



A STUDY ON TECHNICAL INDICATORS AND STOCK MARKET PERFORMANCE OF SELECTED IT AND AI COMPANIES

**Ms. Ponni M, B.com Accounting and Finance, Rathinam College of Arts and Science,
Coimbatore.**

**Mr. Santhosh S, B.com Accounting and Finance, Rathinam College of Arts and Science,
Coimbatore.**

**Mr. U. Rahul, MBA,M.Phil, (Ph.D) AP/MBA, Department of Commerce
Rathinam College of Arts and Science, Coimbatore.**

ABSTRACT

This study analyses the stock price behaviour of selected Indian Information Technology (IT) and Artificial Intelligence (AI) companies, namely Tata Consultancy Services (TCS), Infosys, and HCL Technologies, over the period 2021–2025. The research focuses on the application of technical analysis tools such as Simple Moving Average (SMA), Relative Strength Index (RSI), and Moving Average Convergence Divergence (MACD) to evaluate market trends, price momentum, and trading signals. Secondary data consisting of daily stock prices were collected from reliable financial platforms. The findings reveal that technical indicators play a significant role in identifying price patterns, overbought and oversold conditions, and trend reversals. The study also highlights that combining multiple indicators improves prediction accuracy and enhances investment decision-making. The research contributes to understanding the effectiveness of technical analysis in the Indian IT & AI sector.

KEYWORDS: Technical Analysis, SMA, RSI, MACD, IT Sector, Stock Market.

INTRODUCTION

The stock market is a critical component of a country's financial system, facilitating capital formation and investment. In India, the IT and Artificial Intelligence sector has witnessed rapid growth due to digital transformation, globalization, and increased adoption of advanced technologies. Companies in this sector have become major contributors to GDP, exports, and employment generation. The

performance of IT stocks is influenced by both domestic and global factors such as foreign investments, technological innovation, inflation, interest rates, and geopolitical conditions. Due to this, stock prices in this sector exhibit high volatility and dynamic movement patterns. Investment decisions in the stock market are generally based on two approaches: fundamental analysis and technical analysis. While fundamental analysis focuses on financial performance and macroeconomic conditions, technical analysis studies past price movements and patterns to predict future trends.

Technical indicators such as SMA, RSI, and MACD are widely used to analyse stock behaviour. These indicators help investors identify trends, measure momentum, and determine entry and exit points. This study focuses on analysing these indicators in the Indian IT & AI sector during the period 2021–2025, which includes post-pandemic recovery and economic fluctuations.

REVIEW OF LITERATURE

Several researchers have studied the effectiveness of technical analysis in stock markets.

Murphy (1999) explained that technical analysis is based on the assumption that market prices reflect all available information and follow identifiable trends. Edwards and Magee (2001) emphasized the importance of chart patterns and trend analysis in predicting stock price movements.

Brock et al. (1992) conducted empirical research and found that moving average strategies can generate abnormal returns, challenging the Efficient Market Hypothesis proposed by Fama (1970). Jegadeesh and Titman (1993) highlighted the importance of momentum strategies in predicting stock performance.

In the Indian context, Patel et al. (2012) found that RSI is effective in identifying short-term price reversals. Reddy (2015) concluded that technical indicators perform better during periods of high volatility. Sharma (2022) emphasized that combining multiple indicators improves trading accuracy.

Recent studies (2023–2024) indicate that technical indicators remain relevant in analysing modern stock markets, especially in technology-driven sectors. However, there is limited research focusing on the combined application of SMA, RSI, and MACD in the Indian IT & AI sector during recent years.

OBJECTIVES OF THE STUDY

Primary Objective:

- To analyse stock price behaviour using technical indicators in the IT & AI sector.

Secondary Objectives:

- To study trends using Simple Moving Average (SMA)
- To analyse momentum using RSI
- To evaluate trend signals using MACD
- To identify buy and sell signals
- To compare indicator effectiveness

RESEARCH METHODOLOGY

The study adopts a descriptive and analytical research design. It is descriptive as it explains stock price behaviour, and analytical as it applies technical tools for interpretation. The research is based on secondary data collected from sources such as NSE, BSE, Yahoo Finance, and Investing.com. The sample includes three major IT companies: TCS, Infosys, and HCL Technologies.

The study covers the period from 2021 to 2025. Daily stock price data including open, high, low, close, and volume were used for analysis.

Technical indicators used:

- Simple Moving Average (20, 50, 200 days)
- Relative Strength Index (14-day)
- MACD (12-day, 26-day, 9-day signal line)

Additionally, financial ratios such as profitability, liquidity, and solvency ratios were analysed to evaluate financial performance.

The data was processed and analysed using Microsoft Excel, and graphical tools were used for interpretation.

DATA ANALYSIS AND RESULTS

Profitability Analysis

The analysis shows that TCS and HCL Technologies maintain strong and stable profit margins. Infosys shows fluctuations due to changing cost structures and global market conditions.

Liquidity Analysis

TCS demonstrates strong liquidity, while Infosys maintains moderate levels. HCL shows declining liquidity in later years, indicating increasing short-term financial pressure.

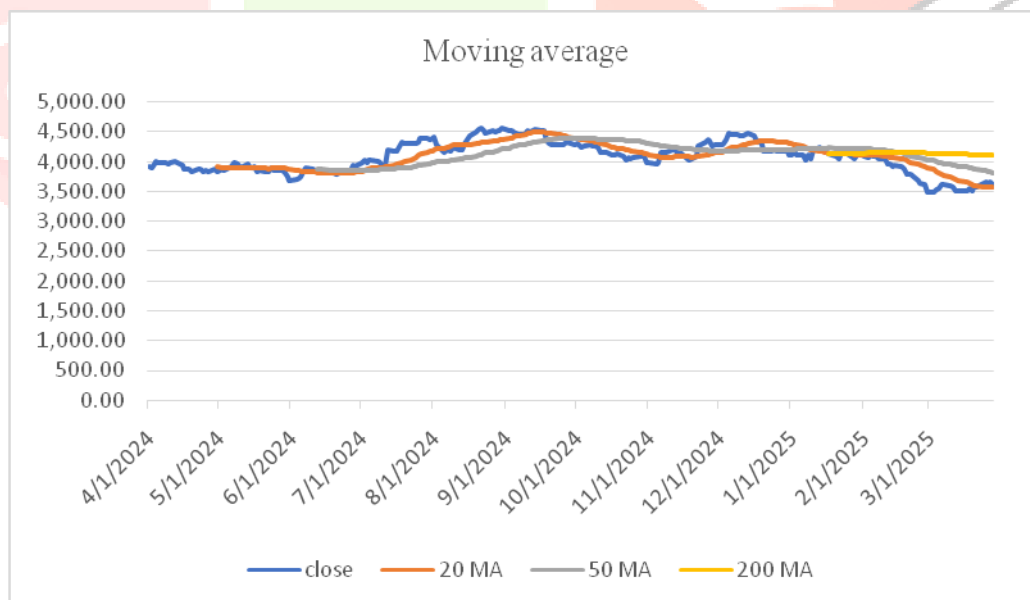
Solvency Analysis

All companies maintain low debt levels. Infosys is completely debt-free, indicating strong financial health.

Technical Analysis

- **Moving Average (SMA)**

Moving averages help identify long-term and short-term trends. The crossover of short-term and long-term averages indicates buy and sell signals.



Source: Annual report

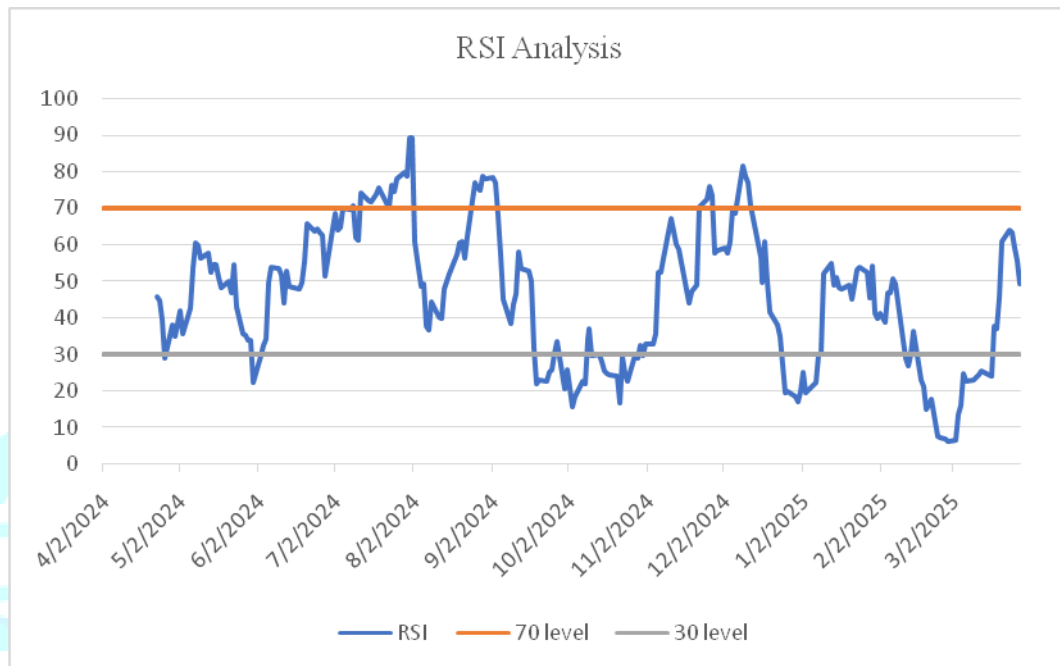
Interpretation

The chart shows the stock price movement along with 20-day, 50-day, and 200-day moving averages. Initially, the stock follows an upward trend, as the short-term averages move above the long-term average, indicating bullish momentum. During the later period, the price falls below the moving

averages, signalling a bearish trend. The crossover of moving averages clearly indicates trend reversals and helps identify buy and sell signals.

- **Relative Strength Index (RSI)**

RSI helps identify overbought (above 70) and oversold (below 30) conditions. The analysis shows multiple reversal signals during the study period.



Source: Annual report

Interpretation

The RSI chart of Tata Consultancy Services shows fluctuating momentum throughout the study period. The RSI crosses above 70 at several points, indicating overbought conditions and potential selling opportunities. It also falls below 30 during certain periods, signalling oversold conditions and possible buying opportunities. Overall, the RSI mostly remains within the normal range, indicating moderate volatility and changing market trends.

- **Moving average convergence divergence (MACD)**

MACD identifies trend direction and momentum. Signal line crossovers provide clear trading signals.

CONCLUSION

The study concludes that technical analysis plays a vital role in understanding stock price behaviour in the Indian IT & AI sector. Indicators such as SMA, RSI, and MACD provide valuable insights into market trends and momentum. While technical analysis has limitations, it remains a powerful tool for short-term and medium-term investment decisions. The IT sector continues to offer strong growth potential, and the application of technical tools can enhance investment outcomes.

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