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TECHNICAL ANALYSIS USING A CHART PATTERN TO PREDICT BSE STOCK PRICES

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Abstract:

India's leading financial centre, the Bombay Stock Exchange (BSE), is a vital indicator of the country's economic health. The banking industry in India is essential to the country's economic expansion, and understanding its stock market dynamics is essential to make wise investing choices. This study explores whether chart patterns, a key element of technical analysis, can predict stock price movements of the top 5 BSE-listed banking companies. Analyzing a 2-year historical dataset, the study examines the prevalence and predictive power of specific patterns like head and shoulders, double bottoms, double top and cup and handle patterns. While acknowledging limitations and external market influences, the research aims to assess the value these patterns offer for navigating the Indian market. Through success rate analysis and quantitative methods, the study seeks to provide a nuanced understanding of technical analysis' potential utility. Ultimately, it emphasizes the importance of considering technical factors to make wise investing decisions. This study investigates the use of chart patterns to predict stock prices in the Bombay stock exchange.

Keyword: BSE, Technical Analysis, Chart Pattern, Stock Market.

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Introduction: The Bombay Stock Exchange, founded in 1875 as the pioneer Share and Stock Brokers' Association, boasts a rich history as India's first and largest securities market, listing over 5,300 companies and ranking among the world's biggest exchanges alongside NYSE, Nasdaq, and others. Mumbai's BSE, a key player in India's capital markets, facilitates trading in equities, currencies, debt, derivatives, and mutual funds.

In technical analysis, patterns formed by security price movements on charts offer clues about future direction. These patterns, identified by connecting highs, lows, or closing prices, aim to forecast price reversals or continuations. From simple trend lines to complex double, specific formations like head and shoulders (with two smaller highs around a larger one), double tops (failed attempts to break resistance), double bottoms (failed attempts to break support) and Cup and handle (U-shaped price rise (cup), brief consolidation (handle), then bullish breakout for potential trend continuation) all signal possible changes in price trends. Technical analysts seek to predict future market movements by recognizing these patterns.



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This study investigates the effectiveness of chart patterns in evaluating the performance of five major Indian banking stocks (HDFC Bank, ICICI Bank, SBI, Axis Bank, and Kotak Mahindra) over the 2022-2024 period on the Bombay Stock Exchange. By analyzing their hourly closing prices, the research aims to obtain insightful knowledge about their market behavior within the context of India's booming Banking sector. Review of Literature: In "A Neural Network Approach for the Analysis of Control Chart Patterns," Cheng (1997) proposes a novel use of neural networks for automated pattern recognition in quality control. This approach tackles the challenge of manually identifying patterns in control charts, critical for detecting process deviations. Cheng demonstrates the effectiveness of neural networks in automating this task, potentially replacing traditional manual methods with improved accuracy and efficiency. While promising, further validation and comparisons across various industrial settings are needed to confirm its robustness and real-world applicability.

In their exploration of charting patterns on price history, Anand, Chin, and Khoo (October 2001) unlock valuable insights for financial market analysis. Their research delves into the identification and interpretation of key patterns like head and shoulders, triangles, and flags, which serve as crucial signals for traders and investors. By analyzing historical price data and chart patterns, the authors aim to uncover potential trends and predict future price movements. This work not only enriches the field of technical analysis but also offers practical applications for individuals navigating trading and investment decisions. Overall. the research provides а comprehensive overview of charting patterns and their significance in deciphering market dynamics.

Masood and Hassan's (2010) paper offers a critical review of using Artificial Neural Networks (ANNs) for control chart pattern recognition. They meticulously analyze ANN architecture choices,

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feature extraction methods, and performance evaluation specific to this application. Highlighting challenges like overfitting, dimensionality, and data imbalance, they emphasize their importance for reliable and efficient ANN-based systems. This useful tool for scholars and practitioners seeking to leverage ANNs in quality control provides insights for future advancements in the field.

Bag et al. (2012) propose an automated control chart recognition pattern expert system in their comprehensive paper. Detailing the planning and execution methodology, the system focuses on accurately identifying various patterns in common statistical process control charts. Through experimental results, the authors showcase its effectiveness in efficiently recognizing diverse patterns and anomalies, offering valuable insights into quality control. This research presents a promising solution for automating pattern recognition tasks, potentially streamlining industrial processes.

In Hachicha and Ghorbel (2012) conducted a comprehensive survey of control-chart pattern recognition research from 1991 to 2010. They proposed a new classification scheme to organize and analyze the vast literature, and systematically reviewed and categorized existing approaches. For researchers and practitioners, this analysis is a useful resource as it offers insights into the development and trends of the area. The authors also synthesized findings from numerous studies to contribute to theoretical knowledge in quality control and offer practical guidance for developing and implementing pattern-recognition systems in industry. Their comprehensive survey is a key reference for understanding the state-of-the-art in detecting anomalies and patterns within control charts.

Objective of the study:

- > To understand the various Chart patterns.
- To know the selected banking stock price pattern during study period.

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- To analyze charting patterns for buy/sell decisions in chosen stocks.
- To offer suggestions for investors to make better trading decisions.

Research Mehodology: This study takes an analytical approach to examine the performance of five prominent Banking companies - HDFC Bank Ltd., ICICI Bank Ltd., State Bank Of India, Axis Bank Ltd. and Kotak Mahindra Bank Ltd. - on the Bombay Stock Exchange. Instead of generating new data, it dives into existing hourly closing prices from 2022 to 2024. By using technical tools chart patterns like Head and Shoulder pattern, W or Double bottom pattern, M or Double top pattern and Cup and Handle Pattern, the study aims to uncover hidden patterns and trends in these companies' performance. This valuable information can then be used by investors to make informed decisions about future stock movements, while the Banking sector itself can gain deeper insights into these companies' strengths and weaknesses, ultimately helping both make better choices for continued growth and success.

Tools and techniques of data analysis:

Head and Shoulder pattern: The head and shoulders pattern is made up of three peaks and two troughs. The left shoulder is the name given to the first peak. The pattern's tallest peak, referred to as the head, is the second peak. The right shoulder is the name of the third peak. The two troughs are called the neckline.

In a bearish head and shoulders pattern, the price makes a new high, then falls back down to the neckline. The price then makes another high, but it does not reach as high as the first high. The price then falls back down to the neckline again and breaks below it. This break below the neckline is a signal that the price is likely to continue to fall.

W or Double bottom pattern: A technical analysis chart formation that resembles the letter "W" is called a double bottom pattern. It happens when the price of

a stock falls to a low point, rebounds, falls again to a similar or slightly lower low point, and then rebounds again. This pattern suggests a possible change in direction from a downtrend to an uptrend, as buyers may be stepping in at the support levels created by the lows.

M or Double top pattern : The M pattern is referred to as a "double top" or "W-M formation", reflects a bearish trend reversal that typically forms at the peak of an uptrend. Three candlesticks are included:

First candlestick: A long bullish candlestick with a high wick, indicating strong buying pressure.

Second candlestick: A smaller bearish candlestick with a lower high than the first candlestick, suggesting weakening buying momentum.

Third candlestick: Another long bearish candlestick with a lower high than the second candlestick, confirming the reversal and potential downtrend.

Cup and Handle Pattern: The pattern of the cup and handle represents a bullish continuation that typically forms after an uptrend. It consists of three main parts:

The Cup: This is a U-shaped pattern created by two price swings that resemble the rounded bottom of a cup. The first swing moves up from the current price, then dips down, and then moves back up to a level near the starting point. This first swing stands for the early upward trend and a period of consolidation.

The Handle: A smaller dip follows the cup's downward curve and resembles the handle of a cup. It shouldn't be too deep, ideally staying within the upper third of the cup's depth. The handle represents a brief period of consolidation or pullback after the initial uptrend.

The Breakout: This occurs when the price breaks above the neckline, which is a horizontal line drawn across the top of the cup. A confirmed breakout strengthens the bullish signal, suggesting a continued uptrend.



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Figure 1. Head and Shoulder Pattern

From Figure 1, it can be observed that, the left shoulder is formed at around $\gtrless1,630.00$. The head is formed at around $\gtrless1,757.00$. The right shoulder is formed at around $\gtrless1,700.00$. The price has broken below the neckline, which suggests that the price will probably keep dropping.

ICICI Bank Ltd.:



Figure 2. W or Double Bottom Pattern

From Figure 2, it can be observed that, the two lows of the potential double bottom pattern are around ₹980 - ₹985. The neckline, which is a horizontal line connecting the two peaks of the lows, is around ₹1012. The price has broken above neckline with the strong green candle. The W pattern suggests that the downtrend is losing momentum and that buyers are gaining control.

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Figure 3. M or Double Top Pattern

From Figure 3, it can be observed that, the two high of the potential double top pattern are around ₹568 - ₹564. The neckline, which is a horizontal line connecting the two lowest points of the high, is around ₹556. The price has broken below neckline with the strong red candle. its confirmed, price has broken neckline and losing upside momentum. The M pattern suggests that the uptrend is losing steam and that sellers are gaining control.





Figure 4. Cup and Handle Pattern

From Figure 4, it can be observed that cup and handle pattern forming. The cup is starting to form, with the price making two upward swings followed by a consolidation period. The handle is fully formed, as the price has taken 0.61% support on fibonacci retracement levels.



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Figure 5. M or Double Top Pattern

From Figure 5, it can be observed that, the two high of the potential double top pattern are around $\gtrless1926 - \gtrless1920$. The neckline, which is a horizontal line connecting the two lowest points of the high, is around $\gtrless1890$. The price has broken below neckline with the strong red candle. its confirmed, price has broken neckline and losing upside momentum The M pattern suggests that the uptrend is losing steam and that sellers are gaining control.

Findings:

- Both Figure 1 and Figure 5 show potential double top patterns with breakouts below the neckline, hinting at a downtrend and the potential for further price drops.
- Figure 2 shows the price has broken above the neckline with a strong green candle, suggesting an uptrend. This bullish signal suggests continued price appreciation.
- Figure 3 shows the price has broken below the neckline with a strong red candle, suggesting a downtrend. Bearish signal suggests price continuation lower.
- Figure 4 shows a potential cup and handle pattern forming, which could indicate a bullish continuation.

Suggestions:

Figure 1 shows Consider shorting the stock or taking profits on long positions.

- Figure 2 shows Consider buying the stock or going long on existing positions.
- Figure 4 shows Wait for the cup and handle pattern to complete before making a decision.
- Figure 5 shows Consider shorting the stock or taking profits on long positions.

Limitations:

- This study examines into 2 years of selected stock data.
- Secondary data was used for the research.

Conclusions:

India's banking sector on the BSE has been a strong performer, driven by global digitalization and domestic banking outsourcing demand. This study evaluated the performance of 5 major Banking stocks listed on the BSE by employing various chart patterns, including head and shoulders, double bottom/top, and cup and handle. The analysis covered a two-year period and identified potential trends for each stock.



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While some stocks showed promising bullish signals like potential cup and handle patterns, others displayed bearish signals like double top patterns with breakouts, indicating potential downtrends. The limitations include the use of a relatively short timeframe and reliance on secondary data. However, the findings offer valuable insights for investors, suggesting potential buy/sell decisions based on the identified chart patterns. Investors should carefully consider the limitations of this study and their own risk tolerance before making any trading decisions based on these findings.

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