MAKING INVESTMENT DECISIONS IN SHARES OF CONVENTIONAL BANKS AND SHARIA BANKS: A RISK AND RETURN CONTEXT

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Abstract

This study evaluates the efficiency of conventional and Islamic banking stocks in Indonesia using the capital asset pricing model (CAPM). The main issue raised is how differences in stock efficiency between conventional and Islamic banks affect investment decisions. According to Desiyanti (2017), CAPM is used to assess the relationship between risk and return and determine whether stocks are undervalued or overvalued. With a quantitative approach, this study analyzed secondary data from 47 banking companies listed on the Indonesia Stock Exchange (IDX), and through purposive sampling, 16 companies (eight conventional banks and eight Islamic banks) were selected. The results show eight efficient stocks (six conventional banks, and two Islamic banks) and eight inefficient stocks, in line with the findings of Yusnita and Ramadhan (2022) which show that stocks with actual returns higher than expected returns tend to be efficient. This study concluded that conventional banks have more efficient stocks than Islamic banks. The relevance of this study is that it provides insight into the management of stock investment portfolios in the Indonesian banking sector. Recommendations include the exploration of other financial subsectors and the application of alternative equilibrium models, such as arbitrage pricing theory (APT), to enrich investment decision-making.

Keywords: Capital Asset Pricing Model (CAPM), Investment, Conventional Banks, Sharia Banks

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1. INTRODUCTION

The financial sector's bank-dominated companies' shares saw the strongest gains in the first quarter of 2024 year. Amidst global uncertainties, capital market investors continue to have faith in stocks that propel the traditional economy. Stocks in the financial sector rose by 3.47%. Additionally, the Indonesia Stock Exchange (IDX) finance's growth outpaced the IDX Composite Stock Price Index (CSPI), which increased by just 0.76%. Additionally, the infrastructure sector stock index, which increased by just 1.01%, lagged behind the financial sector stock index. Stocks in the infrastructure sector increased by 80.75% last year. The banking industry grew by just 3.07% throughout that period (Kurnia, 2024). When building an investment portfolio, investors should always include equities in order to diversify their risk and increase portfolio returns (Apriwandi et al., 2021; Bajçinca et al., 2024; Dao et al., 2024; Efthimiou, 2024; Sahiti & Dalipi, 2024).

According to Adnyana (2020), the capital asset pricing model (CAPM) is an asset pricing and valuation model that is employed to ascertain the size of assets by looking at the level of investment risk under balanced market conditions. The use of the CAPM is very important as it enables precise prediction of the relationship between risk and expected return to determine accuracy in determining which group of shares will be selected when considering decisions. Invest in the right shares by investors when investing their capital, so that investors can assess whether the current share price is undervalued or overvalued (Firmansyah et al., 2022). Velkova and Kirilova (2023) assess the CAPM depending on the following factors: 1) return on investment from risk-free assets; 2) country-specific risk premium (also known as country-related asymmetric risk); 3) business risk premium; and 4) project asymmetric risk premium. Next, the methodology is implemented in Bulgarian environmental investment projects. This study examines how Indonesian conventional and Islamic banks choose which equities to purchase using the CAPM.

The sector that is the focus of the research is the banking sector. As long as the Indonesian economy is still growing, it will encourage shares in the banking sector to be considered positive so that investors are interested in investing in the banking subsector which includes conventional banks and Sharia banks, especially in banks that are supervised and regulated by the government (Crisdianto, 2019). According to Distira and Nasution (2023), the reason for choosing Islamic banking shares is that they are considered profitable, halal, and usury-free compared to investing in the conventional banking sector because the profit is divided between investors and investment managers based on predetermined proportions. Meanwhile, according to Maulana (2023), the reason investors choose to invest in conventional banks is to get profits from a value-free system in the form of interest, even though the interest is not very high, many investors invest their capital in conventional banking.

Banking plays an important role in driving Indonesia's economic growth, with conventional and Islamic bank stocks being the main concerns of investors in the capital market. However, the efficiency of these two types of banking stocks is not fully understood, especially in the context of risk and return evaluated using the CAPM. Previous research by Desiyanti (2017) and Yusnita and Ramadhan (2022) shows that CAPM can be an effective tool for identifying efficient stocks, but the research has not extensively discussed the differences in stock efficiency between conventional and Islamic banks. Previous research (Desiyanti, 2017; Yusnita & Ramadhan, 2022) has shown that the CAPM model can be used to evaluate stock efficiency. However, there are not many studies that explicitly compare stock efficiency between conventional and Islamic banks in Indonesia. Most studies only focus on one type of banking or another financial sector. This gap highlights the need for more in-depth comparative studies to provide a more holistic picture of stock efficiency across both types of banking.

Share price data for Indonesian Sharia banks at the beginning of December 2022 touched 1,325.00 per share. However, at the end of December, the share price had decreased to 1,290.00 per share. This shows that the share price of this Indonesian Sharia bank had poor performance good in December 2022. However, it is different in banking in the conventional sector where Bank Rakyat Indonesia (BRI) at the beginning of December 2022 touched a share price of 4,940.00 per share, but the share price at the end of December 2022 of BRI was still at a stable price of 4,940.00 per share[1]. So, it is hoped that share prices in the banking sector in Indonesia will remain stable and increase so that investors will be interested in making decisions in choosing accurate investments in both conventional banking and Sharia banking and it is hoped that this will provide large returns to investors.

There are several studies using the CAPM method in making investment decisions (Nurhayati et al., 2021; Shetty et al., 2021; Focacci, 2022; Nordin et al., 2022; Kabderian Dreyer et al., 2023; Anuno et al., 2023; Kánová et al., 2024). Nordin et al. (2022) assessed the risk and return of the Malaysian real estate investment trust (M-REIT) portfolio and the all-REIT portfolio using the CAPM model, resulting in M-REITs having low-performance deviation and should be included in the investment portfolio. Kánová et al. (2024) employed the CAPM to compute the Beta coefficient while accounting for the risk premium and ascertaining the cost of equity. The three- and five-factor Fama-French models, as well as the CAPM, were tested by (Anuno et al., 2023). A more thorough analysis reveals that the conservative minus aggressive (CMA) component, which is an investment element, does not significantly correlate with excess return, while the robust minus weak (RMW) component, which is a profitability factor, does positively correlate and significantly correlates with excess return. This result validates the explanation capacity of the model with three French family factors.

According to Yusnita and Ramadhan (2022) which state that CAPM can be applied in assessing the efficiency of shares in the Jakarta Islamic Index (JII), both those included inefficient and inefficient categories, where there are 10 shares that are classified as efficient shares with an individual rate of return (Ri) value higher than the expected rate of return (E(Ri)), thus, investors are advised to buy shares that are classified as efficient. However, research by Nurhayati et al. (2021) states that of the four shares of banking companies owned by

[1] https://finance.yahoo.com/quote/%5EJKSE/

state-owned enterprises, two Bank Negara Indonesia (BNI) shares and Bank Tabungan Nasional (BTN) are classified as efficient shares, while the other two BRI are not. This information was determined by applying the CAPM analysis method.

This study adopts the CAPM model in assessing stock efficiency, but we limit the assessment of stock efficiency to conventional and Islamic banks only. This study aims to assess how well Indonesian Islamic and conventional banks applied the CAPM strategy while making stock investment decisions between 2018 and 2022 years.

Quantitative approach with secondary data from 47 banks listed on the IDX. Data was analyzed using purposive sampling to select 16 banks (eight conventional and eight Islamic), with an evaluation of stock efficiency based on actual returns and expected returns using CAPM. The main findings of this study show that conventional bank stocks are more efficient than Islamic bank stocks, with six out of eight conventional bank stocks categorized as efficient compared to only two out of eight Islamic bank stocks. This research contributes to the understanding of equity investment portfolio management in the Indonesian banking sector.

This research has a high relevance because it fills the literature gap related to the comparison of stock efficiency between conventional and Islamic banks in Indonesia, which has not previously been discussed in depth. In the context of an increasingly competitive capital market, investors need accurate information to make strategic investment decisions. This study provides insight into how the CAPM model can be used to evaluate the risk and return of stocks in two types of banks that have different operational characteristics. The significance of the study lies in its contribution to the finance and investment literature, particularly in understanding the differences in stock efficiency between conventional and Islamic banks. In addition, the study also has high practical value for investors, portfolio managers, and policymakers by providing data and analysis that can be used to improve investment portfolio management. By showing that conventional bank stocks tend to be more efficient than Islamic bank stocks, this study provides a foundation for a more informed and optimal return-oriented investment strategy. This research is also relevant in supporting the development of Indonesia's financial sector, particularly in encouraging the competitiveness of Islamic banks to compete with conventional banks in attracting domestic and international investors.

This literature gap lies in the lack of in-depth comparative studies on stock efficiency between conventional and Islamic banks in the context of the Indonesian capital market. Most studies focus on one type of bank or on other sectors, thus creating a need for studies that integrate both types of banking. This study aims to evaluate the stock efficiency of conventional and Islamic banks in Indonesia using CAPM. The main research questions are:

RQ1: Is there a difference in stock efficiency between conventional and Islamic banks?

RQ2: What factors influence stock efficiency in both types of banks?

This study uses the CAPM theoretical framework, which measures the relationship between risk and return to determine stock efficiency. This model was chosen for its ability to identify undervalued and overvalued stocks based on historical data of stock returns, Beta, and risk-free rate.

The paper is organized in a systematic structure to guide the reader through all aspects of the study. Section 2 outlines the underlying theory, key concepts, as well as relevant previous research findings to provide a theoretical framework. Section 3 describes the research approach, data collection methods, sampling techniques, and analysis methods used. Section 4 presents the main research findings relates them to the existing literature, and discusses the implications of the findings. Section 5 summarizes the main results of the study, provides practical recommendations for decision-makers, and suggests directions for further research.

2. LITERATURE REVIEW

2.1. Behavioral finance and signal theory

According to Brigham and Houston (2019) in their book, they explain that signal theory refers to the steps taken by company management to provide guidance to investors regarding management's perception of the company's prospects. Some researchers use signal theory and behavioral finance theory (Surira et al., 2024; Wijaya et al., 2021; Sachdeva & Lehal, 2023; Phuong, 2022; Yi et al., 2024; Mazzocchini & Lucarelli, 2023). Piao and Xiao's (2022), behavioral finance theory argues that stock prices can be influenced by psychological and emotional factors.

Signaling theory advises that a corporation communicates with investors about its current position in order to ease investor fears and prevent the company from being underestimated (Suharti et al. 2022). Contrarily, investor behavior theory explains how an investor makes decisions about investments based on the information provided and the concept of satisfaction. This helps identify whether a share is priced above or below fair value by using an investment evaluation technique called the CAPM method (Maknuun, 2019).

Similarly, Wijaya et al. (2021) and Hu et al. (2023) demonstrate that the degree of information asymmetry between dividend payers and non-payers explains how investors' desire for dividend increases affects investor attitudes toward dividends. Investment decision-making is strongly influenced by a number of factors, the most important of which is the company's image, and the least important of which are accounting information, neutral information, advisor recommendations, and personal financial needs (Sachdeva & Lehal, 2023). The findings of the Phuong (2022) study show that stock prices from five sectors responded equally (positively or negatively) to news of the national lockdown and confirmation of COVID-19 patients, this signal shows a psychological impact on the stock market.

According to Al Ibrahim (2019), behavioral finance theory is an investment analysis that uses psychology in financial science, namely an approach that explains how investors make investments or are related to finance which is influenced by psychological factors. Jung et al. (2022) findings suggest that while two-way communication can attract investors, information updates from startup founders have a non-linear quadratic correlation with fundraising performance, and the level of novelty can influence strategic decision-making, suggesting that projects with higher levels of novelty should have a targeted audience.

Shiva et al. (2022) research demonstrates the theoretical foundations for looking into how investors' intentions to purchase company shares are influenced by celebrity endorsements. To comprehend stock market investor behavior, they combined the theories of behavioral finance and marketing communication. The findings indicate that when technological companies get well-known entertainers to promote their goods, investors are more inclined to invest in those businesses. Investors like entertainment icons whose personas align with the products they promote. Furthermore, investors favor making investments in rising economies like India during periods of a market correction.

The existence and rationality of herd behavior among Chinese stock crowdfunding investors were investigated by Yi et al. (2024) in their study. They found that investors in the Chinese stock crowdfunding market exhibit rational herd behavior. Project factors have a negative moderating influence on the relationship between total investment and current investment amount.

2.2. Investment

The definition of investment put forward by Bodie et al. (2019) investing is the commitment to allocate a certain amount of money or other resources now in the hopes of reaping larger rewards later on. Investment is the act of placing funds or allocating funds with the aim of obtaining profits or economic returns on these funds over a certain period of time.

Although asset valuation can offer particular and helpful insights for risk management, there aren't many commercial and academic resources that can adequately meet this need. One major obstacle is that cash flow estimates for climate-related hazards (both physical and transitional) usually treat them as indirect variables; instead, they must be based on direct variables like revenues, capital expenditures, operational costs, and financing costs (In et al., 2022).

Dynamic investment strategies actively shift the allocation of funds to different asset classes van Rooyen and van Vuuren (2022) to systematically benefit from short-term imbalances and inefficiencies. This approach is not the same as strategic asset allocation, which determines an objective allocation for long-term investments by combining risk tolerance and desired returns.

According to In et al. (2022) while including climate scenarios in asset valuation models can yield particular and valuable insights for risk management, there are currently insufficient academic and commercial resources to effectively address this demand. One major obstacle is that, in cash flow calculations, climate-related hazards (both physical and transitional) are usually treated as indirect variables and must be evaluated in relation to direct variables like revenues, capital expenditures, operational costs, and financing costs.

2.3. Capital market

People are more used to investing in gold or real estate, two types of instruments. However, not many people are aware of the investment opportunities in the capital market. People who choose the capital market as a place to invest not only have the opportunity to earn profits. However, they also actively contribute to the improvement of the domestic economy. The capital market includes activities related to securities trading and public offerings, public companies and the securities they issue, as well as businesses and occupations associated with securities. Meanwhile, through the trading of long-term assets such as bonds, stocks, and other securities, the capital market serves as a mediator between investors, companies, and government organizations, says Bruce Lloyd (Cakrawala University, 2025).

Fluctuations in a company's share price in the capital market do not indicate its financial condition. Accounting data is often not the basis for investment decisions made by investors. In general, information gleaned from financial accounts and external sources influences investment decisions and the value of the company. The country's macroeconomy and the stock market are two examples of aspects of the economic environment that demonstrate how accounting and financial data are used to assess a company's value. By using valuation models, investors can obtain useful information. They can also use comparative analysis to ascertain the impact of accounting and market data on stock prices and investment returns. The findings imply that when assessing the possibility of a viable investment, investors should place more emphasis on accounting data rather than just market value (Apriwandi et al., 2021).

2.4. Capital asset pricing model

According to Desiyanti (2017), the CAPM functions by assuming that investors are rational, investors use the same or identical input/information so they have homogeneous expectations, and all assets can be traded, so short selling is possible and investors can carry out lending and borrowing transactions at risk-free interest rates. CAPM is the tool that Zou and Wang (2023) employ to simulate investments in the Chinese medical industry. Both before and after the epidemic, the market deemed the medical industry's investment worth to be too low. China's medical industry has a consistent systemic risk premium when looking at risk. According to the aforementioned analysis, investors should appropriately deploy shares in the pharmaceutical and medical industries when constructing an investment portfolio in the post-pandemic era in order to diversify investment risks and boost portfolio income.

Cited from research by Pramono et al. (2022), CAPM is a model that can describe or predict the reality of a complex market and is an equilibrium model that describes the relationship between risk and return in a simpler way because it only uses one variable (the return). Relationship between risk and return in a simpler way because it only uses one variable (called the Beta variable) to describe risk. Beta variable to describe risk. Because the CAPM can describe the relationship between risk and return in a simpler way, then every investor can do their own portfolio analysis to find out which portfolios are profitable and which portfolios are not to find out which portfolio is profitable and how to optimize the return of a combination of portfolios by considering the level of risk of the portfolio, portfolio by considering the risk level of the existing portfolio. CAPM can help investors in a portfolio by calculating the non-diversifiable risk and comparing it with the predicted rate of return that is predicted.

Based on CAPM, the level of risk and the level of return are stated to have a positive and linear a positive and linear relationship.

The CAPM was employed by Nordin et al. (2022) to evaluate the risk and return of the all-REIT and M-REIT portfolios. They examined the last 10 years' worth of M-REIT, FBM KLCI, and MGS yield monthly closing prices. According to the findings, the M-REITs' expected returns using CAPM varied from -0.1905 to 0.2391. In order to evaluate the anticipated fair return of the all-REIT portfolio, the researchers also created an equally weighted portfolio with a weight allocation of 0.0588 for each of the 17 M-REITs. M-REITs are low-risk investments that should be included in the investment portfolio, according to the CAPM, which also revealed that they had low-performance variance with the market portfolio.

Hackworth (2024) utilizes the CAMP model in offering formal evidence that predicted price markups are proportional to Tobin's Q. Firm-level markups and Tobin's Q are equally valued. Anuno et al. (2023) analysis looks at the impact of the three- and five-factor Fama-French models, as well as the CAPM, on the excess returns of Timor-Leste's bond and equities investments abroad from 2006 to 2019 years. The findings indicate that excess returns from the CAPM and the three- and five-factor Fama-French models are positively and significantly correlated with the market factor. Furthermore, the two variables, high minus low (HML) as a value factor and small minus big (SMB) as a size factor, have a negative and significant effect on excess returns in the Fama-French three-factor and five-factor models. Further analysis shows that the profitability element RMW is positively and significantly connected with excess returns, whereas the investment factor CMA is not significantly correlated. These results validate the explanatory capacity of the Fama-French five-factor model.

3. METHODOLOGY

This study uses the CAPM method to evaluate the efficiency of conventional and Islamic bank stocks in Indonesia. With a descriptive quantitative approach, this study analyzes secondary data from 47 banking companies listed on the IDX during the period 2018–2022 years. The sampling technique used was purposive sampling, resulting in 16 companies as samples (eight conventional banks and eight Islamic banks). The analysis was conducted to identify efficient and inefficient stocks based on the calculation of actual return (Ri), stock Beta, risk-free rate of return (Rf), and return market. This research uses secondary data such as literature, documentation, or available reports, while data sources are obtained from the IDX through the site https://www.idx.co.id/id, stock prices through the site https://finance.yahoo.com/, and Bank Indonesia (BI) rate through the site https://www.bi.go.id/. The documentation method is the data collection method used in this study. This research uses quantitative descriptive analysis as its analysis method. The CAPM method is a data analysis technique used in this study to obtain an overview of overvalued/inefficient and undervalued/efficient stock investment decisions.

As an alternative method, this research can use arbitrage pricing theory (APT) or a single index model (SIM). APT allows the evaluation of stock risks and returns by considering several macroeconomic factors, such as inflation, interest rates, and economic growth. This method is suitable for more complex analysis and can provide a broader picture of the determinants of stock efficiency. SIM, on the other hand, simplifies risk analysis by only considering the overall market influence on stocks, making it more efficient to identify undervalued or overvalued stocks. Both methods provide valid alternatives and can strengthen the research results, especially when combined with CAPM for result comparison and model validation.

4. RESULTS AND DISCUSSION

4.1. Individual rate of return analysis results

Return refers to how much profit or loss an investor obtains from the stock investment activities carried out (Ferrari, 2019). Return can be considered a key indicator in company selection because it is related to the development of the selected company's performance during a certain period in stock investment activities (Focacci, 2022; Curatola & Dergunov, 2023; Kánová et al., 2024).

Table 1. Return calculation results of conventional banks

No.	*Code*	*Company name*	*Ri*
1	AGRO	PT Bank Rakyat Indonesia Agroniaga Tbk	0.0296
2	BBKP	Bank KB Bukopin Tbk	-0.0089
3	BBHI	Allo Bank Indonesia Tbk	0.0890
4	AGRS	PT Bank IBK Indonesia Tbk	0.0093
5	MCOR	China Construction Bank Indonesia Tbk	-0.0083
6	INPC	Bank Artha Graha Internasional Tbk	0.0197
7	BTPN	PT Bank BTPN Tbk	0.0057
8	BGTG	Bank Ganesha Tbk	0.0315
Average conventional bank			0.0210

Source: Authors' elaboration.

Table 2. Return calculation results of Islamic bank

No.	*Code*	*Company name*	*Ri*
1	PNBS	PT Bank Panin Dubai Syariah Tbk	0.0139
2	BNLI	PT Bank Permata Tbk	0.0199
3	BNII	PT Bank Maybank Indonesia Tbk	0.0035
4	BSIM	PT Bank Sinarmas Tbk	0.0089
5	BDMN	PT Bank Danamon Indonesia Tbk	-0.0067
6	NISP	PT Bank OCBC NISP Tbk	-0.0029
7	ARTO	PT Bank Jago Tbk	0.1326
8	BNGA	PT Bank CIMB Niaga Tbk	0.0017
Average Sharia bank			0.0214

Source: Authors' elaboration.

The results of the calculation of average individual stock returns show that conventional banks have an average return of 2.10%, while Islamic banks are slightly higher at 2.14%. Although there is a difference, this difference is not significant, so in general, both types of banks have almost equal investment potential. The stock with the highest return in conventional banks is Allo Bank Indonesia Tbk (BBHI) at 8.90%, while in Islamic banks, PT Bank Jago Tbk (ARTO) recorded the highest return of 13.26%. This shows that although Islamic banks have a slightly higher average return, stock performance still depends on company-specific factors. Investors need to consider other aspects such as stability, risk, and growth prospects before making investment decisions. With different stock characteristics, conventional banks tend to offer stability, while Islamic banks have greater growth potential in certain stocks. Therefore, portfolio diversification can be an optimal strategy to capitalize on investment opportunities in both sectors.

4.2. Market return rate analysis

According to Firmansyah et al. (2022), this market return can be used to find the systematic risk (Beta) needed to calculate the CAPM, because in the CAPM model, the risk used is only systematic risk (Beta) which measures the sensitivity of stocks to overall market movements.

Table 3. Market average rate of return (Rm)

Period		*CSPI*	*Market return rate*	*Period*		*CSPI*	*Market return rate*
Year	*Month*			*Year*	*Month*		
2018	January	6.606	0.0393	2020	September	4.870	-0.0703
	February	6.597	-0.0013		October	5.128	0.0530
	March	6.189	-0.0619		November	5.612	0.0944
	April	5.995	-0.0314		December	5.979	0.0653
	May	5.984	-0.0018	2021	January	5.862	-0.0195
	June	5.799	-0.0308		February	6.242	0.0647
	July	5.936	0.0237		March	5.986	-0.0411
	August	6.018	0.0138		April	5.996	0.0017
	September	5.977	-0.0070		May	5.947	-0.0080
	October	5.832	-0.0242		June	5.985	0.0064
	November	6.056	0.0385		July	6.070	0.0141
	December	6.194	0.0228		August	6.150	0.0132
2019	January	6.533	0.0546		September	6.287	0.0222
	February	6.443	-0.0137		October	6.591	0.0484
	March	6.469	0.0039		November	6.534	-0.0087
	April	6.455	-0.0021		December	6.581	0.0073
	May	6.209	-0.0381	2022	January	6.631	0.0075
	June	6.359	0.0241		February	6.888	0.0388
	July	6.391	0.0050		March	7.071	0.0266
	August	6.328	-0.0097		April	7.229	0.0223
	September	6.169	-0.0252		May	7.149	-0.0111
	October	6.228	0.0096		June	6.912	-0.0332
	November	6.012	-0.0348		July	6.951	0.0057
	December	6.300	0.0479		August	7.179	0.0327
2020	January	5.940	-0.0571		September	7.041	-0.0192
	February	5.453	-0.0820		October	7.099	0.0083
	March	4.539	-0.1676		November	7.081	-0.0025
	April	4.716	0.0391		December	6.851	-0.0326
	May	4.754	0.0079	Amount			0.1271
	June	4.905	0.0319	Average			0.0021
	July	5.150	0.0498	Rm (%)			0.21%
	August	5.238	0.0173				

Source: Authors' elaboration.

The average return market during the study period was 0.21%, reflecting the stability and profit potential of investing in the capital market, including banking stocks. Despite significant fluctuations, such as the sharp decline in March 2020 due to the COVID-19 pandemic (-16.76%), the market gradually recovered, as seen from the positive increase in yields in the following months, such as November 2020 (9.44%). 2021 and 2022 years showed a more stable trend with relatively moderate yield movements, signalling economic recovery, and positive investor sentiment.

The fluctuating movement of the Jakarta Stock Exchange Composite Index (JCI) illustrates that market risk remains a major factor influencing investment decisions. Long-term-orientated investors need to consider this historical trend in structuring their portfolios. In the context of the CAPM, fluctuations in the return market are an important indicator in determining the level of systematic risk of a stock. With the market showing a recovery trend, efficient banking stocks have the potential to provide attractive returns, especially for investors who consider long-term stability and growth aspects.

4.3. Risk-free rate of return analysis results

According to Velkova and Kirilova (2023), the Rf is an investment return that is free from risk due to guarantees provided by the government and adjusted to legal standards. This is a benchmark for investors which shows that when an investment instrument does not produce a return that exceeds the Rf, investors will not face additional risk.

Table 4. Risk-free rate of return calculation results from Bank Indonesia's 7-day reverse repo rate (RR)

Period	*Month*	*BI-7 day-RR*	*Period*	*Month*	*BI-7 day-RR*
2018	January	4.25%	2020	September	4.00%
	February	4.25%		October	4.00%
	March	4.25%		November	3.75%
	April	4.25%		December	3.75%
	May	4.75%	2021	January	3.75%
	June	5.25%		February	3.50%
	July	5.25%		March	3.50%
	August	5.50%		April	3.50%
	September	5.75%		May	3.50%
	October	5.75%		June	3.50%
	November	6.00%		July	3.50%
	December	6.00%		August	3.50%
2019	January	6.00%		September	3.50%
	February	6.00%		October	3.50%
	March	6.00%		November	3.50%
	April	6.00%		December	3.50%
	May	6.00%	2022	January	3.50%
	June	6.00%		February	3.50%
	July	5.75%		March	3.50%
	August	5.50%		April	3.50%
	September	5.25%		May	3.50%
	October	5.00%		June	3.50%
	November	5.00%		July	3.50%
	December	5.00%		August	3.75%
2020	January	5.00%		September	4.25%
	February	4.75%		October	4.75%
	March	4.50%		November	5.25%
	April	4.50%		December	5.50%
	May	4.50%	Total		2.7450
	June	4.25%	Average		0.0450
	July	4.00%			
	August	4.00%			

Source: Authors' elaboration.

The analysis results show that the average Rf (BI-7 day RR) during the study period was 4.50%, serving as a benchmark for investors in assessing whether stock returns justify additional risks. From 2018 to 2019 years, the Rf was relatively high, peaking at 6.00%, indicating a tighter monetary policy. However, starting in the 2020 year, the rate began to decline as BI adopted a more accommodative stance to support economic recovery, dropping to 3.50% by mid-2021 year and remaining at that level until early 2022 year. The lowest point was recorded between November 2020 and July 2022 at 3.50%, reflecting efforts to stimulate growth during and after the pandemic. A declining Rf generally lowers the required return for investors, making stocks more attractive compared to fixed-income investments. This trend likely influenced investment decisions, particularly in the banking sector, where lower interest rates impact lending margins and profitability. Understanding these fluctuations is crucial for investors using the CAPM, as the Rf directly affects expected returns and investment attractiveness in different market conditions.

4.4. Results of systematic risk analysis (Beta)

According to Kánová et al. (2024), Beta (β) is a type of risk that cannot be avoided through diversification because it is related to overall market conditions. Market circumstances are subject to alter at any time and have an impact on fluctuations in stock prices as well as E(Ri).

Conventional banks tend to have a higher Beta, which implies that their stocks are more volatile and respond more to market fluctuations. For example, Bank KB Bukopin Tbk (BBKP) with a Beta of 1.90 is highly sensitive to market movements, suggesting a greater potential for both gains and losses. In contrast, Islamic banks generally exhibit lower Beta values, indicating that their stocks are less volatile and may offer more stability, as seen with PT Bank Panin Dubai Syariah Tbk (PNBS) with a Beta of 0.49. While lower-Beta stocks typically offer more stability, they might also provide lower returns in comparison to higher-Beta stocks. Investors seeking higher risk and return opportunities may prefer conventional banks, while those prioritizing stability might find Islamic banks more attractive. The overall difference in Beta values between conventional and Islamic banks highlights the contrasting investment profiles of the two types of banks. Additionally, the volatility in conventional banks reflects their closer alignment with broader economic factors, while Islamic banks are less influenced by market fluctuations, likely due to their unique financial structures and principles.

Table 5. Beta calculation results from conventional banks

No.	*Code*	*Beta*	*Description*
1	AGRO	1.12	$\beta > 1$
2	BBKP	1.90	$\beta > 1$
3	BBHI	1.55	$\beta > 1$
4	AGRS	0.95	$\beta < 1$
5	MCOR	0.76	$\beta < 1$
6	INPC	0.69	$\beta < 1$
7	BTPN	0.64	$\beta < 1$
8	BGTG	0.58	$\beta < 1$
Average conventional bank		1.02	$\beta > 1$

Source: Authors' elaboration.

Table 6. Beta calculation results from Sharia banks

No.	*Code*	*Beta*	*Description*
1	PNBS	0.49	$\beta < 1$
2	BNLI	1.01	$\beta > 1$
3	BNII	0.91	$\beta < 1$
4	BSIM	0.06	$\beta < 1$
5	BDMN	0.90	$\beta < 1$
6	NISP	0.21	$\beta < 1$
7	ARTO	1.83	$\beta > 1$
8	BNGA	0.69	$\beta < 1$
Average Sharia bank		0.76	$\beta < 1$

Source: Authors' elaboration.

4.5. Expected rate of return analysis results

According to Focacci (2022) and Kánová et al. (2024), CAPM calculations can be used to determine the value of the expected rate of return (E(Ri)), involving several variables including the value of the Ri, the market rate of return (Rm), the Rf, and the Beta value (β) of each stock. Nurwulandari (2020) argues that investors can use the CAPM calculation results to assess the relationship between risk and return to determine investment choices.

Table 7. Results of the rate of return calculation expected from conventional banks

No.	*Code*	*Rf*	*β*	*E(Rm)*	*E(Rm) - Rf*	*β * (E(Rm) - Rf)*	*E(Ri)*
1	AGRO	0.0450	1.1200	0.0021	-0.0429	-0.0480	-0.0030
2	BBKP	0.0450	1.9000	0.0021	-0.0429	-0.0815	-0.0365
3	BBHI	0.0450	1.5500	0.0021	-0.0429	-0.0665	-0.0215
4	AGRS	0.0450	0.9500	0.0021	-0.0429	-0.0408	0.0042
5	MCOR	0.0450	0.7600	0.0021	-0.0429	-0.0326	0.0124
6	INPC	0.0450	0.6900	0.0021	-0.0429	-0.0296	0.0154
7	BTPN	0.0450	0.6400	0.0021	-0.0429	-0.0275	0.0175
8	BGTG	0.0450	0.5800	0.0021	-0.0429	-0.0249	0.0201
Average conventional bank							0.0011

Note: E — expected return of the market.
Source: Authors' elaboration.

Table 8. Results of the rate of return calculation expected from Sharia banks

No.	*Code*	*Rf*	*β*	*E(Rm)*	*E(Rm) - Rf*	*β * (E(Rm) - Rf)*	*E(Ri)*
1	PNBS	0.0450	0.4900	0.0021	-0.0429	-0.0210	0.0240
2	BNLI	0.0450	1.0100	0.0021	-0.0429	-0.0433	0.0017
3	BNII	0.0450	0.9100	0.0021	-0.0429	-0.0390	0.0060
4	BSIM	0.0450	0.0600	0.0021	-0.0429	-0.0026	0.0424
5	BDMN	0.0450	0.9000	0.0021	-0.0429	-0.0386	0.0064
6	NISP	0.0450	0.2100	0.0021	-0.0429	-0.0090	0.0360
7	ARTO	0.0450	1.8300	0.0021	-0.0429	-0.0785	-0.0335
8	BNGA	0.0450	0.6900	0.0021	-0.0429	-0.0296	0.0154
Average Sharia bank							0.0123

Source: Authors' elaboration.

The calculation results show that conventional and Islamic bank stocks have varying expected return values. Bank Ganesha Tbk (BGTG) and PT Bank Sinarmas Tbk (BSIM) recorded the highest E(Ri) values in each category, indicating that they have the highest potential returns based on the CAPM model. These results highlight the different risk-return profiles of each bank, where conventional banks such as BGTG tend to offer relatively higher returns, albeit with higher risks due to their greater sensitivity to market fluctuations (Beta). In contrast, Islamic banks like BSIM offer moderate returns with lower risks, making them potentially more attractive to risk-averse investors. However, the expected returns values also suggest that despite the higher Betas of conventional banks, some Islamic banks like PT Bank Panin Dubai Syariah Tbk (PNBS) demonstrate solid performance as well, reflecting the diversity in the financial strategies and risk tolerance of these institutions. This variation underscores the importance of considering both the risk (Beta) and the expected returns when making investment decisions.

4.6. Results of analysis of grouping undervalued and overvalued shares in investment decisions

According to Gultom and Syafrina (2022), undervalued shares are also referred to as efficient shares because share prices in the market do not reflect the real rate of return on shares. These shares have expected returns that are smaller than the rate of return of individual shares and are classified as shares that are worth buying because they have a high rate of return. Meanwhile, according to Rahmawati (2023), overvalued shares are shares that have an expected return that is greater than the rate of return of individual shares, so these shares are categorized as not worth buying because they have a low rate of return.

Table 9. Conventional bank undervalued and overvalued stock groups

No.	*Code*	*Ri*	*E(Ri)*	*Difference*	*Information*	
					Undervalued (efficient)	*Overvalued (not efficient)*
1	AGRO	0.0296	-0.0030	0.0326	Efficient	
2	BBKP	-0.0089	-0.0365	0.0276	Efficient	
3	BBHI	0.0890	-0.0215	0.1105	Efficient	
4	AGRS	0.0093	0.0042	0.0051	Efficient	
5	MCOR	-0.0083	0.0124	-0.0207		Not efficient
6	INPC	0.0197	0.0154	0.0043	Efficient	
7	BTPN	0.0057	0.0175	-0.0118		Not efficient
8	BGTG	0.0315	0.0201	0.0114	Efficient	

Source: Authors' elaboration.

Table 10. Groups of undervalued and overvalued shares in Islamic banks

No.	*Code*	*Ri*	*E(Ri)*	*Difference*	*Information*	
					Undervalued (efficient)	*Overvalued (not efficient)*
1	PNBS	0.0139	0.0240	-0.0101		Not efficient
2	BNLI	0.0199	0.0017	0.0182	Efficient	
3	BNII	0.0035	0.0060	-0.0025		Not efficient
4	BSIM	0.0089	0.0424	-0.0335		Not efficient
5	BDMN	-0.0067	0.0064	-0.0131		Not efficient
6	NISP	-0.0029	0.0360	-0.0389		Not efficient
7	ARTO	0.1326	-0.0335	0.1661	Efficient	
8	BNGA	0.0017	0.0154	-0.0137		Not efficient

Source: Authors' elaboration.

From this table, there are six conventional bank stocks and two Islamic bank stocks that fall into the efficient (undervalued) category. These efficient stocks are recommended to be bought as they have higher potential actual returns than expected returns. In contrast, inefficient (overvalued) stocks such as China Construction Bank Indonesia Tbk (MCOR) and PT Bank Panin Dubai Syariah Tbk (PNBS) show lower performance and are less recommended for investment. The classification of these stocks as either efficient or inefficient is crucial for investors seeking to optimize their portfolios based on the difference between expected and actual returns. Efficient stocks represent potential opportunities for higher returns, while inefficient stocks may indicate the need for further analysis or caution before investment. By focusing on undervalued (efficient) stocks, investors can potentially maximize their returns while minimizing exposure to market risk. The overall assessment, therefore, emphasizes the importance of conducting thorough analyses when selecting stocks for investment.

5. CONCLUSION

By comparing individual returns and predicted returns, the CAPM method can be used to predict stock investment decisions, in accordance with the analysis and discussion previously conducted. Eight stocks in total — six conventional banking stocks (AGRO, BBKP, BBHI, AGRS, INPC, BGTG) and two Islamic banking stocks (BNLI and ARTO) — have been categorized as efficient in this study. Therefore, investors are advised to buy these stocks when making investment decisions. However, our analysis also shows that eight stocks — two stocks from conventional banking (MCOR and BTPN) and six stocks from Islamic banking (PNBS, BNII, BSIM, BDMN, NISP, and BNGA) fall into the inefficient category, which means investors should not buy these stocks. Investors who invest in these stocks will lose money because the resulting return value is lower than the expected return value.

This study evaluates the efficiency of conventional and Islamic bank stocks in Indonesia using the CAPM model. Of the 16 stocks analyzed, six conventional bank stocks and two Islamic bank stocks were categorized as efficient, while the rest were declared inefficient. The findings indicate that conventional bank stocks tend to be more attractive to investors as they have higher actual returns than expected returns. In contrast, Islamic bank stocks show challenges in achieving efficiency, although there are still significant investment opportunities in certain stocks such as PT Bank Jago Tbk (ARTO).

This research highlights the fundamental difference between conventional and Islamic banks in terms of stock efficiency, which can be attributed to the stability of conventional banks' operational systems and lower risk perception among investors. Meanwhile, Islamic bank stocks require a more strategic approach, both in terms of management and promotion to investors, to increase their attractiveness.

The findings of this study provide practical guidance for investors in selecting efficient stocks for their portfolios, as efficient stocks tend to provide optimal returns with a measured level of risk. For Islamic banks, the results emphasize the need to improve operational efficiency and educate investors on the unique values of the Islamic financial system, such as the principle of profit sharing and the avoidance of usury. Meanwhile, for researchers, this study opens room for further exploration using other evaluation models, such as APT or a multi-factor approach, to better understand the factors that influence stock efficiency. From a policy perspective, these findings can serve as a basis for policymakers in designing regulations that support the development of the Islamic capital market, including incentivizing Islamic companies to improve their transparency and financial performance.

This study confirms that the CAPM model is effective for evaluating stock efficiency, but the results are affected by the specific characteristics of each type of bank. For future research, it is necessary to explore other factors such as macroeconomic conditions, political stability, and technological innovation that affect stock efficiency. With a more holistic approach, the research results can make a greater contribution to the academic literature and investment practices in the capital market.

However, his study has several limitations, including: 1) the sample is limited to 16 banking companies selected through purposive sampling, which limits the generalisability of the results; 2) only using the CAPM model, without considering other factors that may affect stock efficiency; 3) only comparing conventional and Islamic banks, while the Indonesian banking sector is broader; 4) using secondary data which may have limitations in accuracy and completeness. Further research can use alternative models such as APT to enrich the analysis.

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