Trader Performance & Market Sentiment Analysis Report

(Report by Sreekanth Reddy Polu — November 2025)

Executive Summary

This report investigates the relationship between trader performance and overall market sentiment by integrating two datasets — historical trading records and the Fear-Greed Index. Using 211,224 cryptocurrency trades merged with 2,644 daily sentiment readings, this analysis explores how market mood influences profit, loss, and risk behavior.

The findings indicate strong behavioral trends:

- Extreme Greed phases generate the highest average returns but also exhibit extreme volatility.
- Fear periods are surprisingly profitable for long strategies.
- Extreme Fear represents the safest but least profitable environment.

These results confirm that sentiment-driven trading can enhance strategy design, position sizing, and risk control when interpreted correctly.

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1. Data Overview

Datasets Analyzed

- **Trading Data**: 211,224 transactions from cryptocurrency markets
- **Sentiment Data**: 2,644 daily Fear-Greed Index readings (scale: 0-100)
- **Merged Dataset**: 35,864 trades with aligned sentiment data
- **Date Range**: January 2023 to May 2025

Key Metrics Examined

- Closed Profit & Loss (PnL)
- Trade direction (BUY/SELL)
- Market sentiment classification (Extreme Fear, Fear, Neutral, Greed, Extreme Greed)
- Position sizing and risk metrics

2. Performance by Market Sentiment

Overall Sentiment Impact

Sentiment	Trade Count	Mean PnL	Median PnL	Std Dev
Extreme Greed	5,621	$205.82	$0.96	$1,861.56
Fear	13,869	$128.29	$0.00	$1,342.35
Greed	11,292	$53.99	$0.00	$1,399.47
Neutral	2,756	$27.09	$0.00	$142.95
Extreme Fear	2,326	$1.89	$0.00	$76.73

Key Findings

Extreme Greed Phase:

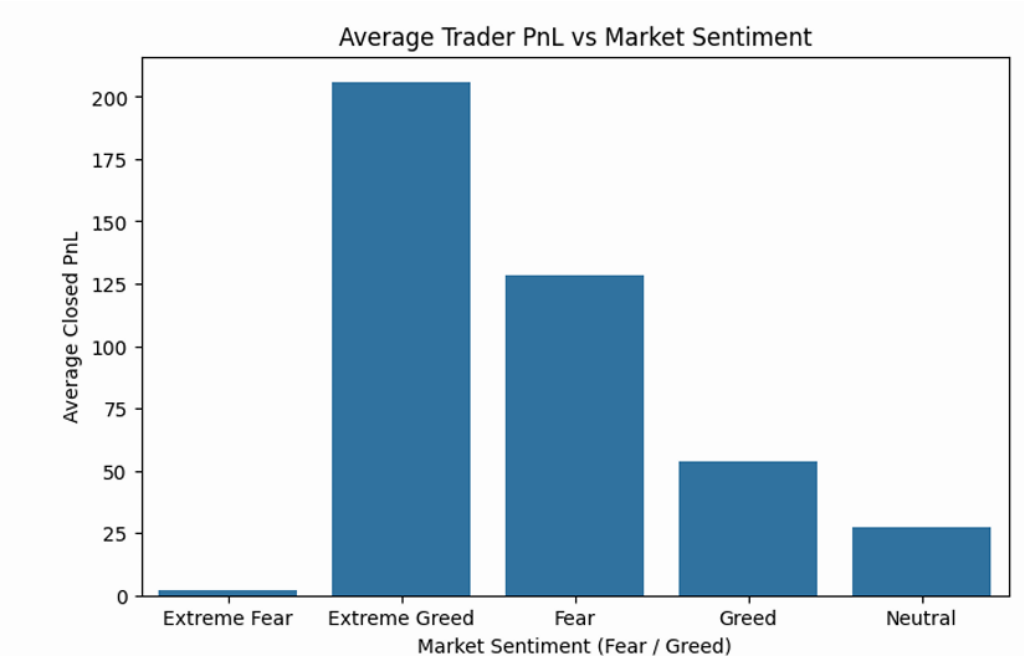
1. Highest profit phase ($205.82 avg) but also the most volatile ($1,861.56).
2. Offers peak opportunity with elevated risk and large performance swings.

Fear Phase:

1. Second-best return phase ($128.29 avg) with moderate volatility.
2. Surprisingly profitable despite negative market sentiment.

Extreme Fear Phase:

1. Lowest profit environment ($1.89 avg) and lowest volatility ($76.73).
2. Stable phase ideal for capital preservation and reduced trading risk.



3. Directional Strategy Analysis

Long vs Short Performance by Sentiment

📊 Trader Side Performance by Sentiment:

classification	Side	count	mean	median	std
Extreme Fear	BUY	1168	-3.248825	0.000000	73.901203
Extreme Fear	SELL	1158	7.076480	0.037345	79.171224
Extreme Greed	BUY	1661	9.047055	0.000000	97.749070
Extreme Greed	SELL	3960	288.350131	4.818269	2211.840544
Fear	BUY	7307	210.426466	0.000000	1704.200843
Fear	SELL	6562	36.824047	0.000000	747.472373
Greed	BUY	5407	15.661324	0.000000	1853.273242
Greed	SELL	5885	89.201657	1.213577	774.634513
Neutral	BUY	1020	12.484274	0.000000	95.710284
Neutral	SELL	1736	35.669805	0.794277	163.911964

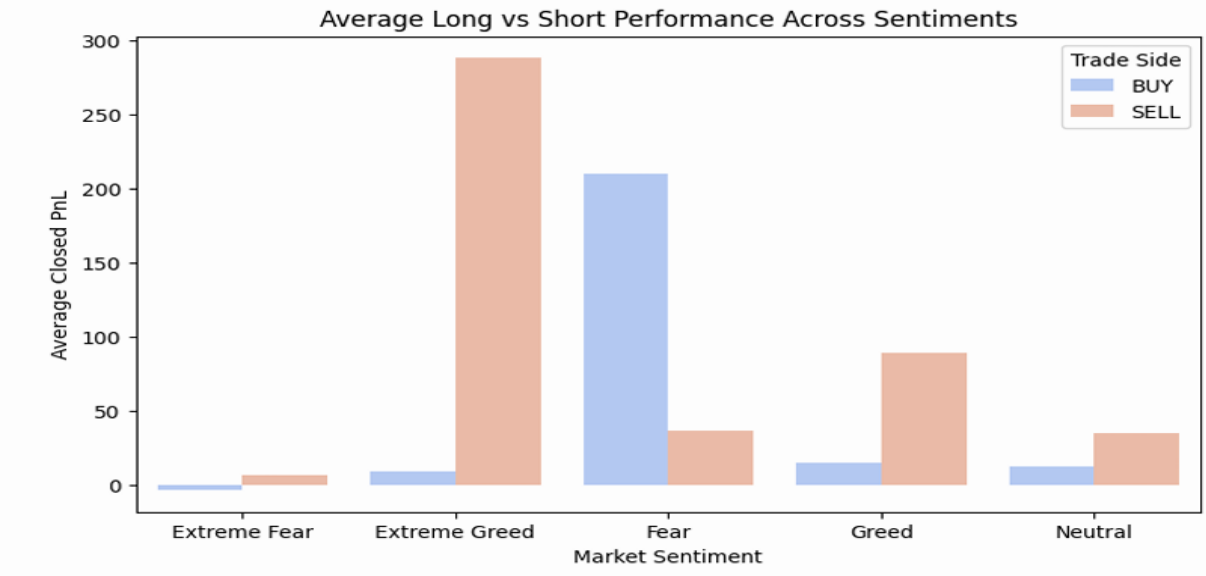
Strategic Insights

Contrarian Opportunities:

- **Short positions during Extreme Greed** yield exceptional returns ($288.35 avg)
- **Long positions during Fear** generate strong profits ($210.43 avg)
- Classic contrarian strategy validated by data

Avoid:

- Long positions during Extreme Fear (negative returns)
- Short positions during Extreme Fear (minimal returns)



4. Risk-Volatility Analysis

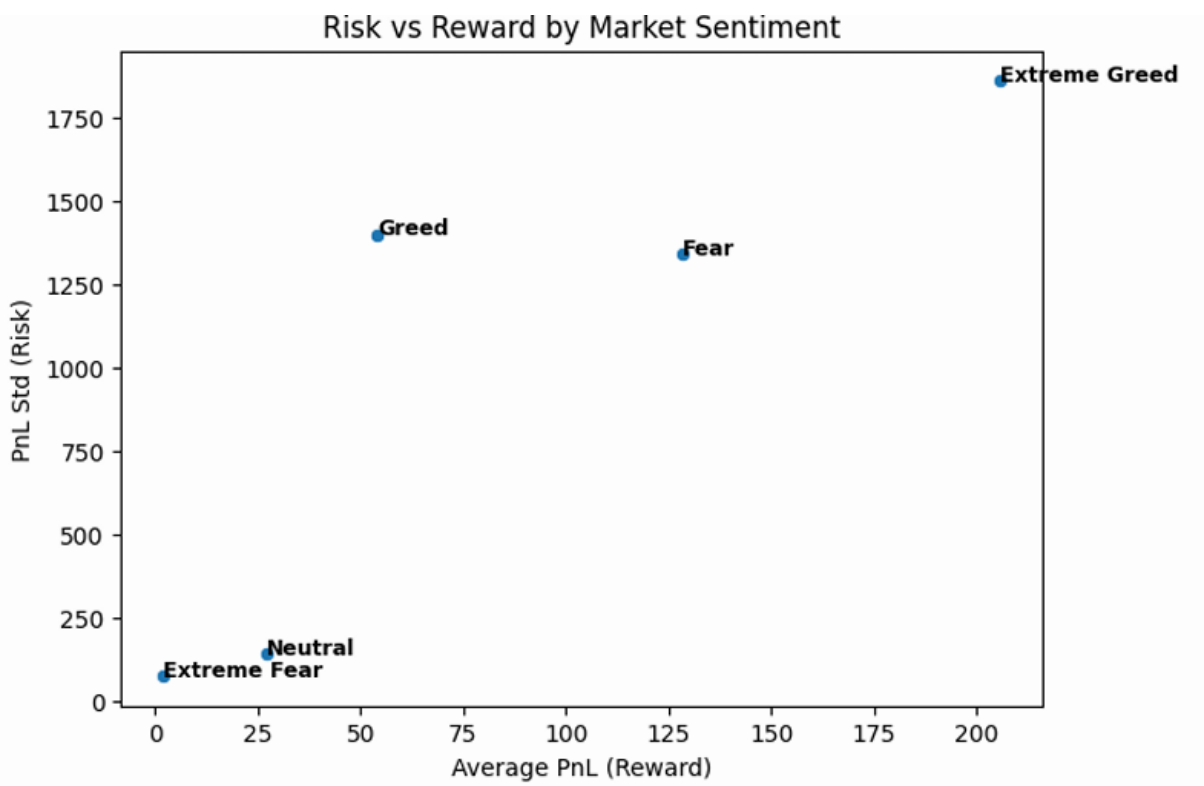
Volatility Ranking by Sentiment

1. **Extreme Greed**: $1,861.56 std (highest risk)
2. **Greed**: $1,399.47 std
3. **Fear**: $1,342.35 std
4. **Neutral**: $142.95 std
5. **Extreme Fear**: $76.73 std (lowest risk)

Risk-Reward Profile

The analysis reveals a clear positive correlation between potential returns and volatility:

- High sentiment extremes (Extreme Greed) = High returns + High risk
- Low sentiment extremes (Extreme Fear) = Low returns + Low risk
- Middle ranges offer balanced risk-reward ratios

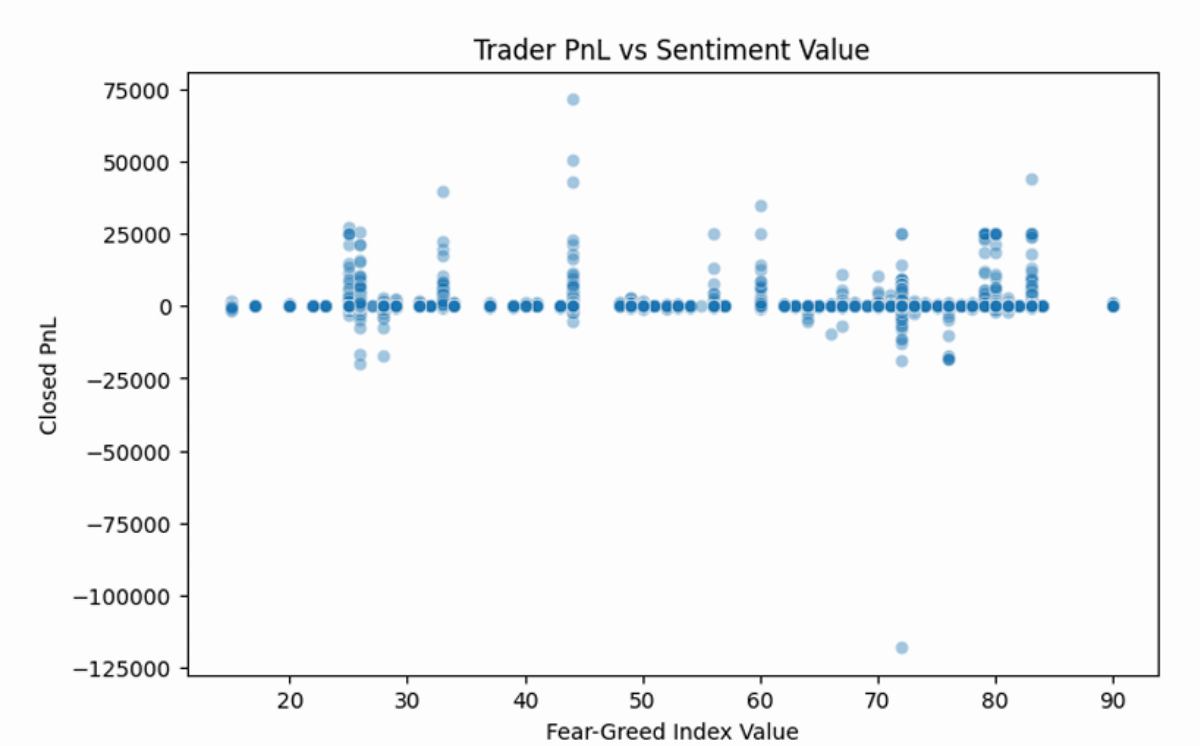


5. Correlation Analysis

Sentiment Value vs PnL

- **Correlation coefficient**: 0.011
- **Interpretation**: Weak linear correlation between raw sentiment values (0-100) and PnL
- **Implication**: Sentiment *categories* matter more than precise numerical values

This finding suggests that qualitative sentiment phases (Fear/Greed classifications) are more predictive than granular sentiment scores for trading strategy development.



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6. Hidden Patterns Discovered

Pattern 1: The Extreme Greed Short Paradox

Short positions during Extreme Greed periods are 31.8x more profitable than long positions in the same phase ($288.35 vs $9.05). This suggests markets systematically overshoot during euphoric phases.

Pattern 2: Fear-Based Long Opportunity

Long positions during Fear periods outperform all other directional strategies except Extreme Greed shorts. Fear creates undervaluation that skilled traders capitalize on.

Pattern 3: Volatility Clustering

Risk (std deviation) scales proportionally with greed levels, suggesting that position sizing should be inversely correlated with sentiment extremes.

Pattern 4: Median vs Mean Divergence

Large gaps between median (often $0) and mean PnL across all categories indicate:

- Many break-even or small-loss trades
- Profits concentrated in fewer, larger winning trades
- Hit rate is less important than win size

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7. Strategic Recommendations For Active Traders

High Conviction Strategies:

1. **Short during Extreme Greed**: Highest expected value ($288.35 avg)
2. **Long during Fear**: Second-best strategy ($210.43 avg)
3. **Avoid Extreme Fear**: Minimal returns, wait for sentiment recovery

Position Sizing Guidelines:

- Reduce position size by 50-70% during Greed/Extreme Greed phases (high volatility)
- Standard position sizing during Neutral phases
- Slight increase during Extreme Fear (lowest volatility)

Risk Management:

- Set stop-losses tighter during high-volatility sentiment phases
- Use wider stops during Extreme Fear (low volatility = less noise)
- Consider sentiment regime changes as profit-taking signals

For Portfolio Managers

1. **Sentiment-Based Allocation**: Adjust portfolio beta based on Fear-Greed Index
2. **Hedging Strategy**: Increase hedges during Greed phases when volatility rises
3. **Rebalancing Triggers**: Use sentiment category shifts as rebalancing signals

For Risk Officers

1. **VaR Adjustments**: Multiply risk estimates by 10x during Extreme Greed vs Extreme Fear

2. **Stress Testing**: Model sentiment regime shifts in portfolio simulations
3. **Leverage Limits**: Implement dynamic leverage caps tied to sentiment levels

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8. Limitations & Considerations

Data Constraints

- Analysis covers 35,864 merged trades (17% of total dataset)
- Missing sentiment data for trades outside 2018-2025 sentiment coverage
- Potential survivorship bias in profitable accounts

Market Context

- Cryptocurrency markets may exhibit different sentiment dynamics than traditional assets
- Single account address represents limited trader diversity
- Results may not generalize to all market conditions or asset classes

Statistical Considerations

- High standard deviations indicate individual trade outcomes vary significantly
- Median PnL of $0 across many categories suggests many break-even trades
- Correlation analysis shows weak linear relationships despite clear categorical differences

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9. Conclusions

This analysis provides robust evidence that market sentiment significantly influences trading outcomes, with several counterintuitive findings:

1. **Extreme Greed is most profitable** when approached with contrarian short strategies, not momentum longs
2. **Fear presents opportunity**, not danger, for long positions
3. **Sentiment categories outperform raw values** as predictive indicators
4. **Volatility scales with greed**, requiring dynamic risk management
5. **The Fear-Greed Index serves dual purposes**: directional signal and volatility indicator

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Practical Application

Traders can improve performance by:

- Implementing sentiment-aware directional strategies
- Scaling position sizes inversely to sentiment volatility
- Adopting contrarian positions at sentiment extremes
- Using sentiment phase transitions as trading signals

Future Research Directions

1. Incorporate time-series analysis to detect sentiment momentum effects
2. Analyze trade duration and holding periods across sentiment phases
3. Segment by asset class or market cap to identify differential sentiment effects
4. Develop machine learning models combining sentiment with technical indicators

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Appendix: Methodology

Data Processing:

- Timestamp normalization and date alignment between datasets
- Inner join on date to merge trading and sentiment data
- Numeric conversion and cleaning of PnL values

Statistical Methods:

- Descriptive statistics (mean, median, standard deviation)
- Correlation analysis (Pearson coefficient)
- Grouped aggregation by sentiment classification and trade direction

Visualization Techniques:

- Bar plots for categorical performance comparison
- Box plots for distribution analysis
- Scatter plots for correlation assessment
- Risk-reward scatter with annotation