

The Value Relevance of Earnings and Cash Flow: Regression-Variation Approach

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ABSTRACT

This study is conducted to measure the value relevance of earnings and cash flows by using the regression-variation approach. Specifically, the objectives of the study are to examine whether the value relevance of accounting earnings information is higher compared to that observed in the cash flow from operations. The number of sample is 79 companies listed in Jakarta Stock Exchange and during the sample period of 1996 to 2001. The findings indicate that earnings and cash flows from operation are value-relevant. Furthermore the findings show that the value relevance of earnings information is higher than that of cash flows information.

Keywords: Value Relevance, Cash Flows, Earnings.

ABSTRAK

Penelitian ini dilakukan untuk mengukur relevansi nilai laba dan arus kas dengan menggunakan pendekatan regresi-variasional. Secara khusus, tujuan dari penelitian ini adalah untuk menguji apakah relevansi nilai informasi laba akuntansi yang lebih tinggi dibandingkan dengan yang diamati dalam arus kas dari operasi. Jumlah sampel adalah 79 perusahaan yang terdaftar di Bursa Efek Jakarta dan selama periode sampel 1996 sampai 2001. Temuan menunjukkan bahwa laba dan arus kas dari operasi adalah nilai-relevan. Selanjutnya temuan menunjukkan bahwa relevansi nilai informasi laba lebih tinggi dari arus kas informasi.

Kata kunci: Nilai Relevansi, Arus Kas, Laba.

INTRODUCTION

Background

The value relevance literature is related to the usefulness of financial statement information in equity valuation. Francis and Schipper (1999) have documented four different approaches to study the value relevance of

accounting information. These are the fundamental analysis view of value relevance, the prediction view of value relevance, the information view of value relevance and the measurement view of value relevance (Nilsson, 2003). In the 1990s, many studies used the fourth approach to study value relevance of accounting information (Easton, 1999).

The underlying concept behind the measurement view of value relevance is based on the key role of financial statements to summarize business transactions and other events. Based on this view, the value relevance of financial statement is measured by its ability to capture or summarize information, regardless of the source, that affects equity value. This definition is consistent with measurement perspective on accounting. That is, accounting is viewed as an instrument for measurement (Marton, 1998). Under this construct, it does not require that financial statements be the earliest source of information (Francis and Schipper, 1999).

Based on the measurement view of value relevance researchers, often measure value relevance as the association between an accounting measure and stock returns using long window and operationalize the value relevance in two ways: using the regression-variations approach and portfolio-returns approach such as Alford et al., 1993; Francis and Schipper, 1999; Hung, 2001; Chen et al., 2001; Barth et al., 2001. This view is adopted in this study. The models used in the regression-variations approach are return and price models. First model measures the value relevance as the ability of earnings or cash flows to explain returns. The second model measures the value relevance as the ability of earnings and book values to explain market values of equity. The portfolio-returns approach measures the value relevance as the proportions of all information in security returns that are captured by the accounting-based measurement.

Researchers often measure the value relevance of accounting information as presented in the financial statement such as earnings, cash flows and book values (Amir et al., 1993; Alford et al., 1993; Harris et al., 1994; Amir and Lev, 1996; Collins et al., 1997; Lev and Zarowin, 1999; Francis and Schipper, 1999; Graham et al., 2000; Chen et al., 2001). Several studies compared value relevance between earnings and cash flows information (Lev and Zarowin, 1999; Francis and Schipper, 1999 and Hung, 2001). This comparison is valuable since there are many contradictory opinions and views regarding which information, namely earnings or cash flows, are more relevant. Some argued that earnings information is more relevant because the accrual accounting present better matching of revenues and expenses than the cash flows accounting and therefore makes accounting information more value relevant (Ball and Brown, 1968; Dechow, 1994). However, the accrual accounting also presents more opportunities for managers to manipulate accruals for personal gain and hence may cause accounting information to be less value-relevant.

This study empirically examines the value relevance of earnings change and cash flows in Indonesia using the regression-variation approach. Listed companies in Indonesia are required to submit the annual financial statements to Capital Market Supervisory Agency (CMSA). The financial statements consist of balance sheet, income statement, retained earnings statement, cash flow statement, notes to the financial statements; and other reports and explanations that are an integral part of the financial statements, if required.

The comparison of value relevance is also made between earnings and cash flows information. This issue is important because accrual accounting, which transforms cash flows into earnings, is a key feature of any accounting system (Hung, 2001). This comparison is also conducted as Indonesian companies are required to prepare the cash flows statement as part of their financial statements since fiscal year 1995, which may also indicate that the higher value relevance of cash flows information compared to earnings information (Lev and Zarowin, 1999 and Francis and Schipper, 1999).

The study also measures the value relevance of cash flows and it evaluates whether the value relevance of accounting earnings is higher than that of cash flows. This comparison is also conducted as Indonesian companies are required to prepare the cash flows statement as part of their financial statements since the fiscal year 1995. However, literature have documented that earnings information is more relevant than earnings (Lev and Zarowin, 1999; Francis and Schipper, 1999).

Research Questions

Based on the explanation above, two research questions emerged:

- (1) Is accounting earnings information value-relevant in Indonesian stock market?
- (2) Is cash flow information value-relevant in Indonesian stock market?
- (3) Is the value relevance of accounting earnings information higher compared to that observed in cash flow from operations?

RELATED LITERATURE

Empirical Evidence on Value Relevance of Accounting Information

Lev and Zarowin (1999) examined whether the usefulness of reported cash flows has decline over the past 20 years. The result revealed that the association between stock returns and cash flows has declined over the period examined.

Francis and Schipper (1999) examined the value relevance of cash flow over the period 1952-1954. The objective of this study is to test some of empirical implications of the claim that financial statements have lost their

relevance over time. They used two approaches to measure the value relevance: the portfolio returns and the regression-variations approaches.

In the regression-variations approach, they examined three relations. The first relation investigated the ability of earnings to explain market-adjusted returns. The second relation examined the ability of assets and liabilities to explain market equity values and the third relation examined the ability of book values and earnings to explain market equity values. For the earnings relation, all slope coefficients were significant at the 0.001 level; the adjusted R^2 s of the yearly models ranged from 5% to 46% with the earnings variables explaining an average of 22% of the variation in market-adjusted returns. For the balance sheet relation, all slope coefficients were significant at the .01 level, and their sign are generally consistent with investors placing a positive (negative) weight on the book value of firm's assets (liabilities). The adjusted R^2 of the yearly balance sheet models ranged from 6% to 68%; on average, the book values of assets and liabilities explained 41% of variation in equity market values. For the book values & earnings relation, the average coefficient estimate indicated that \$1.00 of book value (earnings) corresponded to \$ 0.25 (\$6.7) of market value. The results showed a decline in the relevance of earnings information, and an increase in the relevance of balance sheet and book values information, over the sample period. These findings are broadly consistent with other studies examining the value relevance of financial information (e.g., Collins et al., 1997; Ely and Waymire, 1999; Lev and Zarowin, 1999, Francis and Schipper, 1999)

RESEARCH METHOD

Data

The sample covers 79 public companies listed in Jakarta Stock Exchange since 1995. The financial, railroads, utilities companies are excluded (insurance, banks, and other miscellaneous financial companies). Accounting practices for these firms are so distinct that their valuation parameters are likely to be substantially different from those for industrial firms. These companies are also subject to regulatory process that can influence their accounting numbers.

Development of Hypotheses

Accounting information is the primary source of information needed to make rational decisions regarding future economic expectations of the reporting entity. Companies attempt to satisfy these needs by preparing financial statements and related financial disclosure. A key role of financial statements is to summarize business transactions and other events. Thus, accounting is viewed as instrument for measurement. Under this view, in 1990s, a large number of market-based accounting researches have examined

the value relevance of accounting information. The value relevance of financial statement information measured by its ability to capture or summarize information that affects equity valuation (Francis and Schipper, 1999).

They used two approaches to conduct these studies, the regression-variations and the portfolio-returns. The R^2 is used as the primary metric to measure the value relevance based on the regression-variations approach, while the proportions of all information in security returns that are captured by accounting-based measures are used to measure the value relevance from the portfolio-returns approach. Many studies which adopted the regression-variations approach have examined the value relevance of earnings level, earnings change, cash flows, book values and combinations of earnings and book values.

Easton and Harris (1991) and Alford et al. (1993) who used the return model have found that the earnings level and earnings change were relevant for evaluating earnings/returns association in the USA. Collins et al. (1997) provided evidence of the value relevance of earnings and book values in the USA. Using both the return and price model, Lev and Zarowin (1999) and Chen et al. (2001) documented that accounting earnings and the combinations of earnings and book values were value-relevant in the USA and China respectively. Lev and Zarowin (1999) examined the value relevance of earnings and cash flows over the past 20 years. The result showed that earnings and cash flows have value relevance throughout the 1977-96 periods. Therefore, the null hypotheses are

1. H_0 : There is no relationship between earnings information and returns
 H_a : There is relationship between earnings information and returns
2. H_0 : There is no relationship between cash flows information and returns
 H_a : There is relationship between cash flows information and returns

Accrual accounting systems are expected to generate more value relevant accounting performance measures (i.e., earnings and ROE) than cash flows because accrual systems are better at matching revenues and expenses (Ball and Brown, 1968; Dechow, 1994). Thus, accrual accounting performance measures help investors better assess firm values and operating performance than operating cash flows. However, accrual systems also allow managers to opportunistically manipulate accruals. Because managers make estimation for the accrual systems and are often evaluated and rewarded based on accounting performance measures, managers might manipulate accruals for personal gains (McNicholas and Wilson, 1988) and thus cause accounting measures to be less relevant. Cash flow are often claimed to be more informative than earnings because they are less subject to managerial manipulation than accrual accounting and thus is expected more relevant than earnings. Some empirical evidence found that earnings information has more

value relevance than cash flows (Lev and Zarowin, 1999; Francis and Schipper, 1999).

Since 1995, the Indonesian Institute of the Accountants has made mandatory for the companies to prepare the cash flow statement in their financial statement. As comparison, the income statement has been prepared by the listed companies since the reopening of capital market in 1977. The operating history of income statement is longer cash flow statement. Therefore it is expected that the value relevance of earnings information is higher than that of cash flows. Moreover some empirical evidence found that earnings information has more value relevance than cash flows (Lev and Zarowin, 1999; Francis and Schipper, 1999). Thus, the null hypothesis is:

3 H₀: There is no difference on the R² between the cash flows information and earnings information

H_a: The R² is higher on earnings information than cash flows information.

Research Design

The R² values in long-window regression were used as statistical association metric to measure the value relevance in the regression-variation approach (e.g., Collins et al., 1997; Francis and Schiper, 1999; Lev and Zarowin, 1999; Ely and Waymire, 1999; Chen et al., 2001). It measures the value relevance as the percentage of cross-sectional variation in returns or market values explained by financial statement information. This approach uses statistical association between accounting data and capital market values (stock prices and returns) to assess the value relevance of accounting information to investors. Such associations reflect the consequences of investors' actions (Lev and Zarowin, 1999). Return-based studies address the validity of financial statement information as summary measures of the events that have affected the firm up to a specific date.

Return Model: the Earnings-returns Relation

Returns and earnings relation describes the relationship between stock returns and accounting earnings. This model is proposed by Easton and Harris (1991) by popularizing a specific version of the annual return model including both earnings level and earnings changes. Most of value relevance studies employed it in assessing the value relevance of accounting information such as Amir et al., 1993; Alford et al., 1993; Harris et al., 1994; Amir and Lev, 1996; Lev and Zarowin 1999; Francis and Schipper, 1999; Chen et al., 2001. The return model used in this study is as follow:

$$RET_{jt} = a_{t0} + a_{t1} E_{jt} / P_{jt-1} + a_{t2} (E_{jt} - E_{jt-1}) / P_{jt-1} + e_{jt} \quad (1)$$

Where:

RET_{jt} = 12-month returns (including cash dividends) of firm j ending four months after the fiscal year end (listed companies must submit the

financial statement to capital market supervisory agency and publish it to public no later than 120 days after the fiscal year end);

E_{jt} = annual earnings per share;

$E_{jt} - E_{jt-1}$ = change of annual earnings per share;

P_{jt-1} = stock price at the beginning of 12-month returns of firm j ending four months after the fiscal year end.

The yearly and the pooled regressions are used to estimate the return model under the regression-variations approach.

Return Model: the Cash Flow-returns Relation

Returns and cash flows relation describes the relationship between stock returns and cash flows. The model is used by Amir and Lev (1996) and Lev and Zarowin (1999). Similar to earlier studies, the return model for the cash flow relation used in this study as follow:

$$RET_{jt} = \beta_{t0} + \beta_{t1} CF_{jt}/P_{jt-1} + \beta_{t2} (CF_{jt} - CF_{jt-1})/P_{jt-1} + \varepsilon_{jt} \quad (2)$$

Where:

RET_{jt} = 12-month returns (including cash dividends) of firm j ending four months after the fiscal year end;

CF_{jt} = cash flows from operations per share;

$CF_{jt} - CF_{jt-1}$ = the yearly change in cash flow from operations per share;

P_{jt-1} = stock price at the beginning of 12-month returns of firm j ending four months after the fiscal year end.

Results

Results for the return models are divided into two sections namely, the returns earnings and the returns-cash flows relations.

Return Model of Returns-earnings Relation for yearly regression results

Table 5.1 presents the results of the return model for each year regression. This model describes the relationship between stock returns and accounting earnings. It is assumed that each annual regression is independent. The result shows coefficient estimates on earnings levels and earnings changes and explained variation by year.

Table 5.1: Yearly- Cross-sectional Regression Results of Return on Earnings and Earnings Change.

$$RET_{jt} = a_{t0} + a_{t1} E_{jt}/P_{jt-1} + a_{t2} (E_{jt} - E_{jt-1})/P_{jt-1} + e_{jt}$$

Year	N	a_{t1}	t	a_{t2}	t	Adj R ²
96	76	0.255	2.543***	0.451	4.497***	0.24
97	74	1.056	3.756***	-0.716	-2.552**	0.21

98	76	0.133	0.515	0.154	0.600	0.053
99	74	0.379	3.841***	0.398	5.037***	0.29
2000	76	-0.399	-1.255	0.595	1.866*	0.04
2001	76	0.459	4.731***	0.275	2.832***	0.31
Mean		0.309	3.031**	0.234	2.281**	

Significant at $0.05 < a \leq 0.1$,

** Significant at $0.01 < a \leq 0.05$,

*** Significant at $a \leq 0.01$

RET_{jt} : 12-month returns (including cash dividends) of firm j ending four months after the fiscal year end. E_{jt} : annual earnings per share of firm j for period t. $E_{jt} - E_{jt-1}$: change of annual earnings per share of firm j for period t. P_{jt-1} : stock price at the beginning of 12-month returns (including cash dividends) of firm j ending four months after the fiscal year end.

Both earnings level and changes are significant throughout the year except 1998. The coefficients of the earnings level variable range from 0.25 to 1.056 and the coefficients are positive for these years. The coefficients of the earnings change variable vary from 0.275 to 0.595 and the coefficients are positive for these years except in 1997. However, the slope coefficient of earnings change is not significant in 2000. Both earnings level and earnings change are not significant in 1998 and the adjusted R^2 's values are reasonably high. The adjusted R^2 's of the yearly regressions range from 4% to 31%. They are extremely low for the years in 1998 and 2000 which could be explained by the poorly performing stock markets in these years. However, findings throughout the year regressions show that accounting earnings are value-relevant. Most of the results support the alternative hypothesis suggesting that there is relationship between return and earnings accounting information. Although the coefficients vary substantially but accounting information is consistently perceived as value relevant by investors in Indonesia throughout the study period according to the coefficients and R^2 's, except in 1998 where accounting information is perceived as not value-relevant.

These findings are consistent with those reported in Francis and Schipper (1999); Chen et al. (2001) who documented that accounting earnings are value relevant. Similar to this study, Chen et al. (2001) also reported that not all slope coefficients are significant. Using the period 1991 to 1998, they found that the slope coefficients of earnings change were not significant before 1995, in 1996 and 1997. The R^2 's of the yearly regressions ranged from 6% to 24%. Meanwhile, Francis and Schiper (1999) reported that all slope coefficients were significant in each sample year. Using the sample period 1952-1994, they found that all slope coefficients are significant at the 1% level. The R^2 's of the yearly models ranged from 5% to 46% during that period.

The result should be interpreted with the caution for the potential bias in the coefficients due to cross-sectional correlation in the error terms of the regression. Bernard (1987) suggested that for regression based on annual returns, if it is assumed that each annual regression is independent, then mean and standard error of the coefficients obtained from the annual regressions may be used to test whether this mean is statistically different from zero. If it is, then the bias from any cross-sectional correlation will not be sufficient to negate the statistical relevance of the variable. This calculation is reported in Table 5.1. Both coefficients a_{t1} and a_{t2} are statistically different from zero at the 0.05 level. Thus, the significance of the earnings coefficients is unlikely to be a result of potential cross-sectional correlations.

Return Model of Returns-earnings Relation for the Pooled Regression Results

The results of the return model for the pooled regression for all firm year are tabulated in Table 5.2. The two independent variables, earnings level and earnings change are significant at 1% level. The R^2 indicates that they jointly explain about 19.8% of the cross sectional variation in stock returns. This evidence supports the alternative hypothesis that there is relation between accounting earnings and returns.

Table 5.2: Return Model for the Pooled Regression (1991-2001)

$$RET_{jt} = a_{t0} + a_{t1} E_{jt}/P_{jt-1} + a_{t2} (E_{jt} - E_{jt-1})/P_{jt-1} + e_{jt}$$

Year	N	a_{t1}	t	a_{t2}	t	R^2
All year	869	0.130	3.222***	0.168	6.820***	0.198

*** significant at a ≤ 0.01

RET_{jt} : 12-month returns (including cash dividends) of firm j ending four months after the fiscal year end. E_{jt} : annual earnings per share of firm j for period t. $E_{jt} - E_{jt-1}$ = change of annual earnings per share of firm j for period t. P_{jt-1} : stock price at the beginning of 12-month returns (including cash dividends) of firm j ending four months after the fiscal year end.

This empirical result is consistent with the findings reported in other markets, such as Alford et al., 1993; Chen et al., 2001. They found that both the earnings level and earnings change were value-relevant. Alford et al. (1993) who estimated the same return model on 16 USA sample matched to 16 non-USA samples documented that the adjusted R^2 ranged from 12.9% to 19.1% for the USA sample and from 2.7% to 26.1% for the non USA sample. Their results showed that the highest R^2 s were found on non the USA sample. They found that accounting earnings from Australia, France, the Nederland, and the United Kingdom were more value-relevant than USA accounting earnings. The findings of the studies by Lev and Zarowin (1999) and Francis and Schipper (1999) supported the findings of Alford et al., 1993. Francis and

Schipper (1999) who estimated the association between annual stock returns and the level and change in earnings have documented that R^2 s have declined throughout the 1952-94 period: from R^2 s of 12-46% in the first twenty two years of the sample to R^2 s of 6%-31% in the last twenty one years. Lev and Zarowin (1999) reported that R^2 s have declined throughout the 1977-1996 period: from R^2 s of 6 - 12% in the first ten years of the sample to R^2 s of 4 - 8% in the last ten years.

In the emerging market, Chen et al. (2001) reported that the adjusted R^2 of their estimated return model in Chinese market was 11.2%. Result reported by Chen et al. (2001) is lower than that reported in this study. The possible reason for this result could be explained as follow. According to Rosser (1999) the accounting reform in several developing countries such as Indonesia, Malaysia, South Korea, Thailand have gone further than their Socialist neighbors such as China and Vietnam. The present Chinese accounting regulations and practices have evolved from a Soviet-style macro economy oriented accounting system adopted by China in the 1950s. Chinese accounting system and regulations were traditionally not market-oriented. Most listed companies were state-owned before going public and the purpose of their accounting was not to provide useful information to investors but to facilitate centralized state planning and control. Consequently, the value relevance of accounting information in Chinese market has been questioned in the literature (Curran, 1994; Aharony et al., 2000; Haw et al., 1998; Chen et al., 2001). This description could be possible reason for the lower R^2 in China as compared to that reported in this study.

Return Model of Returns-cash Flow Relation for the Yearly Regression Results

The yearly regression results of the return model for returns-cash flows relation are tabulated in Table 5.3. This model measures the association between cash flow and stock returns. It is assumed that each annual regression is independent.

Table 5.3: Yearly Cross-sectional Regressions of Return on Cash Flows and Cash Flow Change from Operations

$$RET_{jt} = \beta_{t0} + \beta_{t1} CF_{jt}/P_{jt-1} + \beta_{t2} (CF_{jt} - CF_{jt-1})/P_{jt-1} + \varepsilon_{jt}$$

Year	N	β_{t1}	t	β_{t2}	t	Adj R^2
96	75	0.363	2.184**	-0.196	-1.175	0.04
97	76	0.405	2.110**	-0.222	-1.157	0.04
98	76	0.233	0.99	-0.06	-0.26	0.007
99	74	0.319	2.65**	0.105	0.87	0.12
00	75	0.141	1.047	-0.018	-0.133	0.009
01	75	0.610	3.228***	-0.34	-1.803*	0.125

Mean	0.345	5.264***	-0.122	-1.857*	
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* Significant at $0.05 < \alpha \leq 0.1$, ** significant at $0.01 < \alpha \leq 0.05$, *** significant at $\alpha \leq 0.01$

RET_{jt} = 12-month returns (including cash dividends) of firm j ending four months after the fiscal year end. CF_{jt} and $CF_{jt} - CF_{jt-1}$ = cash flows from operations per share and the yearly change in cash flow from operations per share, respectively. P_{jt-1} = stock price at the beginning of 12-month returns (including cash dividends) of firm j ending four months after the fiscal year end.

The Table reports the coefficient estimates on cash flow from operations levels and cash flow from operations changes and the adjusted R^2 s by year. It shows the results of the regression of returns on cash flow from operations levels and cash flow from operations changes. The estimated coefficients of cash flow from operations level are significant almost for all years except 1998 and 2000. The estimated coefficients of change in cash flow from operations are not significant in all years except in 2001. Overall, the adjusted R^2 values are reasonably low. They are extremely low almost for all years except in 1999 and 2001. The R^2 s range from 0.7% to 12.5% during 1996-2001. From the significance of coefficients points of view, these findings are not consistent with the earlier study by Lev and Zarrowin (1999) that documented that all coefficients were significant. But from the value of R^2 s points of view, these are consistent with the findings reported in the USA by Lev and Zarrowin (1999) and Francis and Schippers (1999). The findings reported in these two studies showed that the R^2 s values for the return-cash flow relation were lower than those for the return-earnings relation. Lev and Zarrowin (1999) reported an average value of 6.4% for the yearly R^2 s of return-cash flows relation and that of 7.5 % for the returns-earnings relation over an 18-year period in the USA, whereas Francis and Schipper (1999) found that an average value of 15.6% for the yearly R^2 s of returns-earnings relation. The conclusion is cash flow information has less value relevance than earnings

In a manner similar to that described in return model of returns-earnings relation, the study tests for the effect on inferences about the coefficients from potential cross-sectional correlations in the error terms. The results of these tests are reported at the bottom of Table 5.3 and indicate both coefficients β_{11} and β_{12} are statistically different from zero at the 0.05 level and the 0.1 level, respectively. Thus, the significance of the earnings coefficients is unlikely to be a result of potential cross-sectional correlations.

Return Model of Return-earnings Relation for the Pooled Regression Results

Table 5.4 shows the regression result of the pooled sample. It indicates that the estimated coefficient of the cash flow from operations level is significant, whereas the coefficient of the cash flow from operations change is

not significant. The R^2 is low. The R^2 indicates that cash flow from operations jointly explain about 8% of the cross sectional variation in stock returns.

Table 5.4: Returns -Cash Flows Relation for the Pooled Regression (1996-2001)

$$RET_{jt} = \beta_{t0} + \beta_{t1} CF_{jt}/P_{jt-1} + \beta_{t2} (CF_{jt} - CF_{jt-1})/P_{jt-1} + \varepsilon_{jt}$$

Year	N	β_{t1}	t	β_{t2}	t	R^2
All year	474	0.266	2.34**	-0.007	-0.093	0.08

** Significant at $0.01 < \alpha \leq 0.05$

RET_{jt} = 12-month returns (including cash dividends) of firm j ending four months after the fiscal year end. CF_{jt} and $CF_{jt} - CF_{jt-1}$ = cash flows from operations per share and the yearly change in cash flow from operations per share, respectively. P_{jt-1} = stock price at the beginning of 12-month returns (including cash dividends) of firm j ending four months after the fiscal year end.

This evidence provides partly support for the alternative hypothesis that there is relation between cash flows information and return. The finding indicates that the association between operating cash flows and stock returns, as measured by the R^2 , is not stronger than the association between earnings and returns. The R^2 of pooled regression for the return-earnings relation is 19.8%, whereas that for the return-cash flow relation is 8.9%. This result is also supported by the yearly regression. One possible reason is the earnings information that has longer reporting history in Indonesia than cash flow from operation are still widely believed to be the primary information item presented in financial statement. The listed companies are required to prepare the cash flow statements since 1995 while those are required to prepare the income statement since the reopening of capital market in 1977. The R^2 s for both the yearly and pooled regressions in the returns-earnings relation are substantially larger than those for the returns-cash flow relation. This indicates that earnings are more informative than cash flows. Thus earnings information is more relevant than that of cash flow information.

The study has examined the sensitivity of the results to two econometric issues, namely heteroscedasticity, autocorrelation, normality and multicollinearity.

Comparison of Value Relevance between Earnings and Cash Flow from Operations Based on Return Model.

The comparison is also made between earnings and cash flow from operations. Table 5.5 shows the results of the regression of returns on earnings level and earnings change for the pooled sample. While Table 5.6

shows the results of the regression of returns on cash flow from operations level and cash flow from operations change for the pooled sample.

Table 5.5: Returns –earnings Relation for the Pooled Regression (1996-2001)

$$RET_{jt} = a_{t0} + a_{t1}E_{jt}/P_{jt-1} + a_{t2}(E_{jt} - E_{jt-1})/P_{jt-1} + e_{jt}$$

Year	N	a _{t1}	t	a _{t2}	t	R ²
All year	474	0.143	2.457**	0.201	6.836***	0.292

** Significant at 0.01 < a ≤ 0.05

*** significant at a ≤ 0.01

RET_{jt}: 12-month returns (including cash dividends) of firm j ending four months after the fiscal year end. E_{jt}: annual earnings per share of firm j for period t. E_{jt} - E_{jt-1} = change of annual earnings per share of firm j for period t. P_{jt-1}: stock price at the beginning of 12-month returns (including cash dividends) of firm j ending four months after the fiscal year end.

Table 5.6: Returns-Cash Flows Relation for the Pooled Regression (1996-2001)

$$RET_{jt} = \beta_{t0} + \beta_{t1}CF_{jt}/P_{jt-1} + \beta_{t2}(CF_{jt} - CF_{jt-1})/P_{jt-1} + \varepsilon_{jt}$$

Year	N	β _{t1}	t	β _{t2}	t	R ²
All year	474	0.266	2.340**	-0.007	- 0.093	0.08

** Significant at 0.01 < a ≤ 0.05

RET_{jt} = 12-month returns (including cash dividends) of firm j ending four months after the fiscal year end. CF_{jt} and CF_{jt} - CF_{jt-1} = cash flows from operations per share and the yearly change in cash flow from operations per share, respectively. P_{jt-1} = stock price at the beginning of 12-month returns (including cash dividends) of firm j ending four months after the fiscal year end.

For the return-earnings relation, both the earnings level and earnings change are significant while for the return-cash flow relation, the cash flow from operations change variable is not significant. The R² value of the returns-cash flows relation is lower as compared to that of the return-earnings relation. Overall, these results indicate that the value relevance of earnings information is higher than cash flow information. This comparison provides support for the hypothesis in the alternative form that the R² are higher on earnings information than cash flows information. The claim that the cash flows are more informative than earnings due to less subject to managerial manipulation and thus have more value-relevant than earning is not approved. Investors in Indonesia perceived that the ability of earnings information to capture or

summarize information that affects firm value is higher as compared to that of cash flows information. These findings are consistent with those reported in Lev and Zarowin (1999) and Francis and Schiper (1999). Lev and Zarowin found that the association between operating cash flows and stock returns (plus accruals), as measured by the R^2 value, was not appreciably stronger than the association between earnings and returns. For the earnings relation, they reported the average value of the R^2 during 1978-1996 was 7.5%, whereas that for the cash flow relation was 6.4%. Meanwhile, Francis and Schiper (1999) found the average value of the R^2 for the returns- earnings relation over the period 1976 to 1994 was 15.6%.

CONCLUSIONS, IMPLICATIONS AND LIMITATIONS

The results show that earnings and cash flow from operations has value relevance for both the pooled regressions and each year regressions. However, for each year regression, accounting earnings has no value relevance in 1998 while the cash flow information is not value relevant in 1998 and 2000. The comparison of value relevance between earnings and cash flow information, the results support the alternative hypothesis that the R^2 value is higher on earnings than cash flows information.

The findings on value relevance have given implications to practitioners in Indonesia as well as other emerging markets. First, these findings provide evidence to accounting policy maker such as the Indonesian Institute of Accountants and the Capital Market Supervisory Agency that investors in the Indonesian stock market are rational and sophisticated with respect to the use of accounting information, despite the young age of market, and the nature of accounting and financial reporting development is still developing. Collectively, various efforts which have been made by the Indonesian Institute of Accountants (IIA) and the government have had a positive impact on the confidence of Indonesian investors in accounting numbers. The study has shown that these efforts have impact on the value relevance of accounting information in Indonesia.

Finally, for academic researchers, these findings can extend their knowledge regarding the relevance and reliability of accounting amounts as reflected in equity values. Tests of value relevance represent one approach to operationalize the FASB's stated criteria of relevance and reliability (Barth et al., 2001). Finally, research on the usefulness of accounting information to valuation purposes in an emerging market like Indonesian stock market can add our knowledge and enhance our understanding of the role that accounting information plays for the fair and efficient operation of capital market. These results give contribution on market based accounting research (MBAR) from the emerging market.

The study has its limitations. These associations describe the relationship between accounting information and return. It examines the broad test of association between accounting information and stock price, either price changes or price level and as such, should be interpreted with caution. The nature of this test permits causal inferences, so additional research is needed to obtain a clearer interpretation. For instance, future research could examine the impact of specific standards on the value relevance of the accounting data. Such analysis could replicate tests used in this study for firms identified as experiencing material financial statement effects.

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