



Analysis on Risk, Real Returns, and Performance Measurement of Sharia Stocks and Non-sharia Stocks

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Abstract

The majority of the Indonesian population is predominantly Muslim, however, the number of sharia stock investor is not that large. Referring to data from SOTS, the number of sharia stock investor is less than that of stock investors in total. Therefore, research is required to understand the comparison of risks, returns, and performance of sharia and non-sharia stock based. Using purposive sampling, a sample of 19 stocks was obtained consisting of 14 sharia stocks and 5 non-sharia stocks from 2014 to 2018. This research implemented an explanatory comparative method and was a quantitative type using different tests. The results showed that there was a difference in risk between sharia and non-sharia stock based, but there was no difference in results between those two kinds of stock based. Performance measurement based on Risk-Adjusted Performance using the Sharpe ratio showed that non-Sharia stocks were more dominant in performance than Sharia stocks. Total risk (SD) of sharia stocks (7.945062) was higher and bigger than the average non-sharia stock risk (6,186363) and so were the real returns between sharia and non-sharia stocks, although statistics described that the real returns of sharia stocks (0.066179%) were lower than those of the non-sharia stocks (1.175495%).

Keywords: Stock, Risk, Return, Sharpe Ratio.

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Abstrak

Indonesia mayoritas berpenduduk muslim, namun demikian tidak serta merta membuat jumlah investor saham syariah di Indonesia juga banyak. Mengacu pada data SOTS jumlah investor saham syariah masih sangat kecil dibandingkan jumlah investor secara keseluruhan. Untuk itu diperlukan kajian tentang perbandingan risiko, imbal hasil maupun pengukuran kinerja saham syariah dan non syariah. Menggunakan purposive sampling, diperoleh sampel sebanyak 19 saham, yang terbagi atas 14 saham syariah dan 5 saham non syariah periode tahun 2014-2018. Penelitian ini termasuk eksplanatori komparatif method dan termasuk jenis kuantitatif dengan menggunakan Tes Uji beda. Hasil penelitian menunjukkan, bahwa, ada perbedaan risiko diantara saham syariah dibandingkan non syariah. Namun demikian tidak ada perbedaan imbal hasil diantara keduanya. Risk Adjusted Performance dengan menggunakan rasio sharpe menunjukkan bahwa saham non syariah lebih dominan kinerjanya dibandingkan dengan saham syariah. Total risk (SD) saham syariah (7.945062) lebih tinggi dan agak lebih besar dari rata-rata risiko saham non syariah (6.186363) dan return riil antara saham syariah dan non syariah, meskipun secara statistik deskriptif return riil syariah saham (0,066179%) lebih rendah dibandingkan saham non syariah (1,175495%).

Kata Kunci: Saham, Risk, Return, Rasio Sharpe

A. INTRODUCTION

The results of the population census in 2010 showed that around 87.18% of the total 237,641,326 Indonesians are Muslims. This means that the majority of the population is Muslim (BPS 2010). The potential market for Muslims is one of the motivations for the development of various sharia-based investments in Indonesia. This is important for providing facilities for the Muslim population in terms of investment to comply with Islamic law. Because according to the Creed Theory, it is obligatory to apply Islamic law to anyone who has declared the Shahadah as a logical consequence of his credo statement (S Praja 2015).

However, the reality in the field shows the opposite. Referring to the data obtained, it shows that sharia stock investors are still few in numbers compared to total stock investors as a whole. This data can be obtained from the number of users of the Sharia Online Trading System (SOTS). Data on the number of investors using SOTS from year to year is shown in Table 1

Table 1

Development of the Number of SOTS Investors			
Year	Number of Sharia Stock Investors	Number of Investors in CBEST	Percentage
2012	531	281.256	0.19
2013	803	320.506	0.25
2014	2.705	364.465	0.74
2015	4.908	434.108	1.13
2016	12.283	535.994	2.29
2017	23.207	628.491	3.69
2018	39.711	813.969	4.88

Source: Indonesian Central Securities Depository (known as *KSEI/Kustodian Sentral Efek Indonesia*)

The table above shows the number of SOTS users has increased from time to time. However, this increase is still very small compared to the potential of the majority Muslim population. The 2018 data show the SOTS users are only around 4.88% while the Muslim population is around 87.18%.

The reality that arises among the Muslim population needs to be explored to get answers to the existing phenomena. One of the phenomena is that people still underestimate sharia-based investment instruments compared to non-sharia (Syafriada, Aminah, and Waluyo 2015). According to other data, the sharia financial literacy index is only around 8.1% with an inclusion index of 11.1% (OJK 2017). Likewise, there are still doubts in the Muslim community regarding the status of sharia financial instruments, both in the bank and non-bank financial institutions (Emilia, Santoso, and Mulyadi 2018).

Risk

There are two important elements that an investor must pay attention to in carrying out investment activities among other elements. The two elements are the presence of risk and returns (Prasetyo 2018). Based on sharia economic thought, the element that must be the first and foremost concern in investing activities is the risk. Generally, the risks in investment can be categorized into two, namely unsystematic risk and systematic risk. So that knowledge and understanding of risk become an important element that must be owned by any fund owner who is an investor or is a potential investor (Amtiran 2017).

Therefore, it is necessary to identify the risks before making investment. Various methods of measuring risk have been developed. With the development of various risk measurement methods, it is expected that investors will be able to make investments. One of the risk measurement methods is using Standard Deviation (SD). Measuring risk using this method is formulated as follows:



$$\text{Risiko Total} = \sqrt{\frac{\sum_1^n (x_1 - \bar{x})}{n - 1}}$$

Where:

X_1 : i period of stock returns

\bar{X} : The average returns on stocks in one period

n: Number of periods

The existence of the method of risk measurement formulation above shows that risk is an element that can be calculated and estimated.

Real Returns

In accordance with what has been previously mentioned, that in addition to risk, returns must also be considered. Returns is an element that must also be considered in making investment. Sometimes it becomes the main focus of some fund owners in making their investment. This is of course in line with one of the investment objectives itself that is to make a profit. If it is associated with inflation, what is called profit is if the returns obtained is higher than the inflation rate.

In this study, the returns are not only capital gains or nominal returns, but also the adjusted returns (real returns). Where the adjusted returns (real returns) come from the nominal returns that has been adjusted to the rate of inflation. The formulation that can be calculated is as follows:

$$\text{Imbal hasil disesuaikan (real return)} = \frac{(1 + R)}{(1 + IF)} - 1$$

Where:

R: Nominal returns

IF: Inflation rate

The nominal returns consist of two (2) elements namely: capital gain/loss plus dividend yield. So that the nominal returns can be calculated with the following formula:

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

Where:

P_t : The closing price for period t

P_{t-1} : The closing price of shares before period t

Dividend Yield: Dividend/average current share price for Cum Dividend.

To avoid a bias in the statistical analysis of the capital gain calculation as affected by the magnitude of the divider, the calculation of capital gain is carried out in the following way (Husnan 2005) :

$$R = \text{Ln}(P_t/P_{t-1})$$

To get the real returns, previously calculated the nominal returns with the following formula:

$$R = \text{Ln}(P_t/P_{t-1}) + \text{Deviden Yeild}$$

Various regulations and implementations concerning sharia stocks have been stipulated by the State and stock exchange authorities, however, the number of sharia stock investors is not proportional to the total Muslim population. For this reason, research is needed to understand the comparison of risks, returns between sharia and non-sharia stocks. Likewise, knowing the measurement of the performance of sharia and non-sharia stocks. This study uses total risks, in terms of returns using the inflation rate as an adjustment factor. Likewise, performance measurement does not use a risk-free rate but uses the amount of zakat so that it is in line with

Islamic law. The results of this study are expected not to be biased to answer phenomena that occur in the field.

B. DISCUSSIONS

The non-probability sampling technique used in this study is purposive sampling. Purposive sampling is a data source sampling technique with certain considerations or criteria.

The following are the results of purposive sampling based on the criteria:

Table 5

Sharia Stock Sample Criteria

Criteria	Total
Sharia Stock	395
Consistent to become the JII members during the research period	14
Total Samples	14 x 60 (840)

Meanwhile, the criteria for non-sharia stocks data from purposive sampling are based on the criteria, as follows:

Table 6

Non-Sharia Stock Sample Criteria

Criteria	Total
Consistent to become the IDX30 members during the research period	16
Not becoming the JII members during the research period	5
Total Samples	5 x 60 (300)

Based on the above criteria, the following sample is obtained:

Table 7

Sharia Stock and Non-sharia Stock Samples

No	Sharia stock	Initial	No	Non-Sharia Stock	Initial
1.	PT.Adaro Energy, Tbk	SS1	1.	PT Bank Central Asia, Tbk	SNS1
2.	PT AKR Corporindo, Tbk	SS2	2.	PT Bank Negara Indonesia (Persero), Tbk	SNS2
3.	PT Astra International, Tbk	SS3	3.	PT Bank Rakyat Indonesia (Persero), Tbk	SNS3
4.	PT Bumi Serpong Damai, Tbk	SS4	4.	PT Bank Mandiri (Persero), Tbk	SNS4
5.	PT Indofood CBP Sukses Makkur, Tbk	SS5	5.	PT Gudang Garam, Tbk	SNS5
6.	PT Indofood Sukses Makmur, Tbk	SS6			
7.	PT Kalbe Farma, Tbk	SS7			
8.	PT.Perusahaan Gas Negara (Persero), Tbk	SS8			
9.	PT Semen Indonesia (Persero), Tbk	SS9			
10.	PT.Sumarecon Agung, Tbk	SS10			

- | | |
|--|------|
| 11. PT Telekomunikasi Indonesia (Persero), Tbk | SS11 |
| 12. PT United Tractors, Tbk | SS12 |
| 13. PT Unilever Indonesia, Tbk | SS13 |
| 14. PT Wijaya Karya (Persero), | SS14 |

The percentage of the total sample of sharia and non-sharia stocks, when compared to the existing population, can be tabulated as follows:

Table 8
Percentage of stock samples to population

Instrument	Number of Population	Number of Samples	Percentage
Sharia Stock	395	14	3.5 %
Non-Sharia Stock	224	5	2.2 %

Source: ISSI data, Listing Company data, processed

Panel data that combines times series and cross-section data is used in this study. Time series data for the period 2014 to 2018, with the monthly data period sup. The method used in this research is an explanatory comparative method, by comparing the risks and returns on sharia and non-sharia stocks. Where this method is used to test hypotheses about whether or not there is a difference between the two with different tests. Due to using numerical data in the research process, this research is of a quantitative type.

After applying the existing formula, obtain the risk data for the study period as follows:

Table 9
Summary of Total Risk (SD) of Sharia Stocks and Non-sharia Stocks

	Stock Initial	2014	2015	2016	2017	2018
Sharia Stock	SS1	0.63384	8.80336	9.37396	7.04628	12.39554
	SS2	9.27388	5.79514	7.89080	5.92570	8.83683
	SS3	4.70465	10.15607	5.98190	4.64691	5.95511
	SS4	5.46657	10.51763	9.12821	3.05678	9.70262
	SS5	5.85662	7.20052	6.64213	3.84386	4.59550
	SS6	3.49151	8.96554	8.61239	4.26956	5.92794
	SS7	3.98818	6.96231	7.06997	4.17276	6.23977
	SS8	2.71729	13.47872	12.46173	10.78883	16.63163
	SS9	4.04667	8.98204	5.17680	6.73921	13.97889
	SS10	9.27265	15.66353	35.96994	10.33611	14.63599
	SS11	5.87160	5.08334	5.63330	5.87015	6.16413
	SS12	5.86729	6.91744	9.18215	4.60239	9.27197
	SS13	2.72353	5.39413	6.92626	3.57780	5.32299
	SS14	9.63884	9.61813	9.37929	6.97538	18.12384
Non-Sharia Stock	SNS1	4.96465	5.30285	4.00358	3.71818	4.91676
	SNS2	3.75825	12.34262	6.58076	6.16123	8.76396
	SNS3	5.29487	11.20839	5.82097	5.14782	6.65238
	SNS4	3.90167	8.46113	6.69396	4.47516	4.12248
	SNS5	6.06628	7.95575	5.18625	6.25265	6.90645

The data will then be processed to obtain descriptive statistics and inferential statistics in the form of different tests. In descriptive statistics, the total risk of sharia and non-sharia stocks are as follows:

Table 10
Descriptive Static Processing Results

Sharia Stock		Non-Sharia Stock	
Mean	7.945062	Mean	6.186363
Standard Error	0.57744	Standard Error	0.438349
Median	6.921849	Median	5.820974
Standard Deviation	4.831212	Standard Deviation	2.191745
Sample Variance	23.34061	Sample Variance	4.803745
Kurtosis	15.7247	Kurtosis	1.94385
Skewness	3.1146	Skewness	1.385818
Range	35.3361	Range	8.624434
Minimum	0.633841	Minimum	3.718183
Maximum	35.96994	Maximum	12.34262
Sum	556.1543	Sum	154.6591
Count	70	Count	25

It can be seen that the average risk sample data for total sharia stocks during the study period is generally 7.945062, higher than the risk for non-sharia stocks which only has an average of 6.186363. The range of risk sample data for total sharia stocks is wider, where the lowest is 0.633841 and the highest is 35.96994 with a standard deviation of 4.831212. The range of risk sample data for total non-sharia stocks where the lowest is 3.718183 and the highest is 12.34262 with a standard deviation of 2.191745. This illustrates that the risk sample data for sharia stocks are more dispersive.

Furthermore, the calculation results of the average returns (real returns) of each stock during the study period are as follows:

Table 11
Real Return of Sharia Stocks and Non-sharia Stocks (Per Month within %)

	Stock Initial	2014	2015	2016	2017	2018
Sharia Stock	SS1	-0.40463	-6.58271	9.96726	0.74710	-3.32138
	SS2	-1.03332	4.52068	-1.70678	0.35351	-3.12589
	SS3	0.31051	-1.76853	2.66322	-0.10471	-0.11537
	SS4	4.66756	-0.22513	-0.45609	-0.54023	-2.78288
	SS5	1.53024	0.09695	1.76240	0.16700	1.28096
	SS6	-0.31663	-2.21759	3.28878	-0.38873	-0.08813
	SS7	2.57143	-2.90854	0.89383	0.73040	-1.03200
	SS8	1.76607	-6.52090	-0.10568	-3.90589	1.32879
	SS9	0.66935	-2.96117	-2.05372	0.69445	1.03596
	SS10	4.83981	0.50295	-2.07027	-3.10555	-1.59749
	SS11	2.07457	0.64703	2.07789	0.83245	-1.36473
	SS12	-1.19795	-0.13563	1.62990	4.14444	-2.17193
	SS13	1.31854	1.01804	0.23201	2.87835	-1.81288
	SS14	6.29776	-2.97806	-0.54934	-3.67438	0.41717
	SNS1	2.03383	-0.08871	0.74740	3.05448	1.25980



Non-Sharia Stock	SNS2	3.17421	-1.75923	0.78135	4.80666	-1.00302
	SNS3	3.47475	-0.24329	0.15586	3.69086	0.03522
	SNS4	2.15758	-1.39262	1.82694	2.58527	-0.72420
	SNS5	2.51649	-0.97017	1.00640	2.22375	0.03778

Meanwhile, the results of descriptive statistics from the stock real return data during the study period are as follows:

Table 12
Results of Real Returns Descriptive Statistics

Sharia Stocks		Non-Sharia Stocks	
Mean	0.066179	Mean	1.175495
Standard Error	0.322317	Standard Error	0.353838
Median	0.004411	Median	1.006401
Standard Deviation	2.696694	Standard Deviation	1.76919
Sample Variance	7.272159	Sample Variance	3.130034
Kurtosis	2.293628	Kurtosis	-0.87006
Skewness	0.555059	Skewness	0.167383
Range	16.54998	Range	6.565887
Minimum	-6.58271	Minimum	-1.75923
Maximum	9.967264	Maximum	4.806656
Sum	4.63256	Sum	29.38738
Count	70	Count	25

It can be seen that the average real return of sharia stocks during the study period was only 0.066179%, lower than the average real return on non-sharia stocks of 1.175495%. The range of sample data on the real return of sharia stocks is wider, where the lowest is -6.58271 and the highest is 9.967264 with a standard deviation of 2.696694. The sample data range for the lowest real return of non-sharia stocks is -1.75923 and the highest is 4.806656 with a standard deviation of 1.76919. This illustrates that the sample data on the real return of sharia stocks are more dispersive.

Hypothesis Test

To obtain answers to this research, a comparative hypothesis was made as follows:

- H_1 : There is a difference between the risk of sharia and non-sharia stocks.
- H_2 : There is a difference between sharia and non-sharia stock returns.

Referring to the results of the normality test, the total risk (SD) of shares based on both sharia and non-sharia are not normally distributed. For this reason, a non-parametric alternative test is used with the Mann Whitney test. The results of inferential statistical processing are as follows:

Table 13
Test Statistics^a

	Risk
Mann-Whitney U	623.000
Wilcoxon W	948.000
Z	-2.130
Asymp. Sig. (2-tailed)	.033

a. Grouping Variable: Category

Asymp Sig (2-tailed) of 0.033. This figure is smaller than the significance level in this study (α) of 0.05, so that as the basis for the decision making of the Mann Whitney test if the Sig (2-tailed) $< \alpha$ (0.05) then H_0 is rejected and H_1 is accepted. Thus, it can be said that there is a difference between the risk of sharia and non-sharia stocks. This is supported by the results of descriptive statistics, which illustrate that the average risk (SD) of sharia stocks (7.945062) during the study period is higher than the average risk of non-sharia stocks (6.186363). So it can be said that sharia stocks are riskier than non-sharia stocks during the research period (Prasetyo 2020).

Furthermore, based on the normality test of sample data, the real return of stocks is normally distributed. So that the different test used is the Independent Sample t-Test. The results of inferential statistical processing are as follows:

Table 14
Independent Samples Test

		t-test for Equality of Means						
		T	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
							Lower	Upper
Return	Equal variances assumed	-1.920	93	.058	-1.107022	.5765154	2.251868	.037822
	Equal variances not assumed	-2.321	64.32	.023	-1.107022	.4770085	2.059865	-.15418

Based on the homogeneity test, the results show that the real return of shares in the study period is homogeneous. For this reason, the sig (2-tailed) value used is the Equal variance assumption. It can be seen from the table above that the value is 0.058. This figure is greater with the significance level in this study (α) of 0.050, so that as the basis for the T Independent t-Test decision, if the value of Sig (2-tailed) $>$ (greater) than α (0.05) then H_0 is accepted and H_2 is rejected.

Thus, it can be said that there is no difference between the yield (real return) between sharia and non-sharia stocks in the study period. Although statistically descriptive the return (real return) of sharia stocks (0.066179%) is lower than that of non-sharia (1.175495%). However, the difference between the two is not statistically significant. Meanwhile, previous research states that debt policy influences firm value (Faisal and Nissa 2018). This means that the criteria for limiting the amount of debt in the criteria for sharia stocks have not had a different effect.



There is a difference in risk and there is no difference in the real returns between sharia and non-sharia stocks, followed by performance measurement using the Risk-Adjusted Performance method. One such method is the Sharpe ratio. However, it is necessary to adjust the risk-free rate component to the Sharpe ratio, so that it is following Islamic law.

Various alternative adjustments are presented, namely Cyril and Ri'fat by eliminating the risk-free rate, which represents the time value of money that contains usury (Cyril and Ri'fat 1987). Then Ashker uses the percentage of zakat to replace the risk-free rate. This is because a Muslim is obliged to pay zakat on his income by 2.5%, so the risk-off free is equal to the percentage of zakat (Ashker 1987). Next, Shaikh, proposed replacing the risk of free with Nominal Gross Domestic Product (NGDP) (Shaikh 2010). Hanif said, proposing an inflation rate to replace the risk of rate (Hanif 2011). Furthermore, it was developed by Setia Mulyawan by replacing the risk of rate with the Production Index (PI) (Mulyawan 2015). From the various alternatives above, this study chose to use Asher's opinion, namely by using the percentage of zakat. So that the results of measuring the performance of sharia and non-sharia stocks during the study period are as follows:

Table 15
 Performance Measurement Results using Sharpe Ratio of
 Sharia Stocks and Non-sharia Stocks

Category	Stock Initial	Average Real Return	Premium Risk	Standard Deviation	Sharpe Ratio	Rank
Sharia Stock	SS1	0.08113	-0.12720	7.65060	-0.01663	
	SS2	-0.19836	-0.40669	7.54447	-0.05391	
	SS3	0.19702	-0.01131	6.28893	-0.00180	
	SS4	0.13265	-0.07568	7.57436	-0.00999	
	SS5	0.96751	0.75918	5.62773	0.13490	3
	SS6	0.05554	-0.15279	6.25339	-0.02443	
	SS7	0.05102	-0.15731	5.68660	-0.02766	
	SS8	-1.48752	-1.69585	11.21564	-0.15120	
	SS9	-0.52303	-0.73136	7.78472	-0.09395	
	SS10	-0.28611	-0.49444	17.1756	-0.02879	
	SS11	0.85344	0.64511	5.72450	0.11269	
	SS12	0.45377	0.24544	7.16825	0.03424	
	SS13	0.72681	0.51848	4.78894	0.10827	
	SS14	-0.09737	-0.30570	10.74710	-0.02844	
Non-Sharia Stock	SNS1	1.40136	1.19303	4.58121	0.26042	1
	SNS2	1.19999	0.99166	7.52136	0.13185	4
	SNS3	1.42268	1.21435	6.82489	0.17793	2
	SNS4	0.89059	0.68226	5.53088	0.12336	5
	SNS5	0.96285	0.75452	6.47348	0.11656	

Statistically, there is a significant difference between the total risk of sharia and non-sharia stocks, but there is no significant difference in the real return on sharia and non-sharia stocks. After deepening in terms of performance measurement, non-sharia stocks are better than non-sharia stocks. This can be seen from the top 5 rankings based on performance measurements with the Sharpe ratio dominated by non-sharia stocks (SNS1, SNS3, SNS2, and SNS4) and only one sharia stock is in the top 5, namely stocks with the SS5 stock initial.

The results of this study indicate that non-sharia stocks are superior to sharia stocks. This research strengthens previous research. Where it is found that the performance of the non-sharia index is superior to the sharia index in Pakistan and Indonesia. (Haroon, Aziz, and Batool 2019). This is the reason why the number of Islamic investors is still small compared to non-

Islamic investors. This fact is very reasonable considering that in terms of investment, investors will be rational in choosing their investment instruments.

Other research shows that sharia stocks are superior to non-sharia stocks during the crisis. Meanwhile, during the non-crisis period, non-sharia stocks were indeed superior. So that sharia stocks become the right investment choice during times of crisis.(Ho et al. 2014)

If all this time sharia-based investors have only relied on the spiritual market, then there must be a leap so that they can also be accepted by the rational market. The biggest challenge today is how sharia stocks can provide a performance that is at least competitive with non-sharia stocks. Better still to beat him.

C. CONCLUSION

There is a difference between the risk of sharia and non-sharia stocks, where this is following the results of descriptive statistics, which illustrate that the average total risk (SD) of sharia stocks (7.945062) is higher and is somewhat bigger than the average non-sharia stock risk (6,186363). This study also shows that there is no difference between the real returns between sharia and non-sharia stocks, although descriptively statistical the real returns of sharia stocks (0.066179%) is lower than the non-sharia stocks (1.175495%). Finally, the existence of differences in risk and no difference in real returns is confirmed by the performance measurement between the two. The results of performance measurement using the Sharpe ratio show that the top 5 rankings are dominated by non-sharia stocks (SNS1, SNS3, SNS2, and SNS4) and only one sharia stock (SS5) is listed.

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