STOCK PORTFOLIO ANALYSIS USING THE CAPITAL ASSET PRICING MODEL (CAPM) ON COMPANIES IN THE IDX30 INDEX

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Abstract

This study aims to provide guidance to investors in identifying efficient and inefficient stocks, as well as evaluating stocks that have an optimal balance between return and risk using the Capital Asset Pricing Model (CAPM). The CAPM method is used to predict the return of risky securities and as a benchmark in assessing the level of investment returns. By implementing CAPM, investors can make more informed and strategic investment decisions in portfolio management. This study uses a purposive sampling technique to select samples, where the specific criteria are companies listed on the Indonesia Stock Exchange and consistently included in the IDX30 stock index in the 2020-2023 period. Selection is made based on stock efficiency, where individual returns are greater than expected returns (Ri>ERi). There is a linear relationship between systematic risk and expected returns, where stocks that have a high beta value, the expected return will also be high, and vice versa. Of the 16 stocks analyzed, 7 company stocks are included in the efficient stock category, namely ADRO, ANTM, BBCA, BBNI, BBRI, BMRI, and UNTR, while the other 9 stocks are included in the inefficient category. The results of this study are expected to provide insight to investors in selecting efficient stocks for optimal investment decision-making.

Keywords: Beta, Capital Asset Pricing Model, IDX30

INTRODUCTION

The capital market plays an important role in the economy as a source of financing and a means of investment. For investors, the main goal of investing is to achieve optimal profit or return with measurable risk. Investment is when someone reduces their consumption attitude, diverts their money to something else in the form of assets or production, and after achieving more results, uses the results to cover the investor's living expenses in the future (Aunillah & Wahyudi, 2022).

Investing in shares in the capital market has its own appeal for investors because there are two benefits to investing in shares of public companies, namely capital gains and dividends (Harianja et al., 2023). To achieve the expected stock returns, investors invest their capital to buy securities which may affect the size of the stock returns achieved (Tafuli et al., 2023).

In this context, stock portfolio management becomes very important because investors seek to minimize risk and maximize returns through asset diversification. Investment diversification is one way to minimize risk investment. Creating a stock portfolio is one form of stock investment diversification.(Azizah et al., 2019). Diversification is the formation of a portfolio by selecting a number of specific asset combinations so that risk can be minimized without reducing return expectations.(Iryani, 2019). The main purpose of diversification is to minimize potential losses in a portfolio by ensuring that investments are not dependent on a single type of asset or sector.

Return and risk are two things that cannot be separated and have a positive relationship. If the return is low then the risk is also low and vice versa (Aprialinita et al., 2022). Stock risk is generally divided into two types: systematic risk and unsystematic risk. Systematic risk is a risk that cannot be diversified (nondiversifiable risk), such as macro factors that affect the entire market, such as economic and political conditions. Unsystematic risk is an investment risk that can be avoided by diversifying stocks (diversifiable risk) by forming an optimal portfolio (Tandelilin, 2010).

One of the commonly used approaches in assessing portfolio risk and return is the Capital Asset Pricing Model (CAPM). It explains the relationship between return and risk (Sharpe, 1964). The CAPM method is a stock selection method that selects efficient stocks

whose individual return value is higher than the return invested at the start of the investment (Maulana, 2023). The capital asset pricing model (CAPM) helps investors categorize potential stocks and minimize high-risk investments (Wardono et al., 2023). This model helps investors measure the relationship between systematic risk (beta) and the expected return of a particular asset or portfolio.

An efficient portfolio is a portfolio that has a high return and the same level of risk, or a low risk and the same return, while an optimal portfolio is a portfolio chosen by an investor from a large set of efficient portfolios (Tandelilin, 2010).

On the Indonesia Stock Exchange, there are companies that are listed as public companies (Komara & Yulianti, 2021). In this study, the main focus is IDX30, an index that measures the price performance of 30 stocks that have high liquidity and large market capitalization and are supported by good company fundamentals. IDX30 was first introduced on February 23rd, 2012, as a development of previous indices, such as LQ45, to provide a reference for investors in selecting leading stocks.

Table 1.
Sample Data of Companies Listed on IDX30 2020-2023

No.	Issuer Code	Company Name
1	ADRO	Adaro Energi Indonesia Tbk
2	ANTM	Aneka Tambang Tbk.
3	ASII	Astra Internasional Tbk.
4	BBCA	Bank Central Asia Tbk.
5	BBNI	Bank Negara Indonesia Tbk.
6	BBRI	Bank Rakyat Indonesia Tbk
7	BMRI	Bank Mandiri (Persero) Tbk.
8	CPIN	Charoen Phokpand Indonesia Tbk.
9	INDF	Indofood Sukses Makmur Tbk.
10	KLBF	Kalbe Farma Tbk.
11	PGAS	Perusahaan Gas Negara Tbk.
12	PTBA	Bukit Asam Tbk.
13	SMGR	Semen Indonesia (Persero) Tbk.
14	TLKM	Telkom Indonesia (Persero) Tbk.
15	UNTR	United Tractors Tbk.
16	UNVR	Unilever Indonesia Tbk.

Source: idx.co.id

Meanwhile, research conducted by Aprilianita, et al (2022) on the Capital Asset Pricing Model (CAPM) as an analytical tool for making investment decisions showed results, namely from 45 samples that 31 companies were classified as efficient and 14 companies that were classified as inefficient. In addition, another study conducted by Hasan., et al (2019) on the analysis of the Capital Asset Pricing Model (CAPM) as a basis for making stock investment decisions showed research results, where there were 11 efficient company shares and 8 other company shares that were inefficient. In addition, research conducted by Nurmala (2018), showed results that 25 company shares were included in the efficient stock category and 26 company shares were included in the inefficient stock category from 38 banking company shares that were used as research samples.

In another study conducted by Rahmawati, et al. 2023 on the analysis of the use of the Capital Asset Pricing Model (CAPM) in determining investment decisions on JII Index stocks on the Indonesia Stock Exchange, the results showed that there were 5 efficient company stocks, namely BRPT, BTPS, ERAA, INCO, and TPIA and 25 inefficient company stocks.

REVIEW OF LITERATURE

Capital Asset Pricing Model (CAPM)

The Capital Asset Pricing Model (CAPM) is a model that combines the expected return of a risky asset with the risk that exists in an equilibrium market situation.(Tandelilin, 2010). This model was introduced by William Sharp in 1964 and has since become one of the cornerstones of modern portfolio theory and asset valuation. CAPM is used to calculate the expected return of an asset based on systematic risk. The relationship between risk and return of the CAPM method in market equilibrium conditions is related to the expected return and risk which can be expressed by the capital market line, but for individual securities the relationship between expected return and risk can be described by the security market line(Kurniawan & Suci, 2021).

Capital Asset Pricing Model (CAPM) is a model for determining the price of an asset. This model is based on equilibrium, and in equilibrium conditions, the amount of return

required by investors from stocks is influenced by stock market risk (Putri, 2014). The steps for calculating the Capital Asset Pricing Model (CAPM) are as follows (Jogiyanto, 2013):

$$\mathbf{E(Ri) = Rf + \beta i\ [E(Rm) - Rf}$$

Where:

E(Ri) = Return Asset i Expectation

Rf = Interest RateRisk Free

E(Rm) =Return Market Portfolio Expectations

[E(Rm) – Rf] = Market Risk Premium

βi =Risk of Asset i

Stock Return (Ri)

The return received by investors from the transaction is in the form of capital gain. The result of the difference in the price of stock i in period t minus the price of stock i before period t and the result is divided by the price of stock i before period t (Lemiyana, 2015). The formula used in calculating stock returns is as follows:

$$Ri = \frac{Pit - Pit-1}{Pit-1}$$

Where:

Ri = Stock Return

Pit = Priceshares of the month t

$Pit-1$ =previous month's stock price

Market Rate of Return or Return Market (Rm)

Return market (Rm) is the return obtained from the comparison of actively traded stock indexes. IHSG (Composite Stock Price Index) is the main indicator that reflects the performance of the Indonesian stock market. IHSG covers all stocks listed on the Indonesia Stock Exchange (IDX) and is used to measure the average price movement of all listed stocks. This index provides an overview of the current state of the Indonesian stock market and is widely used by investors as a reference in evaluating market trends and determining investment strategies.

Return market calculated by measuring the difference between the IHSG market index for the current month and the previous month and divided by the IHSG for the previous

month(Rahmawati, et al. 2023). The market rate of return is calculated as follows (Jogiyanto 2013):

$$\mathbf{Rm} = \frac{\boldsymbol{IHSGt} - (\boldsymbol{IHSGt-1})}{\boldsymbol{IHSGt-1}}$$

Where:

Rm = Level of return market

IHSGt =Stock price index period t

IHSGt-1 =Stock price index period t-1

Risk Free (Rf)

Risk free rate (Rf) or risk-free rate of return is the return generated from a risk-free asset (Alqiha & Imani, 2021). The risk-free rate, also known as the risk-free rate of return, is the rate of return on a financial asset that has no risk. The interest rate on securities issued by the government is often used as a reference to measure the risk-free rate (Susanti & Putra, 2019). In Indonesia, the instrument that is usually used as a benchmark for this is the Bank Indonesia Certificate (SBI).

Stock Beta Analysis (βi)

One way to calculate systematic risk is to use beta analysis (Siti & Yaya, 2018). Beta (β) is a measure of the systematic risk of a stock or portfolio relative to market risk (Pratiwi & Winarto, 2021). Beta also serves as a measure of stock return volatility or stock return portfolio.

Stocks with a beta value greater than 1 are stocks that are relatively sensitive to changes in market returns (aggressive stocks). Conversely, if the beta of a stock is less than 1 (defensive stocks), it means that changes in the stock's return are less sensitive to changes in market returns (Effendi & Pamungkas, 2018)

Beta, as a systematic risk ratio tool, affects portfolio returns because all investments depend on beta, which measures the spread of returns relative to market returns (Bandawaty, 2020). The formula used in calculating stock beta is as follows (Susanti & Putra, 2019).

$$\boldsymbol{\beta i} = \frac{\boldsymbol{\sigma im}}{\boldsymbol{\sigma 2m}}$$

Where:

βi = Betashare

σm =Market return covariance

σ2m = Market variant

Security Market Line (SML) Chart

Security Market Line (SML) is a line that represents the relationship between the systematic risk (in the form of beta) of an asset and the expected return of that asset. The line that represents the trade-off between risk and expected return for a stock is called the Security Market Line (SML) (Ibrahim et al., 2017). This SML is used in the Capital Asset Pricing Model (CAPM.

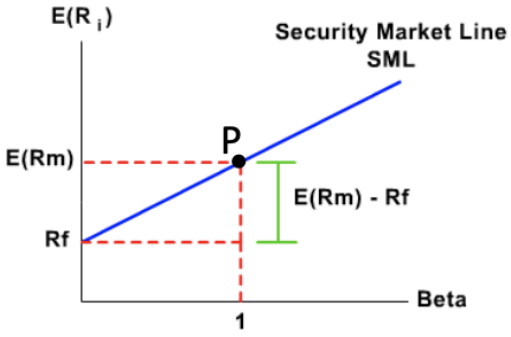

Figure 1.
Security Market Line (SML) Chart

RESEARCH METHOD

This type uses quantitative descriptive methods to analyze data systematically and describe the results based on the numerical measurements obtained. Descriptive research is a method to accurately describe the facts and characteristics of a particular group or region systematically and based on facts (Sugiyono, 2013). The variables studied are stock returns and systematic risk. The population of this study is all companies that are consistently included in the IDX30 Index on the Indonesia Stock Exchange for the 2020-2023 period. Secondary data in this study were obtained from the Indonesia Stock Exchange website (idx.co.id). This study uses a purposive sampling method in sampling. Meanwhile, by using the purposive sampling technique in this study, 16 companies were obtained as research samples.

Data Analysis Techniques

The calculation is done using Microsoft Excel program. Analysis of the application of the CAPM method in determining investment decisions is carried out with the following steps:

a. Collecting stock data included in the IDX30 Index for the period 2020–2023, namely closing price data at the end of the month.
b. Calculate the rate of return of each stock.

$$Ri = \frac{Pit - Pit-1}{Pit-1}$$

Where:

Ri = Stock return

Pit = Stock price in month t

$Pit-1$ = previous month's stock price

c. Calculating the market return rate Return Market (Rm)

$$\mathbf{Rm} = \frac{IHSGt - (IHSGt-1)}{IHSGt-1}$$

Where:

Rm = Levelmarket return

IHSGt =Stock price index period t

IHSGt-1 =Stock price index period t-1

d. Calculating the risk-free rate of return (Rf) based on monthly Bank Indonesia Certificates (SBI).
e. Calculating stock beta (βi)

$$\boldsymbol{\beta i} = \frac{\sigma im}{\sigma 2m}$$

Where:

βi = Beta stock

σm = Market return covariance

σ2m = Market variant

RESULTS AND DISCUSSION

Individual Stock Rate of Return (Ri)

The individual stock return rate can be calculated by comparing the closing price of the stock in the current month, denoted as month t, with the closing price of the stock in the previous month, denoted as month t-1.

Table 2.
Return IDX30 Company Individual Stocks 2020-2023

No.	Issuer Code	Company Name	Ri
1	ADRO	Adaro Energi Indonesia Tbk	0.0177564
2	ANTM	Aneka Tambang Tbk.	0.0275879
3	ASII	Astra Internasional Tbk.	0.0002693
4	BBCA	Bank Central Asia Tbk.	0.0086617
5	BBNI	Bank Negara Indonesia Tbk.	0.0138412
6	BBRI	Bank Rakyat Indonesia Tbk	0.0110140
7	BMRI	Bank Mandiri (Persero) Tbk.	0.0135469
8	CPIN	Charoen Phokpand Indonesia Tbk.	-0.0024812
9	INDF	Indofood Sukses Makmur Tbk.	-0.0024346
10	KLBF	Kalbe Farma Tbk.	0.0016050
11	PGAS	Perusahaan Gas Negara Tbk.	-0.0031616
12	PTBA	Bukit Asam Tbk.	0.0036234
13	SMGR	Semen Indonesia (Persero) Tbk.	-0.0072184
14	TLKM	Telkom Indonesia (Persero) Tbk.	0.0021597
15	UNTR	United Tractors Tbk.	0.0067010
16	UNVR	Unilever Indonesia Tbk.	-0.0155147

In Table 2. Individual stock returns of IDX30 companies 2020-2023, it can be seen that the company with the highest stock return is PT. Aneka Tambang Tbk (ANTM) of 0.027588. While Unilever Indonesia Tbk. (UNVR) has the lowest stock return of -0.015515.

Market Return Rate (Rm)

For the analysis of market return calculations, the data source used is the Composite Stock Index (IHSG) data. IHSG covers all stocks listed on the Indonesia Stock Exchange (IDX) and is used to measure the average price movement of all listed stocks.

Table 3.
Return Market (IHSG) 2020-2023

Bulan	IHSG	*Return*	Bulan	IHSG	*Return*	Bulan	IHSG	*Return*	Bulan	IHSG	*Return*
Dec-19	6299,54										
Jan-20	5940,05	-0,057066	Jan-21	5862,35	-0,019522	Jan-22	6631,15	0,007547	Jan-23	6839,34	-0,001646
Feb-20	5452,70	-0,082044	Feb-21	6241,80	0,064726	Feb-22	6888,17	0,038759	Feb-23	6843,24	0,000570
Mar-20	4538,93	-0,167582	Mar-21	5985,52	-0,041058	Mar-22	7071,44	0,026607	Mar-23	6805,28	-0,005547
Apr-20	4716,40	0,039100	Apr-21	5995,62	0,001686	Apr-22	7228,91	0,022269	Apr-23	6915,72	0,016228
May-20	4753,61	0,007889	May-21	5947,46	-0,008031	May-22	7148,97	-0,011059	May-23	6633,26	-0,040842
Jun-20	4905,39	0,031929	Jun-21	5985,49	0,006394	Jun-22	6911,58	-0,033206	Jun-23	6661,88	0,004314
Jul-20	5149,63	0,049789	Jul-21	6070,04	0,014126	Jul-22	6951,12	0,005721	Jul-23	6931,36	0,040451
Aug-20	5238,49	0,017256	Aug-21	6150,30	0,013222	Aug-22	7178,59	0,032724	Aug-23	6953,26	0,003160
Sep-20	4870,04	-0,070335	Sep-21	6286,94	0,022217	Sep-22	7040,80	-0,019195	Sep-23	6939,89	-0,001923
Oct-20	5128,23	0,053015	Oct-21	6591,35	0,048418	Oct-22	7098,89	0,008251	Oct-23	6752,21	-0,027044
Nov-20	5612,42	0,094417	Nov-21	6533,93	-0,008711	Nov-22	7081,31	-0,002476	Nov-23	7080,74	0,048655
Dec-20	5979,07	0,065330	Dec-21	6581,48	0,007277	Dec-22	6850,62	-0,032578	Dec-23	7272,80	0,027124
										Jumlah	0,189308
										E(Rm)	0,003944
										Maksimum	0,094417
										Minimum	-0,167582

Table 3 shows the IHSG market return from 2020 to 2023, where the average market return (Rm) was recorded at 0.003944. From this analysis, it is known that in March 2020, the market return rate reached its lowest point of -0.167582, indicating that the IHSG trading conditions were unfavorable for investors during that period. Conversely, in November 2020, the highest market return was recorded at 0.094417, which was influenced by the increase in stock prices during that month. This shows that the IHSG was in a favorable condition for investors at the end of 2020.

Risk-Free Rate of Return (Rf)

The data source for risk-free returns is obtained from the interest rate set by Bank Indonesia. The data for the risk-free return rate (Rf) is as follows:

Table 4.
Bank Indonesia Risk Free Rate (Rf) Data from 2020-2023

Bulan	Tahun 2020	Tahun 2021	Tahun 2022	Tahun 2023
Januari	5,00%	3,75%	3,50%	5,75%
Februari	4,75%	3,50%	3,50%	5,75%
Maret	4,50%	3,50%	3,50%	5,75%
April	4,50%	3,50%	3,50%	5,75%
Mei	4,50%	3,50%	3,50%	5,75%
Juni	4,25%	3,50%	3,50%	5,75%
Juli	4,00%	3,50%	3,50%	5,75%
Agustus	4,00%	3,50%	3,75%	5,75%
September	4,00%	3,50%	4,25%	5,75%
Oktober	4,00%	3,50%	4,75%	6,00%
November	3,75%	3,50%	5,25%	6,00%
Desember	3,75%	3,50%	5,50%	6,00%
Rata-rata	**4,25%**	**3,52%**	**4,00%**	**5,81%**
Rata-rata 4 Tahun				4,40%
Maksimum				6,00%
Minimum				3,50%

Based on Table.4 above, the data on the risk-free rate of return (Rf) for the period 2020-2023 shows that the average risk-free rate during the period was 4.40%. The highest risk-free rate of return occurred at 6.00%, while the lowest rate was recorded at 3.50%. Variations in this risk-free rate reflect interest rate fluctuations influenced by monetary policy during the period.

Individual Stock Systematic Risk (βi)

Systematic risk is the risk inherent in a stock and is usually measured by the beta value (βi). Beta reflects the sensitivity of a stock's return to the market return. To determine the relationship between stock returns and market returns, Beta is calculated as the main indicator. In this study, the systematic risk analysis (βi) of 16 stocks of companies listed on the IDX30 Index for 2020-2023.

Table 5.
Systematic Risk Calculation Results (βi)

No	Kode Emiten	Nama Perusahaan	Beta (βi)
1	ADRO	Adaro Energy Indonesia Tbk.	1,226
2	ANTM	Aneka Tambang Tbk.	2,481
3	ASII	Astra International Tbk.	1,346
4	BBCA	Bank Central Asia Tbk.	0,866
5	BBNI	Bank Negara Indonesia (Persero) Tbk.	2,014
6	BBRI	Bank Rakyat Indonesia (Persero) Tbk.	1,347
7	BMRI	Bank Mandiri (Persero) Tbk.	1,419
8	CPIN	Charoen Pokphand Indonesia Tbk	0,384
9	INDF	Indofood Sukses Makmur Tbk.	0,182
10	KLBF	Kalbe Farma Tbk.	0,379
11	PGAS	Perusahaan Gas Negara Tbk.	2,523
12	PTBA	Bukit Asam Tbk.	0,935
13	SMGR	Semen Indonesia (Persero) Tbk.	1,255
14	TLKM	Telkom Indonesia (Persero) Tbk.	1,004
15	UNTR	United Tractors Tbk.	0,912
16	UNVR	Unilever Indonesia Tbk.	0,057
		Jumlah	18,329
		Rata - rata	1,146

The calculation results show that the average beta value (βi) of the analyzed stock samples is more than 1, which is 1.146 (1.146 > 1), which indicates that in general, the 16 stocks of companies that are the research samples have high systematic risk and tend to be responsive to changes in market prices. For example, Unilever Indonesia Tbk. (UNVR) shares have the lowest beta value of 0.057, which indicates that these shares have very little risk, tend to be passive, and are less sensitive to market price fluctuations. On the other hand, Perusahaan Gas Negara Tbk. (PGAS) shares recorded the highest beta value of 2.523, which indicates that these shares have very high risk, are very active, and are very sensitive to changes in market prices.

Expected Rate of Return E (Ri)

The level of return expected by investors from stock investments is often referred to as the expected rate of return or Expected Return [E(Ri)]. This value reflects the estimated return that investors anticipate as compensation for the risk they take when investing in a particular stock. The calculation of E(Ri) is based on the Capital Asset Pricing Model (CAPM), which considers factors such as the risk-free rate of return (Rf), stock beta (βi), and market risk premium (Rm - Rf). The following are the results of the E(Ri) calculation for the

stocks analyzed in this study, which provide an overview of the potential profits expected by investors.

Table 6.
Calculation Result [E(Ri)]

No	Kode Emiten	Nama Perusahaan	E(Ri) CAPM
1	ADRO	Adaro Energy Indonesia Tbk.	0,004007
2	ANTM	Aneka Tambang Tbk.	0,004360
3	ASII	Astra International Tbk.	0,004041
4	BBCA	Bank Central Asia Tbk.	0,003906
5	BBNI	Bank Negara Indonesia (Persero) Tbk.	0,004229
6	BBRI	Bank Rakyat Indonesia (Persero) Tbk.	0,004041
7	BMRI	Bank Mandiri (Persero) Tbk.	0,004062
8	CPIN	Charoen Pokphand Indonesia Tbk	0,003771
9	INDF	Indofood Sukses Makmur Tbk.	0,003714
10	KLBF	Kalbe Farma Tbk.	0,003770
11	PGAS	Perusahaan Gas Negara Tbk.	0,004371
12	PTBA	Bukit Asam Tbk.	0,003926
13	SMGR	Semen Indonesia (Persero) Tbk.	0,004016
14	TLKM	Telkom Indonesia (Persero) Tbk.	0,003945
15	UNTR	United Tractors Tbk.	0,003919
16	UNVR	Unilever Indonesia Tbk.	0,003679

Based on the data in Table 6, it can be explained that investors who expect the highest expected return [E(Ri)] will find a value of 0.004371, which is owned by the shares of Perusahaan Gas Negara Tbk. (PGAS). This shows that PGAS offers a greater potential return than other shares in this analysis. Conversely, the company with the lowest expected return is Unilever Indonesia Tbk. (UNVR), with an E(Ri) of 0.003679. This value indicates that UNVR shares have a lower potential return, so the risk and profit expectations faced by investors are smaller than other shares.

Security Market Line (SML) Chart

To illustrate the CAPM model, a Security Market Line (SML) graph is created. This graph illustrates the relationship between systematic risk, as measured by beta (β), and expected return. The relationship is visualized through the SML graph, which shows how the level of risk is related to the expected return.

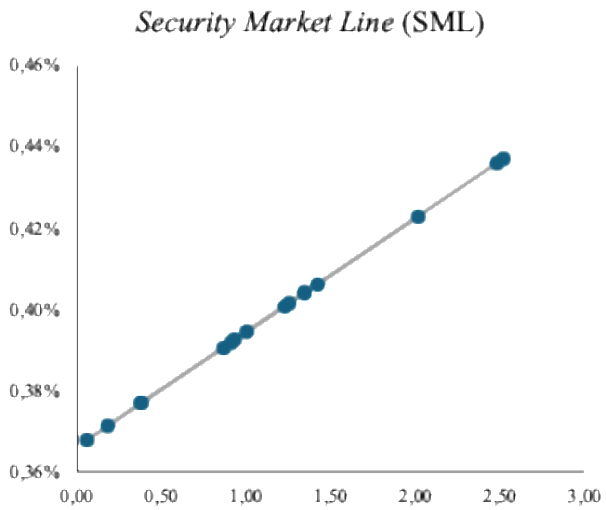

Figure 2.
Security Market Line (SML) Chart

Classification of Stocks

An efficient stock is a stock whose individual return is greater than the expected return [(Ri) > E(Ri)]. An inefficient stock is a stock whose individual return is less than the expected return [(Ri) [(Ri) < E(Ri)](Hasan et al., 2019). Grouping efficient stocks is an important step in optimizing an investment portfolio. Efficient stocks are stocks that provide maximum returns for a given level of risk, or conversely, have the lowest risk for a given expected return.

Table 7.
IDX30 Stock Classifier 2020-2023

No	Kode Emiten	Nama Perusahaan	Beta	Ri	E(Ri) CAPM	Kategori
1	ADRO	Adaro Energy Indonesia Tbk.	1,23	0,017756	0,004007	Efisien
2	ANTM	Aneka Tambang Tbk.	2,48	0,027588	0,004360	Efisien
3	ASII	Astra International Tbk.	1,35	0,000269	0,004041	Tidak Efisien
4	BBCA	Bank Central Asia Tbk.	0,87	0,008662	0,003906	Efisien
5	BBNI	Bank Negara Indonesia (Persero) Tbk.	2,01	0,013841	0,004229	Efisien
6	BBRI	Bank Rakyat Indonesia (Persero) Tbk.	1,35	0,011014	0,004041	Efisien
7	BMRI	Bank Mandiri (Persero) Tbk.	1,42	0,013547	0,004062	Efisien
8	CPIN	Charoen Pokphand Indonesia Tbk	0,38	-0,002481	0,003771	Tidak Efisien
9	INDF	Indofood Sukses Makmur Tbk.	0,18	-0,002435	0,003714	Tidak Efisien
10	KLBF	Kalbe Farma Tbk.	0,38	0,001605	0,003770	Tidak Efisien
11	PGAS	Perusahaan Gas Negara Tbk.	2,52	-0,003162	0,004371	Tidak Efisien
12	PTBA	Bukit Asam Tbk.	0,93	0,003623	0,003926	Tidak Efisien
13	SMGR	Semen Indonesia (Persero) Tbk.	1,26	-0,007218	0,004016	Tidak Efisien
14	TLKM	Telkom Indonesia (Persero) Tbk.	1,00	0,002160	0,003945	Tidak Efisien
15	UNTR	United Tractors Tbk.	0,91	0,006701	0,003919	Efisien
16	UNVR	Unilever Indonesia Tbk.	0,06	-0,015515	0,003679	Tidak Efisien

Based on the research results, there are 7 stocks of companies that are classified as efficient and 9 stocks of companies that are inefficient. In determining investment decisions, the main criterion is to choose efficient stocks, namely stocks that have individual returns higher than the expected rate of return (Ri > E(Ri)). Conversely, inefficient stocks, or stocks with individual returns lower than the expected rate of return (Ri < E(Ri)), should be avoided. Therefore, investors are advised to consider buying efficient stocks and selling inefficient stocks. This investment decision is based on the analysis that efficient stocks provide better potential returns according to the level of risk taken, while inefficient stocks offer inadequate returns compared to the risks faced.

CONCLUSION

There is a linear relationship between systematic risk and expected return. For example, Unilever Indonesia Tbk. (UNVR) shares have the lowest beta value of 0.057, indicating that these shares have very little risk, tend to be passive, and are less sensitive to market price fluctuations and show the lowest UNVR expected return E(Ri) of 0.003679. On the other hand, Perusahaan Gas Negara Tbk. (PGAS) shares recorded the highest beta value of 2.523, indicating that these shares have a very high risk, are very active, and are very sensitive to changes in market prices and show the results that the expected return [E(Ri)] of PGAS is the highest with a value of 0.004371.

The calculation results show that the average beta value (βi) of the analyzed stock samples is more than 1, namely 1.146 (1.146 > 1), which indicates that in general, the 16 company stocks that are the research samples have high systematic risk and tend to be responsive to changes in market prices.

Of the 16 stocks of companies used as research samples, 7 stocks are included in the efficient stock category and 9 stocks that are included in the inefficient category. Stocks that are included in the efficient category, such as ADRO, ANTM, BBCA, BBNI, BBRI, BMRI, and UNTR, have actual return values (Ri) greater than expected returns [Ri > E(Ri)], so investors are advised to buy these stocks. Meanwhile, stocks that are included in inefficient, such as ASII, CPIN, INDF, KLBF, PGAS, PTBA, SMGR, TLKM, and UNVR, have actual

return values lower than expected returns [Ri < E(Ri)], so the right investment decision is to sell these stocks.

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