

A Study on Analysis of Short-Term Trading Strategy

Dr.R.Vignesh^{1*}, Assistant Professor, School of Management Studies, Sathyabama Institute of Science and Technology Deemed to be University, Chennai, Tamil Nadu, India.

T Premkumar², MBA Final year Student, School of Management Studies, Sathyabama Institute of Science and Technology Deemed to be University, Chennai, Tamil Nadu,

India.

Corresponding Author E-Mail Id^{1*}: vignesh-vicky@outlook.com

ABSTRACT

This study focuses on analysing the effectiveness of the Moving Average Convergence Divergence strategy in short-term trading within the stock market. MACD is a widely used technical indicator that helps traders identify potential buy and sell signals based on momentum and trend changes. The research is based on the analysis of historical price data of selected stocks, where MACD signals such as bullish and bearish crossovers are evaluated over short timeframes. The study measures the performance of the strategy using key parameters like accuracy of signals, profitability, and occurrence of false signals under different market conditions. The findings reveal that MACD performs effectively in trending markets by capturing short-term price movements. However, its lagging nature often leads to delayed signals and reduced performance in volatile and sideways markets. The study concludes that while MACD is a useful tool for short-term trading, it should be combined with other technical indicators and proper risk management techniques to improve trading efficiency and decision-making.

Keywords: MACD (Moving Average Convergence Divergence), Market Trends, Short-Term Trading.

INTRODUCTION

The stock market serves as a crucial component of the global financial system, acting as a platform where investors can buy and sell shares of publicly traded companies. It reflects the economic health and growth prospects of an economy, providing businesses with the necessary capital to expand operations while offering investors opportunities to gain returns on their investments. In the dynamic world of financial markets, technical analysis plays a crucial role in helping traders make informed decisions. One of the most widely used technical indicators is the Moving Average Convergence Divergence (MACD), which helps in identifying potential buying and selling opportunities based on momentum and trend direction. The MACD is especially popular among short-term traders due to its simplicity, effectiveness, and ability to provide quick signals during volatile market conditions. This project focuses on understanding and evaluating the MACD strategy specifically for short-term trading in the Indian stock market. With the rise in retail participation and the increasing popularity of intraday and swing trading, it becomes essential to explore tools that can offer a competitive edge. The MACD, by analyzing the difference between short-term and long-term moving averages, gives traders insights into possible reversals or continuations of a trend, thereby assisting in timely entry and exit points. The study aims to analyze how well the MACD strategy performs in the Indian stock market and to determine its reliability as a short-term trading tool. By applying the strategy to real-time data, back testing historical trends, and comparing results with other technical indicators, this project seeks to assess the effectiveness of MACD in generating consistent returns. The stock market is a fundamental pillar of the global financial ecosystem, offering a structured environment for the exchange of equity securities. It serves a dual purpose: enabling companies to raise capital by issuing shares to the public and allowing investors to participate in corporate growth through ownership stakes. Beyond its role in capital formation, the stock market acts as a barometer of economic sentiment, reflecting both the optimism and caution that drive market participants. Movements in major indices often serve as leading indicators of macroeconomic trends, influencing decisions across corporate, governmental, and individual spheres. With the evolving dynamics of the financial markets, particularly the surge in digital platforms, the indicator helps identify the trend direction, momentum strength, potential reversal points, and divergence between price and momentum. This research aims to evaluate the practical effectiveness of MACD in short-term trading within the Indian context, particularly among large-cap NIFTY 50 stocks known for liquidity and consistent trading volumes.

Objectives of the Study

To examine the effectiveness of the Moving Average Convergence Divergence (MACD) indicator in identifying short-term trading opportunities in selected Indian stocks.

Use MACD crossovers (bullish and bearish) to determine optimal entry and exit signals for short-term trades.

Interpret the MACD histogram to assess market momentum and the strength of short-term price trends.

Develop disciplined trading habits by setting stop-loss and take-profit levels based on MACD signals to minimize losses in short-term trading.

To analyze and understand investor behavior in stock market.

LITERATURE REVIEW

The existing literature highlights the significant role of technical indicators, particularly the Moving Average Convergence Divergence (MACD), in stock market prediction and trading strategies. Wang and Kim (2018) enhanced the traditional MACD model by incorporating historical volatility, demonstrating improved accuracy in predicting stock trends, especially in volatile markets. Anghel (2015) evaluated the informational efficiency of global stock markets using MACD through trading simulations and found that its effectiveness varies across markets, performing better in less efficient environments. In the Indian context, Mekha and Student (2023) optimized MACD-based strategies using Python for NIFTY 50 stocks, emphasizing the importance of parameter tuning and backtesting for better profitability. Waheela, Sen, and Rakshit (2024) compared MACD with Bollinger Bands and RSI, concluding that MACD performs well in trending markets but is more effective when combined with other indicators. Similarly, Arora and Sharma (2025) proposed a multi-indicator framework using EMAs, MACD, and RSI, which improved decision-making accuracy and reduced false signals in the case of HDFC Bank. Joshi (2022) found that MACD is useful for identifying medium- and long-term trends, although it may produce delayed signals in highly volatile conditions. Kulkarni and Ajit (2014) analyzed MACD's profitability in intraday trading for BSE-listed stocks and noted that while it can be profitable, outcomes depend on transaction costs and timing. Zhang and Lee (2022) developed a hybrid model combining MACD, RSI, and CCI, which outperformed individual indicators in momentum-based trading in US markets. Raghavan and Prakash (2020) compared MACD, RSI, and moving averages in emerging markets and observed that MACD is effective for trend-following, while other indicators support confirmation and risk management. Gupta and Mehta (2021) further emphasized the

role of simple moving averages in trend confirmation, suggesting that combining SMA with MACD enhances signal reliability. Overall, the literature indicates that while MACD is a powerful standalone tool, its effectiveness is significantly improved when integrated with other technical indicators and supported by computational techniques.

RESEARCH METHODOLOGY

This study uses a descriptive research design to analyse the effectiveness of the MACD indicator in short-term trading. Both primary and secondary data were used. Primary data was collected from 150 respondents through a structured questionnaire using a five-point Likert scale, focusing on trading behaviour and use of MACD. The sampling method adopted was convenience sampling. Secondary data was gathered from research articles, journals, and historical price data of NIFTY 50 stocks. The study also includes analysis of MACD signals such as crossovers and histogram patterns. For analysis, percentage methods, tables, and back testing techniques were used. Tools like SPSS and Excel helped in data analysis, and the Chi-Square Test was applied at a 5% significance level to identify relationships between variables.

RESULTS AND DISCUSSION

Table 4.1: Respondents' Opinion on Importance of Tax Benefits

S.NO	PARTICULARS	RESPONDENTS	PERCENT
1	Important	90	60.0
2	Neutral	50	33.3
3	Least Important	10	6.7
	Total	150	100.0

Interpretation:

The majority of respondents (60%) consider tax benefits as important, while 33.3% remain neutral and only 6.7% view them as least important.

Inference:

Tax benefits play a significant role in influencing investment decisions, indicating that investors prefer options that provide tax-saving advantages.

Table 4.2: Respondents' Opinion on Importance of Retirement Planning

S.NO	PARTICULARS	RESPONDENTS	PERCENT
1	Important	90	60.0
2	Neutral	50	33.3
3	Least Important	10	6.7
	Total	150	100.0

Interpretation:

About 60% of respondents consider retirement planning important, 33.3% are neutral, and 6.7% consider it least important.

Inference:

Most respondents are aware of the importance of financial security after retirement, showing a positive attitude towards long-term financial planning.

Table 4.3: Respondents' Opinion on Hedging Against Inflation

S.NO	PARTICULARS	RESPONDENTS	PERCENT
1	Highly Important	10	6.7
2	Important	70	46.7
3	Neutral	70	46.7
	Total	150	100.0

Interpretation:

A majority of respondents (46.7%) consider hedging against inflation important, while an equal percentage (46.7%) remain neutral and only 6.7% consider it highly important.

Inference:

Although respondents recognize inflation as a concern, there is moderate awareness about actively using investments as a hedge against inflation.

Table 4.4: Respondents' Opinion on Usefulness of Financial Advisors

S.NO	PARTICULARS	RESPONDENTS	PERCENT
1	Extremely Useful	30	20.0

2	Moderately Useful	80	53.3
3	Moderately	30	20.0
4	Somewhat Useful	10	6.7
	Total	150	100.0

Interpretation:

Most respondents (53.3%) find financial advisors moderately useful, 20% consider them extremely useful, while smaller percentages rate them as moderately or somewhat useful.

Inference:

Financial advisors are considered helpful by respondents, but there is a preference for partial reliance rather than complete dependence.

Table 4.5: Respondents’ Opinion on Importance of Capital Appreciation

S.NO	PARTICULARS	RESPONDENTS	PERCENT
1	Highly Important	100	66.7
2	Important	50	33.3
	Total	150	100.0

Interpretation:

A majority (66.7%) of respondents consider capital appreciation highly important, while 33.3% consider it important.

Inference:

Capital growth is a primary objective for most investors, indicating a strong focus on wealth creation through investments.

MACD Formula

$$\text{MACD Line} = 12\text{-day EMA} - 26\text{-day EMA}$$

$$\text{Signal Line} = 9\text{-day EMA of MACD Line}$$

$$\text{Histogram} = \text{MACD Line} - \text{Signal Line}$$

When MACD line crosses above the signal line → Bullish signal

When the MACD line crosses below the signal line → Bearish signal

CONCLUSION

The study on the MACD strategy for short-term trading highlights its effectiveness as a technical tool for identifying trading opportunities through the analysis of both primary and secondary data. It helps in understanding market trends, momentum, and appropriate entry and exit points using crossovers and histogram patterns, making it useful for informed decision-making, especially in trending markets. However, the study also reveals certain limitations, such as the lagging nature of the indicator, the possibility of false signals in sideways market conditions, and the influence of external factors and investor behavior on stock prices. These findings indicate that MACD may not always provide accurate results when used alone. Overall, the project concludes that while MACD is a valuable tool for short-term trading, its effectiveness can be improved by combining it with other indicators and applying proper risk management techniques to achieve better trading outcomes.

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