

EFFECT OF INVESTMENT OPPORTUNITY SET (IOS) THROUGH BUSINESS RISKS ON STOCK RETURN IN PHARMACEUTICAL COMPANIES LISTED IN INDONESIA STOCK EXCHANGE

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ABSTRACT

Research it aims to examine the effect of *investment opportunity set* proxied by the *Market to Book Value of Assets (MBVA)*, *Market to Book Value of Equity (MBVE)*, *Earning per share / Price (EPS / P)* and *Capital Expenditures to Book Value of Assets (CEBVA)* against business risks and the impact on *returns*. Stock the object of this research pharmaceutical companies listed on the exchange effect. This study using method *purposive sampling of sampling* and research conducted over 4 years of observations in year 2013-2016 and was elected as many as 8 samples manufacturing company with 32 observations. Tests on the variables of the study carried out by using *analysis Path (path analysis)*. Using the classical assumption test, the correlation coefficient, regression coefficient, with residual path coefficients interpretation and analysis by F-test and test-t. The result of testing on the first track models show that proxy IOS namely *Market to Book Value of Assets (MBVA)* have a negative influence (-0462), *Market to Book Value of Equity (MBVE)* has a positive influence (0675), *Earnings per share (EPS)* have a positive effect (0.113) and *Capital Expenditures to Book Value of Assets (CEBVA)* has a positive influence (0374) on the business risk. In the second path analysis indirectly only, *Capital Expenditures to Book Value of Assets (CEBVA)* who have significant influence over the business risk on *returns* stock for 0111 or 11.1%. Simultaneously and effect of 29.4% against the business risk and by 18.7% to *return* stock with residual value (E) each of 0.840 and 0.902.

Key Words: Investment Oppurtunity Set (IOS), Business Risk, Stock Return, Pharmaceutical Companies

I. INTRODUCTION

The Central Statistics Agency (BPS) recorded growth of large and medium manufacturing industry throughout 2016 increased by 4.62 percent from 2015. The increase was contributed by the pharmaceutical sector, drug products traditional medicinal chemistry and 13.19 percent. Combined Data Company (GP) Pharmacy mention the

pharmaceutical industry market growth for Asean countries on average per year for the past 6 years the Indonesian pharmaceutical industry which grew 12% -15% Asean market arena. Significant growth in the demand of pharmaceutical companies to be able to innovate and develop concepts and new models for the company, which will then be used the management in order to

survive in the face of business competition and attracting investors to invest in companies with the hope of getting a rate of return high on the investment made.

For investors the company's growth is a favorable prospect, because the investments are expected to provide *return*. a high Companies with high growth expected to provide a positive aspect for the company thereby increasing the opportunity to invest in the company. The choices of investments made in the future the company then known as the investment opportunity set (IOS) (Kallapur and Trombley, 2001). Gaver and Gaver in Fijrijanti and Hartono (2000), said investment opportunities or choices growth (*growth options*) of a company is something that is inherent and cannot be observed (*inherently unobservable*). Therefore, *Investment Opportunity Set* (IOS) require a proxy.

Proxy *Investment Opportunity Set* (IOS) is very diverse, which uses a single factor or by using a combination of several factors. Most use the size of capital markets data in calculating the IOS, as more use of stock prices and the size of *the market value of equity* as a proxy of IOS. *Investment Opportunity Set* can be observed from the company's book value growth in the future. The company's value in the future will be reflected in stock prices, stock prices reflect the *present value* of future cash flows that will be received by investors.

Investors are always comparing the actual gain or profit (*return*) is expected provided by a variety of investment at the desired rate of return. On the other hand, *the return* also has a very significant role in determining the value of an investment (Daniati and Suhairi 2006). The selection of investments need to consider the risks to be faced. Risk is the difference between the return expected to return the received. In addition to market risk or the risk of

overall systematic that can affect the market price, business risks can also affect the amount of the return. The business risk is a risk that the level of uncertainty associated with the income from an investment and the ability of an investment to pay a *return* (interest, principal, dividend) to investors (Gitman and Joehnk, 200: 175). Risk is defined as the likelihood of undesirable events (Brigham and Houston (2006). According to Chow, 1977 in Nisa Nursita, 2003) states that the business risk is one of the factors that affect *returns*. stock

Based on the above, the purpose of this study was to examine and analyze the effect of *market to book value of assets* (MBVA), *market to book value of equity* (MBVE), *earnings per share* (EPS) and *capital expenditure to book value of assets* (CEBVA) as a proxy-proxy of *Investment Opportunity Set* (IOS) directly and indirectly through the business risk on *returns* stock pharmaceutical company listed on the Indonesia stock Exchange (BEI). Hopefully this research can be beneficial to the company's management in measuring the performance of the Vendor, and for investors as material considerations in connection with the expectations of investment pass on benefits to be obtained.

2. LITERATURE REVIEW

2.1 Investment Opportunity Set (IOS)

Term investment opportunity set or *Investment Opportunity Set* (IOS) appears after proposed by Myers (1977), which looked at the value of a company as a combination of *assets in place* (assets) to *investment as options* (choice investments) in the future. Myers (1977) stated that the company is a combination of the value of real assets (*assets in place*) with the option of investing in the future. Selection of investment is an opportunity for companies to develop. Selection of these investments are not

only based on research and development, but also need to pay attention to the company's ability to take advantage of other similar companies or within the same group.

IOS most valid for assessing the growth of prices and investments are used Smith and Watts (1992) and Gaver and Gaver (1993) consists of four ratios: (1) *Market book value of assets* (MBVA), is the ratio of the book value of the assets to the value of market, (2). *Market to book value of equity* (MBVE), is the ratio of the book value of equity to market value, (3). *Earnings per share* (EPS), a part of the market rate used by companies to measure the growth of the company which can be seen from the ability to generate profit (*earning power*) which is owned by the company, and (4). *Capital expenditures to book value of assets* (CEBVA), is the ratio of total net book value of assets used to see the amount of additional flow of capital stock of the company.

2.2 Business Risks

Business Risks is some risk of the company's shares if the company does not use debt, business risk is not only varies from industry to industry, but also can vary between companies from certain industries, and can also change over time. (Brigham and Houston 2004), Some factors that may affect the business risks, among others:

- a. Variability demands; the more stable a demand for products of a
- b. particular company, *caeteris paribus* will lower the company's business risks
- c. Variabilities selling price; Companies whose products are sold on a market that is relatively *volatile* (volatile), will have more business risk when compared with the same company that the price of *output* is more stable.

- d. Variabilities input costs: companies that have an uncertain input costs will have a high business risk.
- e. The ability to adjust the price of *output* to changes in costs, input the more able a company to make adjustments in terms of prices and costs, the company has a lower business risk
- f. The ability to develop new products in time and cost effective. Companies such as pharmaceuticals and computer also depends heavily on the innovation of new products. The faster a product becomes old or worn, the greater the risk business.
- g. Risks of foreign trade, the company that a large part of its revenues coming from abroad can make a funding company declined, this is due to fluctuations in exchange rates. Another thing you can add to the risk of a business is the business environment in which it operates.

2.3 Return Equity

Investors to invest in the hope of getting the rate of return is great on the investment made. The rate of profit (return) is the ratio between investment income over the period by the amount of funds invested. In general, investors are expecting a high profit with the risk of losses as small as possible, so that investors are trying to determine the optimal level of investment gains to define the concept of sufficient investment. Sources of *return* investment consisting of two main components, namely *yield* and *capital gains* (Jogiyanto, 1999:85). Most investors more interested in *capital gains* as many investors profit from the difference between the purchase price and the selling price when doing certain things with the previous period stock price

divided by the share price before (Hartono, 2000).

review, the variables involved in this study can be formulated through a framework as follows:

2.4 The Framework

Based on the description that has been presented previously and literature

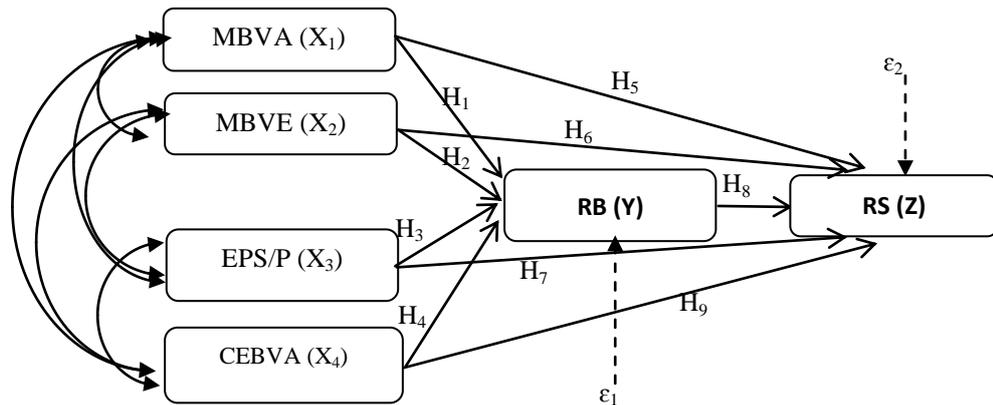


Figure 2.1 Graph Framework

Description:

MBVA: Market to Book Value of Assets,
MBVE: Market to Book Equity Value,
EPS: Earning Per Share Price, CBVA:
Capital Expenditure to Book Value
Asset, RB: Business Risk, RS: return.
stock

H7: Earning Per Share Price (EPS)
through business risk significant
effect on returns. stock
H8: Capital Expenditure to Book Value
Asset (CBVA) through business
risk significant effect on returns.
stock

2.10. Hypothesis

- H1: Market to Book Value of Assets (MBVA) significantly affects business risk.
- H2: Market to Book Value Equity (MBVE) significantly affects business risk.
- H3: Earning Per Share Price / Price (EPS / P) significantly affects business risk.
- H4: Capital Expenditure to Book Value Asset (CBVA) significantly influence on business risk.
- H5: Market to Book Value of Assets (MBVA) through business risk significantly influence return stock
- H6: Market to Book Value Equity (MBVE) through business risk significant effect on returns. stock

3. RESEARCH METHODOLOGY

The research method used in this study is a study that explains *explanatory research* (Cooper, 2008). Method research *explanatory* conducted to clarify the phenomena that occur at the level of empirical (*real world*) and trying to get an answer (*verificative*).

3.1 Operational Variables

3.1.1. Investment Opportunity Set (IOS)

a. Ratio Market to Book Value of Assets (MBVA)

Selection of this proxy because in previous research consistently has a significant correlation with the realization of the company's growth

$$MBVA = \frac{\text{Total Assets} - \text{Total Equity} + (\text{outstanding share} \times \text{Closing price})}{\text{Total Assets}}$$

b. Ratio *Market to Book Value of Equity* (MBEQ)

Selection of this proxy because it can reflect the magnitude of *returns* from existing assets and investments are expected in the future will exceed *return* the desired-on equity.

$$MBVE = \frac{\text{Outstading share} \times \text{Closing Price}}{\text{Total Equity}}$$

c. *Rate Earning Per Share (EPS) / P* Ratio is used to measure the growth of the company visits of *earning power* owned by the company.

$$EPS/P = \frac{\text{Earning Per Share}}{\text{Share Price}}$$

d. Capital Expenditures to Book Value of Assets (CAPBVA)

Selection of this proxy to connect an additional flow of capital stock of the company's assets and thus potentially as an indicator of the company grows.

$$CEBVA = \frac{\text{Additional fixed assets within one year}}{\text{Total Asset}}$$

3.1.2. Business Risk

Measurement business risk in this study was measured by the standard deviation of *Earnings Before Interest*

$$\text{Business Risk} = \frac{\text{Standard deviation EBIT}}{\text{Total Asset}}$$

3.1.3. Stock Return

Formulation following stock returns.

$$\text{Resiko Bisnis} = \frac{\text{Standard deviation EBIT}}{\text{Total Asset}}$$

Description:

and Tax (EBIT) compared to the total assets, with the formulation as follows.

P_t = closing share price in year t

P_{t-1} = closing share price in year t - 1

3.2 Technical Data Analysis

Data analysis via classical assumption test. In the study include normality test, multicollinearities test, autocorrelation test, and test data normality heteroskedasticities. Test using *Smirnoff Kolmogorov Test*. Multicollinearities test detected by using *Variance Inflation Factor*. While testing the hypothesis through partial test (t test) and Simultaneous test (F test) and test Determination and Analysis Interpretation of Track I, II by testing the hypothesis to see whether or not a significant direct and indirect effects of exogenous variables on endogenous variables. Hypothesis testing is done by using the criteria of is (Hairt al,2010), as follows.

1. If the value of the $s_{\text{statistic}} \geq 1.96$ with $\alpha = 5\%$, then H_0 is rejected and H_1 accepted.
2. If Value $_{\text{statistic}} < 1.96$ with $\alpha = 5\%$, then H_0 is received and H_1 rejected.

4. RESULT AND DISCUSSION

1 Classic Assumption Test

One prerequisite for regression testing does not occur bias is the classic assumption test consists of four tests, namely, test data normality, heteroscedasticity, autocorrelation and multicollinearity test. The test results obtained by classical assumption of normal distribution of data, there are no multicollinearity problem, did not happen and not happen heteroskedasticities autocorrelation. All values of correlation coefficients obtained probability is significant that $sig.(2tailed) > 0.05$ indicates that the correlation of each variable is no significant relationship.

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correlation of each variable is no significant relationship. determination (R^2) of 29.4% indicates that the contribution of each value in the exogenous variables affect investment decisions of 29.4% while the remaining 70.6% is a variable contribution that are not included in this research model. The first hypothesis test path analysis described in Table 4.1

Exogeny Variable	Coefficient	Error Standard	t-count	Sig
(constant)	-0.239	0.183	-1.306	0.202
MBVA (X_1)	-0.058	0.046	-1.259	0.219
MBVE (X_2)	0.675	0.366	1.845	0.076

Table 4.2. Hypothesis test Sub Structure lines

EPS/Price (X_3)	0.113	0.163	0.690	0.496
CEBVA (X_4)	0.374	0.000	2.284	0.030
Coefficient determination			= 0,294	
F-hitung			= 2.813 (Sig. 0.045)	
Business Risk (Y1)			= $\sqrt{(1 - 0,294)} = 0.840$	

Source: Secondary Data processed with SPSS V.22 (2017)

Multiple regression analysis of structural equation models the first lines are arranged as follows:

$$Y1 = -0.0462 + 0.675 MBVE + 0.113 MBVA + 0.0113 EPS + 0.374 CEBVA + \epsilon_1$$

4.1.2 Results of hypothesis testing path model analysis I

H1: The research proves *Market to Book Value of Assets* (MBVA) had a negative impact on business risks for 0.0462, with the value of the $t_{statistic}$ of -1.259 (-1.259 < 1.96), which gives the sense that MBVA not significant effect on the business risk, so that hypothesis 1 was rejected.

H2: The research proves *Market to Book Value Equity* (MBVE) positive and significant impact on the business risks for 0.675, with the

value of the $t_{statistic}$ sebesar 1.845 (1.845 < 1.96), which gives the sense that MBVE not significant effect on the risk of rejected business. Hypothesis 2.

H3: The results prove *Price Earning Per Share* (EPS) positive influence on business risks for 0.113, with a $t_{statistic}$ of 0.690 (0.690 < 1.96), which gives the sense that the EPS effect is not significant to the business risk. Hypothesis 3 rejected

H4: The research proves *Capital Expenditure to Book Value Asset* (CBVA) positive influence on business risks for 0.374, with 2,284 t statistic (2284 > 1.96), which gives the sense that CEBVA

significant effect on the business risk. Hypothesis 4 is accepted.

4.1.3 Regression Coefficients Model Line II

The value of the adjusted R-Square model of the 2nd line of 18.7% showed contributions indirectly and directly variables exogenous Market to Book Value of Assets, Market to Book Value Equity, Earning per share, and capital expenditure to book value against the return of shares through

business risk variables showed that the value of the contributions that affect of 18/7% while the remaining 81.3% is the contribution of other variables that are not described in this study. s. path coefficient value with residual, namely: $\epsilon_1 = \sqrt{(1-R^2)} = \sqrt{(1-0.187)} = 0.902$. Hypothesis testing analysis of second line can be seen in table 4.2 below.

Exogeny Variable	Coefficient	Error Standard	t-count	Sig
(constant)	1.074	1.353	0.794	0.435
MBVA (X ₁)	0.305	0.412	0.740	0.466
MBVE (X ₂)	-0.571	0.424	-1.345	0.190
EPS/Price (X ₃)	0.238	0.181	1.314	0.679
CEBVA (X ₄)	-0.082	0.196	-0.419	0.200
RB (Y)	0.298	0.211	1.414	0.169
Coefficient Determination			= 0,187	
F-hitung			= 1.196 (Sig. 0.339)	
Earnings Return(Z)			= $\sqrt{(1 - 0,187)} = 0.902$	

Source: Secondary data processed with SPSS V.22 (2017)

interpretation of the results of multiple regression analysis II lines can be broken into two lines of analysis, which is indirectly and directly is as follows.

a. Indirectly

$$Z(RS) = -0.138 + 0.201 \text{ MBVA} + 0.033 \text{ MBVE} + 0.0902 \text{ CEBVA} + 0.111 \text{ EPS}$$

b. Directly

$$Z(RS) = 0.305 \text{ MBVA} - 0.571 \text{ MBVE} + 0.298 \text{ RB} + 0.238 \text{ EPS} - 0.082 \text{ CEBVA} + 0.902$$

4.1.4 Results Second Line Hypothesis

H5: Market to Book Value of Assets (MBVA) have significant influence over the business risk on stock returns.

MBVA direct effect is not significant ($t_{\text{statistic}} 0.740 < 1.96$) to return stock of 30.5% and an indirect influence on MBVA stock returns through business risk as much as 13.8% ($-0.462 \times 0.298 = -0.138$). Total influence (total effect) amounted to 0.167 ($-0.138 + 0.305 = 0.167$). Conclusion The indirect effect

<direct influence ($-0.138 < 0.305$), then H0 accepted, it means indirectly MBVA no significant influence over the business risk on stock return

H6: Market to Book Value Equity (MBVE) have significant influence over the business risk on stock return.

MBVE direct effect is not significant ($t_{\text{statistic}} -1.345 < 1.96$) to return stock of -57.1%. MBVE indirect effect on stock prices through the business risks for 0.201 ($0.675 \times 0.298 = 0.201$). Total effect (total effect) amounting -0.160 ($-0.370 + 0.201 = -0.160$). Conclusion The indirect effect <direct influence ($-0.160 < 0.571$), then H0 is accepted, indirectly MBVE no significant influence over the business risk on stock return.

H7: Earning Per Share Price (EPS) have significant influence over the business risk on returns. Stock

EPS direct effect is not significant ($t_{\text{Statistic}} 1,314 < 1.96$) to return stock of 57.1%. The indirect effect of EPS on returns stock through the business risks of 0.034 ($0.113 \times 0.298 = 0.034$). Total effect (total effect) amounted to 0,772 ($0,571 + 0,201 = 0,772$). Conclusion The indirect effect <direct effect ($0.034 < 0.571$), then H_0 is accepted, EPS indirectly no significant influence over the business risk on stock return.

H8: Capital Expenditure to Book Value Asset (CEBVA) have significant influence over the business risk on returns. stock

CEBVA directly no significant effect ($t_{\text{Statistic}} -0.419 < 1.96$) to return stock of -8.2%. CEBVA indirect effect on returns stock through the business risks for 0111 ($0.374 \times 0.298 = 0.111$). Total effect (total effect) amounted to 0.029 ($-0.082 + 0.111 = 0.029$). Conclusion The indirect effect > direct influence ($0.111 > -0.082$), so H_a is received, CEBVA indirectly significant influence over the business risk on stock return.

5. CONCLUSIONS

The results of the study are as follows:

1. On the Path analysis only as a proxy IOS CEBVA significantly influence the business risk of 37.4%. This means that the higher the greater CEBVA business risk borne. As for the other IOS proxy is MBVA, MBVE, and EPS no significant effect on business risks in the show of sig > 0.05.
2. On the second line analysis directly all proxy IOS is MBVA, MBVE, EPS, CEBVA no significant effect on stock returns. As for the indirect only CEBVA significantly influence returns stock through the business risk because the value of the indirect

effect > direct influence ($0.111 > -0.082$) whereas the other IOS proxy indirectly no effect on returns stock because the value of the indirect effect < direct influence, namely MBVA ($-0.138 < 0.305$), MBVE ($-0.370 < 0.571$), EPS ($-0.160 < 0.571$).

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