4 THE MODERATING IMPACT OF INCOME SMOOTHING ON THE INCREMENTAL INFORMATION CONTENT OF CASH FLOWS

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Abstract

The objective of this study is to investigate the moderating impact of income smoothing on the incremental information content of cash flow. More specifically, this study examines whether cash flows have incremental information content beyond earnings for the higher income-smoothing index. The cash flows information include both information of total cash flows (hypothesis 1) and information of cash flows from operating, investing, and financing activities (hypothesis 2).

The hypotheses are tested applying contextual models, i.e., cumulative abnormal returns (CAR) are regressed on unexpected earnings, unexpected cash flows, the interaction between unexpected earnings and income smoothing index, and the interaction between unexpected cash flows and income smoothing index.

Using observation period 1995-1996 with 91 cases, results of this study show that the null hypothesis 1 and the null hypothesis 2 can be rejected, primarily for event window [0,+5]. The results of this study indicate the moderating impact of income smoothing on incremental information content of cash flows. For the higher income-smoothing index, cash flows have incremental information content beyond earnings. Therefore, the cash flows information as stated in the PSAK No. 2 is useful to investor, specifically for the higher income-smoothing index.

Keywords: Cash Flows, Information Content, Income Smoothing, PSAK No. 2

A. BACKGROUND

In September 1994, Ikatan Akuntan Indonesia (IAI) (the Indonesian Accountants' Association) issued "Pernyataan Standar Akuntansi Keuangan (PSAK) No. 2: Laporan Arus Kas" (Statement of Financial Accounting Standards No.2: Statement of Cash Flows). The objective of the Statement is to provide historical information about the changes of cash and cash equivalents of a company during an accounting period using a statement of cash flows. The changes of the cash or cash equivalents are classified based on operating, investing, or financing activities. The IAI states that historical cash flows information is useful as an indicator about amounts, timing, and uncertainty of prospective cash flows, and is useful in assessing the accuracy of the estimated prospective cash flows (PSAK No. 2 para. 04).

Since the issuance of the PSAK No. 2, issue about the usefulness of the statement of cash flows has been the topic of several studies in Indonesia. The studies relevant to the test of incremental information content of cash flows, e.g., Triyono (1998), Gantyowati (1998), Wahyuni (1998), Cahyani (1999), and Gultom (1999), use cross-sectional regression models assuming uniform association between earnings (cash flows) and stock returns for all observations. This study respons the **issue** that the assumption about uniform association between earnings (cash flows) and stock returns for all observations has an implication on the results of the study, i.e., may not provide results as expected. [see, for example, Freeman and Tse (1992), Ali (1994), and Cheng *et al.* (1996)].

The objective of this study is to investigate the moderating impact of income smoothing on the incremental information content of cash flows. Income smoothing can be defined as:

" ... *the intentional dampening of fluctuations about some level of earnings that is currently considered to be normal for a firm. In this sense smoothing represents an attempt on the part of the firm's management to reduce abnormal variations in the earnings to the extent allowed under sound accounting and management principles*" (Beidleman, 1973, p. 653).

Specifically, this study examines whether cash flows have incremental information content beyond earnings for the higher income-smoothing index. The cash flows information includes both information of total cash flows and information of cash flows from operating, investing, and financing activities.

The motivation of this study are as follows. First, previous studies in Indonesia that examine the incremental information of cash flows mostly use cross-sectional regression models assuming uniform association between earnings (cash flows) and stock returns for all observations. The assumption may have implication on the results of the study, i.e., the study may not provide results as expected. Second, income smooting factor has not been used in the previous research in testing the incremental information content of cash flows. Income smoothing may be important in examining the incremental information content of cash flows for the reason, e.g., that smoothing hides more information than it discloses (Hendriksen and Breda, 1992). Therefore, cash flows information may be an important alternative information.

The contribution of the study are expected as follows. First, the results of this study are expected to have contribution to the accounting literature specifically to the study on the usefulness of cash flow information, by providing explanation supported by empirical results, specifically in Indonesia, about the incremental information content of cash flows when the income smoothing level increases. It is also expected that the results of this study can be used as a reference for future studies on information content of cash flows.

Second, it is expected that the results of this study can be used by capital market practioners as input in their decision making. Besides, it is also expected that the results of this study can be used by those who are responsible in establishing the rules on capital market activities specifically on the disclosure of information. Baridwan (1999, p.2) states that information disclosed is used to support two objectives, i.e., responsibility and economic decision making

B. LITERATURE REVIEW

The following review on cash flow information literature includes review on both market-based and nonmarket-based cash flow information studies. Review on income smoothing literature is focused on market-based income smoothing studies.

Issue about the usefulness of cash flows statement has been the topic of several studies in Indonesia since the PSAK No. 2 about Statement of Cash Flows was issued. There are several nonmarket-based studies on cash flows. Baridwan (1997) finds high correlation between earnings variables and cash flow variables. Although the variables are highly correlated, the median difference between earnings variables and c7ash flow variables is statistically significant. These results indicate that cash flows statement provide incremental value to users of the statement. Suadi (1998) finds that operating cash flows and cash at end of year have positive association with dividend payments in one year since the announcement date of cash flow information. Parawiyati and Baridwan (1998) find that earnings and cash flows have positive association with future earnings and cash flows. Supriyadi (1998) finds that earnings and cash flows are

better predictors for cash flows. The nonmarket-based studies indicating the usefulness of cash flows information do not provide empirical evidence on market reaction to the cash flows information.

Hastuti and Sudibyo (1998) and Durya (1999) examine the usefulness of cash flows statement using trading volume approach. Hastuti and Sudibyo (1998) do not find the usefulness of cash flows statement based on the difference between trading volume before and after firms publish their cash flows statement. Durya (1999) does not find the differential effect of cash flows information on trading volume activity (TVA) before and after companies provide cash flows statement. The studies have limitation, e.g., confounding effects resulted from reporting time (year) differences are not controlled.

Other studies test the usefulness of cash flows information by examining market reaction to the cash flows information. Asyik (1998) examining the association between stock returns and fundamental analysis proxies (Pr) of financial ratios finds that cash flows statement has incremental information content. The study examines the usefulness of cash flows information based on the earnings predictive ability of the financial ratios. Triyono (1998) using level model finds that the components of cash flows statement have information content, but the results of earnings and total cash flows tests indicate that earnings has information content whereas total cash flow does not. Results based on return model do not indicate that the components of cash flows statement, total cash flow, and earnings do not have information content. Cahyani (1999) examines the association between cumulative abnormal returns (CAR) and operating cash flow and accruals. Cahyani does not find that operating cash flow and accruals have statistically significant association with CAR. Cahyani uses annual CAR computed based on monthly returns from January to December. Cahyani refers to Livnat and Zarowin's (1990) study with some differences, e.g., CAR in Livnat and Zarowin's study are computed primarily based on April-March periods beside January-December periods. Gantyowati (1998) finds that operating cash flows have weak negative association with CAR and accruals have weak positive association with CAR. Results of Rayburn's (1986) study, used as main reference in Gantyowati's study, show that cash flows have statistically significant positive association with CAR (at $p<0.05$), whereas accruals have statistically significant negative association with CAR (at $p<0.05$). Gantyowati uses different sample and CAR measures from Rayburn.

Gultom (1999) finds that accruals and oprating cash flows have statistically significant association with CAR. The findings are consistent with the results of Cheng's et al. (1997) study, which is used as main reference in Gultom's study, although Gultom uses different sample and CAR measures. Besides, both Gultom (1999) and Cheng et al. (1997) find that the information content of cash flows is not different from that of earnings.

There are several market-based studies which focus on income smoothing, for example, Michelson *et al.* (1995), Booth *et al.* (1996), Assih (1998), Salno (1999), and Kusuma (1998). Michelson et al. (1995) find that mean annualized returns of the income smoother firms are significantly lower than mean annualized returns of the nonsmoothers. Salno (1999) using sample firms listed in the Jakarta Stock Exchange does not find the difference in returns between smoothers and nonsmoothers. Booth et al. (1996) find that for firms with nonsmooth income streams, unexpected returns around earnings announcement date are significantly positive for firms with positive earnings surprise, and significantly negative for firms with negative earnings surprise. On the other hand, for firms with smooth income streams, unexpected returns around earnings announcement date are not statistically significant. Assih (1998) also finds that for smoother firms, unexpected returns around earnings announcement date are significantly positive for firms with positive earnings surprise, and significantly negative for firms with negative earnings surprise. For nonsmoothers, unexpected returns around earnings announcement date are not statistically significant. Kusuma (1998) finds that income smoothing index is significant in explaining cross-sectional variation of earnings-price ratios for Japanese firms, but it is not significant for U.S. firms.

The results of the market-based income smoothing studies indicate the effect of the income smoothing factor on information content. Previous studies on incremental information content of cash flows did not examine the income smoothing effects. Several previous studies examine the incremental information

content of cash flows using cross-sectional regression model assuming uniform association between earnings (cash flows) and stock returns for all observations. This study use cross-sectional regression model but not assuming that the association between earnings (cash flows) and stock returns is uniform for all observation. This study uses income smoothing index as moderating variable.

C. THEORETICAL BASIS AND HYPOTHESES FORMULATION

1. The moderating impact of income smoothing on the incremental information content of cash flows.

Based on PSAK No. 2, companies have to provide statement of cash flows as part of financial statement for every reporting period. PSAK No. 2 states that historical cash flows information is usefull as indicator of amounts, timing, and uncertainty of prospective cash flows, and is useful in assessing the accuracy of the estimated prospective cash flows (PSAK No. 2 para. 04). The components of cash flows include cash flows from operating activities, cash flows from investing activities, and cash flows from financing activities. In the cash flows information is usefull to investor, it should have incremental information content when the cash flows information is published. The incremental information content is reflected in the market reaction although at the same time there is market response to earnings information.

Market reacts to unexpected cash flows information for a number of reasons. Market may react positively to unexpected total cash flows because the cash flows may be perceived as positive signal about firms' liquidity. High liquidity is perceived as good signal about that firm can solve operational liabilities. Market may react positively to unexpected operating cash flows because of their effects on future cash flows. Market may react positively to unexpected investing cash flows if the investments are expected to give positive net present value. On the contrary, market may react negatively to unexpected investing cash flows if the investments are not expected to give positive net present value. Market reaction to unexpected financing cash flows can either positive or negative. Market may react positively to unexpected financing cash flows which may be perceived as good signal about investor's claims of future cash flows. On the contrary, market may react negatively because it may lower expected future operating cash flows and affects investor's claim of the cash flows.

Although a number of reasons support the incremental information content of cash flows, SFAC No.1 states that earnings information generally provide a better indication of enterprise performance than cash flows information (para. 44) and earnings information is often used to assess prospective cash flows (para.47). If earnings information is usefull to investors, earnings should have incremental information content which is relfected in the market reaction to the earnings information when published, although at the same time there is market reaction to cash flows information.

Several previous empirical studies examine the incremental information content of cash flows by testing the association between cash flows and stock returns after controlling for earnings (accruals). Rayburn (1986) and Bowen et al. (1987), for example, find that there is association between cash flows and stock returns after controlling for earnings (accruals). However, Jennings' (1990) review on those two studies shows the difference in the strength of association between earnings and cash flows with stock returns. Based on Rayburn's results, the difference in the strength of association is statistically insignificant, while based on Bowen's et al. results, the difference in the strength of association is statistically significant although weak. Cheng et al. (1997) and Gultom (1999) found the association between operating cash flows and stock returns (based on the combined level and return model) after controlling for earnings. However, further tests indicate that the strength of association between cash fllows and earnings with stock returns is not different. Other studies on incremental information content of cash flows, e.g., Wilson (1986, 1987) and Bernard and Stober (1989) also do not provide consistent results.

Income smoothing can be good news for investors, because income smoothing maintain management relations with investors (Hepworth, 1953), increases satisfaction of stockholders (Gordon, 1964), will have added beneficial effects on share values (Beidleman, 1973), and will increase firm value if the bankruptcy is costly (Trueman and Titman, 1988). However, for income smoother firms, earnings variability is minimized. Earnings information with lower

variability may be irrelevant in the decision making process. Hendriksen and Breda (1992) state that information about variability activities from year to year is relevant to asses risk and therefore it is relevant in the decision making process. Hendriksen and Breda also state that income smoothing hides more information that it discloses.

Michelson et al. (1995) find that mean annualized returns for income smoothers significantly lower than mean annualized returns for nonincome smoother firms. Based on the findings, Michelson et al. suggest that "investors do not give preference to smoother income streams and the smoothing does not increase the market value of a firm" (p. 1186 and 1188). Results of Assih's (1998) study indicate that around earnings announcement date, cumulative abnormal returns (CAR) for income smoother firms are lower than the CAR for nonsmoothers, and the difference is statistically significant.

PSAK No. 2 states that cash flows statement eliminates the effects of the use of different accounting methods on transactions (para. 03). This characteristic differentiates cash flows statement from accrual based income statement. Furthermore, the PSAK No. 2 states that historical cash flows information is useful as indicator for amounts, timing, and uncertainty about future cash flows, and is useful in assessing the accuracy of the estimation for future cash flows (para. 4). Wang and Eichenseber (1998) state that incremental informativeness of cash flows is increasing function of its predictability and a decreasing function of the predictability of earnings. Their empirical results support the hypothesis, i.e., cash flows have incremental information content when its predictability is high and the predictability of earnings is low.

If earnings are "smoothed", earnings information may be less relevant in the decision making process. Besides, the ability of smoothed earnings to predict future cash flows may be lower than the predictability of cash flows. Therefore, smoothed earnings may affect the association between earnings (cash flows) and stock returns.

2. Hypotheses formulation

This study examines the incremental information content of cash flows using income smoothing index as a moderating variable. The null hypotheses tested are formulated as follows.

H_0 1 : For the higher income smoothing index, total cash flows have incremental information content beyond earnings.

H_0 2 : For the higher income smoothing index, operating cash flow, investing cash flow, and financing cash flow have incremental information content beyond earnings.

D. RESEARCH METHOD

1. Abnormal returns and cumulative abnormal returns (CAR) measures

Abnormal returns are computed using market model as follows:

$$AR_{it} = R_{it} - \alpha_i - \beta_i R_{mt} \quad (1)$$

where AR_{it} = the abnormal return for firm i on day t; R_{it} = the daily stock return for firm i on day t; R_{mt} = the market return on day t; α_i and β_i = parameters estimated based on market model using 100 day estimation period before event window.

Daily stock returns are computed as follows :

$$R_{it} = (P_{it} - P_{it-1})/P_{it-1}$$

where R_{it} = the daily stock return for firm i on day t; P_{it} = closing stock price for firm i on day t; and P_{it-1} = closing stock price for firm i on day t-1.

Daily market returns are computed as follows:

$$R_{mt} = (IHSG_t - IHSG_{t-1})/IHSG_{t-1}$$

where R_{mt} = the daily market return; $IHSG_t$ = the daily composite stock price index on day t; and $IHSG_{t-1}$ = the daily composite stock price index on day t-1.

Beta in equation (1) is the adjusted beta based on Fowler and Rorke's (1983) method using 4 lag and lead periods. Results of empirical study in the Jakarta Stock Exchange by Hartono and Surianto (1999) show that among the three models tested, i.e., Scholes and Williams' (1977) model, Dimson's (1979) model, and Fowler and Rorke's (1983) model, Fowler and Rorke's model is the best model in reducing the bias. The steps in using the Fowler and Rorke's method are as follows:

1. regressing stock returns on market returns:

$$R_{it} = \alpha_i + \beta_i^{-4}R_{mt-4} + \beta_i^{-3}R_{mt-3} + \beta_i^{-2}R_{mt-2} + \beta_i^{-1}R_{mt-1} + \beta_i^{0}R_{mt} + \beta_i^{+1}R_{mt+1} + \beta_i^{+2}R_{mt+2} + \beta_i^{+3}R_{mt+3} + \beta_i^{+4}R_{mt+4} + \beta_i^{+1}R_{mt+1} + u_{it}\ ; \quad (2.a)$$

2. regressing market index returns on previous market index returns:

$$R_{mt} = \alpha_i + p_1 R_{mt-1} + p_2 R_{mt-2} + p_3 R_{mt-3} + p_4 R_{mt-4} + u_{it}\ ; \quad (2.b)$$

3. computing the weight to be used in equation (2.a):

$$w_1 = \frac{1 + 2.p_1 + 2.p_2 + 2.p_3 + p_1}{1 + 2.p_1 + 2.p_2 + 2.p_3 + 2.p_4} \quad (2.c.1)$$

$$w_2 = \frac{1 + 2.p_1 + 2.p_2 + p_3 + p_1}{1 + 2.p_1 + 2.p_2 + 2.p_3 + 2.p_4} \quad (2.c.2)$$

$$w_3 = \frac{1 + 2.p_1 + p_2 + p_3 + p_1}{1 + 2.p_1 + 2.p_2 + 2.p_3 + 2.p_4} \quad (2.c.3)$$

$$w_4 = \frac{1 + p_1 + p_2 + p_3 + p_1}{1 + 2.p_1 + 2.p_2 + 2.p_3 + 2.p_4}\ ; \quad (2.c.4)$$

4. computing adjusted beta:

$$\beta_i = w_4.\beta_i^{-4} + w_3.\beta_i^{-3} + w_2.\beta_i^{-2} + w_1.\beta_i^{-1} + \beta_i^{0} + w_1.\beta_i^{+1} + w_2.\beta_i^{+2} + w_3.\beta_i^{+3} + w_4.\beta_i^{+4}\ . \quad (2.d)$$

Cumulative abnormal returns (CAR) are computed using event windows: (1) around announcement date, i.e., from 10 days before to 10 days after the announcement date of earnings/cash flows [-10,+10], from 5 days before to 5 days after the announcement date [-5,+5], and one day at the annoucement date [0]; (2) before the announcement date, i.e., from 10 days before to the day of the announcement date [-10,0] and from 5 days before to the day of the announcement date [-5,0]; and (3) after announcement date, i.e., from the announcement date to 5 days after the annoncement date [0,+5] and from the announcement date to 10 days after the annoncement date [0,+10].
The CAR are computed as follows:

$$CAR_{i(t1,\,t2)} = \sum_{t=t_1}^{t2} A_{it} \quad (3)$$

where $CAR_{i(t1,\,t2)}$ = cumulative abnormal returns for firm i from period t_1 to t_2; t_1 = the beginning observation period; and t_2 = the end of observation period.

2. Unexpected earnings and unexpected cash flows measures

Unexpected earnings are measured using market-adjusted earnings, i.e., the difference between firm earnings and market earnings. The market earnings in this study is not market earnings of all industries but market earnings of manufacturing firms. Both firm earnings and market earnings are divided by market value of stock in the beginning period. To eliminate the effects of leverage ratios, the unexpected earnings are adjusted based on the leverage ratio (total debt divided by total assets). The adjustments are required because firms with relatively higher debt ratios tend to have higher risks. Firms with relatively higher risks are

expected to have relatively higher profits. To make the adjustment, the unexpected earnings are regressed on leverage ratios. The adjusted unexpected earnings are the residuals resulted from the regressions that are statistically significant.

Unexpected cash flows are measured using the same method used in measuring the unexpected earnings. An unexpected cash flow is the difference between firm cash flow and market cash flow. Both firm cash flow and market earnings are divided by market value of stock in the beginning period. Next, the unexpected cash flow is regressed on the leverage ratio (total debt divided by total assets), and the residuals resulted from the regression which are statistically significant are the adjusted unexpected cash flows.

3. Income smoothing index

The income smoothing index is computed using Eckel's (1981) approach which is based on analysis of income and sales variabilities. In this study, the income smoothing index is computed as follows:

Indeks perataan laba = (CV_S / CV_I) (4)

where S = change in sales in one period , I = earnings change in one period, and CV = coefficient of variation (standard deviation divided by mean). The *mean* is in absolute terms.

4. Tests of hypotheses

The Null Hypothesis 1 (H_0 1) states that for the higher income-smoothing index, total cash flows do not have incremental information content beyond earnings. To test the hypothesis, following the contextual model used by Cheng *et al.* (1996), the following model (5) is used:

$$CAR_{it} = \alpha + \beta_1 LB_{it} + \beta_2 JAK_{it} + \beta_3 LB*XE_{it} + \beta_4 JAK_{it}*XE_{it} + \varepsilon_{it} \quad (5)$$

where *XE is the interaction of income smoothing index with LB (unexpected earnings) or with JAK (unexpected total cash flow). Interaction models are also used in Suwardjono (1997).

Statistically significant coefficient of JAK*XE indicates that for the higher income smoothing index, total cash flows have incremental information content beyond earnings. The null hypothesis (H_0) and the alternative hypothesis (H_1) can be stated as follows:

H_0. 1: $\beta_4 = 0$; and

H_1. 1: $\beta_4 \neq 0$.

where *XE is the interaction of income smoothing index with LB (unexpected earnings) or with JAK (unexpected total cash flow). Interaction models are also used in Suwardjono (1997).

Statistically significant coefficient of JAK*XE indicates that for the higher income smoothing index, total cash flows have incremental information content beyond earnings. The null hypothesis (H_0) and the alternative hypothesis (H_1) can be stated as follows:

H_0. 1: $\beta_4 = 0$; and

H_1. 1: $\beta_4 \neq 0$.

The null hipotesis 2 (H_0 2) is also tested using contextual model as follows:

$$CAR_{it} = \alpha + \beta_1 LB_{it} + \beta_2 AKO_{it} + \beta_3 AKI_{it} + \beta_4 AKP_{it} + \beta_5 LB*XE_{it} + \beta_6 AKO_{it}*XE_{it} + \beta_7 AKI_{it}*XE_{it} + \beta_8 AKP_{it}*XE_{it} + \varepsilon_{it} \quad (6)$$

where *XE is the interaction of income smoothing index with LB (unexpected earnings), AKO (unexpected operating cash flows), AKI (unexpected investing cash flows) or AKP (unexpected financing cash flows). All of the explaining variables are deflated by market value of equity at the beginning of year t.

The null hypothesis (H_0) and the alternative hypothesis (H_1) can be stated as follows:

$H_0 2: \beta_6 = 0, \beta_7 = 0, \beta_8 = 0$; and

$H_1 2: \beta_6 \neq 0, \beta_7 \neq 0, \beta_8 \neq 0$.

5. Tests of model specification

Test of model specification for hypothesis 1 uses Lagrange multiplier (LM) tests (Gujaratl, 1995). The LM tests procedures are as follows:

1. estimate the restricted regression (7) to obtain the *residuals*, u_t

$$CAR_{it} = \alpha + \beta_1 LB_{it} + \beta_2 JAK_{it} + \upsilon_{it}; \quad (7)$$

2. regres the residuals obtained from step 1 on unexpected earnings (LB), unexpected total cash flows (JAK), the interaction between LB and income smoothing index (LB*XE), and the interaction between JAK and income smoothing index (JAK*XE) as follows:

$$\upsilon_{it} = \alpha + \beta_1 LB_{it} + \beta_2 JAK_{it} + \beta_3 LB*XE_{it} + \beta_4 JAK_{it}*XE_{it} + \varepsilon_{it}; \quad (8)$$

3. compute nR^2 (number of sample x R^2) or chi-square value from equation (8);
4. reject model (7) if chi-square value resulted from step 3 exceeds the critical chi-square value at the chosen level of significance. Therefore, results of the tests indicate that the use of contextual model is more appropriate.

Test of model specification for hypothesis 2 also uses the Lagrange multiplier (LM) test. The procedures are similar as in testing the model specification for hypothesis 1 with the equation in step 1 and in step 2 as follows:

$$CAR_{it} = \alpha + \beta_1 LB_{it} + \beta_2 AKO_{it} + \beta_3 AKI_{it} + \beta_4 AKP_{it} + \upsilon_{it}; \quad (9)$$

$$\upsilon_{it} = \alpha + \beta_1 LB_{it} + \beta_2 AKO_{it} + \beta_3 AKI_{it} + \beta_4 AKP_{it} + \beta_5 LB*XE_{it} + \beta_6 AKO_{it}*XE_{it} + \beta_7 AKI_{it}*XE_{it} + \beta_8 AKP_{it}*XE_{it} + \varepsilon_{it}. \quad (10)$$

6. Diagnostic tests

Diagnostic tests include test of multicollinearity and test of heteroscedasticity. To detect the multicollinearity between independent variables, indicator of variance inflation factor (VIF) and condition index (CI) are used. As rule of thumb, multicollinearity is a serious problem if VIF exceeds 10 or CI equals or more than 10 (Gujarati, 1995, p. 338-339).

Heteroscedastisity is detected using the following regression model (Thomas, 1993):

$$e_i^2 = \alpha + \beta \hat{Y}_i^2 + v_i \qquad i = 1, 2, 3, \ldots, n. \quad (11)$$

where e and $\hat{Y}$ are residuals and prediction value from OLS estimation of the regression tested. Indicator of heteroscedastisity is if the chi-square value (nR^2) resulted from equation (11) exceeds the critical chi-square value with one degree of freedom.

7. Data and sample selection

The data used in this study include data from financial statements (sales, net income, cash flows from operating activities, cash flows from investing activities, cash flows from financing activities, and total cash flows), daily stock price (closing price), daily composite stock price index (IHSG), and the date of announcement of earnings and cash flows. Sources of data include Indonesian Capital Market Directory, firms' annual financial statements, JSX Statistics, sources of stock price data available in the Pusat Referensi Pasar Modal (PRPM) Jakarta Stock Exchange, and other publications such as Bisnis Indonesia newspaper.

The sample firms used in this study are manufacturing firms listed in the Jakarta Stock Exchange. The sample firms are selected based on specific criteria to get representative sample (purposive sampling). The criteria for sample selection are as follows.

1. The sample firms are listed in the Jakarta Stock Exchange and listed in the Indonesian Capital Market Directory 1999.
2. The financial statement data are available continuously for the reporting years from 1990-1995. This requirement is used to compute the income smoothing index.
3. The financial statement data are available at least one year for the reporting years 1995-1996. These criteria are required to get financial statements that include statement of cash flows as required by the PSAK No. 2 for reporting years since January 1, 1995.
4. The sample firms publish audited financial statements using reporting period ended on December 31.
5. Daily stock price data and daily stock price composite indexes are available for the estimation and observation periods.
6. Stocks of the sample firms are liquid based on Surat Edaran PT BEJ No. SE- 03/BEJ.II.1/I/1994, i.e., trading frequency exceeds 75 in three months.
7. Outlier data are excluded from the analyses using criteria of two standard deviation.

Based on the criteria, 91 cases are selected for the period 1995-1996.

E. Empirical Results

Test results of the first hypothesis and second hypothesis can be summarized as follows.

Test results of hypothesis 1, presented in table 1, show that for period of 1995-1996, the coefficient of the interaction between unexpected total cash flows and income smoothing index (JAK*XE) statistically significant at $p<0.01$ for event window [0,+5] or from the date of announcement to five days after the announcement date. Results for event window [0,+10] are similar to the results for event window [0,+5]. Based on the test results, **the null hypothesis 1 (H_0 1)** that for the higher income smoothing index, total cash flows have no incremental information content beyond earnings **can be rejected**, primarily for event window [0,+5] and [0,+10] or from the date of announcement to 5 days and 10 days after the announcement date.

Test results of hypothesis 2 are presented in table 2. The table shows that for the period 1995-1996, the coefficents of the interaction between the unexpected cash flows and income smoothing index (AKO*XE, AKI*XE, and AKP*XE) statistically significant at $p<0.01$ for event window [0,+5]. Results for event window [0,+10] are similar to the results for event window [0,+5]. For event window [-10,+10], the coefficients of the interaction variables which are statistically significant include AKO*XE (at $p<0.05$), AKI*XE (at $p<0.01$), and AKP*XE (at $p<0.05$). However, the results for event window [-10,+10] only marginally supported by the test of model specification. Based on the test results, **the null hypothesis 2 (H_0 2)** that for the higher income smoothing index, operating, investing, and financing cash flows have no incremental information content beyond earnings **can be rejected**, primarily for event windows [0,+5] and [0,+10]. These results are consistent with the test results for H_0 1.

Results of multicollinarity and heteroscedasticity indicate that there are no serious problem with multicollinarity and heteroscedasticity for all event windows.

To increase the robustness of the test results of the incremental information content of cash flows hypotheses with the increase in income smoothing index, the model specifications for hypothesis 1 and hypothesis 2 are tested. Results of the tests, presented in table 3 and table 4, show that for the period of 1995-1996 the chi-square values (nR^2) are higher than the critical chi-square values at $p<0.01$ with one degree of freedom (table 3) and 4 degree of freedom (table 4) for event window [0,+5] and event window [0,+10]. These results support the test results of hypothesis 1 and hypothesis 2.

The incremental information contents of cash flows ignoring income smoothing index are also examined. The results indicate that ignoring income smooting, cash flows have no information content beyond earnings. These findings are consistent with the results of previous studies such as Triyono (1998) using return model and Wahyuni (1998).

E. CONCLUSION, LIMITIONS, AND FUTURE RESEARCH

Based on the results, a general conclusion can be drawn, i.e., the findings of this study show that test of incremental information content of cash flows **with** income smoothing index as moderating variable provide "relatively better results" than the test **without** income smoothing factor. In other words, income smoothing has moderating impact on the incremental information content of cash flows. This study provides empirical evidence that for the higher income smoothing index, cash flows have incremental information content beyond earnings. Ignoring income smoothing factor, results of this study indicate that cash flows have no incremental information content beyond earnings. This study is expected to contribute market based accounting research literature specifically on cash flow information by providing further explanation on the usefulness of cash flows statement as stated in PSAK No. 2, i.e., the usefulness of cash flows statement is related to income smoothing factor. It is expected that the findings of this study can be used by those who are interested in the cash flow information.

This study has a number of limitations, such as, the use of manufacturing firms as the only sample firms, the relatively short observation periods (1995-1996), and the measure of variables used in this study, e.g. income smoothing, unexpected earnings, and unexpected cash flows. Future researches can be conducted by using manufacturing and non-manufacturing firms to test the industry impact on the results, and by extending the observation periods as well as by using different measures of variables used to test the robustness of the results.

Table 3

Model Spesification Test Results: Hipotesis 1

Periode	*Event Window*	n	R^2	$n.R^2$
1995-1996				
	[-10,+10]	91	0.0606	5.5142*
	[-5,+5]	91	0.0757	6.8896**
	[0]	91	0.0418	3.8075
	[-10,0]	91	0.0121	1.0995
	[-5,0]	91	0.0021	0.1923
	[0,+5]	91	0.2048	18.6329***
	[0,+10]	91	0.1175	10.6885***

*** 1% critical chi-square value, 2 df: 9,21034
** 5% critical chi-square value, 2 df: 5,99147
* 10% critical chi-square value, 2 df: 4,60517

Table 4

Model Spesification Test Results: Hipotesis 2

Periode	*Event Window*	n	R^2	$n.R^2$
1995-1996				
	[-10,+10]	91	0.1306	11.8881**
	[-5,+5]	91	0.1082	9.8497**
	[0]	91	0.1039	9.4567*
	[-10,0]	91	0.0827	7.5290
	[-5,0]	91	0.0343	3.1236
	[0,+5]	91	0.2556	23.2583***
	[0,+10]	91	0.1608	14.6324***

*** 1% critical chi-square value, 4 df: 13,2767
** 5% critical chi-square value, 4 df: 9,48773
* 10% critical chi-square value, 4 df: 7,77944

Table 1

Regression results of Cumulative Abnormal Returns (CAR) on unexpected earnings (LB), unexpected total cash flows (JAK), the interaction between unexpected earnings and income smoothing index (LB*XE), and the interaction between unexpected total cash flows and income smoothing index (JAK*XE) using pooled cross-sectional data (1995-1996) at event windows around announcement date (Hypothesis 1)

	Coefficient (t-Statistics)						
	Event Window						
	[-10,+10]	[-5,+5]	[0]	[-10,0]	[-5,0]	[0,+5]	[0,+10]
(Constant)	0.0007	0.0192	0.0043	-0.0003	0.0115	0.0121	0.0053
	(0.0332)	(1.5122)	(1.3081)	(-0.0191)	(1.1840)	(1.5729)	(0.4491)
LB	0.1718	0.0325	0.0283	0.2978 *	0.1939	-0.1330	-0.0977
	(0.6967)	(0.2084)	(0.6966)	(1.6744)	(1.6288)	(-1.4105)	(-0.6771)
JAK	-0.2072	-0.1330	-0.0143	-0.0462	0.0299	-0.1773 ***	-0.1753 **
	(-1.4732)	(-1.4950)	(-0.6173)	(-0.4556)	(0.4405)	(-3.2970)	(-2.1303)
LB*XE	-0.1984	0.0791	0.0858	-0.1846	-0.0406	0.2055	0.0720
	(-0.5484)	(0.3457)	(1.4371)	(-0.7074)	(-0.2323)	(1.4855)	(0.3400)
JAK*XE	0.4725 **	0.3094 **	0.0283	0.1316	0.0396	0.2981 ***	0.3692 ***
	(2.3530)	(2.4344)	(0.8537)	(0.9088)	(0.4081)	(3.8827)	(3.1420)
F	1.6887	2.2899	2.9415	1.1788	1.4616	5.6604	2.9250
Sig.	0.1600	0.0662	0.0249	0.3259	0.2210	0.0004	0.0255
Adjusted R^2	0.0297	0.0542	0.0794	0.0079	0.0201	0.1716	0.0788

*Significant at p<0,10. ** Significant at p<0,05. *** Significant at p<0,01.

Table 2

Regression results of Cumulative Abnormal Returns (CAR) on unexpected earnings (LB), unexpected operating cash flows (AKO), unexpected investing cash flows (AKI), unexpected financing cash flows (AKP), the interaction between unexpected earnings and income smoothing index (LB*XE), and the interaction between unexpected operating cash flows and income smoothing index (AKO*XE), the interaction between unexpected investing cash flows and income smoothing index (AKI*XE), and the interaction between unexpected financing cash flows and income smoothing index (AKP*XE) using pooled cross-sectional data (1995-1996) at event windows around announcement date (Hypothesis 2)

	Coefficient (t-Statistics)						
	Event Window						
	[-10,+10]	[-5,+5]	[0]	[-10,0]	[-5,0]	[0,+5]	[0,+10]
(Constant)	-0.0047	0.0133	0.0022	-0.0050	0.0085	0.0070	0.0025
	(-0.2329)	(1.0164)	(0.6622)	(-0.3555)	(0.8638)	(0.9190)	(0.2096)
LB	0.0785	-0.0111	0.0144	0.2063	0.1471	-0.1438	-0.1134
	(0.3274)	(-0.0708)	(0.3618)	(1.2253)	(1.2539)	(-1.5771)	(-0.7855)
AKO	-0.2555	-0.1708 *	-0.0328	-0.1232	-0.0338	-0.1698 ***	-0.1651 *
	(-1.6295)	(-1.6721)	(-1.2643)	(-1.1196)	(-0.4405)	(-2.8495)	(-1.7495)
AKI	-0.5631 ***	-0.2292 *	-0.0341	-0.3125 **	-0.0675	-0.1958 ***	-0.2847 ***
	(-3.1628)	(-1.9763)	(-1.1575)	(-2.5009)	(-0.7754)	(-2.8936)	(-2.6572)
AKP	-0.1832	-0.1201	-0.0044	0.0083	0.0670	-0.1915 ***	-0.1959 **
	(-1.2634)	(-1.2719)	(-0.1826)	(0.0818)	(0.9457)	(-3.4763)	(-2.2449)
LB*XE	-0.0779	0.0716	0.0751	-0.1257	-0.0383	0.1850	0.1228
	(-0.2106)	(0.2971)	(1.2260)	(-0.4840)	(-0.2118)	(1.3155)	(0.5515)
AKO*XE	0.6411 **	0.4941 ***	0.1062 **	0.2998	0.1668	0.4335 ***	0.4475 ***
	(2.3715)	(2.8062)	(2.3728)	(1.5801)	(1.2622)	(4.2189)	(2.7504)
AKI*XE	0.9405 ***	0.4065 **	0.0454	0.4179 **	0.1228	0.3290 ***	0.5680 ***
	(3.3847)	(2.2457)	(0.9865)	(2.1428)	(0.9041)	(3.1154)	(3.3965)
AKP*XE	0.4104 **	0.2421 *	0.0016	0.0468	-0.0135	0.2572 ***	0.3651 ***
	(1.9724)	(1.7867)	(0.0466)	(0.3208)	(-0.1325)	(3.2531)	(2.9162)
F	2.1223	1.7339	2.7102	2.5299	1.6877	4.4181	2.0685
Sig.	0.0427	0.1028	0.0106	0.0164	0.1137	0.0002	0.0483
Adjusted R^2	0.0907	0.0612	0.1320	0.1197	0.0576	0.2330	0.0867

*Significant at p<0,10. ** Significant at p<0,05. *** Significant at p<0,01.

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5 PENGARUH PARTISIPASI PEMAKAI TERHADAP KEPUASAN PEMAKAI DALAM PENGEMBANGAN SISTEM INFORMASI DENGAN DUKUNGAN MANAJEMEN PUNCAK, KOMUNIKASI PEMAKAI-PENGEMBANG, KOMPLEKSITAS TUGAS, KOMPLEKSITAS SISTEM, PENGARUH PEMAKAI SEBAGAI VARIABEL MODERATING

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Abstrak

Penelitian ini bertujuan untuk menguji apakah partisipasi pemakai berpengaruh pada kepuasan pemakai dan apakah dukungan manajemen puncak, komunikasi pemakai-pengembang, kompleksitas tugas, kompleksitas sistem, pengaruh pemakai, memoderasi pengaruh partisipasi pemakai terhadap kepuasan pemakai dalam pengembangan sistem informasi. Masih banyak temuan penelitian sebelumnya yang kontradiksi. Peneliti mencoba menguji ulang dengan melakukan pengujian pada lima faktor kontinjensi, sebagaimana yang telah disebutkan.

Pengujian hipotesis dilakukan pada 100 responden yang tersebar pada perusahaan besar manufaktur, dagang dan jasa yang ada di wilayah NTT, dengan berfokus pada lima kabupaten yaitu Belu, TTU, TTS, Kupang, dan Ende. Metode yang digunakan dalam pengujian hipotesis ini adalah regresi linier (Linier Regression) untuk menguji pengaruh partisipasi pemakai terhadap kepuasan pemakai dalam pengembangan sistem informasi. Sedangkan untuk menguji lima faktor kontinjensi yaitu dukungan manajemen puncak, komunikasi pemakai-pengembang, kompleksitas tugas, kompleksitas sistem, pengaruh pemakai, sebagai pemoderasi pengaruh partisipasi pemakai terhadap kepuasan pemakai digunakan metode MRA (Moderated regression analysis).

Hasil penelitian menunjukkan bahwa pertama, partisipasi pemakai dalam pengembangan sistem informasi berpengaruh positif terhadap kepuasan pemakai. Kedua, pengaruh partisipasi pemakai terhadap

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