REVIEWER'S REPORT

Manuscript No.: IJAR-54044   **Date: 27-09-2025**

Title: Evidence of Deterministic Chaos in Cryptocurrency Markets.

Recommendation:

Accept as it is ....

Accept after minor revision.................

Accept after major revision ....

Do not accept (*Reasons below*) ....

Rating	Excel.	Good	Fair	Poor
Originality	✓			
Techn. Quality	✓			
Clarity		✓		
Significance	✓			

Reviewer Name: Amir Mir

Reviewer's Comment for Publication

This manuscript presents a detailed and well-structured study examining the chaotic dynamics of cryptocurrency markets. By focusing on Bitcoin (BTC), Ethereum (ETH), and Solana (SOL), the paper provides a relevant and contemporary analysis of cryptocurrency price behaviour using chaos theory and fractal analysis. The methodological rigor and theoretical framing are strong, and the study makes a novel contribution by linking cryptocurrency market volatility to deterministic chaos.

Strengths

1. **Original Contribution:** The manuscript addresses a gap in cryptocurrency research by applying chaos theory and fractal analysis to three major cryptocurrencies.
2. **Methodological Rigor:** Use of multiple chaos-detection tools (BDS Test, Lyapunov Exponents, Recurrence Quantification Analysis, Hurst Exponents) ensures robustness and depth in analysis.
3. **Relevance:** The study provides insights into cryptocurrency market dynamics that can inform traders, policymakers, and regulators.
4. **Comprehensive Background:** The introduction clearly explains the relationship between cryptocurrency markets, volatility, speculative bubbles, and chaotic systems.

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Suggestions for Minor Revision

1. **Clarity and Readability**

   o Some sentences in Section 1 are long and may benefit from being split for readability.

   o Ensure consistent formatting of references (e.g., some citations use parentheses, others inline text).

2. **Figures and Tables**

   o Include illustrative figures for Lyapunov exponents and correlation integrals to help readers visually understand chaotic dynamics.

   o Consider summarizing OHLC data and Hurst exponent results in tables for quick reference.

3. **Methodology Section**

   o Clarify the choice of embedding dimension (m) and distance threshold (ϵ) for BDS tests.

   o Include a brief discussion of potential limitations (e.g., data sampling frequency, market anomalies).

4. **Introduction**

   o Minor typographical errors: e.g., "all off which" should be "all of which."

   o Consider condensing repeated explanations of chaos and fractals for conciseness.

5. **Discussion and Implications**

   o Expand discussion on implications for market predictability, risk management, and regulatory oversight.

   o Relate findings to practical applications, e.g., volatility forecasting, algorithmic trading.

Overall, this is a well-researched and technically sound manuscript that contributes meaningfully to the literature on cryptocurrency markets and chaos theory. Minor revisions for clarity, formatting, and visual presentation will enhance readability and impact.