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THE INFLUENCE OF BOOK TO MARKET RATIO, ACCRUAL QUALITY ON STOCK RETURNS WITH TECHNOLOGY INVESTMENT AS MODERATION VARIABLE

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stock returns, book to market ratio, accrual quality, technology investment, cross-sectional study, market research, Indonesia Stock Exchange.

ABSTRACT

This study aims to analyze the effect of market ratios, accrual quality, stock returns with technology investment as a moderating variable. The sample of this study were 42 service companies listed on the IDX. This study uses purposive sampling technique with observation years, namely 2019. The analysis technique used to analyze data is Moderated Regression Analysis (MRA). The results showed that book to market ratio does not affect stock returns, accrual quality does not affect stock returns, and technology investment does not moderate the relationship of book to market ratio and accrual quality on stock returns.

INTRODUCTION

Investment is the investment of a certain amount of money or capital in a company or project for the purpose of making a profit. The result or profit obtained from investment is called return. Investment can be defined as a delay in current consumption to be used in efficient production for a certain period of time (Jogiyanto, 2003). There are several forms of investment that can be made by the community, one of which is investment in the form of equity participation or commonly known as stock investment. Stocks are an instrument that many investors choose because stocks are able to provide attractive returns. Shares can be defined as a sign of an individual's or party's (business entity's) equity participation in a company or limited liability company.

In essence, in making investments, investors will consider the return of the total to be obtained. S is return the whole of an investment in a particular period. Total return consists of capital gain (loss) and yield. Capital gain or capital loss is the difference from the current investment price relative to the price of the previous period (Jogiyanto, 2003). In investing in shares of capital gain or loss can be formed by the existence of stock trading activities in the secondary market. Suppose the current stock price is higher than the stock price in the previous period. In that case, the investor can be said to have gained capital gain, on the other hand, if the current stock price is lower than the stock price in the previous period, the investor will experience a capital loss.

In the concept of Risk-Return Trade Off, investments that can provide high returns are believed to have high risks. Investors in buying shares basically have the same goal, which is to expect the maximum return and minimum risk. Therefore, in order to achieve the return, you expected (expected return) investors, it requires an accurate prediction.

The model that is often used to predict the expected return is the Capital Asset Pricing Model (CAPM). The Capital Asset Pricing Model (CAPM) was introduced by Sharpe in 1964 and Lintner in 1965 which is a model for determining the expected return on stocks that are assumed by investors to have the same information, free information (costless), and no taxes on transactions. The CAPM model is a portfolio theory development proposed by Markowitz and in this model the β value is used as an indicator of market risk and is said to have a relationship with stock returns.

Pasaribu (2009) explains that the Capital Asset Pricing Model (CAPM) is used to calculate the cost of capital and measure portfolio performance since the 70s. In the 1990s, Fama and French pointed out that CAPM was inaccurate and they proposed a better three-factor model as an asset pricing model. In the three-factor models, Fama and French use the following two factors are expected to explain the return of the stock that is the size of the company (firm size) and book to market ratio. Both of these variables are considered to be able to improve the limitations of the CAPM model. This model was introduced by Fama and French in 1996 which became known as the three-factor model or three-factor model.

In general, investors will seek and use information before making investment decisions. One of the information generally considered relevant by investors is the company's financial statements. In decision utility theory, accounting information must have the capability to make a difference to a decision. This is done by helping users form predictions about the results of past, present and future events or to confirm or justify their expectations (Octavia, 2017)

Financial statements are basically a management tool in communicating information related to the company's financial performance. In many studies, information is proxied by using accrual quality (Tampubolon, 2012). In the accrual basis assumption, the information provided to users is not only past transactions that involve future cash receipts and payments and resources that represent cash to be received in the future. In addition, the accrual basis requires periodic adjustments in the financial statements, so that net income in a period is the result of a matching process between revenues and expenses in that period.

In America the choice of accrual method is quite flexible, companies can choose to use discretionary accruals or non-discretionary accruals. Discretionary accrual, which is the recognition of accruals of profit or expense that is not regulated and is a management choice, may be influenced by management's interests. From one side, management tries to protect its interests in the company. However, when managers manipulate the earning component to hide losses, earnings will be considered less informative because they hide the true state of the company. Lack of informative earnings will lead to information asymmetry to investors. There have been many studies that prove that information asymmetry is caused by earnings management (Tampubolon, 2012). Investors will react negatively to earnings management by the company so that stock returns will decline (Anggraini, 2019).

Tampubolon (2012) states that information is one of the risks in the market. Previous research conducted by Francis et al. (2005), see accrual quality as one of the proxies of information risk. The results of research conducted by Easly and O'Hara (2001) show that investors will ask for a higher return if they have private information, the higher the return reflects the fact that private information will increase the risk to uninformed investors because investors who get more information can change their portfolio.

Ng (2011) concluded that the higher the quality of information, the lower the liquidity risk, so the lower the cost of capital. A study conducted by Zhang (2006) found that the higher the level of information uncertainty, the higher the expectation of stock re-

turns if the related information is good information. However, the expectation of stock returns will decrease if the relevant information is not good enough. While Lobo et al. (2007) in their research found that companies with low accrual quality will cause a higher forecast error, this is an indication of accrual quality that reflects information risk.

On the other hand, the strength of intangible assets, although widely recognized as a driver of company productivity growth (Liu and Li, 2010), there is still little attention paid to the impact of intangible assets on stock returns . Intangible assets are able to provide added value to the company as well as provide future benefits and play an important role in the company's success (Yallwe and Buscemi, 2014). Lev and Sougiannis research results in Owiredu et al. (2014) estimate that the difference in return (excess return) reflects a mispricing of the stock market or represents a compensation for risk in investing in intangible assets such as investing in R&D. The research by Owiredu et al. (2014) show that the intensity of intangible assets has a negative relationship with the volatility of share prices .

Competitive advantage that makes a company survive in its business is not only caused by the domination of tangible assets, but also due to the existence of intangible assets. The emphasis on the value and information presentation of intangible assets has changed the way companies are valued. In traditional accounting, companies are valued based on the value of their tangible assets. However, in the era of an economy based on knowledge of intangible assets that are used to value companies (Syafruddin and Soraya, 2013).

This study is motivated by previous research on the relationship between book to market ratio and accrual quality to stock returns which resulted in different findings. This research is also motivated by the lack of research examining the strength of technology investment variables on stock returns . This study discusses the effect of book to market ratio , accrual quality, on stock returns with technology investment as a moderating variable.

The aim of this study is to provide empirical evidence on the effect of book to market ratio, accrual quality, on stock returns with technology investment as a moderating variable . Based on this, the problem formulation in this study is.

1. Does the book to market ratio affect stock returns ?
2. Does accrual quality affect stock returns ?
3. Is technology investments me moderating the relationship between the book to market ratios to return stock?
4. Is technology investments me moderating the relationship between the quality of the accrual of the return of the stock?

FRAMEWORK THEORY AND HYPOTHESES FORMULATION

This study was conducted to examine the effect of book to market ratio and accrual quality on stock returns with technology investment as a moderating variable. The theory underlying this research is decision usefulness theory. Decision utility theory emphasizes that accounting information must have the capability to make a difference in a decision. This is done by helping users form predictions about the results of past, present and future events or to confirm or justify their expectations (Octavia, 2017).

Fama and French introduced the Three Factors Model in their article entitled "Multifactor Explanations of Asset Pricing Anomalies" which became known as the Fama and French Three Factor Model. After conducting research on stock returns, Fama and French found that there are two variables that have an influence on stock returns and can be used in the asset pricing model (a model used to predict expected returns). The two variables are the variable market equity (market equity) or company size (company's size) and the variable book equity to market equity (book to market ratio).

MRP Wijesinghe and Sampath Kehelwalatennab (2017) reveal that there is no significant positive impact of earnings quality on stock returns. Zohdi MH, et al. (2011) also investigated the relationship between earnings quality and stock returns but found no significant relationship between earnings quality and stock returns. Mouselli et al. (2013) found that accrual quality measures have an influence on cross-sectional stock returns.

Sudiyatno and Irsad (2011) conducted a study in Indonesia which aimed specifically at examining the behavior of share prices in relation to company size and book-to-market ratio. Their findings show that company size and book-to-market ratio have a negative, but not significant, effect on stock returns. They concluded that the two factors Fama and French are not proven to have an effect on stock returns in Indonesia. Jasman J. and Kasran M. (2017) examined the effect of profitability and earnings per share on stock returns and the role of company size as a moderating variable in state-owned companies listed on the Indonesia Stock Exchange (BEI) 2011-2016. This study found that firm size as a moderating variable strengthens the relationship of earnings per share to stock returns but does not play a role in moderating the relationship between profitability and stock returns. This study shows that the firm size variable has a role as a moderating variable in research on stock returns.

Return (return) is the level of profit enjoyed by investors on an investment they do (Ang, 1997). Investors certainly will not invest if

there is no hope of returns in the future.

Narayan (2017) examines the predictability of stock returns in countries investing in technology. In this research it is stated that technology can predict returns or technology facilitates stock market development. The main implication in his research is profitable stock returns are driven by factors of different geographical locations of countries investing in technology and the level of development of the country.

Hall (2001) argues that the gap between the book value and the market value of the company can be caused by the investment in intangible assets. As is the case for companies that invest in technology, have a large discrepancy between their book value and market value.

Based on the theoretical framework mentioned above, the hypothesis proposed in this study is as follows:
Hypothesis 1: Book to market ratio has a negative effect on stock returns
Hypothesis 2: Accrual quality has a positive effect on stock returns
Hypothesis 3: Technology investment moderates the relationship between the book to market ratio and stock returns
Hypothesis 4: Technological investment moderates the relationship between accrual quality and stock returns.

This study aims to test the hypothesis that explains the effect of the independent variable on the dependent so that this type of research is a hypothesis testing. Research hypotheses are developed based on theories related to the research topic and then tested based on appropriate analytical techniques. The nature of this research is correlation which aims to find important variables related to the problems in research. Before measuring the strength of the relationship and influence between the independent variable and the dependent variable, each variable is defined and measured based on its proxies. The research environment is the real environment (field setting) with the unit of analysis being companies listed on the Indonesia Stock Exchange.

This research was conducted at the Indonesia Stock Exchange from February to June 2020 by downloading financial report data and accessing historical data for 2018 and 2019 online via www.idx.co.id. The type of data contained in this study is secondary data. The data used in this research is cross section data in 2019. Sources of data were obtained through www.stockbit.com, www.idx.co.id and www.finance.yahoo.com.

The population in this study are service companies whose shares are listed on the Indonesia Stock Exchange. The sample in the study was determined using purposive sampling technique. The criteria set in this sampling are

1. Service companies listed on the IDX.
2. Companies that use rupiah denominations.
3. Companies that have complete share price data.
4. Companies that publish complete financial reports for the past 3 years.
5. Companies that have data on additional technology investments in 2019

The variables involved in the study are book to market ratio , accrual quality, intangible assets, firm size and stock returns . Stock return is the dependent variable, while book to market ratio and accrual quality are independent variables and technology investment is a mediating variable. These variables will be described as follows.

1. Book to Market Ratio
   Book to Market Ratio is a comparison between the book value of a company's shares and its market value in the capital market. Market value is the value of equity that is considered by investors (Darusman, 2012). The formula for the book to market ratio is.

$$Book\ to\ Market\ Ratio = \frac{Book\ value\ of\ equity}{Market\ value\ of\ equity}$$

2. Accrual Quality
   Ayuningtyas (2013) explains that accrual quality is a measure of earnings quality developed by Dechow & Dichev (2002). This measure of quality is based on the view that earnings that are closer to cash flow are of better quality earnings. Accrual quality in this study is measured by the accruals-cash flow approach referring to Dechow and Dichev (2002), Francis et al. (2008) and Langgeng et al (2010), which is calculated using the following formula.

$$WCA = \alpha + \beta 1\ CFO_{t-1} + \beta 2\ CFO_t + \beta 3\ CFO_{t+1} + \beta 4\ \Delta REV_t + \beta 5\ PPE_t + e$$

WCA	=	working current accrual,
	=	Δ current assets - Δ current liabilities - Δ cash and cash equivalents,
CFOt-1	=	year t-1 operating cash flow,
CFOt	=	operating cash flow in year t,
CFOt+1	=	year t + 1 operating cash flow,
ΔREV	=	change in revenue

PPE = Property, Plant And Equipment

Each variable of the formula component above is divided by the average total assets of the company. From the regression equation, the residual value is taken. The residual value is then abolished so that the lower the absolute value of the residual, the higher the quality of the accruals (Langgeng et al., 2010).

3. Technology Investment

Measurement of technology investment uses data from financial statements by looking at the addition section and is calculated using the following formula,

$$\text{Technology Investment } /IT\ Spending = \frac{\Delta\ Spending_t}{\text{Total aset}_t}$$

Δ Spending t = The number of additional technology assets in year t

Total assets t = Total assets of the company in year t

4. Stock Return

Total return consists of capital gain (loss) and yield as follows:

Return = Capital gain atau *capital loss + yield*

Capital gain or capital loss is the difference from the current investment price relative to the price of the previous period:

$$\textit{Capital gain atau capital loss} = \frac{P_t - P_{t-1}}{P_{t-1}}$$

If the current investment price (P t) is higher than the investment price in the previous period (P t-1) this means that there is a capital gain , otherwise there is a capital loss. Yield is the percentage of periodic cash receipts against the investment price of a certain period of an investment. For stocks, yield is the dividend percentage against the stock price of the previous period.

RESULTS

Data Description

The object in this study is a service company listed on the Indonesia Stock Exchange. Of the total 443 service companies listed on the IDX, 42 companies were used for the sample. In 42 sample companies, 3 of them are from the property & real estate sector , 4 companies from the infrastructure, utilities & transportation sectors, 18 companies from the financial sector, and 18 companies from the trade, services & investment sector.

The descriptive statistics of research variables provide an overview of the data. In this study, descriptive statistics can be seen from the minimum, maximum, average, and standard deviation values. The sample data processed in this study were 42 companies. Descriptive statistics for all variables can be seen in table 1.

Table 1. Statistik Deskriptif

Variabel	Minimum	Maksimum	Rata-rata	Std. Deviasi
Book to market ratio (X1)	0,1139	4,0724	0,9974	0,705
Accrual quality (X2)	-572,33	568,65	2,9476	230,198
Technology investment (X3)	0,0000	0,0172	0,0024	0,003
stock return (Y)	-0,4328	1,3677	0,1221	0,3990

Sumber : Data Diolah, 2020

Based on table 1, the book to market ratio (X1) variable has a standard deviation value that is smaller than the average value. A standard deviation value that is smaller than the average value indicates that the average value is a good representation of the overall data in the study. The book to market ratio (X1) variable has a minimum value of 0.1139 and a maximum value of 4.0724 with an average value of 0.9974. This shows that the average company used as the research sample has a low book to market ratio .

The accrual quality variable (X2) has a standard deviation value that is greater than the average value. A standard deviation value that is greater than the average value indicates that the average value is a poor representation of the overall data in the study. The accrual quality variable (X2) has a minimum value of -572.33 and a maximum value of 568.65 with an average of 2.9476.

The technology investment variable (X3) has a standard deviation value that is smaller than the average value. The standard deviation value that is smaller than the average value indicates that the average value is a good representation of the overall data in the study. The technology investment variable (X3) has a minimum value of 0.0000 and a maximum value of 0.0172 with an average

value of 0.0024. This shows that the average company used as the research sample has a low technology investment value.

The stock return variable (Y) has a standard deviation value that is greater than the average value. A standard deviation value that is greater than the average value indicates that the average value is a poor representation of the overall data in the study. The stock return variable (Y) has a minimum value of -0.4328 and a maximum value of 1.3677 with an average of 0.1221.

Regression Analysis

The analytical method used to test the hypothesis in this study is to use Moderated Regression Analysis (MRA). This regression analysis was carried out in two stages of testing. The first stage is multiple regression which is carried out without moderating variables. The second stage is regression with moderating variables. The results of multiple regression testing before interacting with the moderating variable can be seen in table 2

Table 2 Regression Test Results Before Interacting with Moderation Variables

Variabel Independen	Koefisien	T	Sig.	
Konstanta	0,312	3,07	0,004	
Book to market ratio (X1)	-0,189	6	0,029	significant
		-2,262		
Accrual Quality (X2)	0,000	-1.910	0,063	Not significant
α = 5% = 0,05				
R square = 0,165				

Source: Processed Data, 2020

Based on the results of the regression test above, a mathematical equation can be drawn up as follows.

$$Y = 0,312 + (-0,189)X1 + (0)X2$$

The regression equation shows that there is no coefficient value for the independent variable is positive. This indicates that the book to market variable is negatively related to the stock return variable and the accrual quality variable has no effect on the stock return variable (seen from the accrual quality variable coefficient of 0). Table 2 also shows that the book to market variable shows a significant effect and the accrual quality variable does not have a significant effect on stock returns. This can be seen from the probability value that is smaller than 0.05, where the probability value for human resource competence is 0.029. As for the accrual quality variable, the probability value is greater than 0.05, namely 0.063. These results indicate that of the 2 independent variables, only 1 variable has a significant effect on the dependent variable.

The coefficient of determination R square in the test results above shows a value of 0.165 or 16.5%. These results indicate that the stock return variable is affected by 16.5% by book to market (X1) and accrual quality (X2). The remaining 83.5% is influenced by other variables outside the independent variables studied in this study

Regression Analysis with Technology Investment Moderation Variables

The results of multiple regression testing after interacting with the moderating variable can be seen in table 3.

Table 3. Regression Test Results with Moderation Variable X3

Variabel	Coef	T	Sig.	Test results
Constant	0,470	3,065	0,004	
Book to market ratio (X1)	-0,242	-2,090	0,044	Significant
Accrual Quality (X2)	0,000	-1,500	0,142	Not Significant
Technology Investment (X3)	-47,580	-1,536	0,133	Not Significant
X1.X3	-0,014	-0,107	0,915	Not Significant
X2.X3	0,030	0,420	0,677	Not Significant
α = 5% = 0,05				
R square = 0,259				

Source: Processed Data, 2020

The coefficient of determination R square in the test results above shows a value of 0.259 or 25.9%. These results indicate that the stock return variable is influenced by 54.3% by book to market (X1), and accrual quality (X2) after interacting with the technology investment variable (X3) . The remaining 74.1% is influenced by other variables outside the independent variables studied in this study.

Based on the results of the regression test after interacting with the technology investment variable (X3) , a mathematical equation can be drawn up as follows:

Y = 0.47 + (- 0.242) X1 - (0) X2 + (-47.58) X3 + (- 0.014) X1.X3 + 0.030X2.X3…….. (2)

From table 3 it can be seen that the technology investment variable (moderation) has a probability value of 0.133 above the standard significance value of 0.05. From this value, it means that the technology investment variable does not have a significant effect on stock returns. Table 3 shows that the interaction of the book to market (X1) variable on stock returns (Y) as moderated by technology investment has a probability value of 0.915 greater than the standard significance value of 0.05. This means that it has no significant effect on stock returns .

The interaction of the accrual quality variable (X2) on stock returns (Y) with moderation by technology investment has a probability value of 0.677 which is greater than the standard significance value of 0.05. This means that there is no significant effect on stock returns. It can be seen from the direct influence and interaction of the book to market (X1) variable with technology investment (X3) on stock returns (Y), technology investment is a potential moderation type or homologous moderator. From the direct influence and interaction of the accrual quality variable (X2) with technology investment (X3) on stock returns (Y), it can be concluded that technology investment is a homologous moderator or potential moderation.

The condition for the support of a research hypothesis is if the influence and / or direction of the variable is in line with what was hypothesized. There are four hypotheses tested consisting of testing the direct effect and interaction effects. The test results using Moderated Regression Analysis (MRA) are as follows.

1. Hypothesis Testing H1 (Book to market ratio has a negative effect on stock returns)

The results of regression test for the relationship between the book to market ratio and stock returns have a probability value of 0.029 (<0.05). This value indicates that the book to market ratio has a significant effect on stock returns .

The coefficient value of the book to market ratio of -0.189 indicates that the direction of the relationship between the book to market ratio and stock returns is negative. The coefficient value which is negative indicates the opposite relationship. This means that the more the value of the book to market ratio that is owned by the company will cause the decline in the value of the company's stock return .

Based on the results of this analysis, it can be concluded that the book to market ratio has a negative effect on stock returns . Thus, hypothesis 1 which states that " Book to market ratio has a negative effect on stock returns" is accepted.

The results of this study are consistent with the asset pricing model introduced by Fama and French (1995), which explains that the book to market ratio factor can explain stock returns. Empirically, the results of this study are supported by Sudiyatno and Irsyad (2011) who found that book to market has a negative effect on stock returns. The same results were obtained from research conducted by Sharma et al. (2019) which shows that the book to market ratio has an influence on stock returns in the Indonesian stock market.

2. Hypothesis Testing H2 (Accrual quality has a positive effect on stock returns)

The result of regression analysis for the relationship between accrual quality and stock returns has a probability value of 0.063 (> 0.05). This value indicates that the relationship between accrual quality and stock returns has no significant effect. Thus, hypothesis 2 which states that "accrual quality has a positive effect on stock returns " is rejected.

The results of this study are not in accordance with the decision utility theory, which states that the quality of accounting information provides useful information for investors and leads to changes in stock equilibrium prices. Empirically, the results of this study are supported by Wijesinghe and Kehelwalatenna (2017) and Zohdi et al. (2011) who found that accrual quality has no significant effect on stock returns.

3. Hypothesis Testing H3 (Technology investment moderates the relationship between book to market ratio and stock returns)

The results of testing the technology investment hypothesis (X3) can moderate the effect of the book to market ratio (X1) on stock returns (Y), namely that there is no significant effect on the interaction between book to market ratio and technology investment with a probability value of 0.915 (> 0, 05). This value indicates that technology investment cannot moderate the book to market ratio to stock returns . Thus, hypothesis 3 which states that "technology investment moderates the relationship between book to market ratio and stock returns" is rejected.

4. Hypothesis Testing H4 (Technology investment moderates the relationship between accrual quality and stock returns)

The results of testing the technology investment hypothesis (X3) can moderate the effect of accrual quality (X2) on stock returns (Y), namely that there is no significant effect on the interaction between book to market ratio and technology investment with a probability value of 0.677 (> 0.05) . This value indicates that technology investment cannot moderate the quality of accruals on stock

returns . Thus, hypothesis 4 which states that "technology investment moderates the relationship between accrual quality and stock returns " is rejected.

Conclusion

Based on the results of hypothesis testing and a discussion of the effect of book to market ratio and accrual quality with moderated technology investment on stock returns, the following conclusions can be drawn:

Book to market ratio has a negative effect on stock returns. This means that the more the value of the book to market ratio that is owned by the company will cause the decline in the value of the company's stock return. This is in line with the assets pricing model introduced by Fama and French (1995), which explains that the book to market ratio factor can explain stock returns.

Accrual quality has no significant effect on stock returns. Based on this, the second hypothesis which states that accrual quality has a positive effect on stock returns is not accepted. This means that the accrual quality owned by the company does not cause the rise and fall of the company's stock return value. The results of this study are inconsistent with the theory of decision utility, which states that the quality of accounting information provides useful information for investors and leads to changes in stock equilibrium prices.

Technological investment does not moderate the relationship between the book to market ratio variable on stock returns. This means that the technology investment does not strengthen or weaken the relationship between the variables of book to market ratio to return stock. The technology investment variable is included as a type of moderator or potential moderator. Technological investment does not moderate the relationship between accrual quality variables on stock returns. This means that technology investment does not strengthen or weaken the relationship between the accrual quality variable on stock returns. this variable can be included as a potential moderation type or homologous moderator.

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