DIJEFA
DINASTI INTERNATIONAL JOURNAL OF ECONOMICS, FINANCE & ACCOUNTING
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THE IMPACT FROM FINANCIAL RATIOS ON ALTMAN Z-SCORES' MODEL TOWARDS STOCKS RETURN (STUDY IN AUTOMOTIVE SUBSECTORS COMPANIES AND ITS COMPONENTS THAT LISTED ON INDONESIA STOCK EXCHANGE)

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ARTICLE INFORMATION
Received: 25th January 2021
Revised: 11st February 2021
Issued: 19th February 2021

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DOI:
https://doi.org/10.38035/dijefa.v1i6

Abstract: This research aims to revealed the affect from financial ratios to Altman Z-score model on stock returns in automotive sub-sector companies and its components that listed on the IDX. The research outcome shows in accordance with panel data regression results the WCTA variable on stock returns had a positive and significant affect, this could be cause of the large number of speculative investors who invest for long term so they could see the WCTA ratio for consideration in assessing the stock returns, the RETA variable on stock returns had a positive and significant affect, this could be cause of investors do not really considering the dividends or profits which distributed to larger shareholders so the investors would see the ratio of RETA when consideration the stock return appraisal, the EBITTA variable on stock returns had a positive and significant affect, this is because some investors see this ratio to revealed the company's ability to earned profits from assets before debt and tax payments because if the EBITTA ratio decrease, the stock return value would also decrease and it does conversely if EBITTA increase, the stock return value would increase. The MVEBTL variable on stock returns had a positive and significant affect because if the MVEBTL ratio decrease, meaning that there has an increase in the company's total debt and this ratio would illustrates the company's ability to fulfill its obligations from its own capital market value (common stock) and certainly this would be the one that would be the attention of investors before evaluating the stock returns.

Keywords: Altman Z-Score, WCTA, RETA, EBITTA, MVEBVTL.

INTRODUCTION

Globalization which occurs today in all aspects of life, especially the economic sector, greatly affects the business world both international and national scope in Indonesia. Indonesian automotive industry has a fairly good development in the automotive world. Indonesia has the second largest car manufacturing industry in Southeast Asia and in ASEAN region after Thailand, because it is highly dependent on foreign direct investment, especially from automotive base countries such as Japan.

The automotive industry sector and other industrial sectors as a whole are very important because this industry provides the largest contribution to the national gross domestic product

(GDP) by 20 percent. This statement is also supported by data issued by GAIKINDO regarding Wholesales, Retail Sales and Production activities which have increased from 2017-2018. However, the development of average stock returns in automotive companies and its components from year to year has fluctuated (unstable). The development of average stock returns per year from 2014 was 0.015, 2015 was 0.06, 2016 was 0.06, 2017 was 1.41, 2018 was 0.24 and 2019 was 0.022.

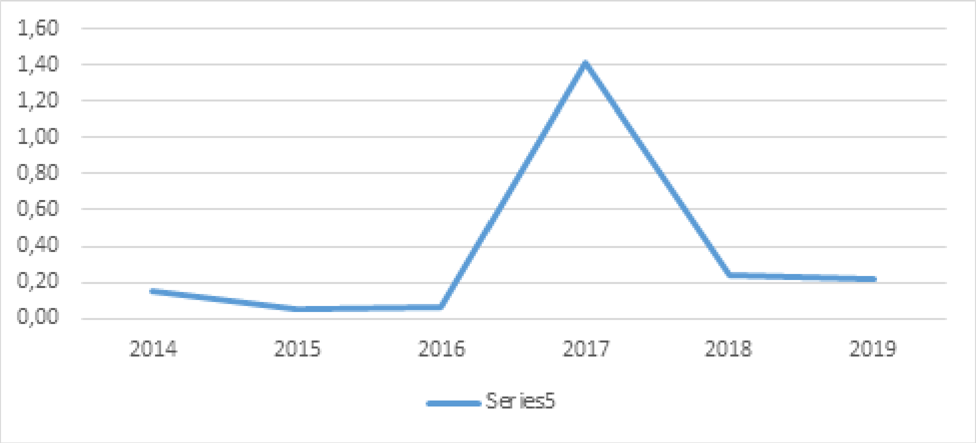

Figure 1. The Development of Stock Returns During 2014-2019

The growth of returns which unstable will certainly make investors do not get what they wanted namely the high rates level of return from the funds spent by investors. Return is one of the factors which motivates the investors to invest and also as a reward to the courage of the investors to take the risk of their investment (Jogiyanto, 2015: 4).

In recent years, automotive companies have be able to maximize their profits. By maximizing the level of profit, the company would be able to provide high returns to shareholders or investors. Stock return is very crucial for a company. It could be used as a measure of the performance of a company, so the company could retain and improve its performance, which has an affect on stock returns, then the invested stock portfolio will continue to increase.

The studies regarding impact of financial ratios which have been done lots such as using liquidity ratios, solvency ratios, profitability ratios, activity ratios and so on but in this research using financial ratios which contained in the Altman Z-Score model with the consideration that investors will analyze the conditions through these ratios before invest their funds as well as to discover whether the ratios contained in the model couod be used by investors as a consideration for investing in company which in the form of shares.

The research conducted by Kristianti (2019) found that the Altman z-score method has no affect on stock returns, while springate has a positive affect on stock returns at Manufacturing companies that listed on the Indonesia Stock Exchange in 2012-2016. Riantani et al.(2020) found that the only Altman Z-score model ratio which had a significant affect on stock returns, namely MVEBVL, while WCTA, RETA, EBITTA, STA had no affect on stock returns. Sukmawati et al (2014) and Purnomo (2014) found that WCTA has no affect on stock returns and it was opposites to research findings from Ardian and Khoiruddin (2014) which found that WCTA has an affect on stock price movements. Handojo (2001) states that Retained Earnings to Total Assets has a positive affect on stock prices, but it was contrary to the research from Riantani et al (2020), Ardian & Khoiruddin (2014), Sukmawati, et al (2014), and Purnomo (2014). Sukmawati et al (2014), Ardian & Khoiruddin (2014) and Purnomo (2014) which found that EBITTA has a significant affect on stock returns. Riantani et al. (2020) showed that the MVEBVL ratio has a positive and significant affect on stock returns which is in line with the findings from (Sukmawati et al, 2014) that the MVEBVL ratio has a significant affect on stock price movements and it was contrary to the research findings from (Ardian & Khoiruddin, 2014; Purnomo, 2014). The results was illustrate that investors should be more attentive to the market value of the company when deciding to invest.

Based on the description from the background which mentioned above, the author is interested to conduct the research by title of: "The impact from Financial Ratios on Altman z-scores' model towards Stocks Return. (Study at Automotive Subsectors Companies and its Components that Listed on Indonesia Stock Exchange)".

The research purpose was to revealed 1) the affect of the ratio from Working capital to total assets (WCTA) to stock returns at automotive sub-sector companies and its components that listed on the Indonesia Stock Exchange, 2) the affect of the ratio of Retained Earning to Total Assets (RETA) on stock returns at automotive sub-sector companies and its components that listed on the Indonesia Stock Exchange 3) the affect from the ratio of Earning Before Interest and Tax to Total Assets (EBITTA) on stock returns at automotive sub-sector companies and its components that listed on the Indonesia Stock Exchange and 4) the affect from Market ratio Value Equity to Book Value of Total Liability (MVEBTL) on stock returns at automotive sub-sector companies and its components that listed on the Indonesia Stock Exchange.

LITERATURE REVIEW

Stock Returns

According to Boediono (2000), stock return is one of the factors which motivates the investors to invest and a reward for the courage of investors to take risks for their investments. Stock return could be defined as the income earned during the investment period per an amount of funds invested in stocks.

Working Capital to Total Assets

The ratio of Working Capital to Total Asset (WCTA) is the ability to earned net working capital from total assets owned or the company's ability to pay off its short-term debts. Working capital to total assets ratio used to regulate the liquidity of the company's assets relative to its total capitalization (Kamaludin, 2011: 57).

Retained Earnings to Total Assets

The ratio of Retained Earnings to Total Assets shows that the company's ability to earned retained earnings from the company's total assets. Thus, retained earnings reported in the balance sheet are not cash and 'not available' for dividend payments or others (Endri, 2009: 42).

Earnings Before Interest and Tax to Total Asset

The ratio of Earning Before Interest and Tax to Total Assets (EBITTA) that is the company's ability to produced profits from company assets before paying interest and taxes or operating profit based on research results, shows that it has a positive affect towards stock returns. EBIT to total assets ratio used to estimate the actual productivity of company assets (Kamaludin, 2011: 57).

Market Value of Book Equity to Book Value of Total Liability

Market Value of Book Equity to Book Value of Total Liability (MVEBTL) is the ratio who shows the company's ability to fulfill its obligations from its own capital market value (common stock), if the MVEBTL value is high it certainly please the investors. According to Kurniawan (2018) comparison of book value of equity with total book value of debt. This ratio used to detect the amount of company equity which comes from the total liabilities owned by the company.

Theoretical Framework and Hypothesis

The research framework that could be written in this research are:

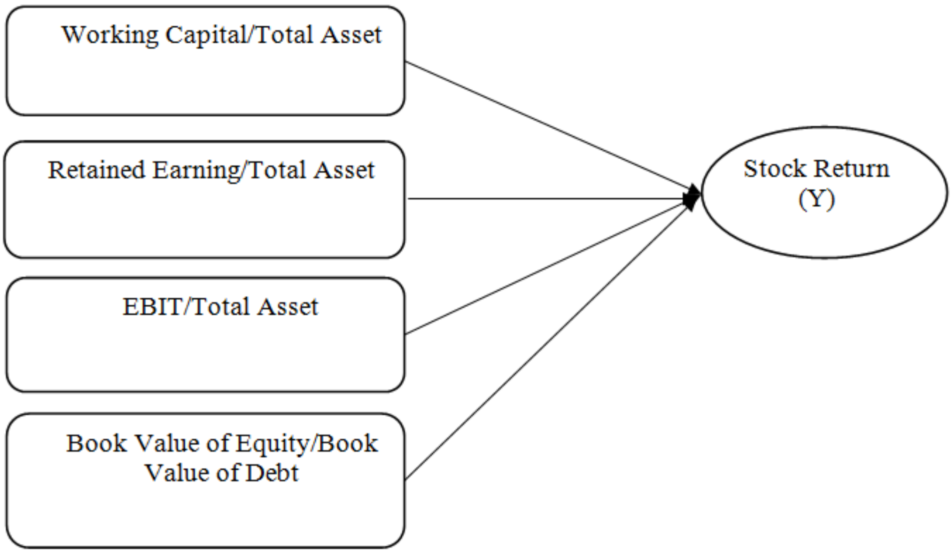

Figure 2. Theoretical Framework

The hypothesis from this research could be served as follows 1) CA WCTA is suspected to had a positive affect on stock returns; 2) RETA is suspected to had a positive affect on stock returns; 3) EBITTA is suspected to had a positive affect on stock returns; 4) MVE / BTL is suspected to had a positive affect on stock returns.

RESEARCH METHODS

This research was included in a type of Causality Research to analyze the affect from the ratios on the Altman Z-Score model on stock returns (case study at the automotive sub-sector companies and its components that listed on the Indonesia Stock Exchange (BEI). The measurement of these variables through:

$$\text{Stock Return} = \frac{Pt - Pt{-}1}{Pt - 1} \quad \text{(1)}$$

$$\text{WCTA} = \frac{\text{Working Capital}}{\text{Total Asset}} \quad \text{(2)}$$

$$\text{RETA} = \frac{\text{Retained Earning}}{\text{Total Asset}} \quad \text{(3)}$$

$$\text{EBITTA} = \frac{\text{EBIT}}{\text{Total Asset}} \quad \text{(4)}$$

$$\text{MVEBTL} = \frac{\text{Book Value of Equity}}{\text{Book Value of Debt}} \quad \text{(5)}$$

The population in this research was the automotive sub-sector companies and its components that are listed on the Indonesia Stock Exchange during period of 2014-2018. The Determination of sampling using purposive sampling method with several criteria, such as the company that has been registered on Indonesia Stock Exchange at least since January 2010, published financial reports in a row during the 2014-2018 and issued stocks prices during the 2014-2018. Through this purposive sampling technique, 12 out of the 13 companies which engaged in the automotive sub-sector and their components were choosen cause it fills the criteria as a sample.

The data collection methof for this research was the documentation method by collecting all secondary data published by the Indonesia Stock Exchange and Yahoo Finance, as well as gathering data from the internet, articles, journals and books which support this research process. The data analysis technique used was a time series and cross-section data, which are included everything in the time series data, such as the research year from 2014 to 2018 which total of 5 years, while the cross-section data came from the 12 automotive sub-sector companies that studied.

FINDINGS AND DISCUSSION

Descriptive Analysis

The average stock return data was 0.08, meaning that during 2014-2018 the value of stock returns for automotive sub-sector companies and its components was 8%. The average value from the X1 variable data was 0.12 or 12%, meaning that the average value of WCTA in automotive sub-sector companies and its components that listed on the Indonesia Stock Exchange in 2014-2018 every 1% of assets would be able to earned an average working capital of 12%. The average RETA variable data was 0.04 or 4%, which means that the average retained earnings resulting from the total assets of the automatic sub-sector companies and its components that listed on the Indonesian Stock Exchange was around 4%. The average value (mean) of 0.05 or 5% means that the average profit from assets before deduction of interest and tax/operating profit during 2014-2018 in automotive sub-sector companies and its components that listed on the Indonesia Stock Exchange was around 5%. The average value (mean) was 0.135 or 13.5% meaning that the average profit from assets before deduction of interest and tax/operating profits during 2014-2018 in automotive sub-sector companies and its components listed on the Indonesia Stock Exchange was 13.5%.

The Selection of Panel Data Regression Model

The selection for the best model has done through the Chow Test, Hausman Test and the Lagrange Multiplier Test. According to the test results by Chow test, it is found that between the common effect and fixed effect, the chi-square cross-section probability value was 0.0000. Then the probability value is smaller than alpha 5% (0.0000 < 0.05) it would statistically rejects the H0 so the correct model to use is the Fixed Effect Model. Based on the Hausman test, it is known that the calculations of chi-square distribution through Eviews 10 was 3101.104 with probability of 0.0000 (less than 0.05), so the correct model use is the Fixed Effect estimation model.

According to the paired test from these three panel data regression models, it could be interpreted that the Fixed Effect model from these panel data regression is the one who used further in this research:

Table 1. The interpreted from Panel regression Model Test

No	Method	Examine	Outcome
1	Chow test	Common effect Vs Fixed Effect	Fixed Effect
2	Hausman test	Fixed Effect VsRandom effect	Fixed Effect

Estimation Model of Panel Data Regression

After selecting the equation model with Chow Test, Hausman Test and Lagrange Multiplier Test, the results from the most suitable equation model for this research are the Fixed Effect equation model. Panel data linear regression equation model which obtained from this research are:

$$Y_{it} = 112.3277 + 15.3857X1_{it} + 214.8287X2_{it} + 1673.872X3_{it} + 1281.10210X4_{it}.$$

F-Test

According to the F- test results, it is illustrated that F-Statistics = 30.22737 > 2.37 (F-tabel) and this F-Statistics has a probability value of 0.000000 < 0.05. Then model used was Eligible to explain those affect from the independent variable on the dependent variable or it can be said that there has a significant impact between independent variables on dependent variable.

Coefficient of Determination

According to the calculation from the coefficient of determination, it is known that the Adjusted R-Squared value was 0.8102373 or 81.02373 %%. This illustrate that 81.02373% of stock returns which can be explained by variations of all independent variables, namely Working capital to total assets (WCTA), Retained Earnings to Total Assets (RETA), Earning Before Interest and Tax to Total Assets (EBITTA), Market Value of Book Equity to Book Value of Total Liability (MVEBTL).

T-Statistical Test

According to the T-test outcomes. Then the following results were obtained such as:

1) The Examination of the Working capital to total assets (WCTA) variable towards the stock returns in automotive subsector companies on the Indonesia Stock Exchange (IDX) during period of 2014 to 2018 has resulted in probability value of 0.0444 smaller than the significance level of 0.05, this shows that the Working capital to variable total assets (WCTA) has a significant affect in sub-sector company stock returns on the Indonesia Stock Exchange (IDX) during period 2014-2018. Then the hypothesis H0 was rejected, which states that Working capital to total assets (WCTA) has no affect on stock returns in automotive subsector companies on the Indonesia Stock Exchange during period of 2014 - 2018.
2) The examination of the Retained Earnings to Total Assets (RETA) variable on stock returns in automotive subsector companies on the Indonesia Stock Exchange (IDX) for the period 2014 to 2018 which earned probability value of 0.0136 which smaller than the significant level of 0.05, this illustrate that the variable of Retained Earnings to Total Assets (RETA) had a significant affect on stock returns in automotive sub-sector companies on the Indonesia Stock Exchange (IDX) during 2014-2018. Then the hypothesis H0 was rejected, which states that Retained Earnings to Total Assets (RETA) has no affect on stock returns in automotive sub-sector companies on the Indonesia Stock Exchange for the period 2014-2018.
3) The exmination of the Earning Before Interest and Tax to Total Assets (EBITTA) on the stock price of automotive subsector companies which registered on the Indonesia Stock Exchange (IDX) for period of 2014 to 2018 that earned a probability value was 0.0001 which smaller than the significance level of 0.05, this illustrate if these variable of Earning Before Interest and Tax to Total Assets (EBITTA) had a positive affect on stock returns in automotive subsector companies which registered on the Indonesia Stock Exchange (IDX) during period of 2014-2018. Then the hypothesis Ha was accepted which states that Earning Before Interest and Tax to Total Assets (EBITTA) has a positive effect on stock returns of automotive subsector companies on the Indonesia Stock Exchange for the period 2014-2018.
4) The examination ot the Market Value of Book Equity to Book Value of Total Liability (MVEBTL) variable on stock returns in automotive sub-sector companies on the Indonesia Stock Exchange (IDX) for the period 2014 to 2018 which earned probability value of 0.0213 that smaller than the significant level of 0.05, this shows that the Market Value of Book Equity to Book Value of Total Liability (MVEBTL) variable had a positive affect on stock returns in automotive sub-sector companies on the Indonesia Stock Exchange (IDX) for periode of the 2014-2018. Then the Ha hypothesis was accepted which states that the Market Value of Book Equity to Book Value of Total Liability (MVEBTL) had a positive affect on the stock returns in automotive subsector companies on the Indonesia Stock Exchange during period of 2014-2018.

Discussion

Based on the descriptive research data regarding the ratio of WCTA values during 2014-2018, automotive sub-sector companies and its components had a fluctuating WCTA value from year to year. The fluctuating WCTA value during 2014-2018 was followed by the fluctuating stock return value in the same period, namely 2014-2018. This could be a consideration for investors in making decisions, because if the WCTA gets lower, then the company's ability to generate profits and liquidity will decreases aswell. Based on the concept of signaling theory, it could be predicted that WCTA is a variable that could give a signal to investors about the certainty at automotive company and its components, if the WCTA ratio is good, then it is a good signal to buy it stocks for investors because it would provide high stock returns. The Companies which capable to generate the net working capital from all total assets would be able to requires those investors' expectations of high stock returns (Noviarti, 2017). According to the panel data regression results from WCTA variable on stock returns, it could be interpreted that it has a positive and significant affect, this might be cause of the large number of speculative investors who invest for long term so they would consider the WCTA ratio in assessing stock returns. This is in accordance with the previous hypothesis statement and was supported by research from Ardian & Khoiruddin (2014), but it was opposite to the research results from (Riantani et al. 2020, Sukmawati, et al, 2014; Purnomo, 2014).

According to the research results, it could be view that during 2014-2018 the automotive sub-sector companies and its components had a fluctuating RETA value from year to year. This fluctuating RETA value during 2014-2018 was also followed by the fluctuating stock return value in the same period, namely 2014 to 2018. This linear value will surely become an investors deliberation in making decisions, because if the retained earnings balance decreases then the company should add another source of capital to meet the operational needs of the company and it is likely that it will cause capital costs. It will certainly reduce the value of stock returns so the investors will refrain from buying these stocks because it could be signed that the stock return value would be low and conversely. Based on the panel data regression results from the RETA variable on stock returns it could be concluded that it has a positive and significant affect, this might be cause of investors do not really recognize the dividends or profits distributed to larger shareholders so the investors would see the ratio of Retained Earnings to Total Assets (RETA) as consideration on stock return appraisal. This is in accordance with previous hypothesis statement and was supported by the research results from Handojo (2001).

According to the research results, it shows that EBITTA has a positive affect on stock returns. This is in accordance with Noviarti's research which defined if the EBITTA ratio decreases, then the net profit would have the potential to decrease aswell, that will make investors' less interest to the company's stocks and resulting in decreases of stocks demand from its company so the stock price would potential to fall (Noviarti, 2017). With a decline in stock prices, stock returns would be low. from the theory of signaling (Signaling Theory) where in this case, financial statements could be interpreted as good news or bad news and this signal is useful for investors in making decisions whether the stock has a high stock return value or not. Before making this decision, investors might see the EBITTA ratio of the automotive sub-sector company and its components whether there is a good signal in its affect on stock returns. Based on these research results, the descriptive explanation which could be seen during 2014-2018 that the automotive sub-sector companies and its components had EBITTA values that fluctuated from year to year. These fluctuating EBITTA value during 2014-2018 was followed by stock returns during 2014-2018 were also experienced fluctuated, of course this could be a reasons for investors in making decisions, because if EBITTA decreases, net profit were also has the potential to decrease. This will make the demand for these stocks decrease so the stock return has the potential to decrease. Based on these research results if the EBITTA value increases, the stock return value would be high and if the EBITTA value decreases, the stock return value would be low and these results are in line with the research from Sukmawati et al (2014) which stated that the EBITTA ratio has a positive affect on stock prices.

The results showed that there has a positive affect between the ratio of Market Value of Book Equity to Book Value of Total Liability (MVEBTL). If the value of the MVEBVL Ratio increases, it means that the stock market value would increases aswell or there has a decrease in the company's total debt. The decrease in the company's total debt would make the interest expense decrease so the potential profit obtained would be high and stock return value will also high. According to Noviarti, it will increase the investor interest in company's stocks, then demand for company stocks will also increases and then the value of company stock returns will increases(Noviarti, 2017). Based on these descriptive explanation, it can be seen that during 2014-2018 the automotive sub-sector companies and its components had fluctuated MVEBTL values from year to year. These MVEBTL fluctuating during 2014-2018 was followed by fluctuated in stock returns, surely the investors would notice about it when making decisions, because if MVEBTL goes down, meaning that the stock return value will decreases or there is an increase in the company's total debt. According to the panel data regression results from the MVEBTL variable on stock returns, it could be interpreted that it has a positive and significant affect, this because the investors will recognize this ratio as a decision-making tool, when the MVEBTL ratio increases, it means that there has a decrease in the company's total debt and this ratio would describes the company's ability to fulfill its obligations from its own capital market value (common stock). That would be the one that investors will consider before making an investment decision. According to the panel data regression from the MVEBTL variable on stock returns, it could be interpreted that it has a positive and significant affect, this might be cause the investors will notice this ratio as a decision-making tool, if the MVE / BTL ratio decreases, meaning that there has an increase in the company's total debt. This ratio is explain about the company's ability to meet its obligations from the market value of its own capital (common stock). Of course this could be one that recognize by the investors before assessing the stock returns. This result was supported by research from (Sukmawati et al. 2014, and Riantani et al. 2020).

CONCLUSION AND SUGGESTION

Conclusion

1) From the results of panel data regression on WCTA variable towards stock returns, it can be concluded that it has a positive and significant affect, this might be cause of the large

number of speculative investors who will invest for long term so they would notice the WCTA ratio as consideration when assessing the stock returns.

2) From the results of panel data regression on RETA variable towards stock returns it can be concluded that it has a positive and significant affect, this might be cause of investors do not really notice the dividends or profits distributed to larger shareholders so the investors will see the ratio from Retained Earnings to Total Assets (RETA) as consideration in stock return assessment.
3) From the results of panel data regression on EBITTA variable towards stock returns, it could be concluded that it has a positive and significant affect, this might be cause of some investors sees this ratio to determine the company's ability to earned profit from assets before debt and tax payments because if the EBITTA ratio decreases, the stock return value will also decrease and conversely, if EBITTA increases then the value of stock returns will increase aswell.
4) From the results of panel data regression on MVEBTL variable towards stock returns, it could be concluded that it has a positive and significant affect, this might be cause of investors will recognize this ratio as a decision-making tool, because if the MVEBTL ratio decreases, will have the meaning that there has an increase in the company's total debt and this ratio would explain the company's ability to meet its obligations from the market value of its own capital (common stock). Surely this will be the one who take investors' mind before assessing the stock returns.

Suggestion

1) For Companies
   As an input to the managers of the automotive sub company that they should be able to notice earlier the potential financial distresses that will occur, so they would immediately improve the company condition
2) For Investors
   As an advise for investors in automotive sub-companies to carry out financial distress analysis in order to gain knowledge about the condition of the company, so they would make the right decisions, especially on the ratio of Earning Before Interest and Tax to Total Assets (EBITTA) because this ratio has the greatest affect on stock returns.
3) For Regulators
   As an input to regulators that the supervision of the audit committee in every public company should be done more strictly and firmly.
4) For Researchers
   As for future researchers, the authors advise considering the limitations of researchers with measuring stock returns using the stock price at the end of the year and the closing price of the previous year, so for further research, we can use monthly, weekly or daily closing prices to develop the research variables by adding one or more variables from financial ratios which has an impact towards stock returns.

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