VALUE RELEVANCE OF REAL EARNINGS MANAGEMENT: EVIDENCE FROM INDONESIA

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Abstract

This study investigates the impact of real earnings management on value relevance of earnings and book value of equity. The present study uses price model i.e. stock price as firm value. The real earnings management is measured by abnormal cash flow of operation (Abn.CFO), abnormal cash production costs (Abn.PROD), and abnormal cash discretionary expenses (Abn.DISCR). Sample of this study is manufacturing sector. It is due to using of earnings management proxy employed is based on component of production activities i.e. abnormal production cost. Regression analyses on a sample of 1164 firm-years from 1995 to 2006 are employed to test hypotheses. The result of the test shows that earnings and book value of equity are relevant to measure firm value. The value relevance decreased when firms engaged in real earnings management.

Key words: earnings, book value of equity, stock price, abnormal cash flow of operation, abnormal production cost, and abnormal discretionary expenses.

1. Introduction

Researches on value relevance of accounting information in Indonesia and other in developing countries show similar results which report that accounting numbers are relevant to measure firm value (R. Graham, King, & Bailes, 2000; R. C. Graham & King, 2000; Sari, 2004; Suwardi, 2005; Utama, Sembel, & Utama, 2001). However, value relevance of accounting information in Asian countries also shows various fluctuation movements. It is due to several constrains such as financial crisis, negative earnings, and accounting cases and violation of regulation in capital market. These all problems negative affected to the value relevance.
Some studies on value relevance of accounting information which are conducted in Indonesia suggest a consistent result that accounting information in Indonesia is relevant although the studies are related to investment opportunity set (IOS) as moderating variable which is conducted by Jati (2003); industrial sector, direction and transitory earnings which conducted by Pinasti (2004); dividend, accruals quality, and firm size which is conducted by Anggono & Baridwan (2003); and initial public offering which is conducted by Gumanti (2004).

Researches on value relevance of accounting information will continue to develop and follow the development of circumstance which affect on the information both for developed and developing countries such as changes in accounting standards, earnings management and economic conditions. Kadri, Aziz, & Ibrahim (2009) investigate the differences value relevance of book value and earnings between two different financial reporting regimes i.e. during MASB and FRS period in Malaysia. Result of the study suggests that book values are value relevant for both regimes but earnings are value relevant for MASB period and not value relevant for FRS period. That means that the change in financial reporting regime affects significantly the value relevance of book value and but not earnings.
Another study which investigates the difference of value relevance of book value and earnings between aggregated and disaggregated in Malaysian high-tech firms is performed by (Kadri, Ibrahim, & Aziz, 2010). Result of the study show that explanatory powers of both book value and earnings are fluctuating, book value is in a decreasing trend, while earnings is in a increasing trend. Another result suggests that disaggregated book value and earnings could explain the variation in market value better than aggregated book value and earnings.

Researches on value relevance of accounting information which is conducted in Indonesia have not linked with violation of regulation and earnings management practices although earnings management practices in Indonesia have been engaged by managers. Therefore, research about the relevance value which is associated with earnings management practices is essential to enrich the literature.

The concern of Indonesian public company about earnings management is reasonable. It is because level of perceived standard on disclosure and transparency in Indonesia is still low or poor. Low protection of noncontroled shareholders as well as the weak implementation of corporate governance can also drive to conduct the importance of earnings management research in Indonesia.
Relationship between earnings management and value relevance of accounting information can also be explained through earnings quality. Lo (2007) argues that earnings management is associated to earnings quality. Lo (2007) also states that highly managed earnings have low quality. It means that earnings management actions will reduce earnings quality i.e. reliability of earnings. The relevance of accounting information in valuation of a firm can be affected by market’s insight of the reliability of the information (Whelan & McNamara, 2004). That means that earnings management actions negatively affect value relevance of earnings.

Most of the studies on relationship between earnings management and value relevance of accounting information are conducted in the West or developed countries. These studies attempted to examine earnings management using discretionary accruals (Whelan & McNamara, 2004; Marquardt & Wiedman, 2004; Habib, 2004; Gul et al., 2000 and Gul, Leung & Srinidhi, 2003).

The development of earnings management measuring model has evolved from based on accruals transaction approach to the approach based on the cash operational activities, widely known as earnings management through real activities manipulation such as the cash operational activities, cash production costs and cash discretionary expenses. Therefore, the development of the model should also be followed by relevant studies with the aim to test the accuracy of these models.
2. Literature Review and Hypotheses

2.1 Opportunities to engage in earnings management in Indonesia

Governance system play an important role in the financial reporting process. As suggested by prior researches, rules and regulations formulated to protect investors is a key institutional factor affecting the corporate policy choices (Porta, et al., 2000; Shleifer & Vishny, 1997). The researchers find that protection level performed by institutions are associated with the usefulness of accrual-based accounting information. The level of protection imposed by the capital market supervisory agency plays a role in reducing the level of manipulation that can be conducted by managers and controlling shareholders through accruals transactions. Several international studies (Ali & Lee-Seok, 2000; Leuz, Nanda, & Wysocki, 2003) provide evidence on the association between several earnings quality measurements and the degree of protection to investor from expropriation by controlling shareholders and managers. These studies assert that the characteristics of earnings are affected by the degree of investors’ protection.

Indonesians’ accounting scandals entangling accounting profession including LIPPO Bank and KIMIA FARMA occurred in 2002 (Kompas, 2002; Koran Tempo online, 2003; Pontianak Post, 2003). Third quarterly 2002 financial statements of LIPPO Bank published (30 September) to public were different from financial statements submitted to Jakarta Stock Exchange (27 December). The Difference of
both financial statements is decrease of assets value and book value of equity by Rp 1.372 quintillion and Rp 1.392 quintillion respectively or 47 percent from previous value. In the case of KIMIA FARMA, financial statements of KIMIA FARMA for year ended 31 December 2001 show net income inflated by Rp 32.668 billion. Financial statement should show Rp 99.595 billion but it is reported as Rp 132 billion. This action is classified as information astray. This is caused by combining between accounting negligent as well as manipulation of stock prices.

The above accounting scandals demonstrated examples of real earnings management in action. This evidence shows that company’s financial statement; particularly, earnings, is vulnerable to manipulation by managers. Based on the above arguments, it is critical to gain in-depth understanding about the relations between earnings management and the value relevance of accounting information, in particular, whether earnings management has caused a decrease in the value relevance of accounting information.

As an emerging capital market, many of the listed companies in Indonesia have evolved from the traditional family owned enterprises with highly concentrated ownership structure (Claessens, Djankov, & Lang, 2000). In the context where firms have a controlling block of shares held by the major shareholders, the key agency problem is between the controlling (majority) and minority shareholders (Ismiyanti & Mahadwartha, 2008). In contrast, the ownership
structure in developed countries is dispersed so as not to allow
occurring agency problems between majority and minority
shareholders. The agency problem in developed countries is between
shareholders and managers (Jensen & Meckling, 1976). The condition
is able to give great opportunities for managers to engage in real
earnings management especially in Indonesia.

Under the condition of a highly concentrated ownership
structure, it is argued that the controlling shareholders
effectively possess greater control rights than the control rights
provided through their voting shares since they are also involved in
the management decisions (Porta, Lopez-de-Silanes, & Shleifer,
1999). Concentrated share ownership thus creates opportunities for
controlling shareholders to expropriate the resources of an entity.
Expropriation is a process of using one's control rights to maximize
their welfare through the distribution of wealth from others to him
(Claessens, Djankov, Fan, & Lang, 1999). Expropriation is one tactic
of earnings management conducted by management for the benefit of
the controlled shareholders.

Furthermore, Porta et al. (1999) state that the monitoring
function will be hard if managers are part of the majority
shareholders when their ownership increases to a certain level. If
one’s voting shares have reached a certain threshold, then he/she
can have a full control and tend to steer the company to accomplish
his/her personal objectives (Shleifer & Vishny, 1997).
As an agent, a manager has access to information before it is published to the public. It is argued that the quality of published information will be higher if there is no separation between owners and managers. The logic behind this idea is straightforward. If managers are also the owners, there is no incentive for them to release information that will not reflect the true economic condition of the entity. This is because the issuer and the users of the information are the same party. However, if there is a concentration of ownership in a single person/group and only a small portion of stocks are owned by other stockholders, the quality of earnings information may then be reduced due to the act of the managers to retain some information for their self-interest.

In addition, it is also argued that to engage in expropriation in countries that adhere to the civil law is easier compared to countries which practise common law legal system (Johnson, Porta, Silanes, & Shleifer, 2000; Porta, Lopez-de-Silanes, Shleifer, & Vishny, 2000). Under the Common law system, accounting standards and policies are more stringent and protection of the rights of shareholders and creditors is greater with the implementation of various contract system (Graff, 2008; Porta, Lopez-de-Silanes, Shleifer, & Vishny, 1998). It is perceived that a country like Indonesia which has its legal tradition originated from the civil law has relatively weaker development in its capital market and
various financial institutions as compared to those countries which have legal environment rooted from the common law system.

Johnson et al. (2000) conducted a study to rate the level protection to non-controlling shareholders with a scale of one to five (with five as the highest value that describes the highest noncontrolled shareholders protection and one the least protection). The study employs 23 Asia countries. The findings revealed that the noncontrolled shareholders protection by Indonesia is very weak. Such condition may allow the controlling shareholders to expropriate the noncontrolling shareholders.

A number of suspected cases related to expropriation in Indonesia have been published in the magazine Trust (2003). Two of such cases are discussed below: The first company is PT. Barito Pacific Timber Tbk, which acquired 60% of PT. Enim Musi Lestari. PT. Barito Pacific Timber Tbk.’s financial report of 2001 expresses no opinion or disclaimer due to the transaction that is not accompanied by endorsement in 1998. The transaction value is US$ 204 million in cash. As the transaction is without the approval of minority shareholders, the money was used as a down payment in the acquisition process earlier. Another case is the role of Robert Tantular as a controlled shareholder of PT. Bank Century Tbk which disbursed credit to PT. Wibowo Wadah Rezeki and PT. Accent Investment Indonesia. Majority shareholders of these companies are owned by Robert Tantular (Kontan, 2009). PT. Bank Century Tbk has
distributed credit without going through proper procedures to PT. Wibowo Wadah Rezeki Tbk. valued of 121.3 billion Rupiah and to PT. Accent Investment Indonesia valued of 397.97 billion Rupiah over 2008 - 2009. The impact of the transaction is that PT. Bank Century Tbk. got financial distress, as many customers can not take back their deposits from the bank.

Number of managerial ownership also affects type of earnings management. Li Lin (2011) finds evidence in Taiwan which reveals that when managerial ownership is less than 9.67% managers may engage in opportunity earnings management. However, when managerial ownership is higher than 9.67%, managers may tend to be efficient earnings management. Opportunistic earnings management is one motivation of earnings management which is conducted by managers to maximize their utility. Whereas, efficient earnings management is managers’ motivation to improve the informational content of earnings in communicating private information to investors (Siregar & Utama, 2008: Jiraporn et al., 2008).

Indonesia is a country adopting civil law legal system. Indonesia has a characteristics of financial and legal institutions include weak and low investors’ protection (Beck et al., 2001). Weak market power is indicated by weak pressure on financial institutions and law on companies. This result is more lenient application of the accounting policies and standards in preparing financial reporting. Weak institutional pressure in the market is evidenced by the
justice system that do not support the demand of justice related to misrepresentation of financial statements. As a result, management is able to make use of the opportunity to present financial statements which are of low transparency and reliability.

Most accounting principles applied in Indonesia are adapted from the US GAAP until 2008. Indonesian Institute of Accountants (Ikatan Akuntan Indonesia or IAI) announced a formal statement for the plan to have Indonesian GAAP (Pernyataan Standard Akuntansi Keuangan or PSAK) fully converged with IFRS as of 1 January 2009 starting to be effective on 1 January 2012 (Akuntan Indonesia, 2010). The US GAAP is a rule-based accounting standard. On the other hand, the IFRS is a principle-based accounting standard which has the characteristics of more lenient accounting standards than the rule-based accounting standards (Kusuma, 2007). Arifin (2008) empirically finds that U.S. companies with the rule-based accounting standards would prefer to perform real earnings management because of its strict accounting standards that preclude accruals earnings management activities.

Evidence found by Arifin (2008) is consistent with Graham et.al (2005). On the contrary, The German’s companies with principle-based accounting standards would prefer to perform accrual earnings management because lenient standards still allow to perform activities of accrual earnings management that is cheaper. The findings are in accordance with Nelson (2003), Demski (2004) and
Ewert & Wagenhofer (2005) that accounting standards which are more stringent (tighter) is able to reduce the practice of accrual earnings management, but trigger real earnings management. Based on the above passages it can be concluded that there are opportunities for practice of earnings management in Indonesian’s companies based on real activity transactions.

2.3 Value relevance of earnings management

Lo (2007) states that earnings management is associated with earnings quality. The highly managed earnings have low quality i.e. reliability of earnings. The relevance of accounting information in valuation of a firm can be affected by market’s insight of the reliability of the information (Whelan & McNamara, 2004). The alleged lack of earnings reliability has consequence in the market that is less confident of the earnings in the stock valuation process. The focus is able to shift to book value as a source of information for stock valuation purposes. That means that earnings management actions negatively affect value relevance of earnings.

Studies providing evidence that earnings management negatively affect value relevance of accounting information include Gul et al., (2000, 2003); Whelan & McNamara (2004), Habib (2004), and Marquardt and Wiedman (2004). Gul et al. (2000) examined the association between the informativeness of earnings, and the pricing of discretionary accrual by the market interacted with investment
opportunity set/ IOS (growth opportunity) and debt levels. The study shows the earnings-return relationship (value relevance of earnings) is affected positively by IOS but negatively by debt after controlling for other confounding variables such as size, beta, persistence of earnings and regulatory environment. In addition, the study also shows that the stock market price of the discretionary accrual were higher for high-IOS firms than for low-IOS firms. It means that managers use discretionary accruals to signal future opportunities for growth and efficient earnings management can be significant, especially in high-IOS firms. On the other hand, opportunistic earnings management is not the only motivation for earnings management under all circumstances.

Gul et al. (2003) investigated the influence of IOS on accounting choices to report opportunistically to hide performance or to report more informative earnings. The study shows that discretionary accruals improve the value relevance of earnings measured in terms of the earnings-return relationship in firms with higher IOS. This result is consistent with the notion of a higher proportion of informative earnings management in high-IOS firms.

Whelan & McNamara (2004) also examine the value relevance of both earnings and book value in the presence of three alternative sources of earnings management: short-term discretionary accruals, long-term discretionary accruals, and total discretionary accruals. The research demonstrates that earnings management has an impact on
value relevance. In addition, earnings management via long term discretionary accruals has a greater impact on value relevance of earnings and book value than earnings management via short-term discretionary accruals. The study shows that for the firms where the management sells their stock through a secondary offering that voluntary disclose earnings forecast in the nine-month period prior to offering, earnings management does not affect the value relevance of earnings. In contrast, for firms which do not release the earnings forecast, earnings management negatively affect value relevance of earnings.

Habib (2004) investigates the impact of earnings management on value relevance of accounting information among the Japanese’s firms by using a new earnings management model developed by Leuz et al. (2003). The result of the study shows that both earnings management measures and aggregate earnings management measures (combination of both earnings smoothing and earnings management measures) are significantly negatively associated with the combined value relevance of book values of equity and earnings (combined model) and value relevance of earnings (earnings model).

Marquardt & Wiedman (2004) examined whether opportunistic earnings management impairs the value relevance of accounting information as reflected in stock prices and stock returns. The study shows that for the firms where their management sells their stock through a secondary offering that voluntary disclose an
earnings forecast in the nine-month period prior to offering, earnings management does not affect value relevance of earnings. In contrast, the firms that do not release a forecast, earnings management negatively affect value relevance of earnings. These findings become basis to develop hypotheses as follows:

\[H_1: \text{The value relevance of earnings decreases when firms engage in earnings management.}\]

\[H_{1a}: \text{The value relevance of earnings decreases when firms engage in earnings management through abnormal cash flow from operation.}\]

\[H_{1b}: \text{The value relevance of earnings decreases when firms engage in earnings management through abnormal production cost.}\]

\[H_{1c}: \text{The value relevance of earnings decreases when firms engage in earnings management through abnormal discretionary expenses.}\]

\[H_2: \text{The value relevance of book value of equity decreases when firms engage in earnings management.}\]

\[H_{2a}: \text{The value relevance of book value of equity decreases when firms engage in earnings management through abnormal cash flow from operation.}\]

\[H_{2b}: \text{The value relevance of book value of equity decreases when firms engage in earnings management through abnormal production cost.}\]

\[H_{2c}: \text{The value relevance of book value of equity decreases when firms engage in earnings management through abnormal discretionary expenses.}\]
3. Research method

3.1 Population and sampling procedure

The population of this research is public companies listed in Indonesia Stock Exchange (IDX) from 1995 to 2006. The presentation of cash flow statement become mandatory for Indonesian public companies commencing from 1995. Cash flow statement is a data source used to measure one of the dimensions of earnings management and value relevance of accounting information. Therefore, the data of the study will be collected from 1995 due to availability of the data.

Samples firms of the research are selected based on purposive sampling method. To recapitulate, the sample of this research consists of:

2. Published financial statements with financial year ended 31 December. And, the currency of financial statements is Rupiah. These criteria aim to avoid bias caused by difference due to accounting periods and currencies. In other words, companies listed in IDX using US Dollar currency will be excluded from the sample of the study.
3.2 Source and type of research data

Data used in this study consist of financial statements and stock price. Annual financial statements are obtained from stock market database in Indonesia Stock Exchange (IDX) – Brawijaya University Corner (Pojok Bursa Efek Indonesia – Universitas Brawijaya), Indonesian Capital Market Database (ICMD), and Indonesian Stock Exchange website (http://www.idx.co.id). In addition, stock price data will also be obtained from Indonesian Securities Market Database (ISMD) published by Center for Stock Market Database, Faculty of Economic, Gadjahmada University (Pusat Database Pasar Modal Fakultas Ekonomi Universitas Gadjahmada).

3.3 Measurement of research variables

This study employs two accounting numbers as independent variable i.e. earnings per share (EPS) and book value of equity per share (BVEq) and stock price as dependent variable in measuring value relevance of accounting information. Value relevance of accounting information is measured by the formulas given as follows (Kothari & Zimmerman, 1995; Ohlson, 1995; Feltham & Ohlson, 1995):

\[ P_t = \alpha + \beta_1 EPS_t + \beta_2 BVEq_t + \epsilon_t \]

Where:

- \( P_t \) = Stock price in year t (three months later when the annual report is published)
- \( EPS_t \) = Earnings per share in year end t
- \( BVEq_t \) = Book value of equity per share in year end t
- \( \beta \) = Regression coefficient
- \( \epsilon \) = Error term at year end t
The real earnings management proxies include abnormal cash flow from operation, cash production cost, and cash discretionary expenses. The current research applies an adjustment i.e. Logarithm function of total assets ($A_{t-1}$) into each earnings management formula. The original formula employs variable $1/A_{t-1}$, while the present study employs variable $1/\text{Log}.A_{t-1}$ in each formula due to the fact that variable $1/A_{t-1}$ is not applicable for the context of Indonesian public companies. This is because the value of $1/A_{t-1}$ will be meaningless as all samples will end up by having the same value i.e. zero (after being rounded). The purpose of this adjustment is to avoid meaningless value.

Indication of a firm engagement in earnings management by real activities manipulation can be shown by abnormal value of the activities. Real Operation activities manipulation refers to management actions which are deviated from normal business practices, undertaken with the primary purpose of meeting certain earnings thresholds (Roychowdhury, 2006).

Measurement of abnormal value of each activity refers to the deviation between actual activity value and expected activity value. This measurement is developed by Roychowdhury (2006). The actual activity value for each activity is calculated by the formulas given below. In addition, the expected activity value is calculated from each coefficient of the estimated model.
a. Cash flow from operation activity

\[ \text{CFO}_t / A_{t-1} = \alpha_0 + \alpha_1 (1/ \log A_{t-1}) + \beta_1 (S_t / A_{t-1}) + \beta_2 (\Delta S_t / A_{t-1}) + \epsilon \]

b. Production cost activity

\[ \text{PROD}_t / A_{t-1} = \alpha_0 + \alpha_1 (1/ \log A_{t-1}) + \beta_1 (S_t / A_{t-1}) + \beta_2 (\Delta S_t / A_{t-1}) + \epsilon \]

c. Discretionary expense activity

\[ \text{DISCR}_t / A_{t-1} = \alpha_0 + \alpha_1 (1/ \log A_{t-1}) + \beta (S_t / A_{t-1}) + \epsilon \]

Where:

\( \text{CFO}_t \) = Total cash flow from operation of firm at year end \( t \)

\( \text{PROD}_t \) = Production cost of firm at year end \( t \), where

\( \text{PROD}_t = \text{COGS}_t + \Delta \text{INV}_t \)

\( \text{COGS}_t \) = Cost of goods sold of firm at year end \( t \), calculated as follows:

\[ \text{COGS}_t / A_{t-1} = \alpha_0 + \alpha_1 (1/ \log A_{t-1}) + \beta_1 (S_t / A_{t-1}) + \epsilon \]

\( \Delta \text{INV}_t \) = Change of finished goods inventory of firm at year end \( t \), calculated as follow:

\[ \Delta \text{INV}_t / A_{t-1} = \alpha_0 + \alpha_1 (1/ \log A_{t-1}) + \beta_1 (\Delta S_t / A_{t-1}) + \beta_2 (\Delta S_{t-1} / A_{t-1}) + \epsilon \]

\( \text{DISCR}_t \) = Discretionary expenses (include marketing, and general and administrative without accruals account) of firm at year end \( t \)

Where:

\( A_{t-1} \) = Total assets of firm in year end \( t-1 \)

\( S_t \) = Sales of firm in year end \( t \)

\( \Delta S_t \) = Change of sales of firm at year \( t \) compared with sales in year end \( t-1 \)

\( \Delta S_{t-1} \) = Change of sales of firm at year \( t-1 \) compared with sales in year end \( t-2 \)

\( \alpha, \beta \) = Coefficient of regression

\( \epsilon \) = Error term at year end \( t \)
3.4 Test of hypotheses

The present research uses multiple regression analysis to examine the value relevance of real earnings management which is accompanied by crisis dummy to control financial crisis. Briefly, regression equations used in multiple regression analyses are as follows:

Multiple regression equation for hypothesis 1:

\[ P = \alpha_0 + \alpha_1(DmCrs) + \alpha_2(Post) + \beta_1(EPS) + \beta_2(Abn.CFO) + \beta_3(Abn.PROD) + \beta_4(Abn.DISCR) + \beta_5(EPSxAbn.CFO) + \beta_6(EPSxAbn.PROD) + \beta_7(EPSxAbn.DISCR) + \epsilon. \]

Multiple regression equation for hypothesis 2:

\[ P = \alpha_0 + \alpha_1(DmCrs) + \alpha_2(Post) + \beta_1(BVEq) + \beta_2(Abn.CFO) + \beta_3(Abn.PROD) + \beta_4(Abn.DISCR) + \beta_5(BVEqxAbn.CFO) + \beta_6(BVEqxAbn.PROD) + \beta_7(BVEqxAbn.DISCR) + \epsilon. \]

Where:
- \( P \) = Stock price of firm (third month after annual report date)
- \( EPS \) = Earnings per share
- \( BVEq \) = Book value of equity per share
- \( Abn.CFO \) = Abnormal cash flow from operation
- \( Abn.PROD \) = Abnormal production cost
- \( Abn.DISCR \) = Abnormal discretionary expenses
- \( EPSxAbn.CFO \) = Interaction between EPS and Abn.CFO
- \( EPSxAbn.PROD \) = Interaction between EPS and Abn.PROD
- \( EPSxAbn.DISCR \) = Interaction between EPS and Abn.DISCR
- \( BVEqxAbn.CFO \) = Interaction between BVEq and Abn.CFO
- \( BVEqxAbn.PROD \) = Interaction between BVEq and Abn.PROD
- \( BVEqxAbn.DISCR \) = Interaction between BVEq and Abn.DISCR
- \( DmCrs \) = Dummy economic crisis (1 = economic crisis period, 0 = others)
- \( DmPost \) = Dummy Post crisis (1 = post economic crisis period, 0 = others)
- \( \alpha_0 \) = Total constant (before crisis, crisis period, and post economic crisis)
\[ \alpha_1 = \text{Constant of economic crisis period} \]
\[ \alpha_2 = \text{Constant of post economic crisis} \]
\[ \beta = \text{Regression coefficient} \]
\[ \varepsilon = \text{Error term} \]

4. Analysis result

Descriptive statistics of the research data are presented in Table 1. The data will be used to calculate the value of research the variable the real earnings management and to test the hypotheses.

Table 1
Descriptive statistics of the research data (presented in million Rupiah except for Panel B and C)

<table>
<thead>
<tr>
<th>Descriptive</th>
<th>Mean</th>
<th>Median</th>
<th>Standard Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Panel A.</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sales (net revenues)</td>
<td>2,523,298</td>
<td>3,810,250</td>
<td>2,406,584</td>
</tr>
<tr>
<td>Cash flow from operation</td>
<td>245,339</td>
<td>239,910</td>
<td>113,286</td>
</tr>
<tr>
<td>Cash production cost</td>
<td>474,351</td>
<td>462,992</td>
<td>301,886</td>
</tr>
<tr>
<td>Cash discretionary exp.</td>
<td>981,220</td>
<td>837,688</td>
<td>233,865</td>
</tr>
<tr>
<td>Net income</td>
<td>564,456</td>
<td>965,500</td>
<td>549,731</td>
</tr>
<tr>
<td>Total assets</td>
<td>1,611,099</td>
<td>1,399,749</td>
<td>743,965</td>
</tr>
<tr>
<td>Log. total assets</td>
<td>5.710</td>
<td>5.600</td>
<td>0.583</td>
</tr>
<tr>
<td>Accounts receivable</td>
<td>1,317,612</td>
<td>1,655,600</td>
<td>972,936</td>
</tr>
<tr>
<td>Inventory</td>
<td>1,375,023</td>
<td>1,400,320</td>
<td>1,264,572</td>
</tr>
<tr>
<td><strong>Panel B.</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Stock price (P)</td>
<td>2,805</td>
<td>1,890</td>
<td>2,218</td>
</tr>
<tr>
<td>Earnings per share (EPS)</td>
<td>228</td>
<td>318</td>
<td>167</td>
</tr>
<tr>
<td>Book value of equity</td>
<td>1,634</td>
<td>1,891</td>
<td>713</td>
</tr>
<tr>
<td>CFO/ At-1</td>
<td>0.074</td>
<td>0.169</td>
<td>0.016</td>
</tr>
<tr>
<td>PROD/ At-1</td>
<td>0.774</td>
<td>0.658</td>
<td>0.704</td>
</tr>
<tr>
<td>DISCR/ At-1</td>
<td>0.162</td>
<td>0.194</td>
<td>0.121</td>
</tr>
<tr>
<td>1/ Log. At-1</td>
<td>0.178</td>
<td>0.179</td>
<td>0.021</td>
</tr>
<tr>
<td>SALESt/ At-1</td>
<td>1.155</td>
<td>1.913</td>
<td>1.067</td>
</tr>
<tr>
<td>Δ SALESt-1/ At-1</td>
<td>0.192</td>
<td>0.099</td>
<td>0.182</td>
</tr>
<tr>
<td>SALESt-1/ At-1</td>
<td>0.190</td>
<td>0.195</td>
<td>0.120</td>
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<tr>
<td><strong>Panel C. (Real earnings management proxies)</strong></td>
<td></td>
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<tr>
<td>Abnormal CFO</td>
<td>0.172</td>
<td>0.186</td>
<td>0.145</td>
</tr>
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</table>
4.1 Estimated model of earnings management proxy

Coefficients of each estimated model of earnings management proxies are presented in Table 2. The Table depicted the regression coefficients for the key regressions which are used to estimate "normal" level of activities transactions.

Table 2
Model parameters of earnings management proxies

<table>
<thead>
<tr>
<th></th>
<th>CFO_t/A_{t-1}</th>
<th>PROD_t/A_{t-1}</th>
<th>DISCR_t/A_{t-1}</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intercept</td>
<td>0.039</td>
<td>-0.074</td>
<td>0.127**</td>
</tr>
<tr>
<td></td>
<td>(1.740)</td>
<td>(-0.696)</td>
<td>(3.856)</td>
</tr>
<tr>
<td>1/Log.A_{t-1}</td>
<td>-0.139**</td>
<td>0.523**</td>
<td>0.407**</td>
</tr>
<tr>
<td></td>
<td>(-3.617)</td>
<td>(5.876)</td>
<td>(3.040)</td>
</tr>
<tr>
<td>S_t/A_{t-1}</td>
<td>0.049**</td>
<td>0.667**</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(7.050)</td>
<td>(44.265)</td>
<td></td>
</tr>
<tr>
<td>ΔS_t/A_{t-1}</td>
<td>-0.001**</td>
<td>0.067*</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(-4.171)</td>
<td>(2.398)</td>
<td></td>
</tr>
<tr>
<td>ΔS_{t-1}/A_{t-1}</td>
<td>-0.093**</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(-3.266)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>S_{t-1}/A_{t-1}</td>
<td></td>
<td>0.092**</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>(8.398)</td>
<td></td>
</tr>
<tr>
<td>F-value</td>
<td>17.186**</td>
<td>766.933**</td>
<td>40.185**</td>
</tr>
<tr>
<td>Adjusted R^2</td>
<td>0.041</td>
<td>0.725</td>
<td>0.063</td>
</tr>
</tbody>
</table>

*Significant at the 5% level. **Significant at the 1% level.

4.2 Value relevance of accounting information

The relationship between accounting information and market value are performed through stock price as dependent variable and accounting information as independent variable. Result of the regression is presented in Table 3. Table 3 shows that both
independent variables are significant i.e. EPS and BVEq at 1 percent level. The regression also shows that economic crisis has effect in firm valuation. Accounting information has positive effect on firm valuation before crisis period. In contrary, accounting information has negative effect in firm valuation both for crisis period and post crisis period.

Table 3
Regression for value relevance of accounting information

<table>
<thead>
<tr>
<th>Stock price</th>
</tr>
</thead>
<tbody>
<tr>
<td>Constant</td>
</tr>
<tr>
<td>t-value</td>
</tr>
<tr>
<td>Constant-crisis period</td>
</tr>
<tr>
<td>t-value</td>
</tr>
<tr>
<td>Constant-post crisis</td>
</tr>
<tr>
<td>t-value</td>
</tr>
<tr>
<td>EPS_t</td>
</tr>
<tr>
<td>t-value</td>
</tr>
<tr>
<td>BVEq_t</td>
</tr>
<tr>
<td>t-value</td>
</tr>
</tbody>
</table>

F-value
R²
Adjusted R²
367.025**
0.559
0.557

**Significant at level 1%

4.3 Value relevance of real earnings management

Result of the test of hypothesis 1 and 2 are presented in Table 4. Table 4 explains that EPS and BVEq positive affects stock price. Coefficient EPS is significant at 1% level. In contrast, all earnings management proxies coefficients are not significant. The positive relationship between EPS and BVEq and stock price becomes a
significant negative relationship when EPS interacted with each earnings management proxies i.e. Abn.CFO, Abn.PROD, and Abn.DISCR. The negative effect of interaction between EPS, BVEq and each earnings management proxy on stock price is significant at 1% level. It means that each earnings management proxy decreases the relationship between EPS and stock price. Thus, hypothesis 1 and 2 is fully supported by empirical evidence of the present research.

Table 4
Result of hypotheses 1 and 2 testing

<table>
<thead>
<tr>
<th></th>
<th>EPS (H₁)</th>
<th>BVEq(H₂)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Dummy-crisis period:</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Constant</td>
<td>2,583.770*</td>
<td>1,154.804**</td>
</tr>
<tr>
<td>t-value</td>
<td>(5.629)</td>
<td>(2.795)</td>
</tr>
<tr>
<td>Constant (crisis period)</td>
<td>-142.727</td>
<td>-795.692</td>
</tr>
<tr>
<td>t-value</td>
<td>(-0.218)</td>
<td>(-1.344)</td>
</tr>
<tr>
<td>Constant (post crisis)</td>
<td>-565.915</td>
<td>-260.328</td>
</tr>
<tr>
<td>t-value</td>
<td>(-1.110)</td>
<td>(-0.580)</td>
</tr>
<tr>
<td><strong>Independent variable:</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>EPS</td>
<td>4.020**</td>
<td>1.276**</td>
</tr>
<tr>
<td>t-value</td>
<td>(21.534)</td>
<td>(26.449)</td>
</tr>
<tr>
<td>BVEq</td>
<td></td>
<td>1.276**</td>
</tr>
<tr>
<td>t-value</td>
<td></td>
<td>(26.449)</td>
</tr>
<tr>
<td>Abn.CFO</td>
<td>1,227.302</td>
<td>-956.059</td>
</tr>
<tr>
<td>t-value</td>
<td>(0.897)</td>
<td>(-0.747)</td>
</tr>
<tr>
<td>Abn.PROD</td>
<td>-1,036.974</td>
<td>181.227</td>
</tr>
<tr>
<td>t-value</td>
<td>(-1.868)</td>
<td>(0.360)</td>
</tr>
<tr>
<td>Abn.DISCR</td>
<td>1.582.707</td>
<td>3,290.377</td>
</tr>
<tr>
<td>t-value</td>
<td>(1.906)</td>
<td>(1.352)</td>
</tr>
<tr>
<td>EPS<em>Abn.CFO (H₁a); BVEq</em>Abn.CFO (H₂a)</td>
<td>-7.002**</td>
<td>-3.429**</td>
</tr>
<tr>
<td>t-value</td>
<td>(-6.023)</td>
<td>(-9.339)</td>
</tr>
<tr>
<td>EPS<em>Abn.PROD (H₁b); BVEq</em>Abn.PROD (H₂b)</td>
<td>-2.946**</td>
<td>-0.913**</td>
</tr>
<tr>
<td>t-value</td>
<td>(-12.010)</td>
<td>(-10.527)</td>
</tr>
<tr>
<td>EPS<em>Abn.DISCR (H₁c); BVEq</em>Abn.DISCR (H₂c)</td>
<td>-3.848**</td>
<td>-0.512**</td>
</tr>
<tr>
<td>t-value</td>
<td>(-5.821)</td>
<td>(-3.432)</td>
</tr>
<tr>
<td>R²</td>
<td>0.463</td>
<td>0.586</td>
</tr>
<tr>
<td>Adjusted R²</td>
<td>0.457</td>
<td>0.581</td>
</tr>
</tbody>
</table>
Explanation regarding economic crisis related to effect of earnings management on value relevance of accounting information is also based on Table 4. The table illustrates that positive coefficient $\alpha$ (constant) of both regression models are significant at 1% level. Nevertheless, negative coefficient $\alpha$ (crisis period) and post period are not significant. Based on the direction of the coefficient $\alpha$ (constant) before economic crisis period, economic crisis and post economic crisis, it can be concluded that the relationship between accounting information (EPS, and BVEq), interaction between accounting information and earnings management and firm market value are different among before economic crisis and during economic crisis, and post economic crisis period. Before economic crisis, the relationship coefficient is increasing (positive), on the other hand, during economic crisis period and post economic crisis the relationship coefficient is decreasing (negative). The condition occurred for EPS and BVEq as well. It means that the value relevance of accounting information is increasing based on price model when economic condition is good (before economic crisis). In contrast, value relevance of accounting information is deteriorating based on price model when economic condition is bad (for this present research is on economic crisis period and post economic crisis).
4.4 Test of classic assumptions

The regression models which are used to test the hypothesis do not violate autocorrelation as indicated by Durbin-Watson (DW) statistic of the models. The summary of autocorrelation test is presented at Table 5.

Table 5
Test of autocorrelation of hypothesis 1 and 2 regression model

<table>
<thead>
<tr>
<th>Hypothesis</th>
<th>DW_{Upper} (DW_{table})</th>
<th>DW_{Statistic}</th>
<th>4 - DW_{Upper}</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hypothesis 1</td>
<td>1.885</td>
<td>1.900</td>
<td>2.115</td>
</tr>
<tr>
<td>Hypothesis 2</td>
<td>1.885</td>
<td>1.941</td>
<td>2.115</td>
</tr>
</tbody>
</table>

Furthermore, multicollinearity problem is tested through correlation among independent variables. The test of multicollinearity based on correlation among independent variables of regression analysis shows that all correlation among independent variables are less than 0.50 (50%). Thus, the regression models used to test the hypothesis are free of multicollinearity problem.

The result of heteroscedasticity testing of regression used to test the hypothesis is presented at Table 6. The result shows that all coefficients of independent variables are not significant. That means that the earnings management models are free from heteroscedasticity.
Table 6
The p-value of Park’s test of regression models of the hypothesis

<table>
<thead>
<tr>
<th>Variable</th>
<th>H₁</th>
<th>H₂</th>
</tr>
</thead>
<tbody>
<tr>
<td>EPSₜ (H₁); BVEq (H₂)</td>
<td>0.001</td>
<td>0.000</td>
</tr>
<tr>
<td>t-value</td>
<td>(0.049)</td>
<td>(1.362)</td>
</tr>
<tr>
<td>Abn.CFO</td>
<td>1.756</td>
<td>0.730</td>
</tr>
<tr>
<td>t-value</td>
<td>(0.099)</td>
<td>(1.801)</td>
</tr>
<tr>
<td>Abn.PROD</td>
<td>-0.822</td>
<td>-0.252</td>
</tr>
<tr>
<td>t-value</td>
<td>(-1.608)</td>
<td>(-1.331)</td>
</tr>
<tr>
<td>Abn.DISCR</td>
<td>0.680</td>
<td>1.257</td>
</tr>
<tr>
<td>t-value</td>
<td>(1.328)</td>
<td>(1.085)</td>
</tr>
<tr>
<td>EPS x Abn.CFO (H₁); BVEq x Abn.CFO (H₂)</td>
<td>0.001</td>
<td>0.000</td>
</tr>
<tr>
<td>t-value</td>
<td>(1.778)</td>
<td>(1.426)</td>
</tr>
<tr>
<td>EPSxAbn.PROD (H₁); BVEqxAbn.PROD (H₂)</td>
<td>0.000</td>
<td>0.000</td>
</tr>
<tr>
<td>t-value</td>
<td>(0.717)</td>
<td>(1.146)</td>
</tr>
<tr>
<td>EPSxAbn.DISCR (H₁); BVEqxAbn.DISCR (H₂)</td>
<td>-0.000</td>
<td>0.000</td>
</tr>
<tr>
<td>t-value</td>
<td>(-1.783)</td>
<td>(0.423)</td>
</tr>
</tbody>
</table>

5. Discussion

Regarding the result of earnings management analysis showing that Indonesian public companies have propensity to engage in earnings management through real activities has implication on market participants including investors, analysts, accounting and auditing practitioners. Auditing practitioners must be cognizant of technique and procedures of earnings management practice through real activities performed by managers. Although, the practice is difficult to be traced using generally auditing procedures.

Managers commonly engage in earnings management because the managers need flexibility to react to unanticipated state realizations when contracts are rigid and incomplete. Otherwise, investors need the real information. It is because earnings
management can reduce reliability of accounting information. Despite the flexibility allowed by accounting standard enables earnings management to serve as a vehicle for credible communication of inside information to investors. This insight should bring to reality about awareness of the legitimate earnings management practice for accountant and auditing practitioners.

Empirical evidence of earnings management behavior and its negative impact on value relevance of accounting information also has implication to Capital Market Supervisory Agency (Badan Pengawas Pasar Modal/ BAPEPAM). The agent should be able to control for ongoing regulatory activities aimed at effectively monitoring management to improve the integrity of the financial reporting process. This is because the earnings management actions can affect credibility and user’s confidence toward accounting information negatively.

The result of this study showing that accounting information is value relevant would be able to assist investors in predicting the firm’s fundamental value i.e. firm market value. The findings also imply that investors in JSX are rational investors. These investors have properly reacted toward the existence of earnings management. The use of earnings management to communicate information to investors has been responded by different reactions i.e. strong response for low earnings management and weak response for high earnings management.
This evidence has important implications to investors as users of accounting information in stock market. The investors should react carefully to make their economic decisions in stock valuation because the earnings management can decrease firm value indirectly.

The Indonesian stock market’s response to earnings and book value of equity in the absence of earnings management is significantly positive. However, the response to earnings and book value of equity become significantly negative in the presence of earnings management via real activities. It indicates that earnings management via real activities negatively influence the value relevance of earnings and book value of equity.

The result of the present research is consistent with previous study performed by Habib (2004), Whelan and McNamara (2004), and Marquardt & Wiedman (2004). Even though, the previous studies employ discretionary accruals as earnings management proxy. Meanwhile, the present study employs abnormal activities as earnings management proxies. The present result enables to provide a link between earnings management and firm valuation more in-depth than previous studies. Most of the existing studies focus on discretionary accruals as earnings management proxy.

Coefficient interaction between EPS and each earnings management proxy at Table 4 is greater than interaction between BVEq and each earnings management proxy. The information displays that value relevance of earnings are more affected than book value of...
equity by the present earning management engaged by managers. The more decline in value relevance of earnings than book value of equity in the presence of earning management reveals that the market perceives earning management as an indicator of lower earning reliability than book value of equity. The less impact on book value of equity may reflect that the market’s fixation on book value of equity is better approximately than on earnings. The market also looks to other information on which to base its firm valuation rather than earnings. This argument is also supported by parameter Adjusted R² of BVEq which is greater than Adjusted R² of EPS both based on price model and return model.

The results also have demonstrated that earning management affects not only the informativeness of earnings but also of book value of equity. This features the potential valuation error that may be derived from a fixation on earnings, particularly if the realibility of the earning figure has been compromised. The results express a shift away approximately from earnings and toward book value of equity as a basis for valuation in the presence of earning management. Therefore, a firm’s tendency to manage earnings is value relevant information that should be considered in the valuation process. The present result also depicts that book value of equity plays a greater role in firm valuation when earning is less value relevant caused by present earning management.
A similar affect of earning management through real activities and accruals on value relevance of accounting information indicates that the stock market has reacted precisely when financial statement is published. Investors don’t distinguish tool of earning management based on real activities. One possible reason is that earning management engaged by managers is opportunistic action which damages investors’ utility.

6. Conclusion, limitations, and recommendations

6.1 Conclusions

Several conclusions can be inferred from the present study. First of all, public companies listed in JSX engage in earnings management through real activities mechanisms i.e. abnormal cash flow from operation, abnormal production cost, and abnormal discretionary expenses. The present study also applies adjustment toward each earnings management model. Obviously, the adjustment is able to improve regression parameters of earnings management model.

Secondly, accounting information such as earnings and book value of equity is still relevant to measure market firm value. Both information, earnings and book value of equity are information which is consistent to measure market value. Finally, all earnings management proxies decrease value relevance of accounting information. That means that earnings management deteriorates relationship between accounting information and market value of firm.
6.2 Limitation of study

There are some limitations of this study. First limitation is related to research data. Research data employed in the present study is over 1995 to 2006. Data for 1997 and 1998 is related to economic crisis period. Inevitable fact is that economic crisis affects firm performance negatively. Thus, Some firms can not fulfill requirement as research sample.

The second limitation is related to real value of earnings management. As experienced by the previous researchers (Jones, 1991; Dechow et al., 1995; Roychowdhury, 2006) value of earnings management is just based on proxy. Value of the proxy is not real value of earnings management. It means that the result of this study does not yet explain the real procedures and techniques employed by companies in engaging in earnings management. Actually, the earnings management practice is difficult to be traced even if using generally auditing procedures.

6.3 Suggestion for future research

The present research has adjusted one variable of each earnings management model. As suggested by Kothari (2001), future outlook of earnings management research is related to methodological aspect. Hence, the present research also recommends developing earnings management models for other industrial sectors. Investigation of earnings management through real activities also
should use not only cash flow from operation activities but also cash flow from investment and financing activities.

Another suggestion for future research is related to testing of earnings management on value relevance of accounting information. It is because there are two types of earnings management behavior i.e. efficient behavior and opportunistic behavior. Future research should divide type of earnings management behavior between efficient and opportunistic behavior. This is aimed to investigate whether the role of efficient and opportunistic earnings management behavior is different on value relevance of accounting information.

REFERENCE


