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**Effect of Profitability, Liquidity and Solvability on Stock Return Through Moderation of Exchange Rate**

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**Abstract**

The objective of this research is to analyze the effect of profitability, liquidity and solvability on stock return with exchange rate as moderation variable. Research population is 23 food & beverage companies listed at the Indonesia Stock Exchange on the period 2016-2019. The type of the data was secondary data acquired from the annual financial statements displayed on the websites of Indonesia Stock Exchange and Bank of Indonesia. Sample was obtained with saturated sampling technique or usually known as census. Data analysis techniques were multiple regression analysis applied on panel data and also Moderated Regression Analysis (MRA). Result of research showed that return on assets, Current Ratio, and debt to equity ratio had positive and significant effect on stock return. Exchange rate moderated the relationship of profitability on stock return. Exchange rate did not moderate the relationship of liquidity and solvability on stock return.

**Keywords:** Profitability, Liquidity, Solvability, Stock Return, Exchange Rate

**1. Introduction**

Investment is basically an activity to invest a capital into an asset or several assets by expectation to procure earnings in the future. The usual form of earnings that the investors want to get from their investment is capital gain and dividend yield. Investment is also defined as an activity to postpone the current consumption to be kept as productive asset for a certain period by expectation to increase its total utility (Jogiyanto, 2016).

Before making investment, investors must ensure that their investment will produce the rate of return as expected. Therefore, investors feel necessary to get information about the performance of the company where their capital is invested. What the company must do then is minimizing the investors' risk of loss to keep them feel secure and thus continually put their investment in the company. The feeling of secure is maintained by the company by giving information to the investors in a clear, precise and timely manner to make them strongly convinced on their decision of investing in the company (Daniaty, 2006).

One investment way usually chosen by investors is putting their capital into one asset or several assets in the capital market by expectation to get earnings from this action. The expected earnings is called return. Indonesia Stock Exchange (BEI) is a place where the investors meet the stock issuers to do investment-related activities. For investors, the BEI is a place for making

investment whereas for the companies listed at the BEI, this is a place that provides various sources of fundings. The investors need to plan their investment effectively if the expectation goes straight to the outcomes of investment. The investors must know that the risk rate and the return rate of the transaction shall be in balance. When the return is expected to be high, then the risk to get this return is also high (Jogiyanto, 2016).

Muklis (2016) said that Indonesia capital market is a developing market. This position makes Indonesia capital market quite vulnerable to all changes in the domestic macroeconomic conditions and the global economic situations, including the fluctuation of worldwide capital markets. Investors can assess corporate performance using fundamental analysis approach. The instrument for assessment is financial ratio. According to Sutriani (2014), financial ratio analysis will track the history of financial and economic conditions of the company in the past. The benefit of financial ratio is that this ratio can be used to predict corporate performance in the future. Altman (1968) stated that profitability, liquidity, and solvability are three financial ratios that are often used to forecast the bankruptcy, to estimate corporate viability, and also helpful to the investors in determining capital investment.

Financial ratio analysis enables the investors to analyze any change in stock price and then use the result as the information base to make their investment decision (Murhadi, 2012). Other benefit of financial ratio analysis is that the financial ratio allows the investors to compare the numbers in a financial statement in a relative way to avoid a wrong interpretation over these numbers. There are three financial ratios often perceived as influencing stock return, which respectively are profitability, liquidity, and solvability.

Besides profitability, liquidity and solvability that constitute financial ratios, there is another factor with the effect on stock return, namely macroeconomic conditions in a country. This factor is external to the company but with great effect on the performance of the company. One of macroeconomic conditions that is often examined in the studies is exchange rate. The exchange rate of a currency is a result of interaction between supply and demand in a foreign currency market (Khalwaty, 2000). The determination of rupiah exchange rate may affect not only the cost incurred by the company but also the income received by the company from the transaction of stocks and saleable securities in the capital market.

Under certain circumstances, the exchange rate may fluctuate uncertainly. This situation undermines the trust of foreign investors to Indonesian companies and harms stock traders in Indonesia capital markets. Facing the great probability of loss, the foreign investors tend to release their share in the company, which causes the price of the corporate shares to be corrected and also implicates to the decrease of the expected return from those shares.

Besides being examined as a variable influencing stock return, exchange rate is also used as a moderation variable that strengthens or weakens the effect of profitability, liquidity and solvability on stock return. Rupiah exchange rate is quite fluctuating with sometimes stronger on certain days and weaker in later days. This fluctuation inflicts financial loss to many companies including those in food & beverage business because their products are often manufactured with imported raw materials but only sold in local market. Bank loans in foreign currency may

increase the financial burdens of the companies, especially when the principal and interest rate of the loans are affected by the fluctuation of exchange rate. The dilution of rupiah exchange rate automatically scales up the non-rupiah loans over the rupiah rate.

Taking the explanations above into consideration, the economic exposure experienced by the manufacturing companies in the food & beverage sector is investigated by this research. The reason why the food & beverage companies are chosen is that the companies often do export and import activities which implicate to the use of foreign currency in their transactions. The food & beverage industry is one of the leading manufacture sectors with a great contribution to the national economic growth. The achievement of performance is consistently positive, especially in product export. According to the Ministry of Industrial Affairs (2019), the food & beverage industry had grown by 7.91 percents in 2018 and this growth had exceeded the national economic growth level by 5.17 percents. Meanwhile, Nurcaya (2020) reported that the food & beverage industry had become the greatest foreign currency contributor to the total export value of the processing industry from January to February 2020, which had attained USD \$4.7 billions. This report informs that the food & beverage products manufactured by Indonesian companies have been popular and recognized as competitive in global markets.

However, many findings from previous studies regarding the effect of profitability, liquidity and solvability on stock return are not yet consistent. This inconsistency becomes the background of why the current research is conducted. One of the differences between this research and the previous studies is that this research is focused on the companies in the food & beverage sector. Other difference is that this research uses the period 2016-2019. The current research is analyzing the impact of the change in exchange rate on corporate performance and then uses this exchange rate as the moderator in the relationship of profitability, liquidity and solvability on stock return. This research is expected to give information about whether the exchange rate can moderate the effect of profitability, liquidity and solvability on stock return in the food & beverage companies listed at the Indonesia Stock Exchange on the period 2016-2019.

### *1.1. Review of Literatures*

#### *1.2.1 Signaling Theory*

Signaling theory was firstly introduced by Spence (1973), who said that signaling is an activity related with information delivery in which the sender (the owner of information) extends several pieces of relevant information to the receiver (the user of information). After receiving the information, the receiver will adjust their behavior and understandings to the information. This theory was then developed by Ross (1977), who explained that the executives of a company usually hold better information about the company and feel necessary to deliver this information to the investors.

Referring to Brigham & Houston (2001), signaling is a corporate behavior when the management decides to give a signal to the investors regarding the managerial perspective about the prospect of the company in the future. The signal can be in the form of information indicating what the management has done to realize the interest of the owners or that the company is better than other company. All this information are written in the financial statements and processed in the

financial analysis to produce a signal that the company has a good prospect in the future, which then convinces the investors and the potential investors to make investment.

In respect to this matter, signaling theory emphasizes on the importance of information released by the company to the investment decision made by the entities outside the company. Pursuant to Wolk, et al., (2004), a motivation behind the company to deliver information to the outsiders is that there is always information asymmetry between manager and outsider. The company can increase its corporate value by minimizing this information asymmetry. One way to minimize this information asymmetry is by giving a signal to the outsider in the form of a positive trustfully information that later reduces uncertainty regarding the future prospect of the company and also increases the credibility and the success probability of the company.

### 1.2.2 Arbitrage Pricing Theory (APT)

Arbitrage Pricing Theory (APT) elucidates that the return of a saleable security is not only affected by market risk but also other risk (Tandelilin, 2017). This other risk is usually associated with macroeconomic conditions such as exchange rate, interest rate and inflation rate. The APT also describes the connection between risk and return. The risk refers to the economic conditions in general, or precisely anything out of the corporate attributes.

The APT described that two investment opportunities (saleable securities) with the same characteristics may not be sold in different prices. The theory assumes that the earning rate from the saleable securities is often affected by many factors related with economic and industrial conditions. Moreover, the same factors also influence the correlation of two earning rates from two saleable securities (Husnan, 2001). In accordance with this position, the APT is like stimulating the conduct of some researches on variables or factors that influence the variance of saleable securities. These variables include corporate fundamental performance, market-based stock performance, market conditions, and economic conditions.

### 1.2.3 Financial Ratio

As reported by Ulupui (2007), before making the investment decision, the investors analyze as many as possible information that describe the performance of a company. One of such information is about financial performance. This information can be obtained by examining the financial statements of the company. Besides, the financial statements always offer information that accurately illustrate the condition of the company. Asnawi (2017) mentioned that the information in financial statements are often presented in more standard measures, precisely in the form of financial ratio. In the current research, three financial ratios are used to measure the performance of the company, namely profitability, liquidity and solvability.

#### a. Profitability

As explained by Mulyana (2018), profit (earning) is the success indicator of a company. The term “profitable” is associated with good performance. High profitability indicates that the company has capability to cover several or all of its operational burdens. A profitable company has attractive appeal on the eyes of the investors. The other name of profitability is

rentability, which refers to the ability of the company to produce profit comprehensively by converting sale to profit and cash flow (Husnan, 1997).

In other words, profitability as financial ratio measures how effective and efficient the company is in producing profit after using all its resources/assets. Kasmir (2008) defined profitability as financial ratio that measures the performance of a company in producing profit and also that gives a description about the effectiveness of this company in achieving profit. As stated in Sirait (2017), there are ratios that can be used to measure the profitability of a company. These ratios are Gross Profit Margin (GPM), Net Profit Margin (NPM), Return on Assets (ROA) and Return on Equity (ROE).

**b. Liquidity**

Liquidity is an ability of a company to fulfill all of its current liabilities (short-term liabilities) (Asnawi, 2017). If the company is able to pay off its liabilities, this company is called liquid. On the contrary, if the company is unable to pay off its short-term liabilities, this company is called illiquid. The information about liquidity and illiquidity are very important to the entities that act as the lender of short-term loans to the company. According to Sirait (2017), the liquidity of a company is measured by several ratios such as Current Ratio (CR), Quick Ratio (QR) and Cash Ratio.

**c. Solvability**

The other name of solvability is leverage or solvency. Solvability refers to a financial stability that a company has over all of its debts. Conforming to this position, solvability indicates the capacity of the company in using its capital and also in operating its work to pay off all of its debts. Solvability is often used to measure whether a company is solvable or insolvable over the debts. The solvable company is a warranty for the investors that their investment in the company is safe and promising. As said by Sirait (2017), the ratios used to measure solvability are Debt Ratio and Debt to Equity Ratio.

**1.2.4 Stock Return**

Stock is one of instruments used in the capital market. The other name of stock is share which represents a token of capital participation in a company. The company that offers capital participation is usually in the status of limited corporation. By holding shares in a company, the holders, or the investors, expect for benefits. The expected benefits are often in the form of yield, capital gain and non-financial benefit. Before buying the shares, the investors will examine the prospect of the company. If the prospect is good, the investors will buy the shares. This buying activity raises the share price. Despite this raise, the income from share investment is fluctuating due to market mechanism. There are two categories of share (stocks) traded in the exchange, namely common stock and preferred stock. The difference of both stocks is on the dividend paid to the shareholders and the vote right given to the shareholders. The dividend of the preferred stock is paid earlier than the dividend of the common stock. The dividend produced by the preferred stock is different in amount from that delivered by the common stock. Concerning the vote right, the holding of the common stock produces vote right whereas the preferred stock does

not give vote right. The investors usually use their vote right to influence the policy making in the company.

Return is the outcome obtained from an investment made by the investors to be enjoyed (used) by them (Jogiyanto, 2016). However, the investors must know that their investment is not always profitable because sometimes, there is a loss too. The ability of the investors to predict the change of the stock price has great effect on their profitability and also their disadvantage.

There are two types of return, namely realized return and expected return. First of all, realized return is a return that is counted based on historical data and used to measure corporate performance (Jogiyanto, 2016). Such historical return can be used as an information base to estimate the expected return and the future risk. Next, the expected return is a return that is not yet received but expected to be received in the future, which therefore the nature of this return is not certain (Jogiyanto, 2016). An investor always faces high uncertainty between the expected return and the incurred risk. If the expected return is high, then the risk that must be borne by the investors is also high. Contrariwise, if the expected return is low, then the risk is also low. By this position, the relationship between return and risk is said to be positive.

Stock return is made up from two components, respectively yield and capital gain/capital loss. First of all, yield is a profit in the form of cash to be extended by the company to the shareholders. The more popular name for yield is dividend. Meanwhile, capital gain/capital loss is an increase or a decrease of investment value from the day when the stock is bought to the day when the stock is put for resale. The amount of capital gain/capital loss can be ensured by counting the historical return received in the previous period. This counting allows the investors not only to estimate the trend of stock return in a company but also to predict the expected rate of return. The expected stock return can be counted from the total return on investment (total return) in a certain period.

#### 1.2.5 Exchange Rate

Exchange rate (foreign exchange rate) is defined as the price of currency in a country which is valued by the currency of other country (Kuncoro, 2017). The other definition considers exchange rate as the result of interaction between supply and demand in the foreign currency market (Khalwaty, 2000). The position of exchange rate fluctuates everyday. This fluctuation is caused by the rise and decline of the supply and demand for one currency over another. In other words, if the price of a currency is more expensive than other currency, then the former currency is experiencing appreciation. Oppositely, if a currency is becoming cheaper than other currency, then the former currency is undergoing depreciation. The fluctuation of a currency can affect the companies that have buyer, supplier, or subsidiary in other country because the exchange rate of this currency may impact cash inflow from the export to other country and also cash outflow for the import from other country.

Several factors are influencing the exchange rate both in short-term and long-term. Pursuant to Puspoprano (2004), the short-term factors include interest rate, capital flow and return. The long-term factors are relative price behavior, preference, product development, productivity behavior, tariff and quota.

## *1.2. Hypotheses*

### *1.2.1. Relationship of Profitability on Stock Return*

As already explained in the previous section, profitability is the ability of a company (how effective and efficient the company is) in producing profit by using the available assets. High profitability is associated with good performance. If a company has good performance, then the probability of this company to be profitable is high. This position is in line with signaling theory which explains that if a company is successfully producing higher net earning in the current period than before and is able to dispense dividend, then this company is said as having better profitability in the future (Bhattacharya, 1979).

Besides, signaling theory also requires the company manager to give a signal to the market by presenting financial statements that will inform the markets about corporate profitability. The market usually responds this information as a signal that is later considered as either good news or bad news. This signal will influence stock market, especially return on investment of the company. If the signal indicates good news, the stock return will increase. Conversely, if the signal is perceived as bad news, the stock return will decrease (Jogiyanto, 2016).

In the context of the current research, Return on Assets (ROA) is used to measure profitability. The high ROA is associated with good corporate performance and more dividends received by the investors (Sutriani, 2014). On the word of Hanafi (2004), a policy to pay stock return in the form of dividend is greatly influenced by corporate profitability. The dividend given to the investors derive from the profit. Therefore, when the ROA is high, then the price or the return of the stocks held by the investors is increasing. This position corresponds to the perspective of signaling theory. If the dividend paid in the current period is higher than that in previous period, this situation is like informing that the profitability is higher. This high profitability is a good signal regarding the company prospect in the future (good news) which will engender positive reaction on the stock price. On the contrary, the decrease in dividend payment is a bad signal concerning the company prospect in the future (bad news) which may cause negative reaction on the stock price (Gumanti, 2013).

In relation to the explanations above, the effect of ROA on stock return is said to be significant. This position is consistent with the finding of Ulupui (2007) which pronounced that profitability (measured by ROA) has positive and significant effect on stock return. This finding is supported by Sutriani (2014), Erari (2014), Prasetyo (2017), Nurunnisak, Dhiana & Putri (2018), Lutfianah (2018), and Pramadhani (2019). By this elaboration, the first hypothesis is proposed as follows:

H<sub>1</sub>: Profitability has positive and significant effect on stock return.

### *1.2.2. Relationship of Liquidity on Stock Return*

Liquidity is a description about the capability of the company in paying off the current debts (short-term debts) using its current assets. Liquidity is also an important factor that must be attended before making decision to determine the expected stock return. In this research, liquidity is measured by current ratio, which is a ratio of current assets to current (short-term) liabilities (Helfert, 1991). In keeping with Erari (2014), current ratio is good for the investors when the company is paying off all of its current liabilities using its current assets. This position confirms that if the capability of the company to pay off its short-term liabilities is high, then the return received by the investor is also high.

Signaling theory explicates that high liquidity gives a signal to the market that there is a plenty of cash waiting to be used (Robinson & Sensoy, 2011). Liquidity is a representation of the capability of the company to pay off its short-term liabilities. Therefore, the better liquidity leads to the higher operational value. According to Endri (2018), if a company has good liquidity, then this company can get a loan with low interest rate. In other words, any company with good liquidity are easy to get a low interest credit because there is a trust over investment warranty between the creditor and the company. In this matter, current ratio has significant effect on stock return. This position is in conformity with the findings of Ulupui (2007), Farida & Camela (2018) and Pramadhani (2019) which stated that liquidity has positive and significant effect on stock return. Based on this elaboration, the second hypothesis is written as follows:

H<sub>2</sub>: Liquidity has positive and significant effect on stock return.

### 1.2.3. Relationship of Solvability on Stock Return

As previously stated, solvability is the capability of the company in fulfilling its financial liabilities (Husnan, 1997). Solvability talks about the efficiency done by the company in anticipating all debts using all available equities. In this research, the measurement of solvability is using Debt to Equity Ratio (DER). Concerning with this matter, signaling theory affirms that the use of debts is like giving a signal from the manager to the market that the company is trustworthy (credible). The company that increases its debt capacity is considered as an optimistic company with a good prospect in the future. Good debt management and reasonable debt ratio enable the company to indicate that its debts represent a positive signal (Ross, 1997).

Furthermore, the DER denotes the capability of the company in fulfilling all of its financial liabilities using its equities in the case of liquidation. This position signifies that the DER is related to the capital structure of the company. Under the perspective of signaling theory, the high-quality company will use its capital structure to distinguish itself from the low-quality company. The investors are expected to have an ability to differentiate fast the good company from the less good company based on the capital structure (Gumanti, 2013).

Pursuant to Erari (2014), every company must set its capital structure target on a balance position between marginal cost and marginal benefit by using a debt-based funding. If the debt ratio is high, then the risk incurred by the investors is also high. Moreover, this situation may lead the rate of return to decline which can potentially reduce stock return. Conforming to this position, solvability has significant effect on stock return. This position is in accordance with the findings given by Sutriani (2014), Jannah (2016), and Lutfianah (2018) which showed that solvability has positive and significant effect on stock return. Following this elaboration, the third hypothesis is pronounced as follows:

H<sub>3</sub>: Solvability has positive and significant effect on stock return.

### 1.2.4. Moderation of Exchange Rate in Relationship of Profitability on Stock Return

Exchange rate is the price of a currency in a country after being exchanged with other currency from other country (Puspoprano, 2004). The change of exchange rate impacts the company by changing the future cash flow that must be received and also increasing the debt structure of the company. In this situation, high debt ratio causes high default risk. The change of exchange rate



affects the profit and the loss of the company. The ratio of profit to loss can affect the interest of the investors to buy or invest their capital, which later influence the rate of return that must be received. This position is in line with Arbitrage Pricing Theory (APT) which states that the return of a saleable security is not only affected by market risk but also by macroeconomic conditions (Tandelilin, 2017).

In consonance with the elaboration above, exchange rate is said as influencing stock return. This position is confirmed by Sudarsono & Sudiyatno (2016), Dirga et al. (2016), and Farida & Camela (2018) through their findings, which revealed that exchange rate has positive and significant effect on stock return. Moreover, exchange rate also affects financial performance. In the context of the current research, exchange rate is used as moderation variable. Precisely, exchange rate is used to moderate the effect of profitability on stock return. The studies carried out by Santosa (2019) and Nurunnisak, Dhiana & Putri (2018) discovered that exchange rate is able to moderate the effect of profitability on stock return.

The upsurge of exchange rate has instead strengthened the positive effect of profitability on stock return. This position is in conformity with the findings given by Nurunnisak, Dhiana & Putri (2018) and Santosa (2019), which said that exchange rate is able to moderate the effect of profitability on stock return. Oppositely, Pramadani (2019) found that exchange rate is able to moderate the effect of return on assets and current ratio on return on investment but unable to moderate the effect of debt to equity ratio on stock return. By this elaboration, the fourth hypothesis is proposed as follows:

H<sub>4</sub>: Exchange rate moderates the effect of profitability on stock return.

#### 1.2.5. Moderation of Exchange Rate in Relationship of Liquidity on Stock Return

Exchange rate is a vital thing to any country. In the context of foreign trade, the production cost of the exported and imported commodities is greatly affected by exchange rate. When rupiah currency gets depreciated, this situation signifies that rupiah currency is weakening against the currency of other country. For example, one dollar equals to several rupiahs. Any company that have liabilities in foreign currency are always writing these liabilities in greater numbers on their financial statements.

The investigation over the effect of exchange rate on financial performance has been done by Hasibuan (2014) who used Return on Assets (ROA) to measure the effect of exchange rate on financial performance. Exchange rate is used by the current research as moderation variable. Precisely, exchange rate is used to moderate the effect of liquidity on stock return. The studies conducted by Nurunnisak, Dhiana & Putri (2018) and Santosa (2019) found that exchange rate is able to moderate the effect of liquidity on stock return. Inversely, Sutriani (2014) uncovered that exchange rate cannot moderate the effect of liquidity on stock return. Based on this elaboration, the fifth hypothesis is written as follows:

H<sub>5</sub>: Exchange rate moderates the effect of liquidity on stock return.

#### 1.2.6. Moderation of Exchange Rate in Relationship of Solvability on Stock Return

Arbitrage Pricing Theory (APT) has been used by several previous studies as a theoretical base to analyze the effect of exchange rate on stock return. Gonsel & Sadik (2007) had examined the

validity of APT model at the London Stock Exchange using seven macroeconomic factors during the period 1980-1993. The study found a significant relationship between macroeconomic factors and earning per share. In addition, Mohseni (2007) examined APT model at the Teheran Stock Exchange and discovered that the APT model is able to explain the contribution of stock return in the sample companies through two macroeconomic factors, respectively oil price and money supply.

The current research is using exchange rate as moderation variable, which is precisely to moderate the effect of solvability on stock return. The studies performed by Nurunnisak, Dhiana & Putri (2018) and Santosa (2019) found that exchange rate is able to moderate the effect of solvability on stock return. The studies committed by Pramadani (2019) and Ramdhan, Indrajaya & Hakim (2019) disclosed that exchange rate does not moderate the relationship between DER (solvability) and stock return. Following the elaboration above, the sixth hypothesis is expressed as follows:

H<sub>6</sub>: Exchange rate moderates the effect of solvability on stock return.

## **2. Method**

The current research is in quantitative typology because the data are historical and in numbers (Sugiyono, 2012). The source of data derives from the annual financial statements prepared by the food & beverage companies listed at the Indonesia Stock Exchange. These financial statements are collected from the website of each sample company, the website of Indonesia Stock Exchange (BEI) for the period 2016-2019, and the website of Bank Indonesia.

### *2.1 Variable of Research*

#### 2.1.1 Independent Variable (X)

##### a. Profitability (X<sub>1</sub>)

Profitability is focused on how effective the company is in using its assets, either total assets or net assets, to deliver net earnings (profits). Profitability is measured in this research by return on assets (ROA). The formula to calculate profitability is based on a model developed by Brigham & Houston (2001), which is written as follows:

$$ROA = \frac{\text{Post-Tax Earnings}}{\text{Total Assets}} \quad (1)$$

##### b. Liquidity (X<sub>2</sub>)

Liquidity is a level of protection given by the company to the lenders that give short-term credits to the company to finance its operation. The measurement of liquidity in this research is using Current Ratio (CR). The formula to count liquidity is based on a model developed by Helfert (1991), which is determined as follows:

$$\text{Current Ratio} = \frac{\text{Current Assets}}{\text{Current Liabilities}} \quad (2)$$

##### c. Solvability (X<sub>3</sub>)

Solvability (X<sub>3</sub>) is a ratio regarding how capable the company is in fulfilling its financial liabilities (Husnan, 1997). The current research measures solvability using debt to equity ratio (DER). The solvability is calculated using a formula designed by Helfert (1991), which

is stated as follows:

$$\text{DER} = \frac{\text{Total Debts}}{\text{Equity}} \quad (3)$$

### 2.1.2 Dependent Variable (Y)

The dependent variable of this research is stock return. In this context, return is the outcome obtained from the investment of funds which is ready to be used or enjoyed by the investors (Jogiyanto, 2016). According to Jogiyanto (2016), the calculation of stock return is formulated as follows:

$$R_t = \frac{P_t - P_{(t-1)}}{P_{(t-1)}} \quad (4)$$

$R_t$  = Stock Return

$P_t$  = Current Price of Stock

$P_{(t-1)}$  = Previous Price of Stock

### 3.1.3 Moderation Variable (Z)

Moderation variable used in this research is exchange rate. This moderation variable refers to the mean of median values from the exchange rate of Rupiah on United States Dollar per year during research period. As stated by Sutriani (2014), the calculation of exchange rate is formulated as follows:

$$\text{Exchange Rate} = \frac{\text{Selling Exchange Rate} + \text{Buying Exchange Rate}}{2} \quad (5)$$

## 2.2 Population and Sample of Research

The population of this research is all food & beverage companies listed at the Indonesia Stock Exchange (BEI). Some criteria are used to sort over the companies. These criteria are that:

- The company must be listed at BEI consecutively during the period 2016-2019.
- The company has issued the annual financial statements during research period by using dollar as currency unit.
- The company is eager to provide data and information needed to analyze every variable during research period.

Sampling technique is saturated sampling or census. This technique is applied to the population. After the sampling process, most of the food & beverage companies listed at BEI on the period 2016-2019 have met the criteria.

The exact number of the food & beverage companies listed at BEI on the period 2016-2019 is 23 companies. However, not all of the companies have complete data during research period. The number of sample that meets the criteria is 16 companies. In each year of the period 2016-2019, the researchers must observe the financial statements prepared by these 16 companies. As the consequence, there will be 64 observations that need to be processed in this research.

## 2.3 Data Analysis Method

### a. Descriptive Analysis

The purpose of descriptive statistic analysis is to obtain the general summary regarding all

sample companies. Several indicators make up the descriptive statistic summary, which respectively are minimum, maximum, mean, modus, sum, range, standard deviation, and variance (Sugiyono, 2012).

**b. Classical Assumption Test**

Before performing regression analysis, the proposed model must pass the classical assumption test. The intention of the classical assumption test is to ensure that the model is actually showing the significant and representative relationship (Sunyoto, 2011). Several tests constitute the classical assumption test, which include normality test, multicollinearity test, autocorrelation test, and heteroscedasticity test.

**c. Moderated Regression Analysis**

Moderated Regression Analysis (MRA) is the regression analysis that involves moderation (moderating) variable in building the relationship model. Ghozali (2013) defined moderation (moderating) variable as independent variable that can strengthen or weaken the relationship between independent variable and dependent variable. There are several equations of MRA and all are written as follows.

(i) Regression model without moderation:

$$Y = a_1 + b_1X_1 + b_2X_2 + b_3X_3 + e_1 \tag{6}$$

(ii) Regression model with exchange rate as independent variable:

$$Y = a_2 + b_4X_1 + b_5X_2 + b_6X_3 + b_7Z + e_2 \tag{7}$$

(iii) Regression model with exchange rate as moderation variable:

$$Y = a_3 + b_8X_1 + b_9X_2 + b_{10}X_3 + b_{11}X_1*Z + b_{12}X_2*Z + b_{13}X_3*Z + e \tag{8}$$

Where, Y= Stock Return , a= Constant, b<sub>1</sub>, b<sub>2</sub>, ... , b<sub>4</sub>= Coefficient of Regression, X<sub>1</sub>= Return on Assets (ROA), X<sub>2</sub>= Current Ratio (CR), X<sub>3</sub>= Debt to Equity Ratio (DER), e = Error term, Z = Moderation Variable (Exchange Rate)

**3. Results**

**3.1 Descriptive Analysis**

Descriptive analysis will determine the values of mean, minimum, maximum, and standard deviation of each variable. Results of descriptive analysis are presented in Table 1.

Table 1. Descriptive Analysis

<b>Variable</b>	<b>Minimum</b>	<b>Maximum</b>	<b>Mean</b>	<b>Standard Deviation</b>
X <sub>1</sub>	-5.67	82.70	11.2197	15.51979
X <sub>2</sub>	21.54	863.78	220.0983	186.94820
X <sub>3</sub>	0.05	3.34	1.0781	0.71331
Y	-0.89	2.57	0.1487	0.41656
Z	13307.37	14246.43	13771.065	431.02755

Source: Secondary data, processed (2020)

Profitability (X<sub>1</sub>) is measured by Return on Assets (ROA). According to the contents of Table 1, the minimum value of ROA is -5.67% whereas its maximum value is 82.70%. The mean value of ROA is 11.2197 while its standard deviation value is 15.51979. Because the mean value of ROA is lower than its standard deviation value, this result indicates that the profitability of the sample companies is quite varying.

Liquidity (X<sub>2</sub>) is measured by Current Ratio. Pursuant to the contents of Table 1, the minimum and maximum values of Current Ratio are respectively 21.54% and 863.78%. The mean value of Current Ratio is attained at 220.0983 whereas its standard deviation value is gotten at 186.94820. The mean value of Current Ratio is found to be higher than its standard deviation value, which signifies that the liquidity of the sample companies is not varying widely.

Solvability (X<sub>3</sub>) is measured by Debt to Equity Ratio (DER). In keeping with the contents of Table 1, the minimum and maximum values of DER are respectively 0.05% and 3.34%. The mean value of DER is 1.0781 while its standard deviation value is 0.71331. The mean value of DER is higher than its standard deviation value, which thus informs that the solvability of the sample companies is not varying widely.

Stock return (Y) has minimum value of -0.89 and maximum value of 2.57. The mean value of stock return is 0.1487 whereas its standard deviation value is 0.41656. The mean value of stock return is found to be lower than its standard deviation value, which denotes that the stock return of the sample companies is varying widely.

Also stated in Table 1, the minimum and maximum values of exchange rate are respectively IDR 13,307.37 and IDR 14,246.43 (IDR = Indonesia Rupiah). The mean value of exchange rate is IDR 13,771.0650 while its standard deviation is IDR 431.02755. Because the mean value of exchange rate is lower than its standard deviation, this result indicates that the exchange rate of IDR (Indonesia Rupiah) to USD (United States Dollar) during observation period is relatively stable.

3.2 Classical Assumption Test

3.2.1 Normality Test

Results of histogram graphic processing with Program EViews are depicted in Figure 1.

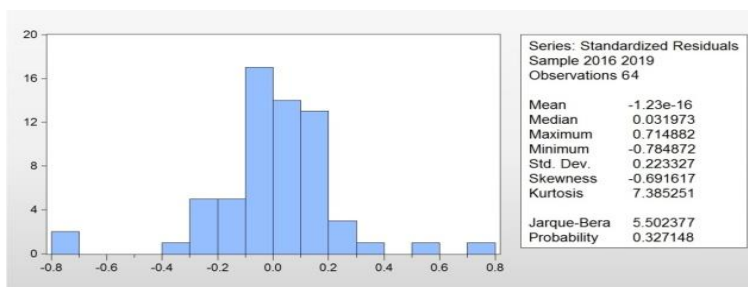


Figure 1. Results of Normality Test

Figure 1 shows that the curve in the histogram graphic has symmetric shape with its summit pointed. This result explains that the regression model has residual value that is normally distributed. Besides graphic test, normality test is also operating Jarque-bera statistic test. Result of Jarque-bera statistic test procures probability value of 0.327148. Because the significance value is higher than 0.05, then this result signifies that the regression model has residual value that is normally distributed.

3.2.2 Autocorrelation Test

The detection over autocorrelation is done using Breusch Godfrey Lagrange Multiplier (BG-LM) Test. Result of autocorrelation test with Program EViews acquires Chi-Square probability value of 0.0993, which is higher ( $\geq$ ) than 0.05. Based on this result, autocorrelation is never occurred in the regression model.

3.2.3 Multicollinearity Test

Results of multicollinearity test using Program EViews can be seen in Table 2.

Table 2. Results of Multicollinearity Test

	X1	X2	X3
X1	1.000000	0.046255	0.157625
X2	0.046255	1.000000	-0.678189

Source: Secondary data, processed (2020)

Table 2 indicates that all correlation coefficients across the independent variables of this research are lower than ( $<$ ) 0.8. This position informs that multicollinearity is not found in the regression model.

**3.2.4 Heteroscedasticity Test**

The detection of heteroscedasticity in the regression model is carried out using White Test. Result of White Test using Program EVIEWS gets Chi-Square probability value of 0.000 which is higher than ( $\geq$ ) 0.05, indicating that heteroscedasticity indeed occurs in the regression model. Heteroscedasticity deviation is dealt by weighted least squares method.

**3.3 Statistic Test**

The current research attempts to see how the effect of profitability, liquidity and solvability on stock return will be if exchange rate is used as moderation variable. As already stated previously, the data are panel data. Regression analysis on panel data is always done involving three analytical models, namely Common Effect, Fixed Effect, and Random Effect. There are at least three stages in panel data regression analysis. Each of those stages will be explained in different paragraph.

**3.3.1 Selecting Panel Data Regression Model**

The determination which the most accurate panel data regression estimation model between Common Effect model and Fixed Effect model is done using Chow Test. Result of Chow Test on both models procures cross-section chi-square probability value of 0.0000, which is lower than ( $<$ ) 0.05, signifying that the most accurate estimation model is Fixed Effect model. By the result of Chow Test, the selected model is Fixed Effect model.

Hausman Test needs to be performed to determine whether Fixed Effect model or Random Effect model is the most accurate. Result of Hausman Test on both models acquires Chi-Square probability value from cross-section random at 0.0000. This probability value is lower than ( $<$ ) 0.05, confirming that the most accurate estimation model is Fixed Effect model. Both Chow Test and Hausman Test similarly indicate that Fixed Effect model is the best model, which therefore there is no need for Lagrange Multiplier (LM) Test because the two previous tests have similarly chosen Fixed Effect model.

**3.3.2 Multiple Regression Analysis**

The selected estimation model is Fixed Effect model and therefore this model is then used in multiple regression analysis. The regression of panel data is done using cross-section weighted method because there is heteroscedasticity deviation in regression model. Results of multiple regression analysis on panel data using Fixed Effect model with Program EVIEWS are shown in Table 3.

Table 3. Results of Multiple Regression Analysis (Fixed Effect)

Variable	Coefficient	t-Statistic	Prob.
C	-1.083495	-4.520874	0.0000
X1	0.029337	3.422089	0.0013
X2	0.002532	3.604752	0.0008
X3	0.320597	3.307518	0.0019
R-squared = 0.599714		F-statistic = 3.745539	
Prob (F-statistic) = 0.000165			

Source: Secondary data, processed (2020)

Referring to the results of multiple regression analysis in Table 3, the equation of panel data regression using Fixed Effect model is specified as follows:

$$Y = -1.083495 + 0.029337X_1 + 0.002532X_2 + 0.320597X_3$$

Where, Y = Stock return, X<sub>1</sub> = Profitability (ROA), X<sub>2</sub>= Liquidity (CR), and X<sub>3</sub>= Solvability (DER)

Result of multiple regression analysis on determination coefficient (R-squared) in Table 3 gets determination coefficient (R-squared) value of 0.599714. This result denotes that the 59.97% proportions of Stock Return (Y) are affected by Profitability (X<sub>1</sub>), Liquidity (X<sub>2</sub>) and Solvability (X<sub>3</sub>) whereas the remaining 41.03% are affected by other factors. In addition, F-statistic test (F-test) has been conducted and the result reveals that F-count value is 3.745539 with probability value of 0.000165. This probability value is lower than significance value of 0.05 (α = 5%), which confirms that Profitability (X<sub>1</sub>), Liquidity (X<sub>2</sub>) and Solvability (X<sub>3</sub>) have simultaneous and significant effect on Stock Return (Y).

The outputs of multiple regression analysis in Table 3 are then put on the partial significance test over regression coefficient. The result of partial significance test on each independent variable will be explained separately.

Coefficient value of Profitability (X<sub>1</sub>) is 0.029337 with probability value of 0.0013. The probability value is < 0.05 which signifies that the effect of Profitability (X<sub>1</sub>) partially on Stock Return (Y) is significant (Hypothesis 1 is **accepted**). Coefficient value of Liquidity (X<sub>2</sub>) is 0.002532 with probability value of 0.0008. The probability value is < 0.05 which denotes that the effect of Liquidity (X<sub>2</sub>) partially on Stock Return (Y) is significant (Hypothesis 2 is **accepted**). Coefficient value of Solvability (X<sub>3</sub>) is 0.320597 with probability value of 0.0019. The probability value is < 0.05 which confirms that the effect of Solvability (X<sub>3</sub>) partially on Stock Return (Y) is significant (Hypothesis 3 is **accepted**).

#### 4.3.3 Moderated Regression Analysis (MRA) Test

Results of MRA Test using Program EVIEWS over the effect of profitability, liquidity and solvability on stock return with exchange rate as independent variable, which is hereafter called Equation 1, are presented in Table 4.

Table 4. Results of Equation-1 MRA Test

Variable	Coefficient	t-Statistic	Prob.
C	-2.477131	-3.612786	0.0008
X1	0.032524	3.762260	0.0005
X2	0.002441	3.396335	0.0015
X3	0.341922	3.552479	0.0009
Z	9.84E-05	2.146841	0.0374
R-squared = 0.617185		F-statistic = 3.733578	
Prob (F-statistic) = 0.000156			

Source: Secondary data, processed (2020)



Results of MRA Test using Program EVIEWS over the effect of profitability, liquidity and solvability on stock return with exchange rate as moderation variable, which is hereafter called Equation 2, are indicated in Table 5.

Table 5. Results of Equation-2 MRA Test

Variable	Coefficient	t-Statistic	Prob.
C	-1.261534	-5.030113	0.0000
X1	-0.259683	-3.260253	0.0022
X2	0.008178	1.807429	0.0779
X3	1.623640	1.701927	0.0962
X1*Z	2.15E-05	3.847142	0.0004
X2*Z	-4.00E-07	-1.261047	0.2143
X3*Z	-9.01E-05	-1.358227	0.1816
R-squared =	F-statistic = 6.229488		Prob (F-statistic) =
0.599714			0.00000

Source: Secondary data. processed (2020)

Results of Equation-1 MRA Test in Table 4 and Equation-2 MRA Test in Table 5 are arranged into regression equations as follows:

$$Y = -2.477131 + 0.032524X_1 + 0.002441X_2 + 0.341922X_3 + 0.00009847Z$$

$$Y = -1.261534 - 0.259683X_1 + 0.008178X_2 + 1.623640X_3 + 0.0000215X_1*Z - 0.0000004X_2*Z - 0.0000901X_3*Z$$

Where, Y = Stock Return, X<sub>1</sub> = Profitability (ROA) , X<sub>2</sub>= Liquidity (CR) , X<sub>3</sub>= Solvability (DER), Z = Exchange Rate , X<sub>1</sub>\*Z = Interaction of ROA with Exchange Rate , X<sub>2</sub>\*Z = Interaction of CR with Exchange Rate, and X<sub>3</sub>\*Z = Interaction of DER with Exchange Rate.

The outputs of MRA Test in Table 4 and Table 5 are then put on the hypothesis test over regression coefficient. The result of hypothesis test on each independent variable will be explained separately. Coefficient value of Exchange Rate (Z) is 0.00009847 with probability value of 0.0374. The probability value is < 0.05 which explains that the effect of Exchange Rate (Z) partially on Stock Return (Y) is significant. Coefficient value of the interaction between Profitability and Exchange Rate (X<sub>1</sub>\*Z) is 0.0000215 with probability value of 0.0004. Because the probability value is < 0.05, thus the effect of the interaction between Profitability and Exchange Rate (X<sub>1</sub>\*Z) partially on Stock Return (Y) is significant (Hypothesis 4 is **accepted**).

Coefficient value of the interaction between Liquidity and Exchange Rate (X<sub>2</sub>\*Z) is found to be - 0.0000004 with probability value of 0.2143. The probability value is > 0.05 which clarifies that the effect of the interaction between Liquidity and Exchange Rate (X<sub>2</sub>\*Z) partially on Stock Return (Y) is not significant (Hypothesis 5 is **rejected**).

Coefficient value of the interaction between Solvability and Exchange Rate ( $X_3*Z$ ) is procured at -0.0000901 with probability value of 0.1816. Because the probability value is  $> 0.05$ , thus the effect of the interaction between Solvability and Exchange Rate ( $X_3*Z$ ) partially on Stock Return (Y) is not significant (Hypothesis 6 is **rejected**).

Moderated Regression Analysis (MRA) Test is also performed over the effect of Profitability and Stock Return with Exchange Rate as quasi moderator. In other words, hypothetically, Exchange Rate is not only moderating the relationship between Profitability and Stock Return but also acting as independent variable. Such MRA Test needs to be carried out because the previous arrangement of MRA Test shows that the coefficient value of Exchange Rate (Z) in Equation 1 and the coefficient value of the interaction between Profitability and Exchange Rate ( $X_1*Z$ ) in Equation 2 are similarly significant.

Other MRA Test is also conducted over the effect of Liquidity and Solvability on Stock Return with Exchange Rate as predictor moderating variable. In this context, Exchange Rate only plays a role as independent (predictor) variable in the relationship model. This MRA Test needs to be done because the previous MRA Test indicates that the coefficient value of Exchange Rate (Z) in Equation 1 is significant but the coefficient values of the interaction between Liquidity and Exchange Rate ( $X_2*Z$ ) and also of the interaction between Solvability and Exchange Rate ( $X_3*Z$ ) in Equation 2 are not significant.

#### **4. Discussion**

##### *4.1 Effect of Profitability on Stock Return*

The multiple regression analysis over profitability found that profitability has positive and significant effect on stock return. This finding signifies that high profitability is associated with high stock return. Conversely, low profitability leads to low stock return.

Moreover, this position is consistent with signaling theory which says that when the company is getting higher net earnings in current period than in previous period and able to pay dividends, then this situation is giving good signal showing that the profitability of the company will be better in the future (good news) (Gumanti, 2013). High profitability is also identified with good performance and this relationship is proved by the successful attainment of earnings. This position is supported by the findings given by Sutriani (2014), Prasetyo (2017), Nurunnisak, Dhiana & Putri (2018), and Pramadani (2018), which generally showed that the effect of profitability on stock return is significant.

Return on Assets (ROA) describes the financial performance of the company in producing net earnings from the assets used to activate the corporate operational. The ROA is also used to determine corporate performance based on the capability of the company in utilizing the available assets. The ROA may cause appreciation and also depreciation on stock price (Arisandi, 2014). High ROA indicates better performance. When the ROA is high, the investors are easily attracted to make investment due to at least a perception that high ROA is followed by high return on investment (ROI). As the proxy of profitability, ROA is an important consideration for the company because profitability enables the company to produce sustainable

investment by securing the payment of dividend. The profitability is like a warranty that the investors can use their shareholding as the saving value and this arrangement may lead them to make investment in the company.

#### *4.2 Effect of Liquidity on Stock Return*

Liquidity has been examined with multiple regression analysis. This analysis discovered that liquidity has positive and significant effect on stock return. This finding confirms that high liquidity is identified with high stock return. Oppositely, low liquidity produces low stock return. The proxy for liquidity is Current Ratio (CR). Any company with high CR always have ability to pay off their short-term debts. This ability is a factor that attracts the investors to buy the stocks from the company (Endri, 2018). When the demand for the stocks increases, then the price of the stock goes up, which later implicates to the rise of stock return.

In addition, this finding is in line with signaling theory which explains that the managers send a signal to the market by presenting the financial statements that inform about corporate liquidity and then the market responds this information as good news (Gumanti, 2013). This signal will affect the stock market and also the stock return of the company. Precisely, if the managerial signal is responded as good news, this signal will raise stock return. This position is consistent with the findings delivered by Jannah (2016), Prasetyo (2017), Farida & Camela (2018) and Pramadani (2019), which generally indicated that liquidity has significant effect on stock return. On the contrary, the studies conducted by Yarnest (2012), Sutriani (2014), and Nurunnisak, Dhiana & Putri (2018) revealed that current ratio does not have significant effect on stock return.

#### *4.3 Effect of Solvability on Stock Return*

The multiple regression analysis over solvability uncovered that solvability has significant effect on stock return. This finding indicates that high solvability is followed by high stock return. Inversely, low solvability is related to low stock return. This position corresponds to signaling theory which says that the company with high debt level is like giving a signal that the company is credible, optimistic and promising with a good prospect in the future (Ross, 1997).

Debt to Equity Ratio (DER) is used to measure liquidity. The investors need to be informed about DER to help them determine investment strategy. The high DER indicates the high reliance of the company on the external party for its capitalization. If such dependence remains strong, then the burden of the company becomes heavy. Mostly, the investors believe that DER refers to the responsibility of the company to the third party, precisely the creditor that gives debts to the company. If the DER is high, then the responsibility of the company to pay the debt is also high. Fortunately, the investors also regard the high DER as the indication that the company is developing. Indeed, the developing or growing company always uses debt as additional fund to fulfill the source of funding to finance the company operational. Such inclination to use debt for improving the operational may strengthen the attractiveness of the stocks offered at the capital market. This position affirms that the effect of DER on stock return is significant. This position is in accord with the findings put up by Ulupui (2007), Pramadani (2018), Sutriani (2014), Jannah (2016), and Sayedy & Ghazali (2017) but not in agreement with the findings reported by Farida & Camela (2018) and Nurunnisak, Dhiana & Putri (2018).

#### *4.4 Moderation of Exchange Rate in Effect of Profitability on Stock Return*

The result of Moderated Regression Analysis (MRA) over exchange rate and profitability showed that exchange rate moderates the effect of profitability on stock return. This result is consistent with the findings given by Nurunnisak, Dhiana & Putri (2018) and Santosa (2019) which generally said that exchange rate is able to moderate the effect of profitability on stock return. This position signifies that the rise of exchange rate has instead strengthened the positive effect of profitability on stock return.

The increment of the exchange rate of foreign currency against rupiah has given positive impact on the income received by the company. The company holds more rupiahs during increment rather than in the case of decrement. Concerning with the object of research, the food & beverage companies often get most of its incomes from export sale. Therefore, the increment of dollar against rupiah will bestow the companies with a generous profit. When the profitability gets stronger, the same trend also prevails for the price and return of the stocks. This position insists that exchange rate contributes the effect of profitability on stock return. Profitability, with ROA as its proxy, has strong positive effect on stock return regardless with or without moderation. High profitability is truly convincing the investors to buy the stocks because profitability is a warranty that the company is viable. The effect of exchange rate as moderation variable has been proved to be significant.

#### *4.5 Moderation of Exchange Rate in Effect of Liquidity on Stock Return*

The result of Moderated Regression Analysis (MRA) over exchange rate and liquidity indicated that exchange rate does not moderate the effect of liquidity on stock return. This result corresponds to the previous study committed by Sutriani (2014) who found that exchange rate does not act as moderation variable in the relationship between current ratio and stock return. In other words, exchange rate does not moderate the relationship between current ratio and stock return because current ratio is always related to the internal factor of the company. When the exchange rate of rupiah weakens against foreign currency or suffers depreciation, this situation does not hamper the operational of the sample companies. The depreciation does not greatly affect the companies because during the hard times, the companies reorient their business on domestic market where the number of domestic consumers is much more than foreign consumers. By emphasizing on getting income in rupiah, the companies do not need to convert their income to other currency. This opinion is the contrary to the findings delivered by Nurunnisak, Dhiana & Putri (2018) and Santosa (2019) which stated that exchange rate is able to moderate the effect of liquidity on stock return.

#### *4.6 Moderation of Exchange Rate in Effect of Solvability on Stock Return*

The result of Moderated Regression Analysis (MRA) over exchange rate and solvability discovered that exchange rate does not moderate the effect of solvability on stock return. This result is in line with the findings delivered by Pramadani (2019) and Ramdhan, Indrajaya & Hakim (2019) which revealed that exchange rate does not moderate the relationship between Debt to Equity Ratio (DER as the proxy of solvability) and stock return. In other words, solvability does not affect stock return despite exchange rate being used as moderation variable. This position informs that solvability does not affect stock return although the exchange rate of

rupiah is weakening or depreciating against foreign currency. However, this position is in contrast to the findings put up by Nurunnisak, Dhiana & Putri (2018) and Santosa (2019) which exposed that exchange rate is able to moderate the effect of solvability on stock return.

## **5. Conclusion**

Taking into consideration of the results of all analysis procedures, several conclusions are made. Profitability, liquidity and solvability have positive and significant effect on stock return of the food & beverage companies listed at the Indonesia Stock Exchange on the period 2016-2019. Exchange rate moderates the relationship of profitability on stock return. However, exchange rate does not moderate the relationship of liquidity and solvability on stock return.

The results of this study are expected to contribute to the development of management economics, especially financial management and can be used as reference material for future research in the field of analysis of company performance in influencing stock returns. For companies, this research is useful as input for companies to assess their performance, especially with regard to the effect of company performance on stock returns, while for investors the results of this study are expected to be used as a basis in the decision-making process to invest in the Indonesia Stock Exchange.

Research is limited by several issues. First of all, this research is only emphasized on the food & beverage companies. Further research shall focus on other companies or other sector. In addition, this research only uses profitability, liquidity and solvability as independent variable which may disregard the more powerful effect from other factors on the dependent variable, which is, stock return. Finally, this research uses only one macroeconomic factor to moderate the effect of profitability, liquidity and solvability on stock return. This factor is exchange rate. The decision to use exchange rate is truly ignoring the diversity of macroeconomic factors that can be observed including inflation rate, economic growth, money supply, interest rate and others, which are possibly more capable to moderate the effect of profitability, liquidity and solvability on stock return.

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