The Value Relevance of Accounting Information at Indonesia Stock Exchange

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Abstract

The purpose of this research is to provide empirical evidence concerning value relevance of earnings and book values to stock prices in Indonesia Stock Exchange. Prior researches reveal contradictive result on the topic of declining financial statements relevance in recent context.

The results indicate that by using sample in the year 2000-2009, earnings and book values simultaneously are relevant information in explaining stock prices variance with R^2 are between 0.402-0.667. It also shows that earnings and book values individually are relevant in explaining stock prices variance. Further analysis shows that book values are more relevant than earnings in explaining stock prices variance. The incremental values of book values are higher compared with those of earnings. By combining earnings and book value, we find that the incline and decline pattern of value relevance is statistically insignificant.

1. BACKGROUND

Prior researches show contradictive result about the declining of financial statement relevance in recent context. Such studies (Harris et al. 1994, Collins et al. 1997, Francis & Schipper 1999, Lev & Zarowin 1999, Graham et al. 2000, Barth et al. 2001, Chen et al. 2001, Arca and Mora 2002, Warsidi 2002, Black & White 2003, Shamy & Kaled 2005, Bartov et al. 2005) in several years, around the world indicate this topic is still become researchers concern.

Financial reporting should provide information that is useful to present and potential investors and creditors and other users in making rational investment, credit, and similar decisions (Statement of Financial Accounting Concepts No 1, paragraph 34, p 704). There are still doubts that should be answered about the accomplishment of financial reporting objectives in practice. That doubts will become a basic question for researchers to investigate and search for empirical evidence whether financial statement are relevant or irrelevant for users.

One of the roles of value relevance research is providing empirical evidence as a signal from an information system. Value-relevance research provides evidence as to whether the accounting numbers relate to value in the predicted manner (Beaver, 2002).

The purpose of this research is to analyses the value-relevance of earnings and book values simultaneously and individually to stock prices in Indonesia Stock Exchange. This study also searches for empirical evidence about declining or inclining pattern of value-relevance of earnings and book values in recent years. The samples are manufacture companies listed in Indonesia Stock Exchange in the year 2000-2009.

2. LITERATURE REVIEW AND HYPOTHESES

Many researches investigated the decline of value-relevance of accounting information. Collins et al. (1997) investigated systematic changes of value-relevance of earnings and book values in forty years (1953-1993) and found the value-relevance of earnings and book values simultaneously has not decline. Francis and Schipper (1999) investigates explanatory power of accounting information for measures of market value. The results indicate no evidence of a decline in explanatory power of book values of assets and liabilities (alone or combined with earnings) to market value. Lev and Zarowin (1999) found a systematic decline in the usefullness of financial information to investors over the past 20 years, as manifested by a weakening association between capital market values and key financial variables-earnings namely cash flow and book values.

Warsidi (2002) and Henny (2005) also investigated accounting information value-relevance in Indonesia stock market. Research by Warsidi (2002) in the year 1990-2000 conclude that combined earnings and book values are relevant in explaining stock market price variance with R^2 0.424 in pooled data. Warsidi (2002) showed that earnings and book values individually were also relevant information for measuring market value. Henny (2005) investigated that changes in value relevance of earnings and book values in the year 1999-2003. From the comparison of adjusted R^2, book values had higher explanatory power in explaining stock prices variance than earnings in yearly and pooled data basis.

The theoretical foundation of value-relevance studies is a combination of a valuation theory plus contextual accounting arguments that allow researchers to predict how accounting variables relate to the market value of equity (Beaver, 2002). Ohlson (1995) model have been use extensively in value-relevance research. Ohlson (1995) model presents equity value as a function of earnings and book values. We use this model to analyse significancy between accounting numbers (earnings and book values) that

represents accounting information in financial reporting (income and balance-sheet statement) with market value.

There are many value-relevance research in different stock market ,in different countries, like in Europe (Arce and Mora, 2002), China (Bao and Chow, 1999; Chen et al., 2001), Thailand (Graham et al., 2000), Kuwait (Shamy and Kaled, 2005). Their results show there is significant relation between earnings and book values to stock prices that represents equity market value or in other words there are value-relevace of earnings and book values to stock prices.

This research have purpose to test value-relevance of earnings and book values (individually or simultaneously) to stock prices in Indonesia market context with 10 years period of observation (2000-2009). Based of the previous research we hypothezise that:

H1: Earnings and book values simultaneously have value-relevance to stock prices

H2: Earnings and book values individually have value-relevant to stock prices

We also need to test whether financial statement value-relevance tend to decline or incline in explain equity market values. In Indonesia context, using companies that listed in Jakarta Stock Exchange as a sample, Warsidi (2002) reports there is no pattern of incline or decline in value-relevance of combined earnings and book values over time (1990-2000). The hypotheses that we use in this research as follows:

H3: There is an incline or decline pattern of combined earnings and book values value-relevance over time.

Incremental information comparisons assess whether one accounting measure (or set of measures) provides information content beyond that provided by other (Biddle et al., 1995). In incremental value relevance of earnings and book values, incremental value relevance is defined as the explanatory power of book values (earnings) over and above that earnings (book values) (Graham et al., 2000). This research try to investigates decline or incline pattern of incremental values of earnings and book values. We use hypotheses as follows:

H4: There is decline or incline pattern of incremental earnings and book values over time

3. RESEARCH METHOD

This research use Ohlson (1995) model that widely use by researchers. Stock prices as a function of earnings and book values express in this equation:

$$P_{it} = a_0 + a_1 E_{it} + a_2 BV_{it} + e_{it} \quad (1)$$

Notes:

P_{it} = stock price of the company i in the end of year t

E_{it} = earnings per share reported by company i in t period

BV_{it} = book values per share of company i in the end of year t

e_{it} = error term

Equation (1) used to test first hypotheses (H1) which is to analyse value relevance of earnings and book values simultaneously to stock prices. Coefficient determination of this equation is R^2 [TOTAL].

Based on Gibson (1998) book values per shares and earnings per share are from the formula:

$$\text{Book Value per Share} = \frac{\textit{Total} \text{ Shareholders' Equity - Preferred Stock Equity}}{\text{Number of Common Shares Outstanding}}$$

$$\text{Earnings per Share} = \frac{\textit{Net Income} - \text{Preferred Dividends}}{\text{Weighted Average Number of Common Shares Outstanding}}$$

We use equation (2) and (3) to test the second hypotheses (H2), to analyses value relevance of earnings and book values individually to stock prices. The coefficient of determination from equation (2) and (3) are R^2 [E] and R^2 [BV]. The function models for several hypotheses are model adopted by Easton and Harris (1991) which are:

$$P_{it} = b_o + b_1 E_{it} + e_{it} \quad (2)$$

$$P_{it} = c_o + c_1 BV_{it} + e_{it} \quad (3)$$

We are following Collins (1997) and Shamy & Kayed (2005) to analyze incremental information content provided by earnings and book values. For this purpose we use coefficient determination from equation one (R^2 [TOTAL]), equation two (R^2 [E]) and equation three (R^2 [BV]) to compose incremental explanatory power of earnings and book

values (INCR E and INCR BV). INCR E calculated from R^2 [TOTAL] minus R^2 [BV] and INCR BV calculated from R^2 [TOTAL] minus R^2 [E]. To investigate increase or derease pattern of value-relevance of combined earnings and book values and also incremental value of earnings and book values in all years, we use equations that used by Warsidi (2002) as follows:

$$R^2[TOTAL]_t = \theta_0 + \theta_1 TIME + \varepsilon_t \quad (4)$$

$$INCR\_E_t = \theta_0 + \theta_1 TIME + \varepsilon_t \quad (5)$$

$$INCR\_BV_t = \theta_0 + \theta_1 TIME + \varepsilon_t \quad (6)$$

4. FINDINGS AND ANALYSIS

a. Value Relevance of Combined Earnings and Book Values

Table 1 shows the results of regression equation model (1) with two independent variables, earnings and book values, and one dependent variable stock prices.

Coefficients determination model (1) in ten years data are from 0.402 to 0.667 by which the lowest Adj. R^2 is in the year 2000 and the highest are in the year 2005. In the first three years data, Adj.R^2 increased from 0.402 in the year 2000 to 0.485 in the year 2001 and up to 0.548 in the year 2002. In the year 2003-2009 Adj.R^2 fluctuated from the lowest value 0.514 in the year 2008 to the highest point 0.667 in the year 2005. The result in time-series cross sectional pooled regression Adj.R^2 is 0.546 which means that earnings and book values simultaneously explain 54.6 % of stock prices variance and the 45.4% is explained by other factors.

Table 1 shows that earnings and book values simultaneously has value relevance on stock prices. The result indicates that F statistic is higher than F table (3.15). On yearly data F statistic is 25.171 in the lowest point and 64.425 in the highest point. Coefficients of earnings and book values are also significant at 5%. We concluded that yearly earnings and book values simultaneously relevant in explain stock prices variance.

Table 1 shows that in pooled data, the F value (425.155) is higher than F table (3.00) and significant at 5%. The same conclusion is in yearly data where earnings and book values had value relevance in explaining stock prices variance. We conclude that combined earnings and book values has value-relevance in explaining stock price

variance. This results consistent with Chen et al. (2001) Warsidi (2002), Francis and Schipper (1999).

Table 1 The Results of Regression Model I (Price and Combined Earnings-Book Values)

Year	N	ANOVA	*Adj*. R^2
2000	73	F : 25.171 Sig: 0.000*	0.402
2001	73	F : 34.930 Sig: 0.000*	0.485
2002	73	F : 44.638 Sig: 0.000*	0.548
2003	73	F : 42.930 Sig: 0.000*	0.538
2004	70	F : 55.604 Sig: 0.000*	0.613
2005	70	F : 70.024 Sig: 0.000*	0.667
2006	70	F : 64.425 Sig: 0.000*	0.648
2007	70	F : 58.800 Sig: 0.000*	0.626
2008	73	F : 39.021 Sig: 0.000*	0.514
2009	72	F : 40.584 Sig: 0.000*	0.527
Pooled	706	F : 425.155 Sig: 0.000*	0.546

Notes:
* Significant in 0.05 level

b. Value Relevance of Individual Earnings and Book Values

Table 2 shows regression result based on equation (2) and (3). Regression model is used to test value relevance of earnings and book values individually to stock prices.

Information in Table 2 Model 2 (regression between earnings with stock prices) shows that Adj. R^2 in pooled data is 0.408 which means that earnings explain 40.8% of stock price variance and 59.2% are explain by other factors. Adj. R^2 pooled data of model 3 (regression between book values with stock prices) shows that book values explain 54.1% of stock prices variance and the rest of it explain by other factors.

Yearly data shows that earnings explain 33.5% (the lowest point) in the year 2004 until 54.5% (the highest point) in the year 2007 of stock prices variance. Book values

explain 39.2% (the lowest point) in the year 2000 and 66.4% in the year 2003 (highest point) of stock prices variance.

Comparison between regression model 2 and model 3 shows that book values individually had higher coefficients determination than earnings variable. The regression in pooled data also shows the similar result. The result indicated that book values individually are more relevant than earnings in explaining stock prices variance.

Coefficients of earnings and book values are significant and positive for yearly data and pooled data. This result support hypotheses that earnings and book values individually and separately are relevant in explaining stock prices variance. The result also consistent with Warsidi (2002) and Shamy an Kayed (2005).

Table 2 The Results of Regression Model 2(Price and Earnings) and Model 3 (Price and Book values)

Year	N	Model 2		Model 3	
		Earnings	***Adj*.R^2**	***Book values***	***Adj*.R^2**
2000	73	b_1: 0.001 Sig: 0.000*	0.335	c_2: 0.000 Sig: 0.000*	0.392
2001	73	b_1: 0.001 Sig: 0.000*	0.443	c_2: 0.000 Sig: 0.000*	0.483
2002	73	b_1: 0.001 Sig: 0.000*	0.518	c_2: 0.000 Sig: 0.000*	0.522
2003	73	b_1: 0.001 Sig: 0.000*	0.493	c_2: 0.000 Sig: 0.000*	0.525
2004	70	b_1: 0.002 Sig: 0.000*	0.397	c_2: 0.001 Sig: 0.000*	0.609
2005	70	b_1: 0.002 Sig: 0.000*	0.412	c_2: 0.001 Sig: 0.000*	0.664
2006	70	b_1: 0.002 Sig: 0.000*	0.506	c_2: 0.001 Sig: 0.000*	0.650
2007	70	b_1: 0.002 Sig: 0.000 *	0.544 [a]	c_2: 0.000 Sig: 0.000*	0.631
2008	73	b_1: 0.001 Sig: 0.000*	0.389	c_2: 0.000 Sig: 0.000*	0.503
2009	72	b_1: 0.001 Sig: 0.000*	0.532	c_2: 0.000 Sig: 0.000*	0.468
Pooled	706	b_1: 0.001 Sig: 0.000*	0.408	c_2: 0.000 Sig: 0.000*	0.541

Notes:
* Significant in 0.05 level

c. Value Relevance of Incremental Earning and Book Values

Incremental comparisons ask whether one accounting measure provides information content beyond that provided by another, and apply when one measure is viewed as given and an assessment is desired regarding the incremental contribution of another (Biddle at al., 1995, p.1). Incremental values of earnings (INCR E) are calculated by reducing *Adj*. R^2 from equation 1 (regression with earnings and book values as independent variable) with *Adj*.R^2 from equation 3 (regression with book values as independent variable). Incremental values of book values are calculated by reducing *Adj*.R^2 from equation 1 with *Adj*.R^2 from equation 2 (regression with earnings as independent variable). Table 3 shows all of INCR E and INCR BV in every year and all years.

Tabel 3 Incremental Earnings and Incremental Book Values

Year	N	INCR E	INCR BV
2000	73	0.010	0.067
2001	73	0.002	0.042
2002	73	0.026	0.030
2003	73	0.013	0.045
2004	70	0.004	0.216
2005	70	0.003	0.255
2006	70	-0.002	0.142
2007	70	-0.005	0.082
2008	73	0.011	0.125
2009	72	0.059	-0.005
Pooled	706	0.005	0.138

Data from table 3 shows that INCR BV is higher than INCR E in almost every year (except in the year 2009). This means that information content in book values (except in 2009) are beyond that provided by earnings to explain stock prices variance.

In the year 2006 and 2007 INCR E have negative values of -0.002 and -0.005, in contrary INCR BV at the same time have positive values of 0.142 and 0.082. Negative values of INCR E in the year 2006 and 2007 means that earnings have no information content beyond that provided by book values. In the year 2006 and 2007 only book values is incremental and provide information (14.25% in the year 2006 and 8.2% in the year 2007) beyond earnings in explain stock prices variance. In 2009 book values are the only variable that had incremental contribution (INCR BV= 0.059) in explaining stock prices variance because INCR BV had negative value.

In pooled data, INCR BV value is 0.138, higher than INCR E which is 0.005. With this result we can conclude that in yearly (except in 2009) and in all year, book values provide information content beyond earnings in explaining stock prices variance.

d. Incline and Decline Pattern of Value-Relevance Over Time

Equation (4), (5), and (6) are used to examine value relevance time series trend. Those model are regression between *Adj*.R^2 [TOTAL]), *Adj*.R^2 [INCR E], *Adj*.R^2 [INCR BV] individually as dependent variable against time (TIME) as independent variable. Regression (4) is used to examine increasing or decreasing pattern of combined book values and earnings value-relevance. Regression (5) and (6) are used to examine increasing or decreasing pattern of incremental book values and incremental earnings value- relevance.

Figure I, II and III represent R^2 [Total], INCR E and INCR BV time series fluctuation with trend line drawn by least square method. Figure I indicates that trend line of R^2 [Total] seems increasing for combined book values and earnings value-relevance. We also visually can see the incline in trend line of incremental earnings and incremental book values from figure II and III. The visual interpretation from figure I, II and III must be tested with regression (4), (5) and (6) for precise conclusion.

Figure I

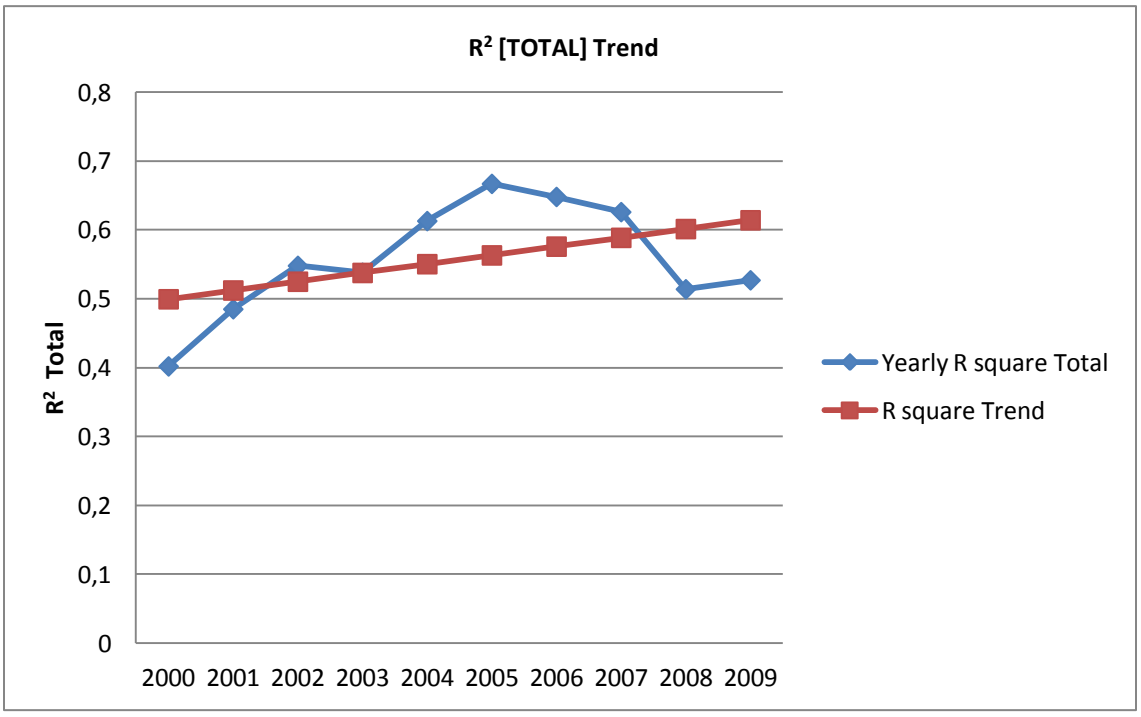


Figure II

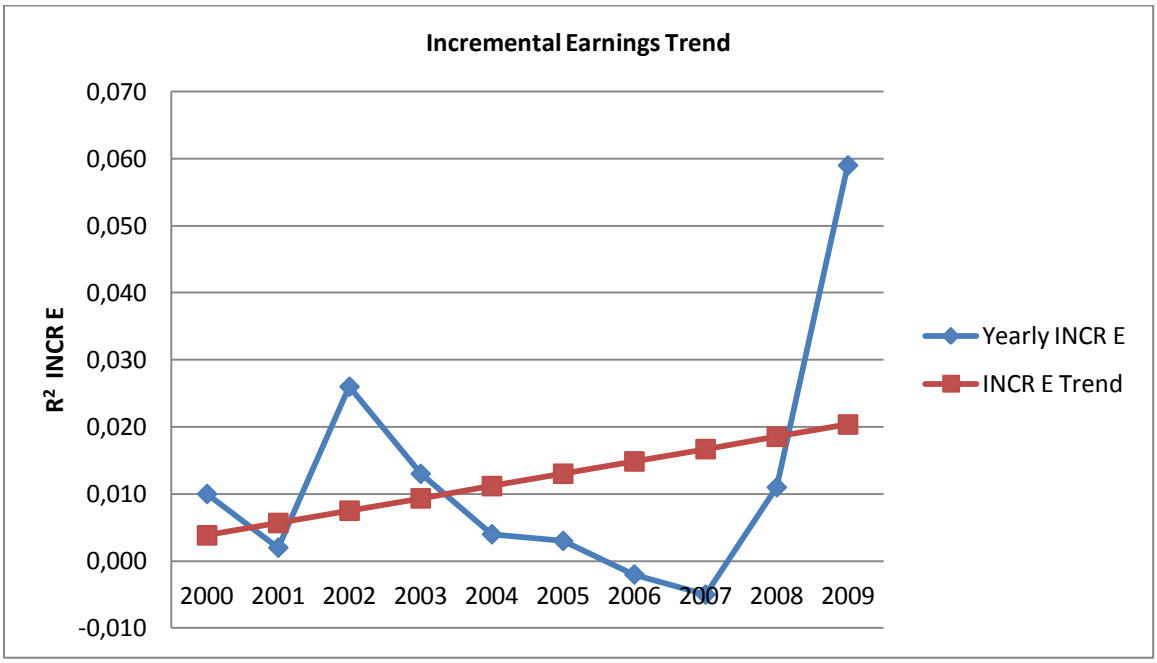
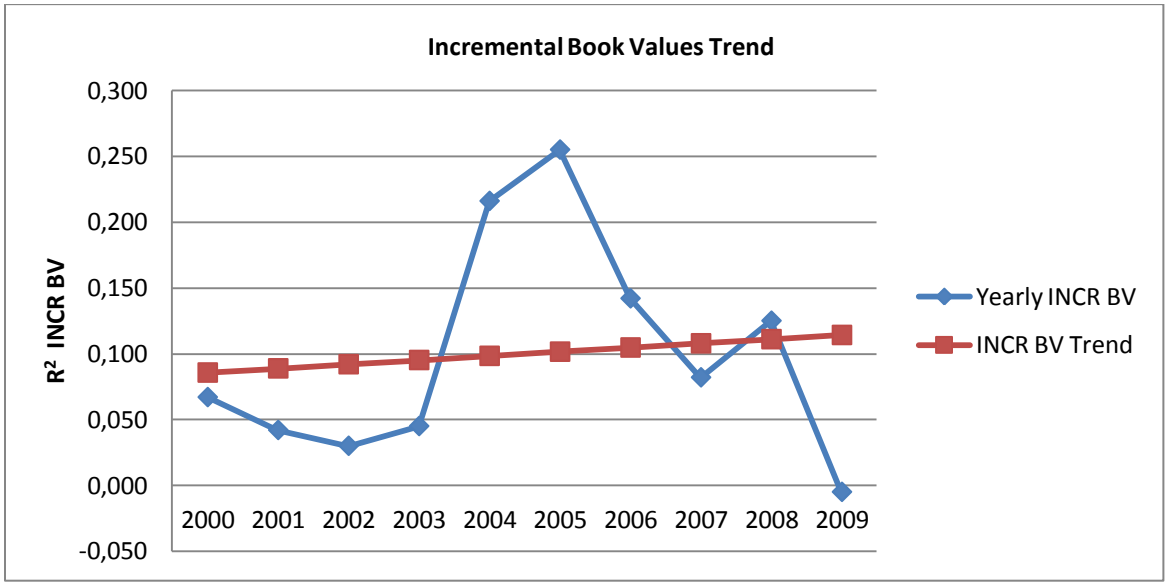


Figure III



Tabel 4 The Results of Regression Model 4, 5 and 6

Variabel Independen	Koefisien TIME
R^2 Total	θ_1: 0.013 Sig: 0.171
INCR E	θ_1: 0.002 Sig: 0.404
INCR BV	θ_1: 0.003 Sig: 0.753

Notes:
TIME is variable with values 1,2,…,10 according with year 2000, 2001,…,2009

The result in Table 4 shows insignificant of TIME variable coefficient in every time series trend regression. It shows no evidence of incline and decline pattern of combined earnings and book values relevance and also no evidence of incline and decline pattern of incremental earnings and book values. This results are inconsistent with Francis and Schipper (1999), Ely and Waymire (1999) and Warsidi (2002).

5. CONCLUSION AND FURTHER RESEARCH

In the year 2000-2009, combined earnings and book values are relevant information that explained stock prices. Determination coefficient values are between 0.402 and 0.667. Pooled *Adj.* R^2 is 0.546 which means that combined earnings and book values explained 54.6% stock prices variance.

This research also shows earnings and book values individually are relevance in explaining stock prices. The comparison of yearly *Adj.* R^2 (except in 2009) and pooled indicate that book values are more relevant rather than earnings in explained stock prices variance.

The incremental values of book values yearly (except in 2009) and pooled are higher than earnings. Pooled INCR BV is 0.138 and INCR E is 0.005. That result shows that book values contribute 13.8 % information content beyond earnings and earnings contribute 0.5% information content beyond book values. R^2 [Total] in Table No.1, 2 and 3 indicate the incline of value relevance of combined earnings and book values and also the incline of INCR E and INCR BV. In other hand from the regression (4), (5) and (6) shows

that the incline and decline pattern of combined earnings and books values and also incremental values of earnings and book values statistically insignificant.

For future value-relevance research in Indonesia stock market, we suggest to analyze other variables in accounting information such as intangible assets and negative earnings. In further research we also can analyze and compare value-relevance of accounting information in various countries such as in ASEAN countries.

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