

## Portfolio Performance Analysis Using the Treynor Model in the Early Period of the Covid-19 Pandemic

Titing Suharti, Diah Yudhawati \*, Anuraga Kusumah, Berliani Fatimah

Fakultas Ekonomi dan Bisnis, Univrsitas Ibn Khaldun

Jl. Sholeh Iskandar, RT.01/RW.10, Kedungbadak, Tanah Sereal, Kota Bogor,  
Jawa Barat 16162, Indonesia

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### Abstract

This study aims to determine portfolio performance using the Treynor model for companies listed on IDX30 in the early period of the COVID-19 pandemic (February-July 2020). This research method is a quantitative descriptive method which in this study tries to analyze, describe and explain the performance of a stock portfolio using the Treynor method in companies listed on IDX30-BEI. The sampling method was purposive sampling method in order to obtain 5 issuers, namely PT. Aneka Tambang Tbk, PT Bank Negara Indonesia Tbk, PT. Erajaya Swasembada Tbk, PT. Indofood Sukses Makmur Tbk and PT. Kalbe Farma Tbk. The results showed that the beta portfolio or the highest investment risk was found in the portfolio composition 22. The lowest risk was in the portfolio composition 12. The highest rate of return in portfolio composition is 28. The lowest rate of return is portfolio 16. Optimal portfolio performance using the Treynor method is found in the 18th portfolio.

### Author Correspondence:

Diah Yudhawati

[diahyudhawati@gmail.com](mailto:diahyudhawati@gmail.com)



## 1. Introduction

At the beginning of the Covid 19 pandemic, the government implemented large-scale social restrictions (PSBB), this directly suppressed the rate of economic growth. This condition has an effect on the stock market in Indonesia. The risks that are often projected by a number of investors and capital market analysts are the potential for recession and economic crisis. The Indonesia Stock Exchange as one of the supporters of the capital market continues to strive to maintain harmony by creating a market with integrity and health by preparing new policies and adjustments during the pandemic.

Even in the conditions of large-scale social restrictions, one interesting thing is the increase in the number of retail investors who have been actively trading stocks since March 2020. This shows that investor interest in investing remains high. .

Investment trends in the capital market have not changed even during the covid 19 pandemic. The energy, infrastructure, and banking sectors are still promising investment options for capital market participants in the future.

Investment in the financial sector that is currently in demand by many people is stock investment. In general, the investment made is an investment in conventional stocks. Basically, investors always want the maximum rate of return on their investments. There is a positive relationship between return and risk in investing, the greater the risk that must be borne means the greater the expected return which is known as high risk-high return. The return itself is the result of the return on an investment.

A portfolio is a collection of securities (financial instruments) that include stocks, bonds, derivative securities and money market securities for investment purposes. The composition of each type of securities for a portfolio depends on the investment objectives, whether it is short-term or long-term, or by the dependence of different investments and levels of risk (Samsul, n.d., p. 304)

Measuring portfolio performance is not only seen from the return, but must pay attention to the risks that investors will bear. To measure the performance of the portfolio, there are 3 types of models, namely the sharpe model, the treynor model, and the Jensen model. In this study to measure portfolio performance, the researcher only uses the treynor model where the treynor model is used to measure or take into account the systematic returns and risks stated by the beta, the greater the treynor value, the better the portfolio performance.

Treynor assumes a highly diversified portfolio with a reward to volatility ratio (RVOR). Therefore, the Treynor index states that portfolio performance is calculated in the form of a net return from the portfolio using a risk-free interest rate. The advantage of the Treynor model is that it can measure the Beta value which shows the magnitude of the change in the return of a portfolio to market changes.

IDX30 is an index that measures the performance of stock prices that have high liquidity and large capitalization and are also supported by good company fundamentals. Currently, IDX30 and LQ-45 are also a reference for investing, the author chose IDX30 in this study and took a sample in the February-July 2020 period considering that the IDX this month replaced several companies in IDX30.

This research is also based on the unevenness of results with previous research. The results of the research conducted by Sri Aeni Syulviya, Siti Ragil Handayani Rustam, and Hidayat (2015), concluded that in semester 1 there were 8 stocks in the selected companies out of 15 sample companies and in semester 2 all company shares did not meet the criteria in portfolio formation. Evaluation with the treynor model has the advantage of being able to find out the beta value which can show the magnitude of the change in the return of a portfolio to market changes and its weakness when

RVOL is calculated using past returns with the expected return generated will be low so that the expected return will be minimal.

## **2. Research Method**

used to measure portfolio performance are Jensen, treynor, and sharpe. The researcher selects portfolio performance using the Treynor model, so that it can be known which portfolio has the best performance on the IDX.

### **Research design**

The design of the research reflects what and how a research is conducted. Overall, research activities start from planning, implementation and making implicit conclusions from the design prepared by the researcher. The design of this research will determine how the data is obtained and how the data is analyzed and concluded. The depth of the research carried out can also be seen from the design set by the researcher. (Paradise, 2020, p. 16)

The method used in this study is a quantitative method that refers to Treynor's calculations. In this study, the researcher seeks to analyze how the portfolio performs on the IDX 30 for the period February-July 2020 using the Treynor model.

Types, sources and data collection techniques In this study, the type of data used is the type of quantitative data on the Indonesia stock exchange (IDX). Quantitative data is data that can be expressed in the form of numbers. (Noor, 2014, p. 14)

The data sources obtained in this study are data from outside or data obtained indirectly, through publication intermediaries. The secondary data used is the closing and opening prices of companies listed on the IDX30 of the Indonesia Stock Exchange for the period February-July 2020.

Techniques or Methods of Data Collection Data collection is a systematic and standard procedure to obtain the necessary data. Data collection is one of the most important steps in the scientific method, therefore in general, the collected data is used, except for exploratory research, in order to test the hypothesis that has been formulated. (Nazir, N.D.)

The data collection technique used in this study is a literature study. Literature research is research collected using literature, namely the results of notes, books and those derived from previous research and related to this research.

### **Population and sample**

Population is a generalization of a member or element that has the same characteristics (Firdaus, 2020, p. 31). The population of this study is stocks listed on the IDX 30 on the Indonesia Stock Exchange in February-July 2020. The researcher

chose IDX30 because the stocks included in the IDX30 have high liquidity and large capitalization, and are among the top 30 stocks.

Djarwanto "Samples are part of the population whose characteristics are to be studied" (Hidayat, 2012). The sample in this study is 5 companies in different sectors from 30 companies listed in the IDX 30 on the Indonesia Stock Exchange. The subsectors are in the pharmaceutical, mining, finance, consumer goods industry and services trade and investment. The researcher chose these sectors because during the current pandemic this sector is surging.

### Analysis Methods

The portfolio analysis method with the Treynor model is as follows:

Return saham (Ri)

Return or the rate of return from investment in a certain period. formula return.

$$Ri = \frac{pt - (pt - 1)}{pt - 1}$$

Pt= closing stock price

Pt-1= opening stock price

Return Market (Rm)

A market index is a change in a market index expressed in percentages. The current market index is compared with yesterday's market index with the formula:

$$Rm = \frac{IHSG - (IHSG - 1)}{(IHSG - 1)}$$

Expected Return Portofolio (Rp)

Portfolio returns are calculated using the Equally weighted method which equally divides the value of the investment proportion of each stock in the portfolio. Portfolio returns are calculated by the formula:

$$E Rp = \sum_{i=1}^n E(Ri).Wi$$

Erp = Portfolio Return Expectations

E(Ri) = expected return pada saham i.

Free wi = proportion of assets invested in stocks i (Sari & Qudratullah, 2016, p. 5)

Risk Free (Rf)

The risk-free interest rate in February-July 2020 is calculated on a monthly basis by dividing by six months.

### Model Treynor

The portfolio performance of the Treynor model uses the formula:

$T_p$  = Treynor Performance Index.

$R_p$  = portfolio return or market return rate over a given period.

$R_f$  = risk-free investment return or  $R_i$  risk free.

$\beta\pi$  = the market risk of the portfolio or the systematic risk of the portfolio. (Musiin et al., 2020, p. 6).

### 3. Results

The object of this study is that companies listed on the Indonesia Stock Exchange that are listed on the IDX30 are consistently included in the research period. This study took 5 different sectors. The selected companies are:

**Table 1. IDX30 Stock Sample Early Period (February-July 2020)**

No.	Company Name	code	Subsector
1.	PT. Aneka Tambang Tbk	ANTM	Mining
2.	PT. Bank Negara Indonesia Tbk	BBNI	Banking
3.	PT. Erajaya Swasembada Tbk	ERAA	Retail
4.	PT. Indofood Sukses Makmur Tbk	INDF	Food and Beverage
5.	PT. Kalbe Farma Tbk	KLBF	Pharmacy

Source : data processed

The results of the analysis of the level of profit and risk of each stock are as follows:

**Table 2. Results of the recapitulation of the expected level of profit and stock risk**

Issuer Code	E ( $R_i$ )	Stock risk (SD)
KLBF	0,0087	0,0763
BBNI	-0,0121	0,0871
ANTM	0,0042	0,0985
THYYe	0,0034	0,10009
INDF	-0,0050	0,0644

Source : processed data

From the table above, the most serious risk is in PT. Era Jaya Swamsembada with a risk of 0.10009 and an expected profit level of 0.0034. The least risk value in PT. Indofood Sukses Makmur Tbk with a risk of 0.0644. The highest expected return at PT. Kalbe Farma Tbk. of 0.0087 with a risk of 0.0763 and the lowest expected return on PT Indofood Sukses Makmur Tbk with a negative result of 0.0050 Beta and portfolio return of 5 stocks listed on IDX30 can be seen in the table below:

**Table 3. Assessment of portfolio performance using the Treynor model**

<b>composition</b>	<b>p</b>	<b>Erp</b>	<b>treynor</b>
Portfolio 1	1,38	-0,00016	-0,32041
Portfolio 2	1,23	-0,00017	-0,00014
Portfolio 3	1,28	0,00051	0,00040
Portfolio 4	1,56	0,00027	0,00017
Portfolio 5	1,49	-0,00164	-0,00109
Portfolio 6	1,25	-0,00157	-0,00125
Portfolio 7	1,52	-0,00108	-0,00071
Portfolio 8	1,48	-0,00054	-0,00037
Portfolio 9	1,46	-0,00064	-0,00044
Portfolio 10	1,56	-0,00158	-0,00101
Portfolio 11	1,29	0,00184	0,00143
Portfolio 12	1,17	0,00029	0,00025
Portfolio 13	1,22	0,00127	0,00104
Portfolio 14	1,24	0,00256	0,00206
Portfolio 15	1,40	-0,00426	-0,00304
Portfolio 16	1,47	-0,00006	-0,00004
Portfolio 17	1,40	0,00139	0,00099
Portfolio 18	1,18	0,00263	0,00224
Portfolio 19	1,28	0,00086	0,00067
Portfolio 20	1,49	-0,00253	-0,00170
Portfolio 21	1,53	-0,00232	-0,00152
Portfolio 22	1,58	-0,00437	-0,00276
Portfolio 23	1,43	-0,00193	-0,00135
Portfolio 24	1,30	0,00086	0,00066
Portfolio 25	1,28	0,00030	0,00023
Portfolio 26	1,24	-0,00090	-0,00072
Portfolio 27	1,40	0,00145	0,00103
Portfolio 28	1,24	0,00265	0,00214
Portfolio 29	1,34	-0,00065	-0,00048
Portfolio 30	1,40	-0,00243	-0,00173

Source : processed data

Based on the table above, at the beginning of the pandemic, the highest portfolio beta results or investment risk were obtained in portfolio 22, with the composition of KLBF shares 5%, ANTM 25%, BBNI 45%, ERAA 10% and INDF 15%. The lowest risk is in portfolio 12 with a stock composition of KLBF 40%, ANTM 5%, BBNI 21%, ERAA 10% and INDF 24%. The highest portfolio return rate in portfolio 28 is a portfolio with a stock composition of KLBF 32%, ANTM 10%, BBNI 6%, ERAA 33% and INDF 19%. The lowest rate of return in portfolio 16 with the composition of KLBF shares 11.5%,

ANTM 28.5%, BBNI 18%, ERAA 24% and INDF 18%. The portfolio results obtained from 30 portfolio combinations were 13 portfolios with positive values and 17 portfolios with negative values.

The RVOL value is positive and the larger it is, the better the portfolio performance, in calculating Treynor, the assumption that must be considered that the results provide an evaluation over a period, is expected to be a rate of return and the risk takes a long time. After the analysis, it was found that the evaluation of portfolio performance with a better treynor model was the highest treynor value, namely in portfolio 18 amounting to 0.00224 with the proportion of funds per share of KLBF 50%, ANTM 10%, BBNI 15%, ERAA 11%, and INDF 14%.

The proportion for PT. Kalbe Farma Tbk is larger because in February-July 2020 there was an increase in Covid-19 cases which led to high sales and demand for medicines, supplements and others, so that the company's revenue grew 2% throughout 2020. The same is true for the banking, mining and consumer goods sectors which experienced an increase at the beginning of the pandemic.

#### **4. Discussion**

Portfolios are formed with the aim of minimizing risk. This is in accordance with the investment theory, which is not to put eggs in one basket. It is hoped that in the formation of a portfolio, risks can be diversified well.

Stocks that were used as the object of research at the beginning of the pandemic were selected from different sectors in the hope of providing optimal portfolio performance. From the results of the research, the health sector that was used as a preferred stock during the pandemic is a stock that provides a fairly high level of expected profit. Similarly, the mining sector, which in the early days of the pandemic was still giving positive results. Interest rates during the observation period are at a predetermined level according to Bank Indonesia's policy. The amount of interest rates will determine the outcome of the treynor index in determining the optimal portfolio.

The benchmark for investment risk uses beta, because in general, stock price fluctuations are influenced by market fluctuations. The average rate of return is still the best measure to use as a guide for prediction retruns, as long as the assumption of the market is efficient. The comparison of profit and risk levels shows investors that the higher the risk, the higher the expected profit level. The ratio can be used as a portfolio ranking in relation to portfolio selection.

Based on the results of the research, the performance of the portfolio with the highest treynor index can be used as an alternative for investors in making investment decisions, namely portfolio 18.

## 5. Conclusions and Suggestions

### Conclusion

Based on the assessment of portfolio performance using the Treynor model on IDX30 stocks in the early period of the Covid 19 pandemic (February-July 2020), it can be concluded that portfolio 18 is the best performing portfolio. It was found that the highest treynor value was in the 18th portfolio combination of .00224 or 0.224% with details of the proportion of shares, namely PT. Aneka Tambang Tbk with a proportion of 10%, PT. Bank Negara Indonesia Tbk with a proportion of 15%, PT. Erajaya Swasembada Tbk with a proportion of 11%, PT. Indofood Sukses Makmur Tbk with a proportion of 14%, and PT Kalbe Farma Tbk with a proportion of 50%.

### Suggestion

The researcher hopes that future research can increase the sample of stocks with different sectors using different portfolio performance assessment methods so that they can be used as comparisons and add references for investors in making investment decisions.

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