



The Influence of Investment Opportunity Set (IOS) on The Cost of Equity Capital with Disclosure as A Intervening Variable at Companies Public in Indonesia

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Abstract

The purpose of this study was to impacts of Investment Opportunity Set and disclosure on Equity Capital Cost in Indonesia Stock Exchange. Sampling was purposive sampling method. Selected companies 182 companies, hypothesis testing using Structural Equation Models. The results showed that 1) Set Investment Opportunities have a positive significant effect on disclosure with significant values 0,002. 2) disclosure have a negative significant effect on Cost of Equity Capital with significant values 0,22. 3) the Investment Opportunity Set have a significant positive effect on Leverage with significant values 0,007 4) Investment Opportunity Set have a negative significant effect on Cost of Equity with significant values 0,020

Keywords : Investment Opportunity Set, disclosure, Leverage, Cost Of Equity Capital.

INTRODUCTION

In running its business every company expects to keep *going concern* at all times. This going concern concept requires the company to run its business in a sustainable manner. To be sustainable, it is expected that the company will grow from year to year. Both internal and external parties of the company highly expect the company's growth. Those with higher growth require more funds since greater investment opportunities that they will have. The company expects that such a growth is able to increase investment, while investors will be exposed with the positive impacts from the company's growth, i.e. higher return on investment that they invest.

The ever-increasing growth and increased value of the company's assets are expected to be achieved based on the company forecasting. For a company, the essence of growth refers to investment opportunity potentially generating profits (Chung and Charoenwong, 1991). According to Smith and Watts (1992), company growth can be proxied with various combinations of investment opportunity set (IOS) values. According to Gaver and Gaver (1993), growth options for company are unobservable. Due to its unobservability characters, IOS requires a proxy (Hartono,



1999). IOS value can be calculated by the combination of different types of proxies implying asset value, i.e. the book values of assets and equity.

Investment Opportunity Set hereinafter referred to as IOS concerns with the combination of assets in place, future investment options and positive net present value (Myers, 1977). According to Gaver and Gaver (1993) future investment options are not merely indicated by the projects supported by research and development activities, but also by the abilities of company to intensely exploit the profit taking opportunities compared to other equivalent companies within its industry group. Future investment options are associated with its growth rate; hence, it is expected that the company's growth may provide the company with positive aspect, such as investment opportunity.

Disclosure policy of each company is different with its importance level. In average, the emittents listed in the Indonesian Stock Exchange have met reporting requirements in accordance with BAPEPAM (Market Supervisory Agency) regulations on *mandatory disclosure*, while *voluntary disclosure* depends on the policies of their respective companies. Investors utilize financial statements and various information submitted by each issuer to exactly identify the company's growth. This is possibly related to the investment growth opportunities of the company.

The empirical studies examining the IOS effects on disclosure was conducted by Cahan and Hosan (1996) regarding the relationship between IOS and disclosure policy. The study that was conducted by observing the capital market condition in Malaysia identified a positive relationship between IOS and disclosure policy. Hossain *et al.* (2000) found that IOS provides positive and significant effects on disclosure and external managers. Subekti and Indra (2000) identified IOS provides a positive and significant effect on disclosure. Hossain *et al.* (2005) also found that IOS provides a positive and significant effect on voluntary disclosure level. Akhtaruddin and Hossain (2008). The purposes of this study were to examine 1) the effects of the investment opportunity set on disclosure, 2) the effects of size on disclosure, 3) the effects of disclosure on cost of equity capital, 4) the effects of investment opportunity set on cost, of equity directly and indirectly

LITERATURE REVIEW AND HYPOTHESIS

Impacts of Investment Opportunity Set on Disclosure

The IOS effects on disclosure are viewed based two theories, i.e. agency theory and signal theory. The agency theory firstly suggested by Jensen and Meckling in 1976 started from the separation and control of companies providing impacts on the occurrence of conflict between agent and principal. The agency relationship refers to the relationship between one or more principals and agent in performing deeds on



behalf of the principal involving decision-making authority to the agent. The conflict of interest between principal and agent produces agency costs, in terms of monitoring costs, bonding costs and residual loss. Such a conflict will reduce the value of the company (Jensen and Meckling: 1976).

Hartono (1999), Kallapur and Trombley (1999) and Kumalahadi (2004) measure IOS by using the six proxies. It is expected that these ratios reflect the investment opportunities that the company has, i.e. the higher the IOS ratios are, the higher the growth opportunities of the company will be since the IOS ratios serve as a good overview for the company growth. When the company has good growth opportunities, management will provide signal through disclosure. Based on the description, the hypothesis of this study is formulated as the following:

H1: Investment Opportunity Set provides a positive effect on disclosure.

Impacts of Disclosure on the Cost of Equity Capital

Several factors affecting COEC, among others, involve disclosure, (Botosan, 1997), company size (Andadi, 2006), leverage (Madichah, 2005). Disclosure is one variable that is able to reduce COEC. *First*, disclosure diminishes COEC by reducing information asymmetry and increases stock liquidity (Diamond and Verrecchia, 1991). *Second*, disclosure also decreases COEC by reducing the estimation risk. Botosan (1995) examined the impacts of the disclosure level on COEC. He tested the association of disclosure level and COEC by regressing the COEC estimation on market beta, company size and disclosure level. His research result shows that the greater the disclosure level, the lower the COEC will be. Green *et al.*, (2001) examined the cost of equity capital using banking firm samples in US. Akhtaruddin and Hossain (2008) showed when the profit growth of the company is higher, and the voluntary disclosure level is higher, then the equity capital cost will decrease.

Theoretical and empirical researches examining the effects of voluntary disclosure on COEC, among others, include those conducted by Diamond and Verrecchia (1991), Handa and Linn (1993), Coles *et al.* (1995), and Clarkson (1996), Botosan (1997), Blommfied and Jefferey (2000), Botosan and Plumlee (2000), Leuz and Verrecchia (2005), Yang Li *et al.*, (2009), Puspita (2009); they found that high quality disclosures will reduce COEC. Cheynel (2009) found that voluntary disclosure lowers cost of capital. **Lopes and Alencar, (2010)** found that

Disclosure is strongly associated with ex ante cost of equity capital for Brazilian firms. Firms with less analyst coverage and low ownership concentration as expected. **Lopez, (2011), Kim and Yaqi Shi, 2011** showed that there is a negative relationship between voluntary disclosure and cost of equity capital, however this result is not



significant. Based on the aforementioned description, following hypothesis is formulated:

H2: Disclosure provides a negative effect on the Cost of Equity Capital.

Impacts of the Investment Opportunity Set on leverage

The researches conducted in Indonesia on the new agency conflicts revealed the availability of the agency conflict and observed the relationship between investment opportunities and leverage policy leading to agency conflict. However, the agency conflict itself has not been observed. Billett *et al* (2007) conducted a research on the growth opportunity, leverage, debt maturity, and debt covenants. His research indicates that growth opportunity provides a negative effect on leverage. However, this study indicates that the effect of growth opportunity on leverage changes to be positive when debt leverage covenant or short term debt moderate such a relationship. This suggests that debt covenant and short term debt have been proven to reduce the agency conflict between shareholders and bondholders. Prem (2011) found that revealed that debt and growth opportunity was positively associated dividend and growth opportunity was negatively associated although the evidence was weak. Based on the description following hypothesis is formulated:

H3: Investment Opportunity Set provide a positive effect on leverage.

Impact of the Investment Opportunity Set on the Cost of Equity Capital

Companies with higher growth and greater IOS are able to perform higher disclosure. A company with higher potential growth opportunities tends to generate higher cash flows in the future and higher market capitalization to allow the company to have lower capital cost. Hence, the level of growth opportunities has a negative relationship with COE; therefore, the higher the growth rate is, the lower the COEC will be.

Peavy and Goodman (1985) found the price earning ratio (P/E ratio) has an inverse relationship to the cost of equity capital, showing that the increase of P/E will reduce cost of equity capital. Fama and French (1992) found that market-to-book equity has a negative relationship with the cost of equity capital. Firer (1993), Chowdhry and Titman (2001) found that the increase of P/E ratio will lower the cost of equity capital. Easton (2003) states that Price Earnings Growth ratio and P/E ratio has a negative correlation with the cost of equity. Amurwani (2006) showed that the company's voluntary disclosure, information asymmetry and beta effect on the cost of equity capital. More specifically, the results indicate that company size significantly moderate the relationship between information asymmetry and cost of equity capital, but size does not significantly moderate the relationship between the level of



voluntary corporate disclosure and cost of equity capital. Based on this description, following hypothesis can be formulated:

H4: Investment Opportunity Set provides direct and negative impacts on Cost of Equity Capital.

DATA AND METHODOLOGY

Population and sample

The population in this study involved all companies listed on the Indonesian Stock Exchange within the period of 2006 to 2010. Purposive sampling method was adopted in this study. Total samples of this study consisted of 182 companies.

Variable

Cost of Equity Capital

The cost of equity capital of each sample was computed by using Capital Asset Pricing Model (CAPM), namely:

$$COEC_{it} = R_{ft} + (R_{mt} - R_{ft}) \beta$$

Note:

R_{ft} = return of risk free proxied with one-month SBI interest rate

R_{mt} = market return

β = stock beta.

Investment Opportunity Set

Investment Opportunity Set is a component of the company's value consisting of future investment option (Myers, 1977). Hence, IOS is unobservable; therefore, IOS requires proxies. The proxies of IOS comprise of :

$$\{total\ debt + (shares\ outstanding \times stock\ price)\}$$

$$Market\ to\ Books\ Total\ Assets = \text{-----}$$

Total Assets

Tangible fixed assets

$$Investment\ to\ Sales = \text{-----}$$

Net sales



Stock price

Price Earning Ratio = -----

Earning per share.

Disclosure

The mandatory disclosure index in this study was based on the Decision of Chairman of Capital Market Supervisory Agency and Financial Institution Number: Kep-134/BL/2006 on the Obligation to Submit Annual Report to the Issuers or Public Companies. Disclosure index determination shall be made by classifying information disclosure items, including: 1) the information presented in the annual financial statement, 2) information that is not presented in the annual report. Companies presenting obligatory information items are required to be scored with 1, while those do not provide information items presented in the annual report will be scored with 0.

Leverage

According to Brigham and Houston (2001) leverage is a measure that indicates the extent to which fixed-income securities used in the company's capital structure. The higher the use of fixed-income securities (in this case the debt) is, the higher the financial leverage will be, and vice versa. The lower the use of fixed-income securities is, the lower the financial leverage will be. In the present study, financial leverage was measured through the use of two methods, including: debt to total asset ratio and debt to total equity ratio. The formula is as the following:

Long Term Debt

Debt to total equity ratio = -----

Equity

Size

Several prior researches indicated that company size (Size) and financial leverage have significant effects on COEC (Botosan, 1997, Modigliani and Miller, 1958, 1963). Therefore, size was used as control variable. In the present study, company size



was measured by using total assets of the company based on the logarithm of total asset value. The formula is as the following:

$$Size = Ln \text{ Total Assets}$$

EMPIRICAL RESULTS

Descriptive Statistics

The descriptive statistics results can be seen in following Table 1:

Table 1. Descriptive Statistics of Research Variables

	N	Minimum	Maximum	Mean	Std. Deviation
MTBA	182	0.02	8.30	1.7989	1.91889
INVOS	182	0.01	5.75	1.0624	1.22829
PE	182	2.00	79.20	20.0242	15.44261
MDISCL	182	0.52	0.93	0.6642	0.05662
VDISCL	182	0.58	0.85	0.6940	0.04406
COEC	182	0.01	0.95	0.2591	0.25164
Valid N (listwise)	182				

Table 1 shows that the average of MTBA was 1.7989 with the standard deviation of 1.91889; the average of INVOS was 1.0624 with the standard deviation of 1.22829; the average of PE was 20.0242 with standard deviation of 15.44261. The growth opportunities of the companies as measured by the average MTBA, INVOS and PE at 179.89%, 106.24% and 200.242%, respectively. The values higher than 100% indicate that the companies had good growth opportunities. MDISCL showed the average of 0.6642 with the standard deviation of 0.05662. VDISCL indicated the average of 0.6940 with the standard deviation of 0.04406. The disclosure variable measured with the Mandatory Disclosure average at 66.42% and the standard deviation of 0.05867, and the Voluntary Disclosure average at 69.40% with the standard deviation of 0.04406 indicate that the companies performed quite higher transparency.

The result of SEM analysis at the final stage is presented in Path Diagrams as the following:

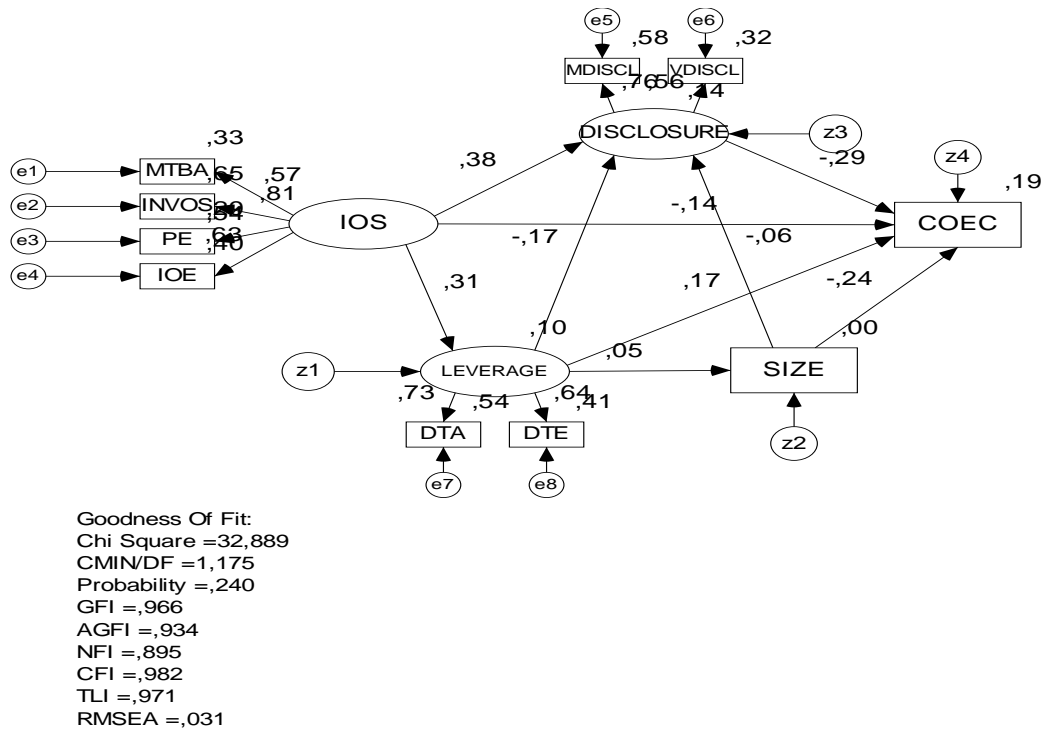


Figure 2. Path Diagram

Test results of the final model presented in the Figure 2 above was evaluated based on the goodness of fit in Table 2 below with the model criteria and its critical value having data suitability.

Table 2. Evaluation of Overall Goodness of Fit Indices Overall on the Final Stage Model

Goodness of Fit	Cut-off Value	Final Model Result	Remark
χ^2 -Chi-Square	Expected to be Less	24.070	Good
CMIND/DF	≤ 2	1.504	Good
Probability	≥ 0.05	0.088	Good
GFI	≥ 0.90	0.968	Good
AGFI	≥ 0.90	0.928	Good
NFI	≥ 0.90	0.887	Sufficient
CFI	≥ 0.95	0.956	Good
TLI	≥ 0.90	0.924	Good
RMSEA	≤ 0.08	0.053	Good

Source: Ghazali (2011)



The evaluation on the proposed model showed that no critical violation was found in the model evaluation on the overall construct of various criteria. Hence, it can be concluded that the final model of this study was consistent with the study data; therefore, the next suitability test can be carried out.

The analysis of the direct effect to evaluate the effect of individual construct on the direct effect involve the coefficients of all lines with one-end-arrows coefficient, and the test results is presented in the following Table 3.

Table 3. Hypothesis Testing Result

Hypothesis Independent Variable Dependent Variable			Line Coefficient of Direct Effect		
			Standardize	p-value	Significant
H1	<i>Investment Opportunity Set</i>	<i>Disclosure</i>	0.001	002	Significant
H2	<i>Disclosure</i>	<i>Cost Of Equity Capital</i>	0.636	0.22	Significant
H3	<i>Investment Opportunity Set</i>	<i>Leverage</i>	0.110	0.007	Significant
H4	<i>Investment Opportunity Set</i>	<i>Cost Of Equity Capital</i>	0.004	0.020	Significant

Testing on the hypothesis 1 indicates that the hypothesis is accepted; it is showed that the IOS reflected in the ratios of *Market to Books Value Asset* (MTBA), and *Investment to Sales* (INVOS) and *Price Earning* (PE) provides significant positive effect on disclosure as reflected in Mandatory Disclosure and Voluntary Disclosure. It means that the higher the IOS is, the higher the disclosure will be.

This testing refers to Cahan and Hossain (1995), stating that the IOS provides positive and significant effect on the level of disclosure. According to Hossain *et al*, (2000), IOS provide a positive and significant impact on the disclosure; this is due that the greater investment opportunities require more information transparency and monitoring because managers in these companies have better discretion in selecting investments and allocate investment resources. Likewise, the companies with higher growth tend to perform the disclosure of information rather than those with lower growth.

According to Chairis and Ghozali (2001) disclosure means that financial statements should provide adequate information and explanation concerning the results of business units. Such information should be complete, clear and it accurately describes the economic events affecting the operational results of the business units.



The information disclosed should be beneficial and not confusing to financial statement users in making economic decisions. Hossain *et al.* (2005) states that the IOS has a positive and significant effect on the level of voluntary disclosure.

The hypothesis testing 2 shows that the hypothesis is accepted; it is showed that disclosure reflected in the Mandatory Disclosure and Voluntary Disclosure provides significant and negative effect on cost of equity capital that is reflected in the disclosure with negative effect on COEC; it shows that the higher the disclosure is, the lower COEC will be.

This testing refers to the results of Botosan (1997) investigating the effect of the level of disclosure on cost of equity capital. Juniarti (2003) examined the effect of disclosure level on COEC. Mardiyah (2004) studied the effect of voluntary disclosure and market liquidity on the relationship between information asymmetry and COEC. Lambert (2005) examined the accounting information, disclosure and cost of capital. Leuz (2005) investigated the selection of the company's capital allocation, quality of information and the cost of capital. Puspita (2009) examined the Effect of Information Level on the Cost of Capital Equity among Go Public Companies listed in Indonesian Stock Exchange. Cheynel (2009) examined the theory of voluntary disclosure and the cost of capital. Dhaliwal *et al.* (2010) investigated the voluntary non-financial disclosure and the COEC.

The hypothesis testing 3 shows that the hypothesis is accepted. It is showed that IOS reflected in the ratios of *Market to Books Value Asset* (MTBA), and *Investment to Sales* (INVOS) and *Price Earning* (PE) provides significant positive effect on leverage. This research refers to the research of Nurdin (2001) and Widyastuti (2007) on the existence of agency conflicts in Indonesia by observing the growth opportunity variable as one of the influencing variables and leverage policy as the dependent variable. Billett *et al* (2007) conducted a study on growth opportunity, leverage, debt maturity, and debt covenants.

His research result indicated that growth opportunity provides negative effect on leverage. However, this research indicated that the effect of growth opportunity on leverage positively changes when debt covenant or short term debt moderate such a relationship. This suggests that debt covenant and short term debt has been proven to reduce the agency conflict between shareholders and bondholders.

The hypothesis testing 4 shows that the hypothesis is accepted. It is showed that IOS reflected in the ratios of *Market to Books Value Asset* (MTBA), and *Investment to Sales* (INVOS) and *Price Earning* (PE) provides significant negative effect on COEC, indicating that the higher the IOS is, the lower COEC will be.



According to Chairis and Ghozali (2001) disclosure means that financial statements should provide adequate information and explanation concerning the results of business units. Such information should be complete, clear and it accurately describes the economic events affecting the operational results of the business units. The information disclosed should be beneficial and not confusing to financial statement users in making economic decisions.

Hossain *et al.* (2005) states that the IOS has a positive and significant effect on the level of voluntary disclosure. Botosan (1997) investigated the effect of the level of disclosure on cost of equity capital. Juniarti (2003) examined the effect of disclosure level on COEC. Mardiyah (2004) studied the effect of voluntary disclosure and market liquidity on the relationship between information asymmetry and COEC. Lambert (2005) examined the accounting information, disclosure and cost of capital. Leuz (2005) investigated the selection of the company's capital allocation, quality of information and the cost of capital. Puspita (2009) examined the Effect of Information Level on the Cost of Capital Equity among Go Public Companies listed in Indonesian Stock Exchange. Cheynel (2009) examined the theory of voluntary disclosure and the cost of capital. Dhaliwal *et al.* (2010) investigated the voluntary non-financial disclosure and the COEC.

CONCLUSION

IOS reflected in the ratios of *Market to Books Value Asset* (MTBA), and *Investment to Sales* (INVOS) and *Price Earning* (PE) provides significant positive effect on disclosure as reflected in Mandatory Disclosure and Voluntary Disclosure. It means that the higher the IOS is, the higher the disclosure will be. Greater investment opportunities require more information transparency and monitoring because managers in the companies have better discretion in selecting investments and allocate investment resources. Likewise, the companies with higher growth tend to perform the disclosure of information rather than those with lower growth.

Disclosure reflected in the Mandatory Disclosure and Voluntary Disclosure provides significant and negative effect on cost of equity capital that is reflected in the disclosure with negative effect on COEC; it shows that the higher the disclosure is, the lower COEC will be. Financial statements should provide adequate information and explanation concerning the results of business units. Such information should be complete, clear and it accurately describes the economic events affecting the operational results of the business units. The information disclosed should be beneficial and not confusing to financial statement users in making economic decisions.



IOS reflected in the ratios of *Market to Books Value Asset* (MTBA), and *Investment to Sales* (INVOS) and *Price Earning* (PE) provides significant positive effect on leverage. Companies with higher growth in the past will have higher leverage in the present time. In other study, Widyastuti (2007) identified the existence of the conflicts of interest between manager and shareholders, and between shareholders or manager and creditors among the companies in Indonesia.

IOS reflected in the ratios of *Market to Books Value Asset* (MTBA), and *Investment to Sales* (INVOS) and *Price Earning* (PE) provides significant negative effect on COEC, indicating that the higher the IOS is, the lower COEC will be. Financial statements should provide adequate information and explanation concerning the results of business units. Such information should be complete, clear and it accurately describes the economic events affecting the operational results of the business units. The information disclosed should be beneficial and not confusing to financial statement users in making economic decisions.

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