The Influence of Capital Intensity and Investment Opportunity Set toward Conservatism with Managerial Ownership as Moderating Variable

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Abstract —**The aim of this research is to determine the effect of capital intensity and investment opportunity set toward the conservatism as well as to determine the effect while using managerial ownership as moderating variable. Data were obtained from the annual reports of Indonesian Capital Market Directory and the website of Indonesian Stock Exchange. The samples are 222 observations from manufacturing companies listed in the Indonesia Stock Exchange in 2013-2014. This study uses multiple moderated regression analysis. The results show that the capital intensity has no effect on conservatism while the investment opportunity set has an influence on conservatism. The test results on moderating variables showed that managerial ownership is not able to strengthen the influence of capital intensity on conservatism while managerial ownership can strengthen the effect of the investment opportunity set on conservatism.**

Index Terms— **capital intensity, investment opportunity set, conservatism, managerial ownership. JEL classification G1, G11**

I. Introduction

This study uses the value of the firm theory on the basis that (1) capital intensity and investment opportunity set reflect the condition of the company's growth, and are factors that determine the value of the company; and (2) conservatism is the concept of prudence to prevent the income and assets from being disclosed too high and the debt as well as the burden from being stated too low, so that the financial statements presented have high quality financial information and will further affect the value of the company. The results showed that capital intensity may have a negative relationship with the firm's risk so that capital intensity becomes a representative for the firm's ability to minimize the expenses and consequently a supporter for growth.

The growth of the company through capital intensity and investment opportunity set will require the manager to manage the company effectively and efficiently and make the choice of accounting policies based on the principle of conservatism. According to Lara et al (2014) "Ref. [1]", conservatism limits the earnings manipulation and contributes to the increase in investment efficiency. But the agency problem between managerial and stakeholders often arise because management does not always act in the interests of stakeholders, but sometimes for the sake of management itself (Jensen and Meckling, 1976) "Ref. [2]". Conflicts of interest between managerial and stakeholders can be minimized with an oversight mechanism that can align these interests. This monitoring mechanism will cause the agency cost. The monitoring of companies can be done by increasing managerial ownership. Thus the difference of this study with the preliminary one is the existence of managerial ownership as a moderating variable that is expected to strengthen the influence of capital intensity and investment opportunity set toward conservatism.

The purpose of this study is to determine: 1) effect of capital intensity towards conservatism; 2) effect of investment opportunity set against conservatism; 3) managerial ownership as a moderating variable between the effect of capital intensity towards conservatism; and 4) managerial ownership as a moderating variable between the effects of investment opportunity set against conservatism.

II. Literature Review and Hypothesis Development

A. Literature Review

1) Principle of conservatism

The formal definition of conservatism can be found in SFAC No.2 paragraph 95, IASB (2010) which states: "*Conservatism is a prudent reaction to uncertainty to try to ensure that uncertainties and risk inherent in business situation are adequately considered*". Lafond et al (2006) "Ref. [3]" explained that conservatism can be divided into unconditional and conditional conservatism. Unconditional conservatism is also called *ex ante* while conditional conservatism is called *ex post*. Form of conservatism that is removed from the basic framework of IFRS is unconditional conservatism, not conditional conservatism. Unconditional conservatism occurs when the book value of net assets were set too low by means of

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loading the burden of research and development, marketing expenses in the current year or the use of double declining method. This type of conservatism generates persistent profits in the long term because the management conducts relatively consistent accounting policies. Meanwhile, conditional conservatism deals with a greater aggressivity in the recognition of bad news compared to the recognition of good news.

Implementation of conditional conservatism in Indonesia is still partial, as PSAK 14 (IAS 2) for inventories are measured at landed cost or net realizable value, whichever is lower. PSAK 16 (IAS 16) Fixed Assets and PSAK 19 (IAS 38) Intangible Assets state that the method of depreciation and amortization is a systematic allocation of the cutback number during its age benefits. The same statement can be found in PSAK 48 (IAS 36 Impairment of Assets) on Assets Impairment. This principle has an incentive to protect the stakeholders because it can reduce the negative impact of the asymmetry of information between the managerial and stakeholders. For example, accounting recognizes the impairment of assets in response to bad news, but not increased again when responsing to good news. In other words, conservatism produces a greater probability for the recognition of bad news than good news. Based on that explanation, it can be concluded that conservatism in Indonesia is still considered necessary although it has been replaced with prudence. Research conducted by Zhang (2011) “Ref. [4]” and Gassen (2006) “Ref. [5]”, were able to prove that conservatism increased since the adoption of IFRS in New Zealand and Germany. *Dewan Standar Keuangan Ikatan Akuntan Indonesia* (2012) “Ref. [6]” considered prudence as part of the qualitative characteristics of financial statements. Prudence contains an element of caution when making estimation in an uncertain condition, so that assets or income are not overstated and liabilities or expenses are not understated.

2) Capital intensity

According to Baker and Wugler (2002) “Ref. [7]”, capital intensity ratio is also called the total asset turnover ratio or the capital turnover ratio. The capital intensity ratio indicates the level of efficiency of the entire assets of the company in generating a certain sales volume. The higher the capital intensity ratio, the more efficient the use of overall assets in generating sales. The amount of the same asset can increase the sales volume if the capital intensity ratio is increased or magnified. This capital intensity ratio is essential for creditors and owners of the company, but it will be more important to the management of the company as it indicates whether the usage of the entire assets of the company is efficient.

3) Investment Opportunity Set (IOS)

According to Myers (1997) “Ref. [8]” and Marinda, AR and Saifi (2014) “Ref. [9]”, investment opportunity set (IOS) is an investment decision in the form of a combination of owned assets (assets in place) and investment options in the future with a positive net present value (NPV) and will affect the value of the company. According to Kallapur and Trombley (2001) “Ref. [10]”, growth indicates the company's ability to increase its size, while IOS is an option to invest in a project that has a positive NPV. IOS policy will affect the financial aspects of the company: company's capital structure, debt contracts, dividend policy, compensation contract, and accounting policies of the company.

4) Managerial ownership

Jensen and Meckling (1976) “Ref. [2]” stated that the stakeholders have accrued in the management company either as a creditor or the trustee board, and is referred to as managerial ownership. Shares ownership by management will lead to surveillance over the policies taken by the management company. A bigger proportion of managerial ownership will make a better company performance. A dominant shares-holding, in economic term, grants an authority to monitor.

Bathala et. al. (1994) “Ref. [11]” and Wiranata and Nugrahanti (2013) “Ref. [12]” stated that share ownership by managers will encourage a harmony and unification of interests between the principal and the agent so that managers act in accordance with the wishes of shareholders and can improve company performance. The ownership of managerial in a company will allow managers to be careful in making decisions because they will also feel the direct benefits of the decisions taken and the manager also bear losses as a consequence of making the wrong decision (Listyani, 2003) “Ref. [13]”.

B. Hypothesis Development

1) The effect of capital intensity towards conservatism

The capital intensity ratio indicates the efficiency of using entire company's assets in order to generate sales volume. The higher the capital intensity ratio means that the company is more efficient in the usage of total assets to generate sales which in turn can increase its profit. Government tends to allocate large political costs to companies with high profits or large companies, for example in the form of taxes. Therefore, manager tends to lower reported earnings, so that the company is more conservative (opportunistic). Watts and Zimmerman (1990) “Ref. [14]” argued that political cost hypothesis predicts that manager wants to shrink the profit to reduce the potential political costs. Thus the proposed hypothesis is as follows:

Hypothesis 1: Capital Intensity affects positively on Conservatism.

2) The effect of investment opportunity set to conservatism

Investment opportunity set is a variable used to show the company's investment decisions. Results from research conducted by Saputri (2013) “Ref. [15]” stated that investment opportunity set gives significant positive effect on conservatism. The significance of this result is that the market considers the company with high growth as having a profitable investment prospect and opportunity in the future. The investment opportunity leads to a positive reaction in stock prices, which in turn brings impact on increasing the company's value, which also means that the market to book ratio of companies as a proxy of conservatism is also getting bigger. Based on the above explanation, the research hypothesis that can be developed is:

Hypothesis 2: Investment Opportunity Set (IOS) affects positively on conservatism.

3) Managerial ownership strengthens the effect of capital intensity towards conservatism

Jansen and Meckling (1976) "Ref. [2]" stated that the agency conflicts were caused partly by fund-raising activity and investment decision making. One way that can be done by shareholders to control agency problems is through the presence of managerial ownership and institutional ownership. The above opinion is reinforced by Watts (2003) "Ref. [16]" which stated that one of the most important characteristics in company's accounting system to assist the board of directors in reducing the agency costs and improve the quality of financial reporting information that will increase the value of the company and its stock price is the treatment of conservatism.

Conservatism can also reduce short-term behavior of manager to take over the shareholder wealth, because conservative accounting has a tendency to concede a loss before gain (Ball and Shivakumar, 2005) "Ref. [17]". Conservatism is an important way to reduce agency costs, which are expected in a robust corporate governance environment. Thus the proposed hypothesis is as follows:

Hypothesis 3: Managerial ownership strengthens the influence of capital intensity towards conservatism.

4) Managerial ownership strengthens the effect of investment opportunity set towards conservatism

Policy and decision making in the management of the company are also affected by the size and structure of shares-holding in the company. The research result by Safiq (2010) "Ref. [18]", shows that there is a significant positive effect between managerial ownership on conservatism. This means that the use of conservatism has been linked with managerial ownership structure of the company. If the shares held by the company management are fewer in number compared with the shares owned by external parties, then the accounting method used is less conservative. This is because of the manager's desire to get good performance assessment from investors, giving them confidence that the corporate profit is high, and they will get better dividends.

Based on the above explanation, the research hypothesis that can be developed is:

Hypothesis 4: Managerial Ownership strengthens the effect of Investment Opportunity Set towards conservatism.

III. Research Method

A. Sample Selection

This research uses secondary data derived from 111 financial statements of manufacturing companies in the period 2013-2014, so there are 222 observations. Data were obtained from the Indonesia Stock Exchange and the Indonesian Capital Market Directory, as well as BEI website (www.idx.co.id). Samples were selected using purposive sampling method with the following criteria: (1) the company is listed on the Indonesia Stock Exchange (BEI) and publishes their financial statement in Rupiah currency; (2) the company is included in the manufacturing industry group that publishes an annual report and financial statements on 31 December during the observation period; and (3) the company has the data needed to support research.

B. Research Models

This research model is moderating regression analysis (Ghozali, 2001) "Ref. [19]", by the following equation:

$$Conv\_accrual = \alpha_0 + \alpha_1.IM + \alpha_2.IOS + \alpha_3.KM + \alpha_4.IM*KM + \alpha_5.IOS*KM + \alpha_6\ AKO + \alpha_7.ROA + \alpha_8.LEV + \alpha_9.\ SIZE + \varepsilon_{it}$$

Note: Conv_accrual: Conservatism. IM: Capital intensity. IOS: Investment opportunity set. KM: Managerial ownership. AKO: Operating cash flow. ROA : Return On Asset. LEV: Leverage. SIZE: Firm Size. Value; ε_{it}: Error.

C. Variables and Measurement

Capital Intensity (IM) is defined as the ratio of average total assets such as the equipment, machinery and various properties on the sales. The equation used to determine the amount of capital intensity according to Baker and Wugler (2002) "Ref. [20]" is as follows: IM = Total Asset / Sales.

Investment Opportunity Set (IOS) is measured from the Ratio of Capital Expenditure to Book Value of Assets (Ratio CAP / BVA), according to Myers (1997) "Ref. [8]". It is an IOS proxy based on investment, showing that company with a high IOS will have a high investment. Another measurement uses the Book Value of Fixed Assets (BVFA): IOS = ($BVFA_t$ - $BVFA_{t-1}$)/ Total Assets.

The dependent variable is Conservatism, a reaction that leads to prudence in the face of uncertainty occurring within the company to ensure that the uncertainty has been thoroughly considered. Conservatism is measured using a model from Zhang (2007) "Ref. [21]" as follows: (a) Non Operating Accrual = Operating Accruals – ΔAccount Receivable – ΔInventories – ΔPrepaid Expenses + ΔAccount Payable + ΔTax Payable; (b) Operating Accrual = Net Income + Depreciation – Cash Flow from Operation; and (c) Conv_Accrual = (Non Operating Accrual / Total Asset) x (-1).

Moderating variable in this research is the managerial ownership. In this study, managerial ownership variable is measured by the ratio between the shares ownership held by the management and the entire number of shares outstanding.

Control variables in this study are: (a) Operating Cash Flow (AKO) measures the operating activities of the company; (b) Return on Assets (ROA) measures the overall ability of the company to generate profits by using the company's total assets: ROA = Net Profit after Tax / Total Assets; (c) Leverage (LEV) ratio measures the company's ability to fulfil its long-term liabilities, by using a scaled ratio between total debt and total assets (Guna and Herawaty, 2010) “Ref. [22]”; (d) Firm Size (SIZE) is a measurement to classify the size of the company based on the amount of assets owned by the company, and it is calculated as follows: Size = Log (Total Assets) (Wiranata and Nugrahanti. 2013) “Ref. [12]”.

IV. Results and Discussions

A. Descriptive Statistics

TABLE I. DESCRIPTIVE STATISTICS

Variables	Mean	Minimum	Maximum	Std. Dev.
IM	6.636	0.186	1024.960	68.743
IOS	0.062	-8.593	0.661	0.059
ROA	0.072	-0.756	0.417	0.118
LEV	0.505	0.040	3.081	0.335
SIZE	12.075	10.025	14.261	0.724
KM	0.099	0.000	0.778	0.098
Conv_accrual	0.095	-0.522	0.428	0.088

Note: IM: Capital intensity, IOS: *Investment Opportunity Set*, Conv_accrual: Conservatism, SIZE: Firm size, ROA: Return On Asset, KM: Managerial Ownership, LEV: Leverage

Descriptive statistics on Table I show that the minimum value of return on asset is -0.756, recorded by one company in 2014. The return on asset average value is 0.072 or 7.2%. The standard deviation is 0.118, indicating that the variation in return on asset is contained and homogeneous. The return on asset average value is smaller than the return on asset standard deviation of a company, indicating that conservatism responses less from profits information on return on asset, because it only amounted to 7.2%.

Capital intensity shows a minimum value of 0.186 which is stated by several companies. A standard deviation value of 68.743 indicates that the variation in capital intensity is unfavorable and heterogeneous. The average value of capital intensity is 6.636. With a standard deviation greater than the average value, the average value can not be used as a representation of the whole data.

The average value of investment opportunity set is greater than the standard deviation, indicating that companies use investment opportunity set with an average of 6.2% to improve conservatism. The average value of leverage is also greater than the standard deviation, implying that the leverage level of voluntary disclosure is around 50.5% to assist investors in understanding the business strategy of management.

Firm size shows a minimum value of 10.025 owned by several company. The average value of firm size is 12.075. The average value of conservatism is 0.095, meaning that companies have a non operating accrual around 9.5% of their total assets. The average value of managerial ownership is 0.099, proving that the companies used in this research have managerial ownership to control their activities and also implying that on average companies are able to create company’s value.

B. Results from Hypothesis Tests

From Table II, the Kolmogorov-Smirnov test implies that the regression equation used has a normal standard error, so it can be tested further to determine the effect of each independent variable on the dependent variable.

The multicollinearity test indicates that all independent variable, that is capital intensity and investment opportunity set; and control variable, that is cash flow operation, return on asset, leverage and firm size have tolerance point > 0.10 and VIF point < 10. Therefore, the independent variables in the regression model show no symptom of multicollinearity and no strong correlation among the variables.

The heteroscedasticity test indicates a significance level > 0.05 i.e 0.313. It implies a homogenous error variance. Thus, the assumptions on heteroscedasticity have been fulfilled.

The coefficient of determination as seen from Adj.R2 point is 0.053. That is, 5.3% of the variation of the dependent variable, namely conservatism can be predicted from a combination of all independent variables and control variables. While the remaining 94.7% can be explained by other variables that is not included in the model.

Based on the partial regression test results shown in Table II, capital intensity has sig. point of 0.522< 0.05 and regression coefficient point of 0.044, meaning that capital intensity is not significant at the level of 5%. It implies that the first hypothesis is rejected, indicating that capital intensity does not affect conservatism.

Investment opportunity set has sig. point of 0.032 < 0.05 and regression coefficient point of 0.070, meaning that investment opportunity set is significant at the level of 5%. It implies that the second hypothesis is accepted, indicating that investment opportunity set positively and significantly affects conservatism.

The moderation test results conducted in each independent variable with managerial ownership variable indicates that capital intensity when tested immediately has a beta value of 0.044 and after the moderation 0.036. It shows that managerial ownership weakens the effect of capital intensity on conservatism. However, the significance level showed a value of 0.620 > 0.05 so that there is no significant moderating influence. In conclusion, the moderation value weaken the influence of capital intensity to conservatism insignificantly.

The moderation test on investment opportunity set indicates that investment opportunity set when tested immediately has a beta value of 0.070 and after the moderation 0.078. It shows that managerial ownership strengthens the effect of investment opportunity set on conservatism. Furthermore, the significance level showed a value of 0.028 < 0.05. Hence, it can be concluded that there is a significant moderating influence of investment opportunity set toward conservatism.

TABLE II. THE EFFECT OF CAPITAL INTENSITY AND INVESTMENT OPPORTUNITY SET TOWARD CONSERVATISM WITH MANAGERIAL OWNERSHIP AS A MODERATING VARIABLE

$$Conv\_accrual = \alpha_0 + \alpha_1.IM_{it} + \alpha_2.IOS_{it} + \alpha_3.KM_{it} + \alpha_4.IM_{it} *KM_{it} + \alpha_5.IOS_{it} *KM_{it} + \alpha_6 AKO_{it} + \alpha_7.ROA_{it} + \alpha_8.LEV_{it} + \alpha_9.SIZE_{it} + \varepsilon_{it}$$

Variables	Predic tions	Coeffi cients	p-value		Collinearity	
					Tolerance	VIF
C			0.014			
IM	+	0.044	0.522		0.941	1.095
IOS	+	0.070	0.032	**	0.984	1.017
AKO	+	0.201	0.040	**	0.521	1.918
ROA	+	0.024	0.766		0.748	1.337
LEV	+	0.199	0.007	***	0.922	1.084
SIZE	+	-0.250	0.006	***	0.597	1.676
KM	+	0.031	0.077	*	0.905	1.105
IM * KM	+	0.036	0.620			
IOS * KM	+	0.078	0.028	**		
R^2		0.088				
Adj R^2		0.053				
F-Statistic		2.556				
Prob(F-statistic)		0.016		**		
Kolmogorov Smirnov		0.085				
Durbin Watson		1.856				
Levene Stat		0.313				
Observation		222				

***Significant at a level of 1 percent; **Significant at a level of 5 percent; *Significant at a level of 10 percent

Note: IM: Capital Intensity, IOS: *Investment Opportunity Set*, Conv_accrual: Consevatism, AKO: Cash Flow Operation, SIZE: Firm size, ROA: Return On Asset, KM: Managerial Ownership, Lev: Leverage

C. Discussion

The result of the first hypothesis test is not consistent with previous research by Sari and Adhariani (2009) “Ref. [23]” which stated that capital intensity has positive significant effect on conservatism with non-operating accrual measurement. The result means that companies who have large capital intensity will not tend to use conservative accounting methods. It is maybe because the company is less efficient in the use of total assets to generate sales and ultimately less able to increase its profit, so the company do not need to use the concept of conservatism.

The result of the second hypothesis test is consistent with Saputri (2013) “Ref. [15]” which stated that the investment opportunity set has a positive significant effect on conservatism. The market considers the company with high growth as having a profitable prospects or investment opportunities in the future. The investment opportunities led to a positive reaction in stock prices which in turn increases the company's value, meaning that the market to book ratio of the company as a proxy of conservatism is also getting bigger. This may be due to the company's management policy: setting up a hidden reserve fund that is relatively large enough to make an investment in the future.

The result of the third hypothesis test can not prove that managerial ownership strengthens the influence of capital intensity toward conservatism. This is maybe due to the company has a low managerial ownership structure, so the managers will tend to make a dominant strategic decision for personal gain. Besides that, according S. Munawir (1998) “Ref. [24]”, the ratio of capital intensity is flawed and should be used carefully in the analysis. The weaknesses are: (1) the ratio does not give an idea of the profit, it just shows the relationship between income (sales revenue) and the assets that are used. It is feared that if the company is expanding, then this event is not immediately able to generate additional sales so that the ratio on the first year showed a low ratio. To avoid these pitfalls, the analysis will usually be associated with the profit levels obtained, that is by dividing the profit with the net total sales. However, this analysis process cannot be performed together with managerial ownership.

The result of the fourth hypothesis test shows that managerial ownership strengthens the influence of investment opportunities set toward concervatism. It means that the existence of managerial ownership will lead to the managers’ improvement in making a better decision and enhancing the company’s value. This result is parallel with Safiq (2010) “Ref. [18]” which shows that the greater the shares owned by the management company, the managers tend to implement a conservative accounting policy. This is maybe due to the higher shares owned by the management means that the management owns the company and hence tends to be more cautious in setting company policy. Therefore, management tends to apply conservative accounting in order to reduce the manager action which can cause principal adverse.

From the four control variables, three of them showed significant effects on conservatism, i.e., operating cash flow, leverage, and the size of the company, while return on assets does not have significant influence toward conservatism.

V. CONCLUSIONS, LIMITATIONS AND SUGGESTIONS

A. Conclusions

The result of the first hypothesis test shows that capital intensity has no influence on conservatism. The results of this study are not consistent with Watts and Zimmerman (1990) “Ref. [14]”, and Sari and Adhariani (2009) “Ref. [23]”. The second hypothesis test result shows that investment opportunity set has a significant positive impact on conservatism. The result of this study is consistent with Givoly and Hyan (2000) “Ref. [24]” and Saputri (2013) “Ref. [15]”.

The results indicate that the company's growth in Indonesia is not achieved by increasing the capital intensity ratio. Managers do not use the principle of conservatism that is related to the profit results of the efficient use of corporate assets. Furthermore, the drawbacks of using a capital intensity ratio (Munawir, 1998) “Ref. [24]” will complicate the analysis of managerial ownership. Thus, the managerial ownership is less able to participate for the monitoring function.

On the other hand, the results indicate that the company's growth in Indonesia is achieved by increasing the investment opportunity set through an option to invest in a project that has a positive NPV. This investment opportunity set policy will affect the financial aspects of the company: the company's capital structure, debt contracts, dividend policy, compensation contracts, and accounting policies of the company.

Furthermore, the results show a significant positive interaction between the managerial ownership on relationship of the investment opportunity set with the principle of conservatism. It indicates that managerial ownership has became the corporate governance mechanism to reduce conflicts of interest between the manager and the various parties concerned with the company. A greater managerial shares-holding can prevent manager's opportunistic actions through the implementation of the conservatism principle in the company.

Managerial ownership will help the pooling of interest between managers and stakeholders. Managerial ownership will align the interests of management with stakeholders, so that managers who participate directly can feel the benefits of the decisions taken and shall bear the loss as a consequence of making wrong decision. The argument indicates the importance of managerial ownership in the company ownership structure.

The control variables showing significant effects on conservatism are the operating cash flow, leverage, and the size of the company, while return on assets is not significant.

B. Limitations and Suggestions

This research uses only manufacturing companies as a sample, so it needs prudence to generalize the results. Future study is recommended to cover non-manufacturing companies, or to perform a comparison between manufacturing and non-manufacturing companies. Also, this research period is from 2013 to 2014, hence the next research is recommended to extend the research period.

Further research is recommended to use another approach to measure the conservatism, for example by using an approach by Basu (1997) "Ref. [25]" or by using the approach of market to book ratio by Givoly and Hyan (2000) "Ref. [24]".

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