DS_report

Exploring the Relationship Between Trader Performance and Market Sentiment

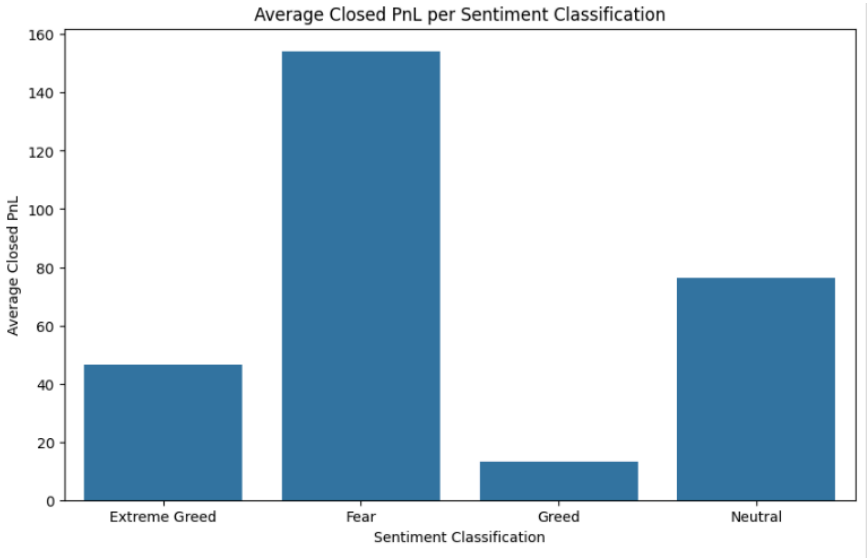
Results

1. Profitability by Sentiment

Table 1. Mean Closed PnL by Sentiment

Classification	Mean Closed PnL
Extreme Greed	46.62
Fear	154.25
Greed	13.23
Neutral	76.45

Figure 1. Average PnL by Sentiment (bar chart)



2. Win Rate by Sentiment

Table 2. Win Rate by Sentiment

Classification	Win Rate
Extreme Greed	70.7%
Fear	48.1%
Greed	38.0%
Neutral	42.9%

Although win rates were highest in Extreme Greed, average PnL was far higher in Fear, suggesting larger and more effective trades despite fewer wins.

3. Trade Sizing and Fees

Table 3. Average Trade Size (USD) by Sentiment

Classification	Avg Trade Size (USD)
Extreme Greed	4,101
Fear	15,499
Greed	10,965
Neutral	8,809

Fear trades were the largest on average, while Extreme Greed trades were much smaller.

Table 4. Average Fees by Sentiment

Classification	Avg Fee
Extreme Greed	0.58
Fear	3.05
Greed	3.04
Neutral	3.01

4. PnL by Side and Direction

Table 5. Average Closed PnL by Sentiment and Side

Classification	Buy PnL	Sell PnL
Extreme Greed	50.2	43.3

Classification	Buy PnL	Sell PnL
Fear	225.9	82.2
Greed	-115.9	136.7
Neutral	29.0	116.1

Fear-driven Buy trades were most profitable, while Greed-driven Buy trades were strongly negative.

Figure 4. Heatmap of PnL by Sentiment and Side

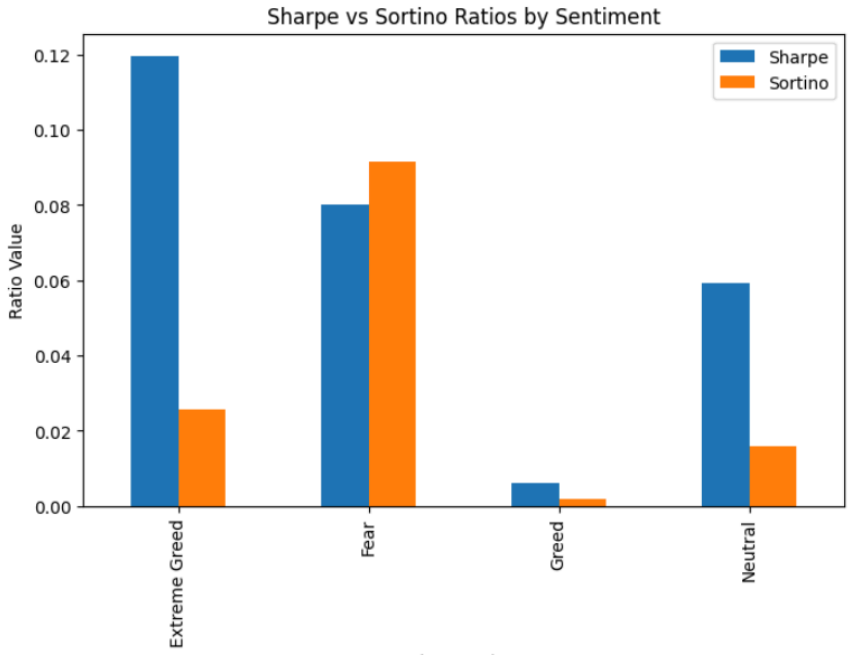
6. Risk-Adjusted Returns

Table 6. Sharpe and Sortino Ratios by Sentiment

Classification	Sharpe	Sortino
Extreme Greed	0.12	0.026
Fear	0.08	0.092
Greed	0.006	0.002

Classification	Sharpe	Sortino
Neutral	0.06	0.016

Fear provided the best risk-adjusted performance once downside risk was considered, while Extreme Greed, despite appearing strong on Sharpe, performed poorly on Sortino due to losses.

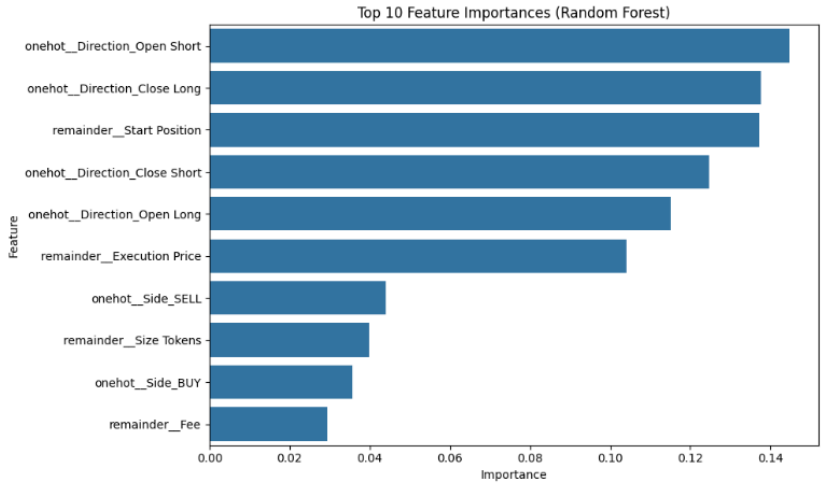


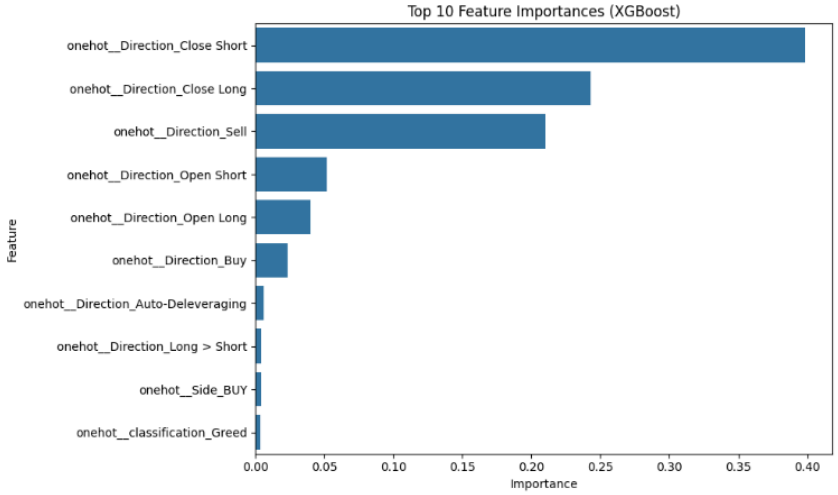
7. Machine Learning Classification

Table 7. Model Performance Metrics

Model	Accuracy	Precision	Recall	F1 Score
Logistic Regression	94.7%	90.4%	99.8%	94.9%
Random Forest	98.3%	97.0%	99.8%	98.3%
XGBoost	98.7%	97.8%	99.6%	98.7%

Figure 6. Feature Importance (Random Forest vs. XGBoost)





Both models showed that execution features (direction, side, position size, execution price) were far more influential than sentiment variables in predicting profitable trades.

Inference :

The findings demonstrate that market sentiment significantly shapes trading outcomes. **Fear-driven markets produced the strongest and most consistent profitability, suggesting that traders are more disciplined under adverse sentiment**. Extreme Greed produced high win rates but large downside volatility, making it riskier despite nominal profitability. Greed conditions consistently led to weak outcomes, both in absolute and risk-adjusted terms.

Machine learning analysis confirmed that **sentiment, while important contextually, is not the primary driver of individual trade success.** Execution-related features dominate predictive power, underscoring the importance of strategy design at the trade mechanics level.

Conclusion

This study confirms that sentiment regimes influence trader performance but in nuanced ways. Fear markets provide the most favorable balance of profitability and risk, while Greed should be avoided due to poor outcomes. Extreme Greed can generate profits but requires strict risk management. Neutral markets are moderate and suitable for conservative strategies.

Crucially, **execution features — trade side, direction, and sizing — play a larger role than sentiment in predicting profitable outcomes. Therefore, sentiment should be incorporated as an overlay, while execution mechanics remain the core driver of strategy performance.**