A Study on Price Action Patterns and Volume analysis on selected Automobile Sector Shares with specified time frame with reference to Nifty Auto

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ABSTRACT:

This study examines the trend and pattern of selected auto sector stocks using price action chart patterns on 15-minute intervals over the past six months. It focuses on reversal, continuation, and bilateral patterns to forecast short-term price movements. The analysis includes the Nifty Auto Index and key auto companies, ending with actionable recommendations. The study tests the predictive power of chart patterns, offering practical insights for traders and investors. It contributes to the literature by providing empirical evidence on the effectiveness of technical analysis in the auto sector.

Keywords: Price Action, Chart Patterns, Technical Analysis, Nifty Auto Index, Stock Price Forecasting

INTRODUCTION:

The automotive sector is one of the major earners of the Indian economy. Ever since the liberalization of the industry in 1991 and permitting 100 per cent FDI through automatic route, Indian auto industry has traversed a long journey. Now, there is the presence of big global auto maker in the nation. All types of vehicles such as two-wheeler, three wheelers, passenger cars, light commercial vehicles, Trucks, Buses, Tractors, heavy Commercial vehicles etc. are manufactured in India. India is the second largest producer of 2W, the largest producer of 3W and 3rd largest producers of passenger cars globally. Production of automobiles such as truck, buses, cars, three-wheeler/ two wheelers etc. in India has increased at a very high rate.

Auto component

The Indian automobile component industry, with a very well-developed manufacturing environment, manufactures a vast range of products such as engine components, drive transmission and steering components, body and chassis, suspension and brake components, equipment and electrical components, apart from others to cater to the dynamic automobile sector. The automobile industry accounts for 6 per cent of India's GDP and 35 per cent of Manufacturing GDP.

Agricultural Machinery & Tractors Sector: Agricultural Machinery is predominantly comprised of Agricultural Tractors, Power Tillers, Combine Harvesters and other Agriculture Machineries &

Implements. As Power Tillers, Combine Harvesters and other Agricultural Machineries are produced in negligible quantity, this industry is predominantly dominated by Agricultural Tractors. Indian Tractor Industry is the world's largest one (excluding sub 20 HP belt driven tractors) and is responsible for a third of world production.

Nifty Auto: The index is designed to reflect the behavior and performance of the Automobiles sector which includes manufacturers of cars & motorcycles, heavy vehicles, auto ancillaries, Tyres, etc. The index comprises of maximum of 15 stocks and base date of the index is January 1, 2004.

Nifty Auto weightage: Passenger cars and Utility vehicles – 52.55% (M&M – 25.2%, MARUTI – 14.75%, TATAMOTORS – 12.6%) 2/3 Wheelers – 26.08% (BAJAJ- AUTO – 8.67%, EICHERMOT – 6.82%, TVSMOTOR – 6.08%, HEROMOTOCO – 4.91%) Auto components and Equipements – 13.95% (MOTHERSON – 4.2%, BHARATFORG – 3.03%, TIINDIA – 2.86%, BOSCHLTD – 2.47%, EXIDEIND – 1.56%) Tyres and rubber products – 4.27% (MRF – 2.55%, BALAKRISIND – 1.72%) Commercial vehicles – 3.15% (ASHOKLEY – 3.15%)

LITERATURE REVIEW:

Rajesh Sadhwani et al.

The research article examines the Nifty Auto Index and four blue-chip auto stocks—Maruti Suzuki, Mahindra & Mahindra, Bajaj Auto, and Hero MotoCorp—on technical analysis indicators such as MACD, RSI, and Moving Averages drawn from the period 2016 to 2019. The study concludes that although the Nifty Auto Index experienced a correction in 2018, it indicates signs of recovery with long-term investment possibilities. Maruti Suzuki and Bajaj Auto have strong bullish charts and are suggested for long-term investment. However, Mahindra & Mahindra is weak and would be an investment prospect only after a technical breakout, while Hero MotoCorp is in a bearish trend and there is no long-term buying suggestion in its current scenario. The paper on the whole arrives at a finding that technical charts favor the positive scenario on chosen automobile stocks in India.

Paul Abbondante et al.

The research paper by Paul Abbondante tests whether trading volume is a suitable indicator to use for predicting movements in key U.S. stock indices. With the use of regression analysis for a ten-year time frame (2000–2010), the research examines five major indices—Dow Jones, NASDAQ, S&P 500, NYSE Composite, and Wilshire 5000—through examining the effect of prior trading volumes on subsequent index prices on 1-month, 6-month, and 16-month horizons. The results indicate that trading volume does not have any significant prediction of short-term (1-month) price changes but has a statistically significant pattern for the 6-month and 16-month horizons. This reinforces the underlying assumption of technical analysis that volume can indicate market strength or weakness, especially during medium to long-term time periods. The research also contradicts the Efficient Market Hypothesis, which states that past information such as volume cannot be used to forecast future prices. Abbondante summarizes that although volume is not a good short-run indicator, it can be useful as a longer-run forecasting tool, particularly for use with index-based instruments such as ETFs and futures.

Dubey & Poornachandrika et al.

The article explores the use of technical analysis—such as 200-day Exponential Moving Averages (EMA), Relative Strength Index (RSI), and candlestick patterns—on five heavy-weightage NIFTY 50 stocks: Reliance Industries, TCS, HDFC Bank, ICICI Bank, and Bharti Airtel, over three years (January 2021 to January 2024) ([ijrpr.com][1]). It concludes that **EMA crossovers and RSI thresholds are effective in

signaling buying and selling; such signals coincided with bullish and bearish phases for all stocks. For instance, a crossover over the 200-day EMA, along with RSI coming out of oversold levels, reliably pointed to entries, while advances above EMA and RSI declining from overbought levels indicated exits. Quantitative tables provide the summary of the respective months of buy/sell signals for each stock and indicator. The authors find that technical indicators can be useful for both short-term and medium-term trend forecasting but suggest the combination of these tools with fundamental analysis for more solid investment choices.

Abhinav mandilya et al.

The research examines the applicability of technical analysis in short-term trading decisions on five chosen Nifty stocks—HDFC Life, Tata Steel, TCS, Kotak Mahindra Bank, and Cipla—during a three-year time frame. With the use of Simple and Exponential Moving Averages (SMA, EMA), Relative Strength Index (RSI), and MACD, in addition to candlestick and volume-based charting, the research seeks to detect implementable patterns. Important findings involve detecting trend reversals based on support/resistance levels and breakout with good volume confirmation. For example, Tata Steel had a bullish breakout above the 50-day moving average and heavy volume, while Kotak Mahindra Bank indicated a possible downtrend. Based on such technical signs, individual stock recommendations—like buying TCS around support and shorting Kotak if support levels are breached—are provided by the study. In summary, the paper stresses that technical analysis, when used with past price and volume data, can successfully facilitate the prediction of short-term price movements as well as guide decisions to make investments, though it does accept limitations like its sole attention to technical indicators and a limited sample history.

OBJECTIVES OF THE STUDY:

- To understand price action and volume analysis combination.
- To understand NIFTY AUTO sector for better trading strategies formulation.

METHODOLOGY OF THE STUDY:

- Time frame taken as 15 minutes and range for 6 months i.e. January 1, 2025, to June 30, 2025.
- Selected technical tools for analysis as price action patterns and volume combination.
- Taken historical data from Trading view and analysis is done on MS Excel.
- Selected stocks from Nifty Auto sectorial index are Mahindra & Mahindra, Bajaj Auto and MRF based price movements.

Selection of tool:

Types of tools available for analysis:

1. Fundamental
2. Technical
3. Option Greeks

Fundamental analysis: Fundamental analysis involves examining a company's financial statements and broader economic indicators to uncover a security's intrinsic value. The result of such an analysis should give you the investment's true worth based on a company's financial health, the market, and economic conditions. Investors perform fundamental analysis to gauge whether to invest in a company based on its current and projected worth.

Technical analysis: Technical analysis involves studying historical price data and trading volume to forecast future price movements of securities, such as stocks or currencies. Unlike fundamental analysis, which assesses a security's intrinsic value based on financial metrics like earnings and revenue, technical

analysis relies on charts and patterns to identify trading opportunities. The core belief is that all known information is reflected in the price, and historical price movements can indicate future trends

Option Greeks: Option Greeks are financial measures of sensitivity of the option's price to its underlying asset. The Greeks are used in the analysis of options portfolios and sensitivity analysis of a portfolio of options. The measures are known to be essential to many investors for making informed decisions in options trading.

Types of technical tools:

Analysis Type	Focus	Common Tools	Best Used For
Price Action	Raw price movements	Support/resistance, patterns	All time frames
Trend Following	Direction	Moving averages, trend lines	Longer-term trades
Momentum	Relative speed of changes over time	Relative strength index (RSI), moving average convergence/divergence (MACD)	Short-term trading
Volume	Trading activity	Volume bars, on-balance volume	Confirming moves
Combined Indicators	Blend multiple technical aspects	Money Flow Index (MFI), Chaikin Money Flow, Elder Force Index	Spotting potential reversals

Price action: Deals with the price movement itself. It leverages price action candlestick patterns, support/resistance levels, and simple trend lines to show us what we should be trading. Price action trading is a strategy that allows traders to analyse and respond to raw price movements in financial markets. Price action traders rely on simple candlestick charts and support/resistance levels. This approach helps traders identify patterns to determine optimal entry and exit points. This guide provides an overview of price action trading, its strategies, patterns, and benefits.

Price action patterns:

Pattern types: Reversal patterns: Reversal chart patterns are shapes that indicate a possible change in direction of a trend. They may appear at market tops or bottoms to signal a reversal from an uptrend to a downtrend (bearish reversal) or from a downtrend to an uptrend (bullish reversal). These patterns can assist traders in making appropriate decisions regarding entering or closing out trades. (double top, rising wedge, head and shoulders, double bottom, falling wedge, inverse head and shoulder).

Continuation patterns: Continuation pattern is a technical analysis term referring to a short consolidation phase in the price action of an asset before returning to its initial trend. Continuation patterns are vital to traders since they determine the potential entry and exit points, enabling strategic trading without expecting a full trend reversal. (rising wedge, falling wedge, bullish rectangle, bearish rectangle).

Bilateral patterns: A bilateral pattern refers to a financial market chart pattern that signals potential price action in either direction, either up or down. Such patterns usually reflect a short-term consolidation phase, during which traders note a halt in the trend, leading to symmetrical structures like triangles or rectangles. Bilateral patterns may indicate a reversal or continuation of the trend, and they usually need to be confirmed with a breakout before direction is certain. (ascending triangle, descending triangle, symmetrical triangle).

Volume Analysis: Stock volume is the total number of shares that are traded, usually within a single day. Stock volume is measured by counting the total number of shares that are transacted between buyers and sellers, also called absolute volume.

Stock volume is important because it tells you how interested people are in a particular stock. When a stock has a high trading volume, it indicates a strong interest as people are actively trading the stock. If a stock has a low trading volume, it indicates less public interest and slower investing activity.

Traders often look at stock volume alongside the stock's price action or the daily fluctuation of a stock's price. If a stock price closes at a higher price than it opened at the end of a trading day, it indicates an upward trend. If a stock closes for less than it opened, it's in a downward trend.

ANALYSIS & RESULT DISCUSSION
Analysis on automobile sector with time frame of 15 mins and back tested for 6months from January 1st – June 30th 2025:

MAHINDRA AND MAHINDRA
DOUBLE BOTTOM:
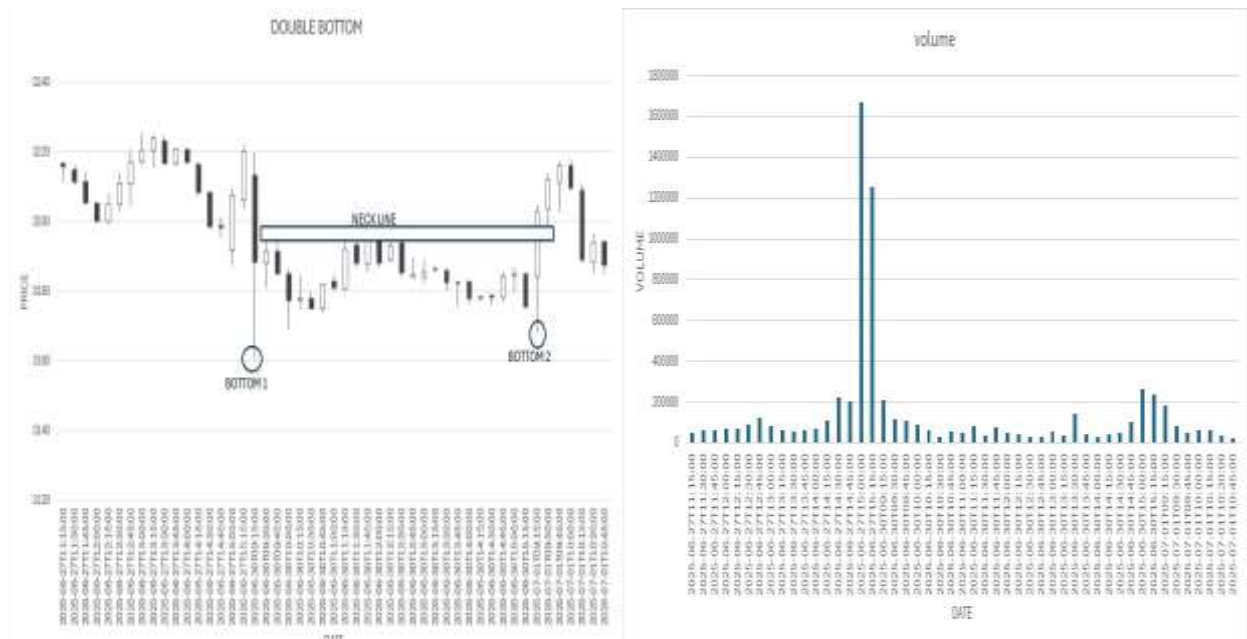
A double bottom chart pattern is a bullish reversal chart pattern that is formed after a downtrend. This pattern is formed with two lows below a support line which is also known as neckline. After reaching back to its neckline, the price becomes bearish and reaches for second low when price raises below neckline after forming second low it is confirmed for bullish move. This MAHINDRA AND MAHINDRA chart on June 30, 2025, timeframe of 15 mins, Y-axis represents the share price of the M&M and X-axis represents the date and time. double bottom pattern is formed with initial bottom of price 3161 and neck

line which acted as support line range is 3190-3195 second bottom formed with price of 3168 when price breakout the neckline it is confirmed for bullish move with previous high range which is around 3220. Volume chart indicates the number of trade exchange done. Y-axis represents the volume and X-axis represents the date and time in 15 minutes timeframe. During the first bottom the volume is high with 210000 and during the pattern formation the volume is been average of 40000 again during the second bottom the volume is increased to 180000 and during the breakout of the neckline the volume is been high with average of 70000 which gives conformation of trend reversal with pattern.

FALLING WEDGE:
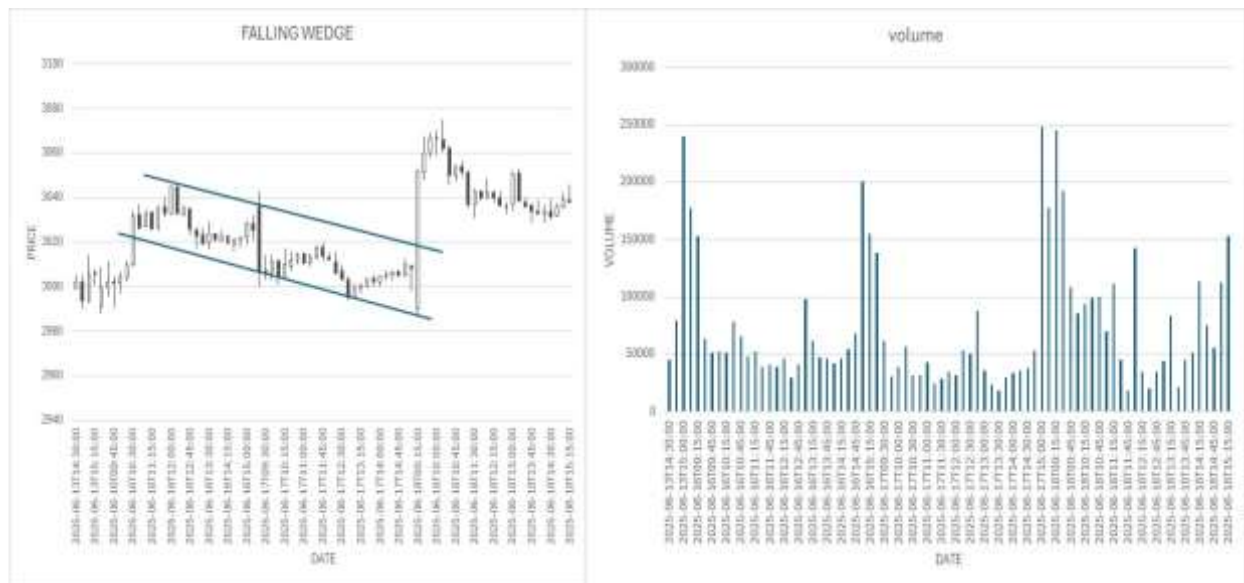
The Falling Wedge in the downtrend indicates a reversal to an uptrend. It is formed when the prices are making Lower Highs and Lower Lows compared to the previous price movements. It gives traders opportunities to take buy positions in the market. This MAHINDRA AND MAHINDRA chart on June 16, 2025, timeframe of 15 minutes, Y-axis represents the share price of the M&M and X-axis represents the date and time. Falling wedge pattern is formed with bottom trendline(support) of price range of 3020-2985 and upper trendline(resistance) of price range is 3046-3013 on 18th June price breakout the resistance zone at 3013 and trend changed from bearish to bullish with rise of previous high 3100. Volume chart indicates the number of trade exchange done. Y-axis represents the volume and X-axis represents the date and time in 15 minutes timeframe. During the falling wedge consolidation range the volume is in average of 50000 and before the pattern breakout the volume is risen to above 200000 again during the breakout volume is increased to 240000 which gives conformation of trend reversal with pattern and volume also increased further with average of 70000 - 90000.

SYMMETRICAL TRIANGLE:
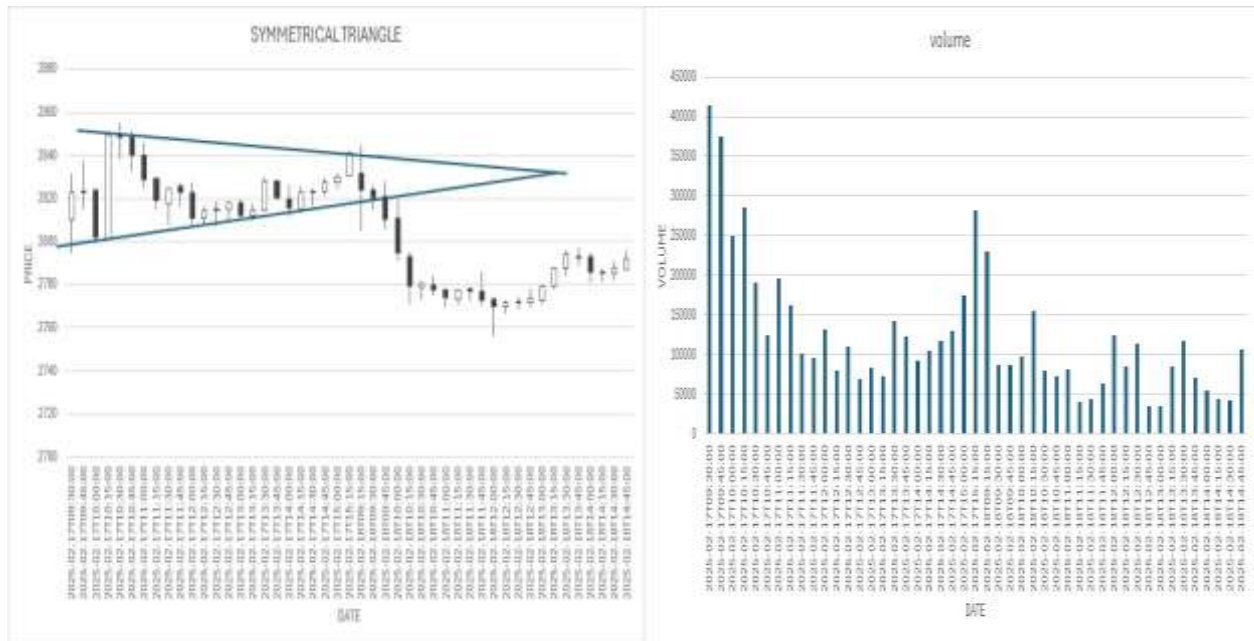
A symmetrical triangle chart pattern represents a period of consolidation before the price is forced to breakout or breakdown. A breakdown from the lower trend line marks the start of a new bearish trend, while a breakout from the upper trend line indicates the start of a new bullish trend. The price target for a breakout or breakdown from a symmetrical triangle is equal to the distance from the high and low of the earliest part of the pattern applied to the breakout price point. This MAHINDRA AND MAHINDRA chart on February 17, 2025, timeframe of 15 minutes, Y-axis represents the share price of the M&M and X-axis represents the date and time. Symmetrical triangle pattern is formed with lower trendline(support) of price range of 2800-2822 and upper trendline(resistance) of price range is 2855-2840 on 17th February price breakdown the support zone at 2820 and trend changed from consolidation to bearish up to previous low 2760. Volume chart indicates the number of trade exchange done. Y-axis represents the volume and X-axis represents the date and time in 15 minutes timeframe. During the symmetrical triangle consolidation period the volume is at good level of 90000 overall pattern formation and before the pattern breakout the volume is risen to above 200000 again during the breakout volume is sustained at 90000 which gives conformation of trend reversal with pattern and volume also increased further with average of 70000 – 90000 throughout the pattern formation and during breakdown and distribution the volume is good.

DESCENDING TRIANGLE:
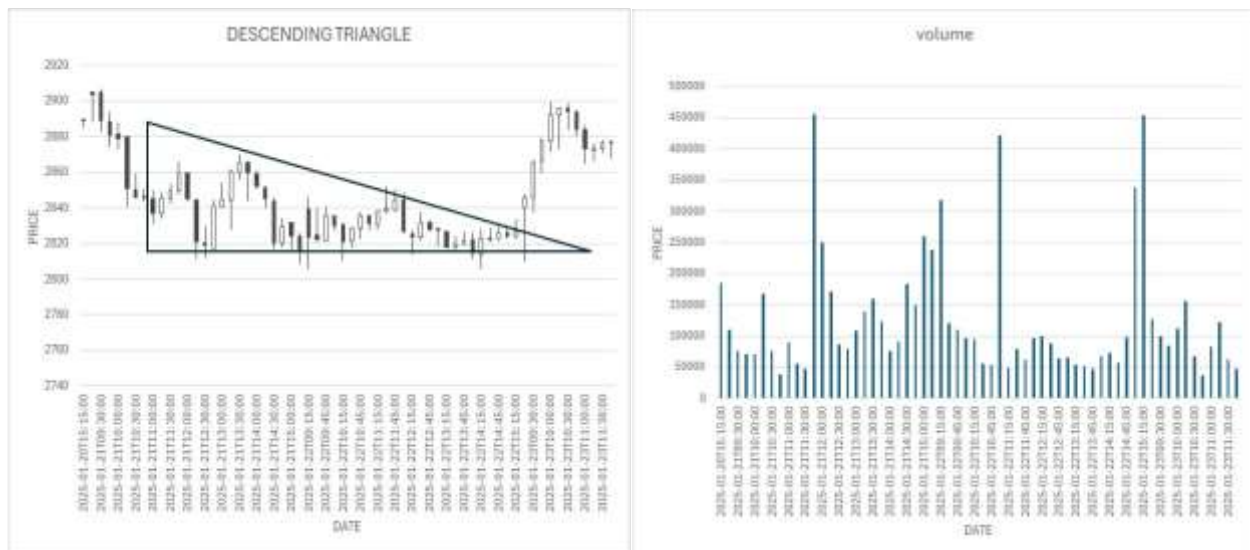
The descending triangle is formed downward sloping triangle with support and slope of lower highs. The support doesn't allow the price to follow further downward as the price tend to breakout from slope or support to form bullish movement or further continue the bearish movement. As the breakout came from slope trend line rather than support which indicates buyer's interest more than sellers which lead to bullish move. This is formed on January 21 2025, timeframe of 15 mins, Y-axis represents the share price of the M&M and X-axis represents the date and time. Descending triangle pattern is formed with support of price range of 2800-2810 and upper trendline(resistance) of price range is 2870-2840 on 22th January price breakout the resistance zone at 2835 and trend changed from range to bullish with rise of high 2900 up to previous high. Volume chart indicates the number of trade exchange done. Y-axis represents the volume and X-axis represents the date and time in 15 minutes timeframe. During the descending triangle consolidation range the volume is in average of 90000 and before the pattern breakout the volume is risen to above 400000 again during the breakout volume is increased to 120000 which gives conformation of trend reversal with pattern and volume also increased further with average of 150000 - 90000.
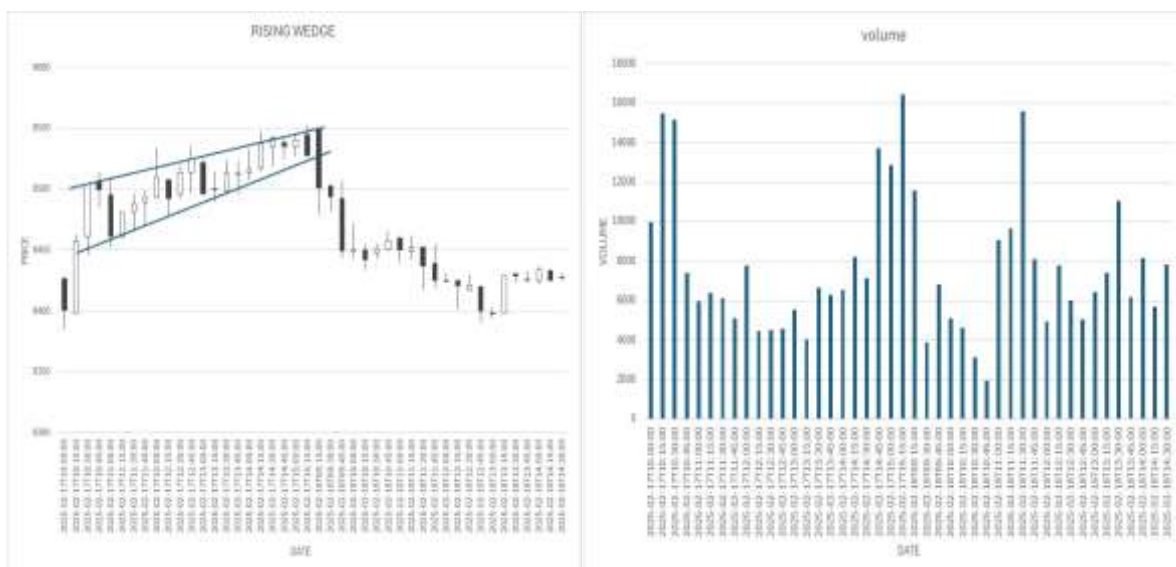
BAJAJ AUTO
BEARISH RECTANGLE:
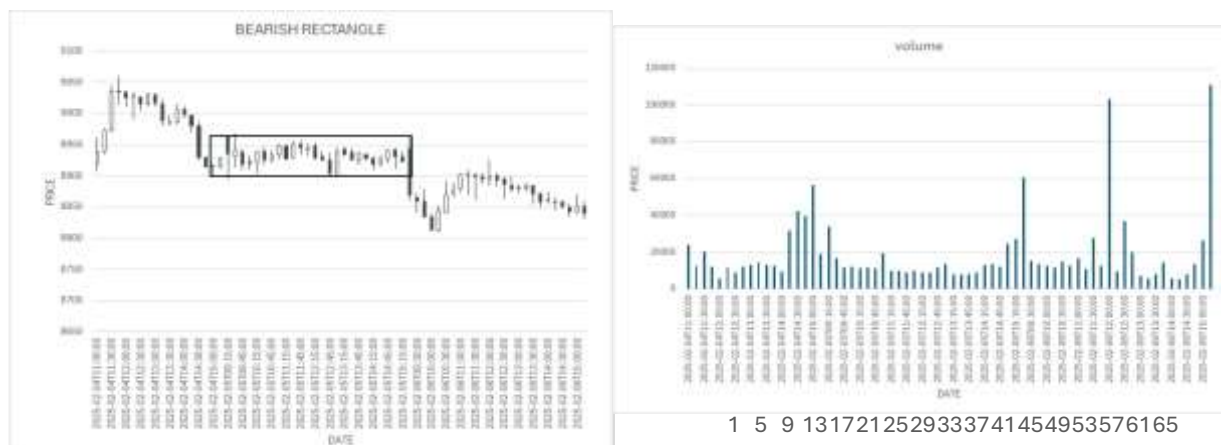
A continuation pattern occurring in a downtrend, where by traders look to enter into short positions once price breaks support and closes inside the breakout zone. This BAJAJ AUTO chart formed on February 5, 2025, timeframe of 15 mins, Y-axis represents the share price of the BAJAJ AUTO and X-axis represents the date and time. Bearish rectangle pattern is formed with consolidation range sideways within price of 8900-8950 on 5th February price consolidated. On 6th February the price breakdown the consolidation at 8900 and trend changed again to bearish and fallen up to 8810. Volume chart indicates the number of trade exchange done. Y-axis represents the volume and X-axis represents the date and time in 15 minutes timeframe. During the bearish rectangle consolidation period the volume is in average of 10000 and before the pattern breakout the volume is risen to above 27000 again during the breakdown volume is increased to 60000 which gives conformation of trend continoution with pattern and volume also increased further with average of 10000 - 15000.

RISING WEDGE:

Rising wedge pattern is an uptrend indicates reversal to the downtrend. It is formed when the price makes new higher highs and lower lows compared to previous price movements it gives bearish move as buyers are exhausted. This BAJAJ AUTO chart on February 17, 2025, timeframe of 15 mins, Y-axis represents the share price of the BAJAJ AUTO and X-axis represents the date and time. Rising wedge pattern is formed with lower trend line(support) of price range of 8460-8525 and upper trendline(resistance) of price range is 8490-8560 on 17th February price formed higher highs. On 18th feburary price breakdown the lower trendline at 8525 and trend changed from bullish to bearish with sharp fall up to previous low 8400. Volume chart indicates the number of trade exchange done. Y-axis represents the volume and X-axis represents the date and time in 15 minutes timeframe. During the rising wedge consolidation range the volume is in average of 5000 and before the pattern breakdown the volume is risen to above 10000 again during the breakdown volume is increased above 12000 which gives conformation of trend reversal with pattern and volume also steady with average of 7000-10000.

MRF
DESCENDING TRIANGLE:
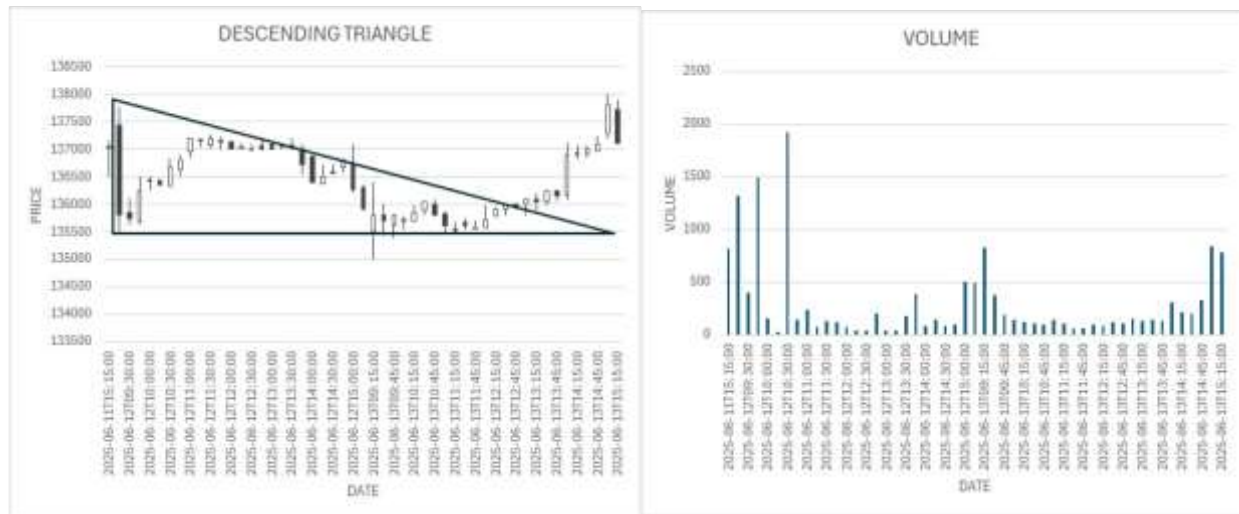
The descending triangle is formed downward sloping triangle with support and slope of lower highs. The support doesn't allow the price to follow further downward as the price tend to breakout from slope or support to form bullish movement or further continue the bearish movement. As the breakout came from slope trendline rather than support which indicates buyer's interest more than sellers which lead to bullish move. This is formed on June 12th, 2025, timeframe of 15 mins, Y-axis represents the share price of the MRF and X-axis represents the date and time. Descending triangle pattern is formed with support of price range of 135435-135530 and upper trendline(resistance) of price slope is 137758-136000 on 13[h] June price breakout the resistance zone at 136060 and trend changed from bearish to bullish with rise of high 138000 up to previous high. Volume chart indicates the number of trade exchange done. Y-axis represents the volume and X-axis represents the date and time in 15 minutes timeframe. During the descending triangle lower highs, the volume is in average of 250 and before the pattern breakout the volume is been steady 200 again during the breakout volume is increased to 300 which gives conformation of trend reversal with pattern and volume also increased further with average of 500.

ASCENDING TRIANGLE:
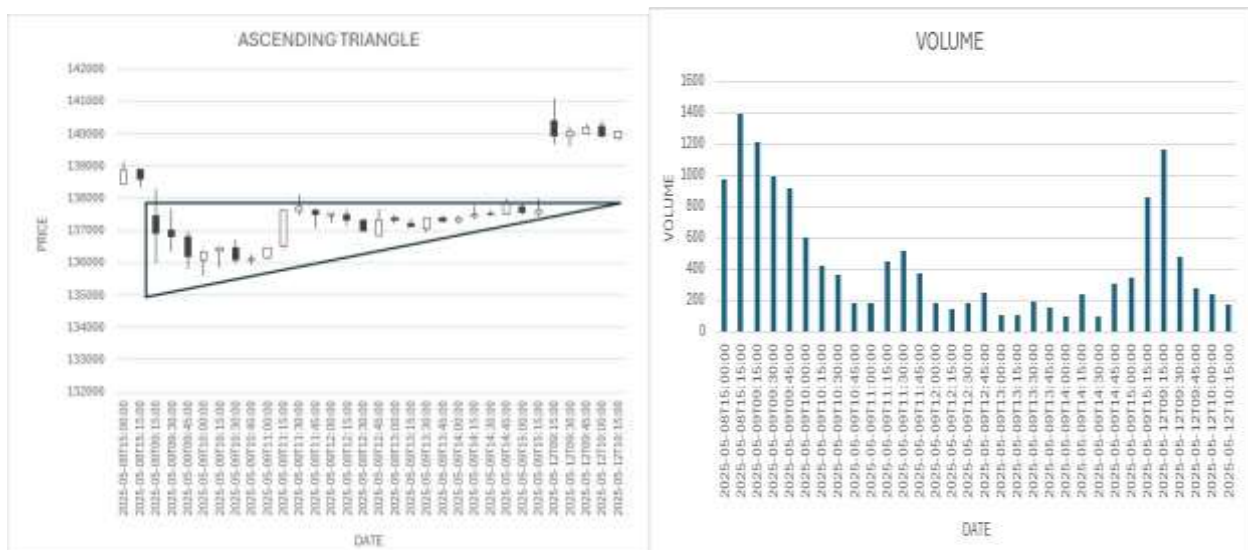
The ascending triangle is formed with higher highs and resistance line. It is formed as a right-angle triangle with resistance which doesn't allow price to go further high. As the price is moving up and buyers are willing to buy for high price without letting sellers to enter and which leads to breakout of the resistance and form new highs and helps in bullish move. This chart indicates MRF price action on May 09, 2025, timeframe of 15 mins, Y-axis represents the share price of the MRF and X-axis represents the date and time. Ascending triangle pattern is formed with resistance of price range of 138000-136000 and lower trendline(support) of price slope is 135600-137480 on 12th may price breakout the resistance zone with Gapup 139600 and trend changed from range to bullish with rise of high 141400 up to previous high. Volume chart indicates the number of trade exchange done. Y-axis represents the volume and X-axis represents the date and time in 15 minutes timeframe. During the ascending triangle consolidation range the volume is in average of 500 and before the pattern breakout the volume is steady during the breakout volume is increased to 1000 which gives conformation of trend reversal with pattern and volume is steady up to bullish run completed.

RISING WEDGE PATTERN:
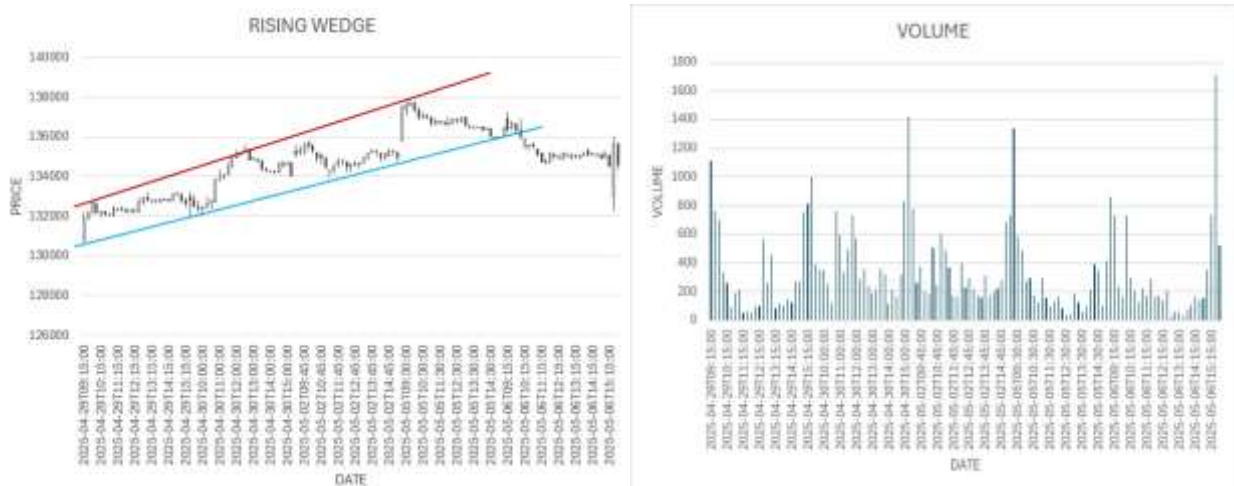
Rising wedge pattern is an uptrend indicates reversal to the downtrend. It is formed when the price makes new higher highs and lower lows compared to previous price movements it gives bearish move as buyers are exhausted. This MRF chart on April 29, 2025, timeframe of 15 mins, Y-axis represents the share price of the MRF and X-axis represents the date and time. Rising wedge pattern is formed with upper trendline(resistance) of price slope from 132600-137600 and lower trendline(support) of price slope is 130750-136000 from 29th April to 5th May price formed higher highs in the range. On 6th May the price breakdown at 136000 and trend changed from bullish to bearish with fall up to 132200. Volume chart indicates the number of trade exchange done. Y-axis represents the volume and X-axis represents the date and time in 15 minutes timeframe. During the rising wedge higher highs range the volume is in average of 300 and before the pattern breakout the volume is steady during the breakout volume is increased to 800 which gives conformation of trend reversal with pattern and volume is steady up to bearish run.

DOUBLE TOP:
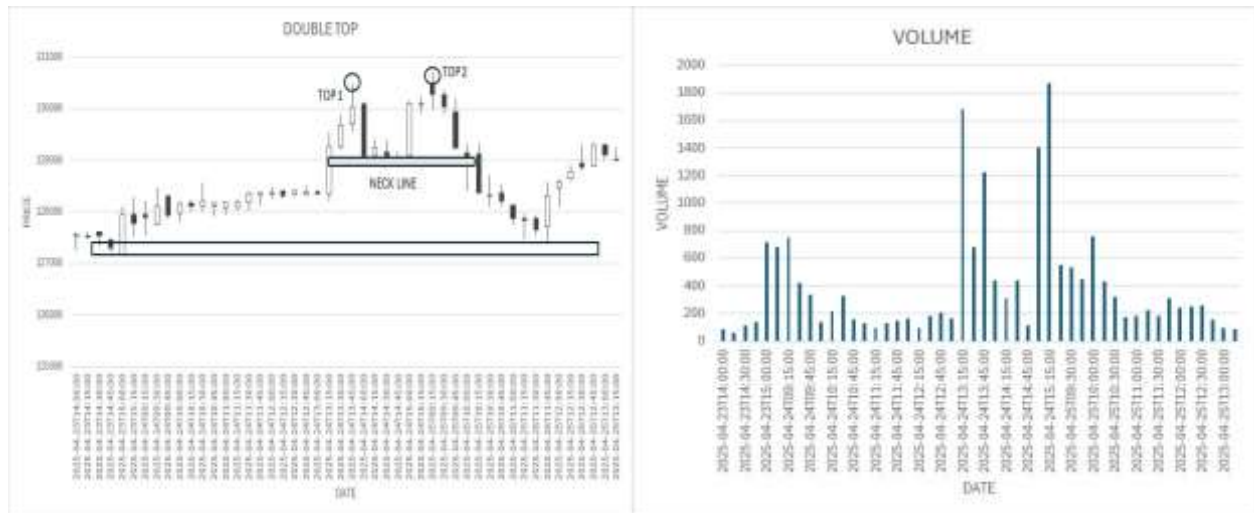
A double top chart pattern is a bearish reversal chart patern that is formed after an uptrend. This pattern is formed with two peaks above a support line which is also known as neckline. After reaching back to its neckline, the price becomes bullish and reaches for second peak when price falls below neckline after forming second peak it is confirmed for bearish move. This MRF chart on April 25, 2025, timeframe of 15 mins, Y-axis represents the share price of the MRF and X-axis represents the date and time. double top pattern is formed with initial top of price 130461 and neck line which acted as support line range is 128900-129000 second top formed with price of 130650 when price breakdown the neckline it is confirmed for bearish move up to previous low range which is around 127350. Volume chart indicates the number of trade exchange done. Y-axis represents the volume and X-axis represents the date and time in 15 minutes timeframe. During the first top the volume is high with 1200 and during the pattern formation the volume is been average of 350 again during the second bottom the volume is increased to 1800 and during the breakout of the neckline the volume is been high with average of 450 which gives conformation of trend reversal with pattern.

IMPLICATIONS OF THE STUDY:

1. **Volatility and Intraday Price Movements:**
o Healthy levels of volatility are essential for profitable intraday trading.
o Price movements should be significant enough to form recognizable patterns and allow entry/exit opportunities.

2. **Gap Ups or Gap Downs:**
o Fewer gaps are preferable as they can disrupt the formation of clear chart patterns.
o Stable price progression helps in identifying reliable setups.

3. **Bearish Chart Patterns:**
o **Rising Wedge**: Indicates potential reversal or continuation to the downside.
o **Bearish Rectangle**: Suggests a continuation of the downtrend after a period of consolidation.
o **Double Top**: A classic reversal pattern indicating potential downside movement.

4. **Bullish Chart Patterns:**
o **Falling Wedge**: Signals a potential bullish reversal.

o **Double Bottom**: A reversal pattern suggesting the end of a downtrend and potential upward movement.

5. Neutral-to-Directional Patterns:

o **Symmetrical Triangle**: Breakout direction is uncertain; traders wait for confirmation.

o **Descending Triangle**: Typically bearish, but confirmation is needed.

o **Ascending Triangle**: Typically bullish, but breakout confirmation is key.

6. Purpose of Chart Patterns:

o Chart patterns are tools used to **predict future price movements** based on historical behavior.

o They help traders determine potential entry and exit points, as well as risk management levels.

CONCLUSION:

From the above analysis done by using technical tools like price action patterns for predicting future price movement. Price action patterns like double top, double bottom, rising wedge, falling wedge, head and shoulders, inverse head and shoulders, ascending triangle, descending triangle, symmetrical triangle and volume indicator tool are applied to chosen automobile industry stocks of the Nifty Auto Index. By timeframe of 15-minute time interval for a 6-month span (January to June 2025), the study showcases short-term buy and sell signals that help intraday as well as swing traders. The rising wedge in MRF and other stocks indicates a bearish reversal, while the ascending triangle indicates a bullish breakout. Price action patterns and volume combination methodology for analyzing short- to medium-term price developments in the automobile industry is useful. These tools can help retail traders and investors identify potential exit and entry points more accurately. Technical patterns and volume combination provide valuable information.

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