Jurnal Ilmiah Poli Bisnis, Volume 12 No. 1 April 2020

The Impacts of The Week Effect on The JII Returns and Risks

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Abstract

This study aims to examine the impacts of the day of the week effect on stock returns and measurements of risks in companies listed on the Jakarta Islamic Index (JII) for the June 2018-May 2019 period. The sample consisted of 28 companies. This study found that there is an influence of the day of the week effect on the Jakarta Islamic Index stock returns. It partially showed that the Monday effect had a significant negative effect on the JII stock returns. While on Friday effect had a positive and significant effect on the Jakarta Islamic Index stock returns. In the buy and sell decision-making, investors may firstly consider and look at the trends in the market. Also, this study revealed that there was no significant difference between the results of the measurement of risk (value-at-risk) with the historical simulation and variance-covariance methods on the JII stock risk for the June 2018-May 2019 period. This was due to differences in sampling techniques, sample selection, and the period of observation.

Keywords : day of the week effect, return, VaR, Historical Simulation

INTRODUCTION

Every investor expects to benefit from the business they do, one of which is by investing in the stock market. This investment is expected to generate profits in the future as a return of the risk-taking activity. In other words, investment has two sides: return and risk (Tandelilin, 2001). Return and risk vary based on the trends of stock prices in every trading day, where the stock prices rely much on the efficiency of the capital market. Facilitating his research on market efficiency, Fama (1970) grouped the types of efficient market into three efficient market hypotheses (EMH), namely weak form efficiency, semi strong form efficiency, and strong form efficiency. One of deviations from the efficient market hypothesis, which causes market anonalies, is seasonal anomalies such as the day of the week effect. The day of the week effect shows irregularity to the EMH when the average return gained from stocks is the same or no difference on the trading day. The Monday effect and the Friday effect are part of the phenomenon of the day of the week effect that was first discovered by Cross (1973) after observing the return of the S&P index of the New York Stock Exchange in the 1953-1970 period.

A similar study conducted by French (1980), who used the data of the 1953-1977 period, shows lower (negative) returns on Monday and higher (positive) returns on Friday. According to Iramani (2006), the phenomenon of the day of the week effect confirms the difference of returns on each trading day. In her study, Cahyaningdyah (2010) examined 70 stocks that were actively traded from 2004 to 2006. The result was that Monday saw the lowest average return and Friday was the trading day with the highest average return that showed a similar pattern with stock returns on the American stock exchange. The greater the possibility of differences in returns, the higher the risk of investments is (Tandelilin, 2001). One method to measure market risk

commonly used by investors and considered as a standard one is value-at-risk (VaR) (J.P. Morgan, 1994). Other methods include historical simulation and variance-covariance. Besides being influenced by the time period and confidence level, the VaR value is also affected by market risks, mainly when the market is hit by disturbances as historical measurement uses return values of the period. According to Reuse (2010), the variance-covariance and historical simulation methods lead to different results. Historical simulation leads to a better portfolio mix. The combination is recommended for the variance-covariance method which leads to a higher risk. According to Sumaji (2017), there are differences in VaR results calculated using the variance-covariance, historical simulation, and Monte Carlo models. However, the variance-covariance model is considered valid for the measurement of the maximum potential loss of shares.

This research was conducted to provide potential investors or existing investors with new insights in formulating their investment strategies in the future and they are expected to be able to predict stock price trends that can eventually affect returns and risks. In addition, the company can make stock-price related decisions and strategies implemented in the future. Citing the developments of the Islamic capital market in Indonesia, this study was also conducted to find out the risks that would arise due to fluctuations or trends of Islamic stocks as a basic consideration for investors in making decisions to invest in the Islamic stock market in Indonesia. JII is a collection of 30 most liquid stocks of companies whose business activities are not contrary to the teachings of sharia and this sharia stock index has been included in the Sharia Securities List (SSL) issued and protected by the Financial Services Authority (FSA)

Return is a factor that motivates investors to make investments and it also serves as a reward for them to have borne the risk on investments (Tandelilin, 2001). Besides, the risk can also refer to the possibility of any difference between the actual return and the expected return. The greater the possibility for the difference to materialize, the higher the risk of the investments is. Risk is defined as uncertainty about the actual return to be obtained from investments (Jones, 2013). Thus, the risk of losses is a challenge for investors due to the many stocks that can be an option to invest. The method or measurement of market risks used by investors and considered as a standard method is VaR (JP.Morgan, 1994).

VaR is commonly measured using the historical simulation method and the variance-covariance method. VaR is a statistical measure to estimate the possibility of a loss in the value of an asset or risky portfolio in a certain period of time and at a certain confidence level. VaR always uses a confidence level, which indicates the probability that the loss will not surpass the value given (Corkalo, 2011). VaR with a historical simulation is a measure that does not require the assumption of the normal return distribution or the linear nature of portfolio return to the return of single assets (Jorion, 2003). VaR measurement uses the historical simulation method with actual historical data of the past. This method produces more accurate VaR when compared to the results of VaR using the variance-covariance method. Meanwhile, according to Jorion (2003), the variance-covariance (delta-normal) approach is the simplest VaR calculation method. In this approach, it is assumed that the portfolio exposure is linear and the risk factors are normally distributed.

Backtesting is a framework statistical test consisting of checking whether the actual losses in trade are in accordance with VaR predictions. Every exceedance is considered as an exception. The method used in calculating backtesting in this study is the regulatory framework from Basel 1996 (Jorion, 2007) and the Kupiec test (Kupiec, 1995). The backtesting procedure implemented by the Basel Committee (traffic light) consists of three zones, namely red, yellow,

and green. The green zone shows an accurate VaR model, the yellow one may be accurate or inaccurate, and the red one indicates a problematic VaR model (Katsenga, 2013). Meanwhile, the Kupiec test is a method used also to validate backtesting. In this study, the Kupiec test was used with the performance test based on proportion of failure (TNoF) approach, which is based on an exception (failure rate) because this backtesting method is commonly used.

According to Bodie (2010), an efficient market is the one showing prices of all traded securities that reflect various existing information. Efficient market hypothesis is a theory stating that to secure profit in free market competition, all information on market prices should have accurately been reflected. In his research, Fama (1970), classified EMH into three types, namely weak form, semi strong, and strong. Besides, an efficient market also sees anomalies, in which market return patterns seem to conflict with the EMH (Bodie, 2010). In anomalies, irregularities or deviations are found and they should not occur with the assumption that an efficient market actually exists, which means that abnormal returns can be obtained by utilizing a certain event.

Financial anomalies are generally divided into four types, namely seasonal anomalies, event anomalies, accounting anomalies, and firm anomalies. One of the phenomena of the seasonal anomalies is the day of the week effect, in which returns obtained on Monday are significantly different if compared to that of the other days of the week (Damodaran, 2002). There is no difference in stock returns on each trading day in the efficient market theory.

But on the day of the week effect, there are differences in returns on every trading day with negative returns tending to occur on Monday. This argument is supported by Saraswati (2017). Taking into account the LQ45 daily stock returns for the period of 2015, her research shows the presence of different and significant returns on each trading day. The lowest and negative returns were seen on Monday and the highest ones prevailed on Thursday. One phenomenon seen in the day of the week effect is the Monday effect and the Friday effect, which was first discovered by Cross (1973) after observing the returns of the S&P 500 Index from 1953 to 1970.

Similar research was also carried out by French (1980). Referring to the 1953-1977 data, it was shown that the lower (negative) returns was observed on Monday and the higher (positive) ones were identified on Friday. The Monday effect showed that returns tended to be negative on the day, which is a seasonal anomaly that relies much on a period of time. The Friday effect is the weekend effect phenomenon with higher returns if compared to that of other days. On contrary, returns are lower in the trading day of Monday (Tandelilin, 2001).

In formulating strategies and making decisions on stock trading for optimal returns, investors need to first consider the presence of the day of the week effect. Chatterjee (2016) found the lowest stock returns on Monday but significantly higher on Wednesday, Thursday, and Friday. This argument is supported by Derbali (2016) who proved that there is a day of the week effect on returns and positive volatility of the Tunisian stock exchange on Wednesday, Thursday, Friday, and returns of the previous dates (t-1). This is in line with research on the Romanian stock market conducted by Tilica (2014) who found that the Friday effect provides the highest return on Friday if compared to the other days of the week. Besides, Iramani (2006) noted that the day of the week effect facilitates various level of returns to prevail on each trading day of the week. Lower returns were found on Monday and higher ones were seen on Tuesday. Cahyaningdyah (2010) observed 70 actively traded stocks from 2004 to 2006 and identified the lowest average returns on Monday and the highest ones on Friday. From the afore-mentioned results of the previous studies and arguments, hypotheses about the day of the week effect are developed as follows:

H1: Simultaneously, the day of the week effect has a significant effect on daily stock returns on the JII of IDX for the June 2018-May 2019 period.
H2: Partially, the Monday effect has a significant negative effect on stock returns on the JII of IDX for the June 2018-May 2019 period.
H3: Partially, the Friday effect has a significant positive effect on stock returns on the JII of IDX for the June 2018-May 2019 period.

The historical simulation approach leads to a better portfolio mix. A combination is recommended for the variance-covariance approach which yields higher risks. The effects of real estate and commodity diversification are better quantified using historical simulations (Reuse, 2010). In addition, Sumaji (2017) found that there are differences in VaR results using the variance-covariance method, historical simulation calculation, and Monte Carlo calculation. However, the variance-covariance model is considered valid for measuring the maximum potential stock losses by using a sample of manufacturing companies operating in Indonesia of nine stocks calculated at the confidence level of 95%. In accordance with the results of previous studies and the abovementioned arguments, the hypothesis regarding the method of measuring VaR is as follows:
H4: There is a significant difference between the results of VaR measurements with the historical simulation and variance-covariance methods

RESEARCH METHOD

The population in this study was the listed companies whose stocks were the constituents of the Jakarta Islamic Index (JII) for the June 2018- May 2019 period. Based on the purposive sampling approach, 28 JII stocks were eligibly selected as the object of this study. The multiple and single linear regression model was used as a model in this study with the aim to determine the impact of the day of the week effect (using a dummy variable, consisting of DMon, DThue, DWed, DTurs, DFri) on stock returns with the following equation:

$$Rt = \alpha + \beta 1\ DMon + \beta 2\ DThue + \beta 3\ DWed + \beta 4\ DThurs + \beta 5\ DFri + etit \quad (1)$$
$$Rt = \alpha + \beta 1\ DMon + etit \quad (2)$$
$$Rt = \alpha + \beta 5\ DFri + etit \quad (3)$$

RESULT AND DISCUSSION

Data Analysis : Technique

The results of descriptive analysis were used to describe the mean value, standard deviation value, minimum value, and maximum value. The results of the analysis in Table 1 show the lowest mean on Monday's trading day at -0.00185, while the highest average return (mean) occurred on Friday at 0.00210. The highest standard deviation was recorded on Monday at 0.01560 and the lowest was on Friday at 0.00990. Thus, the average index return on Monday had the highest risk if compared to that of other trading days and the average index return on Friday had the lowest risk if compared to that of other trading days.

Table 1 Descriptive average of return Monday-Friday JII Company June 2018-May 2019 Period

Variable	Obs	Mean	Min	Max
Monday	48	-0,00185 (0,01560)	-0,03951	0,02981
Thuesday	45	-0,00111 (0,01366)	-0,03420	0,02132
Wednesday	47	-0,00023 (0,01439)	-0,05299	0,02253
Thursday	49	0,00044 (0,01525)	-0,04069	0,03733
Friday	49	0,00210 (0,00990)	-0,01747	0,03333
Total	238			

The results of the descriptive analysis in Table 2 above depicts the observations of returns of the companies with active stock trading on the Indonesia Stock Exchange from June 2018 to May 2019 with 238 observations. The highest return was secured by ANTM at 0.195122 on Monday, December 3, 2018. The lowest return was recorded by LPPF at -0.2218182 on Tuesday, March 5, 2019. INDY booked the lowest average return at -0.00346, while BRPT recorded the highest average return at 0.00215. LPPF had the highest standard deviation value of 0.04135,while the lowest one of 0.016740 belonged to ICBP. Thus, it can be concluded that the average index return of LPPF stock had the highest risk if compared to other trading days and the average index return of ICBP stock had the lowest risk if compared to that of other companies.

Table 2 Descriptive Return of JII Company June 2018-May 2019 period

Variable	Obs	Mean	Std Dev	Min	Max
ADRO	238	-0,0012053	0,0273215	-0,1178451	0,1300813
AKRA	238	-0,0005787	0,0250989	-0,0773585	0,0803571
ANTM	238	-0,0003003	0,0301818	-0,0786517	0,195122
ASII	238	0,0005058	0,0191889	-0,0592105	0,0551471
BRPT	238	0,0021522	0,0241947	-0,076555	0,0677083
BSDE	238	-0,0006588	0,0254073	-0,0677966	0,075000
CTRA	238	0,0003717	0,0317085	-0,0909091	0,1079545
EXCL	238	0,0018196	0,0323984	-0,1526718	0,1414634
ICBP	238	0,0006403	0,0167413	-0,0895884	0,0777778
INCO	238	-0,0010871	0,0289025	-0,0859599	0,0990099
INDF	238	-0,0000649	0,0213838	-0,0719178	0,0817121
INDY	238	-0,0034593	0,0358475	-0,1068702	0,1862745
INTP	238	0,0012077	0,0295117	-0,0702703	0,0987868
ITMG	238	-0,0012525	0,0273885	-0,1274817	0,0841709
KLBF	238	0,0003485	0,0220976	-0,0716724	0,0864198
LPPF	238	-0,0028654	0,0413533	-0,2218182	0,1526316
PGAS	238	0,0004393	0,0302124	-0,1641026	0,0961538

Table 2 Continued..

Variable	Obs	Mean	Std Dev	Min	Max
PTBA	238	-0,0005678	0,0259478	-0,142268	0,0646766
PTPP	238	-0,0005753	0,0334327	-0,1559633	0,123494
SCMA	238	-0,0013878	0,0241331	-0,0645161	0,0853659
SMGR	238	0,0018007	0,0306009	-0,0897959	0,1348684
SMRA	238	0,0007419	0,0328604	-0,0753769	0,1008403
TLKM	238	0,0006181	0,0193697	-0,0869565	0,0549133
TPIA	238	-0,0003526	0,0211972	-0,058296	0,0580357
UNTR	238	-0,0011285	0,0215567	-0,0712209	0,0551776
UNVR	238	0,0000571	0,0179129	-0,054008	0,057041
WIKA	238	0,0016606	0,027367	-0,0643087	0,0892193
WSBP	238	0,0001435	0,0193479	-0,0575916	0,0726257

Besides, based on the results of the classical assumption test through the normality test using a histogram graph, it can be concluded that the returns of 28 companies had an even distribution of data to all areas of the curve and formed a curve pattern like a bell (Shape-Bell), thus all company data were normally distributed. The classical assumption test results were eventually obtained. The Kolmogorov Smirnov normality test produced a P-value of 0.344, which is greater than 0.05. Therefore, it can be concluded that in the normality test using the Kolmogorov Smirnov test, the data was normally distributed. Meanwhile, the multicollinearity test produced a VIF value of less than 10 and the 1/VIF value of more than 0.1. The multicollinearity test results showed the absence of multicollinearity problems between the independent variables. The final phase was to perform the Breusch-Pegan/Cook-Weisberg test to produce a Prob chi2 value of 0.1174, which is greater than 0.05, confirming that this research model is free from heteroscedasticity symptoms.

The result of the first hypothesis was confirmed and for the second hypothesis using the Kolmogorov Smirnov test for the Monday effect normality test the p-value generated was 0.253, which is higher than 0.05. Thus, it can be concluded that in the normality test using the Kolmogorov Smirnov test, the data were normally distributed. In the meantime, the heteroskedasticity test using the Breusch-Pegan/Cook-Weisberg test produced a Prob > chi2 value of 0.0796, which is greater than 0.05, implying that this research model was free from the heteroskedasticity symptoms. The results of the classic assumption test for the third hypothesis using the Kolmogorov Smirnov test for the Friday effect normality test produced a p-value of 0.300, which is greater than 0.05. Thus, it can be concluded that in the normality test using the Kolmogorov Smirnov test the data were normally distributed, while the heteroskedasticity test with the Breusch-Pegan/Cook-Weisberg test produced a Prob >chi2 value of 0.0392, which is smaller than 0.05. In dealing with the heterokedasticity problem, the seemingly unrelated regression (SUR) method was used. The SUR does not change the coefficient value of the regression equation. It is the probability value of the t-value that alters.

Regression Analysis: Discussion

Table 3 depicts that the multiple linear regression equation above shows that if a constant of 0.0004422 was obtained, then the effect of the trading day on stock returns was 0.0004422 if all variables (Monday to Friday trading days) were 0.

Table 3 Multiple Linear Analysis Results

Return	Coef.
_cons	.0004422 (0,468)
Monday	-.0022934*** (0,003)
Tuesday	-.00155** (0,073)
Wednesday	-.0006746 (0,433)
Friday	.0016529*** (0,000)
F(4, 135)	6,25
Prob > F	0,0001
R-squared	0,1562
Adj R-squared	0,1312
Root MSE	0,00321

Note : significance *10%, ** 5%, *** 1%

Monday (Dsen) had a significant negative influence with a coefficient of – 0.00022934, which means that if stock returns on Monday increased by 1 unit, then the stock return would decrease by 0.00022934, assuming that other variables were fixed and constant in value. The significance value for Monday was significant because the probability value was smaller than 0.05. Tuesday (Dsel) had a negative effect with a coefficient of -0.00155, implying that if the stock return on Tuesday increased by 1 unit, then the stock return would decrease by 0.00155 assuming the other variables were fixed and constant. Wednesday (DRab) had a negative effect with a coefficient of - 0,0006746, which means that if the stock return on Wednesday rose by 1 unit, then the stock return would decrease by 0.0006746, assuming that other variables had a fixed/constant value. Meanwhile, the significance value for Tuesday and Wednesday was not profound because the probability value was greater than 0.05. Friday (DJum) had a positive effect with a coefficient of 0.0016529, which means that if the stock return on Wednesday rose by 1 unit, then the stock return would increase by 0.0016529, assuming that other variables were fixed and constant. The significance value for Friday was significant as the probability value was smaller than 0.05. The DKam variable (X4) or the Thursday trading day was automatically not included in the test program because it was omitted with a value of 0, thus it was not considered in the regression model. The R2 test results presented in Table 5 above produced the R-squared value of 0.1562, which means that all dependent variables had a combined value of 15.62%. Then the remaining 84.38% was influenced by other variables outside the regression model. The results of the f-test analysis found a probability of 0.0001, which is lower than the significance value of 0.05. Thus it can be concluded that there was an overall (simultaneous) impact of the day of the week effect on JII's daily stock returns for the June 2018-May 2019 period. The result is supported by Iramani (2006), Cahyaningdyah (2010), Sularso (2011), and Chatterjee (2016), that simultaneously the day of the week effect had an influence on the company's daily stock returns on the Indonesia Stock Exchange.

Table 3 also shows that the Monday effect partially had a negative and significant effect on JII's stock returns in the June 2018-May 2019 period. In the same period, the Friday effect had a positive and significant impact on the returns of JII's constituents. The study on the Monday effect and the Friday effect is supported by Cahyaningdyah (2010), Philpot (2011), and Birru (2018). They pointed out that there are the Monday effect and the Friday effect that facilitate the lowest (negative) return to materialize on Monday and the highest (positive) return to prevail on Friday. Investors' different intention when deciding to sell or buy stocks on a certain day can affect the volume of stock selling or buying transactions every day, resulting in the decline or increase of the stock prices and returns that can be secured by investors. From the psychological and behavioral point of view, the weekend is seen as the investors' favourite trading time, while the first days of the week are considered less motivating. A weekend day like Thursday often becomes the right time for the investors to buy a large number of shares due to their better mood and rising optimism, affecting stock price trends and returns they will reap on the next day. One of the key psychological aspects of the study is the behavioral finance theory, which opposes the efficient market theory proposing the idea that mistakes can be made by investors when processing information in the market and taking irrational stance (Jones, 2013).

Table 4 shows the linear regression equation that produced the regression coefficient of the DSen (X) variable of -0.0021505 and this had a negative effect, implying that if Monday's stock returns increased by one unit, then the stock returns would decrease by 0.0021505, assuming that other variables were constant. Monday's significance level (DSen) with a p-value of 0.003 is lower than the criterion of the significance level of 0.05 with a coefficient of -0.0021505, resulting in the rejection of H0. This means that the Monday effect partially had a negative and significant effect on stock returns of the JII in June 2018-May 2019 period.

Table 4 Single Linear Analysis Result of Monday Effect

Return	Coef.
_cons	0,0002993 (0,000)
senin	-0,0021505 (0,003)***
R-squared	0,0628
Root MSE	0,0033

Note : significance *10%, ** 5%, *** 1%

Based on the test results of the coefficient of determination (R2) above, it can be considered that the dependent variable (return) can be explained by the independent variable (the Monday effect), which is indicated on the R-squared value of 0.0628, meaning each dependent variable can explain the dependent variable by 6.28%. Then, the remaining 100%-6.28% = 93.72% was influenced by other variables outside the regression model.

Table 5 shows that based on the linear regression equation above, it can be seen that the variable coefficient of DJum (X) of 0.0027824 had a positive effect, meaning that if the stock return on Friday raised by one unit, then the stock return will increase by 0.0027824, assuming that other variables were constant in value. For the significance level on Friday (DJum) a p-value of 0,000 is lower than the criterion of the significance level of 0.05 with a coefficient of

0.0027824, resulting in the rejection of H0. It means that the Friday effect partially had a positive and significant effect on JII stock returns for the June 2018-May 2019 period. The test results of the coefficient of determination (R2) above shows that the dependent variable (return) can be explained by the independent variable (the Friday effect) presented on the R-squared value of 0.1051, which means each dependent variable can explain the dependent variable by 10.51%. Then the remaining 100%-10.51% = 89.49% is influenced by other variables outside the regression model. The Monday effect partially had a negative and significant effect on JII's stock returns in the June 2018-May 2019 period. In the same period, the Friday effect had a positive and significant impact on the returns of JII's constituents. The study on the Monday effect and the Friday effect is supported by Cahyaningdyah (2010), Philpot (2011), and Birru (2018). They pointed out that there are the Monday effect and the Friday effect that facilitate the lowest (negative) return to materialize on Monday and the highest (positive) return to prevail on Friday. Investors' different intention when deciding to sell or buy stocks on a certain day can affect the volume of stock selling or buying transactions every day, resulting in the decline or increase of the stock prices and returns that can be secured by investors. From the psychological and behavioral point of view, the weekend is seen as the investors' favourite trading time, while the first days of the week are considered less motivating. A weekend day like Thursday often becomes the right time for the investors to buy a large number of shares due to their better mood and rising optimism, affecting stock price trends and returns they will reap on the next day. One of the key psychological aspects of the study is the behavioral finance theory, which opposes the efficient market theory proposing the idea that mistakes can be made by investors when processing information in the market and taking irrational stance (Jones, 2013).

Table 5 Single Linear Analysis Result of Friday Effect

Return	**Coef.**
_cons	-0,0006873 (0,0045)
jumat	0,0027824 (0,000)***
R-squared	0,1051
Root MSE	0,00324

Note : significance *10%, ** 5%, *** 1%

Var Testing: Discussion

A stationary test was done to find out whether the stock return data was stationary or not. The unit root test (the Augmented Dikey Fuller test method) was used in this study. If the ADF value was <CF 0.05 or $p \leq 0.05$, the stock return data was stationary. If the ADF value was >CF 0.05 or $p \geq 0.05$, then the stock return data was not stationary and differencing was needed here.

Based on the results of the data processing in Table 6 above, it can be seen that the data return of 28 sample companies had been stationary because the value (p-value for Z (t)) of 0.0000 was clearly below the value of $\alpha = 0.05$ and all ADF statistical values were far smaller than the critical value at $\alpha = 5\%$.

Table 6 Augmented Dickey Fuller Stationary Test Results (ADF)

No	Issuer	T-Statistics	Critical Value 5%	No	Issuer	T-Statistics	Critical Value 5%
1	ADRO	-15.627	-2,881	15	KLBF	-15.977	-2,881
2	AKRA	-12.865	-2,881	16	LPFF	-13.076	-2,881
3	ANTM	-16.617	-2,881	17	PGAS	-17.448	-2,881
4	ASII	-15.384	-2,881	18	PTBA	-14.620	-2,881
5	BRPT	-13.696	-2,881	19	PTPP	-14.745	-2,881
6	BSDE	-14.838	-2,881	20	SCMA	-15.894	-2,881
7	CTRA	-14.686	-2,881	21	SMGR	-16.945	-2,881
8	EXCL	-13.508	-2,881	22	SMRA	-15.068	-2,881
9	ICBP	-16.461	-2,881	23	TLKM	-15.367	-2,881
10	INCO	-14.752	-2,881	24	TPIA	-16.716	-2,881
11	INDF	-15.775	-2,881	25	UNTR	-17.410	-2,881
12	INDY	-13.266	-2,881	26	UNVR	-16.703	-2,881
13	INTP	-15.677	-2,881	27	WIKA	-14.405	-2,881
14	ITMG	-13.928	-2,881	28	WSBP	-14.733	-2,881
MacKinnon approximate p-value for Z(t) = 0.0000							

Var Calculation With Historical Method

Here are the results of the calculation of VaR using the historical simulation method for a period of one day with an assumption of an initial investment of Rp. 1,000,000,000.

Table 7 Results of VaR Calculations using the Historical Simulation Method (α = 95%)

Issuer	Investment Value	Percentile k=0,05	VaR HS	Issuer	Investment Value	Percentile k=0,05	VaR HS
ADRO	1.000.000.000	-0,0404890	-40489025,8	KLBF	1.000.000.000	-0,0331709	-33170871,56
AKRA	1.000.000.000	-0,0368568	-36856789,03	LPPF	1.000.000.000	-0,0682133	-68213314,5
ANTM	1.000.000.000	-0,0423618	-42361814,7	PGAS	1.000.000.000	-0,0421306	-42130642,27
ASII	1.000.000.000	-0,0340575	-34057462,51	PTBA	1.000.000.000	-0,0412531	-41253149,84
BRPT	1.000.000.000	-0,0356548	-35654815,63	PTPP	1.000.000.000	-0,0489238	-48923800,38
BSDE	1.000.000.000	-0,0448959	-44895901,11	SCMA	1.000.000.000	-0,0419305	-41930546,62
CTRA	1.000.000.000	-0,0486297	-48629703,63	SMGR	1.000.000.000	-0,0461967	-46196686,22
EXCL	1.000.000.000	-0,0422877	-42287668,63	SMRA	1.000.000.000	-0,0481699	-48169856,46
ICBP	1.000.000.000	-0,0256522	-25652194,45	TLKM	1.000.000.000	-0,0271649	-27164895
INCO	1.000.000.000	-0,0434133	-43413336,56	TPIA	1.000.000.000	-0,0346126	-34612637,15
INDF	1.000.000.000	-0,0315834	-31583420,5	UNTR	1.000.000.000	-0,0317439	-31743873,28
INDY	1.000.000.000	-0,0493512	-49351174,43	UNVR	1.000.000.000	-0,0260356	-26035550,25
INTP	1.000.000.000	-0,0475971	-47597068,9	WIKA	1.000.000.000	-0,0417786	-41778615,17
ITMG	1.000.000.000	-0,0404958	-40495847,31	WSBP	1.000.000.000	-0,0301479	-30147864,18

Table 7 shows that the company with the highest level of losses was Matahari Department Store Tbk. (LPPF) with VaR of Rp. -68,213,314.5, while the company recording the least losses was Indofood CBP Sukses Makmur Tbk (ICBP) with VaR of Rp. -25,652,194.45.

Var Validity Testing

The validity testing in this study was performed using the Kupiec backtesting method that compares the VaR value that has been calculated with the daily return data or the actual risk (actual loss). Actual loss that is higher than the calculated VaR is called the number of exceptions, meaning that the calculation of VaR fails to predict the optimal risk value faced by investors on that day. The results of backtesting using both methods of all stocks, an exception for the stock of Aneka Tambang (Persero) Tbk. (ANTM), provides a conclusion that the VaR model is acceptable as all likelihood ratio values are <critical value (chi-square). The VaR model for the above stocks, excluding those of Aneka Tambang (Persero) Tbk. (ANTM), is valid or consistent with the confidence level of 95% and critical value (df of 1) of 3.84145, thus the VaR value can be used. In brief, using both methods, the number of exceptions between 7 and 15 for the observation period of 252 days with the confidence level of 95% based on the calculation results shows that the VaR model is valid. For the stock of Aneka Tambang (Persero) Tbk. (ANTM), this is not valid at the confidence level of 95% as the level of its exception is lower than those of other companies. However, the validity test for Aneka Tambang (Persero) Tbk. (ANTM) could use the confidence level of 99%, of which the likelihood ratio is -19.7596259 with the critical value or CHIINV for the confidence level of 99% at 6.634896601. This indicates that the likelihood ratio is lower than the critical value by producing a valid model. It can be concluded that all models are valid with the confidence level of 95% and for the company like Aneka Tambang (Persero) Tbk. (ANTM), it is valid using the confidence level of 99%.

Table 8 Basel Traffic Light Backtesting Test Results

Issuer	Methods	Observation	Confidance Level	Exception	Test Outcome
ADRO	HC	238	95%	12	Green
	VC	238	95%	7	Green
AKRA	HC	238	95%	12	Green
	VC	238	95%	9	Green
ANTM	HC	238	95%	12	Green
	VC	238	95%	5	Green
ASII	HC	238	95%	12	Green
	VC	238	95%	15	Green
BRPT	HC	238	95%	12	Green
	VC	238	95%	12	Green
BSDE	HC	238	95%	12	Green
	VC	238	95%	15	Green
CTRA	HC	238	95%	12	Green
	VC	238	95%	8	Green
EXCL	HC	238	95%	12	Green
	VC	238	95%	8	Green
ICBP	HC	238	95%	12	Green
	VC	238	95%	9	Green
INCO	HC	238	95%	12	Green
	VC	238	95%	9	Green
INDF	HC	238	95%	12	Green
	VC	238	95%	8	Green
INDY	HC	238	95%	12	Green
	VC	238	95%	9	Green
INTP	HC	238	95%	12	Green
	VC	238	95%	12	Green

Table 8 Continued

ITMG	HC	238	95%	12	Green
	VC	238	95%	9	Green
KLBF	HC	238	95%	12	Green
	VC	238	95%	9	Green
LPPF	HC	238	95%	12	Green
	VC	238	95%	12	Green
PGAS	HC	238	95%	12	Green
	VC	238	95%	8	Green
PTBA	HC	238	95%	12	Green
	VC	238	95%	12	Green
PTPP	HC	238	95%	12	Green
	VC	238	95%	8	Green
SCMA	HC	238	95%	12	Green
	VC	238	95%	14	Green
SMGR	HC	238	95%	12	Green
	VC	238	95%	9	Green
SMRA	HC	238	95%	12	Green
	VC	238	95%	8	Green
TLKM	HC	238	95%	12	Green
	VC	238	95%	10	Green
TPIA	HC	238	95%	12	Green
	VC	238	95%	11	Green
UNTR	HC	238	95%	12	Green
	VC	238	95%	10	Green
UNVR	HC	238	95%	12	Green
	VC	238	95%	9	Green
WIKA	HC	238	95%	12	Green
	VC	238	95%	10	Green
WSBP	HC	238	95%	12	Green
	VC	238	95%	9	Green

The backtesting procedure implemented by the Basel Committee, which is often referred to as the traffic light method, consists of three zones, namely green, yellow, and red. Table 8 presents the results of backtesting using the Basel traffic light on all stocks with both methods showing that the number of exceptions is 5-15 for the observation period of 252 days in total with the confidence level of 95%. This refers to the green zone category presented in the Basel traffic light table. This means that the results show that the VaR model is accurate and the backtesting results do not fail as no test results are in the red zone. It can be concluded, based on the Basel traffic light approach, the overall value of VaR is accurately used. The backtesting test performed to determine the validity of VaR in identifying the actual loss had been applied to a sample of companies whose stocks were included in the Jakarta Islamic Index. The backtesting validity test carried out resulted in the VaR calculation of single assets which were generally valid at the confidence level of 95%. It is declared valid as the deviations were still within the acceptable range for a backtesting test. Referring to risk management, this implies that VaR utilizing both methods can be used to calculate the possibility of manageable risks. All models are accurate in the absence of the number of exceptions or failure in the traffic light approach for VaR backtesting on the red zone results. And in the Kupiec backtesting test, there is only one likelihood ratio surpassing the critical value at the confidence level of 95%. This confirms that

the best backtesting results are generated by the variance-covariance method as the number of exceptions is lower than the historical simulation method. In addition, the variance-covariance method provides the greatest result of VaR calculation.

Var T-Test : Analysis

After calculating the VaR value and comparing the results using the calculation of the historical simulation and variance-covariance methods, the next step was to conduct a test using the independent samples t-test. The first step to do was to run the homogeneity test and the second one was to arrange the independent samples t-test. Table 8 above presents the calculated f-value of 0.8451 on the degrees of freedom of 27.27. If the calculated f-value was compared with the f-table in DF (27.27) and a probability of 0.05, then the calculated f-value was greater than the f-table. In addition, the value of p-value (2*Pr(F <f)) of 0.665, which is greater than the significance level of 0.05, paved the way to accept H0 or in other words, there was no difference in variances in the calculation of the VaR historical simulation method with the variance-covariance method.

Table 8 shows that the calculated t-value is 1.4251 with a p-value of 0.1599 at df 54 (N-2 = 54). As the value of 0.1599 is greater than the significance level of 0.05, it is decided to accept H0 or there is no significant difference between the calculation of VaR with the historical simulation method and the variance-covariance method. Based on the independent samples t=test, the results of the hypothesis is to accept H0 or there is no significant difference between the VaR calculation with the historical simulation method and the variance-covariance method. The results of this study are supported by Wicaksono (2014), who found that there are no significant differences in the results of the VaR calculation with the historical simulation method and the variance-covariance method. Reuse (2010), Steelyana (2011), and Sumaji (2017) rejected the results of this study, suggesting that the historical simulation method and the variance-covariance method create differences in the results. There is a difference in the results of the hypothesis with the results of this study due to differences in sampling techniques, sample selection, and the span of the observation period. The observation period of this study is only one year.

Conclusion

This study aims to examine the impact of the day of the week effect on corporate stock returns and risks in the Jakarta Islamic Index of the Indonesia Stock Exchange in the June 2018-May 2019 period. The first hypothesis testing (H1) found that simultaneously there was an impact of the day of the week effect on the returns of stocks in JII in the afore-mentioned period as indicated by the results of the f-test with a significance value of 0.0001. Therefore, the first hypothesis is accepted. The second hypothesis testing (H2) partially found that the Monday effect had a negative and significant effect on JII stock returns in the June 2018-May 2019 period as it is shown by the results of the t-test with a significance value of 0.003. Thus, the second hypothesis is accepted. The third hypothesis testing (H3) partially found that the Friday effect had a positive and significant effect on JII stock returns in the June 2018- ay 2019 period as indicated by the results of the t-test with a significance value of 0.000. Thus the third hypothesis is accepted. The fourth hypothesis testing (H4) found that there was no significant difference between the results of the calculation of VaR with the historical simulation method and the variance-covariance method on the JII stock risk in the June 2018-May 2019 period as indicated

by the results of the independent samples t-test with a p-value of 0.1599 that is greater than the significance value of 0.05. Thus the fourth hypothesis is rejected.

Referring to the calculation and comparison of returns and risks, it is expected that the results of this study can provide investors with information for investment-related decision-making both in terms of potential returns and prevailing risks. Thus, this will help them to pick the right stocks to buy or sell by observing the development of trends that occur in the market. Besides, paying attention to other financial factors can affect actual stock return and risk. Future studies on this subject can expand the population and research samples, such as the constituents of the Kompas100 Index or other indices and can also extend the research period for the sake of better results. In addition, further research can also take into account other anomaly variables such as the week four effect and the January effect, the calculation of VaR, and the adoption of other VaR calculation method such as the Monte Carlo method.

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