Review Article

The Effect of Book to Market Ratio, Profitability, and Investment on Stock Return

B. Yuliarto Nugroho

Department of Business Administration, Faculty of Administrative Science, Universitas Indonesia
Prajudi Atmosudirdjo Building, Level 2. FIA UI, Depok 16424, Indonesia

Abstract - *The objective of this study is to examine the effect of a book to market ratio, expected profitability, and expected Investment on stock return. This study uses data of listed non-finance sector companies in the LQ-45 Indonesian Stock Exchange for the period 2008-2017. Expected profitability associated with ROA value and expected Investment associated with the growth of assets. The analysis method used in this study is a regression model with panel data. This study found that book to market ratio has a significant positive effect on stock return. Return on Assets (ROA), as a proxy of expected profitability, also has a significant effect on stock return. Unlike the other variables, growth of assets, as a proxy of expected Investment, has a not significant adverse effect on stock return.*

Keywords - *Book to Market Ratio, Profitability, Investment, Stock Return, Return on Asset (ROA), Indonesian Stock Exchange.*

I. INTRODUCTION

As one of many forms of Investment, stock return is an essential thing for investors. Normatively, investors will tend to invest their funds in shares that are considered to have the potential to provide high returns and have the potential to have good growth in the long run. Therefore, investors need to be able to predict the rate of stock return of their investments. As the theory of stock return and the factors that influence it developed, stock valuation theory is known. The theory says that the expected level of stock return is related to three variables: the book to market ratio, expected profitability, and expected Investment.

Over the past 30 years, researchers have conducted on the relationship between stock returns and the book to market ratio of a company. There are also many results from this study which states that companies that have a high book to market ratio have high stock returns (Rosenberg et al., 1985; Chan et al., 1991; Fama and French, 1992; Capaul et al., 1993; Lakonishok et. al, 1994). There is also evidence that the level of stock returns has a positive relationship with profitability by using the book to market ratio as a control variable (Haugen and Baker, 1996; Cohen et al., 2002). Complementing the research of Haugen and Baker (1996)and Cohen, Gompers, and Vuolteenaho(2002), there is research from several researchers who found that in addition to profitability, the level of Investment also affected the level of stock returns. The study found that the level of Investment has a negative relationship with the level of stock returns (Fairfield et al., 2003; Richardson and Sloan, 2003; Titman et al., 2004)

The study of Gil Aharoni, Bruce Grundy, and Qi Zeng(2013) used the Dividend Discount Model to improve and continue Fama and French research (2006) in discussing the role of expected profitability, expected level of Investment, and book to market ratio of a company as a variable which can be used to predict stock returns.

In valuation theory, the Dividend Discount Model is a stock valuation model which states that the intrinsic value of a stock is the present value of the sum of future cash dividend flows that are expected to be received by shareholders in the future from a single share of shares (Bodie et al., 2003). The research then gives the result that there is a positive relationship between the book to market ratio and stock returns. The result of the research means that companies that have a high book to market ratio will tend to provide high stock returns. There is also a positive relationship between expected profitability with stock returns, or in other words, the expected profitability of big companies will produce high stock returns. If the profits of a company are large, the stock returns generated by the company are also significant. However, there is a negative relationship between the expected levels of Investment and stock returns, which means the higher the level of Investment, the lower the stock returns generated by a company.

In this study, the researcher is interested in researching stock returns, their relationship with expected profitability, expected level of Investment, the company's book to market ratio. This research was conducted to analyze the relationship between expected profitability, expected investment levels,

and book to market ratio to stock returns. Based on the objective, the independent variables used by researchers in this study are book market ratio, return on assets (ROA) as a proxy of expected profitability, and asset growth as a proxy of expected investment levels, and the dependent variable, which is the stock return.

Researchers took samples from listed non-financial sector companies in the LQ-45 Indonesian Stock Exchange for the 2008-2017 periods. LQ-45 index is the most liquid stock and is attracted by investors. Researchers took samples with a period of 10 years to expand previous research so that this study could provide more comprehensive results. This research can serve as a reference for investors in choosing the right Investment.

II. THEORETICAL FRAMEWORK

A. Investment

Investment can be interpreted as the management of an asset that can provide a return in the future. According to Bodie, Kane, and Markus (2007), an investment can be interpreted as the current commitment to money and other resources for a certain period in the hope of earning profits in the future.

There are several kinds of investments, there are investments made in the financial sector (financial market), and there are also investments made in the real sector (real Investment). Investments in the financial sector are transactions of buying and selling financial assets for profit. Investments in financial markets can take the form of deposits, certificates of Bank Indonesia (SBI), commercial papers, stocks, bonds, and other securities, while investing in the real sector means investing or buying productive assets to produce something through the production process. Investment in the real sector can be in the form of land, houses, gold, and others.

B. Stock

Stocks are the most popular capital market instruments and are widely owned by the public or investors. According to (Tjiptono and Fakhrudin (2006), stocks are a sign of ownership of a person or entity in a company. The form of a stock is a piece of paper. That piece of paper is a sign that the owner of the stock is the owner of the company that issued the stock. The portion of ownership is determined by how much Investment is invested in the company. According to Ang(1997), stocks are securities and pieces of evidence of individual or institutional ownership in a company. Meanwhile, according to Mishkin(2001), the definition of stocks is securities that have a claim on the income and assets of a company.

Investing by buying a company's stock means that investors have invested funds in the hope that they will benefit from the resale of the stocks or the profits they receive from the company. The portion of an investor's ownership is determined by how much the Investment is invested in the company (Darmadji, 2001).

C. Stock Return

Part of the stocks that need to be known is the stock return. An investor would certainly not be interested in investing if there is no return on the Investment. According to Jogiyanto(2000), stock returns can be divided into two, (1) stock return (2) stock return. Realized return is the return that has occurred, while expected return is the return that is to be obtained by investors in the future. Stock return is the result obtained from an investment by calculating the difference between the current period's stock price and the previous periods'.

D. Profitability

A company's profitability is the result of a series of policies and decisions (Brigham, 2001). Profitability is one way that can be used to assess the return an investor will get from an investment he is making. A company must always be in a profit state to be able to maintain its survival. Companies without profits will be challenging to attract capital from outside. The creditors, company owners, and management of the company will undoubtedly try to increase the profit since it is beneficial for the company in the future. Profitability can be measured using two approaches, which are the sales approach and the investment approach (Tangkilisan, 2003). Measurement of company profitability can also use three measures. Those measurements are Return on Assets (ROA), Return on Equity (ROE) and Return on Investment (ROI).

ROA aims to measure the company's ability to use assets to make a profit and measure the total returns for all stockholders as a source of funding (Prihadi, 2008). The ratio of Return on Assets (ROA) is obtained by comparing net income with total assets (Riyanto, 2010).

$$ROA = (net\ income)/(total\ assets)$$

The total assets used in the ROA formula are the average of total assets (beginning and end of the year) during the calculation period. Positive Return on Assets (ROA) shows that the total assets used by a company can generate profits for the company. Conversely, a negative ROA shows that the total assets used by a company provide losses for the company. The high percentage of ROA can be concluded as the efficient use of assets in a company to obtain profit. A company that has a high percentage of ROA has an excellent opportunity to increase growth.

E. Book to Market Ratio

The book to market ratio is a comparison between the book value of a company's stock with its market value in the capital market. Market value is the value of equity that is seen by investors (Harahap, 2009). Book to market ratio, according to Harahap(2009), is stated in the following formula:

$$B/M = book\ value\ of\ equity/market\ value\ of\ equity$$

Some reasons investors use the book to a market ratio in analyzing investments are (Ang, 1997):

- Book value provides a relatively stable measurement to be compared with the market price. For investors who do not trust the estimated discounted cash flow, book value can be a benchmark compared to the market price.
- Accounting standards that exist are almost the same in every company; book to market ratio of a company can be compared with other companies in one sector to find out whether the company is still undervalued or overvalued.
- Companies that implement it are companies with negative earnings, so they cannot be valued using the earnings price ratio. Nevertheless, it can be evaluated using a book to market ratio. In reality, fewer companies have negative book values than companies that have negative earnings.

F. Hypothesis

The hypothesis in this research of testing the effect of the book to market ratio, expected profitability, and expected Investment on stock return on non-finance sector companies in LQ-45 Indonesian Stock Exchange for the period 2008-2017are:

H_1 = There is a positive and significant relationship between the book to market ratio and expected profitability (with ROA proxy) and stock return. There is also no negative and insignificant relationship between expected Investment (with the growth of assets proxy) on stock return on non-finance sector companies in LQ-45 Indonesian Stock Exchange for the period 2008-2017 using the Dividend Discount Model.

III. DATA ANALYSIS TECHNIQUE

Data analysis is a process of data preparation and processing to interpret the data that has been obtained. The purpose of data analysis is to simplify or transform data into a more straightforward form for people to read and interpret easily. According to Moleong(2007), data analysis is the process of organizing data and sorting patterns, categories, and fundamental units of the description so that themes can be found and work hypotheses can be formulated. Samples for this study are from listed non-financial sector companies in the LQ-45 Indonesian Stock Exchange for the 2008-2017 periods.

The data analysis technique used in this study is a panel regression model (Aharoni and Grundy,2013):

$$RETURN = \lambda_0 + \lambda_1 BM(t) + \lambda_2 MV(t+1) + \lambda_3 EXPINV + \lambda_4 EXPPROF + \omega(t+1)$$

which:

RETURN: The value of company returns in year t + 1, calculated from the difference in the value of stock prices in year t + 1

with stock prices in year t divided by stock prices in year t

B.M.: Company book to market ratio, calculated from B.V. divided by MV

MV(t+1): Market value of the company in year t + 1

EXPINV: Level of company investment in year t + 1, calculated from total year t assets + 1 divided by total year t assets

EXPPROF: Level of profitability of the company in year t + 1, seen from the value of ROA in year t + 1

IV. RESULT AND DISCUSSION

This study uses a regression model approach for the type of panel data. Data processing for panel data types has three alternative models, namely: Pooled Least Square Model (PLS), Fixed Effects Model (FEM), and Random Effects Model (REM)

Statistical testing for selecting a model is done with two tests, namely the Chow Test and the Hausman Test.
Based on the Chow and Hausman test that has been done to determine the panel data regression model, it was found that the best estimation model for this study is a regression with the Fixed Effect Model (FEM).

A.R^2 dan Adjusted R^2 (Coefficient of Determination)

Table 1. R^2 dan Adjusted R^2 (Coefficient of Determination)

Samples	R^2	Adjusted R^2
All samples	0.400643	0.324706

Source: Processed by the researcher uses eviews.

R^2 is used to measure the extent to which the independent variable can explain the variation of the dependent variable. The higher R^2 can be concluded as the more influential the relationship between the dependent variable and the independent variable (Nachrowi and Usman, 2006). The range of R^2 is $0 < R^2 < 1$. If the value is close to 1, then the independent variable in this research can explain the dependent variable very well and vice versa. Furthermore, the adjusted R^2 value is used to strengthen the predictive power of a model.

Based on table 1, it can be seen that the value of R^2 for all samples is 40.06%. This figure shows that the magnitude of stock return as the dependent variable in this research is only explained by 40.06% by the independent variables used in this research. The remaining 59.94% is explained by other factors not found in this research model.

If we compare the research of Aharoni, Grundy, and Zeng (2013), the value of R^2 in this research is more substantial. It can be concluded that the difference in the value of R^2 in this research with the research of Aharoni, Grundy, and Zeng is due to differences in the period and location. This research was conducted in Indonesia, while research by Aharoni, Grundy, and Zeng was conducted in America. This result indicates that in companies in

Indonesia, there is a stronger relationship between stock return with the expected Investment, the expected profitability, and the company's book to market ratio compared to companies in America.

B. Significance of Multiple Linear (F-stat Test)

Table 2. Significance of Multiple Linear (F-stat Test)

Sample	Prob F-stat	Significance
All samples	0.0000	Significance**

Remarks: **= significance level 5% (0.05)
Source: Processed by the researcher uses eviews.

F-stat test is used to test the hypothesis of the regression coefficient (slope) simultaneously (Nachrowi and Usman, 2006). This test is used to see in general whether the model contained in this research can be used or not. If the result of prob F-stat <0.05, it can be concluded that the model can be used. The table above shows that the model used in this research has an F-stat probability of 0.0000 with a significance level of 5%. This value indicates that with a 95% confidence level, the independent variables in this research together significantly influence the dependent variable.

C. Partial Significance (t-Stat Test)

Table3. Partial Significance (t-stat Test)

Variable	Coeff.	Std Error	t-stat	P-value
C	-0.4769	0.33708	-1.41493	0.1585
BM	1.4953	0.163665	9.13691	0.0000
MV2	-1.56E-15	7.97E-16	-1.95488	0.0519
EXPINV	-0.2152	0.259580	-0.82936	0.4078
EXPROP	3.1955	0.466001	6.85729	0.0000

Source: Processed by researcher uses eviews.

The T-stat Test is used to partially determine each of the independent variable contributions to the dependent variable using the Test of each regression coefficient of the independent variable, whether it has a significant effect or not on the dependent variable (Sugiyono, 2005). In this partial significance test, it can also be seen how the level of Significance of the influence of each independent variable on the dependent variable.

In this t-stat Test, what needs to be considered is the prob (p-value) obtained then compared it with significance α. If prob (p-value) < α, it can be concluded that the independent variable influences the dependent variable. Conversely, if prob (p-value) >α, it can be concluded that the independent variable does not affect the dependent variable.

D. Discussion

Table 3 shows that from the regression of all samples, the probability value of the book to market ratio is 0.00

(<0.05) and the positive coefficient value (1.495397). The probability result explains that the book to market ratio has a significant effect on stock return. Furthermore, the sign of the coefficient value indicates the relationship that is owned between variables. The book to market ratio variable has a positive coefficient of 1.495397, which means the book to market ratio has a positive effect on stock return. This result follows the Dividend Discount Model theory and the research hypothesis. This relationship is also following the research of Pinfold et al. (2001), Fama and French (2006), and Aharoni, Grundy, and Zeng (2013). This result also strengthens the results of Namira and Nugroho's(2016) research for non-financial companies in Indonesia in the period 2006-2015, that ROA has a positive effect on stock returns. This indicates that companies that have a high book to market value tend to give a high stock return. A high book to market ratio means the market perception of the company value is still low so that it can be a signal of good investment opportunity for investors.

Based on table 3, it can be observed that the probability value of the expected Investment is 0.4078 (> 0.05) and the negative coefficient value (0.215287). The probability result explains that asset growth has no significant effect on stock return. Furthermore, the sign of the coefficient value indicates the relationship that is owned between variables. The asset growth variable has a negative coefficient of -0.215287, which means asset growth harms stock return. It follows the Dividend Discount Model theory and the research hypothesis. This relationship is also following the research of Aharoni, Grundy, and Zeng (2013). This result indicates that companies that have high asset growth values tend to give low stock returns even though it is not a certainty due to high asset growth that cannot be said to affect the stock return. A company that has high asset growth is often considered to pay attention to the growth of its assets; to fund the growth of these assets, the company cannot provide a substantial stock return (withhold existing stock return for investing). Nevertheless, this practice is not a sure thing, for in some cases, it is found that the assets owned by the company instead provide benefits for the company to be able to generate higher stock returns.

Table 3 shows that from the regression of all samples, the probability value of expected profitability is 0.00 (<0.05), and the positive coefficient value (3.195506). The probability result explains that return on assets (ROA) has a significant effect on stock return. Furthermore, the sign of the coefficient value indicates the relationship that is owned between variables. ROA variable has a positive coefficient of 3.195506, which means ROA has a positive effect on stock return. It is also following the Dividend Discount Model theory and the research hypothesis. This relationship is also following the research of Prihantini (2017) and Aharoni, Grundy, and Zeng (2013). This result indicates that companies that have high ROA values will undoubtedly provide a high stock return.

V. CONCLUSION AND SUGGESTION

This research is one of the preliminary studies that analyze the effect of a book to market ratio, expected Investment, and expected profitability in a company on stock return. The results generally support that the Dividend Discount Model theory is still valid and can still be used. More conclusions can be drawn from this research are:

The book to market ratio variable has a significantly positive effect on stock return. The high book to market ratio indicates the market perception of the value of the company is still low so that it can be a signal of excellent investment opportunity for investors; the Asset growth variable has a negative effect but is not significant to stock return. This negative asset growth happens because the market often perceives companies that have high asset growth as a company that focuses on funding the growth of those assets that do not allow them to provide a substantial stock return (retain existing profit to make investments). However, the insignificance of the relationship shows that it is not impossible for the assets owned by the company to provide benefits for the company instead so that the company can generate a higher stock return. ROA variable has a significant positive effect on stock returns. The positive effect happens due to the excellent performance of the company that showed from the high ROA that allows the company to generate a stock return from assets that are owned.

The result of this research indicates that book to market ratio and ROA has a significant positive effect on stock return. In contrast, asset growth has an insignificant negative effect on stock return. The result of this research is expected to contribute to the factors that influence stock return.

Nevertheless, this research certainly has some limitations. For this reason, the researcher suggests further research to do as follows: (1). extend the research period so that the results obtained are also more extensive and in-depth; (2).make modifications by changing the proxy of profitability and Investment.

The implication of this study can be given to companies and investors. For companies, the result of this research is expected to be a consideration material in making decisions in determining policies in companies related to assets as it will affect in resulting stock return. As for investors, the result of this research is expected to provide additional information about companies that can provide a higher stock return or can provide other information about stock investments.

REFERENCES

[1] Aharoni, Gil, Grundy, Bruce, and Zeng, Qi., Stock Returns and the Miller Modigliani Valuation Formula: Revisiting the Fama French Analysis . Journal of Financial Economics 110 (2013) 347-357.

[2] Ang, Robert., BukuPintarPasar Modal Indonesia. Jakarta: Mediasoft(1997).

[3] Bodie, et al., Essential of Investments. New York: McGraw-Hill(2003).

[4] Bodie, et al., Investment, (7th Ed). New York: McGraw-Hill(2007).

[5] Brigham, Eugene.F and Joel F. Houston., ManajemenKeuangan. Edisi. KedelapanBuku 2. Jakarta: Erlangga (2001).

[6] Chan, K., Chan, L.K.C., Jegadeesh, N., Lakonishok, J., Earnings quality and stock returns. Journal of Business 79 (2006) 1041–1082.

[7] Capaul, C., Rowley, I., Sharpe, W.F., International value and growth stock returns. Financial Analysts Journal, (1993) 27–36.

[8] Cohen, R.B., Gompers, P.A., Vuolteenaho, T., Who underreacts to cash-flow news? Evidence from trading between individuals and institutions. Journal of Financial Economics 66 (2002) 409–462.

[9] Darmadji, Tjiptono andFakhruddin, Hendi M., Pasar Modal di Indonesia. Jakarta: SalembaEmpat (2001).

[10] Fairfield, P.M., Whisenant, S., Yohn, T.L., Accrued earnings and growth: implications for future profitability and market mispricing. Accounting Review 78 (2003) 353–371.

[11] Fama, E. F, French, K. R., The cross-section of expected stock return". Journal of Finance 47 (1992) 427-465

[12] Fama, Eugene, French, K.R., Profitability, Investment, and Average Returns. Journal of Financial Economics. (2006) 491-518

[13] Harahap, SofyanSyafri., AnalisisKritisAtasLaporanKeuangan. Jakarta: PT Raja GrafindoPersada (2009).

[14] Haugen, R.A., Baker, N.L., Commonality in the determinants of expected stock returns. Journal of Financial Economics 41 (1996) 401–439.

[15] Jogiyanto., TeoriPortofoliodanAnalisisInvestasi, EdisiKedua. Yogyakarta: BPFE(2000).

[16] Lakonishok, J., Shleifer, A., Vishny, R.W., Contrarian investment, extrapolation, and risk, Journal of Finance 49 (1994) 1541–1578.

[17] Mishkin, Frederic S., Financial Markets and Institutions. Massachusetts: Addison-Wesley Publishing Company(2001).

[18] Moleong, J. Lexy., MetodologiPenelitianKualitatif. Bandung: PT RemajaRosdakarya (2012).

[19] Nachrowi, D. danUsman, Hardius., PendekatanPopulerdanPraktisEkonometrikauntukAnalisisEkonomid anKeuangan. Jakarta: Universitas Indonesia(2006).

[20] Namira, F., Nugroho, B. Y., Effect of Enterprise multiple on stock return Non-Financial Companies in Indonesia Stock Exchange, International Journal of Administrative Science & Organization,23 (2)(2016) 94-106

[21] Pinfold, J.F., Wilson, W. R., Li, Qiuli., Book-to-market and size as a determinant of returns in small illiquid markets: the New Zealand case. Financial Services Review, 10 (1-4) (2001) 291-302

[22] Prihadi, Toto., DeteksiCepatKondisiKeuangan: 7 AnalisisRasioKeuangan. Jakarta: PPM (2008).

[23] Prihantini, Ratna.,AnalisisPengaruh Inflasi, Nilai Tukar, ROA, DER dan CR terhadap Return saham (studi kasus saham industru real estate and property yang terdaftar di Bursa Efek Indonesia periode 2003-2006). Jurnal Bisnis Strategi, 18 (2) (2009) 99-117

[24] Richardson, S.A., Sloan, R.G., External financing and future stock returns. Unpublished working paper. University of Pennsylvania, Philadelphia, PA (2003).

[25] Riyanto, Bambang., Dasar-DasarPembelanjaan Perusahaan EdisiKeempatCetakankeSepuluh. Yogyakarta: BPFE (2010).

[26] Rosenberg, B., Reid, K., Lanstein, R., Persuasive evidence of market inefficiency. Journal of Portfolio Management 11 (1985) 9–17.

[27] Sugiyono., MemahamiPenelitianBisnis. Bandung: CV Alfabet(2005)

[28] Tangkilisan, H.N.S., ManajemenKeuanganBagiAnalisisKreditPerbankanMengelolaKredi tBerbasis Good Corporate Governance. Yogyakarta: Balairung (2003).

[29] Titman, S., Wei, K.C.J., Xie, F., Capital investments and stock returns. Journal of Financial and Quantitative Analysis 39 (2004) 677–700.