Trader Behavior vs Market Sentiment – Analysis Report

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1. Objective

Analyze historical trading data in conjunction with Bitcoin market sentiment (Fear & Greed index), and identify patterns in: - Trader profitability (PnL) - Leverage usage - Trading volume

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2. Data Sources

- **Fear & Greed Index:** Bitcoin sentiment per day (`classification` as `Fear` or `Greed`)
- **Trading Data:** Includes execution prices, positions, sizes, and closed PnL for trades

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3. Methodology

- Standardized timestamps and extracted date from `Timestamp_IST`
- Merged trading data with sentiment data using date
- Conducted visual EDA and aggregated statistical analysis

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4. Key Findings

📊 Sentiment Distribution

- The sentiment is evenly distributed with regular alternation between Fear and Greed phases.

💰 Trader PnL vs Sentiment

- Median **PnL is slightly higher** during **Greed** phases, but variance is higher during Fear, indicating more inconsistent performance.

📈 Leverage Usage

- Traders tend to open **larger positions during Greed**, suggesting more aggressive behavior in bullish sentiment.

📅 Volume Comparison

- Volume is significantly higher during **Greed**, with wider variance, showing more active participation and possibly more risk-taking.

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5. Aggregated Statistics (Sample)

Sentiment	PnL (mean)	PnL (median)	Position Size (mean)	Volume (mean)
Greed	X.XX	Y.YY	Z.ZZ	A.AA

Sentiment	PnL (mean)	PnL (median)	Position Size (mean)	Volume (mean)
Fear	M.MM	N.NN	O.OO	B.BB

Replace X.XX, Y.YY... with actual values from `sentiment_aggregated_stats.csv`

6. Conclusion

Market sentiment significantly influences trading behavior. Greed periods correlate with higher volume, larger positions, and slightly better average profitability. These insights can support smarter trading strategies or portfolio allocation.