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COMPARATIVE ANALYS[illegible]ND NON-SHARIA STOCK PORTFOLIO[illegible] IN 2012-2019

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ABSTRACT

This study aims to compare the performance of sharia listed in Jakarta Islamic Index, and non-sharia stock portfolio listed in LQ-45 index, whether there is significant difference or not, during the period of January 2012 to December 2019. Although number of sharia stocks dominated Indonesia Stock Exchange, level of literacy index of the Indonesian people in general towards the capital market, especially sharia capital market, is still low. This phenomenon drives this study in analyzing sharia portfolio in order to contribute to increasing the level of literacy index. This is a quantitative research using comparative and descriptive study. The analysis measurement is using portfolio return and risk-adjusted measure such as Treynor and Jensen method, and statistical tests such as one sample t-test and independent sample t-test. The samples were selected using purposive sampling, and populations are stocks listed in Jakarta Islamic Index and stocks listed in LQ-45 index. The result indicates that there is no significant different between sharia and non-sharia stock portfolio performance.

Keywords: Jakarta Islamic Index, LQ-45, Portfolio Return, Stock Portfolio, Treynor and Jensen Method

I. INTRODUCTION

Capital market is a place for capital owners and a number of companies to meet, which serves a market of various long-term financial instruments to trade. These instruments can be in the form of debt instruments (bonds), equity (shares), mutual funds, derivative instruments or any other instruments.

According to Ikatan Ahli Ekonomi Islam Indonesia (IAEII), monetary crisis happened in 1997 was a momentum for the development of Islamic-based finance in various countries (Agustianto, 2013). In conventional trade, money is no longer used but currency speculation is. Currency speculation can turbulent an economic situation in various countries, especially countries with unstable political situation. It caused an unbalanced money circulation.

Capturing the momentum, the sharia capital market in Indonesia marked its establishment by issuing the first Islamic mutual fund in 1997 followed by the formation of Jakarta Islamic Index (JII) in 2000 developed by Danareksa Investment Management (DIM) together with Jakarta Stock Exchange (Abdalloh, 2018, xxviii).

In 2015, the Indonesia Financial Services Authority (OJK) issued Regulation No. 15/POJK.04 /2015 concerning Sharia Principles in the Capital Market. In Islamic Capital Market, all activities must comply with Islamic principles.

Ideally, an investor must comprehend the performance of their shares to determine the best investment. Understanding investment risk analysis is one of the problems frequently faced by an investor, therefore it is necessary to assess the risk (Musiin et al, 2020).

On the other hand, OJK stated that the literacy and inclusion index of capital market in Indonesia is still unable to compete with other sectors' index. The literacy index of sharia capital market is even much lower. According to the Director of OJK Sharia Capital Market, Fadilah Kartiksasi, in 2013 the inclusion index of capital market in Indonesia was 0.1%, and in 2019 it only grew to 1.5%. While sharia capital market inclusion index in 2016 it was even very small, only 0.01%. At the Sharia Investment Week 2019, Kartiksasi mentioned that public enthusiasm on capital market was very high, but when the index

was measured, both literacy and inclusion indexes were still very low. A joint effort between stakeholders including the IDX, OJK, Bank Indonesia or the government and other stakeholders (securities companies, asset management, analysts, Dewan Syariah Nasional-MUI, and investors) are needed to contribute in promoting the Islamic capital market. Please see Table 1.

To raise literacy and inclusion index of capital market in Indonesia, this research is undertaken to contribute an analysis related to Islamic stocks in JII and non-Islamic shares in LQ-45 in the past 8 years. Some previous researchers had conducted similar research on this matter however; it was in a shorter period (1-5 years). In addition, there are not many researches available on 8-year analysis of sharia and non-sharia stock performance (2012-2019), Hence there is a window of research gap.

Table 1. Financial Literacy Index 2013-2016

No	Sector	2013 Financial Literacy Index	2016 Financial Literacy Index		
			Composite	Conventional	Sharia
1	Banking	21.80%	28.90%	28.30%	6.60%
2	Insurance	17.80%	15.80%	15.70%	2.50%
3	Pension Fund	7.10%	10.90%	10.90%	0.00%
4	Financial Institution	9.80%	13.00%	12.80%	0.20%
5	Pawnshops	14.90%	17.80%	17.10%	1.60%
6	Capital Market	3.80%	4.40%	4.40%	0.02%

Source: https://sikapiuangmu.ojk.go.id/

Table 2. Financial Inclusion Index 2013-2016

No	Sector	2013 Financial Inclusion Index	2016 Financial Inclusion Index		
			Composite	Conventional	Sharia
1	Banking	57.30%	63.60%	60.70%	9.60%
2	Insurance	11.80%	12.10%	11.80%	1.90%
3	Pension Fund	1.50%	4.70%	4.70%	0.00%
4	Financial Institution	6.30%	11.80%	11.80%	0.20%
5	Pawnshops	5.00%	10.50%	9.80%	0.70%
6	Capital Market	0.10%	1.30%	1.30%	0.01%

Source: https://sikapiuangmu.ojk.go.id/

There are many studies on comparative analysis of sharia and non-sharia stock portfolio, but the data analysis and unit analysis used are different, and there is no consistent results that showed conventional sharia stock performance is always outperformed the sharia one. In the other hand, there is no consistent result that showed Islamic stocks are always outperformed conventional stocks. The research result of Trabelsi, Bahloul, & Mathlouthi (2020), Mubarok, Darmawan & Luailiyah (2017), Amalia & Kartikasari (2016) showed that there was no significant difference on the performance of Islamic and non-Islamic stocks. While the research result of Nuraindra and Fajar (2019), de la O Gonzales, Jareno, & El Haddouti (2019), Touiti & Henchiri (2017), Setiawan (2017), and Binangkit,

Savitri & Kamaliah (2017) described a significant difference.

1.1. Portfolio Theory

Portfolio theory was initiated by Harry M. Makowitz (an American economist born in 1927), winner of the Nobel Prize in economics in 1990. He introduced a portfolio theory (investment approach) by estimating risk and expected return measured statistically by creating portfolio diversification. Through a diversification, investment risk is reduced (but does not mean it will eliminate all risks) without changing the expected return in the portfolio (Rubinstein, 2002). Markowitz (1952) in his portfolio theory also stated not to place all eggs in one basket.

The balance (trade-off) between risk and return is the main basis of investment decision. Making an investment decision relates to investor's behaviour towards risk. There is investor who is risk-taker, risk-averse or risk-neutral. Risk is a deviation of expected return against actual return.

Markowitz generally showed that risk can be reduced by combining several single securities into a portfolio. The portfolio return is a weighted average of the return of each single security in the portfolio (Hartono, 2017). The sum of yields and capital gains is called the total return of an investment (Tandelilin, 2010). Yield is a component of return that reflects the cash flow or income periodically obtained from an investment. While capital gain increases the price of a security (stocks or long-term debt securities).

The formula of stock return is as follows (Sharpe, 1964, 428):

$$r = \frac{P_1 - P_0}{P_0}$$

note:

r = return

P_1 = Price of present investment

P_0 = Price of previous investment.

And according to Markowitz (1952, 81), the formula of portfolio return is:

$$R_p = \sum_{i=1}^{n} (W_i . R_i)$$

note:

R_p = portfolio return

W_i = weight of security i in a portfolio

R_i = return of security i in a portfolio

n = number of securities in a portfolio.

1.2. CAPM Theory

CAPM is a tool for predicting balance of expected return in a risky securities (Bodie et al, 2014). In a balanced market condition, all investors will choose a market portfolio (the optimal portfolio). The standard form of CAPM was first developed separately by Sharpe (1964), Lintmer (1965), and Mossin (1969) This model was often referred to CAPM of Sharpe-Lintmer-Mossin. According to Bodie et al, (2014, 25) CAPM is a model that measures the risk and expected return on several risky securities when the market is in equilibrium. In this case, systematic risk is measured by beta, because unsystematic risk can be eliminated by diversification. And in this case, the trade-off between risk and return is linear.

The CAPM is formulated as follows (Fama, 2004, 29):

$$ER_i = R_f + \beta_i (ER_m - R_f)$$

Note:

ER_i = expected return on an investment

R_f = risk-free rate

B_i = beta of an investment

ER_m = expected market return

$(ER_m - R_f)$ is referred to market risk premium, whereas β_I $(ER_m - R_f)$ is referred to risk premium (Damodaran, 2002, 159).

Based on Markowitz's portfolio theory (1952), an efficient portfolio is a portfolio that runs along the efficient frontier curve. In a balanced market condition, all investors will choose a market portfolio (optimal portfolio that runs along the efficient frontier curve).

The relationship between risk and efficient portfolio return will produce a capital market line (Sharpe, 1964, 426), while the relationship between risk and return of individual security will produce a security market line measured by beta (Dybvig and Ross, 1985).

The state of market equilibrium, which concerns expected return and total risk (standard deviation or level of volatility), is described by the capital market line (CML). CML is a line that shows all the possible combinations of efficient portfolios consisting of risk securities and risk-free securities.

In Figure 1, point M is the intersection between R_f (risk free rate) and efficient frontier which consists of a portfolio of risky securities, and that point has the highest tangent angle compared to other points along the efficient frontier line. The M point is called as market portfolio (Hill 2010,

71) and is the optimum combination of risky portfolio securities (Sharpe, 1964, 433).

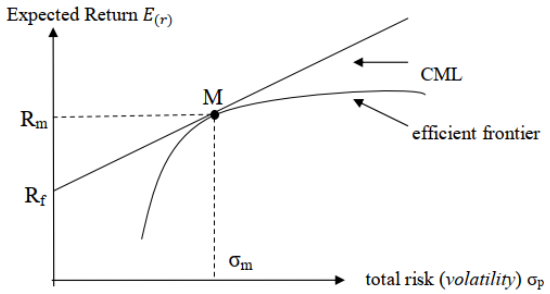

Figure 1. Capital Market Line (Sharpe, 1964)

In the other hand, a Security Market Line shows a trade-off between systematic risk (β) and expected returns for individual securities as a graphical representation of the CAPM model (Hill, 2010, 80).

SML is used to assess the profitability of an individual security in a balanced market condition, while CML is used to assess the expected rate of return of an efficient portfolio.

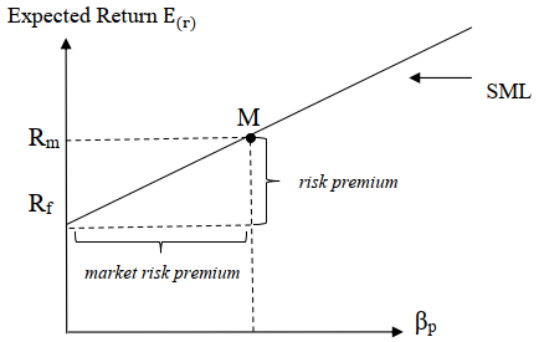

Figure 2. Security Market Line (Hill, 2010)

In 1960, the term random walk hypothesis emerged. According to the random walk hypothesis, future stock prices are not influenced by past stock prices (Fama, 1995). According to Fama (1970) the random walk model is based on two things: rational expectations and an efficient stock market. An efficient market is a market whose prices fully reflect information that is available transparently. Whereas an efficient portfolio is a portfolio that maximizes expected returns with the lowest risk (Markowitz, 1952; Hill, 2010, 19).

1.3. Efficiency market hypothesis (EMH)

EMH states that market prices fully reflect all available information. The theory was developed independently by Fama in 1970 (Gumanti and Utami, 2002). Bodie, et al. (2014) states that there are three forms to state capital market efficiency, namely weak form, semi-strong form, and strong form. Each of these efficient market forms is closely related to the extent of information absorption that occurs in the market.

The Weak form in EMH assumes that stock prices reflect all information contained in past history about the price of the security in question (Fama, 1970, 414; Gumanti and Utami, 2002). This theory supports the idea that investors cannot obtain abnormal profits in investing in these financial assets. Weak form shows that a price (a stock) is a random walk (future prices are not influenced by past prices). Investors cannot obtain above-normal profit levels based on past price information (Bodie et al, 2014; Rahmawati and Pandansari, 2016).

Gumanti and Utami (2002) also explained that compared to the weak form, the semi-strong form assumes that the price of a stock reflects all information in the market, including historical prices and other historical information (including weak forms), and prices can change quickly along with other information released on the market, prices adjust to newly informed public information. If the case that occurs in the capital market is a semi-strong form, technical and fundamental analysis cannot help investors in obtaining higher profits above normal.

Gumanti and Utami (2002) also explain the strong form of EMH which assumes that the capital market will be an auction house where prices are always fair and a stock price is a combination of all information available in the market, including financial historical information (weak form), all newly released information (semi-strong form) and all private/non-published information.

1.4. Risk-adjusted Measure

Measurement of the performance of stock portfolios in general uses several measurement indexes such as the Sharpe, Treynor, and Jensen (Touiti and Henchiri, 2017). According to Bodie et al (2014), the Sharpe method divides the average difference between portfolio returns (the difference between portfolio returns and risk-free returns) standard deviations of returns in that period. The Treynor method produces excess (excess) return

per unit of risk but only uses systematic risk (not total risk). Whereas Jensen's method, which is the average portfolio return outside the CAPM prediction results, uses beta portfolios and average market returns. Each method has its own advantages, but the performance evaluation of each method is not always the same because the risk measurement used is different.

In this research, the risk-adjusted measure used is only Treynor index and Jensen indexes where both are using systematic risk (beta), which is related to market conditions. Sharpe index is eliminated because it uses unsystematic risk where the main risk originates from securities companies because of the issuer's micro condition and has nothing to do with market conditions.

The Treynor Index or also called reward to volatility ratio (RVOR) measures portfolio return by the amount of portfolio risk. Terynor uses Security Market Line as a benchmark. The Treynor Index is calculated by the following formula (Treynor, 1965; Bodie et al, 2014, 362):

$$T_P = \frac{\bar{R}_P - \bar{R}_F}{\beta_P}$$

Note:

T_p = Treynor portfolio index

$\bar{R}_P$= average portfolio return p over the observation period

$\bar{R}_f$ = average risk-free return during the observation period

β_p = beta portfolio p during the observation period.

The Treynor method produces excess return per unit of risk, but uses systematic risk, not total risk (Bodie et al, 2014).

Jensen measure was developed by Jensen (1968), known as the differential return measurement (alpha). According to Jones (2010, 595) is "Jensen's measure of portfolio performance calculated as the difference between what the portfolio actually earned and what it was expected to earn given its level of systematic risk". The Jensen index shows the difference in the actual rate of return of a portfolio with the expected rate of return. The Jensen index is calculated by the following formula (Jensen, 1967; Bodie et al, 2014, 362):

$$J_P = \bar{R}_P - [\bar{R}_f + \beta_P (R_m - \bar{R}_f)]$$

Note:

J_p = Jensen's portfolio index

$\bar{R}_P$ = average portfolio return p over the observation period

$\bar{R}_f$ = average risk-free return during the observation period

$\bar{R}_m$ = average market return during the observation period

β_p = beta portfolio p during the observation period.

1.5. Stock Performance Measure

In this research, the indicator used to measure stock performance is stock return. In an investment, investors certainly want an investment return, which is always above the market. In the CAPM theory, beta is very influential on the contribution of risk.

1.6. Hypotheses

Susilo and Najah (2018) showed in their research that there was no stocks that consistently had positive performance against its benchmark. Whereas Setiawan (2017) showed that the market/benchmark (Jakarta Composite Index /JCI) indicated a better performance than JII. Based on the description, the a first hypothesis is concluded as: **H_1: Return of the portfolio of sharia stock portfolio during 2012-2019 outperformed the market (JII).**

The Treynor method creates an excess return per unit of risk but it only uses systematic risk (not total risk). Whereas Jensen's method uses portfolio's beta and average market return. Each method has its own advantage, however, assessment of each method does not have to have same result because the risk assessment used is different.

In the researches of Trabelsi et al (2020) and Susilo and Najah (2018), the Treynor index showed a positive result. While the research result of Touiti and Henchiri (2017) showed negative results in each study period (before, during and after 2008 global crisis). Based on this description, the second hypothesis is concluded as follows: **H_2: Sharia stock portfolio listed in JII during 2012-2019 had a positive result of Treynor and Jensen risk-adjusted measurement.**

Thirdly, the research result of from Trabelsi et al (2020), Mubarok et al (2017), Amalia and Kartikasari (2016) showed that there was no significant difference in the performance of sharia and non-sharia stocks. While the research result of Nuraindra and Fajar (2019), de la O Gonzales et al (2019), Touti and Henchiri (2017), Setiawan (2017), and Bingakit et al (2017) showed that there

were significant differences in the performance of sharia stocks compared to non-sharia. Based on the description given above, a third hypothesis is concluded as follows: **H_3: There is a significant difference between return of sharia stock portfolio and non-sharia stock portfolio during 2012-2019.**

II. RESEARCH METHOD

This research is a descriptive and comparative reasearch which examines return of sharia and non-sharia stock portfolio and analyze Treynor and Jensen indexes of sharia portfolio. This study uses quantitative approach using the risk-adjusted measure method (Treynor and Jensen) and two statistical tests, namely one sample t-test and Independent Sample t-test to compare the performance of sharia and non-sharia portfolio.

The type of data used in this study is secondary data obtained from Indonesia Stock Exchange website (https://www.idx.co.id/), the OJK website (https://www.ojk.go.id/), central bank/ Bank Indonesia website (https://www.bi.go.id/) and https://finance.yahoo.com/.

The population in this study are all stocks listed on JII and LQ-45 for the period January 2012 to December 2019. Sampling method used is purposive sampling with the following criteria:

1. Consistent stocks listed in JII within January 2012 to December 2019 (96 months). There are nine consistent sharia stocks: ADRO, AKRA, ASII, ICBP, INDF, KLBF, TLKM, UNTR and UNVR.
2. Consistent non-sharia stocks listed in LQ-45 within January 2012 to December 2019 and never listed in the *Daftar Efek Syariah* (sharia list assessed regularly by OJK). There are five consistent non-sharia stocks: BBCA, BBNI, BBRI, BMRI and GGRM.

III. RESULTS AND DISCUSSION

3.1. Hypothesis test on H_1

To test of first hypothesis (return of sharia portfolio outperformed its market return (JII)), we need to calculate the average of monthly return of sharia portfolio, as seen in Table 3.

Table 3. Average monthly return of sharia portfolio

Year	Average Monthly Return Sharia Portfolio									Average Monthly Return of Sharia Portoflio $\bar{R}_p$	Average Monthly Return of Risk-Free Rate $\bar{R}_f$
	ADRO	AKRA	ASII	ICBP	INDF	KLBF	TLKM	UNTR	UNVR		
2012	-0.44%	3.30%	1.22%	3.60%	2.10%	1.12%	0.31%	-0.24%	0.71%	1.22%	0.48%
2013	-2.00%	0.99%	0.26%	2.73%	1.27%	-0.05%	-0.34%	0.77%	-0.32%	0.26%	0.53%
2014	-0.02%	-0.13%	0.18%	2.30%	0.24%	-0.15%	-0.13%	-1.01%	-0.33%	0.18%	0.63%
2015	-5.37%	4.90%	-0.37%	0.46%	-1.86%	-0.07%	0.00%	0.24%	-0.30%	-0.37%	0.63%
2016	10.88%	-1.20%	2.15%	2.23%	3.98%	-0.15%	-0.15%	0.83%	0.01%	2.15%	0.48%
2017	1.00%	0.70%	0.13%	0.38%	-0.24%	-0.45%	-0.13%	0.00%	-0.25%	0.13%	0.38%
2018	-2.74%	-2.87%	-0.48%	1.44%	-0.02%	0.31%	-0.01%	-0.52%	0.01%	-0.48%	0.42%
2019	2.59%	-0.05%	0.33%	0.68%	0.72%	0.27%	-0.14%	0.11%	-0.03%	0.33%	0.47%
									Average Monthly Return Sharia Portfolio for 8 years	**0.43%**	**0.52%**

Source: Yahoo Finance and Bank Indonesia, processed, 2020

From Table 3, it can be seen that the average monthly portfolio return in 2012 was 1.22%, but then in 2013, 2014 and 2015 declined. In the 2016 Indonesian Economic Report Book launched by Bank Indonesia, it was stated that the condition that caused a decline in the 2013-2015 period was

caused by changes in US monetary policy, one of which was by lowering interest rates to 0.25%. This caused turmoil in emerging markets in the world including Indonesia, and also affected the Indonesian capital market due to a large capital outflow where many foreign investors withdrew their funds in Indonesia so that the JCI at the end of 2013 fell -0.98% from 4,316.69 in 2012 to 4,274.18 in 2013. In 2014, the JCI index increased to 5,226.95 but it declined again at the end of 2015 to 4,593.01. Another reason that caused a slowdown in economic growth in the 2013-2015 period was the fall of plantation and mining commodities, where exports of these two commodities accounted for around 60-70% of Indonesia's economic growth.

In 2016, the JCI experienced a sharp increase. The improvement in economic growth occurred after the US raised interest rates from 0.25% to 0.5% in December 2015. This triggered an improvement in the development of the stock market in Indonesia and the flow of capital inflow back to the Indonesia Stock Exchange in 2016. The JCI figures at the end of 2016 was increased to 5,296.71. This of course also affected the average return value of the sharia portfolio which also surpassed the risk-free rate that can be seen in Table 3. This made the average return of the sharia portfolio improved in 2016. The return of sharia stock portfolio in 2017 is positive but lower than in 2016, it was due to a decrease of 2017 average market return (JII) compared to 2016. While in 2018, the JCI was decreased compared to 2017, from 6,355.65 to 6,194.50. The decline was triggered by a trade war between the US and China related to import duties on imported products from China, which slowed the pace of the world economy including in Indonesia. It is seen that the 2018 average sharia stock portfolio return had the worst return among all years in the period 2012 to 2019.

In 2019, based on Indonesian Economic Report launched by Bank Indonesia, the flow of capital to developing countries decreased due to the strengthening of the US economy so that demand for US government debt increased. However, in 2019 domestic household consumption continued to grow well and did not depend on exports. A good figure of household consumption was also driven by the 2019 elections, so that the JCI at the end of 2019 is better than 2018. It made the 2019 average sharia stock portfolio return in 2019 improved.

Table 4. Average monthly return of sharia portfolio

Year	Average Monthly Return of Sharia Portfolio $\bar{R}_p$	Average Monthly Return of Market (JII) $\bar{R}_m$	Average Monthly Return of Risk-Free Rate $\bar{R}_f$
2012	1.22%	0.94%	0.48%
2013	0.26%	-0.06%	0.53%
2014	0.18%	1.42%	0.63%
2015	-0.37%	-1.00%	0.63%
2016	2.15%	1.24%	0.48%
2017	0.13%	0.77%	0.38%
2018	-0.48%	-0.80%	0.42%
2019	0.33%	0.21%	0.47%
Mean	**0.43%**	**0.34%**	**0.52%**

Source: Yahoo Finance and Indonesia Stock Exchange, processed, 2020

Table 5. Beta of sharia portfolio

Year	*Covariance* σ_{im}	*Variance* σ^2_m	Beta β_p
2012	0.117%	0.188%	0.620
2013	0.084%	0.084%	0.489
2014	0.016%	0.016%	0.362
2015	0.127%	0.127%	0.497
2016	0.076%	0.076%	0.550
2017	0.030%	0.030%	0.514
2018	0.056%	0.056%	0.495
2019	0.071%	0.071%	0.619

Source: Yahoo Finance and Indonesia Stock Exchange, processed, 2020

Based on Table 4, it appears that there are only 2 out of 8 periods where portfolio returns are below market returns. Those periods are 2014 and 2017. The average monthly return sharia portfolio in 2012-2019 is 0.43%, where the average monthly market return is 0.34%, for the period of 2012-2019. This shows that the performance of sharia portfolio during the research period outperformed the market as shown in Figure 3, although the

average return is below the risk-free rate. Referring to the CAPM theory on market risk premium β_I ($ER_{m-}R_f$), if market value is below the risk-free rate, the market risk premium will be negative and expected return (ER) will be less than risk-free rate.

3.2. One sample t-test for H_1

Before conducting one sample t-test, normality test was undertaken, and the data set is modeled by a normal distribution. The following are the results of the one sample t-test for the average portfolio for 2012-2019.

Table 6. One sample t-test for Sharia Portfolio Return 2012-2019

One-Sample Statistics

	N	Mean	Std. Deviation	Std. Error Mean
Sharia_Portfolio_Return	8	.004257	.0086472	.0030573

One-Sample Test

	Test Value = 0.0034					
	t	df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
Sharia_Portfolio_Return	.280	7	.787	.0008572	-.006372	.008086

Source: SPSS test result

From the results of the one sample t-test of Table 6, the Sig (2-tailed) result > 0.05 hence there is no significant difference between the average sharia portfolio return to the average market return. Therefore **Hypothesis 1** (return of the portfolio of sharia stock portfolio during 2012-2019 outperformed the market (JII)) **is rejected**.

In Markowitz's portfolio theory (1952, 81) assuming the weight of each stock is equal, portfolio return is the weighted average of the realized return of each single security in the portfolio. In general, the risk of the sharia portfolio in this case was reduced by combining several single securities into a portfolio. The Beta of this portfolio is between 0 and 1 (as shown in Table 5), which sensitivity is smaller than the benchmark. This is why the portfolio return is not so much different with its market.

If compared with previous researchers, Susilo and Najah (2018) showed that there was no stock that consistently outperformed its benchmark. Setiawan (2017) showed that JCI (benchmark) indicated a better performance than the sample/JII. In conclusion, this first hypothesis provided a different evidence that sharia portfolio return during the period 2012-2019 equals its market/benchmark (JII).

3.3. Hypothesis test on H_2

The analysis of second hypothesis (measurement of Treynor and Jensen index of sharia portfolio return show positive values) shall refer to Table 7.

Table 7. Treynor and Jensen indexes of sharia portfolio against its market

Year	Sharia Portfolio		Market (JII)	
	Treynor	Jensen	Treynor	Jensen
2012	0.0119	0.0045	0.0046	0.0000
2013	-0.0057	0.0001	-0.0059	0.0000
2014	-0.0123	-0.0073	0.0079	0.0000
2015	-0.0200	-0.0018	-0.0163	0.0000
2016	0.0304	0.0125	0.0076	0.0000
2017	-0.0050	-0.0046	0.0039	0.0000
2018	-0.0181	-0.0030	-0.0121	0.0000
2019	-0.0024	0.0002	-0.0027	0.0000
Mean	-0,00266	0,00007	-0.00162	0.0000

Source: Yahoo Finance and Indonesia Stock Exchange, processed, 2020

The result shown that the Treynor index has more negative values than the Jensen index. The negative result of Treynor index indicated that the sharia portfolio performance in that particular period is below the risk-free rate, which means that

the portfolio's performance is under-performed, namely in the period of 2013, 2014, 2015, 2017, 2018, and 2019. The positive results of Treynor index only shown in 2 periods, namely 2012 and 2016, this happened because the portfolio's performance is above the risk-free rate.

While the results of Jensen indicated that, there were 4 periods under-performance, namely 2014, 2015, 2017 and 2018. The Treynor Index yielded positive values (outperformed) in 4 periods namely 2012, 2013, 2016 and 2019.

3.4. One sample t-test for H_2

A normality test was previously undertaken prior to execution of one sample t-test. It is proven that the data set is modeled by a normal distribution.

The following is result of the one sample t-test for Treynor and Jensen consecutively.

Table 8. Treynor and Jensen one sample t-test

One-Sample Statistics					
	N	Mean	Std. Deviation	Std. Error Mean	
Indeks Treynor	8	-0.002661	0.0166952	0.0059027	
Indeks Jensen	8	0.000073	0.0061402	0.0021709	
One-Sample Test					
	Test Value = -0.00162				
	t	df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference
					Lower / Upper
Indeks Treynor	-0.176	7	0.865	-0.001041	-0.01499 / 0.012917
One-Sample Test					
	Test Value = -0.00000				
	t	df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference
					Lower / Upper
Indeks Jensen	0.034	7	0.974	0.0000729	-0.00506 / 0.005206

Source: SPSS test result

In the one sample t-test of Treynor index against its market, the Sig (2-tailed) result is 0.865 > 0.05 which means average portfolio Treynor index equals the average market Treynor index. While in Jensen's one sample t-test, the Sig (2-tailed) result is 0.974 > 0.05, which means the average portfolio Jensen index, also equals the average market Jensen index. This means that **Hypothesis 2** (measurement of Treynor and Jensen index of sharia portfolio return show positive values) **is rejected**.

Referring to the theory, Treynor's method produces excess return per unit of risk but only uses systematic risk (not total risk). Whereas Jensen's method, which is the average portfolio return outside the CAPM prediction results, uses beta portfolios and average market returns. Each method has its own advantage, but the performance of each method is not always the same because the risk measurement used is different.

With reference to Table 7, there are several negative Treynor index values, i.e. 2014, 2015, 2017 and 2018, which if referring to the theory, it shows that the portfolio slope is below the Security Market Line. Therefore, in those years, the portfolio performances were worse than the market. The Jensen index in Table 7 also shows the same thing, where several negative Jensen index results were found in 2014, 2015, 2017 and 2018. It indicates that both Treynor and Jensen ran in the same direction. Both of Treynor and Jensen use beta as a measure of risk which aims to measure how much strength of the portfolio in beating the market.

Comparing with previous researchers, Trabelsi et al (2020), and Susilo and Najah (2018) concluded that Treynor index showed positive

results. In the other hand, Touiti and Henchiri (2017) examined that the result of Treynor and Jensen measurement showed negative results in almost all periods of research (before, during and after the crisis). The results of their study indicated that the result of Treynor and Jensen index are not always positive.

The result of this research is contrary to Trabelsi et al (2020), Susilo and Najah (2018), and Touiti and Henchiri (2017). This research concludes that the Treynor and Jensen indexes follow its market.

3.5. Hypothesis test on H_3

In order to test third hypothesis (there is a significant difference between the return of sharia portfolio and non-sharia portfolio during the period of 2012-2019), we will use independent sample t-test. A previous normality test had been done and it was shown that the data set is modeled by normal distribution.

Table 9. Independent sample t-test for return comparison of sharia dan non-sharia portfolio

Group Statistics

	Portfolio (Sharia and Non-sharia)	N	Mean	Std. Deviation	Std. Error Mean
Average Return of Portfolio	Sharia Portfolio Return	96	.004257	.0274354	.0028001
	Non-sharia Portfolio Return	96	-.000245	.0122264	.0012478

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Average Return of Portfolio	Equal variances assumed	45.904	.000	1 469	190	.144	.0045023	.0030656	-.0015447	.0105492
	Equal variances not assumed			1 469	131.302	.144	.0045023	.0030656	-.0015620	.0105666

Source: SPSS test result

The result of independent sample t-test is shown in Table 9. From the results, Sig. (2-tailed) > 0.05, it means there is no significant difference between the return of sharia stock portfolios and return of non-sharia stock portfolio. However, the average return of sharia stock portfolios is slightly greater than the return of non-sharia stock portfolio return.

From the Levene's test results, it is found that the Sig. <0.05 so that the equal variances is not assumed. On the Sig (2-tailed) value of equal variances not assumed, the Sig (2-tailed) value is 0.144 > 0.05, hence there is no significant difference between sharia portfolio return and non-sharia portfolio return. Hence, **Hypothesis 3** (there is a significant difference between the return of sharia portfolio and non-sharia portfolio) **is rejected**.

Referring back to CAPM theory: $ER_i = R_f + \beta_i\,(ER_{m-}R_f)$, if market risk premium

$\beta_i(ER_{m-}R_f)$ is negative, it is because the market value is below the risk-free rate, so the negative value is the reducing factor for the expected return (ER). An investor always hopes that their investment will be always greater than the market.

Trabelsi et al (2020), Mubarok et al (2017), Amalia and Kartikasari (2016) showed that there is no significant difference in the performance of sharia shares with non-sharia shares. Whereas Nuraindra and Fajar (2019), de la O Gonzales et al (2019), Touti and Henchiri (2017), Setiawan (2017), Binangkit et al (2017) showed that, there are significant differences in the performance of sharia and non-sharia shares.

The results of this Hypothesis 3 showed that investing in sharia shares is as good as investing in non-sharia shares, given the fact that there is no significant different between its return. Investors may freely invest in either sharia shares or non-sharia shares.

IV. CONSLUSIONS

In the results of Hypothesis 1 testing it was found that there is no significant difference between the average sharia portfolio return to the average market return. Therefore Hypothesis 1 (return of the portfolio of sharia stock portfolio during 2012-2019 outperformed the market (JII)) is rejected. The sharia portfolio return in the 2012-2019 is in line with its market return (JII). In theory, this indicates that the portfolio lies in the Security Market Line, which considers an attractive investment for investors, where the portfolio return is the same as the market return (JII).

In the Hypothesis 2 test results, average portfolio of both Treynor and Jensen index equal the average market of Treynor and Jensen index. This means that **Hypothesis 2** (measurement of Treynor and Jensen index of sharia portfolio return show positive values) **is rejected**. With reference to Table 7, there are several negative Treynor index values, i.e. 2014, 2015, 2017 and 2018, which if referring to the theory, it shows that the portfolio slope is below the Security Market Line. So in those years, the portfolio performances were worse than the market. The Jensen index in Table 7 also shows the same thing, where several negative Jensen index results were found in 2014, 2015, 2017 and 2018. It indicates that both Treynor and Jensen ran in the same direction. Both of Treynor and Jensen use beta as a measure of risk, which aims to measure how much strength of the portfolio in beating the market.

In the Hypothesis 3 test result, there is no significant difference between sharia portfolio return and non-sharia portfolio return. Hence, **Hypothesis 3** (there is a significant difference between the return of sharia portfolio and non-sharia portfolio) **is rejected**. Referring back to CAPM theory: $ER_i = R_f + \beta_i (ER_{m-}R_f)$, if market risk premium $\beta_i(ER_{m-}R_f)$ is negative, it is because the market value is below the risk-free rate, so the negative value is the reducing factor for the expected return (ER). An investor always hopes that their investment will be always greater than the market. The results of this Hypothesis 3 showed that investing in sharia shares is as good as investing in non-sharia shares, given the fact that there is no significant different between its return. Investors may freely invest in either sharia shares or non-sharia shares.

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