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Analysis Of Share Investment Decision Making Using The Capital Asset Pricing Model (CAPM) Method In Companies Registered In IDX30 2018-2021 Period

Analisis Pengambilan Keputusan Investasi Saham Dengan Menggunakan Metode *Capital Asset Pricing Model* (CAPM) Pada Perusahaan Yang Terdaftar Dalam IDX30 Periode 2018-2021

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ABSTRACT

In investing, the accuracy of potential investors in digging and processing information will be used as a decision making tool for investing which will determine how much risk and profit will be obtained in the future. The research objective is to analyze risk and stock returns and classify efficient and inefficient stocks by applying the Capital Asset Pricing Model (CAPM) method to stocks listed in IDX30 for the 2018-2021 period. This research uses descriptive research with a quantitative approach using secondary data in the form of monthly closing prices, monthly Composite Stock Price Index (IHSG) and monthly SBI interest rates (BI Rate). The population in this study are companies listed on the IDX30 on the Indonesia Stock Exchange (IDX) for the 2018-2021 period. The number of samples in this study were 19 shares. The sampling technique in this study used purposive sampling. The data collection method in this study uses the documentation method. The data analysis technique used is the Capital Asset Pricing Model (CAPM) method. The results showed that of the 19 company stocks sampled, there were twelve (12) stocks that were classified as efficient or undervalued stocks because the individual return (Ri) was greater than the expected rate of return [E(Ri)], these stocks were ADRO, ANTM, BBCA, BBNI, BBRI, BBTN, BMRI, ICBP, KLBF, PGAS, SMGR and TLKM, the recommended decision for investors is to buy shares and there are seven (7) shares which are classified as inefficient or overvalued shares due to individual returns. (Ri) is smaller than the expected rate of return [E(Ri)], these stocks are ASII, GGRM, HMSP, INDF, INTP, UNTR, and UNVR, the recommended decision to investors is to sell shares.

Keywords: *Capital Asset Pricing Model (CAPM), IDX30 Index, Return, Risk*

ABSTRAK

Dalam berinvestasi, ketelitian calon investor dalam menggali dan mengolah informasi akan dijadikan sebagai alat pengambilan keputusan untuk berinvestasi yang akan menentukan seberapa besar risiko dan keuntungan yang akan diperoleh dimasa yang akan datang. Tujuan penelitian yaitu untuk menganalisis risiko dan *return* saham serta mengelompokkan saham yang efisien dan tidak efisien dengan menerapkan metode *Capital Asset Pricing Model* (CAPM) pada saham-saham yang terdaftar dalam IDX30 periode 2018-2021. Penelitian ini menggunakan jenis penelitian deskriptif dengan pendekatan kuantitatif dengan menggunakan data sekunder berupa harga penutupan saham bulanan (*Closing Price*), Indeks Harga Saham Gabungan (IHSG) bulanan dan suku bunga SBI bulanan (*BI Rate*). Populasi pada penelitian ini adalah perusahaan yang terdaftar dalam IDX30 di Bursa Efek Indonesia (BEI) periode 2018-2021. Jumlah sampel pada penelitian ini sebanyak 19 saham. Teknik pengambilan sampel pada penelitian ini menggunakan *purposive sampling*. Metode pengumpulan data dalam penelitian ini menggunakan metode dokumentasi. Teknik analisis data yang digunakan yaitu metode *Capital Asset Pricing Model* (CAPM). Hasil penelitian menunjukkan bahwa dari 19 saham perusahaan yang dijadikan sampel, terdapat dua belas (12) saham yang tergolong saham efisien atau *undervalued* karena *return* individual (Ri) lebih besar daripada tingkat pengembalian yang diharapkan [E(Ri)], saham-saham tersebut yaitu ADRO, ANTM, BBCA, BBNI, BBRI, BBTN, BMRI, ICBP, KLBF, PGAS, SMGR dan TLKM maka keputusan yang disarankan kepada investor adalah membeli saham dan terdapat tujuh (7) saham yang tergolong dalam saham tidak efisien atau *overvalued* karena *return* individual (Ri) lebih kecil daripada tingkat pengembalian yang

diharapkan [E(Ri)], saham-saham tersebut yaitu ASII, GGRM, HMSP, INDF, INTP, UNTR, dan UNVR maka keputusan yang disarankan kepada investor adalah menjual saham.
Kata Kunci : *Capital Asset Pricing Model* (CAPM), Indeks IDX30, *Return*, Risiko

1. Introduction

In this era of globalization, investment has become a trend, which is now referred to as the era of investment without space and time limits. Investment is an option for the community in managing their sources of funds to meet their long-term living needs. Investment according to Hidayati (2017) is the placement of a number of existing funds in various types of investment instruments for a certain period of time with the hope of getting profits in the future.

To make it easier to collect funds from people who want to invest, a forum for investment activities called the capital market is needed. The capital market itself is a market where parties who have funds and those who need funds meet by trading securities which generally have a maturity of more than one year, such as stocks.

Investment in the capital market has a special attraction for investors, especially in stock instruments. This is proven by the increasing number of stock investors in Indonesia. At the end of 2019 the number of Indonesian stock investors listed on the Indonesia Stock Exchange (IDX) was 2.48 million people. In 2020, despite being affected by the pandemic, this number increased by 56.2% to 3.88 million people. This phenomenon occurs because generally investment activities buy and sell financial instruments in the form of securities carried out on the capital market, especially stocks (www.ojk.go.id).

Investing in stocks is indeed a big long-term profit field. Tandelilin (2017) describes that the greater the risk of an asset, the greater the expected return from that asset. The relationship between the level of risk and the expected return on investment is a unidirectional relationship. This is in line with the principle of "high risk, high return" which is used as one for investors in investing.

An investor must be able to estimate the return of an individual security. In order to properly estimate the return on a security, a balance model is needed. One of the methods used is the Capital Asset Pricing Model (CAPM) method. The CAPM model is a balance model that describes the relationship between investment risk and return. Risk and return are things that must be considered in investing. In addition to risk and return, the market index is also one of the things that can be used as a reference and influence investment decisions. The IDX30 is an index consisting of 30 types of stocks that are consistently selected from the LQ45 index consistently.

(Pandey, 2015) defines that "Financial management is that managerial activity which is concerned with the planning and controlling of the firm's financial resources". This means that financial management is a managerial activity related to planning and controlling the company's. Investment is the hope of obtaining future benefits at the expense of money, assets or other resources that are valuable at the present time. (Sulastyawati et al, 2018) defines that investment is an investment in a business or project. Stocks are one of the most popular capital market instruments for investors because they provide an attractive rate of return. According to (Fahmi, 2015) Shares are proof of ownership of capital or funds in a company in the form of paper, in which the nominal value, company name, as well as the rights and obligations explained to each party as well as supplies that are ready to be for sale. According to (Tendelilin, 2017) the capital market is a meeting between parties who have excess funds and those who need funds by trading securities. Return and risk have a strong relationship, where the higher the risk, the return (profit) will be high and vice versa if the return (profit) is low, the risk will also be low (Fahmi, 2014). According to

(Jogiyanto, 2017) "Return is the profit obtained by investors from a stock investment made." Risk is the magnitude of the potential loss that arises because the expected returns from investment returns do not match expectations. (Halim, 2015) states that risk in investment reflects the magnitude of the deviation between the actual returns achieved. According to (Husnan, 2015) beta shows the relationship between stocks and the market. Beta is seen as a systematic risk. Systematic risk is also known as market risk. The beta of a security can be calculated using an estimation technique that uses historical data which can then be used to estimate future beta.

The Capital Asset Pricing Model (CAPM) was first introduced by Sharpe, Lintner and Mossin in the mid-1960s. The Capital Asset Pricing Model (CAPM) is a development of portfolio theory (Markowitz) by introducing the terms systematic risk and unsystematic risk. The Capital Asset Pricing Model (CAPM) is a model that describes the relationship between risk and return (profit rate) expected of an asset, especially stocks. The Capital Asset Pricing Model (CAPM) aims to determine the expected return on a risky investment. Risk is the magnitude of the potential loss that arises because the expected returns from investment returns do not match expectations. Halim (2015: 9) states that risk in investment reflects the magnitude of the deviation between the actual returns achieved. According to (Husnan, 2015) beta shows the relationship between stocks and the market. Beta is seen as a systematic risk. Systematic risk is also known as market risk. The beta of a security can be calculated using an estimation technique that uses historical data which can then be used to estimate future beta. The Capital Asset Pricing Model (CAPM) was first introduced by Sharpe, Lintner and Mossin in the mid-1960s. The Capital Asset Pricing Model (CAPM) is a development of portfolio theory (Markowitz) by introducing the terms systematic risk and unsystematic risk. The Capital Asset Pricing Model (CAPM) is a model that describes the relationship between risk and return (profit rate) expected of an asset, especially stocks. The Capital Asset Pricing Model (CAPM) aims to determine the expected return on a risky investment.

2. Methods

The population in this study are companies listed on the IDX30 on the Indonesia Stock Exchange (IDX) for the 2018-2021 period. Sampling was carried out using purposive sampling, namely the technique of determining the sample with certain considerations

Table 1 Research Sample

No	Information	Amount
1	IDX30 company listed on the Indonesia Stock Exchange (IDX) for the 2018-2021 period	47
2	IDX30 companies that did not enter consecutively during the 2018-2021 period	(28)
	Number of Samples that Meet the Criteria	19

Source : Data Processed (2023)

Based on these criteria, 19 company shares were obtained which would be used as research samples.

Table 2. List of IDX30 Company Samples

No	Kode saham	Nama Perusahaan
1	ADRO	Adaro Energy Tbk
2	ANTM	Aneka Tambang Tbk
3	ASII	Astra International Tbk
4	BBCA	Bank Central Asia Tbk
5	BBNI	Bank Negara Indonesia (Persero) Tbk
6	BBRI	Bank Rakyat Indonesia (Persero) Tbk
7	BBTN	Bank Tabungan Negara (Persero) Tbk
8	BMRI	Bank Mandiri (Persero) Tbk
9	GGRM	Gudang Garam Tbk
10	HMSP	H.M. Sampoerna Tbk
11	ICBP	Indofood CBP Sukses Makmur Tbk
12	INDF	Indofood Sukses Makmur Tbk
13	INTP	Indocement Tunggal Prakarsa Tbk
14	KLBF	Kalbe Farma Tbk
15	PGAS	Perusahaan Gas Negara (Persero) Tbk
16	SMGR	Semen Indonesia (Persero) Tbk
17	TLKM	Telekomunikasi Indonesia (Persero) Tbk
18	UNTR	United Tractors Tbk
19	UNVR	Unilever Indonesia Tbk

The type of research used in this research is descriptive research with a quantitative approach. The data collection method in this study uses the documentation method. The source of data in this study is secondary data in the form of closing prices for shares that have been adjusted (Closing Price), Composite Stock Price Index (IHSG) and SBI interest rates (BI Rate) of companies listed in IDX30 for the 2018-2021 period obtained from the Stock Exchange Gallery Indonesian Securities (IDX) University August 17, 1945 Banyuwangi

The calculation is done using the Microsoft Excel program. The data analysis tool used in this study is the Capital Asset Pricing Model (CAPM) by:

Calculating the Rate of Return on Individual Shares (Ri)

$$R_i = \frac{P_t - P_{t-1}}{P_{t-1}}$$

Where:
Ri = Rate of Return of Individual Shares
Pt = Stock Price Period t
Pt-1 = Stock Price Period t-1

Calculating the Market Return (Rm)

$$R_m = \frac{IHSG_t - IHSG_{t-1}}{IHSG_{t-1}}$$

Where :
Rm = Average Market Return

IHSGt = Composite Stock Price Index Period t
IHSGt-1 = Composite Stock Price Index Period t-1

Calculating the Risk-Free Rate of Return (Rf)

$$R_F = \frac{\sum_{j=1}^{n} \text{Tingkat Suku Bunga SBI}}{n}$$

Di mana :
R_f = Tingkat Pengembalian Bebas Risiko
n = Jumlah Periode

Calculating Systematic Risk (β)

$$\beta_i = \frac{\sigma_{im}}{\sigma^2 m} \longrightarrow \beta_i = \frac{n\,(\sum RiRm)-(\sum Ri)(\sum Rm)}{n\,(\sum Rm)^2-(\sum Rm)(\sum Rm)}$$

Where :
βi = Benchmark risk that cannot be diversified from securities or systematic risk
σim = Covariance between income of stock i and market income
σ2m = Market Variance
n = Research Period (Month)
∑ Ri = Total Individual Stock Returns
∑ Rm = Total Market Return
∑ RiRm = Total Individual Stock Return Multiplied by Market Return

Calculating the Expected Rate of Return [E(Ri)]

$$E(R_i) = R_f + [E(R_m) - R_f]\beta_i$$

Where :
E(Ri) = Expected rate of return
Rf = Risk Free Rate of Return
E(Rm) = Expected Return on Paar
βi = Systematic Risk

3. Results and Discussion

Calculation of Rate of Return on Individual Stocks (Ri)

The rate of return on individual stocks is the amount of profit received by investors in real terms when investing in stocks. The rate of return for individual stocks can be calculated by comparing the adjusted closing price (Adj Close) this month which is denoted by month t minus the adjusted closing price for last month which is denoted by month "t" _"-1" then divided by the closing price of the shares adjusted to the "t" _"-1" month notation.

The calculation results show that there are 6 stocks that have a negative average rate of return, these stocks are ASII, GGRM, HMSP, INTP, UNTR and UNVR with Ri values of -0.00120, -0.01343, -0.02548, -0.00238 respectively -0.00135, -0.01640. PT shares H.M. Sampoerna Tbk (HMSP) has the lowest average return on individual shares of -0.02548, while PT. Aneka Tambang Tbk (ANTM) has the highest average return on individual shares, which is 0.04269.

Table 3. Individual Stock Return Rates

No	Company name	Stock code	Ri
1	Adaro Energy Tbk	ADRO	0.01802
2	Aneka Tambang Tbk	ANTM	0.04269
3	Astra International Tbk	ASII	-0.00120
4	Bank Central Asia Tbk	BBCA	0.01351
5	Bank Negara Indonesia (Persero) Tbk	BBNI	0.00158
6	Bank Rakyat Indonesia (Persero) Tbk	BBRI	0.00835
7	Bank Tabungan Negara (Persero) Tbk	BBTN	0.00055
8	Bank Mandiri (Persero) Tbk	BMRI	0.00418
9	Gudang Garam Tbk	GGRM	-0.01343
10	H.M. Sampoerna Tbk	HMSP	-0.02548
11	Indofood CBP Sukses Makmur Tbk	ICBP	0.00361
12	Indofood Sukses Makmur Tbk	INDF	0.00183
13	Indocement Tunggal Prakarsa Tbk	INTP	-0.00238
14	Kalbe Farma Tbk	KLBF	0.00294
15	Perusahaan Gas Negara (Persero) Tbk	PGAS	0.01191
16	Semen Indonesia (Persero) Tbk	SMGR	0.00217
17	Telekomunikasi Indonesia (Persero) Tbk	TLKM	0.00293
18	United Tractors Tbk	UNTR	-0.00135
19	Unilever Indonesia Tbk	UNVR	-0.01640

Source : Data Processed (2023)

Market Return Rate Calculation (Rm)

The market rate of return is the rate of return that is based on the development of the stock price index. The stock price index used in this study is the Composite Stock Price Index (IHSG) because it is considered to represent all stock trading activities listed on the IDX**.**

Market return can be determined by measuring the difference in the combined stock price index in the current month ($IHSG_t$) minus the previous month's composite stock price index ($IHSG_{t-1}$) then divided by the previous month's combined stock price index $IHSG_{t-1}$).

Based on the calculation of market returns (Rm), it can be seen that the average market rate of return during the 2018-2021 period is 0.00174. These results are obtained by dividing the total market rate of return, which is 0.08371, by the length of the period, which is 48 months. The highest market rate of return occurred in November 2020 at 0.09442, while the lowest market rate of return occurred in March 2020 with a value of -0.16758

Calculation of Risk-Free Rate of Return (Rf)

The risk free rate of return or Risk free rate (Rf) is the rate of return on a risk free investment using data on the BI rate interest rate. Rate free risk can be determined by dividing the average number of Bank Indonesia Certificates (SBI) interest rates by the length of the research period (monthly). The average risk free rate for 2018-2021 is 0.003854

From these calculations, the result "R"_"f" is 0.003854. In November 2018-June 2019 the SBI interest rate was at its highest level, namely 6.00% or 0.06. The lowest level of the SBI interest rate with a value of 3.50% or 0.035 occurred in February 2021-December 2021.

Calculation of Systematic Risk (β)

Beta is the systematic risk of a stock. Beta shows the relationship between stock returns and market returns because it is the quotient between the stock covariance and the market variance. The CAPM method explains that investors must consider the beta of a stock because it affects changes in the price of a stock and also the size of the expected return.

The calculation results show that of the 19 stocks used as the research sample, there are 8 stocks that have a beta value of less than one (β<1) or often called defensive stocks, in other words these stocks are classified as stocks with a low level of risk and there are 11 stocks that have a beta of more than 1 (β>1) or often called aggressive stocks. The shares of Perusahaan Gas Negara (Persero) Tbk (PGAS) have the highest beta value of 2.88461, while the lowest beta is owned by PT. Indofood CBP Sukses Makmur Tbk (ICBP) which is equal to 0.19530.

Table 4. Systematic Risk (β)

No	Company name	Stock code	Beta (β)
1	Adaro Energy Tbk	ADRO	1.21799
2	Aneka Tambang Tbk	ANTM	2.78121
3	Astra International Tbk	ASII	1.29208
4	Bank Central Asia Tbk	BBCA	0.88850
5	Bank Negara Indonesia (Persero) Tbk	BBNI	2.06956
6	Bank Rakyat Indonesia (Persero) Tbk	BBRI	1.39885
7	Bank Tabungan Negara (Persero) Tbk	BBTN	2.57554
8	Bank Mandiri (Persero) Tbk	BMRI	1.29462
9	Gudang Garam Tbk	GGRM	0.92302
10	H.M. Sampoerna Tbk	HMSP	1.08665
11	Indofood CBP Sukses Makmur Tbk	ICBP	0.19530
12	Indofood Sukses Makmur Tbk	INDF	0.51520
13	Indocement Tunggal Prakarsa Tbk	INTP	1.23813
14	Kalbe Farma Tbk	KLBF	0.65143
15	Perusahaan Gas Negara (Persero) Tbk	PGAS	2.88461
16	Semen Indonesia (Persero) Tbk	SMGR	1.58978
17	Telekomunikasi Indonesia (Persero) Tbk	TLKM	0.77536
18	United Tractors Tbk	UNTR	0.68537
19	Unilever Indonesia Tbk	UNVR	0.30529

Source : Data Processed (2023)

Expected Rate of Return Calculation E(Ri)

Expected rate of return [E(Ri)] is the amount of profit expected by investors from stock investments made. The CAPM method itself is used to calculate the expected rate of return using the variable risk-free rate of return (Rf), average market rate of return [E(Rm)], and also the systematic risk of each stock (β). Based on the calculations performed, the total expected return value of all the stocks that became the research sample was 0.02181, with an average of 0.00321. The company whose shares have the highest expected return is PT. Indofood CBP Sukses Makmur Tbk (ICBP) of 0.00344, while the company whose shares have the lowest expected return, namely Perusahaan Gas Negara (Persero) Tbk (PGAS) of -0.00223. The data is obtained by calculating the expected rate of return according to the formula :

$$E(R_i) = R_f + [E(R_m) - R_f]\beta_i$$

Example of expected return calculation :

E(Ri) = 0.003854 + [0.00174 - 0.003854] 1.21799 = 0.00128

Table 5. Expected Return Rate

No	Company name	Stock code	E(Ri)
1	Adaro Energy Tbk	ADRO	0.00128
2	Aneka Tambang Tbk	ANTM	-0.00201
3	Astra International Tbk	ASII	0.00113
4	Bank Central Asia Tbk	BBCA	0.00198
5	Bank Negara Indonesia (Persero) Tbk	BBNI	-0.00051
6	Bank Rakyat Indonesia (Persero) Tbk	BBRI	0.00090
7	Bank Tabungan Negara (Persero) Tbk	BBTN	-0.00158
8	Bank Mandiri (Persero) Tbk	BMRI	0.00112
9	Gudang Garam Tbk	GGRM	0.00191
10	H.M. Sampoerna Tbk	HMSP	0.00156
11	Indofood CBP Sukses Makmur Tbk	ICBP	0.00344
12	Indofood Sukses Makmur Tbk	INDF	0.00277
13	Indocement Tunggal Prakarsa Tbk	INTP	0.00124
14	Kalbe Farma Tbk	KLBF	0.00248
15	Perusahaan Gas Negara (Persero) Tbk	PGAS	-0.00223
16	Semen Indonesia (Persero) Tbk	SMGR	0.00050
17	Telekomunikasi Indonesia (Persero) Tbk	TLKM	0.00222
18	United Tractors Tbk	UNTR	0.00241
19	Unilever Indonesia Tbk	UNVR	0.00321
	Jumlah		0.02181

Source : Data Processed (2023)

Efficient Stock Classification and Investment Decisions

Efficient or undervalued stocks are stocks with individual stock returns greater than the expected rate of return [(Ri) > E(Ri)] Inefficient or overvalued stocks are stocks with individual stock returns that are smaller than the expected rate of return [(Ri) < E(Ri)].

By grouping stocks, investors can find out which stocks have individual stock returns greater than the expected rate of return and can identify which stocks are efficient and inefficient, as well as recommend investment decisions that can be taken by investors. Based on calculations, of the 19 stocks used as research samples, there are 7 stocks that are considered inefficient because the individual return value is smaller than the expected return. These stocks are ASII, GGRM, HMSP, INDF, INTP, UNTR, and UNVR, so the decision suggested to investors is to sell shares and there are 12 stocks that are considered efficient because the individual return value is greater than the expected return. These shares are ADRO, ANTM, BBCA, BBNI, BBRI, BBTN, BMRI, ICBP, KLBF, PGAS, SMGR and TLKM. The recommended decision for investors is to buy shares or invest in shares if the shares are already owned.

Table 6. Classification of Efficient Shares and Investment Decisions

No	Kode Saham	Ri	E(Ri)	Keterangan	Keputusan
1	ADRO	0.01802	0.00128	Efisien	Membeli
2	ANTM	0.04269	-0.00201	Efisien	Membeli
3	ASII	-0.00120	0.00113	Tidak Efisien	Menjual
4	BBCA	0.01351	0.00198	Efisien	Membeli
5	BBNI	0.00158	-0.00051	Efisien	Membeli
6	BBRI	0.00835	0.00090	Efisien	Membeli
7	BBTN	0.00055	-0.00158	Efisien	Membeli
8	BMRI	0.00418	0.00112	Efisien	Membeli
9	GGRM	-0.01343	0.00191	Tidak Efisien	Menjual
10	HMSP	-0.02548	0.00156	Tidak Efisien	Menjual
11	ICBP	0.00361	0.00344	Efisien	Membeli
12	INDF	0.00183	0.00277	Tidak Efisien	Menjual
13	INTP	-0.00238	0.00124	Tidak Efisien	Menjual
14	KLBF	0.00294	0.00248	Efisien	Membeli
15	PGAS	0.01191	-0.00223	Efisien	Membeli
16	SMGR	0.00217	0.00050	Efisien	Membeli
17	TLKM	0.00293	0.00222	Efisien	Membeli
18	UNTR	-0.00135	0.00241	Tidak Efisien	Menjual
19	UNVR	-0.01640	0.00321	Tidak Efisien	Menjual

Source : Data Processed (2023)

4. Conclusions

Based on the results of the study, of the 19 stocks that were used as research samples, it showed that the shares of PT. Aneka Tambang Tbk (ANTM) has the highest average return on individual shares, which is 0.04269. In addition, based on the results of the calculation of the expected rate of return [E(Ri)], the total expected return value of all the stocks that are the research samples is 0.02181, with an average of 0.00321. The company whose shares have the highest expected return is PT. Indofood CBP Sukses Makmur Tbk (ICBP) of 0.00344. After comparing the rate of return on individual stocks (Ri) with the expected rate of return E(Ri), of the 19 stocks that were used as research samples, there were 12 stocks that were considered efficient or undervalued, namely ADRO, ANTM, BBCA, BBNI, BBRI, BBTN, BMRI , ICBP, KLBF, PGAS, SMGR and TLKM, the recommended decision for investors is to buy or hold these shares if they are already owned and there are 7 shares that are considered inefficient or overvalued, namely ASII, GGRM, HMSP, INDF, INTP, UNTR, and UNVR then the recommended decision to investors is to sell shares. The limitation of this research is that this research uses the Capital Asset Pricing Model (CAPM) method, so that future researchers are expected to be able to use another method, namely the Arbitrage Pricing Theory (APT) method to determine investment decisions so that there is a comparison between the methods used by researchers and other methods.

Based on the conclusions above, several suggestions can be put forward as follows:

a) For future researchers, it is expected to use different research objects and be able to use different methods, namely the Arbitrage Pricing Theory (APT) method so that there is a comparison in determining investment.

b) For Investors and Potential Investors, the results of this study can be used as a reference for information before making investment decisions, especially for companies listed in IDX30 for the 2018-2021 period.

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