

# Trader Behaviour Under Fear and Greed Market Sentiment

## Objective

This analysis examines how market sentiment—classified as Fear or Greed—influences trader behaviour, focusing on risk exposure, trading activity, and profitability. The objective is to identify behavioural patterns that can inform sentiment-aware trading and risk management strategies.

Two datasets were used:

- (1) A daily Bitcoin Fear & Greed Index dataset, simplified into Fear and Greed regimes.
- (2) Historical trade-level data from Hyperliquid containing trade size, position direction, profitability, and timestamps. Trades were aggregated at the daily level and aligned with sentiment by date.

## Methodology

Both datasets were cleaned and standardized, with timestamps aligned at the daily level. Market sentiment was reduced to binary Fear and Greed regimes and merged with trader data by date. Risk exposure was proxied using absolute trade size (USD), and profitability was measured using closed PnL and win-rate indicators. Exploratory Data Analysis (EDA) was conducted using statistical summaries and visualizations to compare trader behaviour across sentiment regimes.

## Key Insights

- Traders exhibit higher risk appetite during Greed periods, reflected in larger average position sizes and increased trading activity.
- Trading frequency increases during Greed, suggesting higher confidence and participation.
- Profitability rates are broadly similar across Fear and Greed regimes; however, PnL volatility is significantly higher during Fear periods, indicating greater downside risk.
- Fear-driven markets show unstable outcomes and higher drawdown risk, while Greed-driven markets encourage aggressive participation.
- Risk exposure (average trade size) is elevated during Fear periods, suggesting panic-driven behaviour, forced position adjustments, or loss-recovery attempts.
- Segmentation analysis shows that frequent traders exhibit distinct performance characteristics compared to infrequent traders, highlighting trading intensity as an important behavioural dimension.

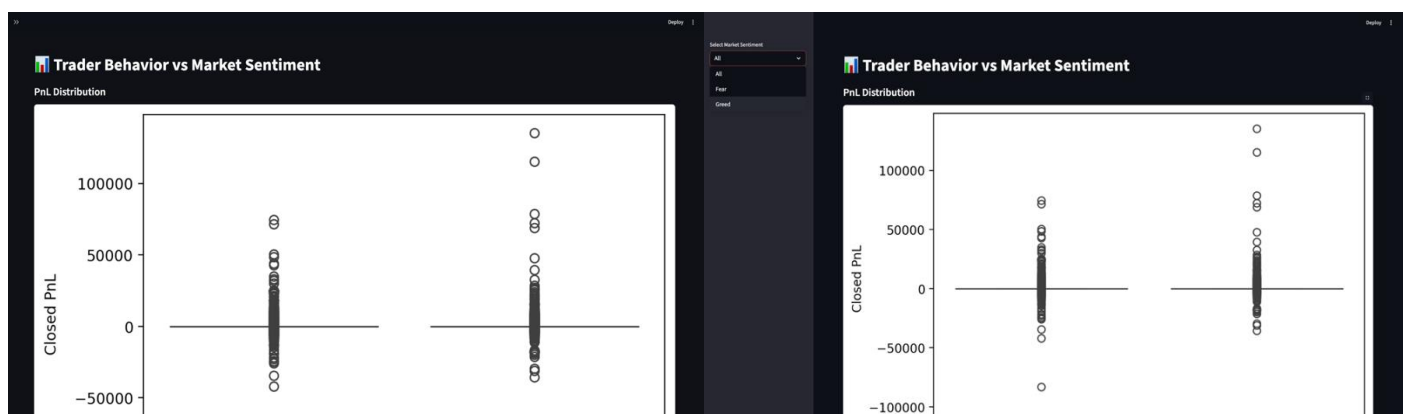
## Visual Evidence

Insights are supported by visual comparisons of PnL distribution, trade size (risk exposure), trade frequency, and profitability rates across Fear and Greed regimes.

## Appendix: Optional Dashboard

An optional Streamlit dashboard (app.py) is included for interactive exploration of trader behaviour across Fear and Greed sentiment regimes.

Sample views from the optional Streamlit dashboard



## Conclusion

Market sentiment plays a meaningful role in shaping trader behaviour. **Greed-driven environments** are associated with higher participation and increased risk-taking, while **Fear-driven environments** exhibit greater profitability volatility and elevated downside risk. These findings highlight the importance of incorporating **sentiment-aware risk controls** into trading strategies to better manage drawdowns and improve long-term performance.