

## FINAL SUMMARIZED INSIGHTS & EXPLANATION

This analysis studies the relationship between Bitcoin market sentiment (Fear vs Greed) and real trader behavior such as leverage usage, trading volume, and profitability. The purpose is to understand whether traders follow market emotions or behave differently during high-emotion periods.

### KEY FINDINGS

#### 1. Trading Activity Reacts Strongly to Market Sentiment

During Greed days, overall trading activity increases. Trade count and total volume are higher when market sentiment is positive. In contrast, Fear periods show reduced activity as traders become more cautious.

#### 2. Leverage Usage Is Higher in Greed Periods

Average leverage rises significantly during Greed phases, indicating that traders take larger risks when market confidence is high. During Fear phases, leverage values drop, reflecting defensive trading behavior.

#### 3. Profitability Varies with Sentiment

Aggregate net PnL tends to improve in Greed conditions, while Fear periods often show unstable or negative performance. Rolling PnL analysis highlights that prolonged fear-driven markets frequently produce higher volatility in results.

#### 4. Long Position Preference in Greedy Markets

Long-bias values show that traders prefer taking long (buy) positions when the market is optimistic. During Fear, long exposure decreases, and selling or short positioning becomes more common.

#### 5. Statistical Evidence Supports Behavioral Differences

T-tests for leverage, volume, and PnL confirm meaningful differences between Fear and Greed days. This indicates that trader behavior systematically shifts depending on overall market sentiment.

## OVERALL CONCLUSION

Trader behavior clearly follows broader market emotions. Greed phases encourage higher risk-taking, increased leverage, and stronger trading activity. Fear phases lead to defensive actions, lower exposure, and inconsistent profitability. Recognizing these patterns can help refine trading strategies, avoid emotional decision-making, and adapt risk levels according to sentiment conditions.