CAN FVA AND CG PRACTICE PROVIDE INFORMATION-EFFICIENCY?: EMPIRICAL EVIDENCE FROM THAILAND EMERGING MARKET

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Abstract. *This paper shows the evidence of information-efficiency provided by FVA and CG practice. The data of 76 listed firms representing SET 100 on the main board of Thailand Stock Exchange over the period 2007-2015 were collected and analyzed. The empirical model developed from Watts and Zimmerman's PAT model was designed to test the efficiency of publicized information provided by FVA and CG practice. Fixed Effect estimator was used to analyze the data. The result indicates that the players in the market put their trust in using publicized information, provided by FVA and CG practice, in their decision because there is a signal of the value relevance between prediction variables and the firms' real value. Hence, it is evidently expressed of the information-efficiency.*

Keywords: *Fair value, FVA, CG, Corporate governance, ROIC, PAT model, stock returns, value relevance, firm value, information-efficiency*

Introduction

Educators and professional setters genuinely accept the use of Fair Value Accounting (FVA) for illiquid and intangible assets (Schipper, 2005a., 2005b.; Ball, 2006; Watts, 2006; Herrmann et al., 2006; Kothari et al., 2009; Hail et al., 2010; Laux and leuz, 2009; Lhaopadchan, 2010). Kim and Yoon (2012), Ijeoma, N. B (2014) had studied to ascertain the contribution of FVA on providing useful information for investors and their results showed that the FVA could provide more useful information to investors than historical cost. Logically, it can be imply that FVA provides more relevant information to investors in their capital allocation decisions (Barth and Clinch, 1998; Schipper, 2005a.; Herrmann et al., 2006). But management is willing to pick up Cost Model for PPE and intangible assets, because FVA for illiquid non-financial assets is associated with firm-period costs. However, for more liquid assets groups, FVA is more preferable because it is associated with net profit. Regardless of the impact on financial reports, FV Model is positively associated with reliance on debt financing (Christensen and Nikolaev, 2012).

Nowadays, almost all countries in this world adopt International Accounting Standards (IAS) for recording and reporting financial transactions. IAS have been developed using an objectives-oriented approach. They provide only a limited amount of guidance and fewer illustrative examples and interpretations, and encourage the use of professional judgment in applying general principles to specific transactions (Spiceland et al, 2013). Therefore, for a proper practice, Landsman (2007) suggested that the disclosure of the underlining assumptions used when estimating FV should be comprehensive enough to balance the skeptical practices and moral hazard problems. But Song, Chung, Thomas, Wayne, Han (2009) found that while disclosure did not reduce the information asymmetry and credibility issues, good corporate governance did increase reliability. Consequently, although FVA seems to lessen the skeptical practices of managers, listed firms actually need to have good corporate governance to be reliable players in the market.

Practically, for capital market, efficiency is defined relative to a publicly information (Scott, 2012; Fama, 1970, 1991). If the publicly information is incomplete, price of security will not fully reflect real firm's value. But the quantity and quality of publicly available information have to be trade-off against a prompt and full reporting action (Scott, 2012). Considering the information effectiveness, the Accounting Standards have been continuously revised to heighten the reliability and usefulness of financial reports. In addition, security market regulators (SEC), in order

to raise the confidence of investors, have set up key measurements and regulations to provide a fair play environment for investors (i.e. corporate governance and solid disclosure).

The major movements to raising the Thai capital market trustworthy started at 1997, financial crisis (Montreevat, 2006), by improving the corporate governance (CG) of listed firms. The government acted as a host in conducting public campaigns to raise public awareness on the benefits of good CG. In the meanwhile, CG is motivated, by the Stock Exchange of Thailand (SET), to be a necessary tool for listed firms to establishing the transparent working environment and enhancing the firms' competitiveness to preserve capital and to increase shareholders' long-term value. Since 2001, SET with the co-operation of the Thai Institute of Directors (IOD) has announced the firms' rankings according to their CG performance on "*voluntary*" CG Codes.

While CG ranking is working, SET with the co-operation of Federation of Accounting professions (FAP) have unconditionally adopted International Accounting Standards (IAS) as guidance for professional practice, by gradually revising all Thai Accounting Standards to be compatible to IAS, and continuously has listed firms apply to their assets and liabilities as an ongoing project.

As the Accounting Standards enforce listed firms to use FVA and SET has conducted and announced CG performance ranking for nearly a decade, the publicized disclosed-information should be faithfully representing the real underlying assets and liabilities of the firms as well as giving pictures of firms' future economic prospects. And it is inevitably that investors have to use the publicized disclosed-information for their buying and selling stocks, no matter how serious is the instability economic condition. Hence, this paper would like to find out whether both accounting numbers prepared under FVA and published CG ranking can logically signal the real firms' values to the investors. And whatever is the result, this study expects to encourage some understanding and a contribution of FVA and CG in Thailand. Hopefully, the outcomes could give good indicators for balancing the measurement of investor's best interests and management's best interests.

The rest of this paper is orderly as follows - the second part is relevant literature and research design; the third part is sample and research methodology; the fourth part is the empirical result of the study and, finally, conclusion and discussion.

Review of Literature and Research Design

Fair Value Accounting (FVA)

The concept of FVA emerged because of three factors; first, the objective in preparing financial statements which was clearly biased towards meeting the needs of users – mainly creditors and investors – in terms of forecasting data, placing particular emphasis on the usefulness of accounting information for external parties in their economic decision-making, second, the growing use of complex financial instruments and the high level of market volatility, third, the desire of the Security market regulators in particular, to minimize what is called management bias (Casta, 2004; Wallison, 2009). It is believed that management has an incentive to inflate the value of a firm's assets, and in many ways. Marking a firm's assets to market is an effective way of taking this element of financial statement manipulation out of management's hands.

The foundational ideas of FVA were adopted in 1993 in FAS 115 to make financial statements easier to compare and to have values presented on balance sheet fall in line with reality or underlying economic values (Ray, 2012). FVA bases on two underlying concepts: 1) asset valuations should be consistently applied across industries so that firms can be more easily compared, 2) where there is a market price for an asset, under ordinary circumstances, it should be used in the balance sheet. However, not all the firms have the same business structure, this will make firms in the same industry difficult to compare. In addition, market-based movements in assets values can create substantial volatility in balance sheets and earnings reports. Finally, where there is no visible market price, other valuation models must be used, and these can vary from firm to firm, calling comparability into question.

International Financial Reporting Standard (IFRS) defines fair value as the amount for which an asset could be exchanged, between knowledgeable, willing parties on an arm's length transaction (Spiceland et al., 2013). Due to the definition of fair value, the ideal method to measure this value is from "active market price". But FVA is not the same as "mark-to-market" accounting. In some situations, market value may not be available but fair value can be

estimated. Thus, in certain condition, market value does not represent the fair value. Principally, FVA represents the revaluation of unsold assets and liabilities to market prices on a systematic basis.

The International Accounting Standard Board sets out 3 approaches for determining fair value using a valuation technique:

- A market approach – prices and other relevant information
- An Income approach – converts future net cash flows to a single discounted Present Value.
- A cost approach – reflects the amount that would currently be required to replace capacity of asset (referred to "*current replacement cost*")

Regardless of assumptions and methods used for fair value estimations, the primary advantage of FVA is that by measuring assets at their fundamental values which reflect prevailing market conditions. FVA provides timely and objective information, enhances transparency and encourages on time adjusting actions before a small degree of stress aggravates into a major problem. It is believed that FVA provide more relevant and understandable information than cost-based measures, especially financial instruments which will reflect the current cash equivalent under FVA rather than the price of a past transaction. With the passage of time, historical prices become irrelevant in assessing entity's current financial position.

FVA was chosen as a better solution in a compromise between reliability and relevance of accounting information (Barth, 2006). Even if FVA can be manipulated, its value-relevant quality is still more useful than Historical Cost Accounting (Laux, 2012). Supporting by Bleck and Liu (2007) whose model can explain a power of FVA in providing greater transparency on the underlying asset values and serving as an early warning sign on the firm's financial health. Moreover, the results from studies of Barth (1994) and Venkatachalam (1996) show that the disclosed FVA of investment assets and their gains and losses are reflected in stock prices. Consequently, the FVA estimates are capable to represent expectation of the investors, regardless of errors in measurement (Hitz, 2007).

For merely a decade, Thailand has revised all accounting standards in order to be compatible to IAS, whereas FVA has been modified to add an option to use FV through income for subsequent measurement of any asset and liability in order to correct an accounting mismatch (Masoud & Daas, 2014). Apart from an ongoing project of revisal Thai Accounting Standards, the Thai listed firms have been applying FVA to their assets and liabilities since 2007.

Corporate governance (CG)

Black (2001) was one of the first to study the relationship between CG and the firm's performance and found a positive relation. Later the study of Brown and Caylor (2004) found the relationship between bad corporate governance and lower performance. Moreover, the study of Drobetz, Schilhofer and Zimmerman (2004) found positive impact of CG to firm's value and when they compared performance between the good CG firms and the bad CG firms, the result showed that investors gave their attention to performance of the good CG firms. Confirming by Durnev and Kim (2007), Klapper et al. (2002), Black, Jang and Kim (2006), who provided evidences that companies with higher governance and transparency scores enforced higher firm values—and that governance valuation effect was more pronounced in countries with weaker legal systems.

The adoption of CG practices to stock markets in developing countries stimulated new approaches in research and study, such as Utama and Utama (2005), Martani and Saputra (2009), Morey et al. (2009), Moradi et al. (2012), Ergin (2012) etc. whose findings confirm the positive and significant effects of CG ranking/index to financial performance, accounting performance and share prices.

After the economic crisis in year 1997, Thailand had been deeply realized the importance of the rebuilding capital market confidence by monitoring strong disclosure and accounting standards as well as practices, legal and regulatory enforcement, and CG. Since then, significant CG reforms had been introduced and were underway. In December 1999, The IOD was found and has been conducting research and surveys on CG since 2001. Its reports have been recognized by the National Corporate Governance Committee (NCGC) and agencies concerned as the most comprehensive corporate governance study of Thai listed firms to date (Montreevat, 2006). Therefore, NCGC has disclosed CG Rating to public and featured it as equally as financial data of listed firms.

The IOD's assessment criteria for CG are based on the principles of good corporate governance by the Organization for Economic Cooperation and Development and by the SET. The sources for information scoring are – firm annual

report, annual information filling (Form 56-1), notice and minutes of firms' shareholders meeting, firm website, information on SET/SEC database, and other publicly available information. There are 235 assessment criteria for scoring and being measured in the following five categories (Thai Institute of Directors, 2015).

Table 1: assessment criteria for scoring and being measured

	2014		2015	
	Items	Weight	Items	Weight
• Rights of Shareholders,	33	15%	32	15%
• Equitable Treatment of Shareholders,	19	10%	19	10%
• Role of Stakeholders,	28	20%	28	20%
• Disclosure and Transparency,	50	20%	50	20%
• Board Responsibilities	107	35%	106	35%

Source: Corporate Governance Report of Thai Listed Companies (CGR) 2015.

After scoring, listed firms are classified into six groups according to their CG scores (Figure 1) in the CGR publication. However, only list of firms receive good CG rating and above will be publicized, in late November each year, by SET and IOD using rewarded stamps to illustrate their classes.

Figure 1: Classified CG scores, Rewarded Stamps, and description

Score	Number of Stamps	Description
90-100		*Excellent* (publicized)
80-89		*Very Good* (publicized)
70-79		*Good* (publicized)
60-69		Satisfactory
50-59		Pass
Lower than 50	No stamp given	N/A

Source: Corporate Governance Report of Thai Listed Companies (CGR) 2015.

As the SET and IOD using rewarded stamps to illustrate the firms' CG practice, this paper will use the ceiling scores of their rewarded stamp-classes represent their achievements in the database.

Information efficiency and Valuation Model

Stakeholders and market players have a great interest in the information efficiency in security markets because of a belief in the relative of those published information to security prices. Since the first generation of capital market researchers, Ball and Brown (1968) and Beaver (1968), there were three major concurrent developments in finance and economics: (1) positive economic theory, (2) the efficient markets hypothesis and the capital asset pricing model (CAPM) and (3) the event study of Fama et al. (1969) (Kothari, 2001). Despite of accounting theories and accounting policies, positive theory researches began using changes in security prices as an indicator to imply whether timely information is useful to stakeholders and market players. Beyond those periods of early papers, the positive theory researchers expand their studies to measure firm's performance and stock returns over relatively long, span time periods as market participants have access to unlimited timely sources of information (such as Foster, 1977; Penman, 1980 etc.). Overall, those prior studies clearly prove that accounting is not an only source of information affecting security prices.

Apparently, previous valuation model studies use either positive theory or the capital asset pricing model (CAPM). Ohlson (1995), Feltham and Ohlson (1995) and Dechew et al. (1999) introduce the residual income valuation model, instead of using total income or changes in income. This model defines price as the sum of book value of equity and the discounted present value of expected future residual earnings (Kothari, 2001). Residual income valuation models are a transformation of the dividend-discounting model but express value directly in terms of current and future accounting numbers, book values and earnings.

Another path of research on the time-series test is the positive accounting theory (PAT) research which is lessened a conditional estimation of the cross-sectional regression. Conditional estimation approach is based on economic analysis (Kothari, 2001). The conditional approach models the cross-sectional variation in earnings' autocorrelation coefficient as a function of its economic determinants. That is, the coefficient is hypothesized to vary with the realized values of a set of conditioning variables. Accruals and cash flows are the two most commonly examined components of earnings. However, for broader implication, combining economic transactions with accounting numbers of those transactions will probably give more reasonable outcomes than fitting time-series models on earnings components (Kothari, 2001). Watts and Zimmerman (1986, 1990) formulated PAT model based on three assumptions which view from management's best interests; first, the bonus plan, second, the debt covenant, third, the political cost. Generally, the more a new standard reduces accounting policy choices, the stronger a manager is likely to reaction, especially, applying FVA to a firm's assets and liabilities, which will increase earnings volatility. But PAT takes the view that firms organize themselves in the most efficient manner so as to maximize their prospects for survival (Scott, 2012). According to the theory, management may have incentives to disclose more information voluntarily to increase the confidence of stakeholders, particularly investors, on the performance and prospects of the firm and could possibly influence firm value (Core 2001; Amir & Lev 1996; Al-Akra & Ali 2012; Uyar & Kilic 2012; Gamerschlag 2012; Oliveira et al. 2010; Anam et al. 2011; Vafaei et al. 2011).

Theory and Research Design

According to the investors' utilization of information, markets can be efficient with ability to fully reflect real firm value even if most investors are somewhat unreasonable (Jensen, 1978). "Information", in this paper, is evidence that has the potential to affect an individual's decision (Scott, 2012). Indeed, investors can have information from a variety of media. Therefore, not only accounting numbers but also any useful information from any source could be used by investors to make an impact on stock price.

Malkiel (2003) and Graham (1965) believe that while stock market in the short run may be a voting mechanism, in the long run it is a weighing mechanism. True value will win out in the end. Supporting by the studies of Fama and French (1988), Poterba and Summers (1988), and Fluck, Malkiel and Quandt (1997), theirs show that there is negative serial correlation in stock returns at longer horizons. Moreover, if one wants to measure anomalies, Fama and French (1993) suggest using a three-factor asset-pricing model, price-to-book value and size, as the benchmark. As most of the former studies that use PAT to test the information effectiveness, this paper will keep the same track to answer the research question.

"*Positive*" refers to a theory that attempts to make a good prediction of real world events (Scott, 2012). PAT takes the view that firms organize themselves in the most efficient manner so as to maximize their prospects for survival. According to PAT's view, firm will choose accounting policies obtaining corporate governance. Regardless of others, Watts and Zimmerman (1986, 1990) build up PAT model referring three hypotheses; (1) the bonus plan hypothesis, (2) the debt covenant hypothesis, (3) the political cost hypothesis. Acknowledging Watts and Zimmerman's model, most of the subsequent information-effectiveness studies adopt or develop their model for testing economic activities effect (Dechow, 1994; Amir & Lev 1996; Core 2001; Oliveira et al. 2010; Vafaei et al. 2011; Anam et al. 2011; Al-Akra & Ali 2012; Uyar & Kilic 2012; Gamerschlag 2012).

With appropriateness, Watts and Zimmerman's PAT model is developed for testing the value relevance of publicized information, in the context of FVA (i.e. accounting numbers) and CG practice (i.e. ceiling score of each class), and firms' real values. The model is based on two assumptions for information:

      Assumption 1: disclosed and publicly information by regulators and setters are a timely cost-effective information source since they are readily available and reasonably well understood by investors and market participants.

      Assumption 2: individual's receipt of information and subsequent belief revision is really a continuous process.

And according to the relevant literatures, the prediction variables, using the numbers from FVA and CG practice scores, expecting to have influences on the firms' real values are: (1) return on invested capital (ROIC), gross profit to net income ratio (GTN), asset turnover ratio (AT), return on sales ratio (ROS) - as key indicators for the bonus plan hypothesis. The ROIC is a tool to warning management and investors of how good a firm is at turning capital into profits, and as a critical tool, ROIC is always used to evaluate the value creation capability of a firm while GTN

is a number which probable showing earning volatility from management's decision on accounting policy and indirect economic transactions. The AT measures management's ability to increase sales from a given level of investment while ROS measures management's ability to control expenses and increase revenues to improve profitability. (2) earning per share (EPS), debt ratio (DR), return on stockholders (ROSH) – as key indicators for the debt covenant hypothesis. The EPS is practically the most widely used to measure performance while DR is a measure of financial risk. The ROSH measures return that reflects an effect of financial leverage to the shareholders. (3) firm size (FS), change in investing cash flow (Δ ICF), CG scores – as key indicators for the political cost hypothesis. These indicators are undeniable dealing with law, incremental costs, regulations and taxes. For firm-value indicator, this paper will use stock returns (i.e. changes in stock prices) as an outcome to infer whether information from FVA and CG practice are utilized effectively by players in the market. So, conclusively, all prediction variables are expected to reflecting the firms' real value.

Consequently, the underlying model framework can be presented as follow:

| Return | = | Bonus plan variables + Debt covenant variables + Political cost variables |

Sample and Research Methodology

This study uses the Fixed Effect estimator for an analysis of the data based on the relevant empirical model. The Fixed Effect estimator is fitted for the database used in the study because it is designed for panel data analysis and it is applicable for the panel with fixed individual effect.

Sampling

The study collects data of listed firms representing SET 100 on the main board of Thailand Stock Exchange which have reported and disclosed of financial information and others non-accounting information according to the regulations, continuously over the period 2007-2015, and have an accounting year ended at December 31. The database will exclude ones that have any missing data/information disclosed by SET. Eventually, there are 608 firm-years sample to be tested in this study.

The Empirical Model

This paper has developed a model based on Watts and Zimmerman's PAT model which composes of publicized information underlying three hypotheses viewed from management's best interests; (1) the bonus plan hypothesis, (2) the debt covenant hypothesis, (3) the political cost hypothesis, and subjectively, this model is expected to be the expression of management's willingness to disclose information to increase the confidence of stakeholders and market players on the performance and prospects of his firm and can possibly influence firm value (Core 2001; Amir & Lev 1996; Al-Akra & Ali 2012; Uyar & Kilic 2012; Gamerschlag 2012; Oliveira et al. 2010; Anam et al. 2011; Vafaei et al. 2011).

The objective of this model is to combine the achievement of the three hypotheses and the indicator of the firms' real value in the securities market into one equation (eq.1).

$$\Delta P_t = \beta_0 + \beta_1 ROIC_t + \beta_2 ..... + ... + \beta_n CG_{t-1} + \in \qquad ….…..... (1)$$

where:

$$\Delta P_t = \frac{P_t - P_{t-1}}{P_{t-1}}$$

P_{t-1} = stock price of firm $_i$ at the beginning of period

P_t = stock price of firm $_i$ at the end of period

$$ROIC_t = \frac{OI_t\,(1-T_t)}{BV\ of\ IC_{t-1}}$$

$$GTN_t = \frac{Gross\ Profit\ rate_t}{Net\ Profit\ rate_t}$$

$$AT_t = \frac{Sales_t}{Assets_t}$$

$$ROS_t = \frac{Profit_t}{Sales_t}$$

$$EPS_t = \frac{Net\ Profit_t}{number\ of\ outstanding\ shares_t}$$

$$DR_t = \frac{Total\ debt_t}{Total\ equity_t}$$

$$ROSH_t = \frac{Net\ Profit_t}{Average\ Owner\ Equity_t}$$

FS_t = common log of average asset of firm $_i$ for a period

$$\Delta ICF_t = \frac{ICF_t - ICF_{t-1}}{ICF_{t-1}}$$

ICF_{t-1} = net investing cash flows of firm $_i$ at the beginning of period

ICF_t = net investing cash flows of firm $_i$ at the end of period

CG_{t-1} = the ceiling scores of rewarded-stamps of firm $_i$ at the beginning of period

$\in$ = Tolerance value

Variable Measurement

Table 2: Variable measurement and definition

Variable	Definition	Calculation and Measurement
ΔP_t	Yield or stock return	The percentage change in market price per share of firm$_i$
FS_t	Firm's size	Common logarithm of the average book value of total assets of firm$_i$
EPS_t	Earnings per share	The allocation of yearly net profit of firm$_i$ to each outstanding share of firm$_i$ (or average net profit per share)
DR_t	Debt ratio	The debt to equity ratio of firm$_i$
AT_t	Asset Turnover ratio	Total revenues to average total assets ratio of firm$_i$
ROS_t	Return on Sales	The ratio of net profit to total revenues of firm$_i$
$ROSH_t$	Return on Stockholders	The ratio of net profit to average total equity
CG_{t-1}	Corporate governance scores at the beginning of period (Each year, after conducting research on CG, IOD and SET publish the results in late November.)	a) For the firm with rewarded-stamps - the ceiling scores of their rewarded-stamps at the beginning of period will be used b) For the firm with no rewarded-stamps - a dummy score of 69% will be used.
$ROIC_t$	Return on invested capital (Damodarun, 2007)	A profitability ratio which is calculated by dividing the after-tax yearly operating income of firm$_i$ by the book value of invested capital of firm$_i$ at the beginning of the period.
ΔICF_t	Change in investing cash flow for period$_t$	Percent change in net cash flows from investing activities of firm$_i$
GTN_t	Gross profit to Net income ratio	The yearly gross profit rate to net profit rate of firm$_i$

Research Question

Are the numbers from the FVA and CG practice efficiently utilized by stakeholders and investors to assess the firms' real value?

If there is a value-relevance, the answer will be implied that all players have their trust in using publicized information in their decision and it is evidently expressed of that information efficiency.

Empirical Result of the study

In order to have an answer to the research question, this paper develops an empirical model based on Watts and Zimmerman's PAT model, and uses the Fixed Effect (FE) estimator for the database analysis (cross-sectional time-series data). FE estimator allows us to analyse the impact of variables that vary overtime.

Summary statistics

Table 3: Correlations

	FS	CG	GTN	Δ ICF	ROIC	EPS	DR	ROSH	ROS	AT
FS	1									
CG	.393(**)	1								
GTN	-.048	-.055	1							
Δ ICF	.040	.106(*)	.017	1						
ROIC	-.283(**)	.057	.015	.078	1					
EPS	.466(**)	.249(**)	-.014	.029	.159(**)	1				
DR	.678(**)	.219(**)	-.021	.049	-.322(**)	.062	1			
ROSH	-.088(*)	.146(**)	.038	.068	.852(**)	.283(**)	-.186(**)	1		
ROS	.088(*)	-.186(**)	-.013	.069	.445(**)	.244(**)	.069	.547(**)	1	
AT	-.261(**)	-.127(**)	.072	.014	.278(**)	.006	-.372(**)	.171(**)	-.272(**)	1

** Correlation is significant at the 0.01 level (2-tailed).
*   Correlation is significant at the 0.05 level (2-tailed).

From table 3- almost all variables show significant relationship to other variables except GTN and Δ ICF. Consequently, in running FE estimator, this study will choose the robust standard errors to obtain more efficient model.

Empirical Result

This paper develops an empirical model based on Watts and Zimmerman's PAT model. The objective of the model is to find the predictors of the three hypotheses that can prove a value relevance to the indicator of the firms' real value.

$$\Delta P_t \quad = \quad \beta_0 + \beta_1 ROIC_t + \beta_2 ..... + ... \quad + \beta_n CG_{t-1} + \in \quad\quad .... (1)$$

Stock price changes overtime by the players in the capital market. The publicized disclosed- information is the only cost-effective sources that support the players' decision. If the players trust the information, the stock price will be reflected by the chosen key factors. Indeed, trust depends on players' perception of key factors that firms have been relying on for their performance and prospect. This study tries to point out those key factors by using the empirical model (eq.1) to analyse the value relevance, and the results are shown in table 4-5.

Table 4: Fixed Effect Model output (adjusted robust standard error) -Significant level at 0.05

	Year 2008 - 2015 (608 observations, 76 firms) Dependent variable: ΔP_t				
	Independent Variables.	Beta Coefficient	Std. err.	P>[t]	t
MODEL 1:	ΔICF_t	-.001886	.0004	0.000	-4.70
$R^2 = 0.1039$	EPS	.017896	.0051	0.001	3.53
$Corr(u\_i, X_b) = -0.7230$	DR	.014562	.0042	0.001	3.44
$Rho = 0.20002$	FS	-.425310	.1853	0.025	-2.30
	CG_{t-1}	1.02041	.3267	0.003	3.12
	ROIC	.859765	.3798	0.026	2.26
	CONSTANT	3.5657	1.7866	0.050	2.00
$\Delta P_t = 3.5657 + .8598 ROIC_t + .0146 DR_t + .0179 EPS_t -.0019 \Delta ICF_t -.4253 FS_t + 1.0204 CG_{t-1}$					
	Independent Variables.	Beta Coefficient	Std. err.	P>[t]	t
MODEL 2:	ΔICF_t	-.00186	.0004	0.000	-4.53

$R^2 = 0.1292$	EPS	.01419	.0041	0.001	3.44
$Corr(u\_i , X_b) = -0.7099$	DR	.03257	.0077	0.000	4.21
$Rho = 0.1994$	FS	-.47001	.1480	0.002	-3.18
	CG_{t-1}	1.0217	.3053	0.001	3.35
	$ROSH_t$	.00879	.0030	0.005	2.91
	GTN_t	-.00203	.0007	0.003	-3.09
	CONSTANT	3.9852	1.4420	0.007	2.76

$$\Delta P_t = 3.9852 -.002GTN_t + .0326DR_t + .0142EPS_t + .0088ROSH_t -.0019\Delta ICF_t -.47FS_t + 1.0217CG_{t-1}$$

Table 4: after using FE estimator, there are only two models that show promising value relevance with 95% confidence. The first model, the prediction variables are ROIC, DR, EPS, Δ ICF, FS, and CG with an explaining power of 10.39%, the correlation of error μ_i to the model of -0.723. The second model, a better result, the prediction variables are GTN, ROSH, DR, EPS, Δ ICF, FS, and CG with an explaining power of 12.92%, the correlation of error μ_i to the model of -0.7099.

After running FE estimators and having the best two models, this paper has the database improved by excluding the cases which have outlier-returns more than two years. In order to categorize the outlier-returns, this paper uses the median $\pm$ 3 semi quartile range to measure the outliers.

Table 5: Fixed Effect Model output (adjusted robust standard error) -Significant level at 0.05
Year 2008 - 2015 (520 observations, 65firms)
Dependent variable: ΔP_t

	Independent Variables.	Beta Coefficient	Std. err.	P>[t]	t
MODEL 3:	CG_{t-1}	0.73083	.1973	0.000	3.70
$R^2 = 0.1566$	ΔICF_t	-.00204	.0004	0.000	-5.42
$Corr(u\_i , X_b) = -0.7598$	ROIC	.32133	.5373	0.552	0.60
$Rho = 0.2545$	EPS	.01014	.0063	0.112	1.61
	DR	.03936	,0191	0.043	2.06
	$ROSH_t$	.95426	.3435	0.007	2.78
	ROS	-.09447	.0882	0.288	-1.07
	AT	2.52678	.8420	0.004	3.00
	CONSTANT	-1.05745	.2022	0.000	-5.23

There are 3 prediction variables that cannot include in the model because they are insignificant (i.e. ROIC, EPS, and ROS. However, the explaining power has improved to 15.66% and the constant number is much smaller than model 1 and 2, which show that the prediction variables in this model are better indicators for firms' value.

	Independent Variables.	Beta Coefficient	Std. err.	P>[t]	t
MODEL 4:	CG_{t-1}	0.75054	.2019	0.000	3.72
$R^2 = 0.1526$	ΔICF_t	-.00204	.0003	0.000	-5.44
$Corr(u\_i , X_b) = -0.7533$	DR	.04013	.0144	0.007	2.78
$Rho = 0.2392$	$ROSH_t$	1.18318	.1988	0.000	5.95
	AT	2.65269	.7750	0.001	3.42
	CONSTANT	-1.0607	.2044	0.000	-5.19

$$\Delta P_t = -1.0607 + 2.6527 AT_t + .04013 DR_t + 1.1832 ROSH_t - .00204 \Delta ICF_t + 0.75054 CG_{t-1}$$

Table 5: there is only one model (model 4) that show strong value relevance with 95% confidence. The prediction variables are AT, ROSH, DR, Δ ICF, and CG with an improved explaining power of 15.26%, and the correlation of error μ_i to the model of - 0.7533. Likewise, both the number and the standard error of constant in the model is much smaller than model 1 and 2, which can be interpreted that the prediction variables in the model can logically explain the change in firms' values with more reliable.

Conclusion and Discussion

Conclusion

The players' trust in publicized disclosed-information will undoubtedly have an influence on not only expected firm value but also the perception of players themselves. In assessing the impact of key critical indicators on expected firm value, this study uses FE estimator to test the value relevance of these indicators to changes in prices of the samples (SET 100).

Building the empirical model based on Watts and Zimmerman's PAT model, and using the FE estimator for the data based analysis, the plausible outcome that can answer the research question is the expression of model 4. Taking "*the aptness*" into consideration, the equation of model 4 is the best model to prove that there is the value relevance of publicized disclosed-information, in the context of FVA and CG practice, and firms' real values because the chosen indicators can explain the stock return with the explaining power of 15.26% regardless of correlation of error.

$$\Delta P_t = -1.0607 + 2.6527\ AT_t + .04013\ DR_t + 1.1832\ ROSH_t - .00204\ \Delta ICF_t + 0.75054\ CG_{t-1}$$

Since the expression equation has proved that there is a value-relevance, therefore, this finding can be implied that the players in the stock market put their trust in using publicized information, provided by FVA and CG practice, in their decision. And it is evidently expressed of the sign of information-efficiency. Furthermore, the finding, too, can be implied that the perception of the players of the benchmarks for specifying listed firms' performance and prospect are likely to be the predictors presented in model 4. This paper's finding is consistent to previous studies which evidently prove that the management's willingness to publicized disclosed-information have positive signs of confidence of stakeholders and market players on the performance and prospects of the firm and logically, can influence firm value (Core 2001; Amir & Lev 1996; Al-Akra & Ali 2012; Uyar & Kilic 2012; Gamerschlag 2012; Oliveira et al. 2010; Anam et al. 2011; Vafaei et al. 2011). However, when comparing the expressions from unadjusted sampling to adjusted sampling, the more the spreading of the returns, the more the significance of ROIC, FS, and EPS in the model.

There are one indicators, Δ ICF, which have negative influences on stock return. The negative influence between Δ ICF and stock return may prove an insignificant indicator because of their tiny negative coefficient (- 0. 00204). Moreover, this indicator might not have strong impact on players' decision during the year 2008 - 2015 because of Thailand's political climate.

Discussion

From the expression in model 4, CG significantly has positive effects to the change in firm real value and they are the most effectiveness information for the players in the stock market (*β*). This paper's finding has the same result as Klapper et al. (2002), Drobetz, Schilhofer & Zimmerman (2004), Utama and Utama (2005), Black, Jang & Kim (2006), Durnev and Kim (2007), Martani and Saputra (2009), Morey et al. (2009), Hodgson, Lhaopadchan & buakes (2011), Moradi et al. (2012), Ergin (2012), whose studies provide evidences that firms with higher CG scores enforced higher firm values, or in other words, there are positive and significant reflects of CG scores to financial performance, and share prices. But for ROIC which is a measure of capital efficiency and it is preferable for modern investment practice because it is unaffected by financial leverage and share buybacks (Mauboussin and Callahan, 2014), the finding of this paper has shown the adverse result to the previous studies of Cruise (2012), Koller, T. & Jiang, B. (2006, 2007), Nadim (2013), Lloyd and Davis (2007), Bernstein Research (2010).

Other indicators which have significantly positive effects to firm market value are AT, DR and ROSH. Actually, the DR and ROSH are assigned as the proxy to measure the debt covenant hypothesis in this empirical model and the finding of this paper has the similar implication as Christensen and Nikolaev's (2011), whose study proves that FV model is positively associated with reliance on debt financing. Moreover, the significant relation of DR to stock returns (i.e. ΔP) consistent with the findings of Barbee, Mukherjee & Raines (1996), Mukherjee, Dhatt & Kim (1997), Bandhari (1998), and Leledakis & Davidson (2001). For AT, it is logically to use as a benchmark for the bonus plan hypothesis because during the year 2008 – 2015, it is essential to measures management's ability to increase sales from a given level of investment.

The indicator in the model that show negative signs of value relevance are Δ ICF. Though it shows a significant correlation but its smallest beta coefficient will imply its least influence indicators and also, it may be implied that

players do not pay so much attention to the Δ ICF in their decision making (Bauer et al., 2004) because of Thailand's political climate during the year 2008 – 2015.

As for the result of this study, the numbers from FVA and CG practice have been signaling to be the reliable information to determine a firm value. Conclusively, the study has shown the evidence that the publicized information is relevant and reliable to stakeholders and the players in the stocks market because the chosen indicators in the model can reflect the firms' real value (i.e. stocks return). Therefore, this finding can be implied that all players in the stock market put their trust in using publicized information, provided by FVA and CG practice, in their decision and it is evidently expressed of that information-efficiency. Furthermore, the finding, also, can indicate the benchmarks for specifying listed firms' performance and prospect.

This study apparently, has some limitations. Firstly, the database covers only listed firms representing SET 100 on the main board of Thailand Stock Exchange and excludes those firms that either have any missing information disclosed by SET or have an accounting year ended other than December 31. Secondly, this study has chosen some numbers from publicized disclosed-information as the indicators or benchmarks for specifying listed firms' performance and prospect. Thirdly, this study assumes that the applications of FVA of the sampling are consistent, regardless of which industries they are in. Thereby, for further studies, one can test information-efficiency categorized by industry or the whole market or using quarter database.

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Professional Development:

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- Certificate from Ministry of Commerce: Passing the Audit-Office Auditing Test.
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