

## **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):**

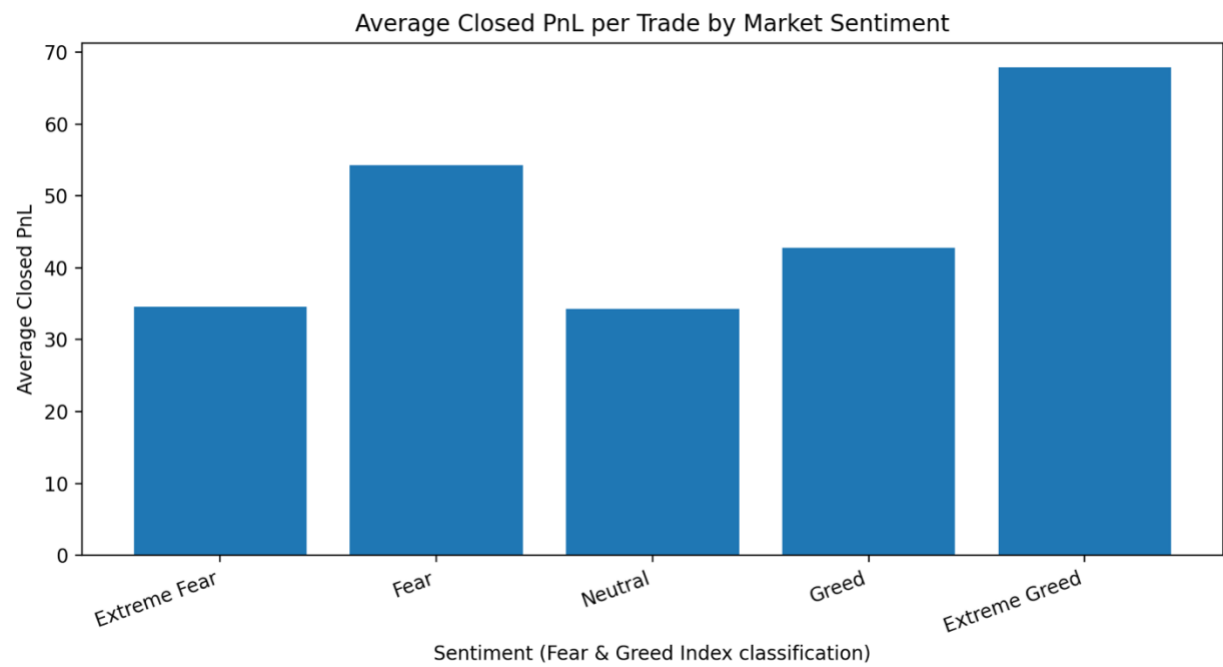
##### A) Performance by sentiment classification

(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

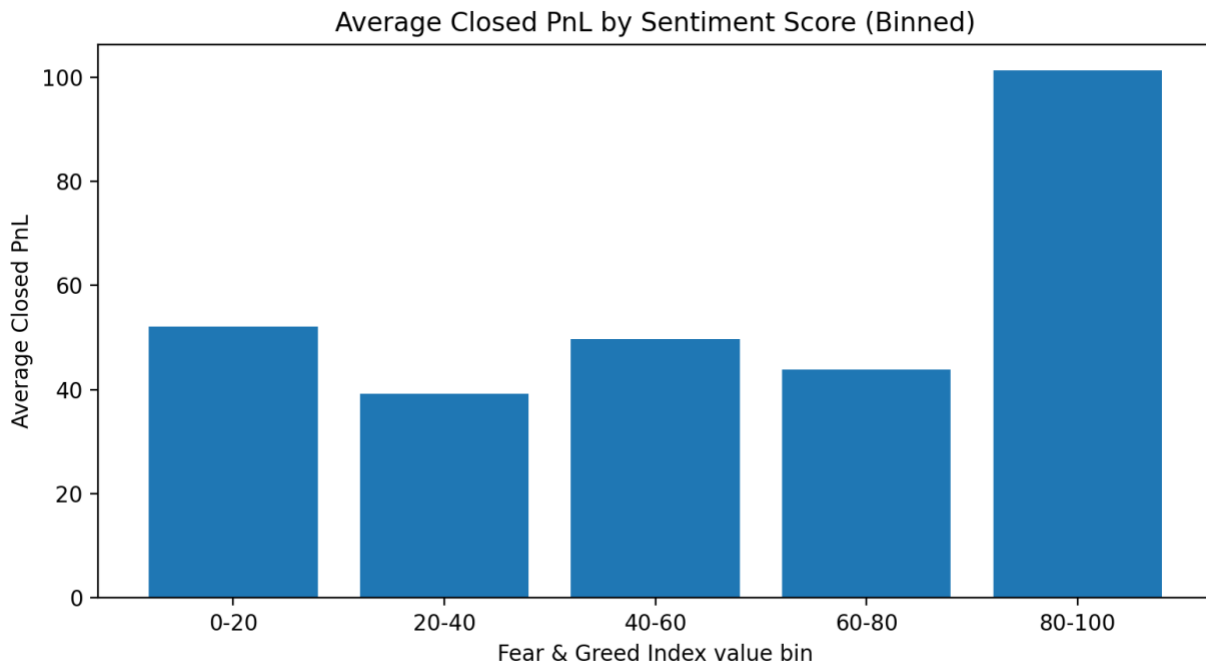
B) Performance by numeric sentiment bins (value 0–100)

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)**

Supporting Files:

- outputs/sentiment\_bin\_performance.csv

## **6) Strategy Recommendations (2 rules)**

Rule 1 — Aggressive mode in Extreme Greed:

If Fear & Greed Index value  $\geq 80$ , 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.

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