LEDGER
ledgerjournal.org

ISSN 2379-5980 (online)
associated article DOI 10.5195/LEDGER.2025.393

From Flows to Value: Cointegration Between Bitcoin Spot ETF Assets and Bitcoin Price: Open Review

Taghi Guliyev,[*] Aysu Ahmadova[†]

Reviewers: Reviewer A, Reviewer B

Abstract. The final version of the paper "From Flows to Value: Cointegration Between Bitcoin Spot ETF Assets and Bitcoin Price" can be found in Ledger Vol. 10 (2025) 154-172, DOI 10.5195/LEDGER.2025.393. There were two reviewers involved in the review process, neither of whom has requested to waive their anonymity at present, and are thus listed as Reviewers A and B. After initial review by Reviewers A and B, the submission was returned to the authors with feedback (1A). The author resubmitted their work and responded to reviewer comments (1B). The editor determined that the revisions and responses were sufficient and the paper was accepted for publication, thus ending the peer review process.

1A. First Round of Review

Reviewer A

Does this paper represent a novel contribution to cryptocurrency or blockchain scholarship?

Not sure

Please briefly explain why you think the paper makes or does not make a novel contribution.

I think the arrival of bitcoin ETFs represent a significant opportunity for scientific writing. I was very excited to read about the article for that reason. However, I think that choosing to study the relationship between BTC price dynamic and flow is a tad useless. Why is this important? Can we take advantage of this relationship in terms of alpha generation? Also the choice of some of the mathematical tools (eg ARDL) is awkward when it comes to studying concepts such as over buying or over selling (mean reversion). Newer and better models have been recently designed for that purpose.

[*]Taghi Guliyev (guliyev2@illinois.edu) is a graduate student of Finance at University of Illinois Urbana-Champaign, USA.
[†]Aysu Ahmadova (ahmadovaa@cardiff.ac.uk) is a graduate student at Cardiff University, UK.

Is the research framed within its scholarly context and does the paper cite appropriate prior works?

Important references are missing

Please assess the article's level of academic rigor.

Unsatisfactory (better than poor but a long way from excellent)

Please assess the article's quality of presentation.

Good (not excellent but a long way from poor)

How does the quality of this paper compare to other papers in this field?

The paper has some value but it can easily be replaced by better scholarship in the field.

Please provide your free-form review for the author in this section.

I think the arrival of bitcoin ETFs represents a significant opportunity for scientific writing. I was very excited to read about the article for that reason. However, I think that choosing to study the relationship between BTC price dynamic and flow is a tad useless. Why is this important? Can we take advantage of this relationship in terms of alpha generation? Could the authors add a backtest that would highlight such use. If not, why is this important? Also the choice of some of the mathematical tools (eg ARDL) is awkward when it comes to studying concepts such as over buying or over selling (mean reversion) or generally speaking the term structure of correlation. Newer and better models have been recently designed for that purpose [2,3]. I think this paper has some merit but needs much more work doing. I think a resubmission would be necessary. I am happy to take a second look and give the authors a second chance.

Also some references are missing when it comes to the geopolitics of bitcoin (eg [1]).

[1] Cryptocurrency Sectorization through Clustering and Web-Scraping: Application to Systematic Trading
Babak Mahdavi-Damghani, Robert Fraser, James Howell, Jon Sveinbjorn Halldorsson, The Journal of Financial Data Science Winter 2022, 4 (1) 158 - 179, DOI: 10.3905/jfds.2021.1.080

[2] Damghani, B.M. (2013), The Non-Misleading Value of Inferred Correlation: An Introduction to the Cointelation Model. Wilmott, 2013: 50-61. https://doi.org/10.1002/wilm.10252

[3] Mahdavi-Damghani, Babak et al. ‘Portfolio Optimization for Cointelated Pairs: SDEs Vs Machine Learning’. 1 Jan. 2020 : 101 – 125.

ISSN 2379-5980 (online)
associated article DOI
10.5195/LEDGER.2025.393

[Editor’s Note: Reviewer provided more detailed feedback in a redlined copy of the author’s paper. Significant commentary has been added below:]

Re: *2.2. ETFs and the Facilitation of Information Linkages*

This paragraph needs rewriting. The mention of Canada as if it was a logical continuation of the previous sentence is a bit of a turn off.

Re: *2.3. The Relationship Between Bitcoin and Traditional Financial Assets*

“Perhaps, the study by Bouri et al. (2017) of Bitcoin as an investment tool helps reveal that depends on the bracket of time it exhibits nearly zero correlation with other major classes of investments, and therefore increases the attractiveness of Bitcoin as an independent investment.”

In the last 2 years the correlation between BTC and the other asset classes has increased especially since ETFs were created. Again here using the Cointelation model [2,3] would have allowed the authers to study better the correlation term structure.

Re: *3.3. Methodology*

“This study employs the Autoregressive Distributed Lag (ARDL) model…”

The ARDL model will fail to capture dynamics such as “sell the news” or other mean reverting processes of this type. Again here the Cointelation model [2,3] would be able to capture this dynamic.

Re: *5. Conclusion*

“…indicating that increased ETF inflows are associated with higher Bitcoin prices.”

This seems very obvious to me on a small data set of bullish trend.

Reviewer B

Does this paper represent a novel contribution to cryptocurrency or blockchain scholarship?

Yes, incremental contribution(s)

Please briefly explain why you think the paper makes or does not make a novel contribution.

I do not know any other paper showing BTC ETFs flow and return correlation. However,

ISSN 2379-5980 (online)
associated article DOI
10.5195/LEDGER.2025.393

the paper does not tell a very complete story or provide any economic intuition for their regression results.

Is the research framed within its scholarly context and does the paper cite appropriate prior works?

Yes

Please assess the article's level of academic rigor.

Unsatisfactory (better than poor but a long way from excellent)

Please assess the article's quality of presentation.

Unsatisfactory (better than poor but a long way from excellent)

How does the quality of this paper compare to other papers in this field?

The paper has some value but it can easily be replaced by better scholarship in the field.

Please provide your free-form review for the author in this section.

The paper purports to be about how BTC ETFs have shaped markets, but that is not really what the paper is about. This paper does document the relationship between BTC ETF flows and returns, which I do think is interesting to know. However, it would be helpful to know that more clearly and upfront. Also, more empirical analysis and economic explanation is needed to flesh out this relationship into a full paper.

This paper is in need of some economic intuition of what is going on. I would like to see more discussion of the economic significance of coefficients. I'd also like to see some explanation of why causality is expected to go in a certain direction, or what mechanisms might be responsible for the observed relationships.

More specifications would be helpful to tell a more complete story. How do results look if you omit the GBTC outflows from the FTX bankruptcy (if that is possible)? If you separate times when there are positive vs negative outflows? Are there periods of negative returns and positive inflows (or vice versa)? When/why? Is it possible to use the outflows from the bankruptcy as a natural experiment in some way?

This paper has a number of typos. For example, the title is phrased as a statement but has a question mark at the end. At one point it says 2014 instead of 2024, etc. Overall it would benefit from some thorough proofreading.

1B. Author's Responses

ISSN 2379-5980 (online)
associated article DOI
10.5195/LEDGER.2025.393

Reviewer A

Comment 1: "Does this paper represent a novel contribution?"

Response: I appreciate Reviewer C highlighting the importance of clarifying my manuscript's novel contribution. Indeed, I believe the study makes a unique contribution by examining a relationship that has not been studied before. Specifically, to my knowledge this is the first paper to analyze the long-run cointegrating relationship between spot Bitcoin ETF net flows and the Bitcoin price.

Spot Bitcoin ETFs – first approved in early 2024 – represent a new class of investment flows.

By focusing on these new instruments, my work uncovers structural demand shocks and long-term price effects in the cryptocurrency market that have not been documented previously. I have clarified this point of originality in the revised introduction and literature review to ensure my contribution is clearly presented.

Comment 2: "Why study BTC price dynamics and ETF flows? Can we use it for alpha generation?"

Response: Thank you for this question. The primary aim of my research is not to develop a trading strategy or generate alpha, but rather to understand fundamental demand–price linkages in the market. I examine how ETF flows – which reflect investor demand for Bitcoin through these new products – relate to Bitcoin's price movements over the long run, in order to shed light on capital transmission and price discovery mechanisms. This focus is important for academic researchers, financial economists, and regulators monitoring cryptocurrency markets, as it helps explain how ETF-driven demand influences price formation and market maturity.

I explicitly clarify in the revised manuscript that my goal is to document these structural demand–price relationships, rather than to propose a short-term trading signal or investment rule. This distinction has been emphasized in the rewritten introduction and discussion.

Reviewer B

Comment 1: "More interpretation of economic significance and causality needed."

Response: I thank Reviewer D for this valuable suggestion. In the revised manuscript, I have significantly expanded the Results section to include a thorough interpretation of the economic significance of my findings. I now explicitly interpret the estimated cointegration coefficients in economic terms – for example, by discussing them as elasticities that indicate how a 1% increase in ETF net inflows corresponds to a percentage change in Bitcoin's price in the long run.

ISSN 2379-5980 (online)
associated article DOI
10.5195/LEDGER.2025.393

I quantify these effects to illustrate their magnitude (for instance, by translating an ETF flow shock into an implied dollar-price change). I also elaborate on potential causal mechanisms and feedback loops. For example, I describe how initial ETF inflows could raise Bitcoin's price, which might then attract further inflows (a positive feedback loop). These additions are described in the revised Results section, and I welcome any further feedback on whether they satisfactorily address the concerns about economic significance and causality.

Comment 2: "What if GBTC outflows are omitted? Can it be used as a natural experiment?"

Response: This is an important question. I clarify in the revision that the large outflows from GBTC (Grayscale Bitcoin Trust) – which occurred following its conversion to a spot Bitcoin ETF – heavily influenced the early part of my sample (roughly the first 3 to 3.5 months).

However, this initial event represents only a small portion of the full, expanded dataset (my sample size has more than doubled). When I performed a sensitivity check by omitting that initial GBTC outflow period, the estimated cointegration relationship became unstable and statistically insignificant, indicating that excluding those observations sacrifices important information. Therefore, I retain the GBTC outflows in my baseline analysis, as they represent an economically relevant market adjustment.

I also want to clarify that, There is no continuous period where positive returns are followed by negative inflows. However, there are brief intervals in which negative returns coincide with positive inflows, such as:
- May 2024, when rumors surrounding the SEC's decision on VanECK's Ethereum ETF application created market volatility.
- November 2024, during the week leading up to the U.S. elections, which also triggered temporary market uncertainty.

If necessary, I can also incorporate these dates and details into the article.

I thank both Reviewer C and Reviewer D for their thoughtful and constructive feedback.

In response to their comments, I have substantially revised and rewritten the manuscript. My dataset has also been significantly extended (more than doubling in size), which allowed me to cover additional market events and strengthen my empirical findings.
I am confident that these changes have enhanced the clarity, organization, and scholarly contribution of the paper, fully addressing the reviewers' concerns. I appreciate the opportunity to improve my work and look forward to any further feedback.

ISSN 2379-5980 (online)
associated article DOI
10.5195/LEDGER.2025.393