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✉ Corresponding Author:

**Natasha Angelica:**

Tel. +62 21 786 7222

E-mail: [natasha.peristiwady@gmail.com](mailto:natasha.peristiwady@gmail.com)



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## Sustainable and responsible investment portfolio performance analysis in Indonesia Stock Exchange

**Natasha Angelica, Cynthia Afriani Utama**

*Master of Management, Faculty of Economics and Business, Indonesia University  
MMUI Building, Jl. Salemba Raya 4, Jakarta, 10430, Indonesia*

**Abstract**

This study is intended for knowing the Sustainable and Responsible Investment (SRI) stock portfolio performance in the Indonesia Stock Exchange (IDX). SRI is a concept where the investor is not only considering financial performance, but also non-financial aspects in the company such as Environmental, Social, and Governance (ESG). The main objective of this study is to compare the performance of the SRI portfolio with the performance of comparable portfolios. Is the performance of the SRI portfolio in IDX better than conventional portfolio and Islamic portfolio? To answer this question, the SRI portfolio will be formed from SRI-KEHATI Index (SRI), a conventional portfolio will be formed from the LQ45 index, and the Islamic portfolio will be formed from Jakarta Islamic Index (JII). The performances of those three portfolios will be compared based on alpha value, Sharpe Ratio, Treynor Ratio, and Sortino Ratio. This study result shows that the SRI portfolio performance in IDX is better than the conventional portfolio and Islamic portfolio. That performance occurs because the average of SRI portfolio excess return has positive value during the study period.

**Abstrak**

Penelitian ini bertujuan untuk mengetahui kinerja portofolio saham Sustainable and Responsible Investment (SRI) di Bursa Efek Indonesia (BEI). SRI merupakan sebuah konsep dimana investor tidak hanya mempertimbangkan kinerja keuangan, tetapi juga aspek non keuangan dalam perusahaan seperti Lingkungan, Sosial, dan Tata Kelola (LST). Tujuan utama penelitian ini adalah membandingkan kinerja portofolio SRI dengan kinerja portofolio pembandingan. Apakah kinerja portofolio SRI di BEI lebih baik dari portofolio konvensional dan portofolio syariah? Untuk menjawab pertanyaan tersebut maka akan dibentuk portofolio SRI dari Indeks SRI-KEHATI (SRI), portofolio konvensional akan dibentuk dari indeks LQ45, dan portofolio Syariah akan dibentuk dari Jakarta Islamic Index (JII). Performa ketiga portofolio tersebut akan dibandingkan berdasarkan nilai alpha, Sharpe Ratio, Treynor Ratio, dan Sortino Ratio. Hasil penelitian ini menunjukkan bahwa kinerja portofolio SRI di BEI lebih baik daripada portofolio konvensional dan portofolio syariah. Kinerja tersebut terjadi karena rata-rata excess return portofolio SRI bernilai positif selama periode penelitian.

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### 1. Introduction

When investing and constructing the portfolio, an investor often having different criteria than other investors. One of them is the use of criteria that are not connected with the company's financial performance or known as ethical investing. Ethical investing, according to Renneboog, Horst, & Zhang (2008), started from Jewish, Christian, and Islamic religious base. Along with time, the ethical investing religion base shifted into the more general, which ethic and social faith, or now is known as Sustainable and Responsible Investment (SRI).

SRI Concept is combined from various investment criteria that is acceptable by a big group of investors (Bodhanwala & Bodhanwala, 2019). According to Sauer (1997), SRI investors put in the financial criteria and social criteria to ensure the investment suitability with his personal values and faith. Furthermore, Giamporcaro (2011) interpreted the SRI as an investment process where the investor combines their financial purpose with Environmental, Social, and Governance or ESG criteria.

In Indonesia, more attention towards the SRI concept started with the forming of SRI based index by Indonesia Stock Exchange (IDX) and Indonesia Biodiversity Foundation (KEHATI) on June 8th, 2009 named SRI-KEHATI Index. The high enthusiasm of Indonesian investors towards SRI started to be seen in 2014. During 2014 until 2019, KEHATI Foundation has been cooperated with nine investment manager (MI) to form ten SRI-KEHATI Index-based mutual funds. During that period, the total asset under management (AUM) of the SRI-KEHATI based mutual fund growth of 216.30 percent or reach IDR 1,779.24 billion in 2019.

From the academic side, according to Fiskerstrand et al. (2019) some studies succeed to prove that there are SRI positive influences to the financial performance. Still, on the other side, some studies found that there are negative influences, and the rest thought that there is no influence at all. De Velde, Vermeir, & Corten (2005) shows SRI has posi-

tive influences to the financial performance by connecting Vigeo Corporate Responsibility Scores as SRI parameter with portfolio performance. The result is, the portfolio consist of the companies with low score has lower performance rather than the market. Otherwise, the portfolio with a high score has higher performance rather than the market.

Cunha & Samanez (2013) compared the performance of the Corporate Sustainability Index (ISE) stocks with sectoral index in Brazil. This study shows that there is no significant difference from the performance side based on ratio of those indexes. Syed (2017) in his study in England and France, also proves that there is no significant difference between SRI portfolio and non-SRI portfolio from the performance side, but succeed to conclude that the SRI portfolio has lower risk rather than the market index. According to Ortas et al. (2014), the SRI strategy has lower risk rather than a conventional investment approach. The lower risk mainly happened during the market instability period.

Renneboog et al. (2008) said that the investor tends to lower the rate of return of the company in the SRI criteria rather than the one recommended by the asset pricing even though it could not be concluded that every SRI investment has lower performance rather than the other conventional investment.

Some study results above could give positive hope for SRI investors in Indonesia. When investing in the SRI portfolio, other than could keep the portfolio still suitable with the principle held by the investor, the investor also could have the portfolio with better performance or lower risk rather than other portfolios even though further study is still needed to see the SRI portfolio performance in Indonesia. This study focused on giving input for SRI investors in Indonesia. Is the investment with the SRI concept in IDX supported by better portfolio performance rather than a conventional portfolio and Islamic portfolio?

## 2. Hypotheses Development

In the background have been shown that there is a difference in the past obtained study result. The result of various past study caused by the study method, period, and difference in location. Bodhanwala & Bodhanwala (2019) said that there is a performance difference between the SRI portfolio of a developed country and a developing country. SRI portfolio in a developed country like the United States and Australia has the relatively same performance as the conventional index. On the other side, the SRI portfolio in the developing country shows lower performance rather than the conventional index. That thing happened because of the SRI portfolio sample size is relatively small and not diversified well in the developing country.

SRI company is a company that is trying to minimize the financial risk from unwise and unsafe business practices in its operational activity (Sethi, 2005). Therefore, the company in the SRI criteria potentially increases the whole operational costs

(Bodhanwala & Bodhanwala, 2019). The high operational costs are in line with the view that SRI hurts shareholder returns due to the integration of the interests of all stakeholders, thus leading to sub-optimization of shareholder interests. On the other hand, integration of the interests of all stakeholders in the long term should be able to create value for shareholders by reducing non-financial risks so as to create long-term growth opportunities for the company (De Velde et al., 2005).

The following hypotheses will be answered in this study:

- $H_1$ : portfolios whose shares are selected based on the SRI criteria on the IDX have better performance compared to comparable portfolios.
- $H_2$ : portfolios whose shares are selected based on SRI criteria on the IDX have worse performance than comparable portfolios.

Based on the above hypothesis, the structure of the study model can be seen in Figure 1.

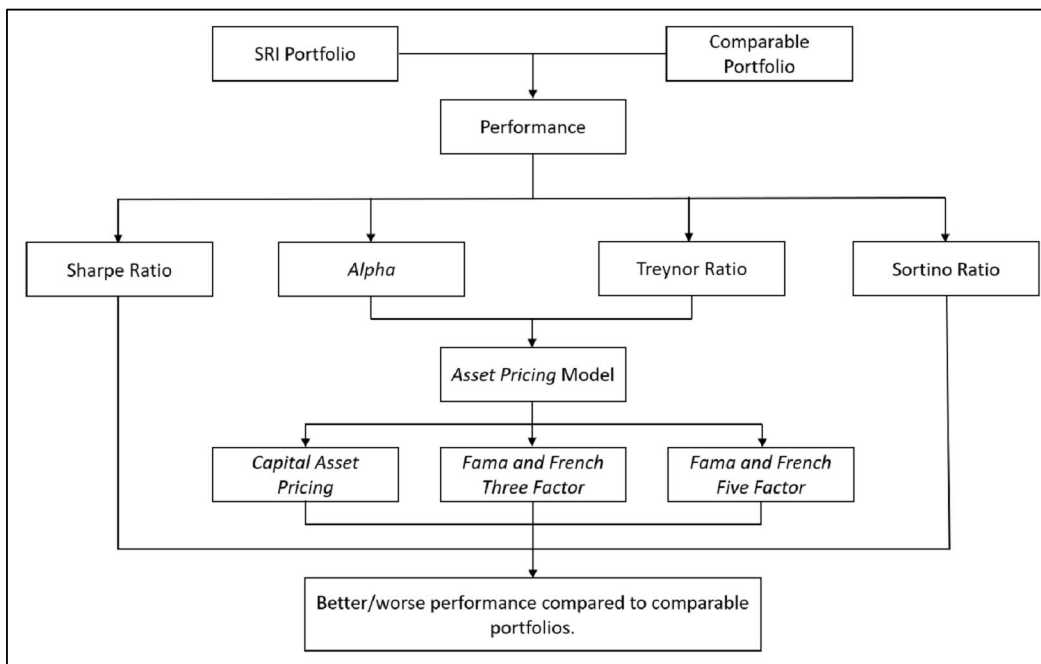


Figure 1. Research model

### 3. Method, Data, and Analysis

The main objective of this study is to compare the performance of the SRI portfolio with the performance of comparable portfolios, namely conventional portfolios and the performance of Islamic portfolios on the IDX. The SRI portfolio is formed based on the composition of the SRI-KEHATI Index shares, conventional portfolios are formed based on the composition of the LQ45 index shares, and the Islamic portfolio is formed based on the composition of JII shares. The use of indices compared to mutual funds in this study was conducted to avoid potential bias arising from transaction costs, management costs, asset allocation policies, sector selection, and stock selection (Sauer, 1997). The study period is set for five years, from July 2014 to June 2019.

The population in this study were all stocks listed on the IDX during the study period, but not all of these populations were used as data. The sample criteria that must be met in this study are: (1) having complete market data and financial report data during the study period, (2) having a positive equity value during the study period, and (3) being stocks that are continuously listed on the IDX during the study period.

The performance of SRI portfolios, conventional portfolios, and Islamic portfolios will be compared using alpha values from the Capital Asset

Pricing Model (CAPM), Fama and French Three-Factor Model (FF3F), and Fama and French Five-Factor Model (FF5F), Sharpe Ratio, Treynor Ratio, the Sortino Ratio. The data required for these equations are market data and financial reports.

Market data such as stock returns, market returns, and risk-free rates of return using monthly data, on the other hand, financial report data for factor formation in the asset pricing model, use annual data. The data used in this study (Table 1) were mostly downloaded from Infovesta. Other data was downloaded from Bloomberg, the Indonesian Biodiversity Foundation (KEHATI) website, and the IDX website.

The statistical applications used for data processing in the study are E-views and Stata applications. Statistical data processing performed in this study consists of classical assumption tests, determining the types of data transformations that can be performed, asset pricing model regression, and beta Dimson regression.

The following is a brief explanation of the equations used to assess portfolio performance in this study:

#### Sharpe Ratio

The Sharpe Ratio is the division between the average excess return by the standard deviation.

**Table 1.** Type, frequency, period, and source of data

Type	Frequency	Period	Source
Index	Every change is made	July 2014 – June 2019	Infovesta, IDX, & KEHATI
Adjusted closing price	Monthly	July 2014 – June 2019	Infovesta
Market Capitalization	Monthly	Dec 2013 – June 2019	Infovesta
Total Asset	Yearly (Dec)	Dec 2012 – Dec 2018	Infovesta
Total Equity	Yearly (Dec)	Dec 2013 – Dec 2019	Infovesta
Operating profit	Yearly (Dec)	Dec 2013 – Dec 2018	Infovesta
Net Income	Yearly (Dec)	Dec 2019	Infovesta
Closing Price IHSG	Monthly	July 2014 – June 2019	Bloomberg
Risk Free Rate	Monthly	July 2014 – June 2019	Bloomberg

Standard deviation ( $\sigma$ ) is a measure of total risk, which consists of systematic risk or market risk and non-systematic risk. Because it uses a standard deviation, the Sharpe Ratio is used to measure portfolio performance that is not well-diversified (Fitriani & Utama, 2001). Below is the equation for calculating the Sharpe Ratio (Bodie, Kane, & Marcus, 2018):

$$\text{Sharpe Ratio} = \frac{\overline{R_p} - \overline{R_f}}{\sigma_p} \quad (1)$$

### Treynor Ratio

Unlike the Sharpe Ratio, the Treynor Ratio divider is beta ( $\beta$ ), which is a measure of systematic risk or market risk. Market risk is the risk that cannot be lost even though the portfolio has been diversified. Therefore, the Treynor Ratio is used to measure performance when a portfolio is well diversified (Fitriani & Utama, 2001). Below is the equation for calculating the Treynor Ratio (Bodie et al., 2018):

$$\text{Treynor Ratio} = \frac{\overline{R_p} - \overline{R_f}}{\beta_p} \quad (2)$$

### Sortino Ratio

Rollinger & Hoffman (2013), state that the Sortino Ratio is a modification of the Sharpe Ratio. The Sortino Ratio uses the downside deviation in place of the standard deviation as the divisor in the equation. The downside deviation ( $\delta$ ) is the standard deviation of negative numbers from the difference between the portfolio rate of return and the risk-free rate of return. If the difference between the portfolio rate of return and the risk-free rate of return is positive, it is not taken into account in calculating the downside deviation. Here is the equation of the Sortino Ratio:

$$\text{Sortino Ratio} = \frac{\overline{R_p} - \overline{R_f}}{\delta_p} \quad (3)$$

### Asset Pricing Model

Alpha and beta values are searched using asset pricing models, namely CAPM, FF3F, and FF5F. Below is the equation for the three models, based on Fama & French (1995, 1996, 2015):

*Capital Asset Pricing Model*  

$$E(r_p) - r_f = \alpha_p + \beta_p [E(r_m) - r_f] \quad (4)$$

*Fama French Three Factor Model*  

$$E(r_p) - r_f = \alpha_p + \beta_{pM} R_{Mt} + \beta_{iSMB} SMB_t + \beta_{iHML} HML_t + e_{it} \quad (5)$$

*Fama French Five Factor Model*  

$$E(r_p) - r_f = \alpha_p + \beta_{pM} R_{Mt} + \beta_{iSMB} SMB_t + \beta_{iHML} HML_t + \beta_{iRMW} RMW_t + \beta_{iCMA} CMA_t + e_{it} \quad (6)$$

$SMB_{(HML)}$  and HML is formed based on the portfolio of Small Low (SL), Small Medium (SM), Small High (SH), Big Low (BL), Big Medium (BM) and Big High (BH), which is a slice of the portfolio with market capitalization criteria and book to market value. Based on market capitalization, stocks are divided into two groups, namely the Big group, whose market capitalization value is above the sample median value, and the Small group, which is below the sample median value. Based on the book to market value, the sample is divided into three groups, namely, the Low group who is below the 30th percentile of the sample, the High group which is above the 70th percentile of the sample, and the Medium group who are in between. (Foye, 2018)

$SMB_{(RMW)}$  and RMW is formed based on the Small Weak (SW), Small Medium (SM), Small Robust (SR), Big Weak (BW), Big Medium (BM) and Big Robust (BR) portfolios, which are slices of portfolios with market capitalization criteria and operational profit. The division based on market capitalization is carried out the same as for the SMB (HML) and HML portfolios. Based on operating profit, the sample is divided into three groups, namely, the Weak group who were under the 30th percentile of the sample, the robust group who were in the up-

per 70th percentile of the sample, and the Medium group who were in between (Foye, 2018).

SMB<sub>(CMA)</sub> and CMA is formed based on the Small Conservative (SC), Small Medium (SM), Small Aggressive (SA), Big Conservative (BC), Big Medium (BM) and Big Aggressive (BA) portfolios, which are slices of portfolios with market capitalization criteria and growth in total assets. The division based on market capitalization is carried out the same as for the SMB (HML) and HML portfolios. Based on the growth in total assets, the sample is divided into three groups, namely, the Conservative group, which is under the 30th percentile of the sample, the Aggressive group which is above the 70th percentile of the sample, and the Medium group which is in between (Foye & Valentinè, 2020).

SMB<sub>(HML)</sub> is the SMB value that will be used in the FF3F regression. While the SMB value to be used in the FF5F regression is the average of the values SMB<sub>(HML)</sub>, SMB<sub>(RMW)</sub>, and SMB<sub>(CMA)</sub> (Foye & Valentinè, 2020).

### Dimson Beta

In this study, the beta calculation is also added with Dimson beta. According to Iqbal & Brooks (2007), beta Dimson is often used in research in developing countries because there are several limitations, such as; (1) data available is only data on closing prices and (2) trading in developing countries tends to be not liquid. Standard Dimson beta is estimated from a modified market model with two lag and lead periods, which are then summed. Here's the equation for finding the Dimson beta:

$$R_{pt} = \alpha_p + \beta_{t-2}R_{Mt-2} + \beta_{t-1}R_{Mt-1} + \beta_t R_{Mt} + \beta_{t+1}R_{Mt+1} + \beta_{t+2}R_{Mt+2} + e_{it} \quad (7)$$

$$R_{pDim} = \beta_{t-2} + \beta_{t-1} + \beta_t + \beta_{t+1} + \beta_{t+2} \quad (8)$$

## 4. Results

According to the website [www.KEHATI.or.id](http://www.KEHATI.or.id), the SRI-KEHATI Index refers to the United Nation's Principles for Responsible Investment (PRI) with the standards for selecting companies that apply SRI principles and ESG principles. The SRI-KEHATI Index consists of 25 company stocks that have performed well in encouraging sustainable business, and have environmental, social, and good corporate governance awareness or SRI. Based on the IDX SRI-KEHATI Index Fact Sheet for 2019, SRI-KEHATI Index screening can be divided into three major aspects, namely, core business aspects, financial aspects, and fundamental aspects.

The SRI-KEHATI Index consists of nine sectoral indices that is; Miscellaneous Industry Sector (AI), Consumer Goods Industry Sector (IBK), Basic Industry and Chemical Sector (IDK), Infrastructure, Utilities and Transportation Sector (IUT), Financial Sector (KEU), Trade, Services and Investment Sector (PJI), The Mining Sector (TBG), the Agricultural Sector (TANI), and the Property and Real Estate Sector (PRE). The composition of the sector with the largest number of market capitalizations in the SRI-KEHATI Index was the KEU sector at 52.97 percent, followed by the IUT sector at 15.30 percent, and the IBK sector at 13.98 percent. The three largest sectors are the same as the three largest sectors in the IHSG, but with different percentages. The percentage of the KEU sector in the IHSG was only 33.75 percent, smaller than the KEU sector in the SRI-KEHATI Index. This shows that the financial sector is the sector with the best ESG implementation compared to other sectors. However, on the other hand, the relatively large composition in one sector has the potential to reduce stock diversification on the SRI-KEHATI Index.

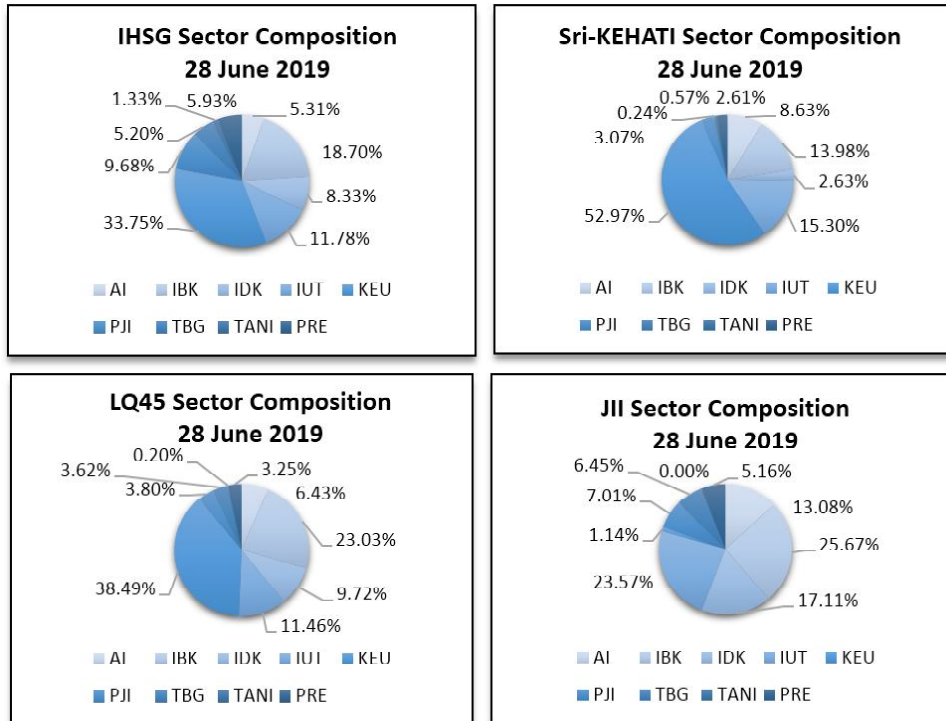
During the study period, the average excess return of SRI's portfolio was 0.17 percent, the highest and positive compared to conventional portfolios and Islamic portfolios (Table 2). In line with the rate of return given, the standard deviation or total

risk of the SRI portfolio is 0.041, higher than the conventional and Islamic portfolios.

### CAPM, FF3F, and FF5F Regression

After performing the CAPM, FF3F, and FF5F regressions, it can be concluded that the addition

of variables has an impact on the regression results obtained. The r-squared value indicates this in the regression equation that gets bigger along with the addition of variables to the asset pricing model. The regression results show that all the alpha and beta calculations of the portfolio are significant. On the other hand, other independent variables such as



Notes: Miscellaneous Industry Sector (AI), Consumer Goods Industry Sector (IBK), Basic Industry and Chemical Sector (IDK), Infrastructure, Utilities and Transportation Sector (IUT), Financial Sector (KEU), Trade, Services and Investment Sector (PJI), the Mining Sector (TBG), the Agricultural Sector (TANI), and the Property and Real Estate Sector (PRE).

Figure 2. Sector composition

Table 2. Descriptive statistics

	SRI (%)	Conventional (%)	Islamic (%)	IDR (%)	SMB_3F (%)	SM_5F (%)	HML (%)	RMW (%)	CMA (%)
Mean	0.165	-0.114	-0.582	1.478	0.403	0.748	0.820	0.377	0.145
Median	0.827	0.356	-0.677	0.701	0.422	0.284	0.242	-0.010	0.006
Max.	8.233	8.162	6.771	6.351	9.106	8.120	15.376	11.793	7.536
Min.	-11.943	-11.292	-11.752	0.163	-5.957	-5.052	-8.273	-11.047	-4.787
Std. Dev.	0.041	0.039	0.038	0.013	0.035	0.027	0.048	0.045	0.027
Skewness	-0.757	-0.670	-0.651	1.764	0.225	0.604	0.759	0.027	0.149
Kurtosis	0.689	0.748	0.845	2.750	-0.356	0.227	0.973	0.431	-0.214
Observation	60	60	60	60	60	60	60	60	60

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SMB, HML, RMW, and CMA show inconsistent significance across different portfolios and asset pricing models.

Alpha SRI portfolio, conventional portfolio, and Islamic portfolio (Table 3) were negative during the study period. A negative alpha value indicates that when the market rate of return is the same as the risk-free rate of return, the returns on the SRI portfolio, conventional portfolios, and Islamic portfolios give lower returns. The alpha value of the SRI portfolio has the smallest negative value compared to conventional portfolios and Islamic portfolios. Therefore, it can be concluded that SRI portfolios have better performance than conven-

tional portfolios and Islamic portfolios. Not in line with the rate of return, in Table 3, the portfolios with the highest beta are conventional portfolios, followed by SRI portfolios and Islamic portfolios.

### Dimson Beta

The Dimson beta is calculated using two lag periods and two lead periods, which is then summed. Based on Table 4, the Dimson beta of SRI's portfolio is 1.163, which is the portfolio with the highest beta compared to the SRI portfolio and JII portfolio. This shows that the systematic risk or market risk faced by the SRI portfolio is higher than the comparison portfolio.

**Table 3.** Regression result

	SRI	Conventional	Islamic
CAPM			
R-squared	0.436	0.493	0.414
Alpha	-0.028*	-0.032*	-0.033*
t-statistik	-4.722	-5.814	-5.806
Prob.	0.000	0.000	0.000
Beta	2.033*	2.074*	1.839*
t-statistik	6.695	7.511	6.404
Prob.	0.000	0.000	0.000
FF3F			
R-squared	0.606	0.643	0.538
Alpha	-0.013**	-0.018*	-0.021*
t-statistik	-2.243	-3.341	-3.580
Prob.	0.029	0.002	0.001
Beta	1.281*	1.369*	1.203*
t-statistik	4.189	4.904	3.916
Prob.	0.000	0.000	0.000
FF5F			
R-squared	0.650	0.678	0.558
Alpha	-0.012**	-0.017*	-0.020*
t-statistik	-2.020	-3.042	-3.174
Prob.	0.048	0.004	0.003
Beta	1.165*	1.258*	1.105*
t-statistik	3.857	4.525	3.510
Prob.	0.000	0.000	0.001

\* Significant at 0.01, \*\* Significant at 0.05, \*\*\*Significant at 0.1



**Sharpe Ratio, Treynor Ratio, and Sortino Ratio**

Based on the average excess return, the beta CAPM, FF3F, FF5F, and Dimson beta values that have been obtained previously, the calculation of the Sharpe Ratio, Treynor Ratio, and Sortino Ratio

for SRI, conventional portfolios, and Islamic portfolios are shown in Table 5. It can be seen that The SRI portfolio is the only portfolio with a positive Sharpe Ratio, Treynor Ratio, and Sortino Ratio. The positive value of the SRI portfolio ratio is due to the

**Table 4.** Dimson beta

	SRI	Conventional	Syariah
<i>RM</i> (t-2)	0.001	-0.002	-0.005
<i>RM</i> (t-1)	0.022	-0.003	-0.031
<i>RM</i> (t)	-0.097	-0.098	-0.060
<i>RM</i> (t+1)	1.231	1.230	1.139
<i>RM</i> (t+2)	0.006	0.021	-0.002
Beta Dim.	1.163	1.147	1.040

Dimson beta is the sum of *RM* (t-2), *RM* (t-1), *RM* (t), *RM* (t+1), and *RM* (t+2)

**Table 5.** Sharpe Ratio, Treynor Ratio, and Sortino Ratio

	SRI (%)	Conventional (%)	Islamic (%)
<b>Sharpe</b>			
Mean	0.165	-0.114	-0.582
Std. Dev.	0.041	0.039	0.038
5Y Std Dev IFS*	0.040	0.039	0.057
Sharpe Ratio	4.042	-2.897	-15.347
Sharpe Ratio IFS*	4.132	-2.912	-10.215
<b>Treynor</b>			
Mean	0.165	-0.114	-0.582
Beta CAPM	2.033	2.074	1.839
Beta FF3F	1.281	1.369	1.203
Beta FF5F	1.165	1.258	1.105
Dimson Beta	1.163	1.147	1.040
5Y Beta IFS*	1.270	1.270	1.240
<b>Treynor Ratio</b>			
CAPM	0.081	-0.055	-0.317
FF3F	0.129	-0.083	-0.484
FF5F	0.142	-0.090	-0.527
Dimson	0.142	-0.099	-0.560
IFS*	0.130	-0.089	-0.470
<b>Sortino</b>			
Mean	0.165	-0.114	-0.582
Dev. Downside	0.033	0.032	0.029
Sortino Ratio	5.053	-3.581	-19.800

\*Index Fact Sheet 2019 from IDX

positive average value of the portfolio's excess return compared to other portfolios. In terms of beta and standard deviation, the SRI portfolio has a relatively high level of risk, proportional to the rate of return given.

The Sharpe portfolio SRI Ratio is 4.042 percent based on the standard deviation calculated in this study, and 4.132 percent based on the IFS standard deviation by the IDX for the December 2019 period. Because the Sharpe Ratio divider is the standard deviation which is a measurement of total risk or the sum of systematic and non-systematic risks, then, the Sharpe Ratio is used to measure the excess rate of return on the portfolio compared to investments in risk-free instruments at each total risk taken by the investor or company. Investors use the Sharpe Ratio with investments that are not well diversified.

On the other hand, the Treynor Ratio of the SRI portfolio is 0.081 percent based on CAPM, 0.129 percent based on FF3F, 0.142 percent based on FF5F, 0.142 percent based on Dimson beta, and 0.130 percent based on IFS beta by the IDX for the December 2019 period. The Treynor Ratio divider is beta, which is a measure of systematic risk or market risk. Because it uses market risk that cannot be lost even though the portfolio is diversified, the Treynor Ratio is used to measure the performance of the portfolio when it is well diversified.

In line with the Sharpe Ratio and the Treynor Ratio, the SRI portfolio Sortino Ratio was 5.053 percent, better than the conventional portfolio Sortino Ratio of -3.581 percent, and the Islamic portfolio ratio -18.800 percent. The Sortino Ratio doesn't include positive volatility in the equation. Analysts generally use the Sortino Ratio to measure the performance of a portfolio with a relatively high level of volatility, whereas the Sharpe Ratio is used to measure the performance of a portfolio with a low level of volatility.

## **5. Discussion**

Following the background and problems, this study focuses on providing input for SRI investors in Indonesia. The main questions that will be answered in this research are apart from aiming to keep the portfolio following the principles held by investors, the SRI portfolio has a better performance than conventional portfolios and Islamic portfolios? Researchers have analyzed the performance of SRI portfolios, traditional portfolios, and Islamic portfolios from July 2014 to June 2019.

To measure the performance of the portfolio in this study, alpha, Sharpe Ratio, Treynor Ratio, and Sortino Ratio were used. The portfolio alpha value shows the portfolio's abnormal returns. Portfolios whose stocks are selected based on SRI criteria provide better abnormal returns compared to conventional portfolios and Islamic portfolios during the study period. In line with the alpha value, the Sharpe Ratio, Treynor Ratio, and Sortino Ratio for the SRI portfolio also showed positive and better results compared to conventional portfolios and Islamic portfolios. The positive value of the Sharpe Ratio, Treynor Ratio, and Sortino Ratio for the SRI portfolio is due to the positive average excess return of the SRI portfolio. The Sharpe Ratio can be a reference if the investor has a portfolio that is not well-diversified; on the other hand, the Treynor Ratio can be a reference if the investor has a well-diversified portfolio. The Sortino Ratio can be used to measure the performance of a portfolio with a relatively high level of volatility.

The SRI portfolio has a positive rate of return, one of which is due to the high weight of the financial sector composition of 52.97 percent. This weight is greater than the composition of the financial sector in LQ45, which is a conventional portfolio and JII portfolio or Islamic portfolio. In the research period from July 2014 to July 2019, the financial sector performed the best compared to other sectors on the IHSG. The high weight of the financial sec-

tor in the SRI portfolio is because the financial sector is a sector that is strictly regulated by regulations, including the implementation of ESG, which is the SRI criterion. In this study, this can indicate that SRI in Indonesia has a positive relationship with portfolio performance.

The results of this study indicate that, when IDX investors invest in SRI portfolios to maintain their portfolios following the principles held by them, investors can also have portfolios with better performance compared to conventional portfolios and Islamic portfolios.

## 6. Conclusion

This analysis aims to compare the performance of the SRI-KEHATI portfolio using SRI screening in its stock selection with comparison portfolios, namely conventional portfolios and Islamic portfolios. Although portfolio performance is not the main goal of SRI investors, based on this study, it can be concluded that the SRI portfolio on the IDX has a better performance level compared to conventional portfolios and Islamic portfolios, based on alpha value, Sharpe Ratio, Treynor Ratio, and Sortino Ratio. This is partly due to the lack of diversification of the SRI portfolio on the IDX. The composition of the financial sector in the SRI-KEHATI portfolio is greater than that of the financial sector in the JCI. The financial sector is a sector that is strictly regu-

lated by regulations, including the implementation of ESG, which is the SRI criterion. On the IDX, the not-yet diversified SRI portfolio results in a high average excess return and risk. This is partly due to the composition of the sectors and the selection of shares in the SRI portfolio.

This study can still be developed in the future because it has several limitations, including (1) the basis for the formation of the SRI portfolio uses the SRI-KEHATI Index that has been established by the KEHATI Foundation and the IDX. This study will be better if SRI screening is determined based on the criteria desired by the researcher in the future. The study can provide input in the form of the best screening criteria that can be applied to stocks listed on the IDX. (2) This study becomes interesting for future research to analyze portfolio performance in conditions before the crisis, during the crisis, and after the crisis. Although it provides positive results, on the other hand the results of this study can be an input for the IDX and regulators to continue to develop SRI in Indonesia. SRI portfolio performance is highly dependent on the composition of the shares in it. The SRI-KEHATI Index, which only consists of 25 stocks in each assessment period, is still not sufficiently diversified for investors who wish to have a portfolio with a low level of risk. SRI development can be done by issuing new indexes, providing incentives for companies that fall into the SRI criteria, and tightening regulations.

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## References

- Bodie, Z., Kane, A., & Marcus, A. J. (2018). *Investments*. Eleventh Edition. New York: McGraw-Hill/Irwin.
- Bodhanwala, S., & Bodhanwala, R. (2019). Relationship between sustainable and responsible investing and returns: a global evidence. *Social Responsibility Journal*, 16(4), 579-594. <https://doi.org/10.1108/srj-12-2018-0332>
- Cunha, F. A. F. S., & Samanez, C. P. (2013). Performance analysis of sustainable investments in the Brazilian Stock Market: A study about the Corporate Sustainability Index (ISE). *Journal of Business Ethics*, 117(1), 19-36. <https://doi.org/10.1007/s10551-012-1484-2>

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- De Velde, E. V., Vermeir, W., & Corten, F. (2005). Finance and accounting corporate social responsibility and financial performance. *Corporate Governance*, 5(3), 129-138.
- Fama, E. F., & French, K. R. (1995). Size and book-to-market factors in earnings and returns. *Journal of Finance*, 50(1), 131-155. <https://doi.org/10.1111/j.1540-6261.1995.tb05169.x>
- Fama, E. F., & French, K. R. (1996). Multifactor explanations of asset pricing anomalies. *Journal of Finance*, 51(1), 55-84. <https://doi.org/10.1111/j.1540-6261.1996.tb05202.x>
- Fama, E. F., & French, K. R. (2015). A five-factor asset pricing model. *Journal of Financial Economics*, 116(1), 1–22. <https://doi.org/10.1016/j.jfineco.2014.10.010>
- Fiskerstrand, S. R., Fjeldavli, S., Leirvik, T., Antoniuk, Y., & Nenadiæ, O. (2019). Sustainable investments in the Norwegian Stock Market. *Journal of Sustainable Finance & Investment*, 10(3), 294–310. <https://doi.org/10.1080/20430795.2019.1677441>
- Fitriani, R., & Utama, S. (2001). The performance evaluation of stocks portfolios formed using accounting and market data in the Jakarta Stock Exchange. *Gadjah Mada International Journal of Business*, 3(3), 367-378.
- Foye, J. (2018). A comprehensive test of the Fama-French five-factor model in emerging markets. *Emerging Markets Review*, 37, 199-222. <https://doi.org/10.1016/j.ememar.2018.09.002>
- Foye, J., & Valentinè, A. (2020). Testing factor models in Indonesia. *Emerging Markets Review*, 42, 100628. <https://doi.org/10.1016/j.ememar.2019.100628>
- Giamporcaro, S. (2011). Sustainable and responsible investment in emerging markets: integrating environmental risk in the south African investment industry. *Journal of Sustainable Finance and Investment*, 1(2), 121-137.
- Iqbal, J., & Brooks, R. (2007). Alternative beta risk estimators and asset pricing test in emerging markets: The case of Pakistan. *Journal of Multinational Financial Management*, 17(1), 75-93. <https://doi.org/10.1016/j.mulfin.2006.04.001>
- Ortas, E., Moneva, J. M., Burritt, R., & Tingey-Holyoak, J. (2014). Does sustainability investment provide adaptive resilience to ethical investors? Evidence from Spain. *Journal of Business Ethics*, 124(2), 297–309. <https://doi.org/10.1007/s10551-013-1873-1>
- Renneboog, L., Horst, J. T., & Zhang, C. (2008). Socially responsible investment: Institutional aspects, performance, and investor behavior. *Journal of Banking & Finance*, 32(9), 1723-1742. <https://doi.org/10.1016/j.jbankfin.2007.12.039>
- Rollinger, T. N., & Hoffman, S. T. (2013). *Sortino: A 'Sharper'Ratio*. Chicago, Illinois: Red Rock Capital.
- Sauer, D. A. (1997). The impact of social-responsibility screens on investment performance: evidence from the Domini 400 social index and Domini Equity Mutual Fund. *Review of Financial Economics*, 6(2), 137-149. [https://doi.org/10.1016/s1058-3300\(97\)90002-1](https://doi.org/10.1016/s1058-3300(97)90002-1)
- Sethi, S. P. (2005). Investing in socially responsible companies is a must for public pension funds: Because there is no better alternative. *Journal of Business Ethics*, 56(2), 99-129. <https://doi.org/10.1007/s10551-004-5455-0>
- Syed, A. M. (2017). Socially responsible: Are they profitable? *Research in International Business and Finance*, 42, 1504-1515. <https://doi.org/10.1016/j.ribaf.2017.07.090>
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