

## USING THE CAPITAL ASSET PRICING MODEL IN LQ45 STOCK INVESTMENT DECISION MAKING DURING THE COVID-19 PANDEMIC

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### Intisari

*Capital Asset Pricing Model (CAPM)* adalah model perhitungan yang digunakan untuk mengestimasi besarnya tingkat pengembalian yang diharapkan dari suatu investasi. Penelitian ini merupakan penelitian deskriptif dengan analisis kuantitatif yang bertujuan untuk mengetahui kinerja saham-saham yang terdaftar di indeks saham LQ 45 periode 2019-2020 berdasarkan tingkat pengembalian dan risiko serta mengetahui saham efisien dan tidak efisien pada masa pandemi Covid-19 berdasarkan metode CAPM. Populasi pada penelitian ini berjumlah 45 perusahaan dan sampel penelitian ini berjumlah 36 saham perusahaan yang terdaftar di Bursa Efek Indonesia dipilih berdasarkan teknik *purposive sampling*. Hasil penelitian menunjukkan dari 36 saham perusahaan yang dijadikan sampel terdapat 25 saham perusahaan yang termasuk dalam kategori saham efisien dan 11 saham perusahaan yang termasuk dalam kategori saham tidak efisien. Kelompok saham efisien memiliki tingkat pengembalian individu lebih besar daripada tingkat pengembalian yang diharapkan. Kelompok saham tidak efisien memiliki tingkat pengembalian individu lebih kecil daripada tingkat pengembalian yang diharapkan. Implikasi penelitian ini adalah keputusan investasi yang harus diambil oleh investor dalam membeli saham yang efisien dan berada dalam kondisi *undervalue* menurut CAPM, serta menjual saham tidak efisien karena saham dalam kondisi *overvalue*.

**Kata Kunci:** CAPM, Investasi, Tingkat Pengembalian, Risiko, Efisien

### Abstract

*Capital Asset Pricing Model (CAPM)* is a calculation model used to estimate the amount of return expected from an investment. This research is descriptive research with quantitative analysis that aims to determine the performance of stocks listed in the LQ 45 stock index for the period 2019-2020 based on the level of return and risk and to know stocks efficiently and inefficiently based during the Covid-19 pandemic on CAPM method. The population in this study amounted to 45 companies and the research sample amounted to 36 shares of companies listed on the Indonesia Stock Exchange were selected based on purposive sampling techniques. The results showed that out of the 36 shares of the company sampled there were 25 shares of companies that fall into the category of efficient stocks and 11 shares of companies that fall into the category of inefficient stocks. Efficient stock groups have an individual rate of return greater than the expected rate of return. Inefficient stock groups have a smaller individual rate of return than expected. The implication of this research is that investments must be taken by investors in buying stocks that are efficient and undervalued, as well as selling inefficient stocks because the shares are overvalued.

**Keywords:** CAPM, Investment, Rate of Return, Risk, Efficient

### INTRODUCTION

For the government, the economic growth of Indonesia is a good step to continue building and advancing the country. Overall economic growth in 2019 remained good at 5.02%, although it is lower than the 2018 achievement of 5.17% ([www.bi.go.id/id/publikasi/laporan/Documents/9\\_LPI2019.pdf](http://www.bi.go.id/id/publikasi/laporan/Documents/9_LPI2019.pdf), accessed on 1 August 2020).

Indonesia's economic growth is also considered to be one of the best in Southeast Asia. The United Nations (UN) estimates that the average economic growth of Southeast Asian countries in 2019 was 4.6%. Apart from being supported by state revenues, the country's economic growth is also influenced by good financial management.

The rate of national economic growth in 2020 contracted by 4.95%. The quite poor economic growth in 2020 was inseparable from the weak purchasing power of the people due to the Covid-19 pandemic. On the other hand, household consumption has been one of the main players in Indonesia's economic growth. The existence of Large-Scale Social Restrictions (PSBB) in a number of provinces and islands became an obstacle to the economic growth of the Indonesian people.

Indonesia's economic growth in the second quarter of 2021 managed to grow positively by 7.07%. This shows that the economic direction and strategy taken by the government recovery are correct. This economic recovery can be seen in some of the growth engines that are now starting to recover, such as household consumption growing by 5.9% and investment growth by 7.5%. This shows that people's purchasing power is better than in 2020.

Financial management is an activity of planning, budgeting, managing, storing, and controlling funds and assets owned by both individuals and organizations. Financial managers have an interest in determining the appropriate amount of assets to be invested in various investment instruments. Decisions taken in financial management include investment decisions, funding decisions, and profit-sharing decisions. Management decisions in investing will be seen in the financial statements on the assets side of the company if the financial records have used the bookkeeping system.

In the development of the business world, companies are very dependent on investment. Even in the management of assets or wealth, an individual and company must be able to manage his own assets. Investment has a role in developing personal assets and developing a business that is run.

Investment is a delay in current consumption included in productive assets for a certain period of time (Mustakini, 2015:5). The purpose of investing is to get a greater profit than what is invested now. An investor's analytical skills are needed before the investor decides which investment to make. One of the investment instruments known by the public is investing in shares in the capital market.

The stock market also has various sectors and is divided based on the field of work. Some of the stock sectors include agriculture, mining, basic and chemical industries, consumer goods industry, property, infrastructure and transportation, finance, trade, services, and investment. There is also a classification of stocks based on a stock index.

A stock index is a statistical measure that reflects the overall price fluctuation of a group of stocks based on certain criteria and methodologies that is evaluated regularly. The stock index functions as an indicator of market trends, which means that the trend movement of an index can reflect market conditions at a time (Collins, 2020). It can be seen that when the price of an index rises, market participants are actively buying shares included in the index, and vice versa. One of the most common examples is the Composite Stock Price Index (IHSG) which shows the average price of all stocks. The JCI has been corrected by around 30% since the beginning of 2020, where the industry was volatile due to the Covid-19 pandemic. The market uncertainty made few investors choose to withdraw their funds. Before the Covid-19 pandemic, it was noted that the JCI growth was still above 6300 but since the pandemic. The JCI has fallen below 3000 (<https://finansial.bisnis.com/read/20200329/55/1219348/strategi-investasi-di-tengah-pandemi-virus-corona>, accessed on October 30, 2020).

One index that is widely known on the Indonesia Stock Exchange is LQ 45. LQ 45 consists of 45 companies whose shares have high liquidity and are in accordance with the selection criteria set. LQ 45 stocks are often categorized as superior stocks and as stated

earlier, the LQ45 index has stocks with high market capitalization. In addition, stocks in the LQ 45 category have a high trading frequency (liquid), so it is hoped that the prospects for growth and financial conditions will be more stable in the future.

Investment decision-making is assessed as efficient stock and inefficient stock. Efficient stocks have a greater realized return than the expected rate of return, while inefficient stocks have a smaller realized return than the expected rate of return. Everyone definitely wants to choose an efficient stock to be able to benefit from this investment.

In an efficient stock selection, there are many recommended ways to choose the stock. One of the methods to select efficient stocks during the Covid-19 pandemic is using the Capital Asset Pricing Model (CAPM) analysis. According to Tandelilin (2010:187), the CAPM is a balance model that can determine the relationship between the expected rate of return from a risky asset and the risk of that asset in a balanced market condition. CAPM is one of the models that can predict the reality in a complex market, even though it is not the reality of the assumptions used. Therefore, CAPM as a balance model can help an analyst to simplify the real picture of the relationship between risk and return.

CAPM is a model of balance between risk and return. In investment instruments such as stocks, the profit level of a stock will be overshadowed by the risk of the stock itself. Beta ( $\beta$ ) is an indicator to measure the stock risk of this CAPM model. By knowing the risk, investors will understand what the expected return is from the existing risk.

The use of this CAPM will certainly make investors easier to choose the shares they want to purchase for investment in accordance with their risk profile. This applies if investors who expect a large return from stock will also be faced with the same risk as the return. On the other hand, investors who avoid big risks will be faced with small returns. In its use, the CAPM has its own advantages in estimating stock returns. According to researchers, there are some advantages of this CAPM, for instance, this model can be used for long and short-term calculations, the data needed is easy to obtain, and it does not take a long time to estimate returns.

Researchers are motivated to conduct this research because researchers want to know what stocks are eligible to select during the Covid-19 pandemic based on a review of the historical prices of 2019-2020. Along with the strong reason, this research was conducted because of global sentiment that affects market prices, namely with the emergence of the Corona virus in 2019 which greatly affected stock prices. Previous research on CAPM conducted by Utomo (2018) shows from the data 16 companies are recommended to be companies whose shares are efficient, where individual returns are greater than expected returns. Likewise, research conducted by Saputra, Deny, Suhadak & Azizah (2015) shows that of the 37 company stocks, 21 company shares are included in the efficient stock group and 16 company shares are in the inefficient stock group. Susanti & Putra's research (2018) shows that of the 20 companies studied, 10 companies are in an efficient condition and 10 companies are in an inefficient condition.

## **LITERATURE REVIEW AND HYPOTHESES DEVELOPMENT**

### **Investation**

Investment is one thing that is very closely related to the business world. Investment can be interpreted as consumption in the future, but a broader understanding of investment requires productive assets to change one unit of future consumption (Rizvi, Mirza, Naqvi & Rahat, 2020). Thus, investment can be defined as a delay in current consumption to be included in productive assets for a certain period of time (Mustakini, 2015:5). The purpose of investing is to get a profit that is greater than what is invested now. A person or group of people who carry out investment funding is called an investor.

## **Capital Market**

According to Tandelilin (2010:26), the capital market is a meeting point between parties who have excess funds and those who need funds by trading securities. Meanwhile, the place where the sale and purchase of securities occurs is called the stock exchange. Capital market instruments are all securities that are generally traded through the capital market. In general, the instruments traded in the capital market are stocks, bonds, mutual funds and derivative instruments including warrants, rights issues, and options.

## **Stocks**

According to Riyanto (2013: 240), stocks are evidence of taking part in a limited liability company that is received from the sale of its shares but is embedded in the company for the rest of its life, though for the shareholders themselves it is not a permanent investment because the shareholders can sell their shares any time. For an investor, he expects growth in the value of the stock from the initial purchase price so that he gets a profit when selling the stock in the future. On the other hand, the dividends given by the company can also be a profit value for investors who own the shares (Oyenubi, 2019).

## **Risk**

According to Mustakini (2015: 257), only calculating returns for an investment is not enough. The risk of investment also needs to be taken into account. Return and risk are two inseparable things because the consideration of investment is a trade-off of these two factors. Return and risk have a positive relationship, the greater the risk that must be borne, the greater the return that must be compensated (Koumou, 2020). Risk is often associated with deviations or deviations from the received and expected outcomes. According to Tandelilin (2010:102), the risk is the possible difference between the actual return received and the expected return. The greater the possible difference, the greater the risk of the investment.

According to Mustakini (2015: 405), beta is a measure of the volatility of the return of a security or portfolio return to market returns.  $\text{Beta} = 1$ , meaning that for every one percent change in market return, the stock or portfolio return will also change as much as the market return. Stocks that have a beta value  $> 1$  are said to have greater risk than the market average risk level. Stocks that have a beta value  $< 1$  are said to be stocks that have a risk below the market average.

## **Return**

According to Mustakini (2015: 235), return is the result obtained from an investment. Returns can be in the form of realized returns that have occurred or expected returns that have not yet occurred but which are expected to occur in the future. Realized return is a return that has occurred in the past until now. Realized return is calculated using historical data. Realized return is important because it is used as a measure of the company's performance. This realized return is also useful as a basis for determining the expected return and risk in the future. The expected return is the profit expected to be obtained by investors in the future. In contrast to the realized return which has already occurred, the expected return has not yet occurred. The rate of return used to expect these profits consists of (1) the rate of return on individual shares is the income received in the form of dividends or income from changes in market prices for one month, (2) the market rate of return is the rate at which the return is based on the development of the stock price index, (3) the risk-free rate of return is the rate of return on financial assets that is not risky, and (4) the expected rate of return is the actual rate of return that is estimated or expected by investors or shareholders.

## **Capital Asset Pricing Model**

The Capital Asset Pricing Model (CAPM) was originally proposed by Treynor (1961), Sharpe (1964), and Lintner (1965) revealing that the CAPM is an equilibrium asset pricing model which states that the expected return on certain securities is a positive linear function of sensitivity. securities to changes in market portfolio returns (Sharpe, Alexander & Bailey,

2005:405). This means that in the CAPM, risk and return are positively and linearly related. So, the greater the risk of the investment, the more investors will certainly expect a high rate of return. If an investor thinks rationally, then he will not choose a high-risk investment without expecting a high rate of return as well.

The sensitivity of the security means the risk of the security itself which is denoted by Beta ( $\beta$ ). Meanwhile, the market portfolio in Indonesia can be represented by the Jakarta Composite Index (JCI). The JCI itself is an average index of the overall combined stock price which is the reference for the movement of the stock market in Indonesia. If the JCI decreases, then the average price of the entire stock also decreases, and vice versa if the JCI rises, it means that the average price of the entire stock increases. This depends on the level of sensitivity of these securities to the JCI. The sensitivity of securities to changes in market portfolio returns can also be referred to as systematic risk or market risk.

The ability to estimate the return of an individual security is very important and needed by investors. To be able to estimate the return of security properly and easily, an estimation model is needed. Therefore, the presence of the CAPM which can be used to estimate the return of a security is considered very important in the financial sector (Mustakini, 2015:517). The CAPM model is a balance model that describes the relationship between risk and returns in a simpler way, and only uses one variable (beta variable) to describe risk (Tandelilin, 2010:89).

According to Mustakini (2015:326), efficient stocks are stocks with individual returns greater than the expected rate of return [ $R_i > E(R_i)$ ]. Investment decisions on efficient or inefficient stocks are as follows (1) efficient stocks show that the rate of return on individual shares ( $R_i$ ) is greater than the expected rate of return [ $E(R_i)$ ], so the decision taken by investors is to take or buy share; (2) inefficient stock shows that the individual rate of return ( $R_i$ ) is smaller than the expected rate of return [ $E(R_i)$ ], so the decision taken by investors is to sell the stock before the stock price drops.

## RESEARCH METHODS

This type of research uses descriptive research. According to Sugiyono (2015:53-55), the type of descriptive research is a problem formulation relating to the statement of the existence of independent variables, either only on one or more variables. So in this study, the researcher did not make comparisons of that variable to other samples and looked for the relationship of the variable to other variables. The location of this research was conducted on the Indonesia Stock Exchange (IDX) through the websites [www.idx.co.id](http://www.idx.co.id) and [www.investing.com](http://www.investing.com).

This table shows the population of this study, namely companies listed in the LQ 45 sub-sector from 2019-2020 with a total of 45 issuers. The sample taken in this study is LQ 45 shares listed on the IDX with a record of the criteria for each issuer in accordance with the requirements of the researcher as many as 36 issuers from 45 issuers. The sampling technique used in this study was non-probability sampling with the purposive sampling method (Table 2).

**Table 1. LQ45 Stock Data**

No	Kode	Nama Stok	Sektor
1	ADRO	Adaro Energy Tbk	Coal Mining,
2	AKRA	AKR Corporindo Tbk.	Wholesale,
3	ANTM	Aneka Tambang Tbk.	Metal and Mining,
4	ASII	Astra International Tbk.	Automotive and Components,
5	ASRI	Alam Sutera Reality Tbk.	Property and Real Estate,
6	BBCA	Bank Central Asia Tbk.	Bank,
7	BBNI	Bank Negara Indonesia (Persero) Tbk.	Bank,
8	BBRI	Bank Rakyat Indonesia (Persero) Tbk.	Bank,

9	BBTN	Bank Tabungan Indonesia (Persero) Tbk.	<i>Bank,</i>
10	BMRI	Bank Mandiri (Persero) Tbk.	<i>Bank,</i>
11	BSDE	Bumi Serpong Damai Tbk.	<i>Property and Real Estate,</i>
12	CPIN	Charoen Pokphand Indonesia Tbk.	<i>Animal Feed,</i>
13	EXCL	XL Axiata Tbk.	<i>Telecommunication,</i>
14	GGRM	Gudang Garam Tbk.	<i>Tobacco Manufacturers,</i>
15	HMSP	HM Sampoerna Tbk.	<i>Tobacco Manufacturers,</i>
16	ICBP	Indofood CBP Sukses Makmur Tbk. [S]	<i>Food and Beverages,</i>
17	INCO	Vale Indonesia Tbk.	<i>Metal and Mining,</i>
18	INDF	Indofood Sukses Makmur Tbk.	<i>Food and Beverages,</i>
19	INKP	Indah Kiat Pulp & Paper	<i>Basic Industry and Chemicals</i>
20	INTP	Indocement Tungal Prakasa Tbk.	<i>Cement,</i>
21	ITMG	Indo Tambangraya Megah Tbk	<i>Coal Mining,</i>
22	JSMR	Jasa Marga (Persero) Tbk.	<i>Toll Road, Airport, Harbor and All</i>
23	KLBF	Kalbe Farma Tbk.	<i>Pharmaceuticals,</i>
24	LPPF	Matahari Department Store Tbk.	<i>Retail Trade,</i>
25	MNCN	Media Nusantara Citra Tbk.	<i>Advertising,Printing and Media,</i>
26	PGAS	Perusahaan Gas Negara (Persero) Tbk.	<i>Energy,</i>
27	PTBA	Tambang Batubara Bukit Asam Tbk.	<i>Coal Mining,</i>
28	PTPP	PP (Persero) Tbk.	<i>Building Construction,</i>
29	SCMA	Surya Citra Media Tbk.	<i>Advertising,Printing and Media,</i>
30	SMGR	Semen Indonesia (Persero) Tbk.	<i>Cement,</i>
31	SRIL	Sri Rejeki Isman Tbk.	<i>Textile, Garment,</i>
32	TLKM	Telekomunikasi Indonesia (Persero) Tbk. [S]	<i>Telecommunication,</i>
33	UNTR	United Tractors Tbk.	<i>Wholesale,</i>
34	UNVR	Unilever Indonesia Tbk.	<i>Cosmetics and Household,</i>
35	WIKA	Wijaya Karya (Persero) Tbk.	<i>Building Construction,</i>
36	WSKT	Waskita Karya (Persero) Tbk.	<i>Building Construction,</i>

(Source: www.idx.co.id, accessed on 10 March 2021)

**Table 2. Sample of Selection Criteria**

<b>Sample Criteria</b>	<b>Amount</b>
Companies that have complete closing price data for the period 2019-2020.	45
Companies listed in sub LQ45 from 2019-2020 in a row.	36
Number of Samples	36

(Source : Processed secondary data, 2021)

The research variable is an attribute or nature or value of people, objects, or activities that have certain variations that are determined by researchers to be studied and then drawn conclusions (Sugiyono, 2015:61). The variable in this study is a single variable, namely the basis for making stock investment decisions based on the use of CAPM.

The method used in this research is the quantitative analysis method because the data used is in the form of numbers to be analyzed based on statistics. The stages of analysis to be carried out are as follows:

- Collect data on shares of companies that are included in LQ 45 and meet the research criteria.
- Calculating the rate of return on individual shares ( $R_i$ ).
- Calculate the market rate of return ( $R_m$ ).
- Calculating the risk-free rate of return ( $R_f$ ) using the monthly index interest rate (SBI).

- e) Finding the level of systematic risk of each stock ( $\beta$ ).
- f) Find the expected rate of return.
- g) Classify undervalued and overvalued shares.

## RESULTS AND DISCUSSION

### Calculating Individual Stock Returns ( $R_i$ )

The data used in calculating individual stock returns are data on the monthly closing price of stocks on the LQ45 index. This calculated stock return is the actual stock return obtained from the calculation of the closing price of this month's shares minus the closing price of the previous month and divided by the closing price of the previous month.

Based on the results of the calculation of the average stock return per month in table 3, each company from 2019 to 2020 can be seen that there are 17 of 36 companies that have a positive average stock return including ADRO, ANTM, BBKA, BBRI, BBTN, BSDE, CPIN, EXCL, INCO, KLBF, MNCN, PGAS, PTPP, SCMA, SRIL, WIKA, and WSKT. On the other hand, there are 19 out of 36 companies that have a negative average return. This shows that investors do not respond positively to the LQ45 index shares for the 2019-2020 period. Several factors can cause investors to be less interested in the LQ45 index due to negative sentiments such as the case of the spread of the Covid-19 virus, the occurrence of a recession in Indonesia, to the weakening of people's purchasing power.

**Table 3. Actual Stock Return Data**

No	Stock Code	Stock Returns	No	Stock Code	Stock Returns
1	ADRO	0,0077	19	INKP	-0,02007
2	AKRA	-0,014	20	INTP	-0,04101
3	ANTM	0,0502	21	ITMG	-0,0364
4	ASII	-0,0079	22	JSMR	-0,01175
5	ASRI	-0,0018	23	KLBF	0,01856
6	BBKA	0,0099	24	LPPF	-0,0545
7	BBNI	-0,0057	25	MNCN	0,05473
8	BBRI	0,0085	26	PGAS	0,00811
9	BBTN	0,0013	27	PTBA	-0,01318
10	BMRI	-0,0006	28	PTPP	0,04265
11	BSDE	0,0359	29	SCMA	0,04915
12	CPIN	0,00003	30	SMGR	-0,02933
13	EXCL	0,01631	31	SRIL	0,31664
14	GGRM	-0,02643	32	TLKM	-0,0238
15	HMSP	-0,03514	33	UNTR	-0,02842
16	ICBP	-0,03923	34	UNVR	-0,04207
17	INCO	0,01252	35	WIKA	0,02981
18	INDF	-0,034	36	WSKT	0,04879

(Source: [www.investing.com](http://www.investing.com), accessed on 9 April 2021)

### Calculating Market Rate of Return ( $R_m$ )

In this study, the market index used is the Composite Stock Price Index (IHSG). The data used is closing price data from January 2019 to December 2020.

**Table 4. Market Rate of Return (Rm) Data**

Month	Monthly Stock Closing Price		Rate %	
	2019	2020	2019	2020
1	6532,97	5940,05		-0,0571
2	6443,35	5452,7	-0,0137	-0,0820
3	6468,75	4538,93	0,0039	-0,1676
4	6455,35	4716,4	-0,0021	0,0391
5	6209,12	4753,61	-0,0381	0,0079
6	6358,63	4905,39	0,0241	0,0319
7	6390,5	5149,63	0,0050	0,0498
8	6328,47	5238,49	-0,0097	0,0173
9	6169,1	4870,04	-0,0252	-0,0703
10	6228,32	5128,23	0,0096	0,0530
11	6011,83	5612,42	-0,0348	0,0944
12	6299,54	5979,07	0,0479	0,0653
<b>Average Market Return</b>			<b>-0,0022</b>	

(Source: www.investing.com, accessed on 9 April 2021)

In table 4, the highest JCI is in January 2019 which is 6532.97. In addition to the lowest price for the JCI, which is in March 2020. If we calculate the average return from January 2019 to December 2020, the rate of change in the JCI price is around -0, 0022. In the observation period, the average market return for 2019 to 2020 shows a negative value. There are several factors that caused the market return price to become very volatile, namely due to the Covid-19 virus outbreak which became a global pandemic, the oil price war between the United States and Saudi Arabia, and the reduction in interest rates by the United States Federal Reserve Central Bank. 1.00 to 1.25 percent which of course is motivated by the Covid-19 outbreak.

#### **Calculating the Risk-Free Rate of Return (Rf) Using the Monthly Index Interest Rate (SBI)**

In calculating the risk-free rate of return, the measurement used is the interest rate issued by the government, namely the Bank Indonesia Certificate (SBI). This risk-free rate of return is obtained from the SBI analysis during the 2019 to 2020 observation period, where the highest SBI rate is 6% in January - June 2019, while the lowest SBI rate is 3.75% in November to December 2020. Seen every month from In 2019-2020 the interest rate determined by the government has always decreased. The government has reduced interest rates in an effort to provide stimulus to business people so that they can get through this difficult time during the coronavirus pandemic. With this reduction in the benchmark interest rate, it is hoped that business actors can expand their business by borrowing business capital from banks because loan interest rates are low.

#### **Finding the Systematic Risk Level of Each Stock ( $\beta$ )**

**Table 5. Stock Beta Data**

No.	Stock Code	Beta	No.	Stock Code	Beta
1	ADRO	1,553	19	INKP	1,732
2	AKRA	1,391	20	INTP	1,361
3	ANTM	1,677	21	ITMG	1,619
4	ASII	1,211	22	JSMR	1,244



5	ASRI	1,400	23	KLBF	1,193
6	BBCA	0,928	24	LPPF	1,315
7	BBNI	1,45	25	MNCN	1,342
8	BBRI	1,329	26	PGAS	1,873
9	BBTN	1,518	27	PTBA	1,491
10	BMRI	1,264	28	PTPP	2,063
11	BSDE	1,374	29	SCMA	1,221
12	CPIN	1,510	30	SMGR	1,514
13	EXCL	1,224	31	SRIL	0,786
14	GGRM	0,931	32	TLKM	0,784
15	HMSF	1,063	33	UNTR	1,144
16	ICBP	0,599	34	UNVR	0,889
17	INCO	1,559	35	WKA	1,913
18	INDF	1,023	36	WSKT	2,050

(Source: [www.investing.com](http://www.investing.com), accessed on 9 April 2021)

Based on the data in table 5, all of the company's betas have positive values and none is below 0. Beta = 1, meaning that for every one percent change in market return, stock or portfolio returns will also change in the same amount following market returns. Stocks that have a beta value > 1 are said to have greater risk than the market average risk level. Stocks that have a beta value < 1 are said to be stocks that have a risk below the market average. In this study, there were 30 out of 36 companies had a beta value > 1 while the rest had a beta value < 1 such as BBCA, GGRM, ICBP, SRIL, TLKM, and UNVR.

The size of beta on each stock does not show how good or bad the stock is but only shows how much volatility the stock is. Investors who tend to avoid risk are more suitable to choose stocks that have a beta of less than 1.

### Finding the Expected Rate of Return

**Table 6. Expected Return**

Code	Expected Return	Code	Expected Return
ADRO	-0,03076	INKP	-0,04001
AKRA	-0,02242	INTP	-0,02086
ANTM	-0,03720	ITMG	-0,03417
ASII	-0,01311	JSMR	-0,01481
ASRI	-0,02287	KLBF	-0,01218
BBCA	0,00147	LPPF	-0,01847
BBNI	-0,02546	MNCN	-0,01988
BBRI	-0,01919	PGAS	-0,04728
BBTN	-0,02897	PTBA	-0,02757
BMRI	-0,01588	PTPP	-0,05711
BSDE	-0,02154	SCMA	-0,01365
CPIN	-0,02858	SMGR	-0,02877
EXCL	-0,01380	SRIL	0,00879
GGRM	0,00132	TLKM	0,00892
HMSF	-0,00547	UNTR	-0,00969
ICBP	0,01846	UNVR	0,00351
INCO	-0,03110	WKA	-0,04938
INDF	-0,00340	WSKT	-0,05644

Source: Processed secondary data (2021)

Table 6 shows the expected returns of the 36 sampled companies. The highest expected return is owned by a company with ICBP code of 0.01846. On the other hand, the lowest expected

return is owned by companies with a code PTPP of -0.05711.

### Classifying Undervalued and Overvalued Stocks

**Table 7. Valuation Data from Stock Return**

Stock Code	Stock Returns		Value		Decision
	Expectations	Realization	Undervalue	Overvalue	
ADRO	-0,03076	0,0077	Undervalue	-	Buy
AKRA	-0,02242	-0,014	Undervalue	-	Buy
ANTM	-0,03720	0,0502	Undervalue	-	Buy
ASII	-0,01311	-0,0079	Undervalue	-	Buy
ASRI	-0,02287	-0,0018	Undervalue	-	Buy
BBCA	0,00147	0,0099	Undervalue	-	Buy
BBNI	-0,02546	-0,0057	Undervalue	-	Buy
BBRI	-0,01919	0,0085	Undervalue	-	Buy
BBTN	-0,02897	0,0013	Undervalue	-	Buy
BMRI	-0,01588	-0,0006	Undervalue	-	Buy
BSDE	-0,02154	0,0359	Undervalue	-	Buy
CPIN	-0,02858	0,00003	Undervalue	-	Buy
EXCL	-0,01380	0,01631	Undervalue	-	Buy
GGRM	0,00132	-0,02643	-	Overvalue	Sell
HMSP	-0,00547	-0,03514	-	Overvalue	Sell
ICBP	0,01846	-0,03923	-	Overvalue	Sell
INCO	-0,03110	0,01252	Undervalue	-	Buy
INDF	-0,00340	-0,034	-	Overvalue	Sell
INKP	-0,04001	-0,02007	Undervalue	-	Buy
INTP	-0,02086	-0,04101	-	Overvalue	Sell
ITMG	-0,03417	-0,0364	-	Overvalue	Sell
JSMR	-0,01481	-0,01175	Undervalue	-	Buy
KLBF	-0,01218	0,01856	Undervalue	-	Buy
LPPF	-0,01847	-0,0545	-	Overvalue	Sell
MNCN	-0,01988	0,05473	Undervalue	-	Buy
PGAS	-0,04728	0,00811	Undervalue	-	Buy
PTBA	-0,02757	-0,01318	Undervalue	-	Buy
PTPP	-0,05711	0,04265	Undervalue	-	Buy
SCMA	-0,01365	0,04915	Undervalue	-	Buy
SMGR	-0,02877	-0,02933	-	Overvalue	Sell
SRIL	0,00879	0,31664	Undervalue	-	Buy
TLKM	0,00892	-0,0238	-	Overvalue	Sell
UNTR	-0,00969	-0,02842	-	Overvalue	Sell
UNVR	0,00351	-0,04207	-	Overvalue	Sell
WIKA	-0,04938	0,02981	Undervalue	-	Buy
WSKT	-0,05644	0,04879	Undervalue	-	Buy

Source: Processed secondary data (2021)

These stocks can be said to be undervalued because the expected return  $E(R_i)$  is lower than the realized return  $(R_i)$  so that based on calculations using the CAPM method, the decision was taken by investors is to buy the shares. In this study, undervalued stocks can

also be said to be efficient stocks to buy. There are some negative stock expected returns, it does not mean that the researcher expects investors to buy stocks that will lose money, but the researcher expects that the return will rise to reach balance according to the CAPM calculation. Several factors are forming the expected return, namely stock beta, market return, and the risk-free rate.

Of the 26 undervalued stocks, 2 stocks have a beta ( $\beta$ ) smaller than 1, namely BBKA (0.938) and SRIL (0.786). Stocks that have a beta of less than 1 mean that the stock is a stock that has low stock price volatility. Therefore, it can also be interpreted that the BBKA and SRIL shares in this study using the CAPM have an undervalued value and have a low beta of shares so that these stocks are suitable for an investor who does not like stocks that have high risk.

On the other hand, 24 undervalued stocks have a stock beta greater than 1, namely stocks coded ADRO, AKRA, ANTM, ASII, ASRI, BBNI, BBRI, BBTN, BMRI, BSDE, CPIN, EXCL, INCO, INKP, JSMR, KLBF, MNCN, PGAS, PTBA, PTPP, SCMA, WIKA, WSKT. Stocks that have a beta greater than 1 mean the stock has high stock price volatility. So if there is an investor who prefers stocks that have high risk, these 24 stocks are suitable for collection.

These stocks can be said to be overvalued because they have an expected return that is higher than the actual return, so based on calculations using the CAPM model, the decision taken by investors is to sell or not to buy the stock before the stock price drops. In this study, overvalued stocks can also be said to be inefficient stocks to buy.

From the research above, we can see that if the realized return of a stock is higher than the expected return, then the stock is worth buying. The results of this study are still in line with previous research conducted by Utomo (2018), Saputra, Deny, Suhadak, and Azizah (2015), as well as research by Neneng & Putra (2018) which revealed that stocks with realized return values were higher than their expected returns. the shares are efficient and worth owning. From the results of the above calculation, the CAPM explains how efficient a stock is to buy in terms of the comparison of realized returns which are higher than the expected returns. Calculations with this model are still tied to the assumptions of the CAPM about the absence of transaction costs to the absence of personal income tax. When viewed from the other side, the calculation using the CAPM according to the researcher also has several shortcomings, such as the condition of stock when there is a dividend distribution, rights issue, to a stock split which of course will affect changes in stock prices to the returns obtained by investors. However, if one only wants to know how efficient a stock is, judging by the comparison of the expected return with its realization, this calculation model can be used.

## **CONCLUSION**

The conclusion of this study from the calculation of the company's 36 shares obtained 25 shares which are classified as efficient shares. Stocks classified as efficient are ADRO, AKRA, ANTM, ASRI, ASII, BBKA, BBNI, BBRI, BBTN, BMRI, BSDE, CPIN, EXCL, INCO, INKP, JSMR, KLBF, MNCN, PGAS, PTBA, PTPP, SCMA, SRIL, WIKA, WSKT. Therefore, the investment decision that can be taken by investors is to buy these shares because they have an undervalued value. In addition, in this study, there are 11 of the 36 company stocks that are classified as inefficient stocks. Stocks that are classified as inefficient in this study are GGRM, HMSP, ICBP, INDF, INTP, ITMG, LPPF, SMGR, TLKM, UNTR, and UNVR. Therefore, the investment decision that can be taken by investors is to sell or not to buy these shares because they have an overvalued value.

Based on the analysis and discussion, the researcher has several suggestions for investors where investors can find information about a stock to be invested in before investing in each

of these shares. There are many ways to be able to select which stocks are effective to buy and one of them is using the CAPM calculation as has been studied in this study. The use of this CAPM can minimize the risk that will be accepted by an investor and can achieve a return that is in accordance with the expectations of investors. For an investor who does not like high-risk stocks, investors can choose undervalued stocks with a beta ( $\beta$ ) of less than 1, namely BBKA (0.938) and SRIL (0.786). Stocks that have a beta of less than 1 mean that the stock is a stock that has low stock price volatility, making it suitable for an investor who does not like high-risk stocks. On the other hand, if an investor likes high risk, investors can choose stocks that have an undervalue and beta value of more than 1. Meanwhile, further researchers can examine other samples such as other indices on the IDX such as idx30, Kompas100, or research based on the existing sectors.

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