



Investment Decision-Making Through Technical Analysis of LQ45 Stocks Movements

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ABSTRACT

Investment decisions in financial markets often face challenges during periods of high price fluctuation and inconsistent trends. This study investigates the role of technical analysis in guiding short-to medium-term investment strategies by evaluating the effectiveness of Bollinger Bands and the Stochastic Oscillator. The research focuses on four stocks from the LQ45 Index – Bank Rakyat Indonesia, Sumber Alfaria Trijaya, Adaro Energy Indonesia, and Unilever Indonesia – analyzing their price movements throughout the 2024 period. A quantitative descriptive method was employed to process daily stock price data and identify signals related to overbought and oversold market conditions. The findings reveal that the combination of both indicators generates reliable signals for anticipating trend reversals and supports informed buy or sell actions. The study confirms that technical analysis provides meaningful insights for investors to manage market fluctuations effectively. The conclusion highlights that applying technical indicators consistently can enhance decision-making accuracy, particularly for investors aiming to optimize entry and exit timing. This research contributes to the understanding of how chart-based tools can be integrated into practical investment strategies in dynamic market environments.

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1. INTRODUCTION

The capital market plays a pivotal role in mobilizing financial resources and enabling efficient capital allocation to support national economic development. Among various financial instruments traded in the capital market, equity securities are considered high-risk assets that attract investors seeking significant capital gains. Price fluctuations are often triggered by diverse internal and external factors, such as company performance, investor behavior, and market sentiment [1], [7]. Given this uncertainty, investors increasingly rely on technical analysis to identify patterns in historical price data and forecast market trends [2], [3]. Investors are frequently exposed to volatility that may not be directly linked to the financial health of the companies they invest in, which creates uncertainty and the need for analytical methods that can guide informed decisions. Technical analysis employs a range of indicators

to support trading strategies. Two widely used tools are Bollinger Bands and the Stochastic Oscillator. Bollinger Bands utilize standard deviation around a moving average to assess volatility, while the Stochastic Oscillator evaluates price momentum relative to its recent range [4], [5]. These indicators are often applied to detect overbought and oversold conditions, critical for timing entry and exit points [6], [10].

Despite their popularity, there remains limited academic exploration of the effectiveness of using these two indicators in combination, especially within the context of large-cap stocks on the Indonesian Stock Exchange. This study aims to address that gap by examining four LQ45 index constituents—Bank Rakyat Indonesia, Sumber Alfaria Trijaya, Adaro Energy Indonesia, and Unilever Indonesia—chosen due to their liquidity and significance in the market. Through a quantitative descriptive approach using daily historical price data for one full trading year, this research evaluates whether the combined use of these indicators can generate consistent trading signals that align with actual market reversals. The findings are expected to offer practical value for individual and institutional investors by enhancing timing precision in short- to medium-term trading strategies. By employing a quantitative descriptive approach, this research aims to contribute to the literature on technical strategies and their practical implications in a dynamic market environment [9], [12], [13].

2. METHOD

This research employs a quantitative descriptive design to analyze the effectiveness of technical indicators in supporting investment decision-making. The study was conducted through several stages beginning with data collection, followed by data processing, signal generation, and result evaluation. The data used in this research consist of daily closing prices from four selected stocks like BBRI, AMRT, ADRO, and UNVR. The data were obtained from TradingView for the period of January to December 2024. After data acquisition, preprocessing was carried out to ensure consistency and accuracy, which included data cleaning and alignment of the observation period.

The technical indicators applied in this study were Bollinger Bands and the Stochastic Oscillator. Bollinger Bands were calculated using a 20-day Simple Moving Average (SMA) as the midline with upper and lower bands set at two standard deviations above and below the average, while the Stochastic Oscillator was computed using a 14-day %K and %D formula [1], [3], [4]. Signal generation occurred when price movements aligned with extreme indicator values above 80 for overbought and below 20 for oversold levels. The algorithm was applied inconsistently across all stocks, with results interpreted based on price reactions within 3-5 days of the signal, similar to previous research methodologies [5], [10]. The pseudocode for the signal generation process is described below:

Bollinger Bands formula:

$$\text{Middle Band (MB)} = \text{Simple Moving Average (SMA)}_n$$

$$\text{Upper Band (UB)} = \text{SMA}_n + (k \times \sigma)$$

$$\text{Lower Band (LB)} = \text{SMA}_n - (k \times \sigma)$$

Stochastic Oscillator formula:

$$\%K = \frac{(C - L_n)}{(H_n - L_n)} \times 100$$



Figure 1. Bollinger Bands (above) and Stochastic Oscillator (below) of BBRI

3. RESULTS AND DISCUSSION

3.1. Analysis of BBRI Stocks



Figure 2. BBRI Stocks with Bollinger Bands and Stochastic Oscillator in January – December 2024

During the period from January to December 2024, BBRI stock displayed considerable price fluctuations with several key technical signal identified. At the beginning of the year, the price exceeded the upper Bollinger Bands, indicating overbought conditinos which was confirmed by the Stochastic Oscillator crossing above the 80 level. A subsequent price decline validated the signal. Similar confirmation occurred in May and December when the stock touched the lower Bollinger Band and the Stochastic Oscillator dropped below 20, signaling successful rebound patterns [1], [4], [10]. A rebound followed shortly after, strengthening the reliability of these indicators. These repeated patterns demonstrate that the combined use of Bollinger Bands and the Stochastic Oscillator effectively captured market turning points and can guide buy and sell decisions in fluctuating conditions.

3.2. Analysis of AMRT Stocks



Figure 3. AMRT Stocks with Bollinger Bands and Stochastic Oscillator in January – December 2024

The 2024 price chart of AMRT exhibited a largely sideways trend with moderate volatility. In June and October, the stock touched the lower Bollinger Band while the Stochastic Oscillator dropped below 20, forming a strong buy signal followed by a notable price increase. These movements were followed by price recoveries, suggesting effective entry points. This suggests that excessive selling pressure had pushed the stock into oversold territory, prompting accumulation by investors. Conversely, in April and November, the price reached the upper Bollinger Band with the Stochastic surpassing 80, indicating overbought conditions. These signals were followed by short-term corrections, confirming their reliability. The alignment of both indicators in signaling market extremes demonstrates their usefulness in supporting swing trading strategies [5], [6].

3.3 Analysis of ADRO Stocks



Figure 4. ADRO Stocks with Bollinger Bands and Stochastic Oscillator in January – December 2024

ADRO Energy's stock experienced high price volatility throughout 2024, influenced by global market sentiment toward the energy and coal sectors. The price breached the upper Bollinger Band in March and October, with the Stochastic Oscillator simultaneously exceeding the 80 level, signaling overbought conditions followed by price corrections. In contrast, during May and December the price reached the lower Bollinger Band while the Stochastic fell below 20, producing buy signals confirmed by subsequent upward movement. These chart patterns illustrate the effectiveness of combining Bollinger Bands and Stochastic Oscillator in identifying trend reversals. The stock's sensitivity to fast-changing momentum highlights the value of technical indicators for short-term trading responsiveness. These patterns reinforced the indicators' strength in identifying reversals [3], [9].

3.4 Analysis of UNVR Stocks



Figure 4. UNVR Stocks with Bollinger Bands and Stochastic Oscillator in January – December 2024

In 2024, UNVR stock showed a gradual downward consolidation, yet still presented several trading opportunities. In February and November, the price touched the lower Bollinger Bands while the Stochastic Oscillator entered the oversold zone, generating valid buy signals followed by a moderate price recovery. The subsequent modest price increases confirmed the signal accuracy, highlighting the usefulness of these tools even in defensive stocks [8], [13]. Despite its defensive nature and relatively lower volatility compared to energy or financial stocks, UNVR still responded well to technical signals. The combined use of Bollinger Bands and the Stochastic Oscillator proved effective in identifying entry and exit points, offering valuable insights for conservative investors relying on technical strategies. This finding is in line with prior studies emphasizing the applicability of technical indicators in low-volatility assets [11], [14], [15].

4. CONCLUSION

This study confirms that the combined application of Bollinger Bands and the Stochastic Oscillator aligns with the research objective stated in the introduction: to evaluate the effectiveness of technical indicators in guiding short-to medium-term investment decisions. The results demonstrate that this dual-indicator approach can reliably identify overbought and oversold condition, providing accurate buy and sell signals across varying stock behaviors. The consistency of these signals throughout different price trends affirms the value of using integrated technical tools in volatile market environments. These findings support the practical use of technical analysis in portfolio strategies, especially for investors seeking data-driven trading frameworks. Future research could expand this approach by applying it to other market sectors, time intervals, or incorporating additional technical indicators to further improve signal precision and adaptability across broader investment contexts.

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