

Trader Behavior Insights – Market Sentiment vs Profitability

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Objective

The purpose of this project was to study how traders perform when market emotions change from fear to greed and everything in between. Using data from Hyperliquid’s trader history and the Bitcoin Fear & Greed Index, the goal was to see how emotions like greed and fear impact profitability, trade size, and trading behavior.

Approach

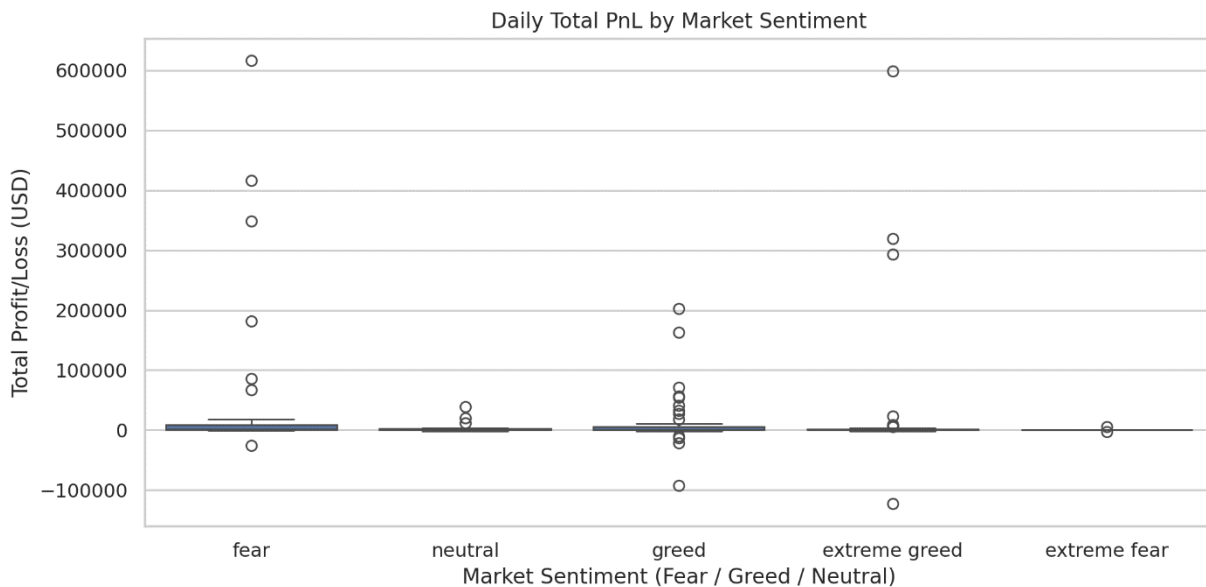
1. Cleaned both datasets and formatted the dates properly.
 2. Calculated daily trading metrics – total profit/loss (PnL), average PnL per trade, and average trade size.
 3. Merged trader data with the daily sentiment labels (Fear, Greed, etc.).
 4. Created visual charts to find patterns between trader behavior and market mood.
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Dataset Summary

Dataset	Description	Key Fields
Hyperliquid Trader Data	Detailed trading records including trade size, direction, and profit/loss.	date, closed_pnl, size_usd
Bitcoin Fear & Greed Index	Daily market sentiment classification based on overall investor behavior.	date, classification

Visual Analysis & Insights

1. Daily Total PnL by Market Sentiment



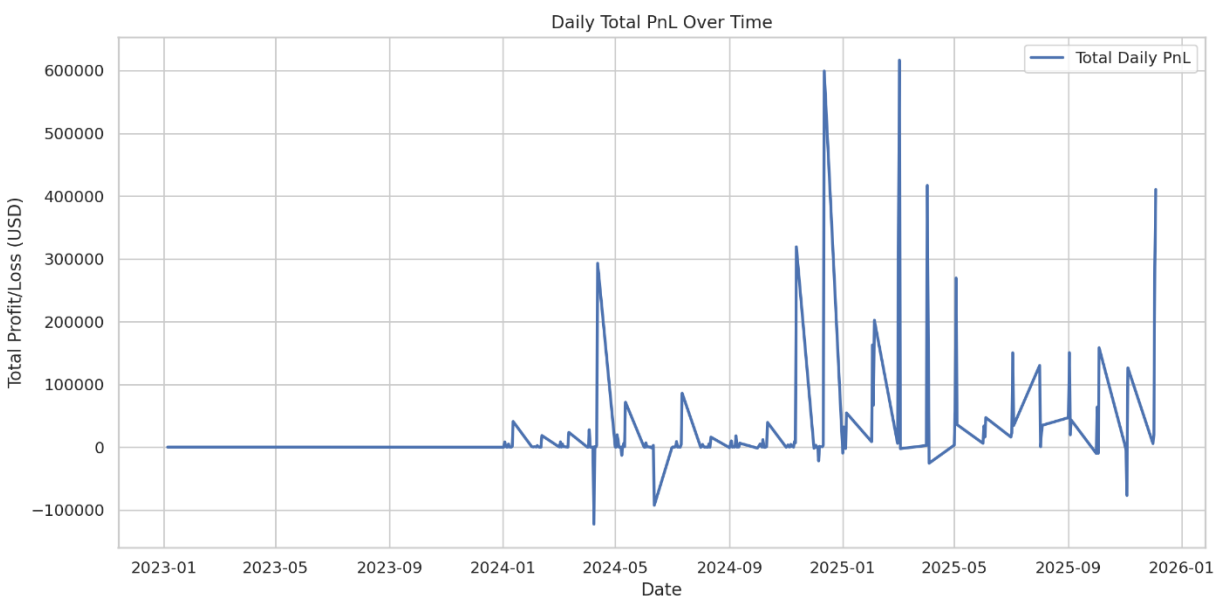
When comparing profits across different emotions, the Greed and Extreme Greed periods had the biggest ups and downs – meaning some traders made massive profits while others faced big losses. This shows that traders tend to get **overconfident** when markets are optimistic. In contrast, Fear and Neutral days show smaller, more consistent profits, suggesting that traders trade more carefully when sentiment is cautious.

2. Average Trade Size by Market Sentiment



Trade sizes increase sharply during Greed and Extreme Greed. Traders take **bigger risks** and open **larger positions** when the mood is positive. During Extreme Fear, the average trade size drops noticeably – a sign that traders prefer smaller, safer bets when they're uncertain or scared.

3. Daily Total PnL Over Time



The profit trend over time shows clear cycles. During mid-2024 to 2025, profits spike sharply during greedy phases and then fall during corrections. This pattern reflects the **emotional trading loop**: greed brings in heavy risk-taking and profit bursts, which are followed by market pullbacks and fear-driven caution.

Key Takeaways

- **Greed = High Risk & High Volatility:** Traders chase profits and face large swings in outcomes.
- **Fear = Caution & Stability:** Traders reduce risk and focus on smaller, steadier returns.
- **Market Emotion Drives Behavior:** Trader performance closely follows crowd psychology – overconfidence leads to volatility, while fear brings discipline.

Conclusion

This analysis clearly shows that market sentiment heavily influences trader decisions. When greed dominates, traders trade more aggressively, often leading to volatile results. When fear takes over, traders scale back and trade with more discipline. Understanding these behavioral patterns can help design smarter, emotion-aware trading strategies that balance confidence with risk control.

Tools Used

Python (pandas, matplotlib, seaborn) | Google Colab | GitHub
