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Portfolio Performance Analysis of Conventional Commercial Bank Stocks Using Jensen's Alpha Method on the Indonesia Stock Exchange

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A B S T R A C T

This study analyzes the portfolio performance of conventional commercial bank stocks listed on the Indonesia Stock Exchange (IDX) for the 2022–2024 period using Jensen's Alpha method. The portfolio consists of four major state-owned banks: Bank Negara Indonesia (BNI/BBNI), Bank Tabungan Negara (BTN/BBTN), Bank Rakyat Indonesia (BRI/BBRI), and Bank Mandiri (BMRI), each allocated an equal weight of 25%. Performance is measured using Jensen's Alpha, which evaluates whether the portfolio generates excess returns beyond what is expected based on its systematic risk (beta) relative to the market. Secondary data were collected from IDX, Bank Indonesia, and Investing.com. Results indicate that the portfolio outperformed the market benchmark in 2022 and 2023 with positive alpha values of 15.84% and 5.81%, respectively, demonstrating the effectiveness of diversification in positive market conditions. However, in 2024, the portfolio recorded a negative alpha of −15.68%, reflecting broad-based banking sector weakness amid a stagnant market. Individual stock analysis reveals that Bank Mandiri consistently exhibited the highest resilience, while BTN underperformed across all periods. These findings underscore the importance of macroeconomic awareness and dynamic risk management in constructing bank stock portfolios

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INTRODUCTION

The dynamic development of Indonesia's capital market demands that investors conduct deeper portfolio performance evaluations, particularly in strategic sectors such as conventional banking. In recent years, the banking sector has faced various macroeconomic shifts, including adjustments in benchmark interest rates, exchange rate fluctuations, changes in consumption behavior, and a slowdown in credit growth due to global pressures. These conditions have made banking stock price movements increasingly volatile, adding challenges for investors in constructing efficient and adaptive portfolios.

As the sector contributing the largest market capitalization on the Indonesia Stock Exchange (IDX), conventional banks such as BRI, BTN, BNI, and Mandiri exert significant influence on the direction of the capital market. However, the stock price performance of these four banks does not always move uniformly, as each has a distinct business focus, funding structure, customer base, and risk profile. BRI is more stable due to its widely distributed MSME credit base; BTN tends to be sensitive to property sector conditions; BNI fluctuates with corporate credit dynamics; while Mandiri frequently records strong growth from network expansion and digitalization. These differences necessitate portfolio evaluation beyond a single general indicator, requiring risk- and individual performance-based assessment.

In modern investment management practice, portfolio performance evaluation no longer focuses solely on absolute returns but also on how risk has been managed in generating those returns. Jensen's Alpha, developed by Michael C. Jensen (1968), provides a rigorous framework for this purpose. This method allows investors to determine whether a portfolio generates excess returns after adjusting for relevant market risk, separating gains attributable to market movements from those resulting from genuine stock-picking skill or effective asset allocation strategy. On the banking sector, this distinction is particularly important given the high sensitivity of banks to macroeconomic changes.

The growing number of retail investors in Indonesia in recent years also adds urgency for more comprehensive yet accessible portfolio evaluations. Many new investors purchase banking stocks based on popularity without understanding how market risk affects returns. Through Jensen's Alpha, this study aims to provide a more realistic assessment of investment strategy effectiveness while enhancing financial literacy regarding the risk-return relationship in banking stock portfolios.

THEORETICAL REVIEW

Investment and Portfolio

Investment is the activity of placing capital in assets or financial instruments with the expectation of obtaining future returns. According to Tandelilin (2017), investment is fundamentally a commitment of funds or other resources at the present time with the expectation of obtaining greater cash flows in the future. This definition highlights that investment always involves elements of time and risk, as results are never certain and depend heavily on economic conditions and external factors.

In modern finance, investors tend not to place all their funds in a single instrument, given that each asset carries a different level of risk and return. Instead, they diversify across various asset types such as stocks, bonds, deposits, gold, and mutual funds. This practice forms the basis of portfolio investing — a collection of assets held by an investor or institution in specific proportions. The primary objective of portfolio formation is to achieve an optimal balance between risk and return. Harry Markowitz's Modern Portfolio Theory (1952) establishes that portfolio risk depends not only on individual asset risks but also on the correlations between assets; combining assets with low correlations reduces total portfolio volatility without sacrificing expected returns.

Capital Market Theory

The capital market serves as a key intermediary between parties with surplus funds and those requiring long-term financing. According to Tandelilin (2017), the capital market fulfills both economic functions — by providing investment facilities for the public — and financial functions — by serving as a financing vehicle for companies. In Indonesia, securities trading is regulated and supervised by the Indonesia Stock Exchange (IDX). The overall performance of the capital market is measured through the Composite Stock Price Index (IHSG), which serves as a benchmark for evaluating portfolio performance relative to the general market.

Jensen's Alpha Method

Jensen's Alpha is a quantitative approach for measuring portfolio investment performance, developed by Michael C. Jensen (1968) in his article "The Performance of Mutual Funds in the Period 1945–1964" published in the Journal of Finance. The method is grounded in the Capital Asset Pricing Model (CAPM) and is used to determine whether a portfolio generates returns greater or smaller than the market return after accounting for the level of systematic risk. A positive alpha indicates that the portfolio outperforms the market — generating returns higher than those warranted by the risk undertaken. Conversely, a negative alpha implies underperformance relative to market expectations. Jensen's Alpha is particularly valued for its ability to distinguish between returns attributable to managerial skill and those attributable to general market movements.

METHODOLOGY

This study employs a quantitative associative research design aimed at examining the relationship between variables through statistical analysis. The research follows a positivistic paradigm, treating social reality as measurable and testable through standardized instruments. The population consists of all conventional commercial banks consistently listed on the IDX during the study period (2022–2024). Using saturated (census) sampling, all qualifying banks are included as the sample to ensure comprehensive coverage.

The sample comprises four major state-owned conventional banks: BNI (BBNI), BTN (BBTN), BRI (BBRI), and Bank Mandiri (BMRI), each assigned an equal portfolio weight of 25%. Data sources include stock price data from Investing.com, benchmark interest rate (BI7DRR) from Bank Indonesia, and composite market index (IHSG) data from the IDX, all for the 2022–2024 period.

Table 1. List of Sample Companies

Bank Name	**Stock Code**	**IPO Date**
Bank Negara Indonesia (Persero)	BBNI	25 November 1996
Bank Tabungan Negara (Persero) Tbk	BBTN	17 December 2009
Bank Rakyat Indonesia (Persero) Tbk	BBRI	10 November 2003
Bank Mandiri (Persero) Tbk	BMRI	14 July 2003

Source: Indonesia Stock Exchange (IDX)

The analytical steps follow the Jensen's Alpha methodology as described below. First, individual stock returns are calculated using the formula: $Ri = (Pt - Pt{-}1) / Pt{-}1$, where Pt is the end-of-period stock price and Pt−1 is the beginning-of-period stock price. Second, the equally weighted portfolio return is computed as: $Rp = \Sigma\ wi\ .\ Ri$ (where $wi = 0.25$ for each stock). Third, the market return (Rm) is calculated from IHSG data using the same return formula. Fourth, the risk-free rate (Rf) is proxied by the BI 7-Day Reverse Repo Rate (BI7DRR). Fifth, the portfolio beta (βp) is computed as the weighted average of individual stock betas. Finally, Jensen's Alpha (α) is calculated as: $\alpha = Rp - [Rf + \beta p(Rm - Rf)]$.

RESULTS AND DISCUSSION

Individual Stock Returns

Individual stock returns were calculated for each bank across the three-year study period based on annual closing prices. The results are presented in Table 2.

Table 2. Individual Stock Return Calculation Results

Bank	Year	Initial Price (IDR)	Final Price (IDR)	Calculation	Return (%)
BNI	2022	3,375	4,614	(4,614−3,375)/3,375	36.73%
BNI	2023	4,613	5,375	(5,375−4,613)/4,613	16.51%
BNI	2024	5,375	4,350	(4,350−5,375)/5,375	−19.08%
BTN	2022	1,668	1,350	(1,350−1,668)/1,668	−19.06%
BTN	2023	1,345	1,250	(1,250−1,345)/1,345	−7.06%
BTN	2024	1,250	1,140	(1,140−1,250)/1,250	−8.80%
BRI	2022	4,120	4,940	(4,940−4,120)/4,120	19.90%
BRI	2023	4,910	5,725	(5,725−4,910)/4,910	16.59%
BRI	2024	5,650	4,080	(4,080−5,650)/5,650	−27.97%
Mandiri	2022	3,550	4,963	(4,963−3,550)/3,550	39.86%
Mandiri	2023	4,963	6,050	(6,050−4,963)/4,963	21.90%
Mandiri	2024	6,050	5,700	(5,700−6,050)/6,050	−5.79%

Source: Investing.com (accessed 4 November 2025)

In 2022, Bank Mandiri recorded the highest return at 39.86%, followed by BNI at 36.73% and BRI at 19.90%, while BTN experienced a negative return of −19.06%. This indicates that most major banking stocks grew well in 2022, with BTN being the exception, possibly due to company-specific factors or negative market sentiment toward the property sector. In 2023, all stocks except BTN remained positive, with Mandiri again leading at 21.90%, reflecting relatively stable market conditions albeit with more moderate growth. In 2024, all stocks recorded negative returns, with BRI experiencing the sharpest decline at −27.97%, signaling a general weakening of banking sector performance. Mandiri demonstrated the most resilience with the mildest decline of −5.79%.

Portfolio Returns

Portfolio returns were computed as the equally weighted average (25% per stock) of individual stock returns for each year.

Table 3. Portfolio Return Calculation Results

Year	R-BNI	R-BTN	R-BRI	R-Mandiri	Calculation	Rp
2022	36.73%	−19.06%	19.90%	39.86%	0.25(36.73−19.06+19.90+39.86)	19.86%
2023	16.51%	−7.06%	16.59%	21.90%	0.25(16.51−7.06+16.59+21.90)	11.99%
2024	−19.08%	−8.80%	−27.97%	−5.79%	0.25(−19.08−8.80−27.97−5.79)	−15.41%

Source: Processed Data, 2025

The portfolio delivered positive returns in 2022 (19.86%) and 2023 (11.99%), demonstrating the effectiveness of diversification in cushioning the impact of individual stock declines. However, in 2024, the portfolio incurred a loss of −15.41%, consistent with the broad-based decline of banking stocks in that year. This indicates that while diversification within a single sector can moderate idiosyncratic risks, it cannot fully protect against systemic market-wide pressures.

Risk-Free Rate and Market Return

Table 4. BI7DRR Benchmark Interest Rate as Risk-Free Rate (Rf), 2022–2024

Year	BI7DRR (Rf)
2022	5.50%
2023	6.00%
2024	6.25%

Source: Bank Indonesia (www.bi.go.id)

Table 5. Market Return (RM) Based on IHSG, 2022–2024

Year	IHSG Initial	IHSG Final	Calculation	Rm
2022	6,581	6,850	(6,850−6,581)/6,581	4.09%
2023	6,850	7,272	(7,272−6,850)/6,850	6.17%
2024	7,272	7,318	(7,318−7,272)/7,272	0.63%

Source: Indonesia Stock Exchange (IDX), processed by authors

The risk-free rate increased steadily from 5.50% in 2022 to 6.25% in 2024, reflecting Bank Indonesia's tightening monetary policy to manage inflation. The market return peaked at 6.17% in 2023, signaling a strengthening capital market in the post-pandemic phase, before declining sharply to 0.63% in 2024, indicating a stagnant and volatile market environment.

Portfolio Beta

Table 6. Individual Stock Beta Values

Bank	Beta (β)
BNI	1.10
BTN	1.20
BRI	0.95
Mandiri	1.00

Source: Indonesia Stock Exchange (IDX), Processed by Authors

The portfolio beta was calculated as: $\beta p = 0.25(1.10 + 1.20 + 0.95 + 1.00) = 1.06$. A beta of 1.06 indicates that the portfolio carries slightly higher systematic risk than the market. This means that for every 1% change in market return, the portfolio's return is expected to change by approximately 1.06% in the same direction.

Jensen's Alpha — Individual Stocks

Table 7. Jensen's Alpha Calculation for Individual Stocks

Bank	Year	Ri	Rf	Rm	βi	E(Ri) = Rf + βi(Rm − Rf)	α (Jensen)
BNI	2022	36.73%	5.50 %	4.09 %	1.10	5.50+1.10(4.09−5.50)=3.96%	32.77%
BNI	2023	16.51%	6.00 %	6.17 %	1.10	6.00+1.10(6.17−6.00)=6.19%	10.32%
BNI	2024	−19.08 %	6.25 %	0.63 %	1.10	6.25+1.10(0.63−6.25)=−0.71 %	−18.37 %
BTN	2022	−19.06 %	5.50 %	4.09 %	1.20	5.50+1.20(4.09−5.50)=3.82%	−22.88 %
BTN	2023	−7.06%	6.00 %	6.17 %	1.20	6.00+1.20(6.17−6.00)=6.20%	−13.26 %
BTN	2024	−8.80%	6.25 %	0.63 %	1.20	6.25+1.20(0.63−6.25)=−1.20 %	−7.60%
BRI	2022	19.90%	5.50 %	4.09 %	0.95	5.50+0.95(4.09−5.50)=4.18%	15.72%
BRI	2023	16.59%	6.00 %	6.17 %	0.95	6.00+0.95(6.17−6.00)=6.16%	10.43%
BRI	2024	−27.97 %	6.25 %	0.63 %	0.95	6.25+0.95(0.63−6.25)=0.06%	−28.03 %
Mandiri	2022	39.86%	5.50 %	4.09 %	1.00	5.50+1.00(4.09−5.50)=4.09%	35.77%
Mandiri	2023	21.90%	6.00 %	6.17 %	1.00	6.00+1.00(6.17−6.00)=6.17%	15.73%

Bank	Year	Ri	Rf	Rm	βi	E(Ri) = Rf + βi(Rm − Rf)	α (Jensen)
Mandiri	2024	−5.79%	6.25%	0.63%	1.00	6.25+1.00(0.63−6.25)=0.63%	−6.42%

Source: Processed Data, 2025

In 2022, all stocks except BTN recorded high positive alpha values. Bank Mandiri led with 35.77%, followed by BNI at 32.77% and BRI at 15.72%, indicating that these stocks significantly outperformed market expectations after adjusting for risk. BTN's alpha of −22.88% suggests persistent underperformance. In 2023, BNI, BRI, and Mandiri maintained positive alphas, while BTN remained negative at −13.26%, reflecting continued weakness in the property-linked bank amid a generally stable market. In 2024, all stocks recorded negative alphas, with BRI experiencing the most severe decline (−28.03%) and Mandiri showing the most resilience (−6.42%).

Overall, Jensen's Alpha confirms that Bank Mandiri and BNI tend to outperform the market in favorable conditions, while BTN and BRI are more vulnerable to market volatility. Bank Mandiri's consistent resilience suggests superior management quality and a more stable business model relative to the other banks in the portfolio.

Jensen's Alpha — Portfolio

Table 8. Jensen's Alpha — Portfolio Level

Year	Rp	Rf	Rm	βp	E(Rp) = Rf + βp(Rm − Rf)	α (Jensen)
2022	19.86%	5.50%	4.09%	1.06	5.50+1.06(4.09−5.50)=4.02%	15.84%
2023	11.99%	6.00%	6.17%	1.06	6.00+1.06(6.17−6.00)=6.18%	5.81%
2024	−15.41%	6.25%	0.63%	1.06	6.25+1.06(0.63−6.25)=0.27%	−15.68%

Source: Processed Data, 2025

The portfolio recorded a positive Jensen's Alpha of 15.84% in 2022, confirming that the combination of four banking stocks successfully outperformed market return expectations after accounting for systematic risk. The effectiveness of equal-weight diversification was evident as the strong performance of Mandiri and BNI offset BTN's underperformance. In 2023, the portfolio continued to deliver a positive alpha of 5.81%, albeit lower than in 2022, indicating that diversification remained effective despite a stabilizing market and reduced excess return opportunities.

In 2024, the portfolio's alpha turned negative at −15.68%, parallel to the negative portfolio return of −15.41%. This performance deterioration is consistent with the broad weakening of banking sector stocks, driven by a near-stagnant IHSG return of 0.63%, rising risk-free rates reducing the relative attractiveness of bank stocks, and sector-specific pressures including tighter liquidity and elevated credit risk concerns. These findings illustrate that while diversification within a

bank stock portfolio can effectively manage idiosyncratic risks in favorable market conditions, it provides limited protection against systematic market-wide shocks.

CONCLUSIONS AND RECOMMENDATIONS

This study analyzed the portfolio performance of four conventional commercial bank stocks — BRI (BBRI), BNI (BBNI), BTN (BBTN), and Bank Mandiri (BMRI) — on the Indonesia Stock Exchange for the 2022–2024 period using Jensen's Alpha method. The analysis yields the following key conclusions.

First, portfolio performance varied significantly across the three years. In 2022, nearly all individual stocks recorded positive alpha values, with Bank Mandiri leading at 35.77% and BNI at 32.77%, indicating strong market outperformance after adjusting for systematic risk. In 2023, performance remained positive at the portfolio level (alpha = 5.81%), reflecting sector stability amid monetary policy tightening. In 2024, however, all stocks experienced sharp alpha declines into negative territory, driven by broad market weakness and sector-specific headwinds, with BRI recording the steepest decline (−28.03%) and Mandiri demonstrating the greatest resilience (−6.42%).

Second, at the portfolio level, Jensen's Alpha was positive for two consecutive years (2022–2023), confirming that an equally weighted diversification strategy across these four bank stocks was effective in generating returns superior to market expectations under favorable conditions. The portfolio alpha of 15.84% in 2022 and 5.81% in 2023 validates the merit of sector-level diversification. The negative alpha of −15.68% in 2024 highlights the limitations of intra-sector diversification when confronted with systemic market pressure.

Third, BTN consistently underperformed across all three years, exhibiting negative alpha in every period studied. This persistent underperformance is attributable to its concentrated exposure to the property sector and high sensitivity to interest rate increases.

Overall, the portfolio of conventional bank stocks on the IDX demonstrated efficiency and capacity to generate excess returns in stable market conditions, but remained vulnerable to macroeconomic shocks and broad market volatility. Investors are advised to monitor macroeconomic indicators — particularly monetary policy, interest rate trends, and market-wide volatility — when making investment decisions in the banking sector, and to complement intra-sector diversification with cross-sector allocation strategies.

FURTHER STUDY

This research still has limitations so that further research is needed on the topic of Portfolio Performance Analysis of Conventional Commercial Bank Stocks Using Jensen's Alpha Method on the Indonesia Stock Exchange to perfect this research and increase insight for the author and readers.

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