock price. In addition, the highest adjusted R^2 is found in model (8) while the least adjusted R^2 is shown in the model (10). The incremental explanatory power of earnings beyond book values is 0.119 (adjusted R^2 of model (6)-adjusted R^2 of model (9)) while that of book values beyond earnings is 0.047 (adjusted R^2 of model (6)-adjusted R^2 of model (8)). In addition, the incremental explanatory power of cash flows beyond book values is only 0.003 (adjusted R^2 of model (7)-adjusted R^2 of model (9)) whereas that of book values beyond cash flows is 0.095 (adjusted R^2 of model (7)-adjusted R^2 of model (10)). It can be inferred that earnings can be better employed in valuing the securities' prices than that of book values and cash flows from operation. Moreover,

Table 4 Regression Results of Model (6) – Model (10)

Panel A: Regression Results Model (6) – Model (7)

$$P_{it} = \beta_0 + \beta_1 E_{it} + \beta_2 BVE_{it} + \beta_3 SIZE_{it} + \beta_4 LEV_{it} + \beta_5 GROWTH_{it} + \varepsilon_{it} \qquad ...(6)$$

$$P_{it} = \beta_0 + \beta_1 CF_{it} + \beta_2 BVE_{it} + \beta_3 SIZE_{it} + \beta_4 LEV_{it} + \beta_5 GROWTH_{it} + \varepsilon_{it} \qquad ...(7)$$

Variables	Model (6)		Variables	Model (7)	
	Coefficient	t statistics		Coefficient	t statistics
Constant	−103.677	−4.187***	Constant	−111.262	−3.008***
E_{it}	6.763	19.516***	CF_{it}	0.830	2.364**
BVE_{it}	0.542	12.281***	BVE_{it}	1.001	11.911***
$SIZE_{it}$	10.077	4.248***	$SIZE_{it}$	10.876	3.075***
LEV_{it}	−1.964	−4.111***	LEV_{it}	−3.425	−4.939***
$GROWTH_{it}$	4.431	9.486***	$GROWTH_{it}$	6.133	8.965***
F statistics	580.594***		F statistics	235.439***	
Adjusted R^2	0.899		Adjusted R^2	0.783	
n = 326			n = 326		

Table 4 Regression Results of Model (6) – Model (10) (Cont.)

Panel B: Regression Results Model (8) – Model (10)

$$P_{it} = \beta_0 + \beta_1 E_{it} + \beta_2 SIZE_{it} + \beta_3 LEV_{it} + \beta_4 GROWTH_{it} + \varepsilon_{it} \quad \text{...(8)}$$
$$P_{it} = \beta_0 + \beta_1 BVE_{it} + \beta_2 SIZE_{it} + \beta_3 LEV_{it} + \beta_4 GROWTH_{it} + \varepsilon_{it} \quad \text{...(9)}$$
$$P_{it} = \beta_0 + \beta_1 CF_{it} + \beta_2 SIZE_{it} + \beta_3 LEV_{it} + \beta_4 GROWTH_{it} + \varepsilon_{it} \quad \text{...(10)}$$

Variables	Model (8)		Variables	Model (9)		Variables	Model (10)	
	Coefficient	t statistics		Coefficient	t statistics		Coefficient	t statistics
Constant	−199.581	−7.014***	Constant	−128.295	−3.511***	Constant	−125.964	−3.532***
E_{it}	9.835	34.324***	BVE_{it}	1.170	26.193***	CF_{it}	4.380	19.721***
$SIZE_{it}$	19.772	7.299***	$SIZE_{it}$	12.420	3.548***	$SIZE_{it}$	16.077	3.819***
LEV_{it}	−1.809	−3.127***	LEV_{it}	−3.577	−5.144***	LEV_{it}	−3.415	−4.105***
$GROWTH_{it}$	3.221	5.824***	$GROWTH_{it}$	6.485	9.645***	$GROWTH_{it}$	4.332	5.413***
F statistics	469.082***		F statistics	288.773***		F statistics	179.883***	
Adjusted R^2	0.852		Adjusted R^2	0.780		Adjusted R^2	0.688	
n = 326			n = 326			n = 326		

*** = significant level at 0.01 level;

** = significant level at 0.05 level;

* = significant level at 0.10 level

Definition of variables are as follows.

P_{it} = Stock's price per share of firm i three month after fiscal year ended t;

E_{it} = Earnings per share of firm i year t;

BVE_{it} = Book value of equity per share of firm i year t;

CF_{it} = Net cash flow from operation per share of firm i year t;

$SIZE_{it}$ = Size of firm i year t measured by log of total assets of firm i year t;

LEV_{it} = Leverage of firm i year t measured by total liability/total equity of firm i year t; and

$GROWTH_{it}$ = Growth of firm i year t measured by market value of equity/book value of equity of firm i year t; and

ε_{it} = error term.

book values can be better used in explanation of stock prices than operating cash flows.

In sum, earnings are the best value relevant information compared to book values and cash flows for the listed companies in SET100. The result is consistent with Bartov et al. (2001), Biddle et al. (1995); Haw et al. (2001); Charitou and Vlittis (2010). They summarized their research's results in the same direction that earnings dominate the operating cash flows in the explanation of market values of equities. The plausible reason of consistent findings of this paper with the previous

studies in developed markets is that most content of law in Thailand is influenced by common law system countries (Triamanuruck, Phongpala and Chaiyasuta, 2004) same as Anglo-Saxon countries; although Thailand is the code law country. Thai financial reporting standards are also developed by the private body, the Federation of Accounting Professions same as the developed countries. Therefore, earnings are the best value relevant information compared to book values and cash flows for the listed companies in SET100 in Thailand.

5. Conclusion and Discussion

The paper is set out to investigate the relative value relevance of earnings, book values and cash flows of listed companies on SET100. The main findings is that earnings, book values and cash flows are value relevant information. Earnings and book values have greater ability to explain the changes in stock prices than that of cash flows and book values. For univariate analysis and incremental explanatory power analysis, earnings have the highest explanatory power in describing the variation in stock prices compared with book values and cash flows while the cash flows have the least explanatory power in explaining the changes in stock prices. This result is consistent with many previous studies (e.g. Biddle et al., 1995; Bartov et al., 2001; Charitou and Vlittis, 2010). In addition, the researcher adds three control variables which composes of size, leverage and

growth of firm. The findings reveal that size and growth is positively and significantly related to stock prices while leverage is negatively and significantly related to stock prices. The adding control variables in research model does not affect the value relevance results of accounting information. Earnings is the best value relevant information compared with book values and cash flows from operation. Thai investors pay attention to earnings information more than other two types of information. The plausible reason may be that earnings are performance measure and they are directly linked to the dividend received by investors (e.g. Arnott and Asness, 2001; Raj and Jha, 2012). Dividend is the important benefits to investors and it is also consistent with the price valuation model of finance theory (e.g. Dividend Discount Model: DDM). The results of this paper will provide the guideline for the Federation of Accounting Professions (FAP) for revising the financial reporting standards related to earnings for such as TAS 18 Revenue; TFRS 13 fair value measurement. In addition, although the book values and cash flows are the less value relevant information than earnings, the FAP should also pay attention to revising the TAS and TFRS related to accounting items in Statement of Financial Position and Statement of Cash Flows for fairly measurement and presentation which can enhance the relevance properties of book values and cash flows in the future.

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