

# Performance Evaluation of Stock Price Indexes in the Indonesia Stock Exchange

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## ABSTRACT

This study evaluates the performance of stock price indexes in the Indonesia Stock Exchange by using Sharpe Index, Treynor Ratio, Jensen Alpha, Adjusted Sharpe Index, Adjusted Jensen Index and Sortino Ratio. The stock price indexes evaluated are the Jakarta Composite Index (JCI), Sectoral Index consisting of 10 sectoral stock price indexes, LQ45 Index, Jakarta Islamic Index (JII), Kompas100 Index, BISNIS-27 Index, PEFINDO25 Index, SRI-KEHATI Index, Main Board Index (MBX), Developed Board Index (DBX). Data used in this research is daily closing data of stock price indexes studied and risk-free interest rate represented by BI rate during period January 3, 2011, until July 17, 2017. Data were obtained from Bloomberg. The results of this study indicate that only three stock price indexes perform better than risk-free and stock-market instruments when calculated by using Sharpe Index, Treynor Ratio, Jensen Alpha, Adjusted Sharpe Index, and Adjusted Jensen Alpha Index. Meanwhile, when calculated by using the Sortino Ratio, the stock price index of miscellaneous industry sector has the best performance.

## SARI PATI

*Penelitian ini melakukan evaluasi kinerja indeks harga saham di Bursa Efek Indonesia dengan menggunakan Sharpe Index, Treynor Ratio, Jensen Alpha, Adjusted Sharpe Index, Adjusted Jensen Index dan Sortino Ratio. Indeks-indeks harga saham yang dievaluasi adalah Indeks Harga Saham Gabungan (IHSG), Indeks Sektoral yang terdiri dari 10 indeks harga saham sektoral, Indeks LQ45, Jakarta Islamic Index (JII), Indeks Kompas100, Indeks BISNIS-27, Indeks PEFINDO25, Indeks SRI-KEHATI, Indeks Papan Utama (MBX), Indeks Papan Pengembangan (DBX). Data yang dipergunakan dalam penelitian ini adalah data penutupan harian indeks-indeks harga saham yang dikaji dan suku bunga bebas risiko yang diwakili oleh BI rate selama periode 3 Januari 2011 hingga 17 Juli 2017. Data diperoleh dari Bloomberg. Hasil penelitian ini menunjukkan bahwa hanya 3 indeks harga saham yang memiliki kinerja lebih baik dibandingkan instrumen investasi bebas*

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*risiko dan pasar saham apabila dilihat dari Sharpe Index, Treynor Ratio, Jensen Alpha, Adjusted Sharpe Index, dan Adjusted Jensen Alpha Index. Sementara itu apabila dilihat dari Sortino Ratio, indeks harga saham sektor aneka industri memiliki kinerja terbaik*

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## INTRODUCTION

### Research Background

Before Markowitz (1952) introduced his famous Portfolio Theory, the success of investment was often only seen from the return generated, so the return became the main consideration for investors in investing (Zulkafli, Ahmad, & M., 2017). Markowitz (1952) through his theory states that the purpose of investors is to increase their prosperity and to achieve it, they need to hold diversifications to reduce risks by not sacrificing the return.

One indicator of stock portfolio is the stock price index especially the composite. This type of stock price index can become a benchmark whether a stock portfolio that includes into the stock price index calculation shows increasing values. In any stock market, a stock price index is often formed to become a benchmark for stock market movement and the Indonesia Stock Exchange is no exception. Based on the official website of Indonesia Stock Exchange ([www.idx.co.id](http://www.idx.co.id)), until the end of 2016, there have been 11 stock price indexes in Indonesia Stock Exchange. The stock price indexes are Composite Stock Price Index (CSPI), Sectoral Index consisting of 10 sectoral stock price indexes, LQ45 Index, Jakarta Islamic Index (JII), Kompas 100 Index, BISNIS-27 Index, PERFINDO25 Index, SRI-KEHATI Index, Main Board Index (MBX), Developed Board Index (DBX), and Individual Stock Price Index. The indexes, except the Individual Stock Price Index, may be used to represent the performance of share portfolios included into the index calculations. For instance is JII, it can be utilized to see the

performance of sharia stock portfolios included in the JII calculation.

To see the performance of the portfolios, two measurement instruments can be used; they are Sharpe Index introduced by Sharpe (1966) and Treynor Ratio introduced by Treynor (1965). The instruments have been widely used by practitioners and academicians in investment management (Bednarek, Patel, & Ramezani, 2014; Low & Chin, 2013). Sharpe Index and Treynor Ratio even become standards in industry in measuring risk-adjusted returns (Deborah Kidd, 2011; Scholz & Wilkens, 2005) and the most widely cited measurement instruments by researchers in portfolio management (Lo, 2002). Nevertheless, these two portfolio performance measurement instruments are not free from criticisms. Cvitanic, Lazrak, and Wang (2007) mention that the utilization of Sharpe Index may cause problems due to time differences. So, the effort to maximize the Sharpe Index is different for short and long term. Deborah Kidd (2011) states that Sharpe Index has a weakness because it only measures one dimension of risk that is variance. Further, Sharpe Index is designed to apply to an investment strategy expecting a normal distribution of return that is different with the actual conditions. To overcome bias on the estimated standard deviation which may occur in the Sharpe Index, Jobson and Korkie (1981) developed Adjusted Sharpe Index (ASI).

Meanwhile, unlike Sharpe (1966) who uses variance to represent risk, Treynor (1965) employs market risk represented by beta stock. This

measurement is then called as Treynor Ratio. Treynor Ratio focuses more on systematic risk while Sharpe Index on the total risk. Another well-known measurement instrument of portfolio performance in portfolio management is Jensen Alpha introduced by Jensen (1967). Unfortunately, Jensen Alpha cannot be utilized if there are different levels of stock market performance. It is, therefore, necessary to adjust with the systematic risk or so-called Adjusted Jensen Alpha Index (Pangestuti, Wahyudi, & Robiyanto, 2017; Zulkafli et al., 2017). In addition to the measurement instruments, there is also Sortino Ratio. This ratio shows the availability difference of portfolio return compared to declining price risk (downside risk). This downside risk is the calculation of portfolio risk by considering only the possibility of gaining small return compared to return can be received by the investors. (Zulkafli et al., 2017).

Various researches have been conducted in the Indonesia Stock Exchange which, generally, evaluated the portfolio performance for some indexes only, such as Zulkafli et al. (2017) that specifically studied SRI-KEHATI Index; Fitriaty, Lubis, and Asih (2014) focused on portfolio performance of stocks included in Jakarta Islamic Index (JII); Eko (2008) studied portfolio performance of LQ45 stocks; Yanawati and Abundanti (2013) studied stocks portfolio performance of manufacture sector; and Robiyanto (2017) studied nine stock indexes except sectoral stock indexes in the Indonesia Stock Exchange by using Sharpe Index and Treynor Ratio only. Performance evaluation for the other indexes listed in Indonesia Stock Exchange such as Sectoral Index consisting of 10 sectoral stock price indexes, Kompas100 Index, BISNIS-27 Index, PEFINDO25 Index, SRI-KEHATI Index, Main Board Index (MBX), Developed Board Index (DBX) are still rarely conducted. Hence, it is necessary to study the performance of these indexes in addition to those have been studied. Moreover, various previous studies still implemented portfolio performance measurements that still need some adjustments

such as Sharpe Index, Treynor Ratio, and Jensen Alpha. Those studies have no implemented the adjusted portfolio performance as like Adjusted Sharpe Index (ASI), Adjusted Jensen Alpha Index (AJI), and Sortino Ratio. Whereas, to compare portfolio performances, an appropriate portfolio performance measurement is necessary to use.

Based on those background, this study analyzes the performance of stock price indexes listed in the Indonesia Stock Exchange, either those have been studied or not. Stock price indexes under this study include Composite Stock Price Index (CSPI), Sectoral Index consisting of 10 sectoral stock price indexes, LQ45 Index, Jakarta Islamic Index (JII), Kompas100 Index), BISNIS-27 Index, PEFINDO25 Index, SRI-KEHATI Index, Main Board Index (MBX), and Developed Board Index (DBX). The instruments of portfolio performance measurement used in this study were Sharpe Index, Treynor Ratio, Jensen Alpha, Adjusted Sharpe Index (ASI), Adjusted Jensen Alpha Index (AJI) and Sortino Ratio.

### **Portfolio Performance Evaluation**

Diversification of securities through portfolio formulation refers to the Modern Portfolio Theory originated by Markowitz (1952). Various portfolio performance measures refers to this theory. There are currently various instruments of portfolio performance measurements. The most common instrument and has become standard for industry is Sharpe Index introduced by Sharpe (1966). Bednarek et al. (2014) and Low and Chin (2013) describe Sharpe Index as a well-known measurement instrument used among academicians and practitioners to measure portfolio for its simplicity. L. Ferruz, Gómez-Bezares, and Vargas (2010) state Sharpe Index is a measurement that uses return as unit calculation minus risk-free returns compared to total risk. Sharpe Index aims to evaluate portfolios with unsystematic risks.

In addition to Sharpe Index, Treynor Ratio is another measurement instrument that is also

often used by investors. Luis Ferruz and Vicente (2005) suggest that return premium calculated by Treynor Ratio reflects a return per systematic risk unit. So, Treynor Ratio measures return minus the level of risk-free investment returns on each unit of market risk (Beer, Estes, & Munte, 2011). Sharpe Index and Treynor Ratio both can be utilized to rank the portfolio performances and to assess whether a portfolio is well diversified (Robiyanto, Wahyudi, & Pangestuti, 2017; Scholz & Wilkens, 2006). Besides the two instruments, Jensen (1967) also introduces another portfolio performance instrument called Jensen Alpha. Jensen Alpha is a special measure of risk-adjusted return of portfolio performance that pays special attention to systematic risks. Jensen Alpha is usually seen as an instrument to measure relative performance of a portfolio with benchmarks used (usually stock market performance represented by stock market index).

In its development, those portfolio performance measurement instruments are seen to have various weaknesses so that various adjustments and improvements are made. Jobson and Korkie (1981) modified Sharpe Index because it was considered to be biased in estimating the standard deviation. This modified Sharpe Index is then called as Adjusted Sharpe Index (ASI). Another form of Sharpe Index modification is Sortino Ratio. Rollinger and Hoffman (2013) state that Sortino Ratio is the modification of Sharpe Index by using downside deviation to substitute standard deviation. Sortino Ratio accommodates the judgment of Markowitz (1959) who proposes that only downside deviation that is relevant for investors.

For Jensen Alpha, Zulkafli et al. (2017) suggests that Jensen Alpha cannot be used to measure performance at different levels of performance index with different performances. Hence, it needs to be adjusted with systemic risk factors. This adjustment is often called as Adjusted Jensen Alpha Index (AJI).

## METHODS

Data used in this research were daily closing data for Composite Stock Price Index (CSPI), Sectoral Index consisting of 10 sectoral stock price indexes, LQ45 Index, Jakarta Islamic Index (JII), Kompas100 Index, BISNIS-27 Index, PEFINDO25 Index, SRI-KEHATI Index, Main Board Index (MBX), and Developed Board Index (DBX) during January 3, 2011, to July 17, 2017, period. There were 1594 trading days recorded during the period. The data of risk-free rate employed BI (Bank Indonesia) rate during the period of study. All data used here were obtained from Bloomberg.

As for return of stock price indexes studied here was calculated by the following formula :

$$R_{Index,t} = \left[ \frac{Index_t - Index_{t-1}}{Index_{t-1}} \right] \quad (1)$$

Where :

$Index_t$  = Stock Price Index Closing in the Indonesia Stock Exchange at day t

$Index_{t-1}$  = Stock Price Index Closing in the Indonesia Stock Exchange at day t – 1

To measure the portfolio performance, Sharpe Index, Treynor Ratio, Jensen Alpha, Adjusted Sharpe Index (ASI), Adjusted Jensen Alpha Index (AJI) and Sortino Ratio were used.

Sharpe Index is calculated with the following formula :

$$Sharpe\ Index\ (SI) = \frac{Average\ Portfolio\ Return - RFR}{Standard\ Deviation\ Portfolio}$$

Treynor Ratio is calculated with the following formula :

$$Treynor\ Ratio = \frac{Average\ Portfolio\ Return - RFR}{Beta\ Portfolio} \quad (2)$$

While beta of portfolio were calculated by using the following:

$$\beta_i = \frac{\text{Cov}(R_p, R_m)}{\sigma^2 R_m} \quad (3)$$

Where :

$\beta_i$  = Beta of portfolio

$\text{Cov}(R_p, R_m)$  = Covariance of portfolio return and market return

$\sigma^2 R_m$  = Market return variance

Jensen Alpha ( $\alpha_i$ ) is calculated with the following formula :

$$\alpha = (R_{i,t} - RFR_t) - \beta(R_{m,t} - RFR_t) \quad (4)$$

Where :

$R_{i,t}$  = Portfolio return (represented by stock index return studied at day  $t$ )

$R_{m,t}$  = Risk-free rate at day  $t$

$RFR_t$  = Stock market return (represented by CSPI return at day  $t$ )

Adjusted Sharpe Index (ASI) is calculated with the following formula :

$$ASI = SI \times \frac{\text{no. of observations } (N)}{\text{no. of observations } (N) + 0.75} \quad (5)$$

Adjusted Jensen Alpha Index (AJI) is calculated with the following formula:

$$AJI = \frac{\text{Jensen Alpha}}{\text{Beta of Portfolio}} \quad (6)$$

Sortino Ratio (SoM) is calculated with the following formula:

$$SoM = \frac{R_i - RFR_t}{\sigma} \quad (7)$$

Where  $\delta$  is downside deviation of stock market index return for a given period which is calculated with the following formula:

$$\delta = \frac{\sqrt{\sum (\min(R_p - MAR, 0))^2}}{N - 1} \quad (8)$$

Where :

$\delta$  = downside deviation

$R_p$  = Portfolio return (Index)

$MAR$  = Minimum Acceptable Return = risk-free rate

$N$  = Number of observations

With the provisions of:

If  $(R_p - MAR)$  is negative, then use  $(R_p - MAR)$

If  $(R_p - MAR)$  is positive, then use 0

## RESULTS AND DISCUSSIONS

### Descriptive Statistics

Descriptive statistics of stock price indexes under this study can be observed in Table 1. All of the stock price indexes studied involve 1594 days of observation.

The performance of stock price indexes in the Indonesia Stock Exchange studied can be observed in Table 2. Based on the average return, the property sector index is the one which can produce the highest average daily return during the study period with 0.065%. There are two stock price indexes with negative average daily return during the study period; they are mining sector index (-0.044%) and agriculture sector index (-0.007%). This happens because, during the study, commodity prices related to the mining and agricultural sector in the international market were still relatively low that affected the stock performances for these sectors.

Meanwhile, when viewed based on the standard deviation which is often used to measure risks, index of miscellaneous industry sectors has the largest standard deviation with 0.01808, and the smallest standard deviation goes to DBX index with 0.00846. The same condition is also found

Table 1. Descriptive Statistics of Stock Prices Indexes in the Indonesia Stock Exchange

Index	Maximum	Minimum	Mean	Standard Deviation	N
Pefindo 30	554.16	324.86	424.87	51.51	1594
SRI-Kehati	364.32	169.15	259.11	44.52	1594
Bisnis 27	533.09	277.48	397.47	55.73	1594
Kompas 100	1248.99	735.72	1008.46	114.65	1594
Agriculture	2456.07	1485.42	2028.39	225.61	1594
Basic Industry	644.18	308.15	475.71	74.52	1594
Consumer	2581.04	963.90	1885.55	440.16	1594
Finance	968.49	407.96	637.20	122.58	1594
Infrastructure	1228.95	649.24	961.43	145.48	1594
Manufacture	1524.57	717.87	1185.50	178.62	1594
Mining	3543.83	766.86	1726.13	703.34	1594
Miscellaneous Industry	1536.73	838.80	1242.41	130.10	1594
Property	593.61	173.33	404.66	120.47	1594
Trade, Service & Investment	1004.82	460.57	782.22	138.49	1594
Composite	5910.24	3269.45	4621.82	598.84	1594
LQ 45	997.51	569.46	791.04	96.17	1594
DBX	918.53	470.19	671.90	92.95	1594
MBX	1679.95	937.30	1323.29	172.31	1594
JII	764.64	451.46	626.36	70.79	1594

Source: Bloomberg, processed.

Table 2. Performance of Stock Price Indexes in the Indonesia Stock Exchange

Index	Average Return	Standard Deviation	Beta	Sharpe Index	Treynor Ratio	Jensen Alpha	ASI	AJI	SoM
Pefindo 30	0.00009	0.01379	0.999	-0.02871	-0.00040	-0.00025	-0.02870	-0.00025	0.00026
SRI-Kehati	0.00048	0.01331	1.201	-0.00045	0.00000	0.00017	-0.00045	0.00014	0.00024
Bisnis 27	0.00039	0.01369	1.243	-0.00672	-0.00007	0.00009	-0.00671	0.00007	0.00025
Kompas 100	0.00030	0.01260	1.166	-0.01483	-0.00016	-0.00002	-0.01482	-0.00001	0.00023
Agriculture	-0.00007	0.01369	0.704	-0.04056	-0.00079	-0.00045	-0.04054	-0.00064	0.00024
Basic Industry	0.00041	0.01499	1.169	-0.00534	-0.00007	0.00009	-0.00534	0.00008	0.00027
Consumer	0.00061	0.01294	0.949	0.00925	0.00013	0.00026	0.00925	0.00027	0.00022
Finance	0.00055	0.01332	1.119	0.00469	0.00006	0.00023	0.00469	0.00020	0.00024
Infrastructure	0.00030	0.01144	0.838	-0.01663	-0.00023	-0.00007	-0.01662	-0.00008	0.00021
Manufacture	0.00046	0.01263	1.091	-0.00247	-0.00003	0.00013	-0.00247	0.00012	0.00023
Mining	-0.00044	0.01389	0.840	-0.06638	-0.00110	-0.00080	-0.06635	-0.00095	0.00026
Miscellaneous Industry	0.00043	0.01808	1.250	-0.00324	-0.00005	0.00012	-0.00324	0.00010	0.00031
Property	0.00065	0.01410	1.046	0.01169	0.00016	0.00032	0.01168	0.00030	0.00025
Trade, Service & Investment	0.00046	0.01038	0.777	-0.00237	-0.00003	0.00009	-0.00236	0.00012	0.00019
Composite	0.00034	0.01075	1.000	-0.01364	-0.00015	0.00000	-0.01363	0.00000	0.00020
LQ 45	0.00033	0.01318	1.121	-0.01204	-0.00014	0.00001	-0.01203	0.00001	0.00024
DBX	0.00035	0.00846	0.595	-0.01611	-0.00023	-0.00005	-0.01610	-0.00008	0.00016
MBX	0.00034	0.01140	1.057	-0.01256	-0.00014	0.00001	-0.01255	0.00001	0.00021
JII	0.00030	0.01323	1.181	-0.01425	-0.00016	-0.00002	-0.01424	-0.00001	0.00024
Pefindo 30	0.00009	0.01379	0.999	-0.02871	-0.00040	-0.00025	-0.02870	-0.00025	0.00026

Source: Bloomberg, processed.

for beta stock representing systematic risks where beta stock of miscellaneous industry is the largest with 1.250 and DBX index beta is the smallest with 0.595. This is not surprising as stocks in the miscellaneous industry sectors are often used as instruments for speculation while stocks in the DBX index are those with small capitalization that are less attractive for investors and high potential to become inactive stocks.

The next section will elaborate the performance of stock price indexes in the Indonesia Stock Exchange under this study based on various measurement instruments used.

### Sharpe Index

By applying Sharpe Index to rate the performance of stock price indexes in the Indonesia Stock Exchange as shown in Table 3, it can be seen that the stock price indexes with positive Sharpe Index

are indexes in property, consumer, and finance sectors; while the other indexes have negative marks. Sharpe Index of the negative stock price indexes means that the performance of the stock indexes is no better than the risk-free rate. Thus, instead of investing on stocks included in the indexes with negative Sharpe Index, it is better to invest in risk-free instruments. The value of Sharpe Index for stock price index of property sector is the highest compared to the other stock price indexes in the Indonesia Stock Exchange with 0.01169, followed by stock price index of consumer sector (0.00925) and stock price index in finance sector (0.00469).

### Treynor Ratio

Similar to the Sharpe Index, by using the Treynor Ratio to rank the performance of stock price indexes in the Indonesia Stock Exchange as illustrated in Table 3, it can be seen that the stock

Table 3. Performance Ranking Summary of Stock Price Indexes in the Indonesia Stock Exchange

Rank	Sharpe Index	Treynor Ratio	Jensen Alpha	Adjusted Sharpe Index (ASI)	Adjusted Jensen Index (AJI)	Sortino Ratio (SoM)
1.	Property	Property	Property	Property	Property	Misc-Ind
2.	Consumer	Consumer	Consumer	Consumer	Consumer	Basic
3.	Finance	Finance	Finance	Finance	Finance	Pefindo
4.	Sri-Kehati	Sri-Kehati	Sri-Kehati	Sri-Kehati	Sri-Kehati	Mining
5.	Trade	Manufacture	Manufacture	Trade	Manufacture	Bisnis 27
6.	Manufacture	Trade	Misc-Ind	Manufacture	Trade	Property
7.	Misc-Ind	Misc-Ind	Basic	Misc-Ind	Misc-Ind	Agri
8.	Basic	Basic	Bisnis 27	Basic	Basic	JII
9.	Bisnis 27	Bisnis 27	Trade	Bisnis 27	Bisnis 27	LQ45
10.	LQ45	MBX	MBX	LQ45	MBX	Sri-Kehati
11.	MBX	LQ45	LQ45	MBX	LQ45	Finance
12.	Composite	Composite	Composite	Composite	Composite	Kompas 100
13.	JII	JII	JII	JII	JII	Manufacture
14.	Kompas 100	Kompas 100	Kompas 100	Kompas 100	Kompas 100	Consumer
15.	DBX	Infrastructure	DBX	DBX	Infrastructure	MBX
16.	Infrastructure	DBX	Infrastructure	Infrastructure	DBX	Infrastructure
17.	Pefindo	Pefindo	Pefindo	Pefindo	Pefindo	Composite
18.	Agri	Agri	Agri	Agri	Agri	Trade
19.	Mining	Mining	Mining	Mining	Mining	DBX

Source: Bloomberg, processed.

price indexes with positive Treynor Ratio are stock price indexes in property, consumer, and finance sectors while the other sectors have Treynor Ratio with negative marks. The significance of Treynor Ratio for these negative stock price indexes is that the performance of the stock price indexes is no better than risk-free investment instruments.

The order of stock price index with Treynor Ratio is stock price index of property sector with Treynor Ratio at 0.00016, stock price index of consumer goods sector with Treynor Ratio at 0.00013, and stock price index of finance sector with Treynor Ratio at 0.00006.

#### **Jensen Alpha**

By using Jensen Alpha to rank the performance of stock price indexes in the Indonesia Stock Exchange as seen in Table 3, it can be observed that only 11 stock price indexes have positive Jensen Alpha and the others are negative. This Jensen Alpha with positive marks imply that the performance of those stock price indexes is better compared to the stock market performance. The stock price index with the highest Jensen Alpha is in the property sector with Jensen Alpha at 0.00016, while the lowest goes to the mining sector with Jensen Alpha at -0.00080.

#### **Adjusted Sharpe Index (ASI)**

Based on the rating done with Adjusted Sharpe Index, in general, the results showed similarity to the ranking generated by Sharpe Index. Stock price index of property, consumer, and finance sectors has positive Adjusted Sharpe Index, and the other stock price indexes are negative. Stock price index in property sector has Adjusted Sharpe Index at 0.01168, followed by stock price index in consumer sector with 0.00925, and in finance sector with Adjusted Sharpe Index of 0.00469.

#### **Adjusted Jensen Alpha Index (AJI)**

By using Adjusted Jensen Alpha Index to rate the performance of stock price indexes in the Indonesia Stock Exchange as shown in Table 3, it is

found relatively similar results to Jensen Alpha. 11 stock price indexes have positive Adjusted Jensen Alpha Index while the rest of them has negative marks. As in Jensen Alpha, the Adjusted Jensen Alpha Index with positive marks means that the performance of the stock price indexes is better than the stock market performance. The stock market index with the highest Adjusted Jensen Alpha Index goes to property sector with Jensen Alpha at 0.00030, and the lowest stock price index with Adjusted Jensen Alpha belongs to mining sector of stock price index with Adjusted Jensen Alpha at -0.00095.

#### **Sortino Ratio**

Sortino Ratio is a modification of Sharpe Index by employing downside deviation to substitute standard deviation. Deborah Kidd (2012) states that Sortino Ratio indicates deviation of minimum accepted return (MAR). The higher Sortino Ratio, the better portfolio performance. By using Sortino Ratio, it is found that the stock price index in miscellaneous industry sector is the best performance of stock price index with Sortino Ratio at 0.00031, while DBX has the lowest Sortino Ratio with 0.00016.

#### **Summary**

By using Sharpe Index, Treynor Ratio, Jensen Alpha, Adjusted Sharpe Index, and Adjusted Jensen Index, this study find that three sectoral stock indexes (property, consumer, and finance) and SRI-KEHATI has a consistent ranking. This indicates that these indexes are effective portfolio and well diversified, as stated by Pangestuti et al. (2017); Pratomo and Nugraha (2009), that well-diversified portfolios tends to produce the Sharpe Index and the Treynor Ratio consistently.

SRI-KEHATI as one of the best performer index was consistent with Robiyanto (2017) findings. SRI-KEHATI was formed from 25 stocks chosen selectively by using financial criteria such as total asset, Price to Earning Ratio (PER), and free float ratio; and fundamental factors such as environmental, community, corporate

governance, human rights, business behavior, and labor practices and decent works. So it is not surprise if SRI-KEHATI stocks are best-performing stocks in the Indonesia Stock Exchange.

On the other hand, mining sector has produce the worst and consistent Sharpe Index, Treynor Ratio, Jensen Alpha, Adjusted Sharpe Index, and Adjusted Jensen Index. This is not surprising because, during research period, the commodities (hard commodity, oil, and coal) price were slumped. This event lead to the worsening performance of mining sector companies.

Based on Sortino Ratio (SoM), miscellaneous industry sector could produce highest SoM, while DBX could produce lowest SoM. This finding may occurs since stocks included in miscellaneous industry sector tend to have stable price movement compared to other indexes. On the contrary, DBX's stock which consists of stocks from second to third layer and small capitalization tend to move lucratively and some of them are speculative stocks, so it is not surprising if SoM of DBX are the lowest.

#### **MANAGERIAL IMPLICATIONS**

Research findings indicate that property, consumer, and finance sectors are performing well during the research period. Thus, investors are better to choose stocks in property, consumer, and finance sectors as their investment instruments for several years later as long as these sectors still produces consistent performance. Furthermore, it is better for investors to evade from some stocks, mainly in mining sector for several years later,

because it has extremely bad performance during research period. But if there is some improvement in this sector, i.e. the awakening of commodity prices, investors may consider this sector as their investment instrument. Since there is not any guarantee that the past performance could reflect the future performance, investors must reevaluate indexes/sectors' performance periodically.

#### **CONCLUSION**

During research period (January 3, 2011, to July 17, 2017, period), not all stock price indexes in the Indonesia Stock Exchange perform better performance than risk-free investment instruments when viewed from Sharpe Index, Adjusted Sharpe Index, and Treynor Ratio. There are only stock price indexes in property, consumer, and finance sectors that have better performance than the risk-free investment instruments for they possess Sharpe Index, Adjusted Sharpe Index, and Treynor Ratio with positive mark. Stock price indexes in property, consumer, and finance also have better performance compared to stock market when they are seen from the positive Jensen Alpha and Adjusted Jensen Alpha Index. As for Sortino Ratio, the stock price index of miscellaneous industry sector comes as the best performer. These findings could provide a guide to investors in the Indonesia Stock Exchange. Stock price indexes which could produce Sharpe Index, Adjusted Sharpe Index, Jensen Alpha, Adjusted Jensen Index and Treynor Ratio with positive mark shows those index are performing better than risk-free investment instruments. Thus it's more beneficial to invest on stocks included in those indexes than risk-free rate instruments. ■

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