

Performance Evaluation of Equity Mutual Funds in Indonesia

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ABSTRACT

Keywords:
Adjusted Jensen Index (AJI);
Adjusted Sharpe Index (ASI); Equity Mutual Funds;
Jensen Alpha;
Sharpe Index;
Sortino Ratio;
Treyner Ratio

JEL Classification:
G12, G20

Mutual funds considered as an investment alternative for investors. One type of mutual fund that attracts many investors was the equity mutual funds. Equity mutual fund is a type of mutual funds that most part of the investment consists of stocks in the capital market so the risk rate was higher than the other types of mutual funds. For its different characteristic, the measurement for equity funds performance did not be same with other types of mutual funds. As a stock portfolio, equity mutual funds can be measured by portfolio measurement methods such as Sharpe Index, Treynor Ratio, Jensen Index, Adjusted Sharpe Index, Adjusted Jensen Index, and Sortino Ratio. This study was conducted by using all of those performance measurements as most research in Indonesia was conducted by using limited performance measurements (focusing on Sharpe Index, Treynor Ratio, and Jensen Index). This study aims to evaluate the performance of 42 equity mutual funds available in Indonesia by employing Sharpe Index, Treynor Ratio, Jensen Index, Adjusted Sharpe Index (ASI), Adjusted Jensen Index (AJI), and Sortino Ratio because most previous researches in Indonesian setting disregards ASI and AJI. In general, it was concluded that the SAM Indonesian Equity was the best performing equity fund during the study period. It was further found that most equity mutual fund studied have been well diversified.

ABSTRAK

Kata Kunci:
Adjusted Jensen Index (AJI); Adjusted Sharpe Index (ASI); Reksa dana saham; Jensen Alpha, Sharpe Index, Sortino Ratio; Treynor Ratio

Reksa dana merupakan alternatif investasi bagi kalangan investor. Salah satu reksa dana yang banyak menarik kalangan investor adalah reksa dana saham. Reksa dana saham adalah jenis reksa dana yang sebagian besar investasinya terdiri dari saham-saham di pasar modal, sehingga memiliki tingkat risiko yang lebih besar dibandingkan jenis-jenis reksa dana yang lain. Karena memiliki karakteristik yang berbeda, maka pengukuran kinerja reksa dana saham tidak dapat disamakan dengan jenis reksa dana yang lain. Sebagai portofolio, maka reksa dana saham dapat diukur dengan menggunakan metode-metode pengukuran portofolio seperti Sharpe Index, Treynor Ratio, Jensen Index, Adjusted Sharpe Index, Adjusted Jensen Index, dan Sortino Ratio. Penelitian ini dilakukan dengan menggunakan seluruh pengukuran kinerja tersebut karena kebanyakan penelitian di Indonesia dilakukan dengan terbatas pada beberapa pengukuran kinerja saja (berfokus pada Sharpe Index, Treynor Ratio dan Jensen Index). Penelitian ini bertujuan untuk mengevaluasi kinerja 42 reksa dana saham yang terdapat di Indonesia dengan menggunakan Sharpe Index, Treynor Ratio, Jensen Index, Adjusted Sharpe Index, Adjusted Jensen Index, bahkan Sortino Ratio. Secara umum disimpulkan bahwa dengan menggunakan berbagai alat pengukuran yang ada maka reksa dana saham SAM Indonesian Equity merupakan reksa dana saham dengan kinerja yang terbaik selama periode penelitian. Lebih lanjut ditemukan pula bahwa sebagian besar reksa dana saham yang dikaji telah terdiversifikasi dengan baik.

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Mutual fund is one of the alternative investments in financial assets for the society in addition to deposit, stock, and bond investments (Simforianus & Hutagaol, 2008). Mutual fund arises because, in general, investors experience difficulties to make their own portfolio investments in securities. The difficulties faced by the investors include the need to conduct various analyses on securities and to continuously monitor the market conditions which is very time-consuming. Another difficulty is the need for relatively large funds to do investment in securities.

Mutual fund is managed by two parties, namely Investment Manager and Custodian Bank. Investment manager (IM) is a company which manages the client's securities portfolio and is responsible for the investment activities which include analysis and selection of investment types, making investment decisions, monitoring investment markets, and taking actions for the interests of its customers. Whereas Custodian Bank is a part of business activities of a bank in the field of securities storage and its administrations (Pratomo, 2001). Thus, the performance of a mutual fund is determined by how the investment manager manages the investors' funds in a securities portfolio.

Mutual fund is able to offer higher long-term potential benefits than savings and deposits. But, it should be realized that basically all investments have risks. Similarly in the mutual fund investment, potential benefits and risks offered by each mutual fund varied, ranging from the lowest to the highest, depending on the type of mutual funds to be selected. There are several types of mutual funds in Indonesia including equity mutual funds, fixed income mutual funds, balanced mutual funds, money market mutual funds, and sharia mutual funds. Each mutual fund has different characteristics. These different characteristics will cause differences in mutual funds performances, for instance, equity mutual funds will tend to have higher risks compared to fixed income mutual funds because equity mutual fund is the mutual

funds with the largest portfolio composition in the form of stocks as it has growth objectives (Simforianus & Hutagaol, 2008). Due to these different characteristics also, the performance analyses of each mutual fund need to be carefully carried out and use appropriate benchmarks (Arisonda, 2013).

Equity mutual funds as a stock portfolio can be measured for its performance using portfolio measurement methods such as Sharpe Index, Treynor Ratio, Jensen Index, and Sortino Ratio. Of all the measuring instruments, the Sharpe Index is the most commonly used and even become standard for industry (Scholz & Wilkens, 2006; Kidd, 2011b; Bednarek, Patel, & Ramezani, 2014; Robiyanto, Wahyudi, & Pangestuti, 2017) since it can be implemented to compare performance among mutual funds (Swinkels & Rzezniczak, 2009). However, some of these measuring instruments such as Sharpe Index and Jensen Index are perceived as to have weaknesses. For example, Sharpe Index is considered to focus only on variance (Kidd, 2011b), whereas Jensen Index cannot be compared at different market levels (Zulkafli, Ahmad, & M., 2017). Hence, they need to be adjusted to become Adjusted Sharpe Index (Jobson & Korkie, 1981) and Adjusted Jensen Index (Zulkafli, Ahmad, & M., 2017).

In Indonesia, several research on equity mutual funds performance measurements or stock portfolio performance in Indonesia have been performed by Simforianus & Hutagaol (2008); Simanjuntak (2012); Arisonda (2013); Qomariah, Sari, & Budiarti (2016). Arisonda (2013) conducted a study on stock portfolio in Indonesia Stock Exchange by using Sharpe Index, Treynor Ratio, and Jensen Index. Arisonda (2013) found that there were no differences in performance measurements using the 3 instruments. Meanwhile, Simanjuntak (2012) examines equity mutual fund performance with sharia mutual fund performance in Indonesia by employing Sharpe Index, Treynor Ratio, and Jensen Index as the measuring instruments.

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Simanjuntak (2012) found that the sharia mutual funds are able to produce better performance than the equity mutual funds. Simforianus & Hutagaol (2008), with those measuring instruments, found that 56.25 percent of equity mutual funds can generate superior performances during 2002-2007. In contrast to these research, Qomariah, Sari, & Budiarti (2016) does not utilize the performance measuring instruments but only compares the risks and returns of sharia equity mutual funds and conventional mutual funds. The research found that the sharia equity mutual funds have lower risks compared to the conventional ones.

Research on equity mutual funds that have been conducted in Indonesia tend to use limited measuring instruments on Sharpe Index, Treynor Ratio, and Jensen Index (Arisona, 2013), and also Sortino Ratio (Simforianus & Hutagaol, 2008). There is still no research conducted that employed the adjusted instruments such as Adjusted Sharpe Index and Adjusted Jensen Index to avoid bias. Hence, in addition to the utilization of Sharpe Index, Treynor Ratio, Jensen Index, and Sortino Ratio, this study also uses Adjusted Sharpe Index and Adjusted Jensen Index. Jobson & Korkie (1981), Cvitanic, Lazrak, & Wang (2007), and Zulkafli, Ahmad, & M. (2017) stated that the Sharpe Ratio have a weakness and could be biased. Pav (2016) stated that the occurrence of this bias was led by the noise of time series data. So the use of Adjusted Sharpe Index (ASI) is indispensable in portfolio evaluation (Kidd, 2012; Bednarek, Patel, Ramezani, 2014). The same problem also rise in Jensen Alpha, according Zulkafli, Ahmad, & M. (2017), Jensen Alpha is not appropriately used to measure performance at different performance levels, hence need an adjustment also in order to make better comparison (Kidd, 2011a). This adjustment held by using systematic risk factors and the results often called as Adjusted Jensen Alpha (Index)/AJI.

Overall, this study aims to evaluate the performance of equity mutual funds in Indonesia by

using various portfolio measurement methods, so can objectively give a suggestion toward the Indonesian equity mutual fund investors.

Portfolios Theory and Mutual Funds

Markowitz (1952) suggests 2 approaches in the investment portfolio, i.e. the classical approach and the modern portfolio approach. The classical approach emphasizes on efficiency. Markowitz uses mean-variance analysis to form an efficient portfolio, a portfolio that provides the highest return for a given level of risk. Hence, the efficient portfolio of Markowitz is also called mean-variance efficient portfolio. While on the modern portfolio theory approach for investment, it starts with an assumption that investors have spent some amount of money on the current investment. This money will be invested for a certain period of time called the investor's holding period. At the end of the holding period, the investor will sell the securities purchased at the beginning of the period and use the proceeds for consumptions or reinvestments in various securities (or perform both). Thus, this Markowitz approach can be viewed as a single approach. Markowitz stresses that investors usually expect not only high returns but also definite returns. It means that investors in their attempt to maximize the expectation of return and to minimize the uncertainty (risks) have 2 conflicting goals that must be balanced against each other when making a decision to buy securities. Returns and risks are related. To expect high returns, the risks expectation will also be high (Meredith, David, & James, 2000).

Modern portfolio theory now become the main guidance in favor of portfolio allocation decisions for mutual funds, pension funds, and other institutions seeking for maximized portfolio investment returns and minimizing the risks. The modern portfolio theory explores how investors who avoid risks can form an optimal portfolio by regarding the exchange between market risks and

expectation of returns. The theory calculates the benefits of diversification. Investors can determine the efficient frontier of optimal portfolio. Each portfolio on the efficient frontier offers maximum return expectation on a certain level of risk. Investors can hold one optimal portfolio on efficient frontier by borrowing or lending government bonds that are risk-free securities.

METHODS

Asset diversification strategy (securities) through the establishment of a portfolio refers to Modern Portfolio Theory introduced by Markowitz (1952) and later refined by Markowitz (1959). Various methods of measuring portfolio performance that currently exist mostly refer to the theory developed by Markowitz (1952). Among the many instruments of portfolio performance measurements, Sharpe Index developed by Sharpe (1966), which was originally created to measure the performance of mutual funds in the United States, is the most common measuring instrument used and becomes standard for industry for its popularity. Moreover, Sharpe Index is also widely used by the financial industry because of its simplicity and facilitates practitioners and academicians in assessing a portfolio performance (Low & Chin, 2013; Bednarek, Patel, & Ramezani, 2014; Robiyanto, Wahyudi, & Pangestuti, 2017). In terms of method, Sharpe Index is a measure that employs calculations of unit return minus risk-free rate of return compared to the total risk, commonly referred as reward to variability (Ferruz, Gómez-Bezares, & Vargas, 2010). In other words, Sharpe Index emphasizes the portfolio performance measurement based on non-systematic risks.

Unlike Sharpe Index, Treynor (1965) introduced Treynor Ratio that calculates return per systematic risk unit. The Treynor Ratio formula measures return minus risk-free investment rate of return on each unit of market risks. This method of Treynor Ratio measure is often referred

to as reward to volatility (Beer, Estes, & Deshayes, 2011). Scholz & Wilkens (2006) propose that both Sharpe Index and Treynor Ratio can be applied to rank the portfolio performances and to test for a well diversified portfolio (Robiyanto, 2017).

Jensen (1967) also creates a measurement instrument of portfolio performance which is often called Jensen Alpha. Based on the formula, Jensen Alpha is a special measure for risk-adjusted return of portfolio performance that specifically emphasizes on systematic risks. Sortino & Price (1994) also take a role in modifying the existing instruments of measuring portfolio performance by developing Sortino Ratio. The basic idea of Sortino Ratio is to modify the Sharpe Index by utilizing downside deviation in lieu of standard deviation (Rollinger & Hoffman, 2013). Sortino & Price (1994) attempt to accommodate the argument suggested by Markowitz (1959) that only downside deviation is relevant for investors. Related to Jensen Alpha, Zulkafli, Ahmad, & M. (2017) argues that Jensen Alpha is not appropriately used to measure performance at different performance levels. To overcome this issue, it is necessary to make adjustment to systematic risk factors. This adjustment is often called Adjusted Jensen Alpha (AJI).

Over time, those measurement instruments are not free of criticism, those instruments are even considered to have many disadvantages. Although its vast popularity, the Sharpe Index was not flawless. It been criticized by many scholars. Jobson & Korkie (1981) stated that Sharpe Index have bias in the estimation of the standard deviation, while Bednarek, Patel, & Ramezani (2014) arguing that Sharpe Index must used carefully according investment horizon. So it need adjusted before used to make a portfolio comparison. Jobson & Korkie (1981), in an attempt to overcome the weakness of Sharpe Index that is considered as biased, conducted a modification of Sharpe Index which is then referred to as Adjusted Sharpe Index (ASI). While for the Jensen Alpha, according Zulkafli,

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Ahmad, M. (2017), Jensen Alpha is not appropriately used to measure performance at many different performance levels, hence need an adjustment according many different level of market risk. This adjustment must held in order to make better comparison (Kidd, 2011a).

Population of this study is all the equity mutual funds in Indonesia until the end of 2014 period. Not all members of the population are examined so that sampling is necessary. The samples are chosen by purposive sampling method with the following criterions: (1) active from 2012-2014; and (2) complete monthly data of Net Asset Value are available from 2012-2014.

Table 1. Sampling Derivation

Criteria	N
Total Stock Mutual Funds in the end of 2014	133
Active from 2012-2014	91
Missing data	49
Number of final samples	42

The sampling showed 42 equity mutual funds met the criteria. The list of samples are presented in Appendix 1. Data used in this study are as follows: (1) net asset value per unit of monthly period participation of each equity mutual fund sample from January 2012-December 2014, to calculate monthly return of equity mutual fund. The data were retrieved from the official website of each investment manager; (2) monthly SBI (Bank Indonesia Certificates) rate during 2012-2014, to calculate risk-free return (R_f). The data were obtained from Bank Indonesia; and (3) monthly closing of Composite Stock Price Index of Indonesia Stock Exchange Index during 2012-2014, to calculate market return (R_m) of stock. The data were gathered from Indonesia Stock Exchange.

To calculate return of equity mutual funds studied here, the following formula is used:

$$R_{NAV,t} = \left[\frac{NAV_t - NAV_{t-1}}{NAV_{t-1}} \right] \dots\dots\dots(1)$$

Where:

NAV_t : net asset value of an equity mutual fund closing at month t

NAV_{t-1} : net asset value of an equity mutual fund closing at month t - 1

This study uses several methods of portfolio performance measurements that include Sharpe Index, Treynor Ratio, Jensen Index, Sortino Ratio, Adjusted Sharpe Index, and Adjusted Jensen Index.

Performance measurement of equity mutual funds with Sharpe Index is done by the following formula (Sharpe, 1966):

$$\text{Sharpe Ratio} = \frac{\text{Mean of Mutual Funds Returns} - \text{Risk Free Interest Rate}}{\text{Standard Deviation of Mutual Funds}} \dots\dots\dots(2)$$

Performance measurement of equity mutual funds with Treynor Ratio is done by the following formula (Treynor, 1965):

$$\text{Treynor Ratio} = \frac{\text{Mean of Mutual Funds Returns} - \text{Risk Free Interest Rate}}{\text{Beta Mutual Funds}} \dots\dots\dots(3)$$

Performance measurement of equity mutual funds with Jensen Alpha (α_i) is calculated by the following formula:

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

Where:

$R_{i,t}$: return of equity mutual fund at month_t

RFR_t : risk-free interest rate at month_t

$R_{m,t}$: return of stock market (represented by CSPI return at month_t)

Performance measurement of equity mutual funds with Adjusted Sharpe Index (ASI) is calculated by:

$$\text{ASI} = \text{SI} \times \frac{\text{number of observations (N)}}{\text{number of observations (N)} + 0.75} \dots\dots\dots(5)$$

Performance measurement of equity mutual funds with Adjusted Jensen Alpha Index (AJI) is calculated by the following formula:

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

Performance measurement of equity mutual funds with Sortino Ratio (SoM) is calculated by:

$$SoM = \frac{R_i - RFR_t}{\delta} \dots\dots\dots(7)$$

Where, δ is downside deviation of equity mutual funds return rate at a certain period which is calculated with the following formula:

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

Where:

- δ : downside deviation
- R_p : equity mutual funds return rate
- MAR : minimum acceptable return = risk free interest rate
- N : number of observations

With the provisions of:

If (- MAR) marked negative, use (- MAR)

If (- MAR) marked positive, use 0

Risk-free rate is represented SBI return (interest rate) in 1 month period. After the results of Sharpe Index, Adjusted Sharpe Index, Treynor Ratio, Jensen Index, Adjusted Jensen Index, and Sortino Ratio found, those results will be sorted from highest value to the lowest value in order to know the best performer and the worst performer.

RESULTS

Based on the mean return and return premium, it is acquired that SAM Equity is able to produce the highest mean of return rate during 2012-2014 at 2.23 percent and generate return premium with 1.74 percent. Meanwhile, Prospera Bijak

has mean of return with value mark at 0.02 percent and after being reduced with risk free return becomes 0.05 percent.

There are several equity mutual funds accounted premium return with negative sign, they are Prospera Bijak and Mandiri Investa Atraktif Syariah. It indicates that the 2 equity mutual funds provide lower return than the risk free investment instrument. The detail for each mutual fund returns is presented in Table 2.

From the standard deviation side, as shown in Table 3, Cipta Syariah Equity generates the lowest standard deviation with 0.0336 which indicates that the equity mutual funds formed from these stocks have the lowest risk compared to other funds. On the other hand, the highest standard deviation belongs to Pratama Saham with 0.0601 which implies that the risk of this fund is considered as relatively the highest when compared to other equity mutual funds studied here. Besides becoming a equity mutual fund with the lowest risk, according Table 4 Cipta Syariah Equity also generates the lowest beta portfolio with 0.6993 which indicates that the systematic risk of this fund is extremely low and it is also classified as defensive and is inelastic against stock market changes, on the contrary, Pratama Saham shows the highest total and, indeed, is the equity mutual fund with the biggest beta portfolio with 1.4659 which is considered as aggressive or sensitive against the stock market changes.

By using Sharpe Index as shown in Table 5, SAM Indonesian Equity is an equity mutual funds with the highest Sharpe Index (with value 0.3676), based on that SAM Indonesia Equity is the best among other equity mutual funds if measured by variability based return, conversely, Prospera Bijak the equity mutual funds with the worst performance compared to other equity mutual funds. Prospera Bijak showed Sharpe Index with the biggest negative signs (-0.0928). The other top 5 equity mutual funds are OSK Nusadana Alpha Sector (Sharpe Index: 0.2906), Cipta Syariah Equity (Sharpe Index: 0.2146), Pratama Saham (Sharpe Index: 0.1967), and BNP Paribas Infrastruktur Plus (Sharpe Index: 0.1849).

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Table 2. Equity Mutual Fund's Ranking Base on Mean Return and Return Premium

Equity Mutual Fund's Name	Mean Return	Mean (R-RF)
Sam Indonesian Equity	0.0223	0.0174
OSK Nusadana Alpha Sector Rotation	0.0173	0.0124
Pratama Saham	0.0167	0.0118
BNP Paribas Infrastruktur Plus	0.0124	0.0076
Cipta Syariah Equity	0.0121	0.0072
Tram Consumption Plus	0.0117	0.0069
MNC Dana Ekuitas	0.0112	0.0064
Schroder Dana Prestasi	0.0111	0.0062
Trimegah Syariah Saham	0.0111	0.0062
Dana Ekuitas Prima	0.0108	0.0060
Batavia Dana Saham	0.0107	0.0059
Panin Dana Prima	0.0105	0.0057
Danareksa Mawar Konsumer 10	0.0105	0.0057
Batavia Dana Saham Syariah	0.0102	0.0054
Syailendra Equity Opportunity	0.0098	0.0049
TRIM Kapital	0.0097	0.0049
Schroder Dana Istimewa	0.0097	0.0049
AXA Citradinamis	0.0097	0.0048
Manulife Syariah Sektor Amanah	0.0095	0.0047
First State IndoEquity Dividend Yield	0.0094	0.0045
First State IndoEquity Peka	0.0093	0.0044
Schroder 90 Plus Equity	0.0091	0.0043
BNP Paribas Pesona	0.0089	0.0041
BNP Paribas Ekuitas	0.0088	0.0040
Mandiri Investa Ekuitas Dinamis	0.0087	0.0039
Manulife Saham Andalan	0.0086	0.0038
Manulife Dana Saham	0.0086	0.0037
Mandiri Saham Atraktif	0.0081	0.0033
Rencana Cerdas	0.0081	0.0032
CIMB Principal Equity Aggressive	0.0080	0.0032
Kresna Indeks 45	0.0078	0.0030
Schroder Dana Prestasi Plus	0.0076	0.0028
First State IndoEquity Sectoral Fund	0.0075	0.0026
Danareksa Mawar	0.0071	0.0022
NISP Indeks Saham Progresif	0.0069	0.0020
First State IndoEquity Value Select Fund	0.0068	0.0020
SinarMas Dana Saham	0.0065	0.0016
TRIM Kapital Plus	0.0065	0.0016
Mandiri Investra Atraktif	0.0061	0.0012
Mandiri Investa UGM	0.0052	0.0004
Mandiri Investa Atraktif Syariah	0.0043	(0.0006)
Prospera Bijak	(0.0002)	(0.0050)

Table 3. Equity Mutual Fund's Ranking Based on Standard Deviation (STDEV)

Rank	Equity Mutual Fund's Name	STDEV	Rank	Equity Mutual Fund's Name	STDEV
1	Pratama Saham	0.0601	22	OSK Nusadana Alpha Sector Rotation	.0428
2	Mandiri Investa Ekuitas Dinamis	0.0543	23	Schroder Dana Istimewa	.0417
3	Prospera Bijak	0.0541	24	Schroder 90 Plus Equity	0.0413
4	Sinarmas Dana Saham	0.0536	25	BNP Paribas Infrastruktur Plus	0.0410
5	TRIM Kapital Plus	0.0536	26	Batavia Dana Saham	0.0410
6	Mandiri Investa UGM	0.0517	27	First State IndoEquity Value Select Fund	0.0409
7	CIMB Principal Equity Aggressive	0.0481	28	BNP Paribas Pesona	0.0406
8	Panin Dana Prima	0.0480	29	BNP Paribas Ekuitas	0.0405
9	Sam Indonesian Equity	0.0474	30	First State IndoEquity Peka	0.0404
10	Dana Ekuitas Prima	0.0472	31	NISP Indeks Saham Progresif	0.0403
11	Trimegah Syariah Saham	0.0470	32	Kresna Indeks 45	0.0400
12	Batavia Dana Saham Syariah	0.0465	33	Schroder Dana Prestasi	0.0397
13	Rencana Cerdas	0.0455	34	First State IndoEquity Dividend Yield	0.0394
14	Mandiri Investra Atraktif	0.0455	35	Schroder Dana Prestasi Plus	0.0393
15	Syailendra Equity Opportunity	0.0455	36	Danareksa Mawar	0.0393
16	Tram Consumption Plus	0.0443	37	Manulife Syariah Sektoral Amanah	0.0393
17	TRIM Kapital	0.0440	38	First State IndoEquity Sectoral Fund	0.0388
18	Manulife Saham Andalan	0.0440	39	AXA Citradinamis	0.0387
19	Mandiri Saham Atraktif	0.0436	40	MNC Dana Ekuitas	0.0385
20	Danareksa Mawar Konsumer 10	0.0436	41	Manulife Dana Saham	0.0368
21	Mandiri Investa Atraktif Syariah	0.0435	42	Cipta Syariah Equity	0.0336

Table 4. Equity Mutual Fund's Ranking Based on Beta

Rank	Equity Mutual Fund's Name	Beta	Rank	Equity Mutual Fund's Name	Beta
1	Pratama Saham	1.4659	22	BNP Paribas Pesona	1.0952
2	Sinarmas Dana Saham	1.3051	23	BNP Paribas Ekuitas	1.0907
3	TRIM Kapital Plus	1.3051	24	Schroder 90 Plus Equity	1.0900
4	Mandiri Investa UGM	1.2815	25	Tram Consumption Plus	1.0855
5	Mandiri Investa Ekuitas Dinamis	1.2673	26	First State IndoEquity Peka	1.0819
6	Prospera Bijak	1.2564	27	First State IndoEquity Value Select Fund	1.0801
7	CIMB Principal Equity Aggressive	1.2200	28	Schroder Dana Istimewa	1.0782
8	Dana Ekuitas Prima	1.2076	29	Danareksa Mawar Konsumer 10	1.0677
9	Trimegah Syariah Saham	1.2001	30	Batavia Dana Saham	1.0647
10	Mandiri Investra Atraktif	1.1811	31	First State IndoEquity Dividend Yield	1.0509
11	Panin Dana Prima	1.1810	32	NISP Indeks Saham Progresif	1.0495
12	Manulife Saham Andalan	1.1590	33	Kresna Indeks 45	1.0492
13	Syailendra Equity Opportunity	1.1501	34	Schroder Dana Prestasi Plus	1.0460
14	Mandiri Saham Atraktif	1.1478	35	AXA Citradinamis	1.0388
15	Batavia Dana Saham Syariah	1.1414	36	Danareksa Mawar	1.0261
16	Sam Indonesian Equity	1.1399	37	Schroder Dana Prestasi	1.0258
17	Rencana Cerdas	1.1387	38	First State IndoEquity Sectoral Fund	1.0251
18	Mandiri Investa Atraktif Syariah	1.1264	39	Manulife Syariah Sektoral Amanah	1.0084
19	OSK Nusadana Alpha Sector Rotation	1.1107	40	Manulife Dana Saham	0.9787
20	TRIM Kapital	1.1082	41	MNC Dana Ekuitas	0.9518
21	BNP Paribas Infrastruktur Plus	1.0956	42	Cipta Syariah Equity	0.6993

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By using Adjusted Sharpe Index (ASI) as shown in Table 6, consistently SAM Indonesian Equity is an equity mutual funds with the highest Adjusted Sharpe Index (with value 0.3601), same with Sharpe Index measurement, Prospera Bijak is an equity mutual funds with the worst performance compared to other equity mutual funds. Prospera Bijak showed Adjusted Sharpe Index with the biggest negative signs (-0.0909). The sequence of top 5 equity mutual funds are consistent also, they are OSK Nusadana Alpha Sector (Sharpe Index: 0.2847), Cipta Syariah Equity (Sharpe Index: 0.2102), Pratama Saham (Sharpe Index: 0.1927), and BNP Paribas Infrastruktur Plus (Sharpe Index: 0.1812).

By using Treynor Ratio as shown in Table 7, SAM Indonesian Equity also become an equity mutual funds with the highest Treynor Ratio (with value 0.0153), based on that SAM Indonesia Equity is the best among other equity mutual funds if measured by volatility based return, conversely, the same condition also found on Prospera Bijak. Prospera Bijak is an equity mutual funds with the worst performance compared to other equity mutual funds. Prospera Bijak has Treynor Ratio with the biggest negative signs (-0.0040). The other top 5 equity mutual funds are OSK Nusadana Alpha Sector (Treynor Ratio: 0.0112), Cipta Syariah Equity (Treynor Ratio: 0.0103), Pratama Saham (Treynor Ratio: 0.0081), and BNP Paribas Infrastruktur Plus (Treynor Ratio: 0.0069).

Table 5. Equity Mutual Fund's Ranking Based on Sharpe Index

Rank	Equity Mutual Fund's Name	Sharpe Index	Rank	Equity Mutual Fund's Name	Sharpe Index
1	Sam Indonesian Equity	0.3676	22	Schroder 90 Plus Equity	0.1034
2	OSK Nusadana Alpha Sector Rotation	0.2906	23	Manulife Dana Saham	0.1014
3	Cipta Syariah Equity	0.2146	24	BNP Paribas Pesona	0.1008
4	Pratama Saham	0.1967	25	BNP Paribas Ekuitas	0.0976
5	BNP Paribas Infrastruktur Plus	0.1849	26	Manulife Saham Andalan	0.0864
6	MNC Dana Ekuitas	0.1653	27	Mandiri Saham Atraktif	0.0757
7	Schroder Dana Prestasi	0.1572	28	Kresna Indeks 45	0.0740
8	Tram Consumption Plus	0.1554	29	Mandiri Investa Ekuitas Dinamis	0.0714
9	Batavia Dana Saham	0.1433	30	Rencana Cerdas	0.0708
10	Trimegah Syariah Saham	0.1326	31	Schroder Dana Prestasi Plus	0.0703
11	Danareksa Mawar Konsumer 10	0.1306	32	First State IndoEquity Sectoral Fund	0.0678
12	Dana Ekuitas Prima	0.1271	33	CIMB Principal Equity Aggressive	0.0657
13	AXA Citradinamis	0.1242	34	Danareksa Mawar	0.0572
14	Manulife Syariah Sektoral Amanah	0.1194	35	NISP Indeks Saham Progresif	0.0499
15	Panin Dana Prima	0.1187	36	First State IndoEquity Value Select Fund	0.0477
16	Schroder Dana Istimewa	0.1167	37	Sinarmas Dana Saham	0.0305
17	First State IndoEquity Dividend Yield	0.1154	38	TRIM Kapital Plus	0.0305
18	Batavia Dana Saham Syariah	0.1153	39	Mandiri Investra Atraktif	0.0274
19	TRIM Kapital	0.1109	40	Mandiri Investa UGM	0.0071
20	First State IndoEquity Peka	0.1097	41	Mandiri Investa Atraktif Syariah	(0.0132)
21	Syailendra Equity Opportunity	0.1081	42	Prospera Bijak	(0.0928)

By using Jensen Index as shown in Table 8, still SAM Indonesian Equity is an equity mutual funds with the highest Jensen Index (with value 0.0166), based on that SAM Indonesia Equity is the best among other equity mutual funds, on the contrary, Prospera Bijak is an equity mutual funds with the worst performance if measured by Jensen Index and compared to other equity mutual funds. Prospera Bijak showed Jensen Index with the biggest negative signs (-0.0060). By using Jensen Index, the sequence of other top 5 equity mutual funds are changing. The second best performer is OSK Nusadana Alpha Sector (Jensen Index: 0.0116), followed by Pratama Saham (Jensen Index: 0.0107),

BNP Paribas Infrastruktur Plus (Jensen Index: 0.0068), and Cipta Syariah Equity (Jensen Index: 0.0067).

By using Adjusted Jensen Index (AJI) as shown in Table 9, still SAM Indonesian Equity is an equity mutual funds with the highest Adjusted Jensen Index (with value 0.0145), based on that SAM Indonesia Equity is the best among other equity mutual funds, on the contrary, Prospera Bijak is an equity mutual funds with the worst performance if measured by Adjusted Jensen Index and compared to other equity mutual funds. Prospera Bijak showed Adjusted Jensen Index with the biggest negative signs (-0.0047).

Table 6. Equity Mutual Fund's Ranking Based on Adjusted Sharpe Index (ASI)

Rank	Equity Mutual Fund's Name	ASI	Rank	Equity Mutual Fund's Name	ASI
1	Sam Indonesian Equity	0.3601	22	Schroder 90 Plus Equity	0.1013
2	OSK Nusadana Alpha Sector Rotation	0.2847	23	Manulife Dana Saham	0.0993
3	Cipta Syariah Equity	0.2102	24	BNP Paribas Pesona	0.0987
4	Pratama Saham	0.1927	25	BNP Paribas Ekuitas	0.0956
5	BNP Paribas Infrastruktur Plus	0.1812	26	Manulife Saham Andalan	0.0846
6	MNC Dana Ekuitas	0.1620	27	Mandiri Saham Atraktif	0.0742
7	Schroder Dana Prestasi	0.1540	28	Kresna Indeks 45	0.0725
8	Tram Consumption Plus	0.1522	29	Mandiri Investa Ekuitas Dinamis	0.0699
9	Batavia Dana Saham	0.1404	30	Rencana Cerdas	0.0693
10	Trimegah Syariah Saham	0.1299	31	Schroder Dana Prestasi Plus	0.0689
11	Danareksa Mawar Konsumer 10	0.1279	32	First State IndoEquity Sectoral Fund	0.0664
12	Dana Ekuitas Prima	0.1245	33	CIMB Principal Equity Aggressive	0.0644
13	AXA Citradinamis	0.1217	34	Danareksa Mawar	0.0560
14	Manulife Syariah Sektoral Amanah	0.1169	35	NISP Indeks Saham Progresif	0.0489
15	Panin Dana Prima	0.1163	36	First State IndoEquity Value Select Fund	0.0467
16	Schroder Dana Istimewa	0.1144	37	Sinarmas Dana Saham	0.0299
17	First State IndoEquity Dividend Yield	0.1130	38	TRIM Kapital Plus	0.0299
18	Batavia Dana Saham Syariah	0.1129	39	Mandiri Investra Atraktif	0.0269
19	TRIM Kapital	0.1086	40	Mandiri Investa UGM	0.0070
20	First State IndoEquity Peka	0.1074	41	Mandiri Investa Atraktif Syariah	(0.0129)
21	Syailendra Equity Opportunity	0.1059	42	Prospera Bijak	(0.0909)

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Table 7. Equity Mutual Fund's Ranking Based on Treynor Ratio

Rank	Equity Mutual Fund's Name	Treynor Ratio	Rank	Equity Mutual Fund's Name	Treynor Ratio
1	Sam Indonesian Equity	0.0153	22	Schroder 90 Plus Equity	0.0039
2	OSK Nusadana Alpha Sector Rotation	0.0112	23	Manulife Dana Saham	0.0038
3	Cipta Syariah Equity	0.0103	24	BNP Paribas Pesona	0.0037
4	Pratama Saham	0.0081	25	BNP Paribas Ekuitas	0.0036
5	BNP Paribas Infrastruktur Plus	0.0069	26	Manulife Saham Andalan	0.0033
6	MNC Dana Ekuitas	0.0067	27	Mandiri Investa Ekuitas Dinamis	0.0031
7	Tram Consumption Plus	0.0063	28	Mandiri Saham Atraktif	0.0029
8	Schroder Dana Prestasi	0.0061	29	Rencana Cerdas	0.0028
9	Batavia Dana Saham	0.0055	30	Kresna Indeks 45	0.0028
10	Danareksa Mawar Konsumer 10	0.0053	31	Schroder Dana Prestasi Plus	0.0026
11	Trimegah Syariah Saham	0.0052	32	CIMB Principal Equity Aggressive	0.0026
12	Dana Ekuitas Prima	0.0050	33	First State IndoEquity Sectoral Fund	0.0026
13	Panin Dana Prima	0.0048	34	Danareksa Mawar	0.0022
14	Batavia Dana Saham Syariah	0.0047	35	NISP Indeks Saham Progresif	0.0019
15	Manulife Syariah Sektoral Amanah	0.0046	36	First State IndoEquity Value Select Fund	0.0018
16	AXA Citradinamis	0.0046	37	Sinarmas Dana Saham	0.0013
17	Schroder Dana Istimewa	0.0045	38	TRIM Kapital Plus	0.0013
18	TRIM Kapital	0.0044	39	Mandiri Investra Atraktif	0.0011
19	First State IndoEquity Dividend Yield	0.0043	40	Mandiri Investa UGM	0.0003
20	Syailendra Equity Opportunity	0.0043	41	Mandiri Investa Atraktif Syariah	(0.0005)
21	First State IndoEquity Peka	0.0041	42	Prospera Bijak	(0.0040)

Table 8. Equity Mutual Fund's Ranking Based on Jensen Index

Rank	Equity Mutual Fund's Name	Jensen Index	Rank	Equity Mutual Fund's Name	Jensen Index
1	Sam Indonesian Equity	0.0166	22	Schroder 90 Plus Equity	0.0034
2	OSK Nusadana Alpha Sector Rotation	0.0116	23	BNP Paribas Pesona	0.0033
3	Pratama Saham	0.0107	24	BNP Paribas Ekuitas	0.0031
4	BNP Paribas Infrastruktur Plus	0.0068	25	Manulife Dana Saham	0.0030
5	Cipta Syariah Equity	0.0067	26	Manulife Saham Andalan	0.0029
6	Tram Consumption Plus	0.0061	27	Mandiri Investa Ekuitas Dinamis	0.0029
7	MNC Dana Ekuitas	0.0056	28	Mandiri Saham Atraktif	0.0024
8	Schroder Dana Prestasi	0.0055	29	Rencana Cerdas	0.0024
9	Trimegah Syariah Saham	0.0053	30	CIMB Principal Equity Aggressive	0.0022
10	Dana Ekuitas Prima	0.0051	31	Kresna Indeks 45	0.0022
11	Batavia Dana Saham	0.0051	32	Schroder Dana Prestasi Plus	0.0020
12	Danareksa Mawar Konsumer 10	0.0049	33	First State IndoEquity Sectoral Fund	0.0019
13	Panin Dana Prima	0.0048	34	Danareksa Mawar	0.0015
14	Batavia Dana Saham Syariah	0.0045	35	NISP Indeks Saham Progresif	0.0012
15	Schroder Dana Istimewa	0.0041	36	First State IndoEquity Value Select Fund	0.0011
16	Syailendra Equity Opportunity	0.0040	37	Sinarmas Dana Saham	0.0006
17	TRIM Kapital	0.0040	38	TRIM Kapital Plus	0.0006
18	AXA Citradinamis	0.0040	39	Mandiri Investra Atraktif	0.0004
19	Manulife Syariah Sektoral Amanah	0.0039	40	Mandiri Investa UGM	(0.0006)
20	First State IndoEquity Dividend Yield	0.0037	41	Mandiri Investa Atraktif Syariah	(0.0014)
21	First State IndoEquity Peka	0.0036	42	Prospera Bijak	(0.0060)

By using Adjusted Jensen Index, the sequence of other top 5 equity mutual funds are changing and differ from the Jensen Index's sequence. The second best performer is still OSK Nusadana Alpha Sector (Adjusted Jensen Index: 0.0104), followed by Cipta Syariah Equity (Adjusted Jensen Index: 0.0096), Pratama Saham (Adjusted Jensen Index: 0.0073), and BNP Paribas Infrastruktur Plus (Adjusted Jensen Index: 0.0062).

Surprisingly, by using Sortino Ratio as shown in Table 10, the sequence of 5 best performers are similar to the one which measured by Adjusted Jensen Index (AJI). SAM Indonesian Equity is an

equity mutual funds with the highest Sortino Ratio (with value 0.6731). Consistently, Prospera Bijak is an equity mutual funds with the worst performance compared to other equity mutual funds if measured by Sortino Ratio. Prospera Bijak showed Sortino Ratio with the biggest negative signs (-0.1265). The second best performer is still OSK Nusadana Alpha Sector (Sortino Ratio: 0.4885), followed by Cipta Syariah Equity (Sortino Ratio: 0.3644), Pratama Saham (Sortino Ratio: 0.3288), and BNP Paribas Infrastruktur Plus (Sortino Ratio: 0.2843).

Table 9. Equity Mutual Fund's Ranking Based on Adjusted Jensen Index

Rank	Equity Mutual Fund's Name	Adjusted Jensen Index	Rank	Equity Mutual Fund's Name	Adjusted Jensen Index
1	Sam Indonesian Equity	0.0145	22	Schroder 90 Plus Equity	0.0032
2	OSK Nusadana Alpha Sector Rotation	0.0104	23	Manulife Dana Saham	0.0031
3	Cipta Syariah Equity	0.0096	24	BNP Paribas Pesona	0.0030
4	Pratama Saham	0.0073	25	BNP Paribas Ekuitas	0.0029
5	BNP Paribas Infrastruktur Plus	0.0062	26	Manulife Saham Andalan	0.0025
6	MNC Dana Ekuitas	0.0059	27	Mandiri Investa Ekuitas Dinamis	0.0023
7	Tram Consumption Plus	0.0056	28	Mandiri Saham Atraktif	0.0021
8	Schroder Dana Prestasi	0.0053	29	Rencana Cerdas	0.0021
9	Batavia Dana Saham	0.0048	30	Kresna Indeks 45	0.0021
10	Danareksa Mawar Konsumer 10	0.0046	31	Schroder Dana Prestasi Plus	0.0019
11	Trimegah Syariah Saham	0.0044	32	CIMB Principal Equity Aggressive	0.0018
12	Dana Ekuitas Prima	0.0042	33	First State IndoEquity Sectoral Fund	0.0018
13	Panin Dana Prima	0.0041	34	Danareksa Mawar	0.0014
14	Batavia Dana Saham Syariah	0.0039	35	NISP Indeks Saham Progresif	0.0012
15	Manulife Syariah Sektoral Amanah	0.0039	36	First State IndoEquity Value Select Fund	0.0011
16	AXA Citradinamis	0.0039	37	Sinarmas Dana Saham	0.0005
17	Schroder Dana Istimewa	0.0038	38	TRIM Kapital Plus	0.0005
18	TRIM Kapital	0.0036	39	Mandiri Investra Atraktif	0.0003
19	First State IndoEquity Dividend Yield	0.0036	40	Mandiri Investa UGM	(0.0005)
20	Syailendra Equity Opportunity	0.0035	41	Mandiri Investa Atraktif Syariah	(0.0013)
21	First State IndoEquity Peka	0.0033	42	Prospera Bijak	(0.0047)

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DISCUSSION

This study found that equity mutual funds formed from the sharia stocks such as Cipta Syariah Equity, Manulife Syariah Sektor Amanah, Mandiri Investa Atraktif Syariah, Batavia Dana Saham Syariah, Trimegah Syariah Saham were infact able to produce lower risks compared to the other equity mutual funds. Equity mutual funds with the highest risk are dominated by the conventional equity mutual funds. These findings support a research result by Robiyanto (2017) which revealed that the sharia stocks tend to have lower risks than the other stocks and is consistent to the research by Qomariah, Sari, & Budiarti (2016).

The analysis showed that in general there is a consistency among the measurement instruments of portfolio performance by employing Sharpe Index, Adjusted Sharpe Index, Treynor Ratio,

Jensen Index, Adjusted Jensen Index, and Sortino Ratio, then it is revealed that almost all equity mutul funds have a consistent rate. For example, consistently SAM Indonesia Equity become the best performer when measured by Sharpe Index, Adjusted Sharpe Index, Treynor Ratio, Jensen Index, Adjusted Jensen Index, and Sortino Ratio. While the other member of top 5 performer only differ slightly in sequential manner but the top 5 performer are SAM Indonesia Equity, OSK Nusadana Alpha Sector, Cipta Syariah Equity, Pratama Saham and BNP Paribas Infrastruktur Plus. The usage of risk based measurement is more appropariate than return comparison, since according Markowitz (1952), the aim of the portfolio is to provides the highest return for a given level of risk.

The findings also shows that by using Sharpe Index and Adjusted Sharpe Index (ASI), the se-

Table 10. Equity Mutual Fund's Ranking Based on Sortino Ratio

Rank	Equity Mutual Fund's Name	Sortino Ratio	Rank	Equity Mutual Fund's Name	Sortino Ratio
1	Sam Indonesian Equity	0.6731	22	Manulife Dana Saham	0.1514
2	OSK Nusadana Alpha Sector Rotation	0.4885	23	Schroder 90 Plus Equity	0.1493
3	Cipta Syariah Equity	0.3644	24	BNP Paribas Pesona	0.1456
4	Pratama Saham	0.3288	25	BNP Paribas Ekuitas	0.1407
5	BNP Paribas Infrastruktur Plus	0.2843	26	Manulife Saham Andalan	0.1260
6	MNC Dana Ekuitas	0.2725	27	Kresna Indeks 45	0.1116
7	Schroder Dana Prestasi	0.2406	28	Rencana Cerdas	0.1073
8	Tram Consumption Plus	0.2348	29	Mandiri Saham Atraktif	0.1056
9	Batavia Dana Saham	0.2189	30	Mandiri Investa Ekuitas Dinamis	0.1032
10	Trimegah Syariah Saham	0.1991	31	First State IndoEquity Sectoral Fund	0.1014
11	Danareksa Mawar Konsumer 10	0.1910	32	Schroder Dana Prestasi Plus	0.1014
12	Manulife Syariah Sektoral Amanah	0.1899	33	CIMB Principal Equity Aggressive	0.0918
13	AXA Citradinamis	0.1869	34	Danareksa Mawar	0.0865
14	Dana Ekuitas Prima	0.1849	35	NISP Indeks Saham Progresif	0.0751
15	Batavia Dana Saham Syariah	0.1789	36	First State IndoEquity Value Select Fund	0.0717
16	Panin Dana Prima	0.1765	37	Sinarmas Dana Saham	0.0442
17	First State IndoEquity Dividend Yield	0.1743	38	TRIM Kapital Plus	0.0442
18	Schroder Dana Istimewa	0.1716	39	Mandiri Investra Atraktif	0.0374
19	First State IndoEquity Peka	0.1640	40	Mandiri Investa UGM	0.0099
20	Syailendra Equity Opportunity	0.1601	41	Mandiri Investa Atraktif Syariah	(0.0181)
21	TRIM Kapital	0.1555	42	Prospera Bijak	(0.1265)

quence of the best performers to the worst performers do not change at all. The different sequence occurs when using Jensen Index and Adjusted Jensen Index. By using Adjusted Jensen Index which use beta as a proxy of market risk, Adjusted Jensen Alpha expected can produce fair comparison between each portofolio (Kidd, 2011a), this study find that there are inconsistency between the ranking result by using Jensen Index and Adjusted Jensen Index (AJI). The higher Jensen Index would not guarantee the higher Adjusted Jensen Index if the market risk (beta) also higher. But the lower Jensen Index with lower market risk (beta) could led the higher Adjusted Jensen Index. This measurement sound fair enough to make portfolio's performance comparison, as evidenced in this study.

Overall, this study also indicates that the equity mutual funds studied are in general have been well diversified. This result is in line with Pratomo (2001) which suggests that the portfolios which are well diversified will tend to have a consistent rate between the Sharpe Index and the Treynor Ratio.

CONCLUSION AND SUGGESTIONS

Conclusion

The result shows that not all of the equity mutual funds studied is able to produce premium return with positive sign. It implies that the performance of those equity mutual funds is no better than the risk-free investment instruments. It further found that the sharia equity mutual funds tend to possess a lower risk rate compared to the conventional ones when seen from the standard deviation.

In general, it is concluded that most of the equity mutual funds under this study are already well diversified for they have consistency in performance rate when measured with Sharpe Index and Treynor Ratio. This study also reveals that the equity mutual funds of SAM Indonesian Eq-

uity comes as the best performer during the research period with the highest score of Sharpe Index, Adjusted Sharpe Index, Treynor Ratio, Jensen Index, Adjusted Jensen Index, and Sortino Ratio. This study also found that higher risk do not associated automatically with risk based return (i.e. reward based volatility and reward based variability), since some mutuals fund could produce superior return with better diversification strategy.

Suggestions

Since the SAM Indonesian Equity comes as the best performer during the research period with the highest score of Sharpe Index, Adjusted Sharpe Index, Treynor Ratio, Jensen Index, Adjusted Jensen Index, and Sortino Ratio, so investors who are interested to invest in equity mutual funds as the investment instrument with growth orientation may choose SAM Indonesian Equity. Whereas, investors who expect investment instrument with safe growth, trusted, and based on sharia may invest in sharia equity mutual funds since it has a lower risk rate. Meanwhile, mutual fund's investment manager especially for mutual fund with worst performance, should reformulate their investment strategy in order to obtain better performance.

For future research agenda, researchers who are interested to conduct research in the same field may use instruments of measuring portfolio performance that have not been utilized in this study such as Information Ratio. It is also suggested to study per investment manager and use other indicators such as the existing managed funds.

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