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## THE INFLUENCE OF EXCHANGE RATES, DEBT TO EQUITY, AND RETURN ON EQUITY ON STOCK RETURNS: A CASE STUDY OF HEALTH AND PHARMACEUTICAL SECTOR COMPANIES LISTED ON IDX

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### ABSTRACT

This study aims to examine how the independent variables of the exchange rate, debt to equity, and return on equity affect stock returns as the dependent variable. The type of research approach used is quantitative associative data. The data used is secondary data in the form of exchange rates and financial reports published from the IDX website. The sampling method used was purposive sampling, with a total population of 25 Health and Pharmaceutical companies listed on the IDX (Indonesia Stock Exchange), and the samples used in this study were 14 companies. The research method used in this study is multiple regression testing the hypothesis using the t test and F test and the data is processed with the help of the Econometric Views (EViews) program. The results of the analysis of this study based on the t test, the results of the exchange rate (X1) probability are 0.1287 so it is concluded that it does not affect stock returns, and return on equity (X3) shows a probability of 0.1453 on stock returns so it is said that return on equity is not significant to stock returns. For debt to equity (X2), the results show a probability of 0.0150 so that debt to equity has a significant negative effect on stock returns. The results of the F test found that the exchange rate, debt to equity and return on equity affect stock returns simultaneously.

### KEY WORDS

Exchange rates, Debt to equity (DER), Return on equity (ROE), Stock returns.

Investment is a commitment to invest money or other resources at this time with the hope of obtaining a return in the future. One of the factors that motivate investors to invest is returns (Tandelilin, 2010). Stock returns reflect the performance of a company and become one of the investment considerations when an investor is going to invest. KataData.co.id (2021) said that there are several fairly good investment prospects in the agriculture, food, and health sectors. The sector that is considered the most capable of positive growth compared to other industrial sectors is the health sector. Stock returns in the health and pharmaceutical sectors in the last 5 years have fluctuated significantly.

In Figure 1, data on the average return on shares in health and pharmaceutical sector companies before Covid-19 entered Indonesia when February 2020, the average return on shares in the sector decreased the lowest to -11.30%. However, in March 2020, stock returns increased quite significantly by 12.59%, and further experienced the highest increase over the past 5 years, 26.15% in July 2020.

According to the signal theory from Brigham and Houston (2019) the company will transmit signal of the financial statements through the management, and the signal will later make the company's management take corporate action in providing instructions to investors regarding the management of the company to present information containing about the company's point of view regarding the financial prospects for analysis is carried out on the financial statements. The stock price will fall if the company shows a negative signal; conversely the stock price will rise if the company shows a positive signal.

Table 1 shows the USD rate fluctuating over the past 5 years. During the 2017-2021 research period, the rupiah exchange rate against the dollar continued to increase. The rupiah exchange rate against the USD dollar was the strongest for the last 5 years in June 2017, namely Rp. 13,386. In January 2020, the rupiah strengthened to Rp. 13,730 but 2 months later, in March 2020, the rupiah exchange rate weakened to Rp. 16,448.84.

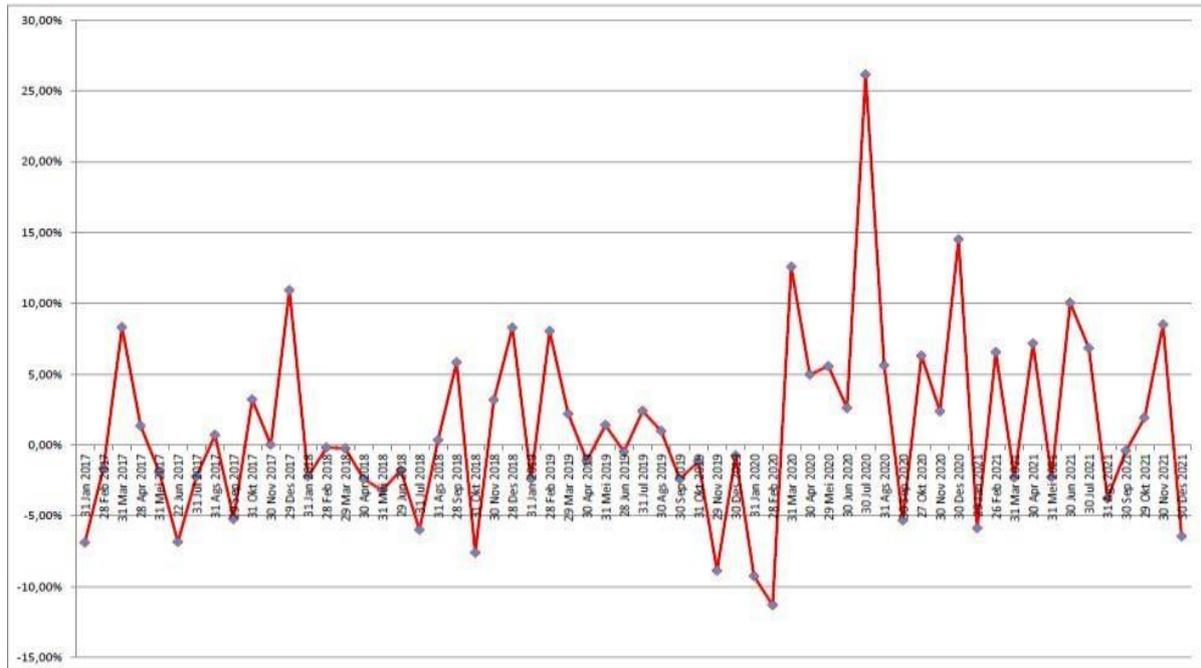


Figure 1 – Average Stock Return for 2017 – 2021 (Source: IDX 2022, data processed)

Table 1 – Data Exchange Rate, DER and ROE on Stock Returns for 2017-2021

Date	Exchange rate (IDR/USD)	DER	ROE	RETURN
29/12/2017	13.616,00	70.21%	11.50%	10,93%
28/12/2018	14.615,00	79.76%	25.27%	8,29%
30/12/2019	14.014,73	63.77%	8.49%	-0,73%
30/12/2020	14.175,53	78.15%	10.19%	14,51%
30/12/2021	14.340,35	90.81%	12.80%	-6,44%

Source: IDX 2022, data processed.

Darsono and Ashari (2005) revealed that the debt to equity ratio shows how much the percentage of funding provided by shareholders to lenders. The company needs to carry out planned business development therefore, DER in the research period have fluctuations. From Table 1, the average DER of the health and pharmaceutical sector in the average DER for the health and pharmaceutical sector in 2017 was 70.21%, then decreased in 2018 to 79.76%. Then the DER in 2019 had decreased with a difference of 15.99% from the previous year to 63.77%, but the increase occurred again in 2020 to 78.15% and increased again in 2021 to 90.81%.

ROE is a ratio that is a measure and indicator that is usually seen by shareholders or potential investor's, because ROE it is a shareholder's value creation. Companies in this sector posted a net profit that increased quarterly. Table 1 shows ROE in 2018 increased from 11.50% in 2017 to 25.27%. In 2019 ROE again decreased to 8.49%. ROE increased again in 2020 by 10.19% and again increased in 2021 to 12.80%.

Research conducted by Khan (2019) researched on the Shenzhen Stock Exchange, showed that exchange rate results had a negative and significant influence on stock returns. Research by Cuestas and Tang (2017) which examined the exchange rate Industry in China, found that the returns of some non-exporting industries were influenced by the exchange rate. In contrast to the research of Amarkhil et. Al (2021) they found the result that there is a positive relationship between the exchange rate and stock returns.

The DER variables studied by Isnurhadi et. Al (2020) who researches the property and real estate sector in Indonesia, revealed that no impact DER on stock returns. Chabachib et.al (2020) researched DER in the real estate sector, and found that DER has a significant positive influence on stock returns. Dhatt et. Al (1999) found that DER was positive significantly related to stock returns in the Korean Stock Market. In contrast to the research of



Ozturk and Karabulut (2020) which examined DER in the technology and telecommunications sector in the Istanbul Stock Market, DER has a negative impact on stock returns.

Return On Equity research variables, there are also some differences from the results of previous studies. Anwaar (2016) who examined the impact of a company's performance on stock returns in the FTSE-100 Index London-UK, found that ROE did not have a significant effect on stock returns. Chabachib et.al (2020) who researched the real estate sector found that it had a significant positive influence on stock returns. Al-Qudah (2016) on the Abu Dhabi Securities Exchange (ADX), revealed that ROE has a significant influence on stock returns. Narayan and Reddy (2018) researched 408 companies listed in the Nifty 500 Index (India), showing that ROE has a negative relationship to stock returns.

## LITERATURE REVIEW

Spence (1973), the first person to put forward the signal theory, said that the signal theory is a piece of relevant information sent to the recipient that reflects the condition of the company to be utilized and then adapted to the understanding of the signal. The theory assumes that the information received by each party is not the same, which company through management provides information to interested parties through reporting financial reports. Fahmi (2017) said signaling theory is a theory that discusses the rise and fall of stock prices in the market, so that later it will affect investor decisions. This theory explains the relationship related to the problem of disclosing information, when a company discloses bad news, the market will give a negative reaction, and vice versa if the company discloses good news, the market will give a positive reaction.

The Trade Off Theory by Miller and Modigliani (1958) is a guide in the theory of capital structure, which states that if the capital structure has a relationship with the value of a company, due to the influence of the company's leverage at a certain level which is said to be an optimal capital structure by balancing agency costs, bankruptcy costs and the use of taxes in financing debt. In the view of Jensen and Meckling (1976) this trade-off shows that debt is a profitable thing because the interest is tax-deductible, in other words, if borrowing or borrowing is profitable at a certain level, that is, when the marginal costs of bankruptcy are balanced by the costs of tax protection.

Jogiyanto (2017) revealed stock returns are the result of the value obtained from investment activities, and later investors will get capital gains (loss) which is the difference from the current price to the previous period. Stock return, according to Arista and Astohar (2012) is the excess of the selling price of the stock over the purchase price. This condition is obtained if the selling price is higher than the price purchased, the higher the return that will be obtained by investors. Brigham and Houston (2010) said that stock return is the rate of return on shares obtained from the difference between the amount received and the amount invested, divided by the amount invested. The formula for stock return is:

$$\text{Return} = \frac{P_t - P_{t-1}}{P_{t-1}} + \text{Yield}$$

Fabozzi and Franco (1996) the exchange rate is defined as the amount of one particular currency that can be exchanged for a currency in the value of one currency. Tandellilin (2001) said that a strengthening rupiah exchange rate against foreign currencies is a positive signal for investors. When the rupiah strengthens against foreign currencies, many investors will invest in the capital market. According to Madura (2003) the rupiah exchange rate has a negative relationship to stock returns. He said that changes in the exchange rate of the rupiah against foreign currencies (especially the US dollar) have risks for investors in the capital market. If the value of foreign currencies (US dollars) increases, stock prices will decrease because high foreign currency prices will make trading on the Stock Exchange more sluggish and encourage investors to prefer investing in the money market, but vice



versa if the value of foreign currency against the value of money decreases, the stock price will rise and encourage investors to invest in the capital market.

Hery (2018) said debt-equity is a ratio that measures the size the proportion of debt to capital. Ang (1997) explained that if one of the ratios that are expected to affect stock returns is the debt to equity (DER), the high DER indicates if a company has a more capital structure than debt, the company will be more dependent on outside parties (creditors), and the company's level of risk will be greater. If the company's risk is relatively high, investors will generally tend to avoid stocks that have a high DER value. The debt to equity in this study can be measured using the following formula:

$$\text{DER} = \frac{\text{Total Debt}}{\text{Total Equity}} \times 100\%$$

Brigham and Houston (2010) explain that the Return on Equity is a ratio of net profit to ordinary equity used to measure returns on the investment of ordinary shareholders. Investors tend to favor a high ROE value, and a high ROE will have a positive correlation with a high stock return. If the ROE increases, the profits that will be obtained by shareholders will also increase, and investors will be interested in the shares of the company which makes the share price able to climb. Usually, shareholders will compare the ROE of a company with similar companies to assess the company. If the higher ROE, the value of a company is better.

The higher the ROE value of a company will attract interest and trust from investors to invest, so that the company's stock price will experience demand from investors because it is interested in a high ROE, and a high ROE will correlate high also to stock returns (Brigham and Houston, 2010). And the formula for Return on Equity is:

$$\text{ROE} = \frac{\text{Net Profit}}{\text{Total Equity}} \times 100\%$$

## METHODS OF RESEARCH

The type of data used is associative quantitative data to study a sample involving several independent variables that will affect the dependent variable. The study used data from the annual data of financial statements is the Health and Pharmaceutical companies 2017- 2021 obtained through the IDX (Indonesia Stock Exchange) website published on website is [www.idx.co.id](http://www.idx.co.id), and for exchange rate, using historical data on the rupiah (IDR) exchange rate against the Dollar America (USD) from the website [www.bi.go.id](http://www.bi.go.id)

The sampling method used in this study is purposive sampling. The total Health and Pharmaceutical population listed on the IDX is 25 companies, while the samples taken are based on withdrawal sampling, so the total sample used is 14 companies. The data analysis method used in this study uses multiple linear regression with the data processed using Eviews (Econometric Views) program.

## RESULTS OF STUDY

The following are the results of the study obtained from the output of the EViews program using multiple regression analysis. The constant of -0.027123 states that if the independent variables Exchange Rate, Debt to Equity (DER), and Return on Equity (ROE) are in a fixed state then the variable Stock Return will decrease by -0.0271. Adjusted R Square in this research of 0.101, this means that the three independent variables affect the dependent variable, namely the Stock Return of 10,1%. While the remaining 89,9% is influenced by other factors which is not used in this researched.



Table 2 – Result of F test

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.027123	0.022317	-1.215363	0.2286
Exchange Rate	-2.08E-05	1.35E-05	-1.538448	0.1287
Debt to Equity	-0.000448	0.00018	-2.496803	0.015
Return on Equity	0.000695	0.000472	1.473716	0.1453
R-squared	0.140419	F-statistic	3.593861	
Adjusted R-squared	0.101347	Prob (F-statistic)	0.018057	

Source: Data processed, 2022.

$$y = \alpha + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \varepsilon$$

$$\text{Stock Return} = -0.027123 - 2.088888 \text{ Exchange Rate} - 0.000448 \text{ DER} + 0.000695 \text{ ROE} + \varepsilon$$

Where: y = Variable Dependent (Stock Return);  $\alpha$  = Intercept (Constanta);  $\beta_1, \beta_2, \beta_3$  = Independent variable regression coefficient; X1 = Exchange Rate; X2 = DER (Debt to Equity); X3 = ROE (Return on Equity);  $\varepsilon$  = Error Term.

From the calculation results in table 2, it shows that F counts is 3.593 and a significance value of 0.0180. F table in this study uses the F distribution table at  $\alpha$  value of 0.05 with  $df_1 = k-1$ , namely ( $df_1 = 4-1 = 3$ ) and  $df_2 = n-k$  ( $df_2 = 70 - 4 = 66$ ), then obtained F table of 2.74. Then the results of the F test above are stated that F calculates the  $F >$  of the table which is  $3.593 > 2.74$  with a significance value of  $0.0180 < 0.05$  which means that the alternative hypothesis can be accepted. So, the conclusion that can be drawn is that the three independent variables represented by the Exchange Rate, Debt to Equity (DER), and Return on Equity (ROE) have a simultaneous effect on the dependent variable, namely Stock Return.

Table 3 – Result of t test

Variable	Coefficient	t-Statistic	Prob.	Conclusion
Exchange Rate	-2.08E-05	-1.538448	0.1287	No significant effect
Debt to Equity	-0.000448	-2.496803	0.0150	Negative significant effect
Return on Equity	0.000695	1.473716	0.1453	No significant effect

Source: Data processed, 2022.

Based on the results of the partial t-test presented in table 3 with the t-table 1,668, and the following calculation results are obtained:

- Variable X1 (Exchange Rate) has the result of t statistic  $-1.538 <$  t table 1.668 and the coefficient is sig.  $0.1287 > 0.05$ , so it can be concluded that there is no significant effect between the exchange rate and stock returns;
- Variable X2 (Debt to Equity Ratio/DER) has t statistics  $-2.496 >$  t table 1.668 and a sig coefficient is  $0.0150 < 0.05$ , so it can be concluded that there is a significant negative effect between DER and stock returns;
- Variable X3 (Return on equity/ROE) found t statistic  $1.473 <$  t table 1.668 and the coefficient is sig.  $0.1453 > 0.05$ , so it can be concluded that there is no influence between roe and stock returns.

The exchange rate did not have an insignificant effect on stock returns. Ross (1997) developed a signaling theory which states that company management will provide information to increase the value of the company. Signal theory is built on the basis of asymmetric information related to information from management (well-informed) and information from shareholders (poo-informed). However, the results of the Exchange Rate in this study are not significant, so that not all pieces of signal information from the company can explain their effect on stock returns. If the rupiah depreciates against the US dollar, it is indicated that the economy is not in a good condition. However, when the rupiah exchange rate strengthens (appreciates) against the US dollar, investors will tend to withdraw their capital from the stock market. This is because if the value of foreign currencies (US dollars) increases, investors will switch to investing in the money market. This condition will reduce



the demand for shares in the market and cause share prices to fall due to sluggish trading on the Stock Exchange. With reduced demand, of course, will cause the stock price to fall. This will make investors consider investing in the stock market, because it relates to the returns that will be obtained. The results of this study are the same as the results of previous studies conducted by Abdallah (2018), Bekhet and Mugableh (2012), Ajayi et. al (1998), Abdallah and ALjarayesh (2017), Cuestas and Tang (2020), Chkili and Nguyen (2014), Mahmood and Dinniah (2009), found no significant influence between the exchange rate and stock returns.

The results of debt to equity or DER affect stock returns. The significant effect of Debt to equity ratio or DER on stock returns has the same results as the theory put forward by Brigham and Houtson (2006) state the trade-off theory is when companies exchange their funding advantages through debt, which then explains the relationship between taxes, bankruptcy risk and the use of debt which can lead to decision making for the company's capital structure. If DER increases in a company, it indicates that the company has a capital structure that is larger than debt. The company will be more dependent on outsiders or creditors with a higher level of corporate risk and can reduce the credibility and value of the company in the eyes of investors where investors will be more inclined to avoid the company's shares (Ang, 1997). This result is also supported by the results of research from Alexakis et. al (2010), Winn (2014), Ghi (2015), Abdullah (2015), Malinggato, et. al (2018) and research by Ozturk and Karabulut (2020) where DER has a negative effect on stock returns.

Return on equity did not have an insignificant effect on stock returns. Brigham and Houston (2019) in signal theory say that the company will provide information or instructions to investors regarding the management of the company's management and the sustainability of the company to realize the expectation of the investor on the company. One of the benchmarks to see management efficiency in managing company capital is Return on Equity. However, the results of the return on equity research in this study are not significant, so it can be said that the information or instructions provided by the company cannot be used as a benchmark for the efficiency of capital management that will have an impact on stock returns. Brigham and Houtson (2010) revealed that share owners tend to like high ROE values. If ROE increases, the profits to be obtained by shareholders will also increase. If the ROE value is high, it indicates that the amount of net profit generated from each capital embedded in equity is higher (Fahmi, 2015). This will make the shareholder hold the shares they own, so that the supply of these shares in the stock market will be less and the stock price will be high and the returns will also be greater. The results of this study are the same as the results of previous studies conducted by Anwaar (2016), Hertina and Saudi (2019), Lie et. Al (2007), Yap and Firnanti (2019), Araújo and Machado (2017), Kabajeh (2012) states that the results of the study show that is return on equity did not have insignificant effect on stock return.

## **CONCLUSION**

The results of this study show only debt to equity (DER) has a significant effect on stock returns. Companies must have more attention to debt to equity or the value of company debt so that the company can reach the optimal level and does not always have high debt, because the results show that DER influences stock returns. Companies with a high DER ratio will tend to be avoided by investors.

The variable exchange rate and return on equity show that the results have no significant effect on stock returns. So, that it can be said that these results contradict the signal theory in which not all signals sent by the company can describe the condition of the company. However, companies cannot also ignore these two variables, because they may have an effect through other intervening variables and periods. Companies still need to do efforts such as long-term agreements with vendors abroad so that the impact of the exchange rate can still be anticipated. And maintain optimal returns so that investors can see the performance of the company.



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