

EMPIRICAL EVIDENCE OF MANUFACTURING GROWTH OPTIONS IN INDONESIA STOCK EXCHANGE

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ABSTRACT

The company's growth is an important expectation that desired by the parties that the company's internal and external corporate management companies such as investors and creditors. One way that companies are experiencing growth through investment activities taking into account the investment risk, which is expected to provide benefits.

This study aims to analyze the relationship between value stocks, growth options and stock returns. Additionally, this research was to obtain empirical evidence of the influence of value and growth stock options with stock returns. The sample used in this study were non-financial manufacturing company listed on the Indonesia Stock Exchange (IDX) on the years 2005-2009 by using purposive sampling technique. Hypothesis testing was done by analyzing the data and regression analysis.

The results showed that value stocks are measured using the book-to-market is negatively related to growth options, stock values are measured using the book-to-market has a negative relationship with stock returns and growth options have a negative relationship with stock returns. The results also provide empirical evidence that the value and growth stock options have a negative influence on stock returns. Variable growth options have the most significant influence on stock returns than the variable value stock. This illustrates that investors in Indonesia more attention to the growth in investment company shares.

Key words: Value Stock, Book-to-Market, Growth Options, and Stock Return

CHAPTER I. INTRODUCTION

1.1. Background

One indicator of performance achieved by the company if the company managed to obtain a profit. These profits can be used to finance the company's corporate development activities, investment activities in both the present and future that will come in the form of a set of investment opportunities that are expected to provide benefits to the company and provide a positive impact on company growth.

The company's growth is an important expectation that desired by the company management, investors and

creditors. One way that companies are experiencing growth through investment activities. The essence of growth for companies is the existence of investment opportunities that can generate profits (Chung and Charoenwong, 1991). The company's growth is expected to provide a positive aspect for the company thereby increasing the company's investment opportunities in the future. In addition, the ever increasing growth and the increase in value of company assets is expected to be achieved in accordance with the expectations or forecasts of the company. For investors, this is the company's growth prospects are favorable, because the investment in the plant is expected to return.

One consideration for investors in assessing the stock price is based on the value of the company. According to Myers (1977) is a combined enterprise value of the embedded asset value (assets in place) and the value of investment options in the future (growth option) for growth. Investment options in the future is known as the set of investment opportunities which reflect the current investment opportunities that will generate profits in the future. Expectations of investors are invested for profit. In the context of investment management, investment profit rate is referred to as the return. But besides giving returns, investment is also risky. Investment decisions that do have uncertainty and this makes the company must bear the risks of the investments made. The greater the expected return, the greater the risk that must be faced by investors in making investment, and conversely the smaller the expected return, the smaller the risks faced by investors in making investment.

Research Fama and French (1992) has opened up an understanding of the influence of rate of return investment risk (return). His research found that stocks with book-to-market advantage and provide high greater risk than stocks with book-to-market low. However, the results of research in Indonesia is the opposite of the theory that Fama and French research done in America. Rarasati Widita Research (2007) found that in Indonesia stocks that provide profit and have a greater risk is the stock with a book-to-market low. These different results indicate that the capital market in Indonesia is inefficient where stocks with book-to-market advantage over low-profit market.

According to Petkova and Zhang (2005), the risk of company stock can be seen from the high and low book-to-market ratio, so the company can be classified into growth and value stocks. Companies that are categorized as growth (low book-to-market) stocks significantly speed up

investments where the value of the stock market rose and book-to-market ratio decreases. While the company is categorized as a value (high book-to-market) stock investments which slows down the stock market value and book-to-market ratio increases. The market value of shares increased following the investment by the Net Present Value (NPV) is positive and the magnitude of the book value, classifying the company as a growth stock options appear to use growth to make investments while classifying the company as a value stock does not seem to invest (disinvest).

Company's decision to invest is very closely related to the financing of investment (investment expenditure) by the company to finance these investments. There are several reasons why an increase in investment financing should be considered. First, high investment financing seems related to the large investment opportunities. Second, financing high investment also indicates that the financing of investment in capital markets shows the company and its management has so much faith financed investment. In addition, increased investment financing have a negative relationship with stock return. Managers are encouraged to perform a new investment company's investment when financing is high because the need to raise capital to cover investment costs. If the investor fails because it is considered too much to sell his company, which acquired stock return next with an increase in funding will adversely affect investment.

Anderson's research and Feijoo (2006) investigated the theoretical model that links the expected return of investment companies associated with changes in valuation. Anderson and Feijoo find an empirical relationship between investment firms, size, and the ratio of book-to-market. They found the classification of the stock portfolios of Fama and French methodology is conditioned by the previous growth rate in corporate capital

expenditure. Companies with growth stocks appear to use the classification of investment options around the portfolio formation period while the company with the classification of stock values do not appear to make investments (disinvesting). This shows that the empirical relationship between corporate investment activity and valuation ratios. Stocks with book-to-market tends to take advantage of low growth opportunities (growth option) by increasing capital expenditure through investments that create market value and the size increases, eventually decreasing returns obtained.

The existence of the effect of book-to-market that affect the formation of return gives the explanation that the book-to-market will affect the investment that can determine the size of the return earned from the investment decision. It can be said that in addition to book-to-market, growth in corporate investment or growth options also need to be taken into account in predicting future returns.

From the background mentioned above, the researcher is interested in testing the classification of companies based on the book-to-market is implicitly conditioned on the company's growth rate in capital expenditure and to test whether the rate of growth in capital expenditure could explain individual stock returns in cross section.

1.2. Problem formulation

Based on the background described above, then the formulation of the problem in this study are:

1. What is the relationship between value stocks, growth options and stock returns?
2. How does the value and growth stock options together to stock returns?

1.3. Research Objectives

This study aims to investigate the relationship between the factor value stocks, growth options and stock

returns, as well as examine the influence of growth factors and value of stock options on stock return.

CHAPTER II. RESEARCH METHODS

Data and Sample

The data used in this research is financial statement data, stock prices and corporate returns obtained from the Indonesian Capital Market Directory with a five-year period from 2005 through 2009.

The company is being sampled is a manufacturing company listed on the Stock Exchange from 2005 through 2009. The sample selection is done by purposive sampling method. The purpose of this method for the selection of the data used can be representative in accordance with criteria that have been determined. Criteria samples used in this study are as follows:

1. The sampled companies are non-financial companies listed on the Indonesia Stock Exchange (BEI) from the period 2005 to 2009.
2. Companies listed on the Indonesia Stock Exchange (BEI) from the period 2005 to 2009 that have corresponding financial statements and required data.
3. Has no book-to-market ratio is negative.
4. Eliminating observations with large growth options 1000%.

2.2. Operational Definitions

The amount of the investment opportunities that are owned by the company reflect the potential growth rate in the future, so that investment opportunities will be measured by the rate of investment growth. Growth option reflects the company's growth opportunities through the current investment activities that will generate profits in the future. In accordance with the research Mayers (1998) in

Anderson and Feijoo (2006) then this study using the growth rate of investment is the growth rate of capital expenditure as a proxy for the use of growth options. Capital expenditure is the past data used to obtain estimates of the value in the future as the company's growth.

Capital expenditure is the amount of expenditure of funds by managers of property, plant and equipment. Griner and Gordon (1995) in Masyhuri Hamidi (2001) defines capital expenditure as the difference between the total fixed assets in the current period with total fixed assets in the prior year period. Mathematically capital expenditure are as follows:

$$\text{Capital expenditure} = \text{Total Fixed Asset } t - \text{Total Fixed Asset } t-1$$

So according to Anderson and Feijoo (2006), the growth rate of investment as a proxy for growth option can be measured by measuring the growth of capital expenditure that is 3-year capital expenditure growth (CEGHT3).

Mathematically capital expenditure are as follows:

$$\text{Capital expenditure CEGHT3} = \frac{t-1}{[(T-2 + \text{capex capex capex } t-3 + t-4) / 3]}$$

Estimator stock value in this study will use the proxy-to-market book. Book-to-market is the ratio between book value and market value. This variable calculation formula is as follows:

$$\text{BM} = \frac{\text{Book value of equity}}{\text{Market equity}}$$

Return used is the average monthly return, where the average monthly return as the rate of return is the average growth rate of stock return in one month in a period. Average monthly return is obtained by first calculating stock returns each month. The formula for computing stock returns each month are as follows:

$$\text{Rit} = \frac{\text{Pit} - \text{Pit-1}}{\text{Pit-1}}$$

Description:

Rhythm = monthly stock return on company i in t

Pit = price of shares in company i in t

Pit-1 = price of shares in the company i month t-1

Average monthly return is the average return time series of each month in a given period. The formula for computing the average monthly stock returns are as follows:

$$\text{Return} = \frac{\sum_i^n R_{it}}{n}$$

Description:

Return = average return

Rit = monthly stock return on company i in t

n = Period of calculation

2.3. Data Analysis Techniques

1. Identify stocks that belong to the non-financial manufacturing companies listed on the Indonesia Stock Exchange (BEI) and then view the data completeness and suitability of the company from 2005 until 2009. Following Anderson and Garcia-Feijoo (2006), stocks with book-to-market negative removed, so the stock companies with negative book value are eliminated. Data showing the rate of growth options 1000% eliminated.

2. The value of each variable growth option, book-to-market and return is calculated each year and each year the sample firm 2005-2009. The value of each variable and then calculated the average so that every company has one value as input in the processing of data by using Microsoft Excel and SPSS.

3. To see the relationship between book-to-market, growth options and stock return

data classification is done by ranking. Value stocks are measured by the value of book-to-market. Shares at book value to market high-value stocks and shares are categorized by book-to-market low-growth stocks are categorized. Classification of these shares will be done by sorting the data book-to-market (BM) and 3-year capital expenditure growth (CEGHT3), then divided by three to get a stock with a book-to-market (BM) of low, medium and high and 3 - years, capital expenditure growth (CEGHT3) low, medium and high. Classification of shares used to show a strong variation results from the relationship between book-to-market, growth and return option.

4. The hypothesis will be tested by regression analysis to examine the effect of book-to-market, and growth options on stock return. The hypothesis was tested by using model equations are:

$$RETURN_i = \alpha + \beta_1 BM_i + \beta_2 CEGHT3_i + \varepsilon_i$$

Description:

$RETURN_i$ = average return firm i

α = constant

regression coefficient β_1 = book-to-market

β_2 = regression coefficient of 3-year capital expenditure growth rate

ε_i = Random error

CHAPTER III. RESULTS AND DISCUSSION

3.1. Data and Sample

The data used in this research is financial statement data of manufacturing firms non-financial listed in Indonesia Stock Exchange (IDX) during the period 2005 to 2009. The list of companies that are used in accordance with the Indonesian Capital Market Directory (ICMD) edition in 2009 which consists of 151 companies. Of the study population, a sample that has a completeness of data and information required amounted to 99 companies. The sample is to be the final number after deleting or removing a sample that has a value that is considered to interfere with

the results of the calculations and does not provide appropriate information purposes hypothesis.

This study uses a variable that is 3-year capital expenditure growth (CEGHT3), book-to-market (BM) and the average stock return (RETURN). The characteristics of each variable are included in Table 3.1. Table 3.1. descriptive statistics show that consists of a minimum value, maximum value, the mean and standard deviation of each variable were tested by the number of data (N) by 99 pieces of the company.

Table 3.1. Descriptive Statistics

Variable	N	Min.	Max.	Mean	Std. Dev.
BM (Ratio)	99	0,08	6,69	1,42	1,09
CEGHT3 (%)	99	- 493,33 - 13,39	553,04	41,55	190,38
RETURN (%)	99		14,73	3,07	3,50

Sources: ICMD 2010, Processed by SPSS

3.2. Relationship Between Growth Options, Book-to-Market and Return

Following the study Anderson and Garcia-Feijoo (2006), studies show begins with descriptive statistics to see the relationship between investment risk and growth opportunities (growth option). Value stocks are measured by book-to-market and growth opportunities (growth option) was measured with a 3-year capital expenditure growth rate (CEGHT3).

To show the relationship, the data consist of 99 observations will be divided into three groups each with 33 observations. Data-to-market book will be divided into three book-to-market value of low, medium, and high. The data rate of growth opportunities (growth options) would be divided into three values low, medium, and high.

Table 3.2. below shows the relationship between book-to-market and growth opportunities (growth options), where the higher the ratio of book-to-market the lower the rate of growth

opportunities (growth option). This gives an explanation that the book-to-market reflects the risk, while book-to-market high, the investment risk faced by the company so high that companies tend to delay or not make an investment and corporate investment growth opportunities declined. And vice versa when the book-to-market is low, so low risk investment companies and investment companies tend to show growth opportunities (growth option) firm increases.

Table 3.2. The relationship between Book-to-Market and Growth Options BM

	BM		
	Low	Medium	High
Mean (%)	90,01	25,91	8,73
Median (%)	18,11	27,53	39,02

Sources: ICMD 2010, Processed by Excel

There is an increasing book-to-market followed by a decreased level of growth opportunities (growth options) investment. Also found an increase in book-to-market is also followed by a decrease in average stock returns. In Table 3.3. suggests that stocks with an average book-to-market has a low average return is 3.60% per month and continued to decline to 2.51% per month along with the increasing book-to-market. High-risk investment that makes the average return generated is lower than when the low-risk investments.

Table 3.3. The relationship between Book-to-Market and Average Return BM

	BM		
	Low	Medium	High
Mean (%)	3,60	3,11	2,51
Median (%)	2,69	2,71	2,29

Sources: ICMD 2010, Processed by Excel

The relationship between the growth of investment opportunities (growth options) and the average return is examined by sorting the data rate of growth opportunities of each company of the lowest investment growth opportunities to value the highest investment growth

opportunity, then divide it into three groups. The relationship between the level of investment growth opportunities and the average return is inversely proportional. Rate of investment growth opportunities precisely lowering the higher average stock returns are obtained and lower investment growth will increase the average stock return. The results show the relationship between growth rate and the average investment return can be seen in table 3.4. below.

Table 3.4. Relationship between Growth Options and Average Return Growth Options

	Growth Options		
	Low	Medium	High
Mean (%)	4,60	2,47	2,16
Median (%)	4,29	2,05	2,27

Sources: ICMD 2010, Processed by Excel

3.3. Hypothesis testing and discussion

This section will discuss the influence of the book-to-market and growth investment opportunities (growth options) to the average stock return. In this study performed regression testing to test the independent variable, 3-year capital expenditure growth rate (CEGHT3) and book-to-market (BM) together with the average stock return (RETURN).

Table 3.5. Regression Result

Variable	Model		
Dependent variable: RETURN			
Independent variable:	Coeff.	t-stat.	Signif.
C	2,428	0,883	0,379
BM	-0,398	-0,848	0,098 ***
CEGHT3	-0,006	-3,422	0,001 *
N	99		
R ²	0,212		
Adjusted R ²	0,084		
F	4,001		
Significance	0,010		

Sources: ICMD 2010, Processed by SPSS

Average return regressed with the book-to-market (BM) and 3-year capital expenditure growth rate (CEGHT3). Book-to-market is the ratio

between the book value divided by market value. CEGHT3 is the rate of investment growth opportunities, capital expenditure is calculated as a percentage of t-1 divided by capital expenditure t-2, t-3 and t-4. * Significant at 1% level, *** significant at 10% level.

Table 3.5. shows the effect of book-to-market for the average stock return is statistically significant at 10% significance level. This is demonstrated through the value t (-0.848) and significance (.098). The coefficient of relationship between book-to-market with the average stock return is negative (-0.398). The results of hypothesis testing showed that the higher book-to-market, the lower the average stock return. The results of this research in Indonesia is the opposite of the theory that Fama and French research done in America, where there is a positive influence among the book-to-market for the average stock return. These results are consistent with research Widita Rarasati (2007) who found that in Indonesia stocks that provide profit and have a greater risk is the stock with a book-to-market low. These different results indicate that the capital market in Indonesia is inefficient where stocks with book-to-market advantage over low-profit market. The results of tests of this hypothesis to the conclusion that testing the influence of book-to-market for the average stock return of research conducted in Indonesia does have the opposite results with the results of Fama and French (1995) conducted in the United States.

The results of hypothesis testing in Table 3.5. also showed that the higher growth option the lower the average stock return. The results are also consistent with research Xing (2002), firms with growth opportunities (growth option) had significantly lower average stock return is higher than companies with high growth opportunities.

In each period, companies are finding investment opportunities, make investment decisions and lost assets terpakainya. The company would be

interested in low-risk investments and an increase in stock market value that makes the book-to-market down. Book-to-market low reflecting low risk investment that provides returns that are also low. When companies make investments into positive information to investors because it shows the company experienced growth. Investors become optimistic about investing in the company, because it is expected to earn high returns in the future. Investor behavior is reflected in research Lakonishok, Shleifer and Vishny (1994) which states that investors as a determinant of share prices that never understand convergent in profitability and growth. Investors were surprised by the decline of profitability and growth that occurred after the stock moved to the category share growth and increased profitability and growth after the shares allocated to the category of value stocks. The result is that the average return is lower for growth stocks and average return is higher for value stocks. Investors capture growth stock investment company information is too great a hurry as optimistic about the return to be obtained, without considering the risk of failure and the things that may happen during the investment takes place and make the return earned in the future is lower than expected.

In addition, testing the hypothesis by testing the effect of book-to-market (BM) and growth investment opportunities (CEGHT3) jointly to the average stock return (RETURN) shows the F test value of 4.001 with a significance value of 0.010. With a significance level of $\alpha = 5\%$, then suggest a link between the independent variable regresional the book-to-market and growth option with the dependent variable is the average stock return. Value of R2 (R Square) of 0.212. This shows that the variation of the variable average stock returns can be explained by the variation of variables book-to-market and growth options for 21.2% and 78.8% explained by other variables.

This test also showed that the growth variable option represented by the 3-year capital expenditure growth rate (CEGHT3) have the most significant variable than the book-to-market for the average stock return. Growth option has a significance level of 0.001 while the book-to-market has a significance level of 0.098. These results are consistent with Anderson's research and Feijoo (2006) where growth options are able to explain average stock returns better when the growth option into the regression model with the book-to-market.

CHAPTER IV. CONCLUSIONS & RECOMMENDATIONS

4.1. Conclusion

This study aims to obtain empirical evidence of the relationship between book-to-market, growth options and stock returns and obtain empirical evidence of the influence of book-to-market and growth option for the average stock return next. Samples of this study is a manufacturing company of non financial year 2005-2009 that have met the study criteria based on purposive sampling and the resulting 99 sample companies.

The relationship between book-to-market and growth companies with the option of book-to-market high (value stock) have a low growth option, where companies tend not to invest because of the high risks that must be faced by the company. In contrast, in companies with book-to-market low (growth stocks) have higher growth options, which companies to invest because of the risk to be faced low company, eventually making the company experienced growth. Characteristics of company book-to-market is closely related to risk.

The results can be summarized as follows:
1. There is evidence to support that the book-to-market has no significant negative

effect on the average stock return. These results indicate that the existing investors in Indonesia is the type of investors are paying less attention to the fundamental factor of shares held.

2. There is evidence to support that growth option has a significant negative effect on the average stock return. Growth opportunities (growth option) associated with stocks that have experienced growth (growth stock). Where shares are growing tend to give the average return is lower because of the nature of convergent in profitability and growth. Stocks suffered a setback after the profitability and growth stock growth stocks moved to the category. Failure to invest is also a factor decreasing the average return earned in the future.
3. Growth option has a significant negative effect when the book-to-market are included in the regression model. These results indicate that the existing investors in Indonesia is the type of investors are more concerned with growth factors in making an investment company shares.

4.2. Implications Research and Advice

This research is expected to be useful as a material consideration in making investment decisions for the company, investors, creditors and other decision-makers to consider the effect of growth opportunities (growth option) in determining the average return of the company. The results of this study are able to contribute to the development of the theory of the growth option, especially since there is limited research on the growth of this option. The results of this study is also expected to be useful for studies related to capital investment determine the level of growth options. Companies with high growth options means having a higher growth opportunities than firms with low growth option.

Investors as a determinant of share prices that never understand convergent in profitability and growth. Investors were

surprised by the decline of profitability and growth that occurred after the stock moved to the category share growth and increased profitability and growth after the shares allocated to the category of value stocks. The result is that the average return is lower for growth stocks and average return is higher for value stocks. Investors capture growth stock investment company information is too great a hurry as optimistic about the return to be obtained, without considering the risk of failure and the things that may happen during the investment takes place.

Future studies are advised to use a longer sample observations and more and not just focus on manufacturing firms only to the sample of firms that can be observed more and can be generalized to other corporate sectors. In addition, further studies are also advised to use alternative to other measurements of a better way to measure the growth option.

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