

## REVIEWER'S REPORT

Manuscript No.: IJAR-54044

Date: 25/09/2025

**Title:** A Study of Chaos Theory in Cryptocurrency Markets

### Recommendation:

**Accept as it is YES**

Accept after minor revision

Accept after major revision .....

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

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

Reviewer Name: Dr. Himanshu Gaur

**Date:** 25/09/2025

### Reviewer's Comment for Publication.

*(To be published with the manuscript in the journal)*

*The reviewer is requested to provide a brief comment (3-4 lines) highlighting the significance, strengths, or key insights of the manuscript. This comment will be Displayed in the journal publication alongside with the reviewers name.*

The paper provides a well-structured application of chaos theory to cryptocurrency markets using robust tests like BDS, Lyapunov Exponents, RQA, and Hurst analysis. It effectively demonstrates non-linearity and chaotic tendencies in Bitcoin, Ethereum, and Solana. However, the paper lacks a concise abstract and could simplify dense mathematical sections for broader accessibility. Expanding the discussion of limitations and practical implications would further strengthen the contribution.

# International Journal of Advanced Research

Publisher's Name: Jana Publication and Research LLP

[www.journalijar.com](http://www.journalijar.com)

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### *Detailed Reviewer's Report*

paper is **accepted** as it makes a clear and original contribution to the study of cryptocurrency markets through the lens of chaos theory. The title accurately reflects the scope, and the introduction establishes a strong link between volatility, speculative bubbles, and chaotic dynamics. The methodology is rigorous, employing multiple robust tests—BDS, Lyapunov Exponents, Recurrence Quantification Analysis, and Hurst Exponents—supported by ARMA-GARCH filtering, which ensures reliability of the findings. The dataset of 1765 daily observations for Bitcoin, Ethereum, and Solana is comprehensive, and the analysis is thorough, showing strong evidence of non-linearity, persistence, and deterministic chaos in cryptocurrency markets. The results are well presented, and the conclusions provide meaningful insights into the balance of chaos and randomness in financial systems. Overall, the paper demonstrates originality, depth, and strong empirical support, and is therefore accepted.