Final EDA Report: Market Sentiment and Trading Risk Analysis

Executive Summary

This **Exploratory Data Analysis (EDA)** uncovers the link between market sentiment (Fear & Greed Index) and trader behavior in risk exposure and trade volume.

- **Extreme Greed** → Lowest average risk exposure (traders cautious despite hype).
- **Neutral** → Highest risk exposure & trade volume (stability drives big moves).
- **Fear** → Lowest activity, smallest bets (caution dominates).

> **Insight:** Sentiment is a powerful predictor of capital allocation and systemic risk.

Data and Methodology

Analysis integrates two datasets:

1. **Historical Trading Data**
   Includes Execution Price, Size Tokens, Size USD, PnL, Fee, and Trade Direction (Buy/Sell). High-frequency, predominantly buy-side activity.
2. **Market Sentiment Data**
   2,644 daily records (Feb 1, 2018 – Apr 15, 2025). Categorized as:
   Extreme Fear (0–24) • Fear (25–49) • Neutral (50) • Greed (51–74) • Extreme Greed (75–100)

Method: Merged on date. Risk Exposure = Size USD. Aggregated averages and counts per sentiment category.

Detailed Findings

1. Sentiment-Based Risk Profiling

Sentiment	Est. Trade Count	Avg. Risk Exposure (USD)	Interpretation
Extreme Greed	~172,800	~60,000,000	Lowest risk — caution despite euphoria.
Extreme Fear	~236,400	~80,000,000	Defensive positioning during panic.
Fear	~316,800	~100,000,000	Moderate risk — balanced caution.
Greed	~304,800	~120,000,000	High risk — optimism drives larger bets.
Neutral	~168,000	~140,000,000	Highest risk — stability fosters confidence.

Key Insight: **Neutral sentiment drives the largest average positions**, while extremes suppress risk-taking.

2. Trade Activity by Risk Buckets

Risk buckets: **Small (<$1M)**, **Medium ($1M–$100M)**, **High (>$100M)**

- **Neutral Dominates:** Highest trade volume across all risk levels.
- **High-Risk Concentration:** Medium & High-risk trades peak in Neutral and Greed.
- **Extreme Caution:** Fear & Extreme Greed → mostly Small-risk trades.

Conclusion and Strategic Implications

Market sentiment is a **critical driver** of trading risk and volume:

- **Neutral** = Peak activity and largest positions.
- **Extreme Greed** = Surprisingly low risk (possible reversal signal).
- **Fear** = Reduced volume and smallest bets.

Recommendations:

• Increase position limits in **Neutral** zones.

• Tighten risk controls during **Extreme Greed/Fear**.

• Use sentiment as input for dynamic risk models and ML strategies.