

The Effect Of Investment Opportunity Set On The Association Between Incentives And Earnings Management Level

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ABSTRACT

The objective of this research is to investigate the effect of investment opportunity set on the association between managers' incentives to manage earnings and the level of earnings management. The incentives to engage in earnings management in this research measured by financial leverage level, firm's size, and public ownership or firm's common stock. Discretionary accrual is used to measure level of earnings management. Result show that there are positive discretionary accruals and evidence support argument that the higher of investment opportunity set the greater positive effect of financial leverage and public ownership on the level of earnings management. Manager of firms with relatively more investment opportunity set would have wider opportunity or more discretion to manage reported earnings.

Keywords: Earnings management, investment opportunity set, information asymmetry.

Background

Earnings information is important indicator for evaluating firm financial performance. Managers determine the short term reported earnings of their companies by: 1) managing, providing leadership, and directing the use of resources in operation, 2) selecting the timing of some non operating events, and 3) choosing the accounting methods that are used to measure short term

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earnings. Most managers always to exert a stable financial performance. Growing systematic evidence supports the argument that earnings management is a common practice in firms (Bagnoli and Watts, 2001; Beneish, 2001; AlNajjar and Rhihi-Belkaoui, 2001). Managers of firms routinely manipulate or "manage" reported financial information in response to a wide variety of incentives with potentially significant consequences to the firm's management, investor, creditor, and others.

The level of earnings management will be higher if management has incentive and opportunity to do so (Dye, 1988; Trueman and Titman, 1988; Christensen *et al.*, 1999). The opportunity to engage earnings management exists when the manager knows some things, which others do not. The existence of information asymmetry between firm management and firm shareholder is an necessary condition, which must be met for earnings management to exist. When information asymmetry is high, stakeholders do not have necessary resources, incentives or access to relevant information to monitor manager's action (Schipper, 1989).

The level of information asymmetry could be varying across the firms (Ambarish *et al.* 1987). The level of information asymmetry related to firms investment. The information asymmetry could be relatively larger for firms with relatively more investment opportunity set than firms with relatively more asset-in place. It is likely that manager in that firms have more specific knowledge about their firm's assets and that value of the growth opportunities is less observable. There is therefore likely to be a relatively large informational asymmetry between manager and outsiders, especially if part of asset value comprises information that is proprietary. An increased investment opportunity set is expected to create opportunity for earnings management.

This research is motivated to extend previous earnings management research which focused on examining incentives and consequences of earnings management practices. Very little has been conducted in investigating environment surrounding earnings management practices. This study considers the level of firm's investment opportunity set (IOS) as condition that represents the opportunity to wider practice of earnings management.

This research contributes to the extend association literature by examining the impact of investment opportunity set level, as a condition that represents the wider opportunity to practice earnings management, on the association between incentives and the magnitude of earnings management. Examining the

interaction between investment opportunity set and manager's incentives on the earnings management is important to the theory that the level of firm's investment opportunity set can increase magnitude of earnings management that related to a number of incentives. The result of this research will useful to investor for better understanding reported earnings. Investors should not naively use the accounting income numbers without any adjustment for manipulation possibility of reported income. Accounting standard setter may find the result of this study useful for evaluating the mandated additional disclosure that give sufficient information for better understanding reported earning. Finally, the result of this research will useful to auditor for incentives to hold responsible for better quality for financial reporting of firm.

The purpose of this paper is to investigate the moderating effect of the level of investment opportunity set on the association between managers' incentives to engage and the level of earnings management.

Literature Review

Condition Giving Rise of Earnings Management

Virtually prior research on earnings management has taken an economic perspective. That is the research has focus on question about the incentives managers have to manage earnings and the consequences of their manipulation action. Prior published researches also shown that managers' action are related to a number of their incentives. These incentives range from efficient earnings management that cost-effectively resolves the firms' agency problem to opportunistic earnings management that maximizes management welfare at the expense of other stakeholders.

Researches have detected earnings management in response to firm and industry specific such as high debt levels and avoiding debt covenant violation (Deakin, 1979; Dhaliwal, 1980; Bowen *et al.*, 1981, Zmijewski and Hagerman, 1981; Defond and Jiambalvo, 1994); reducing the possibility of an unfavorable ruling and the cost associated with antitrust violations (Cahan 1992; Na'im dan Hartono, 1996), increasing the offering proceeds for its share of stock (Neil *et al.*, 1995. Rangan 1998, Richardson 1998, Teoh *et al.*, 1998; Sutanto, 2000; dan Gumanti, 2001), reducing firm's tax liabilities (Boyton *et al.*, 1992), and increasing likelihood of obtaining import relief or increasing the amount of relief granted (Jones, 1991). They have also observed earnings management in response to more opportunistic incentives such as bonus plan targets (Healy, 1985; Holthausen *et al.*, 1995) and proxy contest (DeAngelo, 1988, Pourceu, 1993).

In trying to get a handle on which dial managers will reach for when they decide to manage earnings, it will also need to consider a variety of factors to limit earnings management. A fundamental question posed for accounting research is to identify the condition that would limit or wider the opportunity to the practice of earnings management (Jiambalvo, 1996). Analytical model have demonstrated that the existence of information asymmetry between firms management and firm shareholders is a necessary condition for a practice of earnings management (Dye, 1988; Trueman and Titman, 1988). Thus there are a principal factor that generate earnings management. That is the inability of manager to communicate all dimensions of their private information to shareholders. High level of information asymmetry between manager and shareholder is evidence of shareholders lacking sufficient resources, incentives, or access to relevant information to monitor manager action (Schipper, 1989). When information asymmetry is high such firm may able to manage earnings without being detected by outsiders.

Information Asymmetry and Investment Opportunity Set

The information asymmetry could be relatively larger for firms with relatively more growth opportunities or investment opportunity set than firms with relatively more asset-in place. The greater investment opportunity set, the more likely the firm will not be monitored as effectively as firm with less investment opportunity set. Firms with relatively more investment opportunity set, which largely comprised of intangible growth options more difficult to monitor, or less observable. On the other hand, if firm is comprised largely of asset-in place it is relatively easy for outsider to monitor. Thus the asymmetric information could be relatively larger for firms with relatively more investment opportunity set than firms with relatively more asset-in place (Ambarish *et al.*, 1987; Skinner, 1993). Managers of firms with relatively more investment opportunity set would have wider opportunity or more discretion to manage earnings. The incentive may be the same anytime, but the opportunity to manage earnings may be hampered if the firm largely comprises asset-in place, which is relatively easy monitored by outsiders.

Hypotheses Development

A vast number of incentives for earnings management have been proposed in the academic literature. Manager of firms that are close to violating debt covenant engage earnings management that reduce the likelihood of default (Watts and Zimmerman, 1986). Due to the cost of accessing actual debt covenant information, related prior research has generally used a proxy for the existence

and tightness of accounting-based covenants. The most frequently used proxy is the debt-equity ratio or leverage (Dhaliwal, 1990; Zmijewski and Hagerman, 1981; Daley and Vigeland, 1983; DeFond and Jiambalvo, 1994).

Manager of firm that are confront with the possibility of politically imposed wealth transfer will practice earnings management that reduce the likelihood or size of the transfer. Manager would manage earnings downward because lower reported earnings will result in benefit in the form of tax, political, and regulation consideration, which exceed the additional cost to be incurred in form of adjustment for. Researches generally have used firm size to measure the firm's vulnerability to political cost (Daley and Vigeland, 1993, Sweeney, 1994; Skinner, 1994).

Prior researches in accounting (Dhaliwal *et al.*, 1982; Neuhus, 1989; Warfield *et al.*, 1995) examine the role of ownership structure in resolve potential manager-shareholder conflicts. A dominant public shareholder has both incentive and ability to monitor management so that the firm is managed in a manner consistent with profit maximization. The greater managerial ownership the less likely is conflict of interest over the accounting choice because the stock price effect is more likely to dominate the compensation effect. Thus increase incentive for opportunistic behavior when managerial ownership is low (Warfield *et al.*, 1995).

Managers across firms may be have the same incentive to do manage earnings, but the opportunity to do so may be available only in some firms, or the opportunity is available to all firms but the extant to which it can be done differ across firms. Trueman and Titman (1988) and Dye (1988) present analytical model have demonstrated that the existence of information asymmetry between firm management and firm shareholder is a necessary condition for the practice of earnings management. Firms with relatively more investment opportunity set, which largely comprised of intangible growth options more difficult to monitor, or less observable. On the other hand, if firm is comprised largely of asset-in place it is relatively easy for outsider to monitor. Thus the asymmetric information could be relatively larger for firms with relatively more investment opportunity set than firms with relatively more asset-in place (Ambarish *et al.*, 1987; Skinner, 1993). The incentive may be the same anytime, but the opportunity to manage earnings may be hampered if the firm largely comprises asset-in place, which is relatively easy monitored by outsiders. This suggests hypotheses:

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- H1: The higher level of the firm's investment opportunity set, the greater of the positive impact of financial leverage in the magnitude of earnings management.
- H2: The higher level of the firm's investment opportunity set, the greater of the negative impact of firm size in the magnitude of earnings management.
- H3: The higher level of the firm's investment opportunity set, the greater of the positive impact of public ownership of firm outstanding stock in the magnitude of earnings management.

Research Method

Variables and Measurement

Variables are discretionary accruals, investment opportunity set, financial leverage, firm size, and proportion of public ownership of firm outstanding stock. This study focuses on discretionary accrual as measure of earnings management. Measure of earnings management, discretionary accrual or managed accounting accrual, is estimated using the expected normal accrual from total accounting accrual. Expected accounting accrual is estimated using cross-sectional approach. Measures of expected accounting accrual used in this study are estimated using modification of the Jones (1991).

This study use common factor analysis to decompose each individual measure into one factor common to the individual measures opportunity set. This study use among the investment opportunities set proxies that commonly used, these are ratio of market to book assets, ratio of market to book equity, ratio of market to book fixed assets, the earnings to price ratio, and ratio of capital expenditure to book assets. The level of financial leverage is used as proxy for the existence and tightness of accounting based debt covenant (Duke and Hunt, 1990; and Press and Weintrop, 1990). This study use total debt to book assets ratio as a measure of financial leverage. Firm size is measured by natural log of total assets. The level of public ownership is computed as percent of outstanding shares owned by public.

Models

This study propose the following model to test the moderating effect of investment opportunity set on the relation between leverage, managerial ownership, and size, and the magnitude earnings management.

$$\text{Model 1: } AAM_{it} = \beta_0 + \beta_1 UTBA_{it} + \beta_2 UKR_{it} + \beta_3 PKP_{it} + \beta_4 IOS_{it} + \varepsilon_{it} \quad (1)$$

$$\text{Model 2: } AAM_{it} = \beta_0 + \beta_1 UTBA_{it} + \beta_2 UKR_{it} + \beta_3 PKP_{it} + \beta_4 IOS_{it} + \beta_5 UTBA_{it} * IOS_{it} + \beta_6 UKR_{it} * IOS_{it} + \beta_7 PKP_{it} * IOS_{it} + \varepsilon_{it} \quad (2)$$

where MAA is the managed (discretionary) accounting accrual; IOS is the level of investment opportunity set; UTBA is financial leverage; UKR is firm size; and PKP is proportion of public ownership of firm outstanding stock. The level of discretionary accrual serves as measure the extent that managers manage reported income.

The hypotheses (H1, H2, and H3) will be tested by estimating β_5 , β_6 , and β_7 in Model 2. If $\beta_5(+)$, $\beta_6(-)$ and $\beta_7(+)$ are statistically significant at the level of 5%, H_{01} , H_{02} , and H_{03} are rejected, respectively. Rejecting H_{01} , H_{02} , and H_{03} indicate there are a moderating effect of investment opportunity set on the association between financial leverage, firm size, public ownership and the magnitude of earnings management.

Data and Sample

Data of this study are some information reported in annual financial statement of publicly held companies in Jakarta Stock Exchange (JSX) for the period from 1997 until 2000. Data source is Pusat Referensi Pasar Modal Indonesia (PRPM).

Samples of this research consist of 88 manufacturing firms which filled following criteria: 1) Firms are categorize in manufacturing firm; 2) Firms are listed in JSX since the first January of 1997; 3) Firms are belong to specific industry in manufacturing which have at least seven members; and 4) firms publish complete financial statement for period 1997-2000.

Result

Analysis of Investment Opportunities Set Proxies

This research follows general steps in application of factor analysis techniques as in Hair *et al.* (1995). Based on factor analysis, one representative factor is extracted from a set of investment opportunity proxy variables. Factor score for

one representative factor replace original investment opportunity set variables for use in subsequent multivariate analysis.

Table 1
Bartlett's Test of Sphericity and Correlation Matrix of Investment Opportunity Set

| Panel A. Measure of Sampling Adequacy | | | | |
|---|--------------------|--------------------|--------------------|----------|
| | 1997 | 1998 | 1999 | 2000 |
| MSA | 0,504 | 0,511 | 0,521 | 0,500 |
| Panel B. Bartlett's Test of Sphericity | | | | |
| | 1997 | 1998 | 1999 | 2000 |
| Bartlett's test | 27,468** | 19,125** | 19,239** | 94,675** |
| Panel C. MSA and Partial Correlation | | | | |
| Year 1997 | | | | |
| Variable | NPBE | ATBA | NPAT | |
| NPBE | 0,508 ^a | | | |
| ATBA | 0,284** | 0,503 ^a | | |
| NPAT | -0,066 | -0,398** | 0,504 ^a | |
| Year 1998 | | | | |
| Variable | NPBE | ATBA | NPAT | |
| NPBE | 0,530 ^a | | | |
| ATBA | 0,208** | 0,507 ^a | | |
| NPAT | -0,055 | -0,354** | 0,510 ^a | |
| Year 1999 | | | | |
| Variable | HSLs | ATBA | NPAT | |
| HSLs | 0,694 ^a | | | |
| ATBA | 0,096 | 0,514 ^a | | |
| NPAT | -0,090 | -0,394** | 0,514 ^a | |
| Year 2000 | | | | |
| Variable | NPBA | NPAT | | |
| NPBA | 0,500 ^a | | | |
| NPAT | 0,770** | 0,500 ^a | | |

^a Measures of Sampling Adequacy (MSA)

** Significant at the levels 1%

* Significant at the levels 5%

where: HSLs is earnings to price ratio, NPBE is ratio of market to book equity, NPBA is ratio of market to book fixed assets, ATBA ratio of capital expenditure to book assets. NPAT ratio of market to book fixed assets

Descriptive Statistics

Table 2 show descriptive statistics for variables of this study.

Table 2
Descriptive Statistics

| Variable | N | Mean | Median | Standard deviation |
|----------|-----|--------|--------|--------------------|
| AAM | 356 | 3,682 | 2,832 | 7,702 |
| IOS | 356 | -0,055 | -0,108 | 1,156 |
| UTB | 356 | 81,624 | 76,982 | 47,711 |
| A | 356 | 11,668 | 11,590 | 0,568 |
| UKR | 356 | 27,381 | 26,452 | 15,464 |
| PKP | | | | |

Where:

AAM = Discretionary accruals (%), IOS = Investment opportunity set (index), UTBA = Financial leverage (%), UKR = firm size (log10, rupiah), PKP = public ownership (%).

Mean and median values for: a) discretionary accruals are 3,68% and 2,83% from total assets in beginning period; b) investment opportunity set are -0,055 and -0,108; c) financial leverage are 81,62% and 76,98%; d) firm size (in natural log value) are 11,668 rupiahs and 11,590 rupiahs; and e) public ownership of firm outstanding stock are 27,38% and 26,45%.

Hypotheses Testing

Table 3 show the result of multiple regression The calculated F value of Model 1 is 4,414 and probability value of it is 0,002, statistically significant at level of 5%. The calculated F value of Model 2 is 3,439 and probability value of it is 0,001, statistically significant at level of 5%. Based on the assumption test, all models are free from multicollinearity, heteroscedasticity, and autocorrelation. Relying on *central limit theorem*, this study can use normality assumption. There for, the usual test procedures are still valid asymptotically

The coefficients of investment opportunity set are 0,010 in Model 1 and 0,002 in Model 2. The calculated t value and the probability value of these coefficients are 2,619 and 0,005 in Model 1, and 0,018 and 0,498 in Model 2. In conclusion,

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at the one-side level of significance 5% that coefficient in Model 1 is statistically significance, but in Model 2 it is not statistically significance. The result of analysis based on Model 1, the finding consistent with Gul *et al.* (2000) that investment opportunity set is positively associates with earnings management. Overall, this result support argument that investment opportunity set moderate the association of incentives and the magnitude of earnings management.

The coefficient of interaction between financial leverage and investment opportunity set in Model 2 is 0,010. The calculated t value of this coefficient is 1,661 and the probability value of it is 0,049. At the one-side significance level 5%, H_{01} is rejected. Rejecting of H_{01} means that empirical evidence support the hypothesis that the higher level of the firm's investment opportunity set, the greater of the positive impact of financial leverage in the magnitude of earnings management.

The coefficient of interaction between firm size and investment opportunity set in Model 2 is -0,001. The calculated t value of this coefficient is -0,157 and the probability value of it is 0,458. Even at the one-side significance level 10%, H_{02} is not rejected. Not rejecting of H_{02} means that empirical evidence does not support argument that the higher level of the firm's investment opportunity set, the greater of the negative impact of firm size in the magnitude of earnings management.

The coefficient of interaction between public ownership of outstanding shares and investment opportunity set in Model 2 is 0,032. The calculated t value of this coefficient is 2,146 and the probability value of it is 0,033. At the one-side significance level 5%, H_{03} is rejected. Rejecting of H_{03} means that empirical evidence support the hypothesis that the higher level of the firm's investment opportunity set, the greater of the positive impact of public ownership of outstanding shares in the magnitude of earnings management

Table 3
Result of Multiple Regression

Model 1: $AAM_{it} = \beta_0 + \beta_1 UTBA_{it} + \beta_2 UKR_{it} + \beta_3 PKP_{it} + \beta_4 IOS_{it} + \varepsilon_{it}$

Model 2: $AAM_{it} = \beta_0 + \beta_1 UTBA_{it} + \beta_2 UKR_{it} + \beta_3 PKP_{it} + \beta_4 IOS_{it} + \beta_5 UTBA_{it} * IOS_{it} + \beta_6 UKR_{it} * IOS_{it} + \beta_7 PKP_{it} * IOS_{it} + \varepsilon_{it}$

| Variable | Coefficient | t-statistics | p - value |
|------------------|------------------|--------------|-----------|
| Model 1 | | | |
| Intercept | 0,106 | 1,277 | 0,102 |
| UTBA | 0,033 | 3,781 | |
| UKR | - | -1,146 | 0,000*** |
| PKP | 0,008 | 0,044 | 0,127 |
| IOS | 0,001 | 2,619 | 0,483 |
| | 0,010 | | |
| R^2 (Adjusted) | | | 0,005*** |
| F | 0,048 (0,037) | | |
| | 4,414*** | | |
| Model 2 | | | |
| Intercept | | 1,110 | |
| UTBA | | 4,033 | |
| UKR | 0,092 | -1,021 | 0,134 |
| PKP | 0,036 | 0,363 | |
| IOS | -0,007 | 0,018 | 0,000*** |
| UTBA*IOS | 0,010 | 1,661 | 0,150 |
| UKR*IOS | 0,002 | -0,157 | 0,358 |
| PKP*IOS | 0,010 | 2,146 | |
| | -0,001 | | 0,498 |
| R^2 (Adjusted) | 0,062 | | 0,049** |
| F | | | 0,458 |
| | 0,065 (0,046) | | |
| | 3,439*** | | 0,033** |

*** Significant at the levels 1%

** Significant at the levels 5%

* Significant at the levels 10%

Concluding Remarks

Based on result and analyses of sample this research concludes the following. Firstly, empirical evidence show that there are positive discretionary accruals. The finding support argument that earnings management is common practice in general situation. Secondly investment opportunity set positively associate with discretionary accruals. The high level of investment opportunity set indicate the high level of asymmetry information, mean of bid ask spread (as proxy for asymmetry information) for high investment opportunity firm is 1.327,15 and 227,65 for low investment opportunity set. Than the finding support prediction of this study that the higher of investment opportunity set the wider of management opportunity to manage their earnings. Thirdly, based on of moderating effect analysis of investment opportunity set on the association of incentives and magnitude of earnings management, this result show that higher the investment opportunity set level the greater of positive effect financial leverage and public ownership of outstanding shares on magnitude of earnings management.

Suggestion

This research show empirical evidence of earnings management practice among listed company in Jakarta Stock Exchange. The refinement of this research might investigate special component of accruals. Investigation of special accruals that management used to engage earnings management would be valuable for standard setter in identifying the standard which need for evaluation. Further research can use others factor that would limit the ability of manager to manage their earnings. If earnings management can be limited by transparence of financial reporting environment, than further research can investigate the effect of auditor quality on earnings management.

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