

Capital Asset Pricing Model Analysis in Determining the Feasibility of Property Company Stock Investment Decisions

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A R T I C L E I N F O

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ABSTRACT

This study aims to assess the investment feasibility of stocks in the property sector for the 2023-2024 period using the Capital Asset Pricing Model (CAPM). This study evaluates individual returns (R_i), systematic risk (β), and expected returns, $E(R_i)$. The analysis results indicate that there are five efficient stocks: BKSL, GMTD, JRPT, KIJA, and MTLA. Therefore, these stocks are recommended for purchase because their market prices are lower than their fair value, offering attractive potential returns. Conversely, there are 13 inefficient stocks, so they are recommended for sale. This study provides guidance for investors in making investment decisions based on CAPM analysis.

INTRODUCTION

The Indonesian capital market is a crucial instrument in supporting national economic growth by providing alternative funding sources for companies and investment opportunities for the public. The property and real estate sector is a leading sector, contributing significantly to Indonesia's Gross Domestic Product (GDP). In the second quarter of 2023, the construction sector contributed 9.43% and the real estate sector 2.40% to national GDP (Coordinating Ministry for Economic Affairs, 2023). With a significant multiplier effect on 185 related industries, the property sector plays a strategic role in driving the Indonesian economy.

The 2023-2024 period is a dynamic period for the Indonesian property sector. Amidst global economic uncertainty, the Indonesian property sector has demonstrated encouraging resilience. Investment in the property sector in the first half of 2024 reached IDR 29.4 trillion, a 6% increase from the same period the previous year (Basarah, 2024). This growth was driven by various government stimuli, including a policy of relaxing the Loan-to-Value (LTV) ratio to 100% and a Government-Borne Value Added Tax (PPN DTP) incentive for homes priced up to IDR 5 billion, effective November 2023 (Sunarsip, 2024). However, this sector also faces challenges from macroeconomic conditions such as fluctuating interest rates, inflation, and market sentiment ahead of the election year.

In the context of stock investment decision-making, investors face a dilemma between maximising returns and minimising the risks inherent in those investments. Investment risk can essentially be categorised into two main types: systematic risk and unsystematic risk. Systematic risk is the risk arising from macroeconomic factors such as inflation, interest rate changes, currency exchange rates, and overall market conditions, which cannot be avoided through portfolio diversification (Poluan et al., 2024). Conversely, unsystematic risk is a company-specific risk that can be minimised through investment diversification strategies.

The Capital Asset Pricing Model (CAPM) connects the expected return of a risky asset with its market risk, helping investors evaluate risk and potential return based on systematic and unsystematic factors.

CAPM helps investors select stocks by quantifying the relationship between risk (measured by beta/ β) and expected return. A higher β indicates higher risk and potential return. The market return is determined by the average market index return.

The importance of this research is driven by several factors. First, the unique characteristics of the property sector, which are highly sensitive to changes in interest rates, housing credit policies, and market sentiment, make systematic risk analysis highly relevant for this sector. Second, the 2023-2024 period is a challenging time, marked by the presence of an election year, fluctuations in Bank Indonesia's benchmark interest rate, and global economic dynamics affecting investor confidence. Third, information on systematic risk can help investors, both institutional and retail, make more rational and informed investment decisions.

By analyzing the CAPM of property companies listed on the Indonesia Stock Exchange for the 2023-2024 period, this study is expected to provide practical assistance to investors in evaluating the feasibility of investing in property stocks. Furthermore, this research contributes to the academic literature on investment risk

assessment in the Indonesian capital market, particularly in sectors that play a strategic role in the national economy.

THEORETICAL REVIEW

Investment

The increase in total utility is caused by the postponement of current consumption to invest in productive assets. Investments in productive assets in the form of tangible assets include houses, apartments, land, buildings, and gold. Additionally, there are financial assets such as securities traded between investors. Essentially, the goal of investment for investors is to increase their utility in the form of financial well-being. (Hartono, 2017) The difference between investing in real investments and financial investments is the level of liquidity of both investments. (Muslim, 2020) Financial investments consist of both direct and indirect investments. Real investments are generally relatively illiquid, meaning they are difficult to convert into cash, and are typically long-term investments. Financial investments are more liquid, meaning they can be quickly converted into cash without being tied to a specific trading method.

Stock

Shares are a sign or proof of an individual's or party's (business entity's) capital participation in a company or limited liability company. Therefore, these parties have a claim on the company's income and assets and are eligible to attend the General Meeting of Shareholders (GMS) (Indonesia Stock Exchange, 2019). Essentially, shares are proof of investor ownership of one of the owners of the issuing company, the company that issued the shares.

Capital Asset Pricing Model

According to Azizah et al. (2019), Sharpe, Litner, and Mossin were the first to introduce the Capital Asset Pricing Model (CAPM) method around the 1960s. In the CAPM, the expected return is linked to the risk of a particular asset at market equilibrium. According to Jones in Hartono (2017), market equilibrium occurs when asset prices reach a level that no longer provides incentives for speculative trading. The implications of this equilibrium assumption are:

1. All investors will choose a market portfolio, which is a portfolio that contains all assets in the market.
2. This market portfolio is the optimal risky asset portfolio, which is on the efficient frontier in the Markowitz model.

In CAPM analysis, stock valuation based on individual return rates and expected returns is classified as efficient stocks that have individual returns greater than the expected return rate and inefficient stocks that have individual returns smaller than the expected return rate (Hasan, Frendy, and Joanne, 2019). According to Hartono (2017), one of the most important skills investors must possess is the ability to estimate stock returns. This relates to investment decisions regarding stock selection. Estimation models are necessary to estimate a stock's return. Therefore, the Capital Asset Pricing Model (CAPM) can be used to estimate the return on a security. The following assumptions must be met when using the CAPM model:

1. All investors have the same time period. Investors can maximize their wealth by maximizing expected utility in the same time period.
2. Investment decisions made by all investors are based on consideration of the expected return and standard deviation of the portfolio.
3. All investors have homogeneous expectations regarding the input factors used in portfolio decisions. Expected returns, the variance of stock return data, and the covariance between security returns are the input factors used. This assumption states that given certain security prices and the risk-free interest rate, and using the same portfolio inputs, each investor will generate the same efficient frontier.
4. All investors can borrow (lending) or borrow (borrowing) an unlimited amount of funds at a risk-free interest rate.
5. Short sales are permitted. Individual investors have the right to short-sell any amount they wish.
6. All assets can be broken down into an unlimited number of smaller components. This allows investors to conduct transactions and investments at any time, even at the smallest value, according to prevailing prices.
7. All assets are fully liquid and can be traded. All assets can be bought and sold quickly in the market (liquid) at prevailing prices.
8. Transaction costs are not taken into account. Therefore, the sale and purchase of assets are not subject to transaction costs.
9. There is no inflation.
10. There is no personal income tax. Therefore, investors have the same choice of receiving dividends or capital gains.
11. Investors act as price takers. Individual investors cannot influence the price of an asset through buying and selling. Investors as a whole, not individually, determine the price of an asset.
12. The capital market is in equilibrium. In equilibrium, all risky assets must be in the market portfolio (M), because all investors hold this portfolio. Therefore, this market portfolio is perfectly diversified.

METHODOLOGY

The data types used in this study are quantitative data, secondary data, data processed according to research needs, published data, and data accessed by others through www.idx.co.id and finance.yahoo.com. The study period was from January 2023 to December 2024. The CAPM data analysis technique for assessing investment feasibility was carried out through the following steps:

1. Calculating the individual stock return rate (Individual Return)
2. Calculating the market rate of return (Return Market/ R_m)
3. Calculating the Risk-Free Rate of Return (R_f)
4. Calculating Systematic risk or stock beta (β)
5. Calculating the Expected Rate of Return $E(R_i)$
6. Calculate the expected rate of return based on the CAPM model, with the formula $E(R_i) = R_f + \beta_i [E(R_m) - R_f]$.
7. Stock grouping as a result of investment decisions. This decision is determined based on R_i and $E(R_i)$; if $R_i > E(R_i)$, then the investment decision is considered

efficient or feasible. Conversely, if $R_i < E(R_i)$, then the investment decision is declared inefficient or not feasible.

The study population consisted of all property sector stocks listed on the Indonesia Stock Exchange. Random sampling was used to select 18 property sector stock issuers. The sample size is as follows:

Table 1. Data on Property Company Stock Issuers

No	Code	Name
1	APLN	PT Agung Podomoro Land Tbk
2	ASRI	PT Alam Sutera Realty Tbk
3	BAPA	PT Bekasi Asri Pemula Tbk
4	BCIP	PT Bumi Citra Permai Tbk
5	BEST	PT Bekasi Fajar Industrial Estate Tbk
6	BIPP	PT Bhuwanatala Indah Permai Tbk
7	BKDP	PT Bukit Darma Property Tbk
8	BKSL	PT Sentul City Tbk
9	BSDE	PT Bumi Serpong Damai Tbk
10	CTRA	PT Ciputra Development Tbk
11	DART	PT Duta Anggada Realty Tbk
12	EMDE	PT Megapolitan Developments Tbk
13	GMTD	PT Gowa Makassar Tourism Development Tbk
14	JRPT	PT Jaya Real Property Tbk
15	KIJA	PT Kawasan Industri Jababeka Tbk
16	LPKR	PT Lippo Karawaci Tbk
17	MMLP	PT Mega Manunggal Property Tbk
18	MTLA	PT Metropolitan Land Tbk

Source: Processed data

RESULTS

Analysis of Expected Rate of Return [E(R_i)] with Capital Asset Pricing Model (CAPM)

The Capital Asset Pricing Model is used to determine the level of return an investor expects from a stock. The expected rate of return [E(R_i)] is the amount of profit an investor expects from a stock investment. The variables used to calculate E(R_i) according to the CAPM are the risk-free rate (R_f), the market rate of return (R_m), and systematic risk (β). The formula for calculating the expected rate of return using the CAPM is:

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

The following is a table of calculations of the expected rate of return with CAPM.

Table 1. CAPM Analysis

Code	E (Ri')	Rf	BETA	RM	E (Ri) (CAPM)		
APLN	-0,0154	5,25%	1,69618	0,17%	-1,54%		
ASRI	-0,0003		2,64284		-0,03%		
BAPA	-0,0193		0,90626		-1,93%		
BCIP	-0,0031		0,44225		-0,31%		
BEST	-0,007		1,97322		-0,70%		
BIPP	-0,0178		-0,1356		-1,78%		
BKDP	-0,0198		-0,2453		-1,98%		
BKSL	0,02646		0,28568		2,65%		
BSDE	0,00415		2,21031		0,42%		
CTRA	0,00421		1,13816		0,42%		
DART	0,01184		4,1416		1,68%		
EMDE	0,01592		2,64413		2,09%		
GMTD	0,06296		1,88904		6,80%		
JRPT	0,01243		0,24718		1,74%		
KIJA	0,00856		0,97347		1,36%		
LPKR	0,01206		1,49151		1,71%		
MMLP	0,00273		0,8709		0,77%		
MTLA	0,00664		0,15733		1,16%		
Max	0,06296				4,141599		0,067959683
Min	-0,0198				-0,24526		-0,019804657

Source: Processed data

Table 2. Stock Classification as an Investment Decision

Code	Category	Information	Decision
APLN	Tidak Efisien	Overvalued	Jual
ASRI	Tidak Efisien	Overvalued	Jual
BAPA	Tidak Efisien	Overvalued	Jual
BCIP	Tidak Efisien	Overvalued	Jual
BEST	Tidak Efisien	Overvalued	Jual
BIPP	Tidak Efisien	Overvalued	Jual
BKDP	Tidak Efisien	Overvalued	Jual

BKSL	Efisien	Undervalued	Beli
BSDE	Tidak Efisien	Overvalued	Jual
CTRA	Tidak Efisien	Overvalued	Jual
DART	Tidak Efisien	Overvalued	Jual
EMDE	Tidak Efisien	Overvalued	Jual
GMTD	Efisien	Undervalued	Beli
JRPT	Efisien	Undervalued	Beli
KIJA	Efisien	Undervalued	Beli
LPKR	Tidak Efisien	Overvalued	Jual
MMLP	Tidak Efisien	Overvalued	Jual
MTLA	Efisien	Undervalued	Beli

Source: Processed data

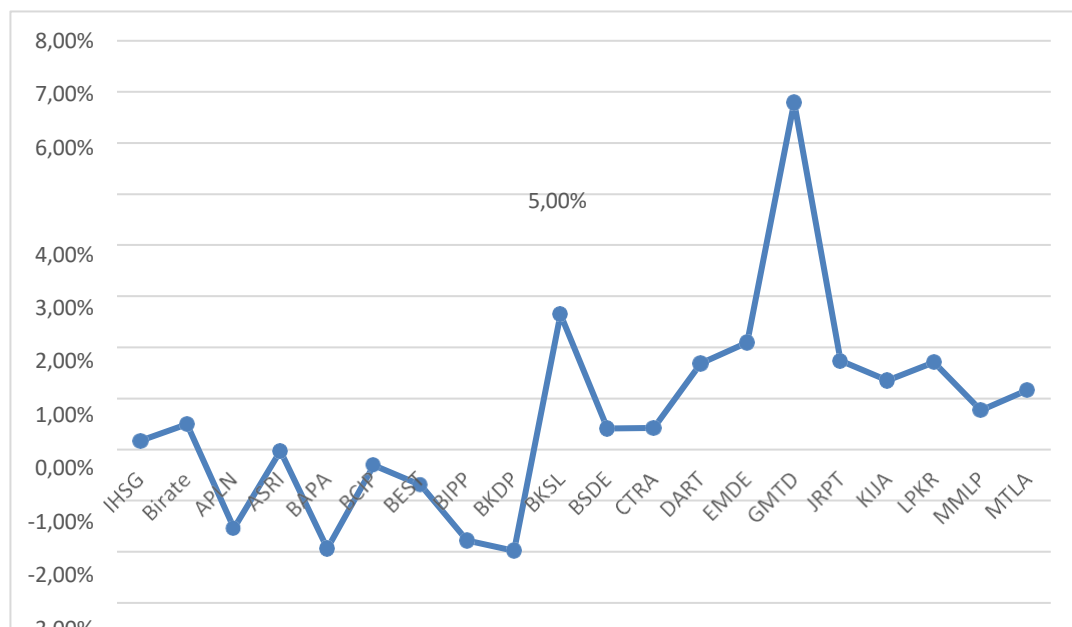


Figure 1. Securities Market Line for the period Jan 2023-Dec 2024

Source: Processed data

DISCUSSION

Individual Stock Return Rate (Ri) Period Jan 2023-Dec 2024

Actual stock returns (Ri) during the period January 2023 – December 2024 showed significant variation, from a negative -1.98% for BKDP shares to a positive 6.30% for GMTD. This indicates differences in stock performance within the portfolio, with some stocks underperforming the market while others delivered higher returns. This variation indicates specific risks that can be minimized through diversification.

Market Rate of Return (Rm)

Market returns (Rm) are within a relatively low range, ranging from -0.25% to 4.14% per period. This fluctuation reflects general market volatility during the

observation period. Stocks with high betas tend to follow market movements more sensitively, while stocks with low betas tend to move more stably. Therefore, it is important to adjust portfolio composition based on investors' risk tolerance for market fluctuations.

Risk-Free Rate of Return (Rf)

The Rf used, 5.25%, represents the return on a risk-free instrument such as a government bond. This value serves as the baseline for calculating expected stock returns using the CAPM. The difference between the stock's actual return and the risk-free return indicates the risk premium investors expect to receive for taking on market risk. Stocks with higher betas are typically expected to provide higher returns than those with higher Rf.

Individual Stock Systematic Risk (Beta)

The betas of the stocks in the portfolio range from 0.16 to 2.64, indicating varying sensitivity to market fluctuations. Stocks with high betas (e.g., ASRI = 2.64) tend to experience more extreme price movements with market movements, while stocks with low betas (e.g., MTLA = 0.16) are more stable. This affects the overall portfolio risk, as a combination of stocks with different betas can balance portfolio volatility.

Expected Rate of Return E(Ri) (CAPM)

Expected stock returns based on the CAPM show a range of values, ranging from negative to positive, from -1.98% to 6.80%. This indicates that some stocks are expected to provide returns above market risk (positive alpha), while others are expected to provide returns below the CAPM. This information is important for portfolio managers to assess whether a portfolio provides returns commensurate with the systematic risk taken.

Stock Classification as an Investment Decision

Stock Classification as an Investment Decision Based on calculations conducted on several property sector stock issuers, there are 5 efficient stocks because they have a higher expected return rate than the required return rate for investors [$E(R_i') > E(R_i)$]. In addition, there are 5 inefficient stocks because they have a lower expected return rate compared to the required return rate for investors [$E(R_i') < E(R_i)$].

Based on the classification table, stocks in a portfolio can be divided into two main categories: efficient and inefficient, which subsequently influence investment decisions. Stocks categorized as inefficient, such as APLN, ASRI, BAPA, BCIP, and others, are overvalued and therefore recommended for sale, as their current market price is estimated to exceed their intrinsic value. Conversely, stocks categorized as efficient, such as BKSL, GMTD, JRPT, KIJA, and MTLA, are undervalued and therefore recommended for purchase, as their market price is lower than their fair value, offering attractive potential returns. This analysis reflects a value investing strategy that emphasizes stock selection with a margin of safety. Buying and selling decisions are based on comparing market price to intrinsic value, while also considering the market efficiency of each stock.

CONCLUSIONS AND RECOMMENDATIONS

Based on the CAPM calculation, the expected rate of return $[E(R_i)]$ of stocks varies between negative and positive, from -1.98% (BKDP) to 6.80% (GMTD). This reflects the differences in performance of each stock against systematic risk, as measured by beta. Stocks with high betas, such as ASRI (2.64) and DART (4.14), exhibit significant sensitivity to market movements, resulting in their actual returns being significantly affected by JCI fluctuations. However, not all stocks with high betas generate positive expected returns, indicating that systematic risk is not always offset by adequate returns.

In contrast, stocks with low betas such as MTLA (0.16), BKSL (0.29), and JRPT (0.25) are relatively more stable and less affected by the market, but some of them are able to generate positive expected returns, indicating good performance compared to the risks taken. The SML analysis shows that efficient stocks (BKSL, GMTD, JRPT, KIJA, MTLA) are located above the market line, indicating actual returns are higher than those predicted by the CAPM, while inefficient stocks (APLN, ASRI, BAPA, and others) are below the line, indicating underperformance relative to systematic risk. Based on the research results, it is recommended that investors emphasize portfolio diversification by combining high and low beta stocks to balance risk and return, while prioritizing efficient and undervalued stocks such as BKSL, GMTD, JRPT, KIJA, and MTLA that have positive alphas and returns exceeding CAPM expectations.

FURTHER STUDY

This relatively short research period may not be sufficient to capture the entire economic cycle or significant market variability, so the results obtained are less reflective of long-term conditions.

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