

Quantitative Analysis

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Overview of Analysis

This project evaluates significant price levels, volume dynamics, volatility, and a ranking system to assess market conditions and trading opportunities. Through the analysis of multiple data intervals.

Important Prices or Ranges:

1. Significant Price Levels

Support Levels:

- **Definition:** Support is a price level where an asset tends to stop falling and may reverse direction. It acts as a price floor due to increased buying interest when prices approach this level.
- **Importance:** Identifying support levels is crucial for buyers to analyze potential entry points. A strong support level suggests a high probability that prices will not fall further, making it an attractive buy-in opportunity.

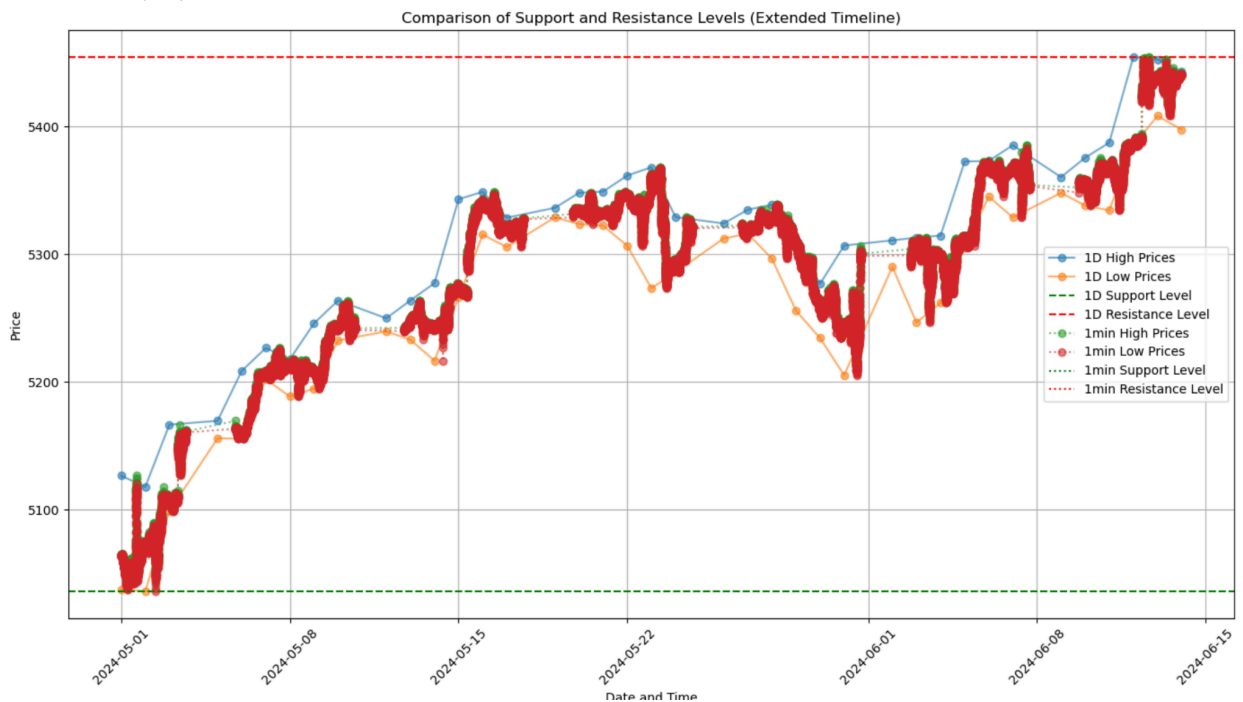
Resistance Levels:

- **Definition:** Resistance is a price level where an asset tends to stop rising and may start to decline. It acts as a price ceiling due to increased selling interest when prices approach this level.
- **Importance:** Recognizing resistance levels helps traders determine potential exit points. A strong resistance level indicates a high probability that prices will not rise further, providing a strategic point for selling.

How to Identify:

- **Price Data:** Analyze past price movements to find levels where price reversals occurred frequently.
- **Technical Tools:** Utilize technical indicators and chart patterns, such as trendlines, to analyze and compare these different price levels
- **Data:** We will analyze these support levels at two different intervals and compare them to observe possible patterns and trends amongst them, this also gives the buyer more versatility depending on the duration he is planning to hold the stock.

Support Level (1D): 5036.25
Resistance Level (1D): 5454.5
Support Level (1min): 5036.25
Resistance Level (1min): 5454.5



Key Findings:

1. **Consistency Across Intervals:**
 - **Support and Resistance Levels:** The levels are consistent across all time frames, indicating they are robust and significant.
2. **Pattern Relevance:**
 - **Patterns:** As expected, the alignment of levels shows their importance across different intervals, confirming they are not just anomalies.

Practical Implications for Buyers:

- **Informed Decisions:** Buyers can use these consistent support and resistance levels to identify strong entry and exit points. For instance, buying near identified support levels and considering selling near resistance levels can enhance trading strategies.

- **Problem Solving:** This approach resolves the issue of relying on short-term data by providing a broader context, reducing the risk of making decisions based solely on temporary market movements.

2. Volume Analysis

Definition:

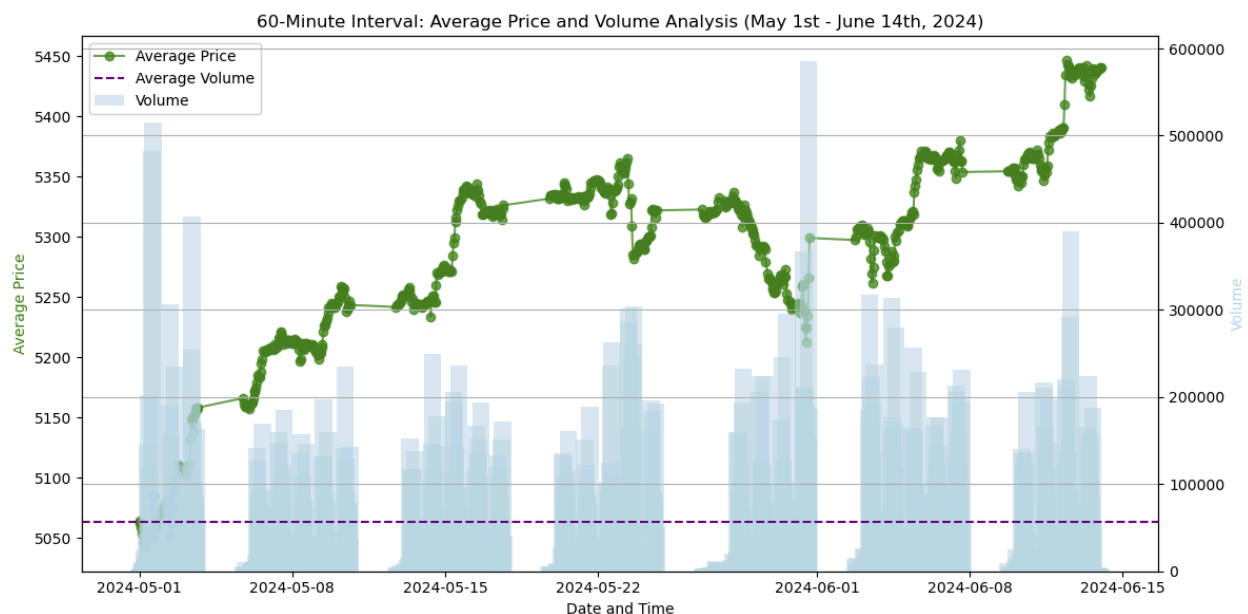
Volume refers to the total amount of trading activity in an asset over a given time period. It measures how many units of the asset are traded, providing insight into the strength and validity of price movements.

Importance:

Analyzing volume helps confirm the strength of price trends and potential reversals. High trading volume during price movements can signal strong market interest and validate trends, while low volume may suggest weaker trends and potential reversals.

How to Identify:

- **Volume Spikes:** We identified significant volume increases by calculating the average volume and flagging instances where it exceeded 1.5 times this average, highlighting periods of strong market interest or major news impacts.
- **Volume Trends:** By plotting volume alongside price movements, we assessed trends. Rising prices with increasing volume indicate strength, while rising prices with decreasing volume may signal weakness.
- **Volume and Price Correlation:** We analyzed the correlation between volume and key price levels by plotting them on separate y-axes, confirming the significance of support and resistance levels.



Key Findings:

Volume Spikes and Price Correlation:

- **Volume Surges:** There are clear spikes in volume during certain periods, particularly around high-impact times, such as market openings or key announcements.
- **Price and Volume Link:** Significant price movements tend to coincide with higher-than-average volume, indicating strong market participation during these times.

Practical Implications for Buyers:

- **Informed Decisions:** Buyers can focus on periods of high volume as signals for potential price movement. Analyzing when these spikes occur, especially near key price levels, can help identify strong entry points or even exit points
- **Problem Solving:** This approach mitigates the risks of relying on short-term fluctuations by providing more data context, enabling more strategic decisions based on broader market trends.

3. Volatility Analysis

Definition:

Volatility measures the degree of variation in an asset's price over a specific period, indicating the level of risk associated with the stock.

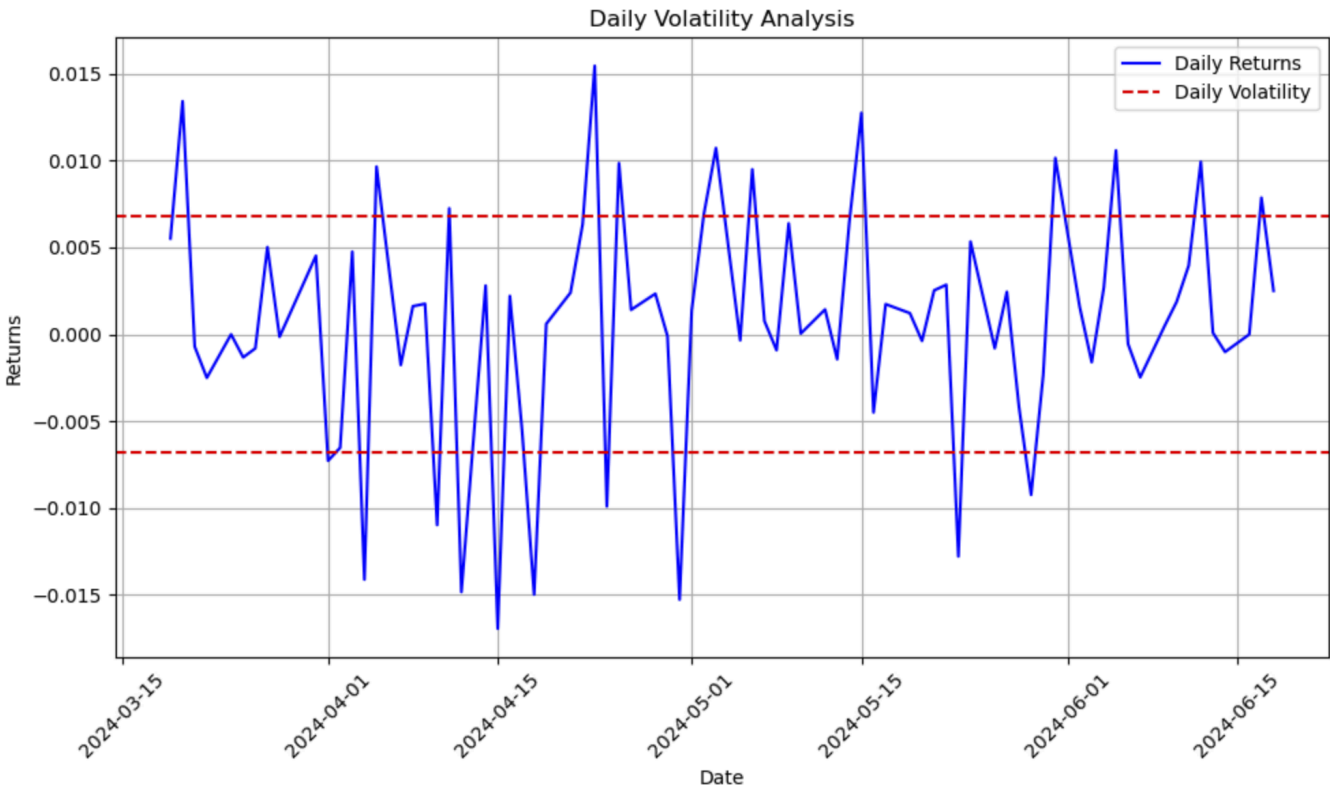
Importance:

Analyzing volatility helps traders assess risk and identify potential trading opportunities. High volatility signals greater price fluctuations, while low volatility suggests stability.

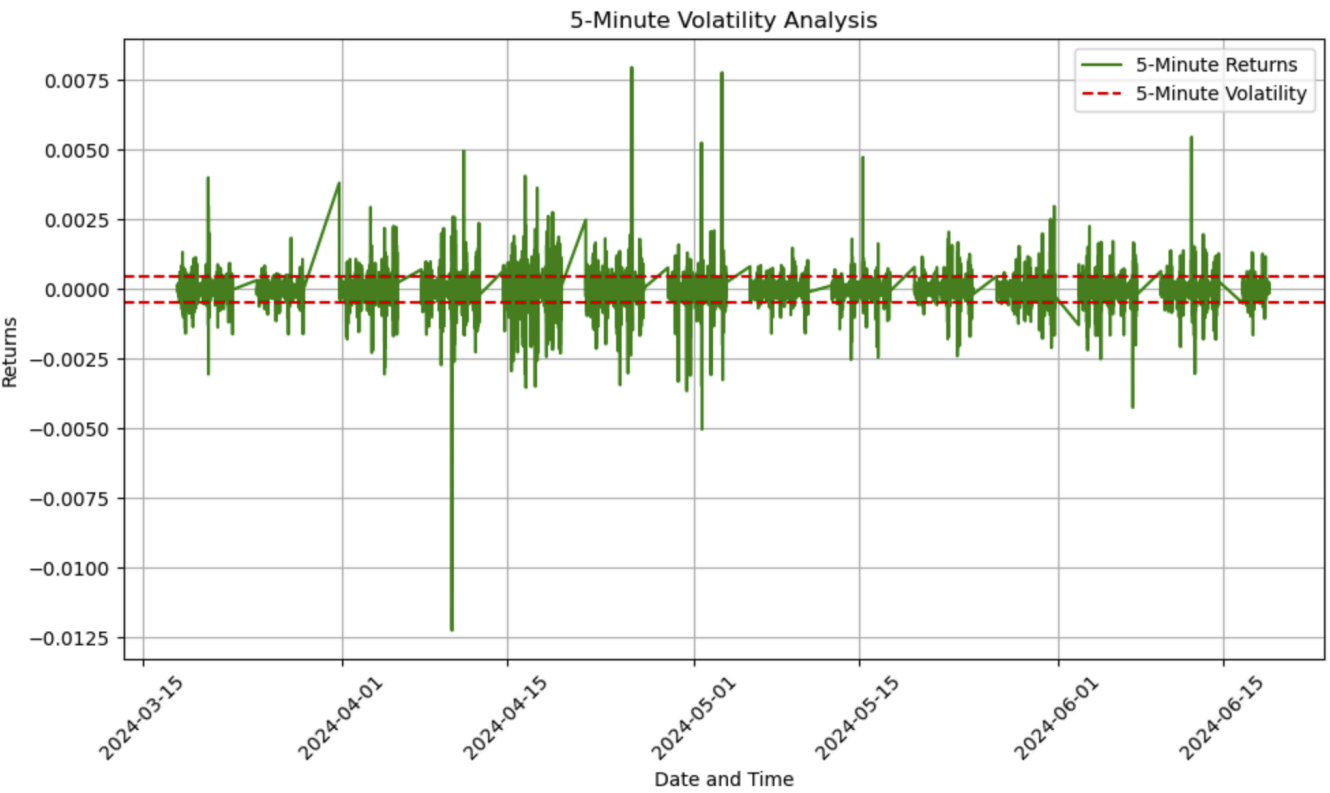
How to Identify:

- **Returns:** We calculated percentage changes in price for each 5-minute interval to track short-term volatility as well as 1-day interval for long-term volatility.
- **Volatility Levels:** Average volatility was calculated to identify periods of high and low volatility, highlighting significant price swings.

Daily Volatility: 0.006823119761651557



5-Minute Volatility: 0.00044215374638574036



Visualization Explanation:

- **Lines:** Representing percentage changes in price over 5-minute intervals. Sharp upward lines indicate significant increases, while downward lines signify drops.

Key Findings:

- **Volatility Patterns:** Distinct patterns emerged during different trading hours, indicating heightened market activity.
- **Returns Correlation:** Significant price changes often coincided with high volatility, suggesting traders should monitor these periods closely.
- **Short-Term vs. Long-Term Trends:** Comparing volatility across the two CSVs enhanced our understanding of price behavior.

Practical Implications for Buyers:

- **Informed Trading Decisions:** Traders can use volatility data to find optimal entry and exit points, capitalizing on high volatility opportunities.
- **Risk Management:** Recognizing periods of heightened volatility helps traders adjust their strategies, improving their risk management.

Ranking System Overview

Our ranking system evaluates the importance of key price levels and trading metrics, offering insights into market dynamics.

Calculation Methodology

1. **Support and Resistance Levels:**
 - These levels are identified from historical price data, with scores indicating proximity to current prices. A higher score signifies closeness to the level.
2. **Volume Analysis:**
 - Average volume reflects typical trading activity, while the volume score compares current volume to the average, highlighting buying interest.
3. **Volatility Analysis:**
 - Volume volatility measures fluctuations in trading volume, indicating potential price movements. A high volatility score suggests significant activity.

Insights

- **Support and Resistance Scores:** Scores of 0.00 indicate the current price is far from these levels, suggesting a strong bullish trend.

- **Volume Score:** A score of 0.43 indicates moderate trading activity, suggesting some interest that could influence price movements.
- **Volatility Score:** A high score reflects significant fluctuations, indicating potential price changes and associated risks.
- **Overall Ranking Score:** This combines insights from all metrics, suggesting stable market conditions with potential upward movement while being mindful of volatility.

Latest Support Level: 4963.5

Support Score: 0.00

Latest Resistance Level: 5498.0

Resistance Score: 0.00

Average Volume: 4938.21

Volume Score: 0.43

Volume Volatility: 9073.21

Volatility Score: 100.00

Overall Ranking Score: 30.13