Trader Behaviour Insights Using Market Sentiment

1. Introduction

Financial markets are strongly influenced by trader emotions such as Extreme Fear, Fear, Neutral, Greed, and Extreme Greed. These emotional states significantly impact trading activity, risk-taking behaviour, and profitability. This study analyses the relationship between market sentiment and trader performance to uncover behavioural patterns that can support better trading decisions.

2. Dataset Description

Two complementary datasets were used for this analysis:

2.1. Market Sentiment Dataset

• Frequency: Daily
• Indicator: Fear and Greed Index
• Purpose: Represents overall market psychology and emotional state of traders at a macro level.

2.2. Historical Trader Dataset

• Granularity: Trade-level data
• Includes execution price, trade size, position direction, leverage, and closed PnL
• Purpose: Captures individual trader behaviour and performance at a micro level.

3. Data Preprocessing

To ensure accurate analysis, both datasets were cleaned and aligned temporally.

3.1. Date Alignment

• All timestamps were converted to a unified datetime format.
• Trade timestamps were reduced to the date level to match daily sentiment data.
• A left join was performed on the Date column to align sentiment with trades.

3.2. Handling Missing Values

A small portion of records lacked sentiment data. These rows were removed as they represented an insignificant portion of the dataset

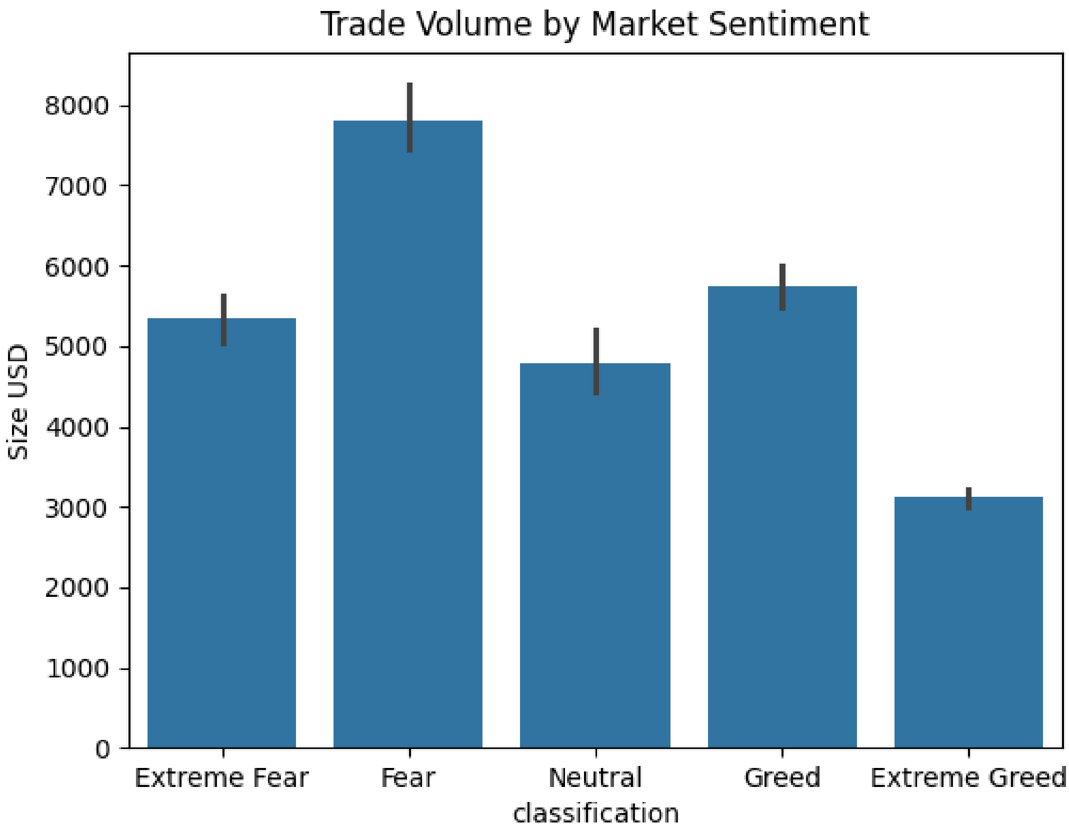
3.3. Feature Engineering

• Profitability Indicator: Trades with positive Closed PnL were marked as profitable.
• Ordered Sentiment Variable: Sentiment levels were ordered from Extreme Fear to Extreme Greed.

4. Exploratory Data Analysis and Insights

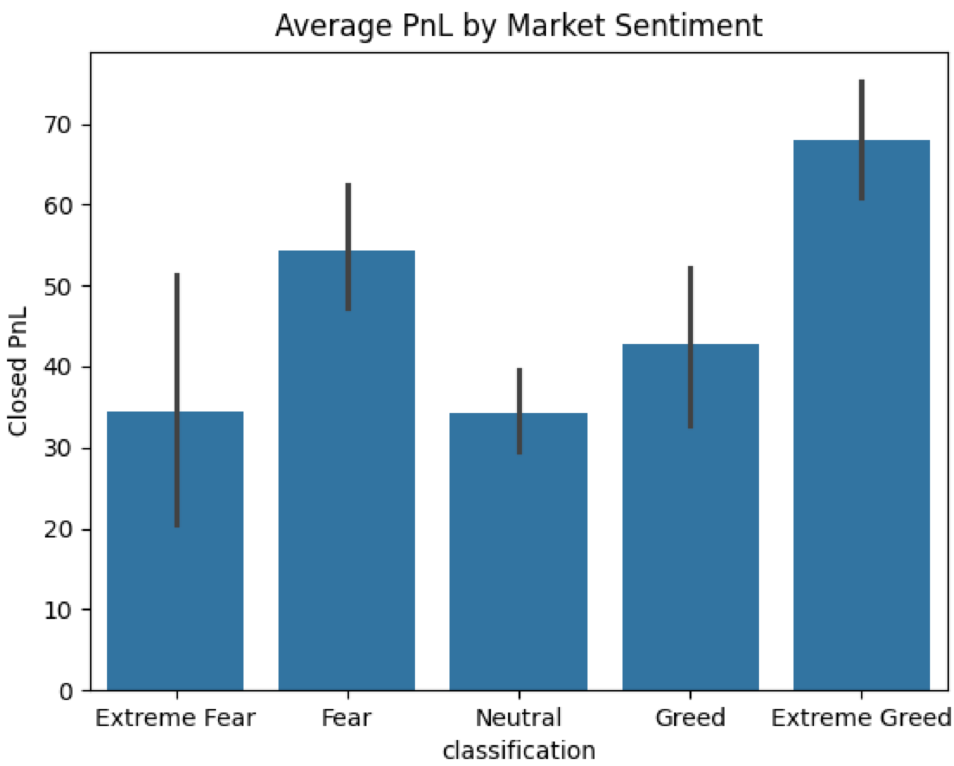
4.1. Trading Volume and Market Sentiment

Trading activity is highest during Fear and Neutral market conditions. Participation decreases during Extreme Fear and Extreme Greed, indicating reduced activity during emotional extremes



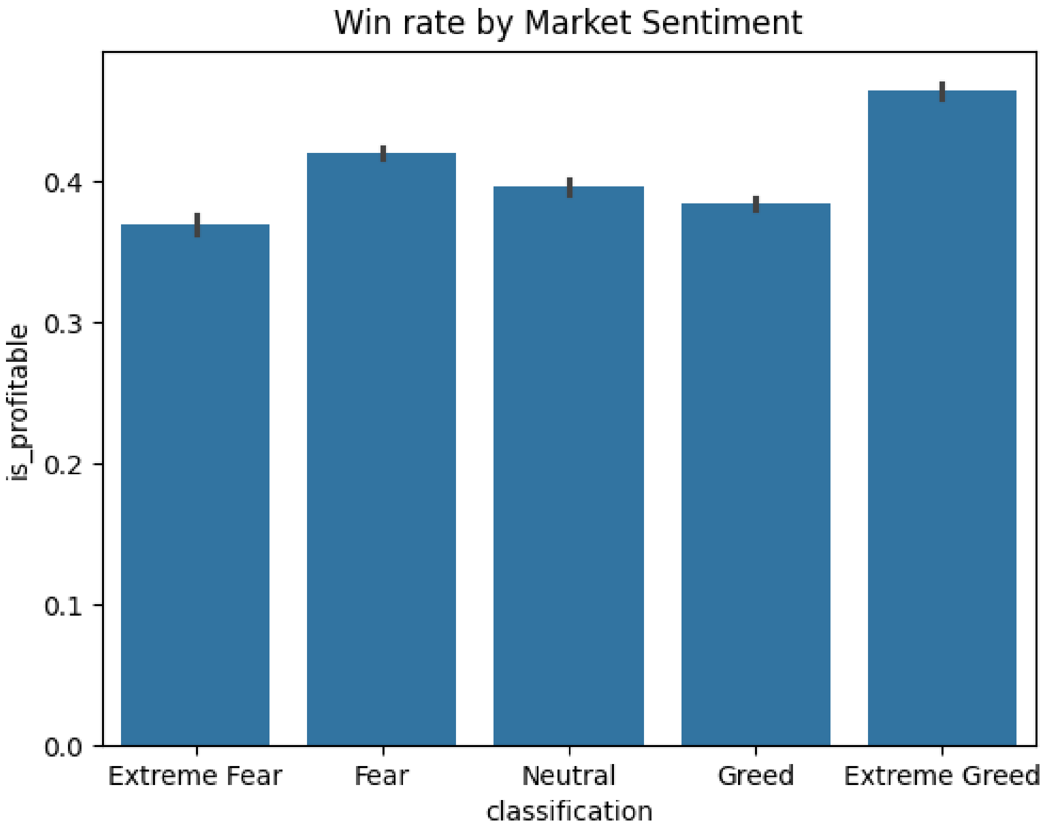
4.2. Profitability and Market Sentiment

Average profitability increases during Greed and Extreme Greed phases due to strong price momentum. However, these periods also involve higher risk exposure



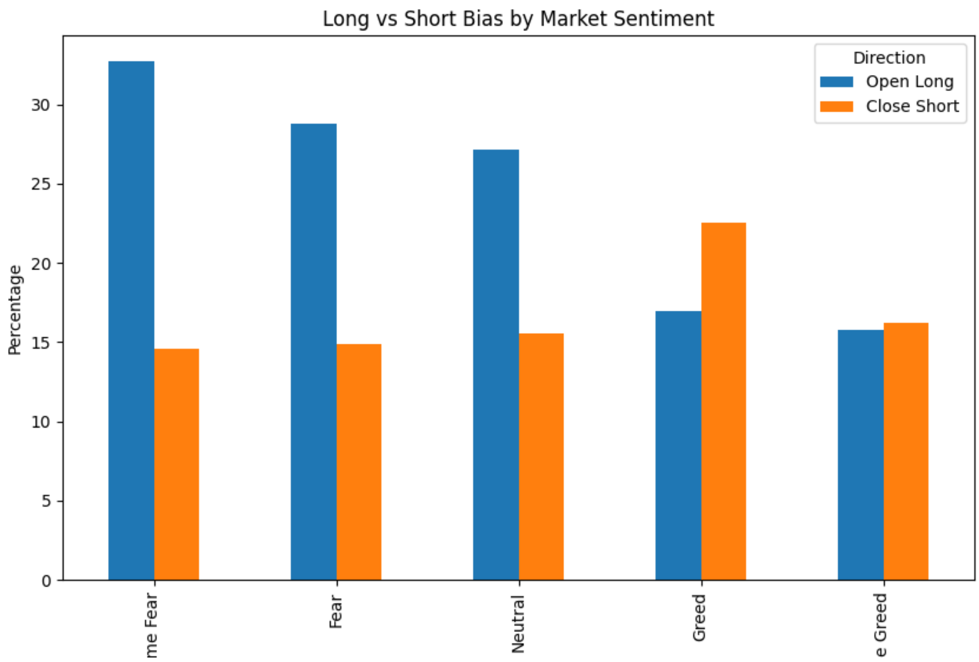
4.3. Win Rate and Market Sentiment

Win rates are higher during positive sentiment phases. Fearful markets often lead to premature exits and lower trade success rates.



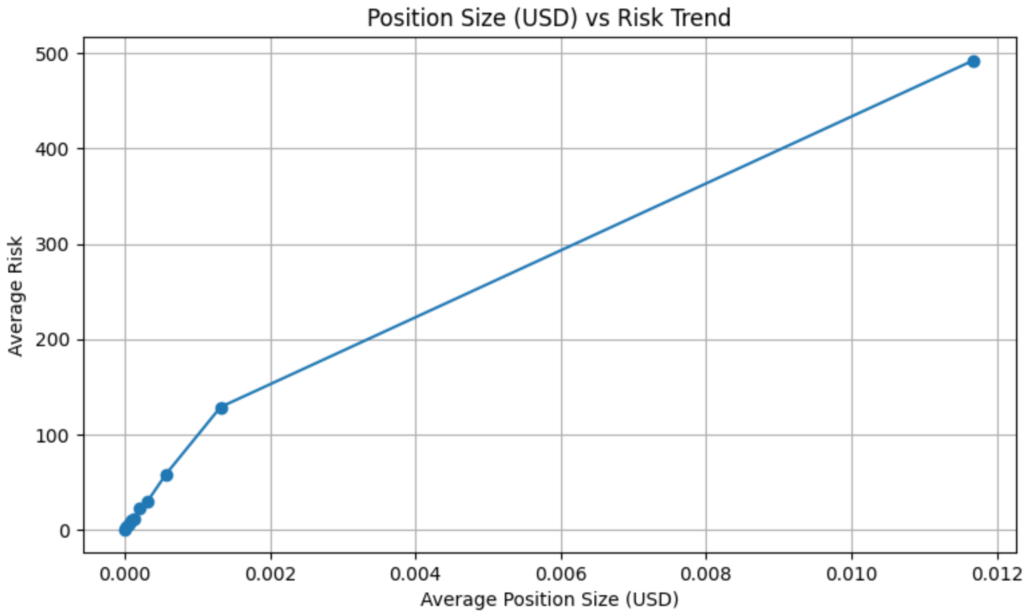
4.4. Directional Bias and Positioning

During optimistic sentiment, traders prefer long positions. In fearful markets, traders shift towards defensive or short positions.



4.5. Position Size and Risk Behaviour

The analysis indicates a strong positive relationship between position size and risk, where larger USD positions lead to significantly higher PnL volatility.



5. Key Takeaways

- High trading activity does not guarantee higher profitability
- Moderate fear promotes disciplined trading behaviour.
- Greedy markets offer higher returns but involve elevated risk due to increased leverage.

6. Conclusion

Market sentiment plays a critical role in shaping trader behaviour. While sentiment alone should not be used as a predictive signal, combining it with technical and risk indicators can support more informed trading