

Trader Performance and Market Sentiment Analysis Report

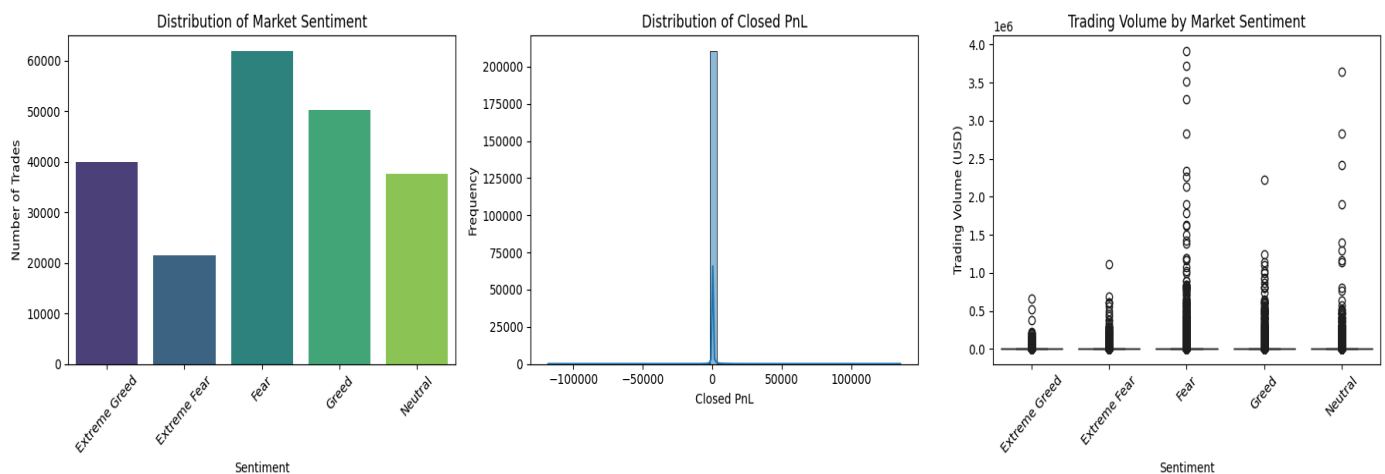
1. Introduction

This report analyzes the relationship between trader performance and market sentiment, using two datasets: `fear_greed_index.csv` and `historical_data.csv`. The goal is to uncover patterns in trading behavior and performance under different market conditions, as indicated by the Fear & Greed Index. By understanding these patterns, we can derive insights to inform more effective trading strategies.

2. Data and Methodology

The analysis was conducted using Python with the `pandas`, `matplotlib`, and `seaborn` libraries. The two datasets were merged based on the date, allowing for a combined analysis of trading activity and market sentiment. The methodology involved the following steps:

- Data Preprocessing:** The 'date' and 'Timestamp IST' columns were converted to datetime objects to enable time-based analysis.
- Feature Engineering:** A 'PnL_category' was created to classify trades as 'profitable' or 'unprofitable' based on the 'Closed PnL' column.
- Exploratory Data Analysis (EDA):** The distributions of market sentiment and PnL were analyzed, along with the relationship between sentiment and trading volume.
- Sentiment-Based Performance Analysis:** The average PnL and win/loss ratio were calculated for each market sentiment category.



3. Key Findings

3.1. Market Sentiment Distribution

The distribution of market sentiment shows that the market spends a significant amount of time in “Fear” and “Greed” states, with fewer instances of “Extreme Fear” and “Extreme Greed”.

Distribution of Market Sentiment

3.2. Profit and Loss (PnL) Distribution

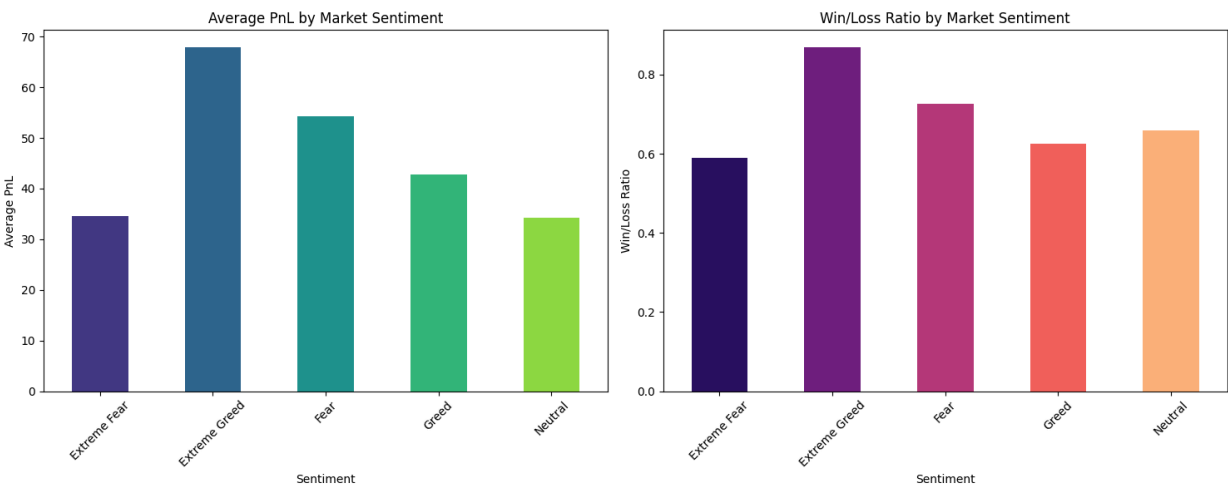
The distribution of PnL is heavily skewed towards zero, indicating that most trades result in small gains or losses. There is a long tail on both the positive and negative sides, representing less frequent but larger profits and losses.

3.3. Trader Performance vs. Market Sentiment

The analysis reveals a strong correlation between trader performance and market sentiment:

- **“Extreme Greed” is the most profitable sentiment:** Traders achieved the highest average PnL and the best win/loss ratio during periods of “Extreme Greed”.
- **“Extreme Fear” is the most challenging sentiment:** While the average PnL during “Extreme Fear” is not the lowest, the win/loss ratio is significantly lower than in other sentiment conditions, indicating a higher probability of unprofitable trades.

Sentiment Performance Plots



4. Insights and Recommendations

Based on the findings, the following insights and recommendations can be made:

- **Adapt Trading Strategy to Market Sentiment:** Traders should consider adjusting their strategies based on the prevailing market sentiment. A more aggressive

approach may be warranted during “Extreme Greed,” while a more cautious or defensive strategy could be beneficial during “Extreme Fear.”

- **Focus on High-Probability Setups:** Given the low win/loss ratio during “Extreme Fear,” traders should be particularly selective and focus on high-probability trading setups during these periods.
- **Further Research:** Further analysis could explore the impact of other factors, such as the specific assets being traded or the time of day, on trader performance within each sentiment category.

5. Conclusion

This analysis demonstrates that market sentiment is a significant factor influencing trader performance. By understanding and adapting to the prevailing sentiment, traders can potentially improve their profitability and make more informed trading decisions.