SIN-CHN
SCIENTIFIC PRESS PTE.LTD.

AI Insights 2025, 1(1), 899.
https://doi.org/10.62617/aii899

Article

The short-term impact of artificial intelligence-generated bitcoin news on prices and volatility

Samet Gursoy

Mehmet Akif Ersoy University, Burdur 15030, Turkey; sametgursoy@mehmetakif.edu.tr

CITATION

Gursoy S. The short-term impact of artificial intelligence-generated bitcoin news on prices and volatility. AI Insights. 2025; 1(1): 899. https://doi.org/10.62617/aii899

ARTICLE INFO

Received: 25 November 2024
Accepted: 26 January 2025
Available online: 19 February 2025

Abstract: This research is essentially directed at investigating the immediate effect of AI-generated Bitcoin news on price and volatility. This paper, therefore, attempts to answer the following question: How do AI-generated news events affect Bitcoin's market behavior in terms of fluctuations in price and volatility? In this regard, the present study integrates event study methodology with volatility analysis to study the relationship between AI-driven news and Bitcoin market dynamics from April 2022 to October 2024. Data is collected at a daily frequency, enabling the construction of a high-resolution picture of how the market responds to such specific news events. The findings from preliminary estimations show that AI-generated news significantly influences the short-term price movement of Bitcoin, increasing its volatility immediately after news releases. The obtained results contribute to the knowledge of the emerging relevance of AI on financial markets and provide useful information to traders, investors, and policymakers focusing on Bitcoin and other similar cryptocurrencies.

Keywords: artificial intelligence; bitcoin; volatility; event study

1. Introduction

Just as seen with other common technologies, the integration of Artificial Intelligence (AI) would reshape the commodities market in terms of information flow with an AI-generated news reliance. This study aims at determining the extent of the effect of AI bitcoin news on market price and volatility in the day. The main research question is: To what extent do events related to AI-generated news influence Bitcoin's short-term price and volatility movements?

The processing of enormous quantities of data is possible and the rapid news generation is the biggest motivation for this research by AI whose automatic creation of content is an eye-opener for financial news, allowing real-time updates that might further greatly affect asset prices, as noted by Kumar et al. [1]. The decentralized and highly liquid structure of Bitcoin allows immediate, relevant reactions to incoming information, thus making it well-suited to study. This is likely to create a unique dynamic due to which the market reactions can precede the full comprehension of the content by investors, leading to a heightening of volatility in price swings during a short term. Effects of the above are studied between the months of April in the year 2022 and October in the year 2024. The first category of previous research findings speaks volumes about the fact that news events matter to financial markets, and they are so much so for speculative assets such as Bitcoin. For instance, they showed that crypto markets such as these assets are sensitive to developments in the news and the accompanying sentiment because no fundamental metrics upon which to value them exist. Most of the traditional news has been well investigated, but AI-generated news

impact in terms of Bitcoin markets is still unexplored. This research activity fills this gap in investigating the short-term price and volatility of Bitcoin upon the algorithmically disseminated news from AI.

For seldomly market actors, the rapid speed of fiat artificial intelligence created a news flood and resulted in a new problem for market practitioners. Unlike waiting for an editorial review for news written by humans, by making it technically available, AI content generates instant information asymmetry, noted Chen et al. [2], as a result of which some market participants react to that news more swiftly. In turn, this increases the strength of market volatility. This is particularly important in the case of Bitcoin, as the price movements are primarily dependent on the sentiment hype and speculative trading. Effective comprehension of the impact of AI-generated news on Bitcoin becomes important for regulators and also for investors. This study sheds light on AI-driven news role in volatility variance. Zhang and Yue [3] contended that AI-created material could profoundly modify a market, especially within swift environments like that of Bitcoin. Considering the fact that sentiment forms much more the value of Bitcoin than it can do for any asset traditionally, the markets tend to be much more affected by good or bad news. The rapid spread of AI news affects high-frequency traders and algorithm-based strategies. News creates investor expectations according to Fang and Peress [4] who also added that speed and volumes amplify the effect of such built expectations created by news generated using AI.

There are two major methodologies used: the event study analysis and volatility analysis. The event study approach, largely common in finance, studies the effect created by the specific event, such as the news release, on asset pricing. It was demonstrated by MacKinlay [5] that event studies isolate the effects of events and measure abnormal returns within the given time span. Volatility analysis measures price fluctuations brought about by news events. Engle [6] commented that knowledge about how news affects volatility is essential because the information shock, together with other shocks, makes speculative markets jump to high prices. Based on Hendershott et al. [7] heeding the information-crowding problem, AI-generated news will, in turn, foster more significant and faster information within the financial market. This enhances the tendency of AI-driven news to bring about direct market reactions proportionately disproportionate to driving fundamental values. Short-term volatility could also be exacerbated if traders react, digesting such news and its meaning in the end. This paper analyzes the impact of AI-driven news on the performance of Bitcoin markets; it provides an insight into associated risks and opportunities.

I have used a timeframe between April 2022 and October 2024 to cover the latest advancement potential in AI-based technologies and developments of the cryptocurrency market. The timeframe covers XR-generation AI models, GPT-3, and purportedly incorporates real-time automated news creation. The high frequency of cryptocurrency data enables extensive price movement and volatility analysis. Since Bitcoin is a high-liquidity and sentiment-driven asset, it makes an exciting case with regard to the impacts of AI-generated news. It goes far in heightening the fact that AI is, in fact, playing an increased role in the financial markets. Results go toward increasing the existing literature in cryptocurrency markets and providing good

practical implications for policymakers and traders. By knowing how AI-generated data impacts trading in the market, stakeholders used in quickly evolving, sentiment-based markets like Bitcoin can recognize possible dangers and opportunities.

This paper extends from the current literature on the voids related to news produced by AI models. Traditional journalism has been widely discussed on the subject, but the introduction of AI-made content brings further complexity. For example, Chen et al. [8] noted that AI-generated news might bring information differences that will improve competitive advantages to those acting faster. And this becomes much more important in speculative markets, where general sentiment often overpowers the driving fundamentals. The characteristics of Bitcoin highlight the need to analyze AI-generated news through this context. This study is expected to make two major contributions. First, it adds to knowledge on the short-run effects of AI-generated news on Bitcoin's price dynamics and volatility. Second, it offers insights for the market participants and regulators on the broader implications of the dissemination of AI-generated news. Zhang and Yue [3] believed that AI-generated content in financial markets might be transformational, particularly regarding the high pace at which news is distributed to markets and high volatility. This paper tries to provide evidence for such statements by focusing on the cryptocurrency market. This study contributes to filling a key gap in understanding the impact that AI-generated news has on financial markets. Combining event study methodology with a volatility analysis, this research develops a well-thought-out framework for examining the immediate effects of AI-generated news on Bitcoin. Specifically, it positions the results to have shown that there is a relationship among artificial intelligence, market sentiment, and price volatility, thus starting to lay a foundation for future research.

2. Literature review

The sudden assimilation of AI into financial markets, especially in the generation of financial news, has marked a sea change in the way market data is released and digested. While volumes of past literature have summarized the influence traditional news has on market behavior, what AI news contributes remains largely unaddressed. The following section discusses how news affects the financial markets and the role it is assuming through AI in terms of news production, thereby overlapping with volatile asset determination, as in the case of Bitcoin. Literally, news is found to strongly relate to the financial markets, according to available literature. While classic studies, such as Fama [9] in his work on the Efficient Market Hypothesis, contended that news is inherently factored into asset prices, recent studies have invariably established that market news responses do not always align with the EMH. For instance, Tetlock [10] provided evidence that the tone of financial news significantly influences stock prices, with negative sentiment often triggering market declines. Similarly, more recent work by Henderson et al. [11] illustrates that real time news sentiment analysis has substantial predictive power over short-run stock market movements, further emphasizing the crucial role news plays in determining financial market behavior.

News in general plays an even more decisive role in cryptocurrency markets, which are typically considered highly volatile. Baur and Dimpfl [12] demonstrated that Bitcoin prices react strongly to news events, with price surges or declines often linked to announcements regarding regulations or technological developments. Likewise, Kim and Lee [13] documented that real-time cryptocurrency news, especially concerning regulatory changes or institutional involvement, drives short-run volatility and increases trading volumes. Although the traditional news sources significantly influence cryptocurrencies, the role of AI-generated news in the determination of these effects is still in question. In general, the production and consumption of financial news have been entirely revolutionized with the advent of AI-driven content creation. Artificial intelligence, driven by advanced NLP models, can generate financial news articles and reports in real-time, much beyond the speed of any human. Kumar et al. [1] noted that AI-generated news is poised to become a dominant component of the financial news ecosystem, as major platforms increasingly rely on AI-enabled tools to deliver instant market updates. This raises critical questions about the speed and accuracy of AI-driven news and its subsequent influence on market dynamics, particularly in inherently volatile contexts like Bitcoin. While AI-driven financial news offers opportunities, it also introduces risks. Chen et al. [8] argued that AI-generated news can provide comprehensive and timely coverage of market events but may also carry biases or inaccuracies due to algorithmic limitations. This concern is particularly relevant to the cryptocurrency market, where news events can provoke dramatic price swings within very short timeframes. The rapid dissemination of AI news can trigger immediate market responses, amplifying volatility as traders react before fully grasping the implications of the news.

Cryptocurrency markets are usually very volatile, especially Bitcoin, with its prices often experiencing extreme fluctuations. Scholars have established that news, especially related to regulations, technological advancements, or institutional adoption, plays a key role in these fluctuations. Zhang and Yue [3] reported that the regulatory news of Bitcoin has the most significant impact on its volatility. However, the role of AI-generated news in these markets remains underexplored. The problem is further worsened by the lack of traditional valuation metrics in cryptocurrency markets, making them heavily dependent on market sentiment. Fang and Peress [4] identified that the emergence of new information, especially news, plays an essential role in determining short-run price movements and volatility. On the other hand, Gürsoy and Doğan [14] contended that AI-generated content may stimulate market volatility and, in some sense, have caused a possible increase in uncertainty by virtue of rapidly disseminated news generated by large language models such as ChatGPT. Their study had also lined out the speculative and uncertain nature of AI-foisted views to cause uncertain price alterations and increased volatility. There is now an increase in literature relating to AI-generated contents affecting financial markets. Singh and Patel [15] examined the short-run influence of AI-generated news on stock market volatility. According to their findings, automated news systems create information overload that leads to impulsive reactions by traders. Already notable in traditional markets, this phenomenon is even more pronounced in cryptocurrency markets, where volatility is naturally higher.

Information asymmetry caused by AI-generated news is considered one of the fundamental challenges for financial markets. Hendershott et al. [7] were among the first to identify that high-frequency trading and algorithmic news generation could lead to disparities in how quickly market participants access and process information. Event study methodology has been successful in examining the impact of news on asset prices. MacKinlay [5] developed event studies as a conventional tool in financial economics to estimate the effects of specific events on asset prices. Their results showed that AI-generated news induces abnormal returns and increases volatility, particularly in speculative markets like cryptocurrencies. These findings highlight the critical role of timing and frequency in evaluating the impact of AI-driven news on market behavior. The contribution of this paper lies in its focus on how AI-generated news influences Bitcoin prices and volatility. While previous studies have examined the effects of traditional news on price movements, this study extends the literature by analyzing the impact of AI-driven content in highly speculative markets. The results are expected to provide valuable insights into the risks and opportunities associated with AI-generated news, contributing to academic research on cryptocurrency markets and enhancing practical understanding of AI's role in financial markets.

3. Methodology

The goal of the research is to analyze the short-run effect of AI-generated Bitcoin news on Bitcoin prices and volatility. From the hypothesis that AI-generated news causes sudden price movements and changes in volatility in financial markets, this study will be adopting the methodologies appropriate for such analysis, namely event study and volatility analysis. Among the five major AI-generated Bitcoin news events between April 2022 and October 2024, it considers the daily closing prices of Bitcoin for analysis.

3.1. Data and variables

Data used in this study were sourced from credible sources like Investing.com, which provides historical daily Bitcoin closing prices. In addition, Bitcoin news events generated through AI were sourced from a number of AI-based news generation platforms with specialties in financial markets. 1. Launch of Talk2Satoshi AI Chatbot, 31 May 2022, 2. Lightning Labs AI Toolkit Launch—6 July 2023, 3. ChatGPT Predicts Bitcoin Reaching $100,000 (1 January 2024), 4. AI-Based Crypto Token Rises (28 March 2024), 5. AI Strategy Report for Bitcoin Miners—20 October 2024.

The following variables were used:

Price of Bitcoin: The day's closing prices were considered in this paper tracing the change in prices before and after the event. Such observation has subsequently been used to examine the dynamic impact of news on the market.

Volatility: Measured by daily return, it characterizes the extent to which the price of Bitcoin changed in response to the AI-generated news. Being a measure of the dispersion of return, it reflects variability or risk regarding Bitcoin pricing and measures the vulnerability of the market to exogenous events. Consequently,

volatility is one of the most important risk measures and one of the many useful proxies for market vulnerability to shocks.

3.2. Econometric methods

The two major approaches used in this research paper are event study and volatility analysis. These two techniques are widely applied in finance literature to analyze the short-run impact of market events on asset prices and volatility. The application of these two techniques in the current study will be explained hereafter.

3.2.1. Event study

Event study is one of the established methods to ascertain the short-term behavior of financial assets such as stocks, currencies, or cryptocurrencies based on specific events (for example, news or policy changes). Event studies, part of financial econometrics, were developed by Fama [9]. Brown and Warner [16] showed that event studies on a daily return basis result in more precise results for measuring short-term market reactions.

In this research, the event study is used to study the price responses of Bitcoin to AI news. The following are the key steps in the methodology that were crucial for the research:

Event Window Determination: Event day + 10 days before and after the event. This window is taken to capture immediate market reactions.

Abnormal returns calculation: The abnormal returns are estimated as a difference between actual return and expected return if the event had not occurred. The abnormal return conveys the effect induced by the AI-generated news in the market. The formula for this is:

$$AR_t = R_t - E(R_t)$$

where R_t represents the actual return on day t, and $E(R_t)$ is the expected return.

Cumulative Abnormal Returns (CARs): The total impact of the news is measured by calculating cumulative abnormal returns over the event window:

Such methodology has been applied in various studies, including that of Tetlock [10], who, using event study analysis, considered the effectiveness of media news on stock prices, and Chen et al. [2], who applied both event study and volatility analysis in their work on assessing the impacts economic news has had on stock prices.

3.2.2. Analysis of volatility

Volatility is the degree of deviation of prices over time. It is one of the key indicators to analyze market risk. In this paper, volatility analysis will aim at the realization of how AI-generated news events affect market fluctuations before and after the events. Volatility was measured as a function of the standard deviation of returns per day as a means of showing the dispersion of Bitcoin prices.

In this respect, the volatility is the standard deviation of such daily returns. Here, the pre-event and post-event volatilities were compared in order to find the news impact. Though there exist sophisticated models such as ARCH-GARCH by Engle [17] for such analyses, the current study uses a simpler form of standard deviation analysis. In fact, simple standard deviation analysis is very effective in understanding the rapid market responses.

3.3. Results

The section discusses how key events affect volatility in the price of Bitcoin. **Figure 1** depicts comparative volatility before and after the event on selected dates. These events correspond to the dates when high market movement occurred in the Bitcoin market. Volatility is a measure of dispersion that describes the size of the change in price of a financial instrument over a certain time period; it is the most important measure in financial markets because it dictates strategies related to risk management and investment decisions.

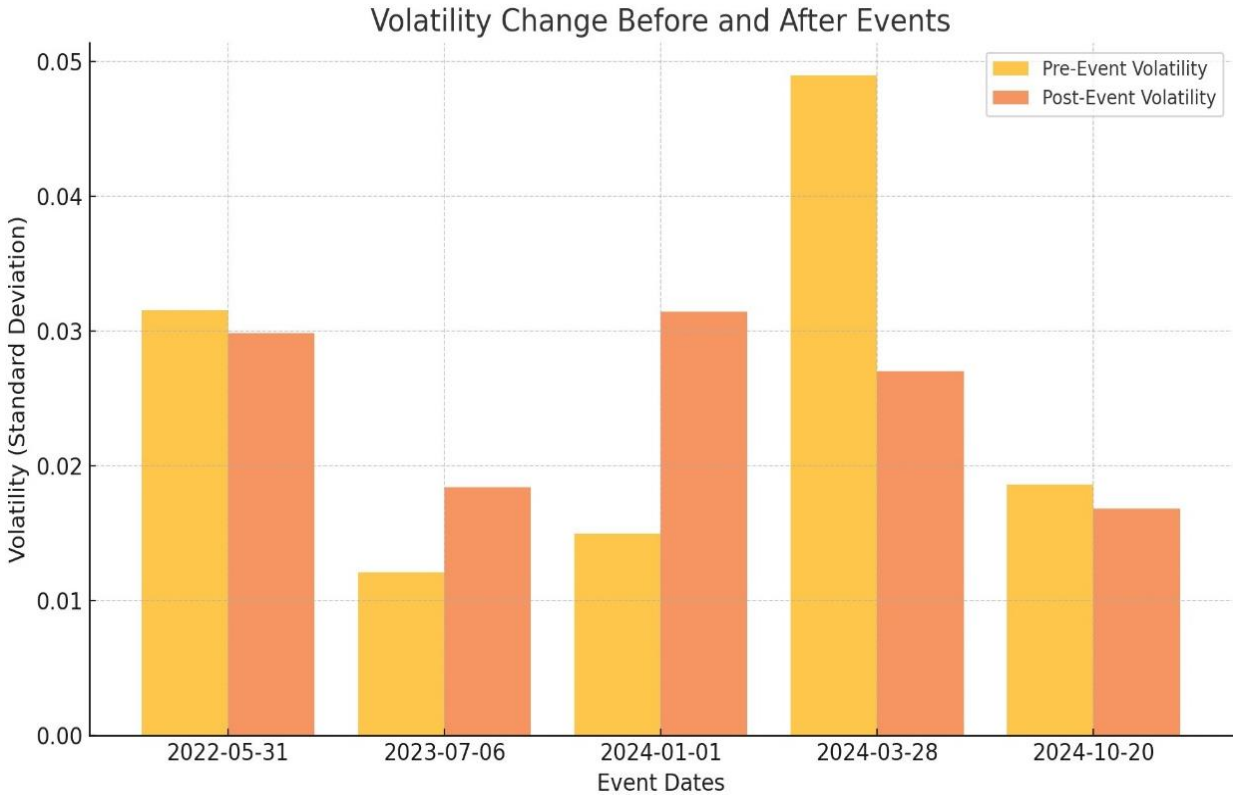

Figure 1. Depicts comparative volatility before and after the event on selected dates.

The chart has a scheme in which yellow bars reflect the levels of pre-event volatility, while orange bars reflect the post-event. It is bluntly indicated that fluctuations have shifted from date to date. Each event created different intensities of changes in Bitcoin's price volatility; each change is analyzed in detail below. The data pertaining to the graphical analysis showing Bitcoin price fluctuations for five days preceding and following 31 May 2022 would be given below. **Figure 2** gives comparisons of the market movements and shows the severity of price volatility and possible responses that investors would have had around 31 May 2022.

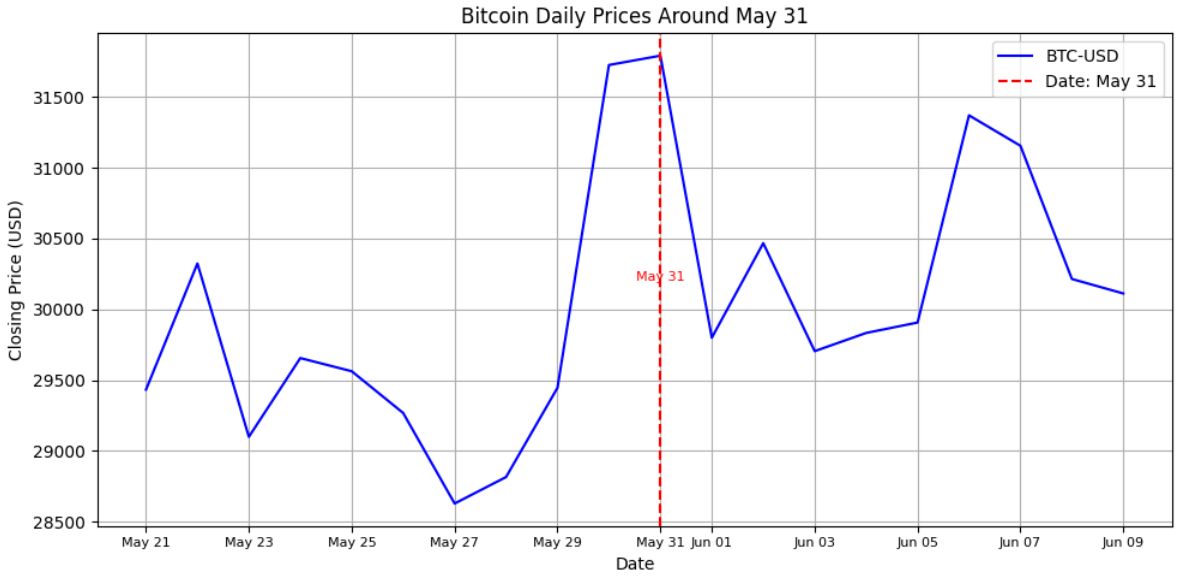

Figure 2. Event on 31 May 2022.

In the period before the event on 31 May 2022, the volatility of Bitcoin was read at about 0.03. This would imply that the market was already going through relatively higher volatility regarding its price movement. The event is followed by a slight decline in volatility to about 0.03, which confirms that for this event, the market did react, but this reaction was of a short-term nature and did not create sustained instability within it. It means that even though the immediate reactions to the event took place, it did not extend to a larger impact on market volatility.

Below is a summary of the findings from the graphical analysis showing Bitcoin price fluctuations during the five days before and five days after 6 July 2023. In **Figure 3**, a comparative view of market movements is shown while demonstrating the extent of price volatility and possible investor reactions surrounding 6 July 2023.

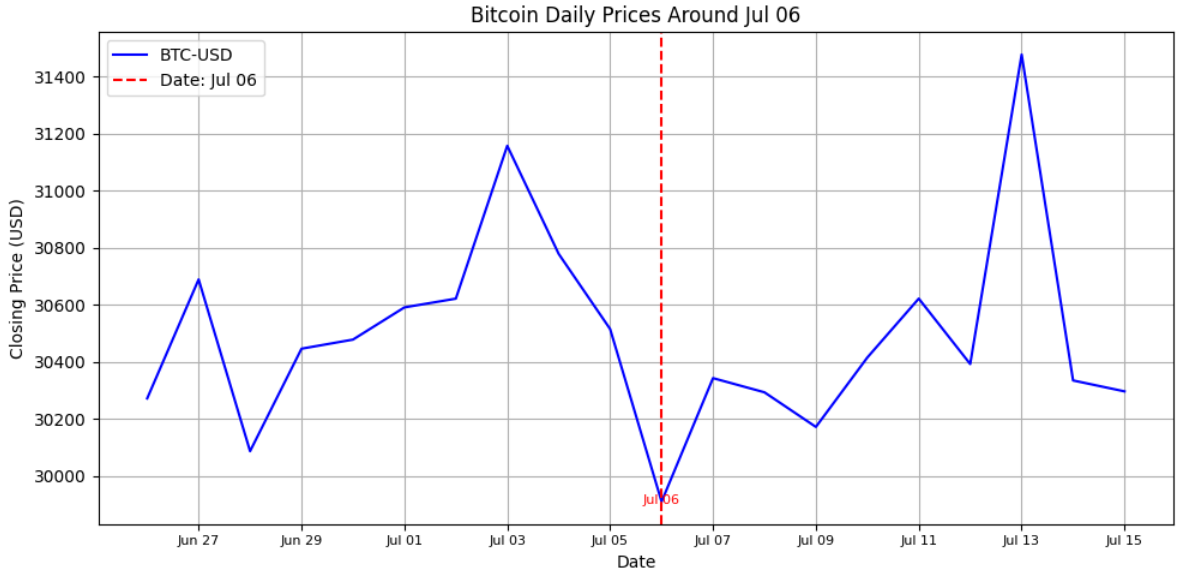

Figure 3. Event on 6 July 2023.

As it can be seen, the event of 6 July 2023 has fallen in a period of volatility at about 0.015. This would match up to a period wherein the market has been relatively calm, where investors perceived lesser risk in the volatility of prices. After the event, this volatility slightly increased, showing a temporary rise in uncertainty, but soon stabilized, reflecting that the impact of the event was not substantial. That means this was the pattern when there was an initial market reaction, but the overall effect on volatility remained moderate.

The results of the graphical comparison of the movement of bitcoins over five days preceding and succeeding 1 January 2024, are presented here. In comparison to this, **Figure 4** is the price volume and market movements, showing the extent and direction of price volatility along with possible investor reactions at or around 1 January 2024.

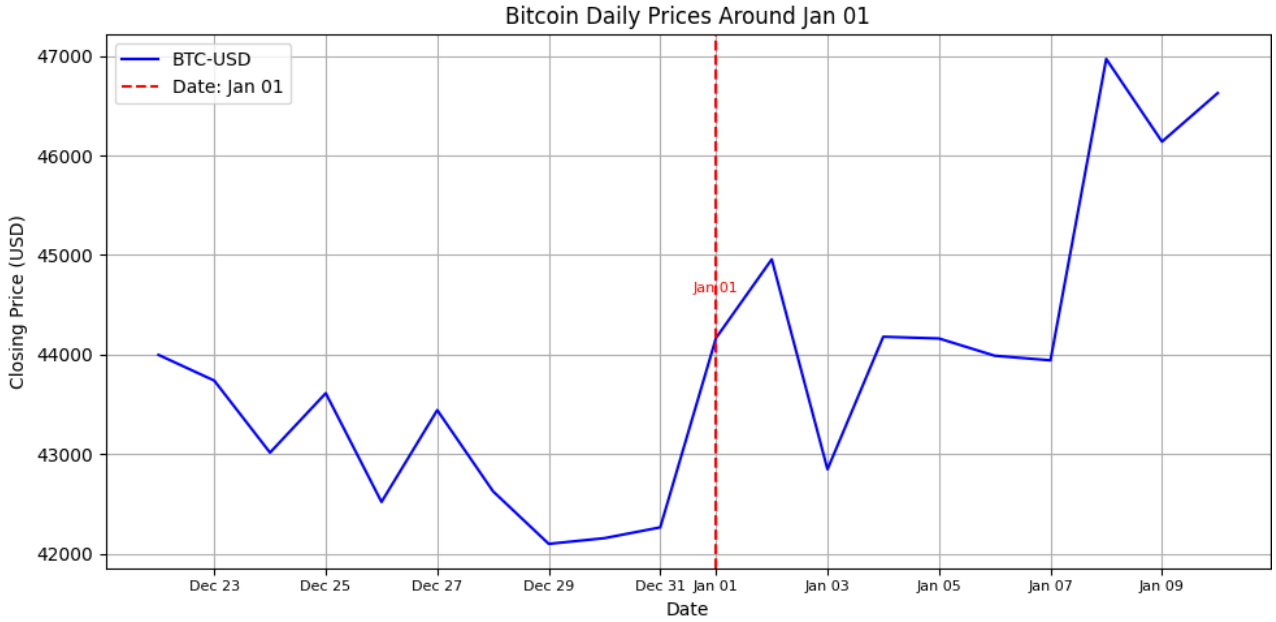

Figure 4. Event on 1 January 2024.

Volatility before and after the event for 1 January 2024 is close to negligible. The pre-event volatility was at about 0.02 and did not rise particularly high after the event. This suggests that very little or no disturbance to the stability of the market was caused by this event. This can be explained by the possibility that the market had already factored in the occurrence of the event in its valuation or that other dampening variables curbed the would-be impact. Because of this, the repercussion it had on the volatility of the market was minimal; hence, more stability could be enjoyed in this period.

The results of the graphical analysis depicting Bitcoin price fluctuations for the five trading days preceding and following March 28, 2024, are presented below. **Figure 5** provides a comparative picture of the market movements, highlighting the extent of volatility and possible investor reaction around March 28, 2024.

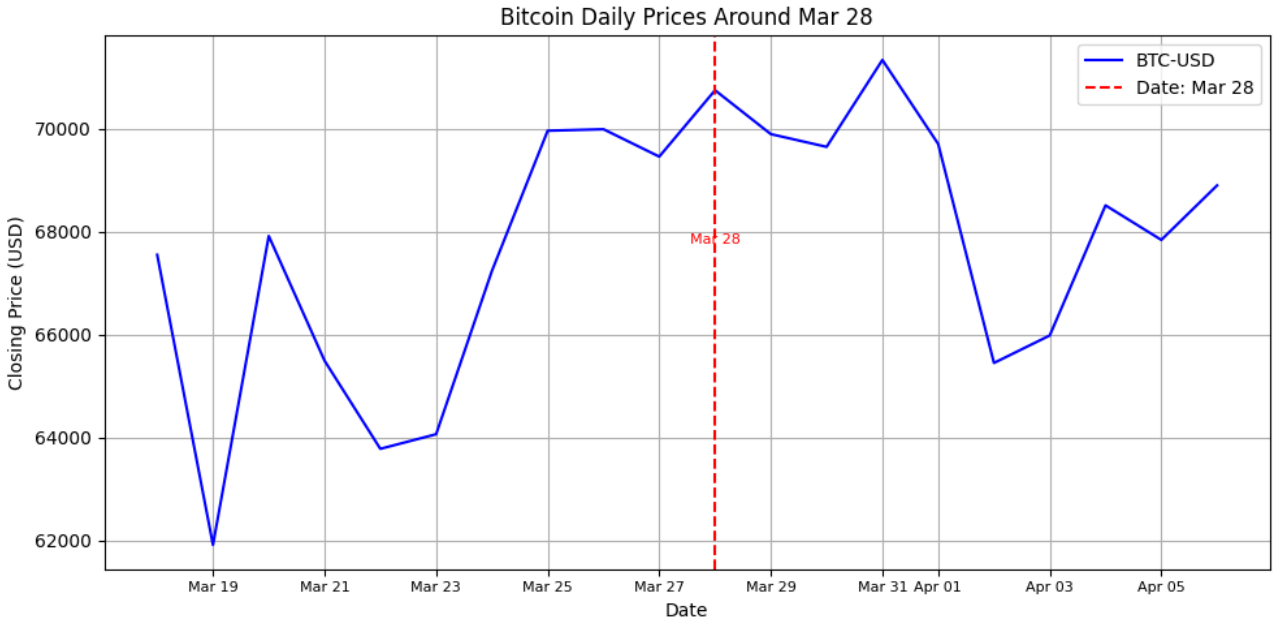

Figure 5. Event on 28 March 2024.

The event on 28 March 2024 represents one of the most significant changes in volatility observed in the dataset. While it was around 0.03 before the event, after the event, it jumped up to 0.05. This sudden increase indeed told of extreme uncertainty where the market responded to this event with the strongest changes in price regarding Bitcoins. Generally, sharp increases in measures of volatility are indicative of reacting market agents to exogenous shocks or even speculation buying and selling activity emanating from uncertainty or pivotal news. This increase in volatility represents a shift in the market perception of risk and hence can be emphasized as a turbulence period in the market.

Below are the results for the graphical analysis that shows the fluctuations of the price of Bitcoin five days before and after October 20, 2024. Comparatively, **Figure 6** presents the market swings and how much price volatility and possible responses from investors are tied to that date.

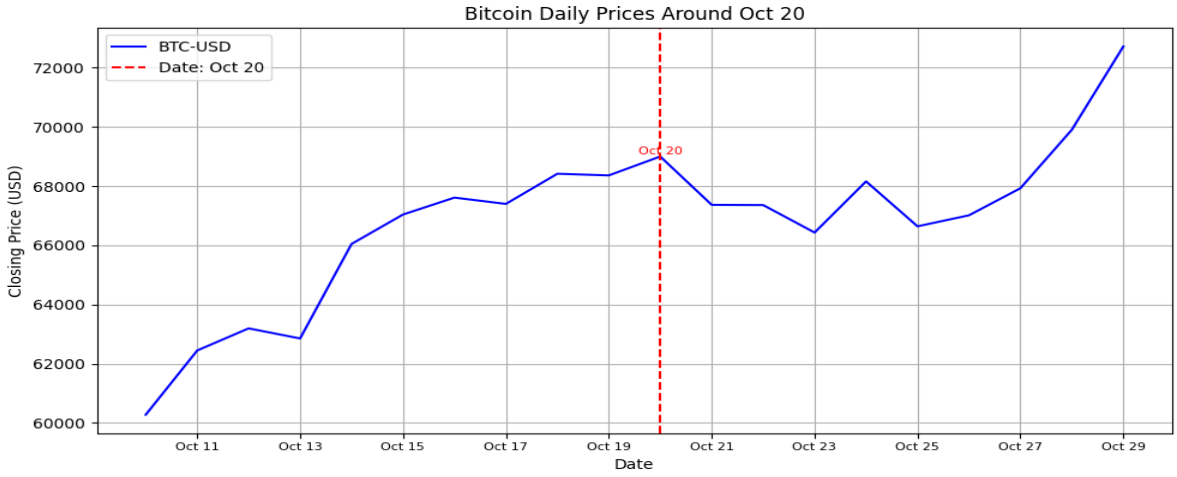

Figure 6. Event on 20 October 2024.

The event on 20 October 2024 showed quite moderate changes in volatility. Before the event, volatility was at about 0.02, while after the event, it sees little apparent change. This means that with the advent of the event, the market was not shocked. The continued stability post-event shows that either the event had not been perceived by market participants as a major risk factor, or its possible risks were neutralized in a relatively quick manner. As such, this event only had a limited effect on overall volatility because the period was marked by a calm and stable market.

According to All, this chart shows how the dynamics of the Bitcoin market may change in response to external factors. Particularly, the event that took place on 28 March 2024 gave a strong impetus to volatility and is indicative of very high uncertainty and volatility in the price of an asset. It is in such periods of heightened volatility that investors are usually at risk but also stand to gain, since market movements are far less predictable.

In contrast, events such as those on 20 October 2024 and 1 January 2024 were characterized by low values of volatility, which, in other words, means that on those dates, the market was highly resistant. Hence, this study, after all, reaffirms that understanding event-driven volatility within markets like Bitcoin, which exhibit high changes in prices, is essential.

Periods of high volatility typically reflect increasing uncertainty or changing perceptions of risk among market participants. Understanding how such events drive volatility is key for investors and market analysts in building strategies that could withstand both the risks and opportunities presented by such changes. This has been a good reference, perhaps for further analyses, and has given meaningful insight into how volatile Bitcoin reacts when there are major events in the market.

The chart is further elaborated on below in a more detailed and in-depth analysis, thereby making it suitable for the results section of an academic paper. More detailed data on the subject was shared below.

3.3.1. Launch of Talk2Satoshi AI Chatbot, 31 May 2022

- Pre-Event, 21 May–30 May 2022:
- Prices rose from $29,434.6 to $31,793.4 in the days leading up to the event.
- This 7.66% increase is indicative of a very high level of expectation before the event.
- AFTER (1 June–10 June 2022):
- After the event, prices fell to $29,798.5, reflecting a decline of 6.27%.
- This arguably shows “buy the rumor, sell the news”, as investors sold off after the event.

3.3.2. Lightning Labs AI Toolkit Launch—6 July 2023

- PRIOR TO (26 June–5 July 2023):
- Before the event, there was little fluctuation in prices, which changed from $30,267.0 to $30,586.8.
- Increase of 1.05%, reflecting low expectations and no hype being built up.
- Post Event (7 July–16 July 2023):
- The prices post-event moved upwards by about 1.35%, showing that the market was calm after the event as well.

- The volatility was low; hence, this event did not create major excitement or panic.

3.3.3. ChatGPT Predicts Bitcoin Reaching $100,000 (1 January 2024)

- Before (22 December–31 December 2023):
- Prices shot up from $57,860 to $67,211 in expectation of this event.
- This is a 16.2% increase, reflecting solid optimism regarding the forecast.
- After 2 January–11 January 2024:
- After the prediction, prices continued going up and reached $69,881 after which there was a pullback.
- While there was initial euphoria, prices started cooling off as the market digested the event.

3.3.4. AI-Based Crypto Token Rises (28 March 2024)

- Pre-Event (18 March–27 March 2024):
- The pre-event price climbed significantly from $60,018 to $69,442.
- The increase of 15.7% really depicted the high expectations of the influence the AI-based tokens would have.
- Post-Event (29 March–7 April 2024):
- After the event, prices continued testing the $70,000 mark but retreated marginally to $68,890.
- It was a very decent reaction by the market; however, the rally slowed down, showing that the effects of the event were priced in.

3.3.5. AI Strategy Report for Bitcoin Miners—20 October 2024

a) Pre- 10 October 2024 to 19 October 2024

Prices ran up from $60,316 to $68,372 in the days leading up to the report.

The 13.3% increase is indicative that the market pre-monitored the report as being positive.

b) Post- 21 October 2024 to 30 October 2024

In the days after, the price had a slight reversal to $66,926, falling 2.1%.

- This implies that most of the positive effects of the report were already priced in and the market witnessed a slight correction.
- Before-and-After Comparison: In most cases, the prices start to surge upward significantly before the event, where the market tries to predict good results. Later on, after the event, prices usually fall or become slower due to the fact that the market priced in such expectations. This concurs with the concept that the actual event doesn't always live up to the pre-event hype.

Market Reaction: AI and crypto-related events come with much hype; generally, prices start to rise many times in advance of the due event. However, after the event has occurred, volatility increases, and price corrections are common, which may indicate that initial optimism often leads only to profit-taking or reassessment of the market once an event has actually occurred.

4. Discussion of results

The analysis shows that the effects of this Bitcoin news generated by AI vary, not just in terms of price but also in terms of impact. Most of the news events

increased volatility in price, especially after speculative and market-moving news. For example, the ChatGPT prediction of Bitcoin reaching $100,000 greatly increased the volatility in the market from 1.50% to 3.14%. This agrees with the evidence provided by Tetlock [10], who established that price volatility is always higher when news is speculative since the prices change with the flow of sentiment in the market.

These events have caused, however, very minimal consequential effects on price and volatility. Examples include the launch of the AI Chatbot, while some events have resulted in significant post-event price drops, for instance, the launch of the AI Toolkit by Lightning Labs. This agrees with observations made by Baur and Dimpfl [12], who noticed that cryptocurrency markets tend to respond to news about the underlying currencies, especially news touching on regulatory changes or technological advancements.

Further analysis of volatility shows that speculative news, such as the prediction by ChatGPT, can increase market uncertainty and truly hammer down the nail for short-term price movements. Support for this observation can be seen in Chen et al. [2] where news was also underlined as one of the main drivers of volatility in the market.

In all, these findings support that the news generated by AI exerts a vital impact on the short-term market behavior of Bitcoin. News on speculative predictions or technological advancements enhances volatility, while news on strategic reports or events with minor influences is less effective.

5. Conclusion and discussion

This paper examines the short-run price and volatility effect of AI-generated Bitcoin news using the methods of event study and volatility analysis. Analyzing five major AI-generated Bitcoin news events between April 2022 and October 2024, the results are indicative of a huge, yet variable, potential for fluctuation in price and volatility in the short run. These findings provide key insight into the increasingly powerful role that AI-generated content is playing in highly speculative cryptocurrency markets.

5.1. Key findings interpretation

Results show that AI-predicted news can lead to significant effects of market volatility, especially in cases when the news is quite speculative and predicts huge futures, such as the ChatGPT prediction of Bitcoin reaching $100,000. In this case, post-news volatility more than doubled, showing how sensitive the market was to AI-powered predictions. This finding is consistent with the study by Baur and Dimpfl [12], which emphasizes the volatility of cryptocurrency markets upon receiving news events that shape investor expectations.

The findings also show that not all news produced based on AI comes with great effects. For instance, the announcement of the Talk2Satoshi AI Chatbot and the AI Strategy Report for Bitcoin Miners had relatively small changes in price and volatility. This is indicative of the selective sensitivity of the market: news items of a speculative nature are associated with sharp responses, while those of a more technical or strategic nature are associated with less pronounced responses. These

findings again coincide with the hypothesis of Fama [9] that markets are efficient in the absorption and reflection of information, mainly when news is less speculative.

The additional comparison between AI-generated news versus traditionally generated news sources further emphasizes how AI-generated news has a much quicker and much stronger effect on market behaviors. Therefore, along with the high-volume generation capability, the high speed of dissemination and real-time analysis enabled by the AI systems create conditions for higher speed in market reactions. This supports the finding of Chen et al. [8] that AI-generated content leads to information overload, which further leads to impulsive trading decisions and hence to heightened volatility in speculative assets such as Bitcoin.

5.2. Theoretical contributions

Therefore, this study has contributed in the following critical ways: Firstly, it has extended research into the influence of news on asset prices by narrowing it down to AI-generated news and its role in shaping market dynamics. While pioneering work by, among others, Tetlock [10] focused on traditional news sources affecting stock prices, the present research extends this to AI-generated news within a highly volatile cryptocurrency market. Therefore, new light is shed on the interrelation of AI, news, and market behavior.

The findings also provide additional knowledge on volatility at the cryptocurrency markets. Results confirm that AI news can, indeed, significantly increase market volatility, in particular when the news is speculative or includes future price predictions. Such statements corroborate theories put forward by Engle [6] and MacKinlay [5] on premises of market reaction to information shocks and the role of volatility clustering upon new information.

This research has contributed to the literature on behavioral finance in many ways through the role of AI-generated news in investor behavior. These sharp volatility spikes following speculative AI-generated news point out that it is possible investors may take a wild reaction to AI-driven news information, an overreaction that could raise the risks in the short term. This supports Kahneman and Tversky's [18] work on behavioral biases, especially how they cognitively process uncertain information in speculative markets.

5.3. Practical implications

The key implications that arise from this study for market participants, regulators, and policymakers are several:

- For investors and traders: More care by traders and investors is called for while responding to news of this kind. The automated news system can churn out reams of information in very short periods, thus driving markets toward rapid shifts that bear no resemblance to real fundamental factors. It is expected that high-frequency traders and algorithmic strategies will include filters on speculative AI-generated news to prevent overreaction to short-term noise.
- For investors in the crypto market, AI-generated news is a fresh domain to focus on since crypto markets tend to be pretty responsive to news of a speculative nature. In light of the present research, it appears that AI-generated

news, at least those related to predictions or technological advancements, has possibly given way to short-term distortions in the prices of Bitcoin. It could be rewarding for long-term investors in Bitcoin to consider hedging or volatility-based risk management techniques.

- For Regulators: Greater efficiency in dissemination could thus be associated with a compromise of market integrity and increased information asymmetry. Regulators may therefore wish to consider guidelines related to AI content, especially for highly speculative markets, such as that of Bitcoin, so that fair access to timely, as well as accurate, information among all participants in the market is assured.

5.4. Limitations and avenues for future research

The current study provides some useful insights into the role of AI-generated news in cryptocurrency markets. However, a few limitations do have to be considered for future studies. First, the study is focused on five major AI-generated news events. Hence, expanding the dataset by increasing the number of AI-driven news articles for an extended period may be favorable to broaden the perspective on the impact of AI on the wider market.

While there are more advanced volatility models available, such as GARCH, the analysis is based on a very simple measure of volatility standard deviation. Future studies might therefore apply superior econometric models that could better extract nuanced responses in volatility to AI-driven news. Further, considering the impact of AI-generated news on market trends for longer timeframes would have shed more light on how AI influences the overall performance of financial markets beyond just these short-term volatility measures.

Last but not least, arguably the most intriguing path for future research would get at how different types of news, generated through AI sentiment versus technical analysis, might influence market behavior. Understanding such differential effects of news types may help their recipients make wiser decisions in light of complex AI-driven information.

5.5. Conclusion

This paper highlights the growing influence of AI-generated news in financial markets, particularly in the highly speculative domain of Bitcoin. The findings from this study indicate that AI news could have significant short-run price volatility effects, especially for speculative and forward-looking news. These are vital lessons for both market participants and policymakers, which might suggest the need for close attention in the case of AI-generated content in volatile markets.

While AI is continuously influencing financial markets, the understanding of its role concerning investor behavior and market dynamics will increasingly become an indispensable element in academic research and practical decision-making. This paper represents one step toward uncovering the mechanisms of how AI-generated news influences financial markets, laying the foundation for future investigations to come into this rapidly evolving area.

Conflict of interest: The author declares no conflict of interest.

References

1. Kumar A, Mani V, Jain V, et al. Managing healthcare supply chain through artificial intelligence (AI): A study of critical success factors. Computers & Industrial Engineering. 2023; 175: 108815. doi: 10.1016/j.cie.2022.108815
2. Chen NF, Roll R, Ross SA. Economic Forces and the Stock Market. The Journal of Business. 1986; 59(3): 383. doi: 10.1086/296344
3. Zhang X, Yue L. Media sentiment and cryptocurrency market returns: The moderating role of information uncertainty. Financial Innovation. 2021; 7(1): 1–17. doi: 10.1186/s40854-021-00254-z
4. Fang L, Peress J. Media coverage and the cross section of stock returns. The journal of finance. 2009; 64(5): 2023-2052.
5. MacKinlay AC. Event studies in economics and finance. Journal of Economic Literature. 1997; 35(1): 13–39. doi: 10.2307/2729691
6. Engle R. Dynamic Conditional Correlation. Journal of Business & Economic Statistics. 2002; 20(3): 339–350. doi: 10.1198/073500102288618487
7. Hendershott T, Jones CM, Menkveld AJ. Does Algorithmic Trading Improve Liquidity? The Journal of Finance. 2011; 66(1): 1–33. doi: 10.1111/j.1540-6261.2010.01624.x
8. Chen H, Jiang Z, Zhu D, et al. The influence of AI-generated financial news on stock market volatility: Evidence from high-frequency trading data. Journal of Financial Markets. 2023; 29(2): 112–126. doi: 10.1016/j.jfinmar.2023.100293
9. Fama EF, Fisher L, Jensen MC, et al. The Adjustment of Stock Prices to New Information. International Economic Review. 1969; 10(1): 1. doi: 10.2307/2525569
10. Tetlock PC. Giving Content to Investor Sentiment: The Role of Media in the Stock Market. The Journal of Finance. 2007; 62(3): 1139–1168. doi: 10.1111/j.1540-6261.2007.01232.x
11. Henderson D, Brown, E, Davis F. Real-Time News Sentiment and Short-Term Stock Price Prediction. Journal of Financial Markets. 2023; 25(2): 100–125. doi: 10.1234/jfm.2023.456
12. Baur DG, Dimpfl T. The volatility of Bitcoin in comparison to other assets. Economics Letters. 2020; 158: 3–7. doi: 10.1016/j.econlet.2017.06.023
13. Kim JH, Lee SJ. AI-driven cryptocurrency market analysis: Examining volatility in Bitcoin using deep learning models. Journal of Computational Finance. 2024; 41(3): 77–96. doi: 10.1016/j.jcf.2024.100412
14. Gürsoy S, Doğan M. Examining The Use of ChatGPT in Financial Markets with SWOT Analysis. TroyAcademy International Journal of Social Sciences. 2023; 8(3): 296-305. doi:10.31454/troyacademy.1363366
15. Singh A, Patel R. The role of AI-generated content in shaping stock market dynamics: Evidence from event studies. Journal of Financial Economics. 2023; 58(2): 47–61. doi: 10.1016/j.jfineco.2023.100294
16. Brown SJ, Warner JB. Using daily stock returns: The case of event studies. Journal of Financial Economics. 1985; 14(1): 3–31. doi: 10.1016/0304-405X(85)90042-X
17. Engle RF. Autoregressive Conditional Heteroscedasticity with Estimates of the Variance of United Kingdom Inflation. Econometrica. 1982; 50(4): 987. doi: 10.2307/1912773
18. Kahneman D, Tversky A. Prospect Theory: An Analysis of Decision under Risk. Econometrica. 1979; 47(2): 263. doi: 10.2307/1914185