

DS REPORT — Trader Performance vs Market Sentiment (Fear & Greed Index)

1) Objective:

Analyze trader performance (Closed PnL) and evaluate how performance changes across market sentiment using the Fear & Greed Index. Extract actionable insights and propose sentiment-based strategy adjustments.

2) Datasets:

- historical_data.csv (trades): 211,224 rows × 16 columns

Key fields used: Account, Timestamp IST, Closed PnL, Coin, Side

- fear_greed_index.csv (sentiment): 2,644 rows × 4 columns

Key fields used: date, value (0–100), classification

Data quality checks:

- No missing values found in the analyzed columns.

- No duplicate rows detected in either dataset.

3) Data Preparation:

- Converted “date” to datetime.

- Converted “Timestamp IST” to datetime (format: %d-%m-%Y %H:%M).

- Created trade_date from Timestamp IST (normalized to daily date).

- Merged trades with daily sentiment on trade_date.

- Merge coverage: ~100% trades matched with sentiment (only 6 unmatched out of 211,224).

4) Trader Performance Summary:

Computed per-account metrics:

- trades (count)
- total_pnl (sum of Closed PnL)
- avg_pnl (mean Closed PnL per trade)
- median_pnl (median Closed PnL per trade)
- win_rate_% (% trades with Closed PnL > 0)

Saved outputs:

- outputs/top_traders_by_total_pnl.csv (top 50 traders)
- outputs/overall_metrics.csv

5) Sentiment vs Performance (Key Findings):

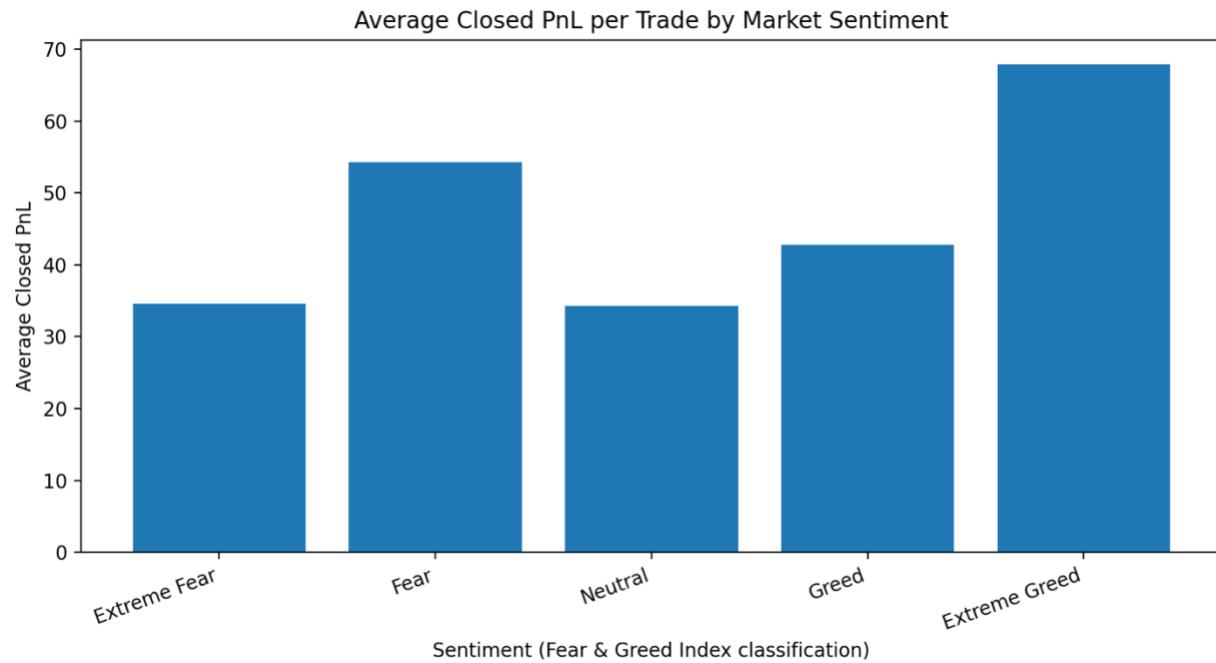
A) Performance by sentiment classification

(Extreme Fear, Fear, Neutral, Greed, Extreme Greed)

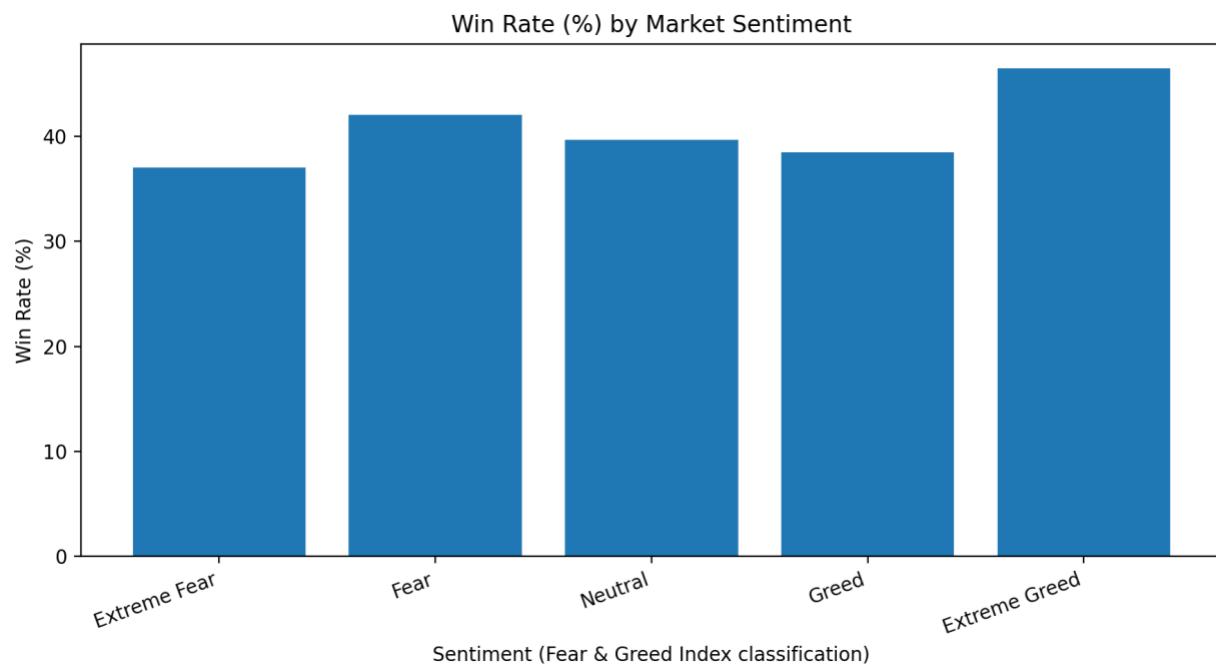
Observed highlights:

- Extreme Greed shows the highest average PnL per trade and the highest win rate.
- Neutral and Extreme Fear regimes are comparatively weaker.

Charts:



Average Closed PnL per Trade by Market Sentiment (Classification)



Win Rate (%) by Market Sentiment (Classification)

Tables:

- outputs/sentiment_class_performance.csv

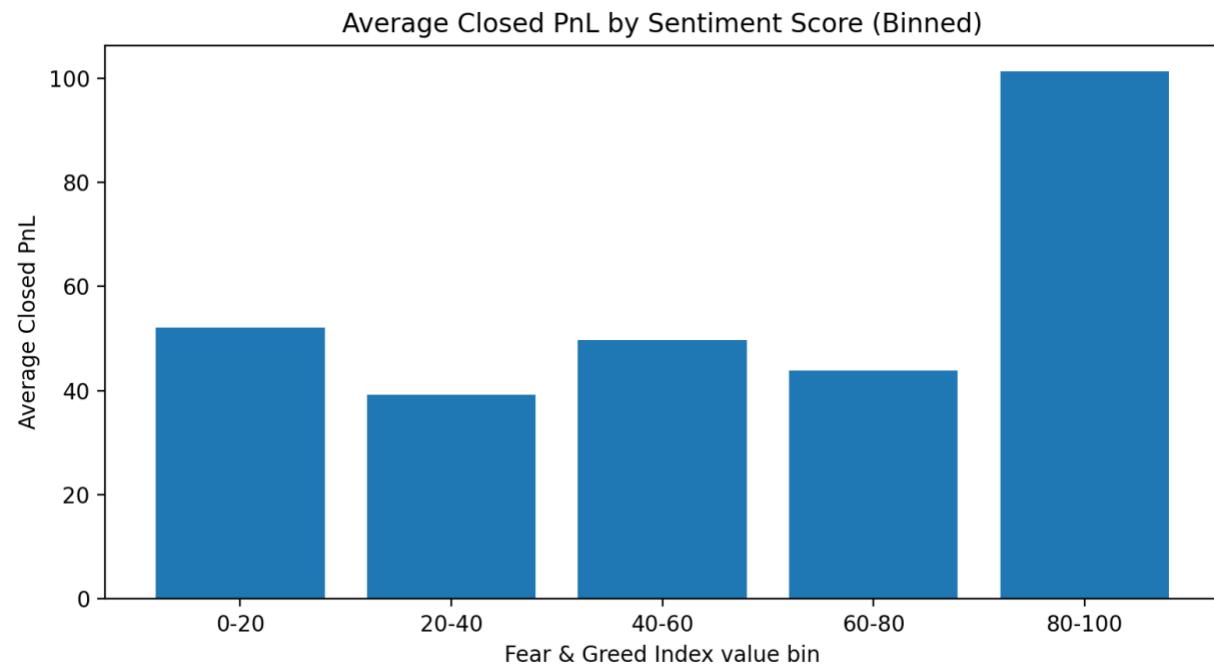
B) Performance by numeric sentiment bins (value 0–100)

Bins: 0–20, 20–40, 40–60, 60–80, 80–100

Key observation:

- 80–100 bin shows a strong uplift in both average PnL and win rate versus other bins.
- 20–40 bin has the lowest average PnL.

Chart:



Average Closed PnL by Sentiment Score (Binned)

Table:

- outputs/sentiment_bin_performance.csv

6) Strategy Recommendations (2 rules)

Rule 1 — Aggressive mode in Extreme Greed:

If Fear & Greed Index value ≥ 80 , increase trade aggressiveness (e.g., allow larger size / more trades), because this regime shows the highest avg PnL and highest win rate in the dataset.

Rule 2 — Defensive mode in 20–40 zone:

If Fear & Greed Index value is 20–40, reduce risk (smaller size or stricter entry filters), because this regime has the lowest avg PnL without a compensating win-rate advantage.

7) Conclusion

Trader performance varies by market sentiment. The strongest performance occurs during high sentiment (80–100 / Extreme Greed), while the weakest occurs in the 20–40 band. Sentiment-aware risk adjustments can plausibly improve results.