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Sharia stocks optimal portfolio analysis using single index model

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ABSTRACT

This study is aimed to analyze the optimal portfolio of Jakarta Islamic Index within December 2016 to November 2019 period. The research samples that were being used in this study were the stocks that are consistently included in JII during the study period. This research is a descriptive study using the Single Index Model. Of the nineteen JII sample stocks, an optimal portfolio was formed with nine stocks as constituents, namely: ASII (6.12%), ASRI (2.37%), ICBP (24.60%), INCO (5.09%), INTP (11.45%), KLBF (2.03%), SMGR (16.91%), UNTR (19.58%) and UNVR (11.83%). The conclusion of this research is that the optimal portfolio expected return of JII shares is 1.1180% and 1.11%. The risk of the formed portfolio was up to 6.89%. The optimal portfolio can be said to be suitable for investment because the expected return of both of them is greater than the expected market return (JII) which during the study period was 0.00104, or 1.04%.

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Introduction

Investment is a form of commitment that was being done (by person or organization) to hold a certain amount of money, in order to gain profit in the future (Pardiansyah, 2017). (Fahmi, 2018) stated that there are four types of invesment: 1) continuity of the investment; 2) expected return or profit; 3) the creation of welfare, and 4) have the contribution to the nation. According to Hoffman, Shefrin dan Penning (2010) cited by (Seetharaman et al., 2017), stated that the main goal of investment is to build their financial buffer. Though there are many types of investment, there are three fundamental characteristics of the investment; safety, gain, and growth, which certainly are related to the objective of the investment (Kumanovo et al., 2019). Speaking on investment, we could differ it into at least two types: direct and indirect. According to (Hidayati, 2017), direct investment is formed as the production factor of the business. Gold, diamond, silver, or even properties are considered in this type. Indirect investment, on the other hand are the kind of investments in the financial assests, for instance like all products of securities sucb as stocks or bonds and commercial papers. The desire to have investment is a part of the society, including the moslems.

That investment is a postponement of current consumption to be used in efficient production over a period of time. Despite the sacrifice of consumption however, buying now can be interpreted as an investment for consumption in the future. A broader understanding of investment requires efficient production opportunities to convert one unit of consumption that is deferred to produce more than one unit to come. An investment in a financial asset can be an investment direct and indirect investment direct investment is made by buying company either through intermediaries or with direct financial assets of a company. Another way Meanwhile, indirect investment is done by buying shares from an investment company that has a portfolio of financial assets from

other companies. According to (Pardiansyah, 2017) citing the statement of (Djazuli, 2006); stated that basically, investment is a part of fiqh muamalah. Nevertheless, to some parts of the moslem, they paid more attention to the investment, in order to ensure that there are no forbidden contents of the investment – referring to the Islamic rules. Investment is a part of fiqh muamalah, therefore, the rule "the rule of all kinds of muamalah are allowed, except it there was any specific rules that forbade it" is applied. By this statement, it means as long as the investment did not contain of "haram" or forbide by the Islamic rules, the investments are allowed to be done.

Generally, stock is considered as one of the investment types that are allowed for the moslem. However, in order to accommodate the moslems, Jakarta Islamic Index was formed. A little different with the Indonesia Stock Exchange (IDX), the Jakarta Islamic Index (JII) consists of stocks that were considered comply to the Islamic rules by not consist of riba, and the end products were not againts the Islamic rules, for instance, the liquor. By the existence of JII, moslems who wanted to make investments in the stock market could have their investment freely, with the halal guarantee, referring to the criteria from the National Syaria Council (DSN) as the policy maker in the syaria economic market in Indonesia.

The syaria market has been considerad as the interesting investment option lately. Based on the data, entereing the 20th years of its existence, Jakarta Islamic Index has grown its market. In 2016, 12.283 investors were listed. This number has been develop to more than 66.000 investors (in 2019) and went to 70.132 investors in 2020. Within four years, the JII has reached 700% development in term of investors.

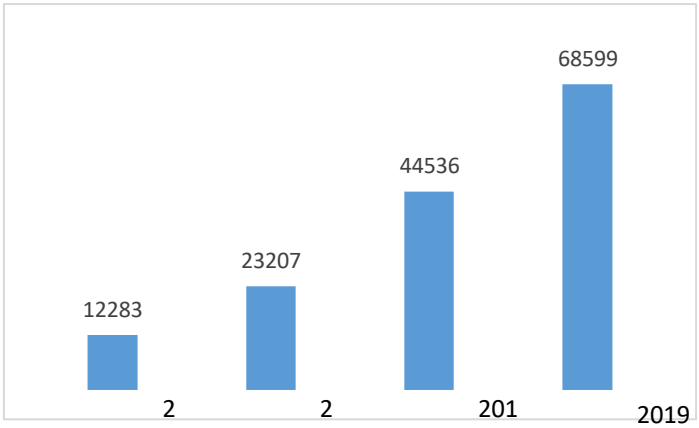

Figure 1. Investor Trend in JII

This phenomena somehow showed that the trust level of the investors to the JII has grown higher and higher. The stocks that are included in the JII are the stocks that administratively has passed the screening process of IDX, which would be specifically re-screened by the JII, based on the special critaria of JII.

The significant growth of the investors have given us the information that JII has grown to the a very interesting investment tool for all. Investors, certainly deserve to get the enough and clear information, so they could safely invest in the stock market. It means, they could decrease the risk- which however would occur because of the investment activities, including the information of how to manage their portfolio.

The highly rapid development of business world has brought signigicant impacts for the investors. Precise and accurate information are needed to make a crucial decision over their investments. In relation to that, the researcher did not find any papers that has specifically discussed about the optimal portfolio formation using Single Index Method up to 2019. That is why, the reseacher decided to focus on how the optimal portfolio of stocks trading in JII could be formed between 2016 to 2019.

Jakarta Islamic Index

Sharia stock market's history in Indonesia was started on July 3rd, 2000 by the MoU between the Indonesia Market and Financial Institution Supervisory Agency and the National Sharia Council (Bapepam-LK). Somehow, the syaria stock market instruments has already appeared in the market three years earlier by the lauch of Danareksa Syaria on July 3rd, 1997 by PT. Danareksa Investment Management. The market itself then is called as Jakarta Islamic Index (JII) (BEI, 2018; Kayo, 2012).

JII consists of 30 stocks which were considered comply to the Islamic rules. The judgement – at the beginning was done by Syaria Inspector Councul of PT Danareksa Investment Management, which then was being replaced by National Syaria Council – Indonesian Ulema Councen (DSN-MUI) soon after it was formally established (Kayo, 2012).

As we have already discussed previously, the scope of JII is limited to the stocks that were considered comply to the Islamic rules. The stocks should be able to fulfill several conditions.The company should be able to clearly declare (stated inside their statute) that their business acitivites did not go against the syaria principles. If it was not stated in the statute, the should be able to comply with these conditions: 1) the business itself did not go against the syaria principles; such as gamling activities, trade without any delivery of the goods/services, trade for fake offers, interest-based banks, interest-based funding companies, trading with *gharar* – including conventional insurance service, produce, distribue and trade or provide the product that is illegal from the material, illegal nor from the material, or product/services that could have had negative impacts to the moral, and containt of potentially harmful/negative contents, and transactions that were related with bribery; 2) the financial risk criteria.

There are at least two steps that were being done by BEI to choose the stocks that could be traded in JII. Those steps are screening and cleanings. It all started when BEI chose 60 syaria stocsk that were indexed in the ISSI within the last six months, based on the highest market capitalization rate. The next step was to choose 30 syaria stocks based on the highest daily transactions rate. All of those syaria stocks would be traded in JII, and would be reviewed by the Syaria Economic Council in May and November (BEI, 2018; Kayo, 2012).

Stock Portfolio

The basic idea of forming a stock portfolio is to reduce the risk of failure arising from allocating all the funds owned (which are used to invest) only in one share. (Markowitz, 1952) create a formula that allows investors to mathematically swap risk tolerances and profitability expectations using an ideal portfolio. Markowitz has two main concepts, namely: 1) the objective of the investor is to maximize profits for each level of risk (which must be faced) and 2) the risk can be reduced by diversifying the portfolio through several types of shares that are not interrelated.

In 1963, William F. Sharp developed the Single Index Model, which is a simplification of the index model previously developed by Markowitz. The single index model describes the relationship between the returns of each individual security and the market index return of a portfolio, which is simpler and easier to calculate when compared to the Markowitz calculation method. This alternative approach can be used as a basis for solving problems in portfolio preparation. As has been formulated by Markowitz, namely by determining the efficient set of a portfolio, the single index model requires fewer calculations.

Rational investment and investment decision-making processes pay close attention to security analysis and portfolio management. Building a portfolio is a process of combining with the aim of getting maximum returns (Shaikh & Gondaliya, 2019).

The concept that was stated by Markowitz was considerably effective up until today. (Sirucek & Kren, 2015) stated that the Markowitz model would give the direction to the investor on how to act in term of developing their optimal portfolio. (Lee et al., 2016), in their research also bluntly suggested to apply the Markowitz portfolio diversification to reduce the unsystematic risk. Overall, portfolio diversification could build the investors' trust over the investment decision and develop the healthy financial investment market.

Portfolio formation is being done with the focus on the high return with minimum risk (Shaikh & Gondaliya, 2019). According to (Abiodun & Ikani, 2020) portfolio is a group of financial assets, whether it was stocks, bonds of other kind of financial market instruments.

Single Index Model is being used to see the investment options in the stock market, so the optimal return could be earned from the formed portfolio. Risk would be minimized, and fund would be allocated based on the portion of each stock (Rout et al., 2020). (Abiodun & Ikani, 2020) also stated tat the portfolio management and risk analysis have become the crucual matter for the rational investment to otpimize their return, and to reduce the risk as well. Single Index Model is being chosen since it has the simpler calculation method. Not only that, Single Index Model could also be used to calculate the expected return and the portfolio risk (Adiningrum et al., 2016).

Method

This research is a descriptive research method, which is based on a survey of the object of research. Descriptive research is research that defines the facts and characteristics of a certain population accurately, describes certain phenomena, describes or documents aspects of certain situations that occur naturally, to find the connectivities between or among selected variables and to answer questions about the current ongoing event.

Descriptive research is also stated as research that describes a phenomenon related to the study population or an estimate of the proportion of the population that has special characteristics (Cooper & Schindler, 2013).

This research is using the Single Index Model. The variables and measurement variables in this model are: $(R_i),(E(R_i)),(\sigma_i),(\sigma^2_i),(R_m),(E(R_m)),(\sigma_m),(\sigma^2_m),(\alpha_i),(\beta_i),(\sigma^2_{ei}),(R_f),(ERB),(A_i),(B_i),(C_i),(C^*),(X_i),(W_i),(\alpha_p),(\beta_p),(E(R_p)),(\sigma^2_p)$, dan (σ_p). Data were collected by using documentation techniques; namely by recording or copying data from the Jakarta Stock Exchange (JSX), JSX Monthly Statistics, Indonesia Capital Market Directory (ICMD) and various literatures, in order to be able to use research results and concepts needed.

The population in this study were all companies that were listed in the Jakarta Islamic Index during the observation period, specifically between December 2016 to November 2019. The sample was selected by using the purposive sampling method. This method is used to obtain stocks that match the required criteria. The criteria that must be met for these stocks are: Company stocks are registered and active in the Jakarta Islamic Index during December 2016 to November 2019. The criteria for stock activities are transaction frequency, both on market capitalization value and on trading volume.

The company were actively distribute their dividends within the period specified in this study. The dividend value is not included in the calculation, so the results of the research can be used as consideration for long-term investors not only expecting returns in the form of capital gains but also dividend yields. Other events such as stock splits, right issues, reverse stock or new stock listings will drop the shares from the sample in order to avoid drastic price changes during the observation, average prices and price incompleteness. The population of this study consisted of 19 stocks that consistently appeared in the Jakarta Islamic Index during the study period.

Table 1. Sample List

No	Company	Code
1	Astra Argo Lestari Tbk	AALI
2	Adaro Energy Tbk	ADRO
3	AKR Corporindo Tbk	AKRA
4	Astra International Tbk	ASII
5	Alam Sutera Realty Tbk	ASRI
6	Bumi Serpong Damai Tbk	BSDE
7	Indofood CBP Sukses Makmur Tbk	ICBP
8	Vale Indonesia Tbk	INCO
9	Indofood Sukses Makmur Tbk	INDF
10	Indocement Tunggal Prakasa Tbk	INTP
11	Kalbe Farma Tbk	KLBF
12	Matahari Dept Store Tbk	LPPF
13	Tambang Batubara Bukit Asam (Persero) Tbk	PTBA
14	PP (Persero) Tbk	PTPP
15	Semen Indonesia (Persero) Tbk	SMGR
16	Telekomunikasi Indonesia (Persero) Tbk	TLKM
17	United Tractors Tbk	UNTR
18	Unilever Indonesia Tbk	UNVR
19	Wijaya Karya (Persero) Tbk	WIKA

The data analysis for this optimal portfolio was using the Single Index Model as it was being done by Elton and Gruber (1995). The analysis of those stocks is being done by determining the ranks of the stocks that have the highest ERB to the lowest one. This step was being done to see the different of stock return to the investment return. Stocks with similar or higher ERB, compared to the *Cut Off Point* (C*) would be the stocks of the optimal portfolio.

Result and Discussion

Single IndexModel Analysis

In order to obtain the optimal portfolio formation, several phases would be required to be done. The calculation would be started from individual stock return (R_i) and individual expected return ($E(R_i)$), *Excess Return to Beta* (*ERB*) and *Cut off Point* (C^*), and then the portfolio expected return($E(R_p)$). The portfolio risk would also be calculated the portfolio variance (σ^2).

Individual Stock Yield Analysis

The first phase to analyze the optimal portfolio with Single Index Model is by calculating the individual return of the stock (R_i), expected return rate ($E(R_i)$), risk level or individual stock standard deviation (σ_i), and individual stock variance (σ^2_i). All those variables would be calculate using MicrosoftExcel.

The positif expected return would be the factor to consider whether the stocks would be continued to the next phase as the part of the portfolio or not. If expected return was negative, it means the stock should be taken out of the portfolio candidates.

Table 2. Optimal Portfolio Candidatest of JII December 2016 to November 2019

No	Code	Expected Return (E(Ri))	Standard Deviation (σei)	Variance
1	AALI	-0,01050	0,07597	0,00577
2	ADRO	-0,00438	0,09547	0,00911
3	AKRA	-0,01031	0,08760	0,00767
4	ASII	0,00175	0,05312	0,00282
5	ASRI	0,00162	0,08016	0,00643
6	BSDE	-0,00579	0,07104	0,00505
7	ICBP	0,00449	0,04604	0,00212
8	INCO	0,01050	0,15633	0,02444
9	INDF	-0,00456	0,05705	0,00326
10	INTP	0,01150	0,11038	0,01218
11	KLBF	0,00111	0,05563	0,00309
12	LPPF	-0,02859	0,17308	0,02996
13	PTBA	-0,00680	0,12427	0,01544
14	PTPP	-0,01435	0,15501	0,02403
15	SMGR	0,01171	0,09194	0,00845
16	TLKM	-0,00102	0,05328	0,00284
17	UNTR	0,00937	0,07681	0,00590
18	UNVR	0,00326	0,05469	0,00299
19	WIKA	-0,00592	0,13800	0,01904

The table shows that among the 19 candidates that have been picked earlier, only nine of them were able to be chosen as the portfolio candidates. Only these nine stockst that have positive expected return. Those stocks are: ASII (0,00175), ASRI (0,00162), ICBP (0,00449), INCO (0,01050), INTP (0,01150), KLBF (0,00111), SMGR (0,01171), UNTR (0,00937) and UNVR (0,00326). INTP was considerably as the stock with the highest risk. It was shown by its standard deviation (0,1104) with variance (0,0122). The higher standard deviation would show that the stock has higher risk and considerably more fluctuative than the others. However, from the expected return standpoint, INTP has the second higher expected return (0,01150).

***Expected Return Market* (E(R_m) Analysis**

Based on the calculation on *alpha* (α_i), *beta* (β_i), and *variance error* (σ^2_{ei}) of each portfolio candidate, we have the results as shown on the table below.

Table 3. Expected Market Return, Standard Deviation, and Variance of JII (December 2016 – November 2019)

Remarks	JII
($E(R_m)$	0,00104
Standard Deviation (σ_m)	0,00182
Sample Variance (σ^2_m)	0,042652

It is shown that the expected return of JII is positive (0,00104) or 0,104%. The Standard Deviation and variance of JII are (0,00182) dan (0,042652), respectively. The level of risk free (R_f) in this research is using the BI rate, which later would be named as BI 7-*Day Repo Rate*. We used the data of BI *Rate* (and BI 7 Day Depo Rate)from December 2016 to November 2019. The result is 0,00509 or0,509%.

Individual Alpha*, *Beta*, and *Variance Residual Error Analysis
The results of the calculation are as followings:

Table 4. Alpha, Beta, and Variance Residual Error Optimal Portfolio Candidate in JII

No.	Stocks	Alpha (α_i)	Beta (β_i)	Variance Residual Error (σei^2)
1	ASII	0,0015	0,2762	0,0028
2	ASRI	0,0013	0,3201	0,0064
3	ICBP	0,0042	0,3139	0,0021
4	INCO	0,0096	0,8701	0,0244
5	INTP	0,0109	0,6010	0,0122
6	KLBF	0,0005	0,5892	0,0031
7	SMGR	0,0112	0,5296	0,0085
8	UNTR	0,0091	0,2297	0,0059
9	UNVR	0,0028	0,4249	0,0030

All of the stock candidates have the positive alpha. The alpha of those stocks are; ASII (0,0015), ASRI (0,0013), ICBP (0,0042), INCO (0,0096), INTP (0,0109), KLBF (0,0005), SMGR (0,0112), UNTR (0,0091) and UNVR (0,0028). *Variance residual error* would be used to find the Cut Off Point of the optimal portfolio candidates. From the table above, we could see that the highest variance residual error is INCO (0,0244) and the lowest is ICBP(0,0021).

Excess Return toBeta Analysis
The result of the ERB calculation of those nine stocks are:

Tabel 5. Excess Return to Beta Portfolio Candidates in JII

No.	Stocks	$E(R_i)$	R_f	β_i	*ERB*
1	ASII	0,00175	0,00021	0,2762	0,00557
2	ASRI	0,00162	0,00021	0,3201	0,00441
3	ICBP	0,00449	0,00021	0,3139	0,01364
4	INCO	0,01050	0,00021	0,8701	0,01182
5	INTP	0,01150	0,00021	0,6010	0,01878
6	KLBF	0,00111	0,00021	0,5892	0,00153
7	SMGR	0,01171	0,00021	0,5296	0,02172
8	UNTR	0,00937	0,00021	0,2297	0,03987
9	UNVR	0,00326	0,00021	0,4249	0,00719

The positive ERB would be chosen as the part of the portfolio candidates. As it was shown in the table, the nine stocks have positive ERB. Compare to the Cut Off Point, all of them would be able to be included to the next phase. The ERB of ASII, ASRI, ICBP, INCO, INTP, KLBF, SMGR, UNTR, and UNVR are: (0,00557); (0,00441); (0,01364); (0,01182); (0,01878); (0,00153); (0,02172); (0,03987) and (0,00719), respectively. UNTR has the highest ERB, while KLBF is the lowest one.

Cut OffPoint Analysis
Cut Off Point (C^*) is the maximum *Cut Off Rate* (C_i) of a series of C_i. Stocks that have the higher *ERB* value than the *Cut Off Point* would be a part of the optimal portfolio.

Table 6. Cut Off Rate Optimal Portfolio Candidates of JII

No.	Stocks	$E(R_i)$	β_i	σ^2_{ei}	A_j	B_j	C_i
1	ASII	0,00175	0,2762	0,0028	0,031815	27,0343	0,00006
2	ASRI	0,00162	0,3201	0,0064	0,051175	42,9813	0,00009
3	ICBP	0,00449	0,3140	0,0021	0,147255	89,4757	0,00023
4	INCO	0,01050	0,8701	0,0244	0,213229	120,4489	0,00032
5	INTP	0,01150	0,6010	0,0122	0,316242	150,0991	0,00045
6	KLBF	0,00111	0,5892	0,0031	0,333973	262,2557	0,00041
7	SMGR	0,01171	0,5296	0,0085	0,460157	295,4318	0,00054
8	UNTR	0,00937	0,2298	0,0059	0,581458	304,3724	0,00068
9	UNVR	0,00326	0,4249	0,0030	0,639480	364,7419	0,00070

Table 5.5 shows the highest *Cut Off Rate in* UNVR (0,00070), which would be set as the *Cut Off Point*. Soon after, the Cut Off Point would be compared to the positive ERB value.

Table 7. Comparison of *Excess Return to Beta* to *Cut Off Point* Optimal Portfolio Candidate

No.	Stocks	*ERB*		*C**
1	ASII	0,0058	>	0.00070
2	ASRI	0,0046	>	0.00070
3	ICBP	0,0139	>	0.00070
4	INCO	0,0119	>	0.00070
5	INTP	0,0189	>	0.00070
6	KLBF	0,0017	>	0.00070
7	SMGR	0,0219	>	0.00070
8	UNTR	0,0401	>	0.00070
9	UNVR	0,0073	>	0.00070

The result shows that all candidates could go to the next phase. All ERB are higher than the Cut Off Point ($ERB > C^*$).

Weighted Scale and Fund Proportion of the Optimal Portfolio
Based on the calculation, we have the results as followings:

Table 8. Wighted Scale (Z_i) and Fund Proportion (W_i) of JII Stocks

No.	Stocks	Z_i	ΣZ_i	W_i	Percentage
1	ASII	0,4770	7,7868	0,0613	6,1261
2	ASRI	0,1846	7,7868	0,0237	2,3712
3	ICBP	1,9159	7,7868	0,2460	24,6049
4	INCO	0,3960	7,7868	0,0509	5,0856
5	INTP	0,8919	7,7868	0,1145	11,4546
6	KLBF	0,1579	7,7868	0,0203	2,0281
7	SMGR	1,3170	7,7868	0,1691	16,9135
8	UNTR	1,5248	7,7868	0,1958	19,5819
9	UNVR	0,9215	7,7868	0,1183	11,8342

The proportion of this optimal portfolio are: ASII (6,12%), ASRI (2,37%), ICBP (24,60%), INCO (5,09%), INTP (11,45%), KLBF (2,03%), SMGR (16,91%), UNTR (19,58%) and UNVR (11,83%).

Return and Portfolio Risk Calculation
The return and Portfolio Risk calculation results are as following:

Table 9. The Calculation of *Expected Return* Optimal Portfolio of JII Stocks

No.	Stocks	α_i	β_i	W_i	α_p	β_p
1	ASII	0,0015	0,2762	0,0613	0,000089533	0,01692
2	ASRI	0,0013	0,3201	0,0237	0,000030521	0,007591
3	ICBP	0,0042	0,3139	0,2460	0,001024474	0,077241
4	INCO	0,0096	0,8701	0,0509	0,000487919	0,044247
5	INTP	0,0109	0,6010	0,1145	0,001245489	0,068847
6	KLBF	0,0005	0,5892	0,0203	0,000010118	0,011949
7	SMGR	0,0112	0,5296	0,1691	0,001888175	0,089571
8	UNTR	0,0091	0,2297	0,1958	0,001787270	0,044974
9	UNVR	0,0028	0,4249	0,1183	0,000333923	0,050288
			Total		0,0069	0,4116

Of the nine chosen stocks, *Alpha* and *beta* ofthe portfolio are 0,0069 and 0,4116, respectively. Earlier in the Table 5.5. we have $E(R_m)$ JII at 0,00104.

Based on the calculation we could get the Expected Return of JII or $E(R_p)$ JII as followings:

$E(R_p)$ JII = α_p+ (β_p. $E(R_m)$)
$E(Rp)$ JII= 0,0069 + (0,4116 x 0,00104)
$E(Rp)$ JII = 0,0069 + 0,00428
$E(Rp)$ JII = 0,01118

The $E(R_p)$ of JII is higher than the $E(R_m)$ JII (0,01118 compared to 0,00104 atau 0,104%%).

Table 10. Optimal Risk Portfolio Calculation of JII Stocks

No.	Stocks	W_i	σ^2_{ei}	$W_i * \sigma^2 ei$
1	ASII	0,0613	0,0028	0,000172868
2	ASRI	0,0237	0,0064	0,000152372
3	ICBP	0,2460	0,0021	0,000521521
4	INCO	0,0509	0,0244	0,001242943
5	INTP	0,1145	0,0122	0,001395588
6	KLBF	0,0203	0,0031	6,27668E-05
7	SMGR	0,1691	0,0085	0,001429803
8	UNTR	0,1958	0,0059	0,001155304
9	UNVR	0,1183	0,0030	0,000353968
	total			0,0065

Based on Table 5.3, Table 5.14, and Table 5.15, data $\sigma^2_m$is 0,042652; $\beta_p$is 0,4116; and $\Sigma(W_i*\sigma^2)$ is 0,0065. The portfolio risk calculation (σ^2_m) would be:

σ^2_p= (β_p. σ^2_m) + $\Sigma(W_i*\sigma^2)$
σ^2_p= (0,4116 x 0,042652) + 0,0065
σ^2_p= 0,00148 + 0,00320
σ^2_p=0,0024
σ_p=0,04899

Based on calculation, it was found that the risk of JII Portfolio on 4,89%. It is higher than the JII average risk portfolio which was on 0,4265 or 4,265%.

Calculating the Optimal Portfolio Performance Compare with Index (Using Sharpe Index)
To calculate the Sharpe Index, we used this formula:

$$S_p = \frac{R_p - R_f}{\sigma_p}$$

Sp : Sharpe Index
Rp : Portfolio Return
Rf : Risk Free Return
σ_p : Total Risk

No.	Kode Saham	E(Ri)	Rfr	E(Ri)-Rf	βi	ERB = {E(Ri)-Rf}/βi	Rp	σp	index Sharpe (Rp-Rf)/σp
1	ASII	0,00175	0,00013	0,00162	0,2762	0,00585	0,01118	0,04899	0,225516545
2	ASRI	0,00162	0,00013	0,00149	0,3201	0,00464	0,01118	0,04899	0,225516545
3	ICBP	0,00449	0,00013	0,00436	0,3139	0,01388	0,01118	0,04899	0,225516545
4	INCO	0,01050	0,00013	0,01036	0,8701	0,01191	0,01118	0,04899	0,225516545
5	INTP	0,01150	0,00012	0,01138	0,6010	0,01893	0,01118	0,04899	0,22580005
6	KLBF	0,00111	0,00012	0,00099	0,5892	0,00168	0,01118	0,04899	0,22580005
7	SMGR	0,01171	0,00012	0,01159	0,5296	0,02189	0,01118	0,04899	0,22580005
8	UNTR	0,00937	0,00015	0,00922	0,2297	0,04014	0,01118	0,04899	0,225233041
9	UNVR	0,00326	0,00015	0,00311	0,4249	0,00732	0,01118	0,04899	0,225091288

All Sharpe's index of the stocks in this portfolio are positive. This means, the portfolio would have the positive performance as it was shown by the Sharpe's Index.

The research was being done initially with 19 stocks that were consistenly appeared in the JII during the December 2016 to November 2019. After using the Single Index Model, the results of the research are as followings: The portfolio consists of nine stocks. Those stocks are: ASII (6,12%), ASRI (2,37%), ICBP (24,60%), INCO (5,09%), INTP (11,45%), KLBF (2,03%), SMGR (16,91%), UNTR (19,58%) and UNVR (11,83%).

Expected return of optimal portfolio in JII was 0,01118 or 1.118%. From the investment risk stand point, the risk of the formed optimal portfolio is 6,89%. It would be able to conclude that this optimal portfolio is worth to invested, as the expected return is higher than the expected return of the market (JII), which was 0,00104 or 1,04%. In line with research Octovian (2017), which states that the optimal portfolio in IDX30 consists of 6 (six) stocks, namely UNVR with a weight of 28.35%, KLBF of 31.17%, GGRM of 12.14%, JSMR of 20.98%, CPIN by 6.85% and BBNI by 0.5%. The expected return of the portfolio is 2.38% with a portfolio risk level of 5.00%. This return is higher than the expected market return of 1.31% and also higher than the risk-free return of 0.55%.

Conclusion

Based on the analysis of the optimal portfolio of JII in Jakarta Islamic Index, using the Single Index Model during December 2016 to November 2019, we have several conclusions. Those are The combination of the optimal portfolio is formed of nine stocks from the 19 stocks of the total sample. Fund proportion of those nine stocks are ASII (6,12%), ASRI (2,37%), ICBP (24,60%), INCO (5,09%), INTP (11,45%), KLBF (2,03%), SMGR (16,91%), UNTR (19,58%) and UNVR (11,83%). Expected return of the optimal portfolio was 0,01118, or 1,118%, followed by the risk of optimal portfolio on 6,89%. It is a recommended optimal portfolio as we have the higher expected return, compared to the expected marker return which was on 0,00104, or 1,04%.

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