Sentiment Analysis of Ethereum (ETH) on X（Twitter）: Insights from Social Media Trends

Introduction

Overview

Ethereum (ETH) stands as the second-best cryptocurrency in the planet, and allure influence goes well beyond just advertise cap—it capacities an whole environment of distributed applications and smart contracts. As financier demeanor enhances linked with what's likely connected to the internet, public publishing manifestos, especially Twitter, have arose as fault-finding arenas for display belief. With allure fast-paced, absolute-occasion type, Twitter offers a singular bay into public opinion that take care of conceivably sway fiscal markets. In fact, research implies that the desire on Twitter can influence not just stock prices, but crypto markets as well—raising important questions about by virtue of what connected to the internet chatter maybe forming Ethereum's value.

Problem Background

Cryptocurrency markets are characterized by extreme volatility, often driven by shifts in market sentiment rather than fundamental factors. Prior research on Bitcoin indicates that spikes in tweet volume and sentiment polarity can precede short-term price swings, although predictive power may diminish over longer horizons . For Ethereum specifically, evidence is mixed: some studies find no Granger-causal effect of Twitter sentiment on ETH returns, while others observe that price changes can influence message volume on social platforms . This bidirectional dynamic underscores the need for a focused investigation into how Twitter sentiment correlates with and potentially forecasts Ethereum market trends.

Problem Statement

Despite the recognized importance of social sentiment in cryptocurrency trading, there is a lack of systematic, data-driven research that isolates Twitter sentiment's influence on Ethereum market performance. Traders, investors, and researchers currently lack clear insights into whether and how public opinion on Twitter can be leveraged to anticipate ETH price movements and trading volume.

Research Questions

RQ1: What is the distribution of sentiment (positive, negative, neutral) in English-language tweets mentioning Ethereum over the study period?

RQ2: To what extent do aggregated sentiment scores correlate with changes in ETH price and trading volume?

RQ3: Can Twitter sentiment provide short-term predictive signals for subsequent ETH price movements?

Research Aim and Objectives

Aim: To evaluate the sentiment of tweets about Ethereum in order to determine how social media sentiment and market performance are related.

Objectives:

This study design to survey the friendship 'tween public emotion on Twitter and the conduct of Ethereum. To do that, it will:

• Build a dataset of tweets related to Ethereum over a delineated ending.

• Use Natural Language Processing (NLP) to label either these tweets express helpful, negative, or impartial emotion.

• Analyze by virtue of what these belief currents join with changes in Ethereum's price and business project.

• Present the verdicts through clear visuals—charts, graphs, and rundowns that create the dossier easy to use.

• Offer proficient takeaways and approvals that take care of help traffickers, analysts, or researchers form more conversant conclusions.

Research Scope

- **Data Source:** Twitter.
- **Language:** English tweets only.
- **Assets:** Ethereum (ETH) exclusively; altcoins and other social platforms (e.g., Reddit, Telegram) are excluded.
- **Timeframe:** Three to six months of historical data, supplemented by real-time data if feasible.

Significance of Study

Understanding the sentiment–price relationship for Ethereum can equip market participants with a novel analytical tool, augmenting traditional technical and fundamental analyses. By clarifying whether Twitter mood indices hold predictive value for ETH, this study contributes to the burgeoning field of financial social media analytics and offers a reusable framework for future cryptocurrency research.

Thesis Structure

- **Chapter 1: Introduction.** Presents the study's context, objectives, and organization.
- **Chapter 2: Literature Review.** Reviews existing work on cryptocurrency sentiment analysis and market predictability.
- **Chapter 3: Methodology.** Details data collection, preprocessing, and analysis techniques.
- **Chapter 4: Results.** Reports correlation and predictive analyses, supported by visualizations.

- **Chapter 5: Discussion.** Interprets findings, discusses limitations, and compares with prior research.
- **Chapter 6: Conclusion and Recommendations.** Summarizes contributions, practical implications, and avenues for future work.

Summary

This introduction has outlined the motivation, research gaps, and structured plan for analyzing Twitter sentiment's role in Ethereum's market dynamics. The forthcoming chapters will build on this foundation by systematically reviewing relevant literature, detailing the applied methods, and presenting empirical findings that address the stated research questions.