

# Analysis of Influence of Investor Sentiment and Their Relationship with Company Characteristics on Stock Returns on Jakarta Islamic Index for Period of 2017 – 2020

*by Sudjono \_*

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**Submission date:** 25-Aug-2023 03:36PM (UTC+0700)

**Submission ID:** 2151046739

**File name:** 4.pdf (629.3K)

**Word count:** 6863

**Character count:** 34905

# 5 Analysis of Influence of Investor Sentiment and Their Relationship with Company Characteristics on Stock Returns on Jakarta Islamic Index for Period of 2017 – 2020

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**Abstract:-** In today's modern era, investment is no longer a foreign thing for everyone. This is due to the desire of each individual to be able to meet the needs of life in the future. When talking about investment, it will certainly be related to the level of return obtained as a return on investment and it is important for investors to know what factors affect the level of stock returns in order to obtain the maximum return. This study was conducted to test the effect of investor sentiment on stock returns by involving company characteristics factors in the Jakarta Islamic Index stock for the period 2017-2020. Investor sentiment was unique because it involves investors' financial behaviour which was represented by 4 components in technical analysis, namely the relative strength index (RSI), psychological line index (PLI), logarithm trading volume (LTV) and adjusted turnover rate (ATR). Company characteristics are represented by stock prices as one of the sensitive factors for investors. This study used a sample of 13 companies listed on the Jakarta Islamic Index which were analysed using the purposive sampling method where the composition of the company sample was taken from companies that were consistently on the Jakarta Islamic Index. The analysis used in this study was logistic regression analysis. This analysis aimed to test whether there was an influence between investor sentiment (RSI, PLI, LTV, ATR) and the sentiment index on stock returns and the relationship between stock prices in influencing the strength and weakness of the influence between the sentiment index and stock returns. The results showed that there was an influence between each component of investor sentiment (RSI and LTV) and the sentiment index on the probability of stock returns on the Indonesia Stock Exchange for the period 2017-2020. Meanwhile, the PLI and ATR components had no effect on the probability of stock returns. In addition, stock prices also affected the strength and weakness of the influence between investor sentiment and the probability of stock returns.

**Keywords:-** Investor Sentiment; Stock Returns; RSI; PLI; LTV; ATR.

## I. INTRODUCTION

Along with developments in this modern era, investment has become something that is no longer foreign to the ears. Faerber (2006) defines investment as a form of allocation of sources of funds both in the form of real and financial assets with the aim of increasing their value in the future. In addition, Gumanti (2011) defines investment as the use of financial capital with the intention of making more money.

In practice, investments can be made in various products such as deposits, properties, stocks, bonds, etc. Investors have the freedom to determine which products they will invest in by considering the potential returns and risks. Graham (2003) describes speculation as buying company shares when the company is experiencing an increase in profits or other positive things in the short term. So even though the return generated can be greater and can be obtained quickly, the risk offered is also greater because generally the nature of the benefits is only in the short term.

For this reason, investors need to be careful and know what factors can affect the amount of return and risk in investing. Brigham & Houston (2006) explain that stock return is the difference between the amount of funds received and the amount of funds invested divided by the amount invested. Meanwhile, Jogiyanto (2009) describes stock returns as something simpler, namely the result of the investments made.

The Islamic finance industry has been and is growing slowly but surely every year. The Islamic capital market emerged marked by the launch of Sharia mutual fund products by Danareksa Syariah, and then continued with the launch of the Jakarta Islamic Index (JII) as a Sharia index in 2000. The Jakarta Islamic Index (JII) is a benchmark or benchmark for Sharia shares in Indonesia which includes There are 30 shares that have been selected by the National Sharia Council (DSN) per semester.

58 Basically, there are many factors that affect the rate of return of Islamic stock index shares. This is proven by many studies related to stock returns in terms of various variable factors. Samsul (2006) distinguishes these factors into 2, namely: macro factors and micro factors. Fariska (2020) states that investor sentiment is an area of research on financial behavior that has grown over the past few years. The theory is generated on the basis that humans are irrational in that all forms of decisions they take both in social interactions and even investment decisions are influenced by feelings.

The Composite Stock Price Index (JCI) has experienced fluctuations which are thought to be caused by investor sentiment. As reported on the sites [cnnindonesia.com](http://cnnindonesia.com) and [Bisnis.tempo.com](http://Bisnis.tempo.com), the Composite Stock Price Index (CSPI) decreased by 91.45 points (1.68%) to a level of 5,361.24 at the close of daily trading on the Indonesia Stock Exchange (IDX), Jakarta, March 02 2020. This is allegedly caused by negative investor sentiment after the Indonesian government confirmed two cases of the corona virus. On March 23, 2020, the Jakarta Composite Index closed down 205.43 points (4.9%) to a level of 3,989.52 in line with the addition of Covid19 cases in Indonesia. The implementation of the New Normal Scenario in June 2020 was responded positively by the market. In stock trading as of June 3, 2020, foreign investors again recorded a net buy of IDR 69 billion in the regular market. Meanwhile, on June 2, 2020, the JCI closed up 1.98% or 93.89 points to 4,847.5. The closing of the JCI in trading that day was recorded at IDR 871.71 billion. The transaction volume reached 9.79 billion shares with a transaction value of Rp11.99 trillion. This phenomenon is presented in Figure 1. below:

**Figure 1.** Investor Sentiment Against the Covid-19 Virus Outbreak



The Composite Stock Price Index has experienced fluctuations which are thought to be caused by positive sentiment towards the announcement of the results of the 2019-2024 Presidential Election. As reported on the [tribunjogja.com](http://tribunjogja.com) website, the Composite Stock Price Index moved positively by 44.25 points (0.74%) to the level of 5,951.37. Meanwhile, the regional stock market did not experience positive sentiment towards the results of the 2014 – 2019 Presidential Election. In other conditions, the regional stock market experienced a weakening because there was no sentiment towards the results of the presidential election in Indonesia.

Due to the large number of investors in Indonesia who have trading behavior that tends to be biased and irrational and ultimately affects the level of return of their investment instruments, the level of investor sentiment is one indicator that can be used to analyze the ability of investors to obtain high stock returns.

55 (Yang, Ryu, & Ryu, 2017) explained that investor sentiment factors also have a relationship with company characteristics. Where company characteristics can be measured through company size, nominal share price, book-to-market ratio, excess stock returns, and the level of stock volatility. Furthermore, the study also concludes that there is a positive influence between sentiment and stock returns.

In line with the results of existing research, Mian & Sankaraguruswamy (2012) which includes the component of earning news and conducts tests on stock prices and investor sentiment where the results are stated that stock prices respond well to good earnings news in a high level of investor sentiment but on the contrary stock prices does not respond well to poor earnings news in low levels of investor sentiment. In addition, Zouaoui, Nouyrigat, & Beer (2011) also stated that investor sentiment can affect the possibility of a market crash within 1 year. Meanwhile, Fisher & Statman (2000) stated that the relationship between investor sentiment and S&P returns is significantly negative. The same thing was also expressed by Schmeling (2009) which stated that investor sentiment is negative towards stock market returns as a whole in several countries. This condition also applies to return value stocks, growth stocks, small stocks, and different horizon estimate. This shows that there is a gap between previous studies on the topic of investor sentiment and stock returns.

Thus, the authors are interested in conducting research to analyse the effect of investor sentiment and its relationship with company characteristics on stock returns on the Jakarta Islamic Index stock for the period 2017-2020.

## II. LITERATURE REVIEW

### A. Behavioral Financial Theory

Xiao (2008) defines financial behavior as individual behavior related to financial management. Financial behavior generally includes cash, credit, and behavior in making investments. It is further explained that there is a difference between behavior (behavior) and outcomes (outcomes), where behavior is not an outcome but something that is part of the results to be achieved. This proves that basically individual behavior will be something that can affect the results to be achieved. Someone who wants to do savings but the money is always used for holidays so that no funds can be allocated for savings. This causes the person in the end to not be able to make savings because of his behavior that prioritizes vacations over savings.

### B. Efficient Market Hypothesis

The capital market can be said to be efficient if one of the stock prices can describe the overall information on the market. The capital market can be said to be efficient if one

of the stock prices can describe the overall information on the market. The concept of the Efficient Market Hypothesis was forward by Fama (1970) in Rahmdan and Ervina (2017) which states that in an efficient market, securities in the form of convertible bonds will always be traded at their fair value so that no one is able to obtain abnormal returns. (abnormal return), after adjusting for risk, using trading strategies. In other words, the price formed in the market is the result of a reflection of all available information.

### C. Sentiment Index

In measuring the level of investor sentiment, there is a measurement tool called the sentiment index. Barber, Odean & Zhu (2009) state that the level of investor sentiment can be calculated by applying the concept of buy sell imbalances (BSI) which is determined using a ratio that includes the difference between daily stock trading and trading volume so that it can reflect how trading behavior can directly affect asset prices and stock returns after controlling for risk.

### D. Hypothesis

According to Sekaran (2006: 135), a hypothesis is a logically estimated relationship between two or more variables expressed in the form of a testable statement. It can be concluded several hypotheses to be tested in this study, namely:

H1 : There is an effect of the Relative Strength Index (RSI) on the stock returns of the Jakarta Islamic Index for the 2017-2020 period.

H2: There is an effect of the Psychological Line Index (PLI) on the stock returns of the Jakarta Islamic Index for the 2017-2020 period.

H3 : There is an effect of Logarithm Trading Volume (LTV) on stock returns of the Jakarta Islamic Index for the 2017-2020 period.

H4 : There is an effect of Adjusted Turnover Rate (ATR) on Jakarta Islamic Index stock returns for the 2017-2020 period.

H5: There is an effect of the sentiment index (RSI, PLI, LTV, and ATR) on the stock returns of the Jakarta Islamic Index for the 2017-2020 period.

H6 : The stock price (Stock Price) affects the size of the influence of investor sentiment on the stock returns of the Jakarta Islamic Index for the 2017-2020 period.

## III. RESEARCH METHODOLOGY

This study used a quantitative research design using secondary data where the secondary data came from the use of financial statement data for companies whose shares were listed on the Indonesia Stock Exchange for the period 2017 – 2020 contained in the Indonesian Capital Market Directory (ICMD), and the website of the Indonesia Stock Exchange (www.idx.co.id) where the data used time series. The population in this study were companies listed on the Jakarta Islamic Index for the 2017-2020 period totaling 30 (thirty) companies.

Determination of the sample in this study using purposive sampling method, namely the technique of determining the sample with certain considerations. The sample criteria used were as follows:

1. Companies that are consistently in the Jakarta Islamic Index (JII) during the period 2017 - 2020.
2. Had monthly closing stock price data for the period 2017 – 2020

The samples which the sample criteria were 13 companies, namely PT. Adaro Energy Tbk. (ADRO), PT. AKR Corpindo, Tbk. (AKRA), PT. Aneka Tambang, Tbk. (ANTM), PT. XL Axiata, Tbk. (EXCL), PT. Indofood CBP Sukses Makmur, Tbk. (ICBP), PT. Vale Indonesia, Tbk. (INCO), PT. Indofood Sukses Makmur, Tbk. (INDF), PT. Kalbe Farma, Tbk. (KLBF), PT. Bukit Asam, Tbk. (PTBA), PT. Telekomunikasi Indonesia (Persero), Tbk. (TLKM), PT. United Tractors, Tbk. (UNTR), PT. Unilever Indonesia, Tbk. (UNVR) and PT. Wijaya Karya (Persero), Tbk. (WIKA). The research variables in this research were Relative Strength Index (RSI), Psychology Line Index (PLI), Logarithm Trading Volume (LTV), Adjusted Turnover Rate (ATR), Investor Sentiment Index, Company Characteristics (Stock Price) and Stock Return.

The data analysis method in this study used regression analysis which used regression analysis with panel data then Moderated Regression Analysis on Panel Data, Logistic Regression Hypotheses and Decision Making.

The hypothesis used as an assumption to test the variables in this regression analysis was H0 = the regression coefficient was not significant and H1 = the regression coefficient was significant.

Meanwhile, Santoso (2015) explained that the reference used as the basis for decision making can be done in 2 ways, they were:

1. By comparing the values between the calculated statistics and the t-table statistics.
  - If statistic t count < statistic t table, then H0 is accepted
  - If statistic t count > statistic t table, then H0 is rejected
2. In this study, regression analysis will be carried out by making decisions based on the probability level of the level of significance ( $\alpha$ ). This study uses the assumption = 5% (0.05). Therefore, it can be concluded that the decision making follows:
  - If probability > 0.05, then H0 is accepted
  - If probability < 0.05, then H0 is rejected

## IV. RESULT AND DISCUSSION

### A. Result

#### Outliers Analysis

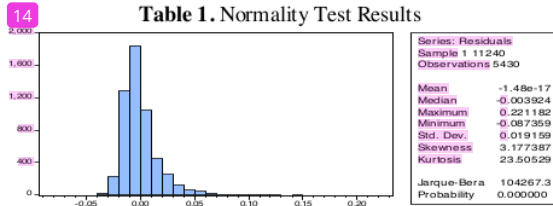
LTV, ATR, Stock Price, and moderating variables by multiplying the stock price with each independent variable; RSI x Share Price, PLY x Share Price, LTV x Share Price, and ATR x Share Price) using daily data for the period 2017-2020. Thus, obtained a total of 11,241 research data. From these data, a filter was performed where the variables

Variables which had a value of 0 are excluded from the research data, namely 5,811 data because they were considered as outliers. This was done with the aim of avoiding the occurrence of data errors because they are

distributed in the value 0. Thus, after filtering the data, the final data was 5,430 data.

**13** *Normality test*

The results of the normality test carried out using data that have been compiled are 5,430 data:



In determining whether the analysed data was normally distributed or not, a comparison was made between the Jarque-Bera value, which was 104,267.3 more than ( $>$ ) the Chi Square prob value at a probability level of 0.05, so it could be concluded that the data used in this study was not normally distributed.

*Heteroscedasticity Test*

This test is carried out to detect whether the variance value of each error is different or varies. The following were the results of the glesjer test carried out:

**17** **Table 2. Heteroscedasticity Results**

Dependent Variable: RESABS  
Method: Least Squares  
Date: 06/10/21 Time: 10:40  
Sample (adjusted): 1 11240  
Included observations: 5430 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
<b>36</b>	0.030769	0.002636	11.67215	0.0000
X1	-0.022748	0.002457	-9.260306	0.0000
X2	0.012477	0.001042	11.96973	0.0000
X3	0.014213	0.001916	7.417651	0.0000
X4	-0.009519	0.000444	-21.45785	0.0000

**11** **15**

R-squared	0.105052	Mean dependent var	0.012254
Adjusted R-squared	0.104392	S.D. dependent var	0.015043
S.E. of regression	0.014237	Akaike info criterion	-5.665083
Sum squared resid	1.099541	Schwarz criterion	-5.659006
Log likelihood	15385.70	Hannan-Quinn criter.	-5.662962
F-statistic	159.2016	Durbin-Watson stat	1.758843
Prob(F-statistic)	0.000000		

In Table 2 above, it could be seen that the probability value for each independent variable has a value below ( $<$ ) 0.05, so it could be concluded that the data in this study had heteroscedasticity.

*Multicollinearity Test*

This test was conducted to identify whether there was a correlation or intercorrelation between the independent variables (independent) in the regression model. For this reason, a correlation analysis was carried out and gave the following results:

**Table 3. Multicollinearity Test Results**

	RSI	PLI	LTV	ATR
RSI	1.0000	0.9079	0.9413	0.5416
PLI	0.9079	1.0000	0.7704	0.4653
LTV	0.9413	0.7704	1.0000	0.5880
ATR	0.5416	0.4653	0.5880	1.0000

From table 4.4 above, it could be seen that there were no values that exceed ( $>$ ) 0.80, all values were below ( $<$ ) 0.80, so it could be concluded that there was no violation of multicollinearity in this study.

**41** *Autocorrelation Test*

In this study, the autocorrelation test used the Durbin Watson value by comparing the dU (Upper) and dL (Lower) values. By performing regression analysis, the following results were obtained:

**Table 4. Autocorrelation Test Results**

Dependent Variable: Y  
Method: Least Squares  
Date: 06/10/21 Time: 10:47  
Sample (adjusted): 1 11240  
Included observations: 5430 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.037081	0.003895	9.520748	0.0000
X1	-0.031639	0.003629	-8.717580	0.0000
X2	0.010677	0.001540	6.932496	0.0000
X3	0.032937	0.002831	11.63472	0.0000
X4	-0.022527	0.000655	-34.37158	0.0000

R-squared 0.195899 Mean dependent var 0.020659  
Adjusted R-squared 0.195306 S.D. dependent var 0.023448  
S.E. of regression 0.021034 Akaike info criterion -4.884460

In the table above, it was known that the value of Durbin Watson was 1.9519, then using the following criteria:

Positive Autocorrelation Detection:  $d > D1$  ( $1.951 > 1.92246$ ) then there was no positive autocorrelation

Negative Autocorrelation Detection:  $(4-d) > dU$  ( $4 - 1.9519 > 1.9304$   $2.0481 > 1.93049$ ). then there was a positive autocorrelation

**3** Thus, it could be **34** cluded that the data used in this study did not pass the classical assumption test (normality test, heteroscedasticity test and multicollinearity test), while only the autocorrelation test passed. In the end, the author decided to switch to using the logistic regression method, which in the application

This method did not need to use the classical assumption test as was done in the previous method (moderated regression analysis), besides that this method can be applied to a **46** ge number of samples. So, it fitted with the characteristics of the data used in this study.

*Data Analysis*

This study analyzed the data using the logistic regression analysis method. This analysis is used to test whether there was an influence between the independent

variables, namely: investor sentiment including RSI, PLY, LTV, and ATR on the dependent variable, namely: stock returns. In addition, this analysis was also used to examine the role of company characteristics described by stock prices in relation to influencing the strength and weakness of investor sentiment (RSI, PLY, LTV, and ATR) on stock returns.

Logistic regression analysis was carried out by involving all research variables using one of the computer application tools used to perform data processing, namely EViews 10 and SPSS 25. Before running the data, the dependent (bound) variable, namely stock returns, was converted into binary (nominal) data with how to filter data using the mean value, with the criteria that if the data value exceeds (>) the mean value then it is given a value of 1 while if the data value is less than (<) the mean value is given a value of 0. To perform intermediate calculations for all data values that are in below 0.000521 a value of 0 is given. After the data was input into the EViews 10 and SPSS 22 applications, a regression test was performed using the logistic regression method.

**B. Discussion**

This discussion will also discuss the interpretation of results for logistic regression analysis which was divided into 4 parts, namely: overall test, partial test, R-Squared, and regression model accuracy test.

The following were the results of data processing performed using the logistic regression analysis method:

**Table 5.** Results of Data Processing (Logistic Regression Analysis) Newton – Raphson

Dependent Variable: Return Saham			
Method: ML - Binary Logit (Newton-Raphson / Marquardt steps)			
Date: 06/10/21 Time: 11:26			
Sample (adjusted): 1 11240			
Included observations: 5430 after adjustments			
Convergence achieved after 4 iterations			
Coefficient covariance computed using observed Hessian			
McFadden R-squared	0.056282	Mean dependent var	0.476980
S.D. dependent var	0.499516	S.E. of regression	0.481836
Akaike info criterion	1.308111	Sum squared resid	1259.498
Schwarz criterion	1.314188	Log likelihood	-3546.521
Hannan-Quinn criter.	1.310232	Deviance	7093.042
Restr. deviance	7516.064	Restr. log likelihood	-3758.032
L.R. statistic	423.0226	Avg. log likelihood	-0.653135
<b>Prob(LR statistic)</b>	<b>0.000000</b>		
Obs with Dep=0	2840	Total obs	5430
Obs with Dep=1	2590		

*Hypothesis testing (Overall Test)*

In this study, to perform the overall test, it involved 2 predetermined hypotheses related to the investor sentiment index (combined values of RSI, PLY, ATR, and LTV) on stock returns, as well as stock prices as a moderating variable multiplied by each independent variable. overall. The hypotheses formed are in H5 and H6 which are listed in Chapter II in this study.

H0 : There was no effect of the sentiment index (RSI, PLI, LTV, and ATR) on the probability of stock returns on the Indonesia Stock Exchange in the period 2017 - 2020.  
 H5 : There was an effect of the sentiment index (RSI, PLI, LTV, and ATR) on the probability of stock returns on the Indonesia Stock Exchange in the period 2017 - 2020.

H0 : Stock price did not affect the size of the influence of investor sentiment on the probability of stock returns on the Indonesia Stock Exchange in the period 2017 - 2020.

H6 : The stock price (Stock Price) affected the magnitude of the influence of investor sentiment on the probability of stock returns on the Indonesia Stock Exchange in the period 2017 - 2020.

To test the hypothesis above, it could be seen through the P-value which was reflected in the value of Prob (L Statistics) = Prob > X 2 which shows the number 0.000000. This value was smaller than the test significance level of 0.05 so that H0 was rejected, H5 and H6 were accepted.

This meant that, with a confidence level of 95%, it could be concluded that there was a significant influence between the sentiment index (RSI, PLI, LTV, and ATR) on stock returns on the Indonesia Stock Exchange in the 2017-2020 period. In addition, with a 95% confidence level, it could be concluded that the stock price (Stock Price) affected the size of the influence of investor sentiment on stock returns on the Indonesia Stock Exchange in the period 2017 - 2020.

*Hypothesis testing (Partial Test)*

In this study, to perform the overall test, it involved 2 predetermined hypotheses related to the investor sentiment index (combined values of RSI, PLY, ATR, and LTV) on stock returns, as well as stock prices as a moderating variable multiplied by each independent variable. overall. The hypotheses formed are in H5 and H6 which were listed in Chapter II in this study.

H0 : There was no effect of the sentiment index (RSI, PLI, LTV, and ATR) on the probability of stock returns on the Indonesia Stock Exchange in the period 2017 - 2020.

H5 : There was an effect of the sentiment index (RSI, PLI, LTV, and ATR) on the probability of stock returns on the Indonesia Stock Exchange in the period 2017 - 2020.

H0 : Stock price did not affect the size of the influence of investor sentiment on the probability of stock returns on the Indonesia Stock Exchange in the period 2017 - 2020.

H6 : The stock price (Stock Price) affected the magnitude of the influence of investor sentiment on the probability of stock returns on the Indonesia Stock Exchange in the period 2017 - 2020.

To test the hypothesis above, it could be seen through the P-value which was reflected in the value of Prob (L Statistics) = Prob > X 2 which shows the number 0.000000. This value was smaller than the test significance level of 0.05 so that H0 was rejected, H5 and H6 were accepted.

This meant that, with a confidence level of 95%, it could be concluded that there was a significant influence between the sentiment index (RSI, PLI, LTV, and ATR) on stock returns on the Indonesia Stock Exchange in the 2017-2020 period. In addition, with a 95% confidence level, it could be concluded that the stock price (Stock Price) affected the size of the influence of investor sentiment on stock returns on the Indonesia Stock Exchange in the period 2017 - 2020.

In this study, to perform a partial test, it involved 4 predetermined hypotheses related to each of the RSI, PLI, ATR, and LTV variables on stock returns, as well as stock prices as moderating variables multiplied by each independent variable as an individual variable. (RSI x Share Price; PLI x Share Price; ATR x Share Price; and LTV x Share Price). The hypotheses formed were found in H1 - H4 and the translation of H6 in terms of each moderating variable listed in Chapter II in this study.

H0 : There was no effect of the Relative Strength Index (RSI) on the probability of stock returns on the Indonesia Stock Exchange in the period 2017 - 2020.

H1 : There was an effect of the Relative Strength Index (RSI) on the probability of stock returns on the Indonesia Stock Exchange in the period 2017 - 2020.

H0 : There was no effect of the Psychological Line Index (PLI) on the probability of stock returns on the Indonesia Stock Exchange in the period 2017 - 2020.

H2 : There was an effect of the Psychological Line Index (PLI) on the probability of stock returns on the Indonesia Stock Exchange in the period 2017 - 2020.

H0 : There was no effect of Logarithm Trading Volume (LTV) on the probability of stock returns on the Indonesia Stock Exchange in the period 2017 - 2020.

H3 : There was an effect of Logarithm Trading Volume (LTV) on the probability of stock returns on the Indonesia Stock Exchange in the period 2017 - 2020.

H0 : There was no effect of Adjusted Turnover Rate (ATR) on the probability of stock returns on the Indonesia Stock Exchange in the period 2017 - 2020.

H4 : There was an effect of Adjusted Turnover Rate (ATR) on the probability of stock returns on the Indonesia Stock Exchange in the period 2017 - 2020

The following is the result of logistic regression analysis using the Forward Wald method to find out which variables have the highest influence on the probability value of stock returns to variables that have no effect on the probability of stock returns:

**Table 6.** Variables in the Equation

Variabel	B	S.E.	Wald	Df	Sig.	Exp(B)
RSI	0.008	0.002	20.959	1	0.000	1.008
LTV	-0.583	0.034	293.296	1	0.000	0.558
LTV x Price	-3.092	0.131	560.397	1	0.000	0.045
ATR x Price	0.589	0.069	72.258	1	0.000	1.802
Constant	22.495	0.998	507.641	1	0.000	5.030

a. Variable(s) entered on step 1: LTVP.  
 b. Variable(s) entered on step 2: LTV.  
 c. Variable(s) entered on step 3: ATRP.  
 d. Variable(s) entered on step 4: RSI.

**Table 7.** Variables In not the Equation

Variable	Score	df	Sig.
PLI	0.885	1	0.165
ATR	6.390	1	0.357
RSI x Price	14.607	1	0.466
PLI x Price	4.091	1	0.759

To test the hypothesis above, it can be seen through the P-value which is reflected in the value of Sig. of each related variable where the results in Table 4.8 state that:

- The RSI value showed the number 0.000, the value is smaller than the significance level value of 0.05, so H0 was rejected, H1 is accepted. Then there was a significant effect between the RSI on the probability of stock returns on the Indonesia Stock Exchange in the 2017-2020 period.
- The LTV value showed the number 0.000, the value is smaller than the significance level value of 0.05, so H0 was rejected, H1 was accepted. So, there was a significant effect between LTV on the probability of stock returns on the Indonesia Stock Exchange in the 2017-2020 period.
- The value of LTV x Stock Price shows the number 0.000, 28 value was smaller than the significance level value of 0.05, so H0 is rejected, H1 was accepted. Then there was a significant effect between LTV x Price on the probability of stock returns on the Indonesia Stock Exchange in the 2017-2020 period.
- The value of ATR x Stock Price shows the number 0.000, 29 value was smaller than the significance level value of 0.05, so H0 was rejected, H1 was accepted. Then there was a significant effect between ATR x Price on the probability of stock returns on the Indonesia Stock Exchange in the 2017-2020 period.
- The value of ATR x Stock Price shows the number 0.000, 29 value was smaller than the significance level value of 0.05, so H0 was rejected, H1 was accepted. Then there was a significant effect between ATR x Price on the probability of stock returns on the Indonesia Stock Exchange in the 2017-2020 period.
- The value of LTV x Stock Price shows the number 0.000, 29 value was smaller than the significance level value of 0.05, so H0 was rejected, H1 was accepted. Then there was a significant effect between LTV x Price on the probability of stock returns on the Indonesia Stock Exchange in the 2017-2020 period.
- The value of ATR x Stock Price shows the number 0.000, 29 value was smaller than the significance level value of 0.05, so H0 was rejected, H1 was accepted. Then there was a significant effect between ATR x Price on the probability of stock returns on the Indonesia Stock Exchange in the 2017-2020 period.
- The value of RSI x Stock Price showed the number 0.466, this value is greater than the significance level value of 0.05, so H0 is accepted, H1 is rejected. So there is no significant effect between RSI on the probability of stock returns on the Indonesia Stock Exchange in the 2017-2020 period.
- The value of ATR x Stock Price showed the number 0.357, this value is greater than the significance level value of 0.05, so H0 is accepted, H1 is rejected. So there is no significant effect between ATR on the probability of stock returns on the Indonesia Stock Exchange in the 2017-2020 period.
- The value of RSI x Stock Price showed the number 0.466, this value is greater than the significance level value of 0.05, so H0 is accepted, H1 is rejected. So there is no significant effect between RSI on the probability of stock returns on the Indonesia Stock Exchange in the 2017-2020 period.
- The value of PLI x Stock Price showed the number 0.759, this value is greater than the significance level value of 0.05, so H0 was accepted, H1 was rejected. So, there was no significant effect between PLI on the probability of stock returns on the Indonesia Stock Exchange in the 2017-2020 period.

Through Table 6, it could also be concluded that LTV x Stock Price was the variable with the highest influence on the probability of stock returns.

*R-Squared*

In performing logistic regression analysis, there were 2 types of R-Squared which are shown in Table 8. below:

**Table 8. R-Squared**

Model Summary			
Step	-2 Log Likelihood	Cox & Snell R Square	Nagelkerke R Square
1	7132.317 <sup>a</sup>	.068	.091
2	6883.328 <sup>a</sup>	.110	.147
3	6810.526 <sup>a</sup>	.122	.163
4	6789.455 <sup>a</sup>	.125	.167

a. Estimation terminated at iteration number 4 because parameter estimates changed by less than .001.

Through the results shown in Table 4.10. Above, it could be concluded that by entering the variables one by one starting with steps 1-4, it could be seen that there was an increase in the value of -2 Log Likelihood, Cox n Snell R-Square and Nagelkerke R Square which indicated an improvement in the research model. The following will explain the interpretation of each of the results displayed. In this case, the interpreted value was the value that was highlighted in yellow because this result was the final result where the model included all the variables in this study.

*-2 Log Likelihood*

The value of -2 Log Likelihood was used to identify whether the research model that was formed was fit or not before the independent variables were entered into the research data. In interpreting this value, it was necessary to compare the value of -2 Log Likelihood (6789.455) with the Chi-Square value at  $df = n-k$  ( $5,430-5 = 5,425$ ) and the probability level = 0.05, which was a value of 5603.55. From these results, it was known that the value of -2 Log Likelihood (6789.45) > Chi Square (5603.55) which meant that the model before including the independent variable was not fit with the data. So, it was necessary to have independent variables used in research data to refine and make the research model fit.

*Cox n Snell R Square & Nagelkerke R Square*

The value reflected in Cox n Snell R Square & Nagelkerke R Square represented the R-Square value in logistic regression where the percentage represented how much the ability of the independent variable to influence the dependent variable. Referring to Table 4.10, it was known that the value of Cox n Snell R Square (R Square) is 0.125 = 12.5% while the value of Nagelkerke R Square (Adjusted R Square) is 0.167 = 16.7%. To interpret the results, the Nagelkerke R Square value is used which is an adjusted R Square (perfects the weakness of Cox n Snell R Square). So, it can be concluded that the ability of the independent variable in this study was 16.7% while there are still 83.3% of other variables that can explain the probability of stock returns.

*Logistics Regression Model Accuracy Test*

In applying the logistic regression analysis model, it was necessary to further analyze the accuracy of the model

formed. This was done to assess whether the independent variables used in this study (RSI, PLI, ATR, LTV) and moderating variables (Stock Price) could affect the probability of stock returns as the dependent variable or vice versa. The results of the model accuracy test from the logistic regression that have been carried out were shown in Table 9. as follows:

**Table 9. Classification Table**

Observed	Predicted		Percentage Correct
	Return_Saham .00	Return_Saham 1.00	
Step 1 Return_Saham .00	1724	1116	60.7
Return_Saham 1.00	1150	1440	55.6
Overall Percentage			58.3
Step 2 Return_Saham .00	1843	997	64.9
Return_Saham 1.00	1021	1569	60.6
Overall Percentage			62.8
Step 3 Return_Saham .00	1806	1034	63.6
Return_Saham 1.00	1015	1575	60.8
Overall Percentage			62.3
Step 4 Return_Saham .00	1815	1025	63.9
Return_Saham 1.00	1003	1587	61.3
Overall Percentage			62.7

a. The cut value is .500

From the table above, it could be seen that by using the forward stepwise-wald method, it could be seen that the value of the accuracy of the model from the logistic regression was 62.7% with the composition of stock returns with a value of 66% of 63.9% and stock returns with a value of 1 by 61.3%. So, it can be concluded that the independent and moderating variables used in this study can be interpreted as 62.7% correct in the logistic regression model in influencing the probability level of stock returns. The percentage of 62.7% was considered quite good and feasible and proved that the logistic regression model used in this study was quite appropriate.

Thus, from the explanation and detail above, it could be concluded that for the overall test it could be seen that the sentiment index (combined components of RSI, PLI, ATR, and LTV) had a significant effect on the probability of stock returns, in addition to stock prices as a variable. Model also has an influence on the strength and weakness of the influence between investor sentiment and the probability of stock returns. However, if viewed from each variable, it can be seen that the RSI, LTV, ATR variables had a significant effect on the probability of stock returns while PLI does not have a significant effect on the probability of stock returns. On the other hand, in terms of moderating variables, it was the combination of ATR and LTV with stock prices that affects the strength and weakness of the influence between investor sentiment and the probability of stock returns, while the combination of other moderating variables (RSI x Stock Price; and PLI x Stock Price) does not have a strong influence. the weak influence between investor sentiment and the probability of stock returns.

**V. CONCLUSION**

The results of this study stated that ATR does not significantly affect stock returns. The author identified the ambiguity of the level of optimism and pessimism among Indonesian investors, or in other words, tends to be neutral in



investing (only following market conditions) so that the impact of the resulting ATR is unable to predict the value and does not affect the probability of stock returns. In addition, the level of stock volatility identified in the value of trading volume and the number of shares outstanding also has a role in determining the probability of stock returns. Looking at the data, the majority of shares in the Jakarta Islamic Index (JII) have a high level of volatility so they do not have a consistent stock price trend. This causes stock prices to tend to be dynamic and ultimately cannot be used as a factor in determining the probability of stock returns.

In addition, of course, stock returns would be related to the level of risk on investments made by investors. When the return increases, the risk will generally increase so that investor sentiment needs to be maintained in order to adjust to the desired level of return and the level of risk that will be faced. So that the investment decisions taken are right and appropriate. Meanwhile, in terms of behavioral financial theory, this research contributes where investors need to control the level of sentiment so that they are able to obtain maximum returns. Because basically every component of investor sentiment will measure the nature of investors which will be used as a model of behavior in making investment decisions. Where RSI measures the level of change in asset prices to the gain / loss obtained by investors; PLI measures the level of short-term price changes that will affect the stability of investors' psychological factors; LTV describes the overall opinion of investors in the market and ATR describes the level of optimism and pessimism of investors.

Through this research, it can also be concluded that the investor sentiment factor that needs to be considered the most important is the RSI level, the two LTVs in the application on the index used in this research sample, namely the Jakarta Islamic Index (JII). This can be identified through a partial test carried out in the logistic regression test through the resulting wald value where the highest wald value states the independent variable that has the most influence on the probability of the dependent variable (stock return). Meanwhile, stock prices also moderate the influence between LTV and the probability of stock returns, while in the second place, stock prices moderate the effect between ATR and the probability of stock returns.

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