

CHAPTER II LITERATURE REVIEW

2.1 Literature Review

2.1.1 Investment

Investment is defined as the desire and action to allocate funds or resources with the expectation of generating profits in the future (Suyanti & Hadi, 2019). It involves the commitment of capital to various financial or real assets such as stocks, bonds, real estate, or business ventures with the primary objective of achieving returns over a specific period.

Every investment inherently carries two fundamental elements: return and risk. Return refers to the financial gain or benefit that an investor anticipates, which may be in the form of capital gains, interest earnings, or dividend distributions. In contrast, risk represents the uncertainty associated with investment outcomes and the possibility that the actual results may deviate from expectations, potentially resulting in financial losses. A widely accepted principle in investment theory is that risk and return are positively correlated. While equities typically offer greater yields compared to traditional savings, this performance is intrinsically linked to heightened risk levels, as mentioned by Tsai and Hsiao (2010), often described as risk-return trade-off. As a result, investors must carefully consider and balance these two aspects in order to make well-informed investment decisions.

Poor investment decisions, whether due to lack of information, emotional bias, or misjudgment of market conditions, can lead to significant losses, including the total depletion of invested capital. This highlights the importance of thorough pre-investment analysis and the implementation of sound risk management

strategies. According to Wardiyah (2017) and Handini and Astawinetu (2020), many investors choose to invest in stocks with the expectation of benefiting from rising stock prices over time or receiving dividends, which represent a portion of a company's earnings distributed to shareholders.

However, it is essential to understand that all investments inherently carry a degree of risk. Market fluctuations, economic downturns, regulatory changes, and unforeseen global events can significantly impact the performance of investments. Sukamulja (2019) emphasizes that uncertainty is an integral part of investing, and the possibility of loss can never be entirely eliminated. Therefore, investors must apply strategic approaches and analytical methods to minimize potential downsides and enhance the probability of achieving favorable returns.

2.1.2 Technical Analysis

Technical analysis constitutes an analytical framework designed to project future price trajectories by synthesizing historical market variables, specifically price action and trading volume. As defined by Murphy (1999), Technical Analysis is essentially "the study of market action, primarily through the use of charts, for the purpose of forecasting future price trends." This methodology diverges significantly from fundamental analysis, while the latter seeks to determine a security's intrinsic value, technical analysis operates on the premise that all relevant information is already "priced in" by the market.

According to technical analysis principle, the discipline rests on the foundational assumption that "history tends to repeat itself," leading to the formation of identifiable, recurring patterns in market behavior. This allows for the

application of essential technical tools, including trend analysis, support and resistance levels, and mathematical indicators to identify the recurring path. Pring (2014) characterizes technical analysis as the skill of detecting shifts in price trend. The primary objective is to maintain a market position in alignment with the prevailing trend, exiting only when a preponderance of technical indicators confirms a definitive reversal in price action., allowing investors to maintain a position until the weight of evidence suggests a change in direction.

2.1.3 Bullish and Bearish

Within financial markets, the terms bullish and bearish are widely adopted to characterise the prevailing directional sentiment and momentum of asset prices over a given period. A bullish market condition refers to a sustained upward line in asset prices, typically accompanied by heightened investor confidence, strong economic fundamentals, and broad market optimism (Shiller, 2000). Conversely, a bearish market condition denotes a prolonged period of declining prices, generally associated with economic condition, uncertainty, and investor pessimism (Baker & Wurgler, 2007). The etymological origins of these terms are commonly attributed to the contrasting physical behaviours of the respective animals, a bull drives its horns upward in attack, symbolising rising prices, whereas a bear sweeps its paws downward, reflecting falling market valuations (Murphy, 1999).

Bullish market signals are typically characterised by the successive formation of higher highs and higher lows, a price structure that reflects sustained buying momentum and the progressive erosion of selling pressure (Edwards et al., 2018). A particularly significant bullish signal occurs when price breaks decisively

above an established resistance level, as this breakout is interpreted as evidence that demand has overcome prevailing supply, potentially initiating a new upward trend (Osler, 2000). Additional bullish confirmation may be drawn from momentum oscillators and moving average crossovers, such as the *golden cross*, a pattern in which a shorter-term moving average crosses above a longer-term moving average, which is widely regarded as a signal of emerging upward momentum (Brock et al., 1992).

Bearish market signals, conversely, are characterised by the formation of lower highs and lower lows, indicative of sustained selling pressure and diminishing demand. A critical bearish signal arises when price breaches a well-established support level, suggesting that buyers have been unable to maintain the price floor, thereby increasing the probability of further downside movement (Murphy, 1999). One note in the technical analysis is the death cross pattern, wherein a shorter-term moving average crosses below a longer-term moving average, conventionally interpreted as a signal of deteriorating market momentum and a potential transition into a bearish trend (Graziani & Veronesi, 2012). While the predictive validity of such patterns remains a subject of empirical scrutiny, several studies have documented their statistically significant association with subsequent price behaviour in equity and foreign exchange markets (Brock et al., 1992; Lo et al., 2000).

2.1.4 Trendline

The concept of a trend line constitutes a foundational pillar of technical analysis, serving as a geometric distillation of market sentiment, momentum, and

price equilibrium. At its core, a trend line is a diagonal construct drawn across a price chart that connects a series of significant price extrema, typically higher lows during an appreciation phase or lower highs during a depreciation phase to visualize the underlying trajectory of an asset. This tool functions as a dynamic boundary, transforming raw, volatile market data into a coherent directional bias that traders categorize as bullish, bearish, or sideways. The "reversion principle" is the core logic behind using trend lines, based on the idea that prices tend to return to an established path before continuing their original direction. When a stock's value pulls back to touch a trend line, traders often see it as a strategic "buy" or "sell" signal to join the current move. This strategy relies on the collective belief of market participants that the line will act as a solid floor or ceiling.

In terms of mechanical functionality, the trend line serves as a shifting level of support or resistance that evolves over time. In an uptrend, the line acts as a "dynamic floor" or support. Conversely, in a downtrend, the line functions as a "dynamic ceiling" or resistance.

When a market's momentum becomes too strong for a trend line to contain, it leads to a specific event known as a breakout. This occurs when the price "breaks out" of its established pattern by moving decisively through a support or resistance line.

2.1.5 Support and Resistance

Within the domain of technical analysis, support and resistance (SR) levels represent fundamental analytical constructs used to identify critical price thresholds in financial time series. At these thresholds, prevailing market trends are widely

expected to lose momentum, consolidate, or reverse direction entirely (Osler, 2000). A support level refers to a price floor at which sustained buying interest is considered sufficient to absorb selling pressure and prevent further downward movement, while a resistance level denotes a price ceiling at which concentrated selling activity is expected to overcome buying demand and impede upward price progression (Murphy, 1999). Together, these levels delineate zones of significant supply-demand imbalance, making them central reference points in the analysis of market structure.

The conceptual foundation of SR levels is deeply rooted in the principles of behavioural finance. The tendency for prices to stall or reverse at historically significant levels is largely attributable to the systematic psychological biases exhibited by market participants, including anchoring, loss aversion, and herding behaviour (Kahneman & Tversky, 1979). Traders and investors often exhibit a collective tendency to respond predictably at price points that carry historical significance, thereby reinforcing the validity of support resistance levels through a self-fulfilling mechanism. This dynamic is particularly evident in round-number price levels, which have been shown to attract disproportionate clustering of stop-loss and take-profit orders in foreign exchange markets (Osler, 2000).

Support resistance levels remain among the most widely recognised and applied tools within technical analysis, particularly in retail trading communities, where they serve as practical decision-making frameworks for determining optimal market entry and exit points (Taylor & Allen, 1992).

2.1.6 Moving Average

Murphy (1986), popularized the field of modern technical analysis through his book, emphasizes the significance of Moving Averages as a powerful and dynamic tool used by traders and analysts to interpret market trends. A Moving Average is a statistical technique that smooths out price data by creating a constantly updated average price over a specific time frame. This continual adjustment allows analysts to monitor market trends more clearly, filtering out the noise of short-term volatility and offering a more stable view of the overall price direction.

There are different types of moving averages, the most common being the simple moving average and the exponential moving average. The simple moving average calculates the average of a selected range of prices, usually closing prices, by dividing the total by the number of periods in that range. The exponential moving average, on the other hand, gives more weight to recent prices, making it more responsive to new information. This characteristic makes exponential moving averages particularly useful for identifying short-term momentum and shifts in market direction.

Moving Averages are not only useful for observing trends but also serve as important technical signals for making buy or sell decisions. One widely used technique involves crossovers, where a short-term moving average crosses above or below a longer-term moving average. A commonly cited example is the golden cross, which occurs when the 50-day moving average crosses above the 200-day moving average, typically viewed as a bullish signal. The opposite pattern, known

as the death cross, may signal bearish momentum when the 50-day average drops below the 200-day average.

The choice of time period for a moving average depends largely on the trader's objectives and the characteristics of the market. Short-term traders may prefer using 9-day or 10-day moving averages to track near-term price movements, while long-term investors often rely on 50-day, 100-day, or 200-day averages to assess the broader direction of a market or asset. These time frames can be customized to suit different strategies and market conditions.

Moving Averages are widely used across various financial markets, including stocks, commodities, forex, and cryptocurrencies. Their ability to simplify complex price movements makes them a fundamental part of technical analysis. Additionally, they often serve as the basis for more complex indicators and strategies and can be combined with tools such as Bollinger Bands or the MACD to enhance decision-making.

a. Simple Moving Average (SMA)

According to Hudaningsih et al. (2020), the Single Moving Average method is a widely used forecasting technique that involves taking a set of historical data, calculating the average value over a specific period, and using that average as the basis for predicting the next period's value. This approach is especially useful in smoothing out short-term fluctuations and identifying the underlying trend within a data series. The technique is frequently applied in fields such as economics, finance, and business forecasting, particularly when analyzing time series data.

Moving Average forecasting, commonly referred to as a moving average, is based on a series of actual historical values. It operates by averaging the most recent data points in a given dataset. As explained by Khamaludin (2019), the simple moving average can serve as a useful method for projecting future demand or price movements, particularly in stock market analysis. For example, applying a moving average with a 10-period time frame to a stock's closing prices calculates the average of the last 10 trading days. This provides a two-week overview of price activity, assuming five trading days per week. Such an average helps to visualize the general price direction by filtering out daily price volatility.

Table 2.1 Daily Stock Price Moving Average

Day	Stock Price (IDR)	Moving Average (5-period)
1	1000	-
2	1050	-
3	1030	-
4	1010	-
5	1020	1022
6	1060	1034
7	1090	1042
8	1110	1058
9	1080	1072
10	1050	1078

(Source: Data Processed by the Author Using Excel, 2026)

Applying a moving average with a 5-period time frame to a stock's closing prices calculates the average of the last 5 trading days or a week overview of price. The SMA is considered an effective tool for identifying market trends, regardless of whether the market is experiencing an uptrend, downtrend, or sideways movement.

2.1.7 Oscillator

An oscillator is a tool used in technical analysis that measures momentum by generating a trend indicator which moves within a set range between two extreme values. This range helps identify potential market conditions. When the indicator approaches the upper end of the range, it typically signals that the asset may be overbought, indicating a possible upcoming price decline. Conversely, when the indicator nears the lower end of the range, it is often seen as a sign that the asset is oversold, suggesting a potential price increase. Traders use these signals to assess short-term price movements and make informed decisions about buying or selling assets.

a. Stochastic Oscillator

The Stochastic Oscillator is a widely used momentum-based technical indicator that was developed by George C. Lane in the 1950s. As a pioneer in the field of momentum indicators, Lane designed the Stochastic Oscillator to measure the position of a security's closing price relative to the high and low prices over a specific period, most commonly 14 trading days. According to Wira (2012), this comparison allows the oscillator to capture the strength and direction of market momentum by evaluating whether a stock is closing near its recent highs or lows. When a stock closes near the top of its recent price range, it indicates strong upward momentum, while closing near the bottom suggests weakening momentum or downward pressure.

As noted by Ong (2012), the Stochastic Oscillator is categorized as a leading indicator, which means it is designed to provide early signals about potential future

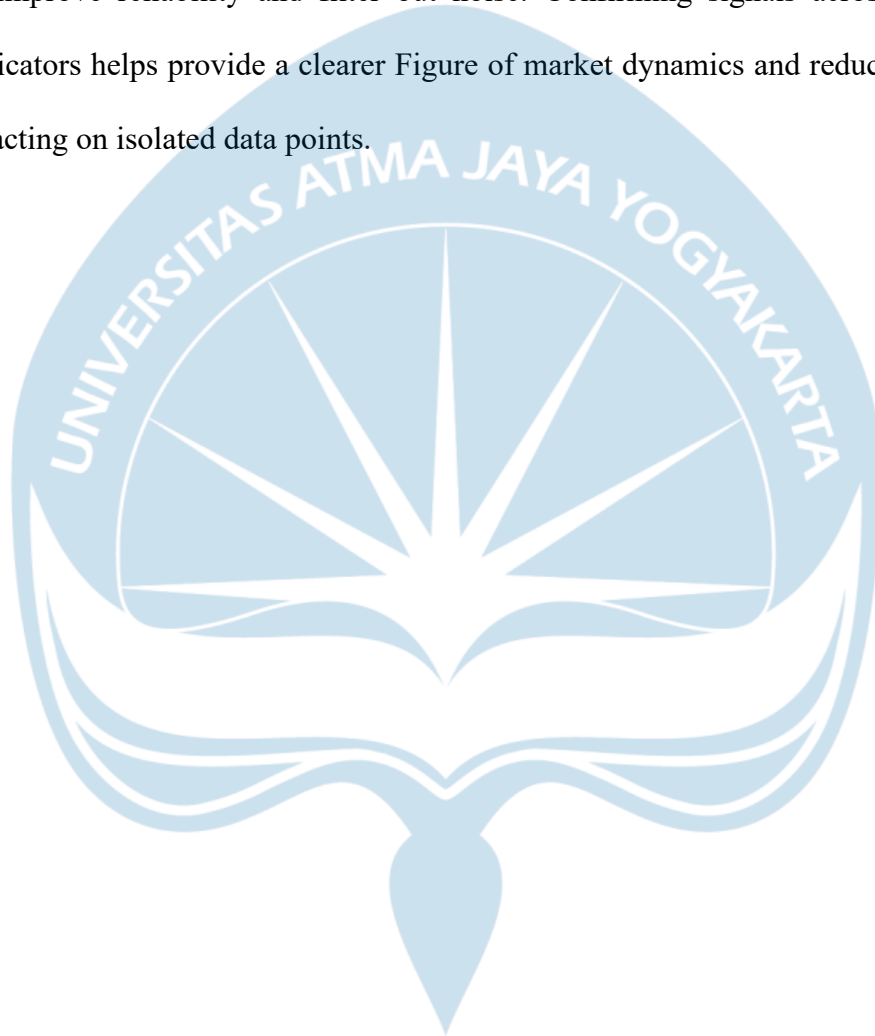
price movements rather than reacting only after a trend has developed. This predictive quality makes the Stochastic Oscillator a valuable tool for traders who aim to anticipate market turning points and adjust their positions proactively. Its sensitivity to price changes allows it to detect subtle shifts in momentum that may precede a trend reversal, breakout, or continuation.

The indicator itself oscillates between values of 0 and 100, with certain threshold levels used to evaluate market conditions. A reading above 80 generally suggests that the asset may be overbought, indicating a potential for downward correction, while a reading below 20 is interpreted as oversold, signalling that the asset might be undervalued or due for a price rebound.

A typical Stochastic Oscillator chart includes two lines: the %K line, which represents the current oscillator value based on the price range over the selected period, and the %D line, which is a 3-day simple moving average of the %K line. These two lines are plotted together to identify crossovers that indicate shifts in market momentum. A bullish signal occurs when the %K line crosses above the %D line, especially when both lines are below 20. Conversely, a bearish signal may be generated when the %K line falls below the %D line while both are above 80. These crossovers can serve as early alerts for potential buy or sell opportunities, though they are most reliable when aligned with the broader market trend.

Despite its usefulness, the Stochastic Oscillator is not without limitations. One of its main drawbacks is its tendency to generate false signals, particularly in choppy or range-bound markets where short-term fluctuations may trigger misleading crossovers. These false signals can lead traders to enter or exit positions

prematurely. For this reason, seasoned traders often use the Stochastic Oscillator in combination with other technical indicators, such as the Relative Strength Index (RSI), Moving Averages, or MACD (Moving Average Convergence Divergence), to improve reliability and filter out noise. Confirming signals across multiple indicators helps provide a clearer Figure of market dynamics and reduces the risk of acting on isolated data points.



2.2 Previous Research

Table 2.2 Previous Research

No.	Author(s)	Research Title	Result	Different	Similar
1.	Zoran Ivanovski, Nadica Ivanovska, and Zoran Narasnov. (2017)	Technical Analysis Accuracy at Macedonia Stock Exchange	Technical analysis (MACD, RSI, Stochastic Oscillator, and ADX) is a reliable tool for forecasting stock prices at the MSE. Predictions for three stocks (MPT, ALK, KMB) issued in June 2010 were confirmed by actual price movements over the following year. No notable differences were found in accuracy between stocks or between different techniques.	Focuses on the Macedonian Stock Exchange using four indicators (MACD, RSI, Stochastic, ADX), while this study uses a different combination (Trendline, S&R, SMA, Stochastic) on Indonesian banking stocks.	Both studies validate the effectiveness of the Stochastic Oscillator as a reliable signal generator and confirm that technical indicators can forecast price direction across different stock exchanges.
2.	Debora Siahaan, Iskandar Muda, and Nisrul Irawati. (2024)	Efektifitas Penggunaan Analisis Stochastic Oscillator dan MACD Pada Perdagangan Saham-saham Perbankan di BEI	Stochastic Oscillator is confirming their effectiveness on buy and sell signal on Indonesian banking stocks. No significant difference found in abnormal return between indicators.	Uses MACD alongside Stochastic Oscillator as the second indicator, whereas this study replaces MACD with Trendline, Support & Resistance, and SMA to form a four-indicator framework.	Both studies are conducted on Indonesian banking stocks listed on the IDX and both confirm the Stochastic Oscillator's effectiveness in generating buy and sell signals in the Indonesian market.

No.	Author(s)	Research Title	Result	Different	Similar
3.	Chung, K. & Bellotti, A. (2021)	Evidence and Behaviour of Support and Resistance Levels in Financial Time Series	Using 2018 intraday data from EURUSD, Lloyds Banking Group, and Brent Crude, the study found statistically significant evidence that prices are more likely to bounce at SR levels that have more previous bounces. Bounce probability decays over time. SR level behavior cannot be replicated by random walk (AR1) processes, confirming SR levels reflect genuine price memory, not a statistical artifact.	Focuses on foreign exchange and commodity/equity markets (EURUSD, Lloyds, Brent Crude) with intraday data, whereas this study uses daily data on Indonesian banking stocks over a 7-month observation window.	Both studies validate Support and Resistance as a structurally meaningful price zone, not a statistical artifact, consistent with the S&R analysis methodology applied to BBKA, BBRI, BMRI, and BBNI in this research.
4.	Muhamad Al-din Hidayat (2022)	Analisis Teknikal Pergerakan Harga Saham dengan Indikator Candlestick, Moving Average, dan Stochastic Oscillator	Both uptrend and downtrend can also be used as support and resistance level. Simple moving average is not effective to determine buy and sell decision due to its react slowly to market movement. Lastly, stochastic oscillator is the most recommended tools for decision making for buy, hold, and sell positions.	Focuses on a single stock using Candlestick as one of the three indicators, whereas this study applies a four-indicator framework (Trendline, S&R, SMA, Stochastic) without Candlestick analysis to four banking stocks simultaneously.	Both studies confirm that the Simple Moving Average reacts slowly to price movements and is more reliable as a trend-confirmation tool, and that the Stochastic Oscillator is the most effective indicator for determining precise buy, hold, and sell decisions.

No.	Author(s)	Research Title	Result	Different	Similar
5.	Ikhza Syafa Muis, Maretha Ika Prajawati, Basir S (2021)	Technical Analysis of Stock Returns with Bollinger Band, Parabolic SAR, and Stochastic Oscillator Indicators	Bollinger Band, Parabolic SAR, and Stochastic are proven effectively to give good timing for both buying and selling decision to get optimum return from stock market. No significant differences found among these indicators to generate stock's return	Uses Bollinger Band and Parabolic SAR, which are absent from this study's indicator framework; this research instead incorporates Trendline and Support & Resistance as the primary structural analysis tools alongside the Stochastic Oscillator.	Both studies confirm that the Stochastic Oscillator is effective in generating buy and sell timing signals on Indonesian-listed stocks, and both find that combining multiple technical indicators improves signal reliability.
6.	Mutmainah, Sri Sulasmiyati (2017)	Analisis Teknikal Indikator Stochastic Oscillator dalam Menentukan Sinyal Beli dan Sinyal Jual Saham (Studi Pada Sub Sektor Konstruksi dan Bangunan di Bursa Efek Indonesia Periode 2014-2016)	This Stochastic Oscillator is said to be accurate and can be used as a guideline for determining buy and sell signals in the Construction and Building sub-sector for the 2014-2016 period.	Focuses exclusively on the Construction and Building sub-sector for a 2014-2016 period, using the Stochastic Oscillator as the sole indicator, whereas this study applies a four-indicator multi-layer framework to the banking sector in 2024.	Both studies apply the Stochastic Oscillator to Indonesian Stock Exchange equities and confirm its accuracy in generating buy and sell signals, supporting the use of the indicator in this study's multi-indicator framework.

No.	Author(s)	Research Title	Result	Different	Similar
7.	Brock, W., Lakonishok, J., & LeBaron, B. (1992)	Simple Technical Trading Rules and the Stochastic Properties of Stock Returns	Moving average and trading range breakout rules generate statistically significant returns on the Dow Jones Index over 90 years of data. Results suggest technical trading rules have genuine short-horizon predictive power and cannot be explained solely by an AR(1) model or GARCH-in-mean models.	Focuses on the U.S. equity market (DJIA) using 90 years of historical data, whereas this study applies a shorter 7-month observation period to Indonesian banking stocks and incorporates Trendline, S&R, and Stochastic in addition to Moving Average.	Both studies validate Moving Average crossover signals as reliable trend-direction tools, and both conclude that technical trading rules generate consistent signals across different market contexts, supporting the SMA methodology used in this research.
8.	Anwar, S., & Ramli, A. (2020)	Technical Analysis for Stock Trading Decision: Evidence from Indonesian Capital Market	Trendline and Support-Resistance analysis generated consistent buy and sell signals on IDX-listed stocks across multiple sectors. Multi-indicator combinations produced significantly fewer false signals than single-indicator approaches, confirming the advantage of combining tools.	Covers a broader range of sectors across the IDX rather than focusing specifically on the banking sector (KBMI 4), and does not incorporate the Stochastic Oscillator in the indicator combination used.	Both studies are conducted on IDX-listed equities using Trendline and Support & Resistance as core indicators, and both confirm that multi-indicator frameworks reduce false signals and produce more reliable trading decisions.

No.	Author(s)	Research Title	Result	Different	Similar
9.	Rosillo, R., de la Fuente, D., & Brugos, J. A. L. (2013)	Technical Analysis and the Spanish Stock Exchange: Testing the RSI, MACD, Momentum, and Stochastic Rules Using Spanish Market Companies	Among the tested indicators, the Stochastic Oscillator generated the most consistent profitability across different market conditions on the Madrid Stock Exchange. Results were strongest when the Stochastic was combined with trend-following indicators to filter signals.	Conducted on the Spanish equity market using different indicator combinations (RSI, MACD, Momentum) not all of which are present in this study, and applies formal statistical profit-testing absent from this descriptive research.	Both studies validate the Stochastic Oscillator's effectiveness in generating reliable buy and sell signals, and both support combining momentum oscillators with trend-following indicators — the same multi-layered approach adopted in this study.
10.	Murphy, J. J. (1999)	Technical Analysis of the Financial Markets: A Comprehensive Guide to Trading Methods and Applications	Establishes the foundational theoretical framework for technical analysis, including the principles of trend analysis, support and resistance, moving averages, and oscillators. Argues that all four tools are most effective when used together to confirm signals across multiple dimensions.	A theoretical reference book rather than an empirical study, and does not apply to a specific market or time period. Unlike this research, it does not test indicator effectiveness on Indonesian banking stocks or evaluate signal accuracy using historical price data.	Provides the theoretical grounding for all four indicators used in this study (Trendline, Support & Resistance, SMA, and Stochastic Oscillator), and supports the core principle of multi-indicator confirmation that underpins the analytical framework of this research.

(Source: Some sources, 2026)