📊 Report – Trader Behaviour vs Market Sentiment

📈 Objective

This report analyses how trading behaviour—specifically **profitability, volume, risk exposure, and leverage**—aligns or diverges from **market sentiment**, using the **Bitcoin Fear & Greed Index** as the emotional compass of the market. The aim is to identify patterns that reveal whether traders are influenced by collective market psychology, and if so, how that impacts their performance. Do traders perform better when sentiment is positive (Greed)? Or does Fear actually create smarter trading opportunities? Understanding this relationship is critical for designing **more informed and profitable trading strategies**, particularly in volatile Web3 environments.

At the core of this analysis lies the intersection of **behavioural finance and data science**. The Fear & Greed Index acts as a real-time barometer of crowd emotion, while the trader dataset reflects individual decisions across thousands of trades. By aggregating trader activity and performance by date and matching it with the corresponding sentiment classification (Fear, Greed, Extreme Fear, etc.), this project enables us to uncover emotional triggers, overreactions, and missed opportunities. In essence, this is not just about numbers—it's about decoding **how humans trade under stress or excitement**, and how that knowledge can be used for an edge in the market.

📊 Key Findings

1. Volume Increases During Greed Phases

There is a noticeable **surge in trade volume during “Greed” and “Extreme Greed” days**. This suggests that traders become significantly more active when market sentiment is positive. While this might initially appear as a sign of confidence, deeper inspection reveals that high volume does not necessarily translate to higher profitability. Instead, it often reflects **FOMO (Fear of Missing Out)** behavior, where traders rush into positions, potentially inflating prices and crowding trades.

2. Profitability Declines When Sentiment is High

Contrary to what might be expected, **average closed PnL is often lower—or even negative—on days marked by Greed**. This indicates that increased trading during optimistic sentiment phases might be emotionally driven rather than based on sound technical or fundamental analysis. Traders may over-leverage, take poor risk-reward trades, or chase trends too late. These findings reinforce the idea that **euphoria in the market leads to suboptimal decision-making**.

3. Fear Phases Show Selective but Better Performance

During periods of “Fear” or “Extreme Fear,” overall trading activity drops, and fewer unique traders are active. However, those who do trade tend to exhibit **more consistent or positive PnL**, suggesting a more cautious, calculated approach. This supports the long-held belief among experienced investors: *“Be fearful when others are greedy, and greedy when others are fearful.”* Traders who operate contrarian to sentiment might actually find **lower-risk, high-reward setups** during pessimistic phases.

4. Unique Trader Count Tracks Sentiment Intensity

The number of active traders per day correlates positively with the sentiment score. **As the Fear & Greed Index climbs, more traders participate.** This further confirms that **market sentiment drives crowd behaviour**, with more people entering the market when emotions are high. While this can create short-term liquidity, it may also lead to irrational price action and volatile reversals.

📉 Hidden Trends and Strategic Insights

- **Volume ≠ Profit**: High volume during Greed is often accompanied by lower PnL, highlighting the **dangers of emotional, herd-driven overtrading**.
- **Profit in Panic**: Select traders thrive during Fear phases, indicating potential for **contrarian or disciplined strategies**.
- **Sentiment Triggers Participation**: Trader count and leverage usage both spike with Greed, which could serve as a **contrarian entry signal** for professionals.
- **Overexposure During Greed**: Proxy indicators like Start Position imply **greater risk-taking** when sentiment is high, likely due to overconfidence.

🧠 Recommendations

Based on this analysis, trading strategies should **account for sentiment polarity**:

- **Avoid aggressive entry during high Greed**—chances of crowd-driven losses increase.
- **Consider low-leverage, contrarian trades during Fear**—less competition, better entries.
- Use **sentiment as a filter**, not a trigger—trading with awareness of market emotion leads to smarter risk management.

📁 Files Included

- processed_data.csv: Final merged dataset of sentiment + trader behaviour
- volume_vs_sentiment.png: Volume distribution across sentiment classes
- pnl_vs_sentiment.png: PnL pattern by sentiment
- traders_vs_index.png: Trader count vs Fear & Greed Index
- ds_report.pdf: This insights summary

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