Delayed Media Coverage of Earnings News: Evidence from Cryptocurrency Markets[*]

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Abstract:
This paper examines how and to what extent financial media coverage is affected by events in cryptocurrency markets. I find that the media responds to the rising demand for news about the cryptocurrency market by either delaying earnings news coverage or lowering the quality of earnings news articles. On crypto event days, earnings news articles are shorter and rely more on quantitative data, suggesting that fewer resources are allocated by media firms to earnings news articles. Capital markets react less to earnings announcements as a result of the reduced coverage by the media on crypto event days. Interestingly, the media increases coverage of firm-specific events in the 30-day period after the crypto event to cater to the informational demand from equity investors.

Keywords: Financial media; Earnings announcements; Cryptocurrency, Bitcoin
JEL Classifications: G12, G14, G29, M41

1. Introduction

The timing of information flow in the public capital markets influences equity investors' trading activities and price efficiency (Chan 2003; Rahman and Debreceny 2010). The financial media creates and disseminates information about firm-specific events in a timely manner to investors (Bushee, Core, Guay, and Hamm, 2010; Rogers, Skinner, and Zechman, 2016). Given the significance of financial media in the flow of information, delays in news reporting of firm-specific events can have capital market implications. Thus, it is important to understand factors that disrupt the information flow via financial media. In this study, I examine whether events in non-equity markets, particularly cryptocurrency markets, attract the media's attention and influence the timing of earnings news coverage.

I focus on cryptocurrency markets and earnings announcements for several reasons. First, the $2.2 trillion cryptocurrency market is relatively new and has attracted increasing attention from investors as well as regulators for the past few years.[1] For example, retail investors have recently shown immense interest in trading cryptocurrencies.[2] Further, happenings in the cryptocurrency market are plausibly exogenous to the timing and content of earnings news releases. Focusing on earnings announcements (which are pre-scheduled events that occur with certainty) allows me to study the media's decision to cover the firm without being concerned about the likelihood of the event occurrence. As the media serves a dual (and central) role for investors in equity and cryptocurrency markets, its presence in both markets could result in interesting and relevant spillover effects.

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[1] In October 2022, Financial Stability Oversight Council (FSOC) issued a report on digital assets highlighting potential threats to the stability of US financial system.

[2] It is now easier for retail investors to trade in cryptocurrencies due to emerging online trading platforms such as Robinhood and Venmo.

I predict that the media will prefer to cover crypto events over firm-specific earnings announcements. Due to limited resources to research and publish articles, media firms focus on newsworthy events that satisfy the information demand of their consumers (Core, Guay, and Larcker, 2008; Miller, 2006). Thus, the media is incentivized to publish news articles about cryptocurrencies to capitalize on their increasing popularity. A media firm may prefer covering crypto events because cryptocurrency is an ongoing controversial topic, and journalists are more likely to cover controversial topics (Call, Emett, Maksymov, and Sharp, 2022). There are still many debates around the legality and reliability of cryptocurrencies, so relatively uncontroversial earnings announcements may not get as much attention.[3] Thus, given media's resource and time constraints, I expect that an increase in news articles about crypto events will lead to a decrease in the immediate media coverage of earnings announcements.

Demand for crypto news could be temporary and might not last as much as demand for news about traditional markets. Given the significance of earnings information in the equity market, there will always be demand for firm-specific news by the investors. Further, firm-specific events are regular and news demand about such events would be a more sustainable source of readership than crypto events. In the long term, media firms would not want to lose out on readers who are interested in equity markets. I expect the media to satisfy the investors' demand for information about firms in the equity markets, albeit later after the crypto events.

Alternatively, it is possible that the media's decision to write more on cryptocurrency markets would not impact coverage of earnings announcements. The media may offset increased coverage of cryptocurrencies with a reduction in articles about other non-equity financial markets, such as commodity markets and foreign exchange markets, rather than compromising on earnings

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[3] In Appendix B, I use Google News search volume as a crude proxy for investor demand for information and compare investor demand for information about few illustrative firms to the demand for Bitcoin news.

news. It may decide to expand journalistic resources to cover both crypto events as well as earnings events.[4] Journalists involved in writing earnings announcement articles may be different from journalists in the cryptocurrency space, and there may not be significant spillover effects among them.[5] Ultimately, whether crypto news coverage causes a delay in media coverage of earnings news is an empirical question.

I begin my analyses by validating that the media responds to crypto events. I define crypto events as days with extreme price movements in Bitcoin after equity trading hours.[6] In Figure 1, I plot the number of news articles four days before and after the crypto events. I observe a spike in the number of crypto-related articles on crypto event days and a slow decline over the following four days. I further estimate a time-series model to see the effect of crypto events on the number of crypto-related news articles, after controlling for other important concurrent events such as those occurring in commodity markets, foreign exchange markets, equity markets, and macro-news events. These results suggest that the media responds to crypto events by writing more articles about cryptocurrency markets.

I test my research question by examining two levels of delay in media coverage: (a) delay in the same month and (b) delay on the same day. First, using a sample of 47,175 earnings announcements from 2015 to 2021, I find that crypto event days experience less news coverage of earnings announcements. In terms of economic magnitude, the number of earnings announcement articles about a firm on crypto event days is lower by 4% at the mean level. I further find that

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[4] Untabulated analyses reveal that controlling for the capacity of media's operations in the model doesn't change my inferences in the paper. I use number of articles published on a day as a proxy for the level of media's operations.

[5] I present an example of a senior journalist at *The Wall Street Journal*, Steven Russolillo, in Appendix A. This anecdotal evidence shows that Russolillo wrote more articles about cryptocurrency and less about earnings in recent years. That said, my analyses throughout the paper are at the firm level and not at the journalist level.

[6] Due to the recent increase in the correlation between the equity markets and cryptocurrency markets, I also perform a small-sample analysis, focused mainly on China's regulatory announcements to ban crypto-related activities. The results from the analysis support my main inferences.

media coverage of firms increases by 5% during the days [+1,+30] after the event.[7] This suggests that the media may have capitalized on the sudden increase in demand for crypto news, but later tries to satisfy the overall investor demand for information about firms in the equity market. Second, there is often an intra-day lag between a firm's announcement and the publication of the full article, probably reflecting the time it takes to write and edit articles before publication. I construct a new proxy using the time delay between the exact time of the earnings release and the news articles' publication. Conditional on the coverage of the earnings announcement, I find that there is a longer news reporting lag on days with crypto events. In other words, the media takes more time to release full earnings-related articles if the earnings announcement occurs on crypto event days. These results provide evidence that the media delays coverage of firms on account of news demand for the crypto events.

My main inferences rely on the assumption that the media firms are constrained by limited resources. To further test this assumption, I examine the effect of crypto events on the resources allocated by media firms towards earnings articles. Although I cannot directly observe these resources, I capture this construct using the content of the news articles, specifically by treating the article's textual characteristics as a proxy for the level of resources allocated to it. Because media produces information by analyzing and commenting on the facts and hard information released by firms and other sources (Guest, 2021), I examine the length and the amount of hard information (factual data) in earnings-related news articles. I find that earnings-related news articles occurring within three days of crypto events are shorter than those occurring on non-event days. Further, the amount of hard information in the text, representing more reliance on numbers

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[7] I find that the results are similar for different time periods such as days[1,15], [1,20], and [1,25]. Figure 2 summarizes my main findings. It shows that if the earnings announcement day coincide with a crypto event day, there is a decline in media coverage on the day of earnings release and a slow increase in firm-specific news coverage over the next few weeks. I find that the media typically increases coverage of firm-specific events after one week from the crypto event.

and less on qualitative analysis, is higher in the earnings news articles coinciding with crypto events. These results are consistent with media allocating more resources towards news articles about crypto events, resulting in lower information production in the earnings-related news articles.

I conduct numerous falsification tests to further demonstrate that these effects on earnings announcement news articles are attributable to crypto events. First, the argument about the limitation of resources would only apply to full-length articles and not to flash articles. This is because full articles require expert analyses and editorial content by journalists, whereas flash articles are short snippets or headlines that do not require a substantial amount of resources. Consistent with this, I do not find any relation between the crypto events and the number of flash news articles about earnings announcements. Second, I do not find any effect on earnings-related news articles three days before the relevant crypto events. This confirms that my main inferences are not due to any spurious relation and that media coverage is affected by the timing of the crypto events. Finally, I examine events related to small altcoins, such as Litecoin, to demonstrate that the outcomes are driven by investor demand for news stories about popular cryptocurrencies.[8] I find no evidence of lower media coverage of earnings announcements due to extreme price movements in Litecoin, a much smaller cryptocurrency than Bitcoin.

Given the media's role as an information intermediary in the equity market, favoring the cryptocurrency market in this resource allocation may have capital market consequences (Bushee et al., 2010). I expect that lower coverage of earnings announcements due to crypto events would affect both the pricing of earnings and trading by investors. Similar to Kim, Liang, Ochani, and

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[8] Altcoins ("Alternative coins") are all cryptocurrencies other than Bitcoin (BTC). Altcoins were created to improve specific limitations in Bitcoin. For example, Ethereum was created with smart contract functionality and uses a different security protocol than Bitcoin. Similarly, Litecoin was created to improve slower transaction processing speeds experienced by Bitcoin.

Shao (2022), I find that crypto event days are characterized by weaker investor reactions to earnings news and lower abnormal trading volume. I further show that media coverage of crypto articles aggravates the weaker reactions and lower retail trading activity around earnings announcements.

My study makes a twofold contribution. First, I contribute to the media literature by shedding light on how media outlets choose which markets to cover. The few papers that have looked at determinants of media coverage examined whether coverage decisions are based on firms' characteristics (Fang and Peress, 2009), information environment (Solomon, 2012; Guest and Kim, 2022), and investor base (Guest, Ochani, and Sethuraman, 2022). These studies focus on the media's choice between firms in the equity market. There is limited evidence on the media's coverage decisions across financial markets. My results provide evidence that the media prefers to cover events in newer and exciting financial markets (e.g., cryptocurrency markets) over existing traditional markets (e.g., equity markets). Further, my paper is the first to document and study the delay in media coverage. My results suggest that media understands the demand for crypto news is temporary and goes back to reporting events in traditional markets after the crypto events. This helps enhance our understanding of the trade-offs faced by the media and their responses to a sudden increase in demand for specific news.

Second, my research adds to the emerging literature on cryptocurrency markets. So far, studies have examined investor trading behavior (Dyhrberg, Foley, and Svec, 2018), trading costs (Easley, O'Hara, and Basu, 2019), risk factors, and arbitrage opportunities (Rubbaniy, Tee, Iren, and Abdennadher, 2021) in cryptocurrency markets. These papers investigate cryptocurrency markets as a standalone market. The links between cryptocurrency markets and equity markets have not been studied in detail. This link is particularly relevant today since SEC thinks it is

important to protect unsophisticated investors in the equity market from the speculative asset class.[9] My paper provides timely empirical evidence on the adverse effects of cryptocurrency markets on the information flow in the equity markets via financial media.

2. Literature review and hypothesis development

2.1 Literature review

2.1.1. Media's role in capital markets

In the finance and accounting literature, the majority of financial media research has focused on the consequences of the media's timely reporting of events. The media either disseminates information contained in other publicly available documents or produces information by analyzing and contacting the entities covered in the news article. Both information dissemination and creation by the media have been shown to influence equity markets' trading behavior, the pricing of earnings, and cash-flows in the equity market (Bushee et al., 2010; Drake, Guest and Twedt, 2021; Fang and Peress, 2009). The media also plays an important role in monitoring firms through investigative reporting of irregular firm events (Core, Guay, and Larcker, 2008; Miller, 2006). Despite the vast amount of literature on the subject, we still have very little understanding about the media's information production function.

2.1.2. Media firms' coverage decisions

Recently, a handful of papers have investigated the factors that influence media coverage of firm-specific events. Comparing the political bias of media firms and corporations, Rees and Twedt (2022) find that the tone of earnings announcement news articles is affected by the congruence between the political opinions of the media source and the firms. Call, Emett, Maskymov, and Sharp (2022) performed a survey of financial journalists, who revealed that there

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[9] On April 5, 2022, the SEC announced new initiatives for developing investor protection in the crypto market.

is a preference for controversial topics among journalists and that journalists use disclosures, along with private communication with firms, when writing news articles. They also find that journalists believe monitoring is one of their most important objectives. Consistent with the findings in this survey, Guest, Ochani, and Sethuraman (2022) show that the media considers their investor base in assessing the demand for monitoring, which affects the media's coverage decisions, while Li (2015) examines the influence of journalist characteristics on the informativeness of news articles. Firm's information environment is also a determinant of media's coverage decision. Guest and Kim (2022) provide evidence that media firms use analysts' reports in their news articles about earnings announcements, and Solomon (2012) shows that media coverage is also influenced by the presence of an investor relations officer in the firm (Solomon, 2012).

These papers focus on the media's coverage choice between firms in equity markets, but there is limited evidence on the cross-market coverage choices of media. In this study, I examine the interplay between two different markets i.e. cryptocurrency and equity markets in influencing media coverage decisions.

2.1.3. Cryptocurrency Markets

Finance and accounting scholars have recently become very interested in cryptocurrencies. For example, the literature examines arbitrage opportunities (Markarov and Schoar, 2020), Bitcoin transaction fees (Easley, O' Hara, and Basu, 2019), and smart contracts in blockchain technology (Bourveau, De George, Ellahie, and Macciocchi, 2022; Cong and He, 2019). These papers focus on the cryptocurrency market as a standalone market, while other scholars consider the role of the cryptocurrency market in other markets. Kim, Liang, Ochani, and Shao (2022) show how cryptocurrency markets disrupt the pricing of earnings in the equity market. Chang and Cong (2022) present an interesting link between information in blockchain data growth and firm

fundamentals. They show that firm-level on-chain data contains value-relevant information about firms in equity markets. They find that the reduction in information asymmetry is the underlying mechanism making blockchain data growth useful for forecasting fundamental and innovation outcomes.

2.2. Hypothesis Development

Media firms make profits from advertising and subscriptions, so they have incentives to publish articles that would expand their readership. Due to limited resources to publish articles, they focus on the newsworthy events that satisfy the information demand from consumers (Core, Guay, and Larcker, 2008; Miller, 2006).

The popularity of cryptocurrencies has grown tremendously among global investors after many early investors experienced experiencing abnormally high returns. For instance, *Bitcoin* was the second most searched word on Google in 2017.[10] Due to the rising popularity of cryptocurrencies, it is in the media's interest to write news articles about them. Likewise, as more people invest in cryptocurrency, discussions about crypto have filled social media. Media firms would like to capitalize on investors' information demand about cryptocurrencies and not lose readers.

As noted earlier, prior literature on the determinants of media coverage focuses on how media firms choose which firms to cover. The consensus in the literature is that media outlets have limited resources to publish articles, so they cannot cover everything. Further, Ahern and Peress (2022) summarize the incentives of the media, arguing that readers' limited attention also causes the media to focus on limited topics. With these constraints, journalists are bound to write fewer articles about topics with less information demand.

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[10] See https://www.forbes.com/sites/johnkoetsier/2017/12/13/bitcoin-is-the-second-most-searched-global-news-term-of-2017/?sh=6e66e5e75d8b

I expect the media to prefer cryptocurrency-related articles over immediate coverage of earnings announcements due to the controversial nature of cryptocurrencies. Call et. al. (2022) show that journalists are more likely to cover controversial topics. Cryptocurrencies have been a subject of controversy since their introduction, with one side citing the benefits of decentralized and digital currencies and the other side citing cryptocurrency's relatively low future sustainability. Earnings announcement articles are generally not as controversial as cryptocurrencies and thus less likely to be preferred by media.

Using Google News search volume as a crude proxy for investor demand for news, in Appendix B, I compare investors' demand for information about a few illustrative firms to demand for Bitcoin information. We can see from Panel A that even prominent firms such as Facebook (now Meta), Google (now Alphabet), and Moderna attracted fewer Google news searches than Bitcoin throughout my sample period, including days around earnings announcements. On the other hand, there are still a few firms that users searched for more often than Bitcoin, such as Apple, Tesla, and Amazon. These examples gives us some insights into the news demand for firms in the equity market vs. cryptocurrency market.

Naturally, equity markets in aggregate will have higher information demand than the cryptocurrency market, simply because equity markets are significantly larger than the cryptocurrency market. Further, earnings announcements are an important piece of information for investors in the equity market. The media understands the investor demand for news about the firms, and that the demand for cryptocurrency information may be temporary. It is less likely to rely on temporary demand for crypto news and forego coverage of earnings news, even though the former may attract a lot of eyeballs in the short term. I expect that the media will deal with sudden increases in demand for crypto news by reducing their immediate coverage of earnings

announcements and writing about firms afterward, to satisfy the continuous demand from equity investors.

On the day of an earnings announcement, there is often an intra-day time lag between the announcement by the firm and the publication of the earnings news article, primarily due to the time and effort involved in writing and editing these articles. Media preferences for covering crypto events could result in a delay in covering the earnings news on the same day as well. I expect that this news lag will be higher on the crypto event days due to the media's increased attention toward cryptocurrency markets. This leads me to my main hypothesis:

H1: The media delays coverage of earnings news on days with extreme price movements in cryptocurrency markets.

Even given limited resources, there are several reasons that a given media firm's decision to write more about cryptocurrency markets may not influence their coverage of earnings announcements. The firm may decide to write less about other financial issues instead of writing less about earnings announcements. They may also expand their resources to cover both crypto events and earnings events.[11] Also, the journalists involved in writing earnings announcement articles could be different from the journalists in the cryptocurrency space, and there may be no spillover effects between the groups. I believe that it would be difficult for a media firm to expand their operations or change their employee base by hiring more journalists from crypto space in response to a sudden increase in news demand for crypto.

Media firms typically have different utility functions than investors. For example, investors avoid trading in volatile and controversial stocks, but the media prefers writing about such stocks. Similarly, the majority of institutional investors are quasi-indexer investors and dedicated

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[11] Untabulated analyses show that my results are consistent after including the total number of articles at the news outlet level as a control variable, to account for the expansion of media operations.

investors who invest in indices and safe stocks, which are often not covered by the media. Due to these different preferences and utility functions, media firms' reactions toward crypto events may not be the same as investors' reactions. Therefore, it is an empirical question whether cryptocurrency markets have any influence on the media's coverage of earnings announcements.

3. Data, Sample, and Research Design

3.1. Data and Sample

I use Ravenpack Data Analytics for data on the number and timing of earnings news articles, and I use cryptodatadownload.com to find the prices of Bitcoin and altcoins. To evaluate the text of the news articles, I manually download the text of earnings announcement news articles from Factiva, for the S&P 500 firms active from 2015 to 2021. I manually link the Factiva articles to earnings announcements by looking for the firm's name or ticker in the headline of the news article. Following Guest (2021), I exclude news articles with less than 50 words. The sample size for the hypotheses about the textual attributes of the news articles is smaller than the main sample, because it is limited to the earnings news of S&P 500 firms covered by the media.

I obtain data for the control variables (see Section 3.2) from COMPUSTAT, CRSP, IBES, and Thomson Reuters. I use S&P Global's website and Yahoo website to obtain daily commodity returns and forex returns respectively. Lastly, I use TAQ data and CRSP to compute variables for the market consequences analyses. Since cryptocurrency is a recent emerging market, I focus on the recent years for my empirical analyses. My sample begins with all earnings announcements between 2015 (the first year with significant crypto news coverage) and 2021, and then I drop the earnings announcements with missing information for the control variables. Ultimately, I arrive at a sample of 47,175 earnings announcements from 2015 to 2021, after excluding observations with missing data. I manually collect FOMC dates from the official website.

3.2. Research Design

Dow Jones typically publishes two types of articles—full articles and flash articles. Full articles are full-length articles that include editorial content by journalists, while flash articles are primarily headlines that are largely automated and do not involve journalists' input. Publishing full articles involves many more media resources than releasing flash news. Given my assumption that media firms have limited resources, full articles fit my research question better than flash news. I test my first hypothesis using the number of full articles published by Dow Jones, using the following estimated model:

$$EA\ Media_{i,t} = \alpha + \beta_1 Crypto\ Event_t + \textstyle\sum \beta\ Controls + FE_{firm} + FE_{year} + \epsilon \qquad (1)$$

In equation (1), *EA Media*$_{i,t}$ is the number of earnings-related full articles published on the day of the earnings announcement. *Crypto Event*$_t$ is an indicator variable equal to one if the earnings announcement falls within three days of an extreme price movement in Bitcoin. I explain the *Crypto Event* variable in detail in Section 3.3. I control for each firm's fundamental characteristics, investor base, and information environment. *Size* is the logarithmic value of the market cap of the firm. *BM* is the ratio of the book value of equity to the market value of the firm. *ROA* is income before extraordinary items, scaled by assets at the beginning of the quarter. *Leverage* is the ratio of total debt to total assets. *Institutional Ownership* represents the ratio of shares owned by institutions, as per 13F filings, to the total shares outstanding. *Follow* refers to the number of analysts issuing forecasts for the firm. I also include an indicator variable that is equal to one if the firm is a part of the S&P 500 index. *Last 6M Ret* is the stock returns for the six-month period ending on the last day of the calendar month before the earnings announcement. I include firm fixed effects to control for time-invariant firm characteristics and year fixed effects to control for year-specific variation, and I cluster standard errors at the firm level to account for within-firm

serial correlation in the error term. I predict β_1 to be negative, hypothesizing that earnings announcement news articles will be lower on the crypto event days.

To test my hypothesis with the same day lag, I estimate the model specified in Equation 1 with *News lag* as the dependent variable. *News lag* is the difference in minutes between the time of an earnings announcement by the firm and the time when the news article is published by a media firm. I again control for the characteristics, investor base, and information environment of the firm, which could potentially influence media coverage decisions. I hypothesize that the media will take longer to report the earnings announcements and therefore, I expect β_1 to be positive.

These crypto events are plausibly exogenous to the timing and content of the earnings announcements. Cryptocurrencies are traded throughout the world and the prices are determined by traders and investors from all countries, including US. The crypto setting thus provides some comfort that the results would not be driven by reverse-causality and omitted variables.

3.3. Variable measurement

3.3.1. Crypto Event

Using Bitcoin as a representation of the cryptocurrency market, I define crypto events days as days with an overnight BTC-USD return in the top or bottom decile during my sample period. These extreme price movements in BTC-USD proxy for significant events in cryptocurrency markets. Trading in cryptocurrencies is not bounded by time i.e., they are traded 24 hours a day throughout the year in different markets.[13] I obtain minute-by-minute Bitcoin price information from cryptodownload.com, which uses data related to the Bitstamp exchange. I compute overnight returns as those from the first day at 4:00 pm until the second day at 9:30 am. I sort these daily

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[13] See https://www.bloomberg.com/news/articles/2022-06-06/most-of-bitcoin-pandemic-gains-came-while-us-stocks-were-closed

returns from 2015 to 2021 by the level of the returns and group them into deciles. Days with BTC-USD returns in the bottom and top decile qualify as crypto event days.
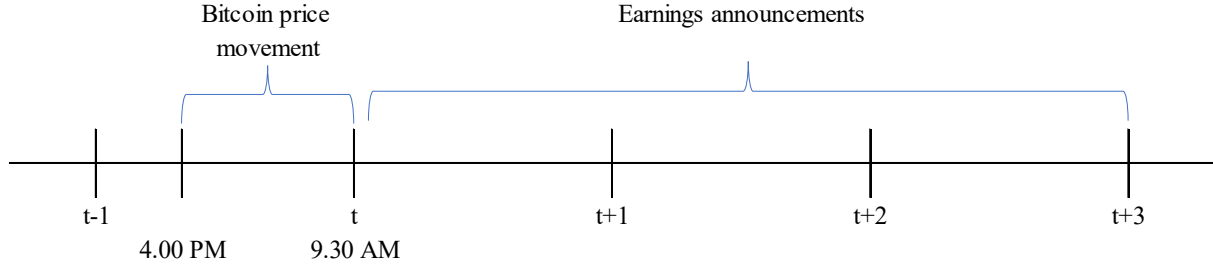
Crypto Event is an indicator variable equal to one if an earnings announcement occurs within three days of an extreme price movement in BTC-USD and zero otherwise. If earnings are released by a firm within three days of a day with extreme price movement, I consider that earnings announcement as affected by a crypto event.

3.3.2. EA Media and Post-Event Media

EA Media is the number of earnings-related articles published by Dow Jones on the day of earnings announcements. I use full articles because it requires more time and effort for media firms to write full articles, and because they fit my research question better. RavenPack (RPNA) tags each news article based on the content and headline of the news article and provides the main topic of the news article. The articles related to earnings are categorized as 'earnings' in the database. Specifically, I use RPNA Dow Jones edition, which includes all the articles published by Dow Jones, and I define earnings news articles as the number of full-length news articles related to earnings published by Dow Jones. *Post Event Media* is the number of firm-specific articles published by Dow Jones from the next day of earnings release till 30 days after the announcement.

3.3.3. News Lag

Journalists and media outlets typically take some time to publish a full article about earnings announcements. There is a lag in the publication of news articles after the earnings

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information is released by the firm. I obtain the time of the earnings announcement by the firm from IBES, while RPNA provides the timestamp of each news article. The difference between the two is used to measure reporting lag. News lag can only be computed for the earnings announcements, which are covered by the media, which results in a smaller sample size than the main analyses.

3.3.4. Article Length

Using Factiva, I collect the text of all news articles about earnings for S&P 500 firms active from 2015 to 2021. Factiva provides tagged information, including the article's word count, along with the text when you download the article with indexing. I use these word counts to measure the article length. Following Loughran and McDonald (2011), I also compute the number of unique words after excluding the stop words. In untabulated analyses, I find that using the number of unique words instead of the word count in each news article does not change my results or inferences throughout the paper.

3.3.5. Hard-Soft Mix

Financial media articles generally have statistical information about the topic being reported. For the earnings announcement articles, the text of the news article includes hard information such as the actual earnings numbers, actual EPS, analyst estimates, and percentage change in earnings and revenue. Following Guest (2021), I compute the hard-soft mix in the text of the news article: the ratio of the count of numbers in the text of the news article to the count of all words in the text of the news article.

$$Hard-soft\ mix = \frac{Count\ of\ numbers}{Count\ of\ all\ words}$$

3.3.6. Uncertainty ratio

Uncertainty ratio is the ratio of the uncertainty related words to the number of unique words in the earnings news articles. I use Loughran and McDonald's (2011) financial dictionary of uncertainty words. Appendix C lists the words used to identify the number of uncertainty-related words. Unique words are computing by excluding the stop words following Loughran and McDonald (2011).

Table 1 presents descriptive statistics for the variables used in the paper. Earnings announcements get an average of 2 flash articles for each firm, but only around 14% of the firms are covered by media in full articles. 50% of earnings announcements fall on the day of or the day after a crypto event. Dow Jones generally takes around an hour to release a full article about an earnings announcement. These articles average around 500 words, with about 8% of the article being numbers.

4. Results

4.1. Shock Validation

My argument is based on the presumption that media firms will cover crypto events. To validate this assumption and my proxy measure for a crypto event, I examine the relation between my proxy and the number of crypto-related news articles. I first test if my measure of crypto events is associated with media firms writing more articles about crypto. Figure 1 plots the number of crypto-related news articles on nine days around the crypto event day. I observe a spike in the number of crypto-related articles on the event day, followed by a slow decline over the next four days.

I also test my assumption and measure using a regression model to see if these events lead to news coverage about crypto. I control for events in foreign exchange markets, commodity

markets, and number of earnings announcements on the day as a proxy for events in equity markets. The results suggest that despite other events happening around the same day, the media prefers to write about cryptocurrencies. Here is the regression estimate:

$$CryptoArt_d = \alpha + \beta_1 CryptoEvent_d + \beta_3 ForexRet_d + \beta_4 CmdtRet_d + \beta_5 FOMC_d$$
$$+ \beta_6 Busy\ EA\ day_d + \gamma_{year} + \epsilon \tag{2}$$

In Equation (2), *CryptoArt* represents the number of articles related to cryptocurrencies. $CryptoEvent_q$ is an indicator variable equal to one if the earnings announcement falls within two days of an extreme price movement in Bitcoin. To control for events in foreign exchange markets, I use the absolute value of USD/EUR returns as a proxy for foreign exchange returns. I also control for events in commodity markets by including commodity index returns in the model. *FOMC* is an indicator variable if there is a FOMC announcement on day *d*. This will control for macro events on that day. *Busy EA Day*d is the number of earnings announcements on day *d*. The model includes year fixed effects. I cluster standard errors at the year-quarter level.

Table 2 presents the results. Columns 1 and 2 present the results with and without control variables, respectively. I find that on days of extreme price movements in the cryptocurrency market, there is a 61% increase in the number of crypto-related news articles at the mean level. These results confirm that the media tends to cover crypto events, even after controlling for macro events and events in other financial markets.

4.2. Delayed media coverage in the same month

Using the regression model specified in Equation (2), I examine whether the crypto events influence the media coverage of earnings announcements. Table 3 presents the results. Columns 1 and 2 show the results for the number of articles about earnings announcements, and Columns 3 and 4 present the results for the probability of a media firm covering the earnings announcement.

Consistent with my hypothesis, I find that the number of earnings announcement articles is negatively associated with the indicator variable for the crypto events. All columns show statistically significant negative coefficient estimates for the key independent variable *CryptoEvent*. The baseline result in Column 2 suggests that on the days of crypto events, the number of earnings announcement articles is lower by 4% at the mean level, compared to the days without any crypto event.[14]

I then examine the post-event media coverage of firms. Specifically, I look at the media coverage during the 30-day period after the crypto event. News demand for cryptocurrencies varies with the prices in the cryptocurrency market, so I expect a media drift similar to the concept of earnings drift in the stock market. I estimate the model specified in Equation (3) (see Section 5.6) with post-event media coverage as the dependent variable.

Table 4 presents the association between crypto events and media coverage after the event. I find a 5% increase in post-event media coverage. These results suggest that media firms satisfy investors' demand for information about the firms by reverting back to focusing on equity markets after the crypto events.

Figure 2 presents the differences in media coverage of affected firms and rest of my sample around the earnings announcements. Specifically, I plot the coefficient estimate of *Crypto Event* estimating the model specified in equation (2) using media coverage during different time periods around the earnings announcement as the dependent variable. On the day of earnings announcement, the figure shows that earnings news articles are lower for the firms with earnings release on the days of crypto events. I further show that the media coverage is not different for the

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[14] The coefficient estimate in Column 2 is 0.015, the mean number of earnings announcement articles is 0.14, and the standard deviation is 0.40. At the mean level, a crypto event results in a 0.015 * 0.40/0.14 = 4.29% reduction in earnings announcement articles.

affected firms and other firms before the crypto events as evidenced by the statistically insignificant coefficient estimates. Interestingly, I find that the firm-specific media coverage after the earnings announcement is higher for the firms whose earnings news coverage is affected by crypto events. Media coverage of affected firms typically increases after a week from the crypto event.

4.3. Delayed media coverage on the same day

Media firms don't publish their earnings announcement articles immediately after the earnings are released: there is a necessary delay for writing and editing the full article. However, crypto events could result in journalists and editors spending more resources on crypto events and less on earnings announcements coverage, causing a greater delay in publishing the article.

Table 5 presents the results for the effect of cryptocurrency markets on the timing of publishing earnings announcement articles. Specifically, the crypto event days feature a greater delay in publishing earnings news articles. Column 2 of Table 5 shows that the coefficient estimate for the relation between the crypto event indicator and media coverage is 0.095. At the mean level, there is a 13% increase in publication on the crypto event days compared to non-event days.

5. Content of Earnings Announcement Articles

5.1. Quality of news articles

I further examine the text of the news articles about earnings announcements, as a greater focus on cryptocurrency markets and a lower focus on earnings announcements would also be reflected in the text of the earnings announcement news articles. We cannot directly observe the efforts and time dedicated to these articles. However, I use the length of the article and the amount of soft information as proxies for the effort dedicated to writing, editing, and publishing the news article. Specifically, I examine the word count and the amount of hard information in the news

articles. Due to the greater focus on crypto events, I expect the word count of the earnings announcement articles to be lower and the reliance on hard information to be higher after the crypto events, compared to non-event days.

To test these predictions, I use the model specified in equation (1) and replace the dependent variable with either (a) *Article Length,* computed as the word count of the news article, or (b) *Hard-Soft Mix*, the ratio of the amount of hard information to the total number of words in the news article. The dependent variables and the key variable of interest are explained in the next subsection in detail. I expect the article length to be lower and the hard-soft mix to be higher on the crypto event days.

Columns 1 and 2 of Table 6 present the results. The word count of the news articles is lower on the crypto event days than on non-event days. My results suggest that the earnings announcement news articles are 5% shorter on the crypto event days compared to non-event days.

Journalists also rely more on hard information if the earnings are released within three days of the crypto event days. Columns 3 and 4 of Table 6 show that the percentage of hard information is higher by 2.3% on the crypto event days compared to non-event days.

5.2. Uncertainty-Related Words

I perform an additional test to see if crypto events change the perception of media outlets about uncertainty. I measure this perception by counting the number of uncertainty-related words in the news articles. I use Loughran and McDonald's (2011) financial dictionary of uncertainty words. Column 6 of Table 6 presents the results. Interestingly, I find more uncertainty-related words on the crypto event days. These results suggest that journalists' perceptions of uncertainty are different on crypto event days. I also show that the ratio of uncertainty words to total words is higher by 8%, at the mean level, on the crypto event days.

6. Falsification tests

6.1. Flash News

I focus on full articles in my paper as they are a better fit for my research question and hypothesis. But to see if limited media resources also play a role in the substitution of earnings announcement articles with cryptocurrency articles, I test whether flash articles are affected by the crypto events. Table 8 presents the results. Column 2 of Table 7 shows that there is no significant relation between the crypto event and flash news about earnings announcements. These results corroborate my argument that media firms get distracted by crypto events due to resource constraints.

6.2. Altcoins

The measure of a crypto event in my study is based on the most prominent cryptocurrency, Bitcoin. One plausible reason for media firms' reducing earnings announcement articles is the higher demand for news about Bitcoin. However, there are other altcoins in the cryptocurrency market which are not as prominent as Bitcoin or its major competitor Ethereum. Therefore, news demand for smaller altcoins such as Litecoin would be much lower. To examine whether this lower news demand influences the distraction effect documented so far, I test the effect of extreme price movements in LTC-USD (Litecoin's price in USD) on media coverage of earnings announcements.

I estimate the regression model specified in Equation 1 and replace the crypto event measure with a Litecoin event measure, similarly defined based on the price movements of LTC-USD instead of BTC-USD. I understand that there could be a return correlation among cryptocurrencies. To mitigate these concerns, I drop the observations when a day has a crypto event based on both BTC-USD returns and LTC-USD returns. Panel A of Table 8 presents the

results. I find no significant relation between Litecoin events and media coverage decisions, article timing, or article content. These results confirm that news demand plays a role in the media's decision to cover cryptocurrency markets.

6.3. Pseudo Crypto Event

To test if the crypto events are indeed linked to lower news coverage of earnings announcements, I define pseudo-events as occurring three days before the actual crypto event and examine the effect of these pseudo-events on the news coverage of earnings announcements. I replace *Crypto Event* in Equation (2) with *Pseudo Event,* which is an indicator variable equal to one if the earnings are announced three days before the crypto event. This falsification test is performed to address the concerns that the results are attributable to a general time trend during my sample period. Non-results from this test will confirm the significance of the crypto events. Panel B of Table 8 presents the results. The coefficient estimate for the pseudo-crypto events is statistically insignificant from zero, suggesting that there is no relation between the pseudo-events and earnings announcements. This provides confirmation that the distraction effect shown in the baseline results is attributable to the timing of crypto events.

7. Capital market consequences

Firms with higher media coverage of an earnings announcement experience a higher market reaction to earnings information (Bushee et al., 2010). So far, my results indicate that the earnings announcements receive lower media coverage on days with a crypto event. This decrease in the earnings announcement coverage on the crypto event days must thus result in a weaker market reaction to earnings information. I examine the trading behavior and market reaction for the earnings releases on the crypto event days. Using cumulative abnormal returns within two days

of the earnings release and the decile ranking of earnings surprises, I estimate the following regression model:

$$CAR[0,1]_{i,t} = \alpha + \beta_1 CryptoEvent_t + \beta_2 SUE_{i,t} + \beta_3 Crypto\ Media_t$$
$$+ \beta_4 SUE_{i,t}\ x\ CryptoEvent_t + \beta_4 SUE_{i,t}\ x\ Crypto\ Media_t$$
$$+ \beta_5 Crypto\ Event_t\ x\ Crypto\ Media_t$$
$$+ \beta_5 SUE_{i,t}\ x\ Crpto\ Event_t\ x\ Crypto\ Media_t + \sum \beta\ Controls_{i,t} + FE_{firm}$$
$$+ FE_{YearQuarter} + \epsilon \tag{3}$$

In equation 3, *CAR* represents cumulative abnormal returns in the window [0,1], i.e. from one day before to one day after the earnings announcements. *SUE* is a decile ranking of earnings surprises, defined as the difference between actual EPS and median analyst earnings estimates, scaled by price. *Crypto Event* is defined in detail in section 3.3. *Crypto Media* is an indicator variable equal to one if the media published an above-median number of crypto-related articles on a given day.[15] I expect β_3 to be negative due to lower media coverage on the crypto event days. I control for the size of the firm (*Size*), book-to-market ratio (*BTM*), number of analysts following the firm (*Follow*), last six months' return (*Last 6M Ret*), number of earnings announcements on the same day (*Busy EA day*), and the reporting lag (*Replag*). I include firm and year-quarter fixed effects. Standard errors are clustered at the firm level.

Next, I estimate the following regression model to examine the effect on trading volume in the equity market:

$$TV[0,1]_{i,t} = \alpha + \beta_1 CryptoEvent_t + \beta_2 Crypto\ Media_t$$
$$+ \beta_3 Crypto\ Event_t\ x\ Crypto\ Media_t + \beta_4 Abs\ SUE_{i,t} + \sum \beta\ Controls_{i,t}$$
$$+ FE_{firm} + FE_{YearQuarter} + \epsilon \tag{4}$$

---

[15] Using decile rankings vs. a continuous version of the number of crypto-related articles does not change my results and inferences in the paper (untabulated).

In equation 4, TV [0,1] represents one of the following dependent variables: (a) abnormal trading volume, (b) retail trading volume, (c) institutional trading volume, (d) log of retail trading volume in dollar value, and (e) log of institutional trading volume in dollar value. I control for the absolute value of an earnings surprise. I also control for the size of the firm (*Size*), book-to-market ratio (*BTM*), number of analysts following the firm (*Follow*), last six months' return (*Last 6M Ret*), number of earnings announcements on the same day (*Busy EA day*), and the reporting lag (*Replag*). I include firm and year-quarter fixed effects. Standard errors are clustered at the firm level.

Tables 9 show the results. Panel A presents the effect on investors' immediate reactions to the earnings release. Consistent with Kim et al. (2022), I find weaker investor reactions on crypto event days than on non-event days. The investor reaction to earnings information is much weaker when the media publishes an above-median number of crypto-related articles. Column 4 of Table 9 shows that ERC on the crypto event days with above-median crypto-related articles is lower by around 8% (0.001/0.013) compared to other days.

Panel B presents the effect on the retail and institutional trading volume. I find that retail and institutional trading volume in the equity market are both lower on crypto event days when compared to non-event days. Columns 3 and 4 of Panel B show that there is a 5.6% decline in retail trading volume on the crypto event days with above-median crypto-related articles. Columns 5 and 6 present the effect of crypto events on the institutional trading volume. Institutional trading volume is lower by 2% on the crypto event days. Columns 7 and 8 document the role of *Crypto Media* in the relation between *Crypto Event* and institutional trading volume. I do not see any effect of crypto-related news media coverage on institutional trading volume.

Overall, market consequences are consistent with the evidence in prior literature showing stronger market reactions to earnings releases for firms with higher media coverage. This also confirms our main finding that media coverage is influenced by crypto events.

8. Robustness tests

8.1. Measure of cryptocurrency events

I use extreme price movements in BTC-USD as a proxy for cryptocurrency events. To show that my results are not sensitive to how I define extreme price movements, I re-perform the main analyses with a continuous variable. Specifically, I use the absolute value of the compounded three-day Bitcoin overnight return instead of the *Crypto Event* indicator and re-estimate the model specified in Equation (1). Panel A of Table 10 presents the results. My inferences do not change after using this measure instead of the *Crypto Event* indicator. As expected, the number and length of earnings announcement articles are negatively associated with the absolute value of the Bitcoin overnight returns. Media firms take a longer time to release earnings announcement articles if the magnitude of Bitcoin overnight returns is high. The amount of hard information in the text of the news articles is also positively associated with the magnitude of Bitcoin overnight returns.

8.2. Measure of earnings announcement media coverage

I have used articles published by Dow Jones throughout the paper. As another robustness check, I examine whether my results can be generalizable to other media outlets. I expand the news media sample to include traditional financial media sources. Specifically, I include Bloomberg, Reuters, CNN, CNBC, *The Washington Post*, *The New York Times*, and *Financial Times*, along with Dow Jones, in the news sources. Panel B of Table 10 shows the results for the delay in news coverage of earnings announcements. Overall, I find that the results when including other financial

media sources are consistent with my main findings. These results suggest that my results are not confined to articles published by Dow Jones.

9. Conclusion

My study examines the spillover effects of cryptocurrency markets on media coverage of the equity markets. Media outlets tend to cover crypto events when there are extreme price movements in the cryptocurrency markets. As a result, there is a decline in immediate news coverage of earnings announcements. However, media corrects their mistake by covering more about firms in the same month. This delay in earnings news coverage can also be observed at the intra-day level. Crypto events also influence the content of earnings news articles. The earnings news articles are shorter on crypto event days. Journalists also rely more on the hard information in the news articles as a result of allocation of less resources toward earnings announcements. I observe that the media decides not to cover earnings announcements only when there are events involving prominent coins, such as Bitcoin, but not for events involving smaller altcoins such as Litecoin.

My study contributes to both the media and cryptocurrency literature. This is the first paper to document and examine the delay in news coverage. Specifically, my findings show that media coverage of earnings news gets temporarily affected by the crypto events. Media understands the importance of information demand for firms and writes more about the firms after the crypto event. As a result of immediate lower coverage by the media, the pricing of earnings (for firms in the equity market) is slower, and trading volume around earnings announcements is lower. Cryptocurrency markets have recently attracted significant attention from investors, firms, and regulators. This study provides timely evidence of the spillover effects of cryptocurrencies on the equity market via financial media.

References

Ahern, K., and Peress, J., 2022. The Role of Media in Financial Decision-Making. *Handbook of Financial Decision Making, Editors Gilles Hilary and David McLean, Forthcoming*.

Boehmer, E., Jones, C., Zhang, X. and Zhang, X., 2021. Tracking retail investor activity. *Journal of Finance*, 76(5), 2249-2305.

Bourveau, T., De George, E.T., Ellahie, A., Macciocchi, D., 2022. The role of disclosure and information intermediaries in an unregulated capital market: evidence from initial coin offerings. *Journal of Accounting Research* 60, 129–167.

Bushee, B.J., Core, J.E., Guay, W., Hamm, S.J., 2010. The role of the business press as an information intermediary. *Journal of Accounting Research* 48, 1–19.

Call, A.C., Emett, S.A., Maksymov, E., Sharp, N.Y., 2022. Meet the press: Survey evidence on financial journalists as information intermediaries. *Journal of Accounting and Economics* 73, 101455.

Chan, W.S., 2003. Stock price reaction to news and no-news: drift and reversal after headlines. *Journal of Financial Economics*, 70(2), 223-260.

Chang, R., Cong, L.W., 2022. Blockchain without Crypto? Linking On-Chain Data Growth to Firm Fundamentals and Stock Returns. Working Paper, Cornell University.

Cong, L.W., He, Z., 2019. Blockchain disruption and smart contracts. *Review of Financial Studies* 32, 1754–1797.

Core, J.E., Guay, W., Larcker, D.F., 2008. The power of the pen and executive compensation. *Journal of Financial Economics* 88, 1–25.

Drake, M.S., Guest, N.M., Twedt, B.J., 2014. The media and mispricing: The role of the business press in the pricing of accounting information. *The Accounting Review* 89, 1673–1701.

Drake, M.S., Thornock, J.R., Twedt, B.J., 2017. The internet as an information intermediary. *Review of Accounting Studies* 22, 543–576.

Dyhrberg, A.H., Foley, S., Svec, J., 2018. How investible is Bitcoin? Analyzing the liquidity and transaction costs of Bitcoin markets. *Economics Letters* 171, 140–143.

Easley, D., O'Hara, M., Basu, S., 2019. From mining to markets: The evolution of bitcoin transaction fees. *Journal of Financial Economics* 134, 91–109.

Fang, L., Peress, J., 2009. Media coverage and the cross-section of stock returns. *Journal of Finance* 64, 2023–2052.

Goldman, E., Martel, J., Schneemeier, J., 2022. A theory of financial media. *Journal of Financial Economics* 145, 239–258.

Guest, N.M., 2021. The information role of the media in earnings news. *Journal of Accounting Research* 59, 1021–1076.

Guest, N.M., Kim, J., 2022. The Media Response to Deterioration in a Firm's Information Environment. Working Paper, Cornell University.

Guest, N.M., Ochani, A., Sethuraman, M., 2022. The Media Goes Where They're Needed: The Relation between Firms' Investor Base and Media Coverage. Working Paper, Cornell University.

Kim, M., Liang, E., Ochani, A., Shao, X., 2022. Cryptocurrency Disruption and Investor Reaction to Earnings Announcements. Working Paper, University of Minnesota.

Li, C., 2015. The hidden face of the media: How financial journalists produce information. PhD Thesis, University of Maryland.

Makarov, I., Schoar, A., 2020. Trading and arbitrage in cryptocurrency markets. *Journal of Financial Economics* 135, 293–319.

Miller, G.S., 2006. The press as a watchdog for accounting fraud. *Journal of Accounting Research* 44, 1001–1033.

Miller, G.S., Skinner, D.J., 2015. The evolving disclosure landscape: How changes in technology, the media, and capital markets are affecting disclosure. *Journal of Accounting Research* 53, 221–239.

Rahman, A. and Debreceny, R., 2010. Frequency of corporate announcements via stock exchange web sites and market efficiency. *Journal of Accounting, Auditing & Finance*, 25(3), 457-490.

Rees, L., Twedt, B.J., 2022. Political Bias in the Media's Coverage of Firms' Earnings Announcements. *The Accounting Review* 97, 389–411.

Rogers, J.L., Skinner, D.J., Zechman, S.L., 2016. The role of the media in disseminating insider-trading news. *Review of Accounting Studies* 21, 711–739.

Rubbaniy, G., Tee, K., Iren, P., Abdennadher, S., 2022. Investors' mood and herd investing: A quantile-on-quantile regression explanation from crypto market. *Finance Research Letters* 47, 102585.

Solomon, D.H., 2012. Selective publicity and stock prices. *Journal of Finance* 67, 599–638.

Appendix A: A Journalist's Shift from Earnings News to Crypto News

The figure above presents the composition by percentage of different types of news articles by Steven Russolillo, published in *The Wall Street Journal* from 2015 to 2020. Dotted, upward diagonal, horizontal brick, horizontal line patterns, respectively, represent the proportion of earnings news articles, crypto-related articles, equity markets articles, and articles about other markets. There is a decline in the proportion of earnings news articles from 2016 to 2018 coinciding with an increase in the proportion of crypto-related articles.

Appendix B: Google News Search Volume Comparison
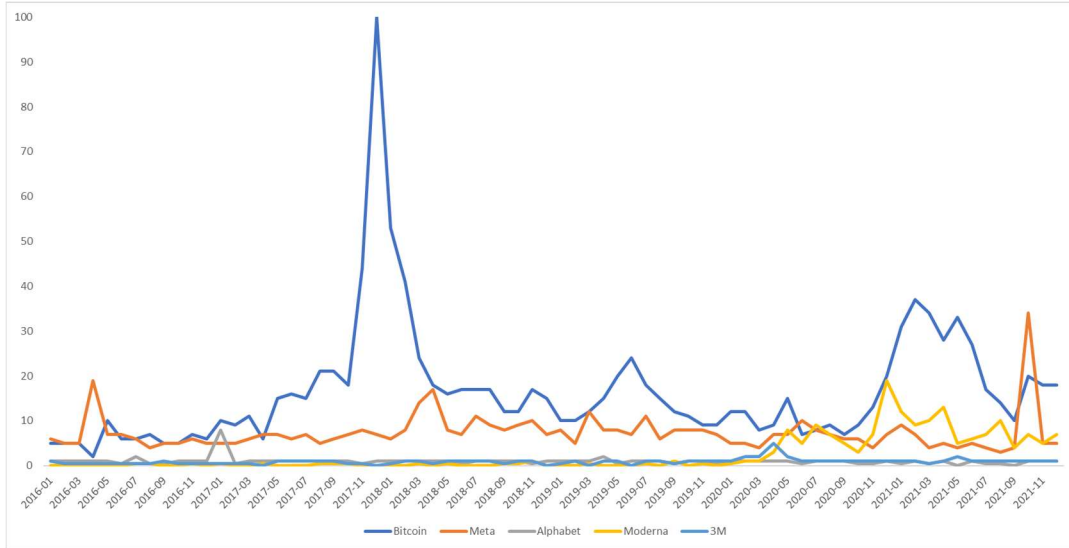
Panel A: Google News search volume for Bitcoin vs Meta, Alphabet, Moderna, and 3M
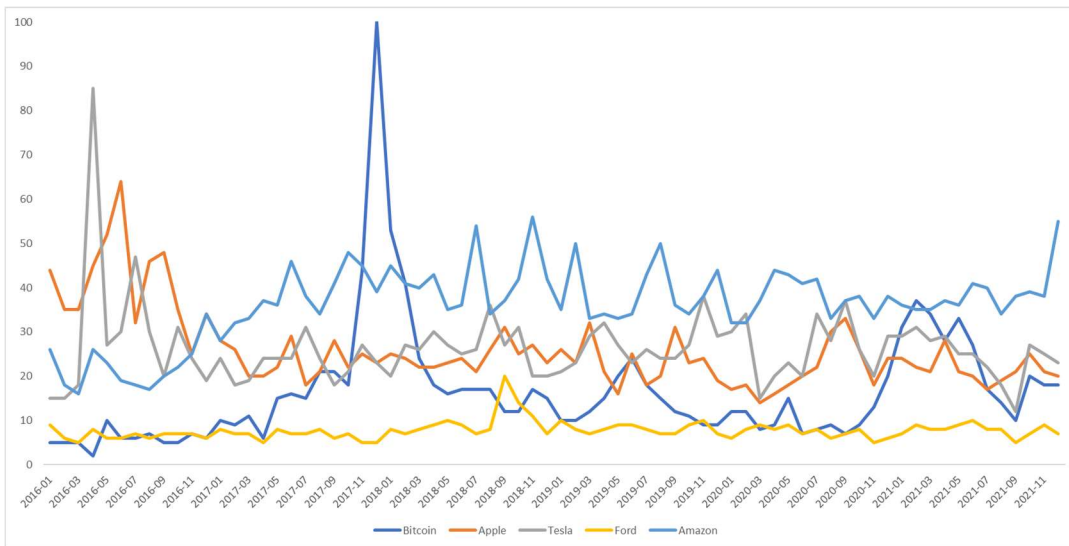
Panel B: Google News search volume: Bitcoin vs, Apple, Tesla, Ford, and Amazon

The figure above plots the Google News search volume index for the term 'Bitcoin' against the Google News search volume index for prominent corporations during my sample period. Panel A plots the firms with lower news demand than Bitcoin and Panel B plots the firms which either had similar or more news demand than Bitcoin.

Appendix C: List of uncertainty-related words

Abeyance; Abeyances; Almost; Alteration; Alterations; Ambiguities; Ambiguity; Ambiguous; Anomalies; Anomalous; Anomalously; Anomaly; Anticipate; Anticipated; Anticipates; Anticipating; Anticipation; Anticipations; Apparent; Apparently; Appear; Appeared; Appearing; Appears; Approximate; Approximated; Approximately; Approximates; Approximating; Approximation; Approximations; Arbitrarily; Arbitrariness; Arbitrary; Assume; Assumed; Assumes; Assuming; Assumption; Assumptions; Believe; Believed; Believes; Believing; Cautious; Cautiously; Cautiousness; Clarification; Clarifications; Conceivable; Conceivably; Conditional; Conditionally; Confuses; Confusing; Confusingly; Confusion; Contingencies; Contingency; Contingent; Contingently; Contingents; Could; Crossroad; Crossroads; Depend; Depended; Dependence; Dependencies; Dependency; Dependent; Depending; Depends; Destabilizing; Deviate; Deviated; Deviates; Deviating; Deviation; Deviations; Differ; Differed; Differing; Differs; Doubt; Doubted; Doubtful; Doubts; Exposure; Exposures; Fluctuate; Fluctuated; Fluctuates; Fluctuating; Fluctuation; Fluctuations; Hidden; Hinges; Imprecise; Imprecision; Imprecisions; Improbability; Improbable; Incompleteness; Indefinite; Indefinitely; Indefiniteness; Indeterminable; Indeterminate; Inexact; Inexactness; Instabilities; Instability; Intangible; Intangibles; Likelihood; May; Maybe; Might; Nearly; Nonassessable; Occasionally; Ordinarily; Pending; Perhaps; Possibilities; Possibility; Possible; Possibly; Precaution; Precautionary; Precautions; Predict; Predictability; Predicted; Predicting; Prediction; Predictions; Predictive; Predictor; Predictors; Predicts; Preliminarily; Preliminary; Presumably; Presume; Presumed; Presumes; Presuming; Presumption; Presumptions; Probabilistic; Probabilities; Probability; Probable; Probably; Random; Randomize; Randomized; Randomizes; Randomizing; Randomly; Randomness; Reassess; Reassessed; Reassesses; Reassessing; Reassessment; Reassessments; Recalculate; Recalculated; Recalculates; Recalculating; Recalculation; Recalculations; Reconsider; Reconsidered; Reconsidering; Reconsiders; Reexamination; Reexamine; Reexamining; Reinterpret; Reinterpretation; Reinterpretations; Reinterpreted; Reinterpreting; Reinterprets; Revise; Revised; Risk; Risked; Riskier; Riskiest; Riskiness; Risking; Risks; Risky; Roughly; Rumors; Seems; Seldom; Seldomly; Sometime; Sometimes; Somewhat; Somewhere; Speculate; Speculated; Speculates; Speculating; Speculation; Speculations; Speculative; Speculatively; Sporadic; Sporadically; Sudden; Suddenly; Suggest; Suggested; Suggesting; Suggests; Susceptibility; Tending; Tentative; Tentatively; Turbulence; Uncertain; Uncertainly; Uncertainties; Uncertainty; Unclear; Unconfirmed; Undecided; Undefined; Undesignated; Undetectable; Undeterminable; Undetermined; Undocumented; Unexpected; Unexpectedly; Unfamiliar; Unfamiliarity; Unforecasted; Unforseen; Unguaranteed; Unhedged; Unidentifiable; Unidentified; Unknown; Unknowns; Unobservable; Unplanned; Unpredictability; Unpredictable; Unpredictably; Unpredicted; Unproved; Unproven; Unquantifiable; Unquantified; Unreconciled; Unseasonable; Unseasonably; Unsettled; Unspecific; Unspecified; Untested; Unusual; Unusually; Unwritten; Vagaries; Vague; Vaguely; Vagueness; Vaguenesses; Vaguer; Vaguest; Variability; Variable; Variables; Variably; Variance; Variances; Variant; Variants; Variation; Variations; Varied; Varies; Vary; Varying; Volatile; Volatilities; Volatility

Appendix D: Variable definitions

The table below provides the definitions of the variables used in the paper:

Variable	Definition (Data Source)
Media variables	
EA media	Number of earnings-related news articles published by Dow Jones (RPNA)
News lag	Difference in minutes between the time of an earnings announcement and the time of publication of a news article (RPNA/IBES)
Article length	Word count of the news article (Factiva)
Hard-soft mix	The count of numbers scaled by total amount of words in the text of the news article (Factiva)
Uncertainty ratio	Number of uncertainty-related words (dictionary used in Appendix C) as a percentage of the total number of words in the text of the news article (Factiva)
Post-event media	Number of full articles about a firm during the days [+1,+30] published by Dow Jones (RPNA)
Flash News	Number of earnings-related flash articles published by Dow Jones (RPNA)
Explanatory variables	
Crypto Event	Day which is either in the top or bottom decile of Bitcoin prices during after-trading hours returns during my sample period (cryptodownload.com)
BTC-USD Return	Absolute value of Bitcoin after-trading hours returns (cryptodownload.com)
Pseudo Crypto Event	Day which falls three days before the Crypto Event
Litecoin Event	Day which is either in the top or bottom decile of Litecoin prices during after-trading hours returns during my sample period (cryptodownload.com)
Controls	
Size	Log(1+*Market value of equity*). *Market value of equity* is shares outstanding (shrout) times stock price (prc) at the end of the corresponding quarter, in billions of dollars (CRSP)
BTM	Book value of the equity scaled by the Market Value of Equity (COMPUSTAT/ CRSP)
ROA	Income before extraordinary items as a percentage of the assets at the end of the corresponding quarter (COMPUSTAT)
Leverage	Sum of short-term debt and long-term debt scaled by the assets at the end of the corresponding quarter (COMPUSTAT)
Institutional Ownership	Number of shares owned by institutions, as per 13F filings, scaled by total shares outstanding at the end of the corresponding quarter (Thomson Reuters)
Follow	Number of analysts which provided earnings estimates for the quarter (IBES)
SP500 Ind	An indicator variable equal to one if the firm is a part of the S&P 500 index and zero otherwise (CRSP)
Busy EA day	Number of earnings announcements by other firms on the day of earnings announcement by the focal firm (COMPUSTAT)
Last 6M Ret	CRSP return for the six months ending on the corresponding quarter end (CRSP)
Replag	The number of days between the fiscal quarter end date and the date of the earnings announcement (COMPUSTAT)
Market consequences variables	
CAR[0,1]	Industry- and size-adjusted returns (in percentage) for the two days including the earnings announcement day (CRSP/ Kenneth French Website)
SUE	Decile ranking of earnings surprise, i.e., the difference between the actual EPS and the median analyst estimate, scaled by the price
Abnormal Trading Volume	The trading volume during the earnings announcement window [0,1] minus the firm's trailing average trading volume over days [-54, -4]. Trading volume is measured as the average daily shares traded, scaled by total shares outstanding.
Retail TV	Retail *Abnormal Trading Volume* during the two days including the earnings announcement day. I identify retail trades using the methodology from Boehmer et. al. (2021). (TAQ)
Institutional TV	Institutional *Abnormal Trading Volume* during the two days including the earnings announcement day. I identify institutional trades using the methodology from Boehmer et. al. (2021). (TAQ)

Figure 1: Crypto Events and Media Coverage of Cryptocurrencies
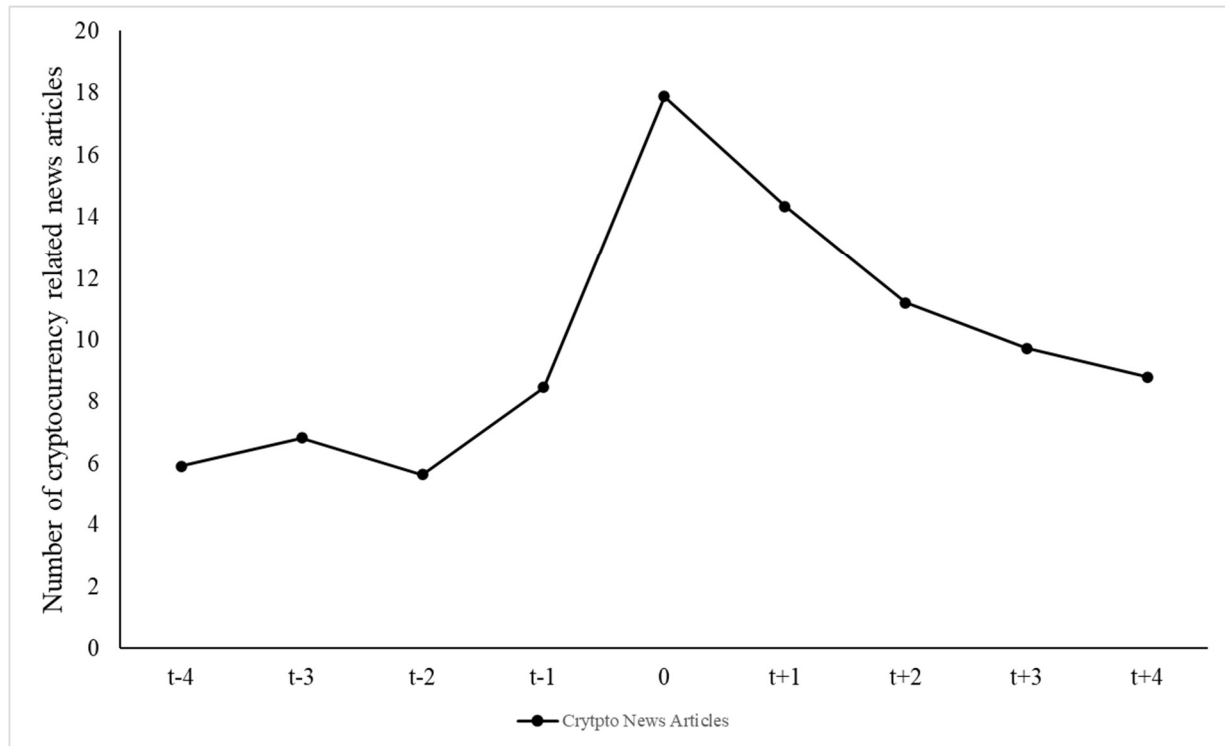
This figure plots the number of crypto-related news articles published by Dow Jones four days before and after the crypto event day. The day *t* represents the day with an extreme price movement in the BTC-USD price. Crypto-related news articles are full articles related to any cryptocurrency, identified using RavenPack News Analytics database's entity mapping file.

Figure 2: Firm-Specific Media Coverage Before and After the Crypto Events
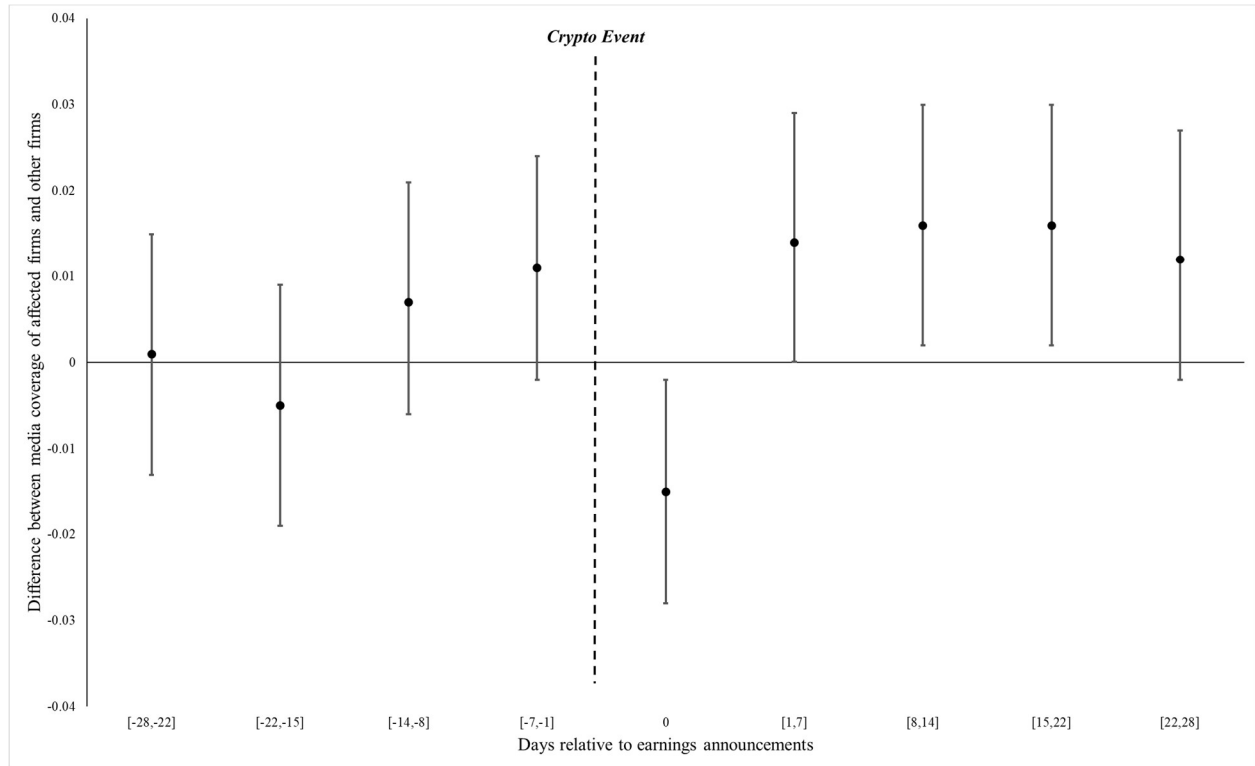
The figure plots the coefficient estimates of *Crypto Event* along with 90% confidence intervals by estimating the model specified in equation (2) using media coverage during different time periods around the earnings announcement. The dashed line represents the occurrence of *Crypto Event*. It presents the differences in earnings news articles about affected firms and other firms on the day of earnings announcement. It also shows the differences in firm-specific media coverage four weeks before and after the earnings announcement. Affected firms are the firms with earnings announcements on or two days after the crypto events. Crypto events are defined in detail in Appendix D.

Table 1: Effect of Crypto Events on Media Coverage of Cryptocurrencies

Dependent Variable =	(1)	(2)
	Crypto Media	
Crypto Event	**0.412***	**0.411***
	(4.40)	**(4.51)**
FOMC Ann		-0.085
		(-0.77)
CMDT Index return		-0.021
		(-1.54)
Busy EA day		-0.029
		(-0.97)
Forex return		-0.016
		(-0.48)
Year FE	Yes	Yes
Observations	1,512	1,512
Adjusted R-squared	0.248	0.248

The table above presents the time-series regression of the effect of crypto events on the number of crypto-related news articles. *Crypto Media* is the number of news articles related to cryptocurrencies published by Dow Jones. *Crypto Event* is an indicator variable equal to one if the day experienced an extreme price movement in BTC-USD. *FOMC Ann* is an indicator variable equal to one if there was an FOMC announcement on the day. *CMDT Index return* represents daily returns in Dow Jones Commodity Index, and *Busy EA day* represents the number of earnings announcements of listed firms on a day. *Forex return* represents foreign exchange returns on a day. All models include year-fixed effects. Parentheses show the T-statistics, which are estimated using standard errors clustered at the quarter level. ***, **, and * denote two-tailed statistical significance at 1%, 5%, and 10%, respectively.

Table 2: Descriptive Statistics

	(1)	(2)	(3)	(4)	(5)	(6)
	N	*Mean*	*SD*	*P25*	*P50*	*P75*
Media variables						
EA media	47,175	0.14	0.40	0.00	0.00	0.00
Post-event media	47,175	1.08	2.92	0.00	0.00	0.00
News lag	5,796	57.76	81.23	20.00	48.75	87.00
Article length	4,308	501.07	421.57	225.00	435.00	643.00
Hard-soft mix	4,308	8.48	2.95	6.21	8.10	10.47
Uncertainty ratio	4,308	0.50	0.43	0.17	0.44	0.73
Flash News	47,175	1.94	1.63	1.00	2.00	2.00
Explanatory variable						
Crypto Event	47,175	0.50	0.50	0.00	0.00	1.00
Controls						
Market Value of Equity	47,175	8.92	26.09	0.37	1.35	4.81
BTM	47,175	0.43	0.47	0.16	0.33	0.59
ROA	47,175	-1.39	6.68	-1.74	0.58	1.85
Leverage	47,175	0.28	0.23	0.08	0.25	0.41
Institutional Ownership	47,175	0.68	0.30	0.51	0.75	0.90
Follow	47,175	8.77	7.01	3.00	7.00	12.00
Return Volatility	47,175	0.03	0.02	0.02	0.02	0.03
SP500 Ind	47,175	0.15	0.35	0.00	0.00	0.00
Busy EA day	47,175	302.45	182.89	150.00	277.00	451.00
Last 6M Ret	47,175	0.28	0.45	0.08	0.19	0.35
Replag	47,175	36.92	16.17	29.00	35.00	40.00
Market consequence variables						
CAR[0,1]	47,175	0.09	9.06	-4.67	-0.01	4.88
Retail TV	47,175	2.66	4.18	0.50	1.41	3.12
Institutional TV	47,175	1.94	2.24	0.51	1.37	2.64

The table above presents the descriptive statistics for the variables used in the study. Column 1 presents the number of valid observations for each variable from 2015 to 2021. Columns 2 and 3 show the mean and standard deviation of each variable. Columns 4 to 6 show the 25th, 50th, and 75th percentile of each variable. All variables are defined in Appendix D in detail.

Table 3: Effect of Crypto Events on Media Coverage of Earnings Announcements

	(1)	(2)
Dependent variable =	*EA Media*	
Crypto Event	**-0.016****	**-0.015****
	(-1.99)	**(-1.97)**
Abs SUE		0.002
		(1.32)
NumEA		-0.044***
		(-9.71)
Size		0.088**
		(2.04)
BTM		-0.017**
		(-2.30)
ROA		0.004
		(0.92)
Leverage		-0.017*
		(-1.66)
Institutional Ownership		-0.058***
		(-5.48)
Follow		0.048*
		(1.92)
SP500 Ind		-0.094*
		(-1.86)
Last 6M Ret		-0.008
		(-1.57)
Year FE	Yes	Yes
Firm FE	Yes	Yes
Observations	47,175	47,175
Adjusted R-squared	0.321	0.324

The table above presents the effect of crypto events on the media coverage of earnings announcements. *EA Media* is the number of full articles related to earnings published by Dow Jones on the day of an earnings announcement. *Crypto Event* is an indicator variable equal to one if the earnings announcement falls within three days of a crypto event and zero otherwise. All other variables are defined in Appendix D in detail. All models include firm and year fixed effects. Parentheses show the T-statistics, which are estimated using standard errors clustered at the firm level. ***, **, and * denote two-tailed statistical significance at 1%, 5%, and 10%, respectively.

Table 4: Crypto Events and Post-Event Media Coverage

	(1)	(2)
Dependent Variable =	Post-event media	
Crypto Event	**0.016****	**0.017****
	(2.02)	**(2.06)**
Abs SUE		0.003*
		(1.67)
Busy EA day		-0.061***
		(-11.83)
Size		-0.199***
		(-4.55)
BTM		-0.030***
		(-4.85)
ROA		0.013**
		(2.28)
Leverage		-0.036***
		(-2.60)
Institutional Ownership		0.014
		(1.34)
Follow		0.002
		(0.08)
SP500 Ind		0.023
		(0.55)
Last 6M Ret		0.032***
		(3.65)
Year FE	Yes	Yes
Firm FE	Yes	Yes
Observations	47,175	47,175
Adjusted R-squared	0.311	0.317

The table above presents the effect of crypto events on the media coverage after the event. *Post-event Media* is the number of full earnings announcement articles published by Dow Jones about equity market firms during the days [+1,+30]. *Crypto Event* is an indicator variable equal to one if the earnings announcement falls within three days of the crypto event and zero otherwise. All other variables are defined in Appendix D in detail. All models include firm and year fixed effects. Parentheses show the T-statistics, which are estimated using standard errors clustered at the firm level. ***, **, and * denote two-tailed statistical significance at 1%, 5%, and 10% respectively.

Table 5: Effect of Crypto Events on the Timing of Earnings News Articles

	(1)	(2)
Dependent Variable =	*News lag*	
Crypto Event	**0.099***	**0.095***
	(3.68)	**(3.49)**
Abs SUE		0.012*
		(1.71)
Busy EA day		-0.115***
		(-5.33)
Size		-0.019
		(-0.50)
BTM		-0.029
		(-0.82)
ROA		0.061
		(1.37)
Leverage		-0.024
		(-0.69)
Institutional Ownership		0.010
		(0.48)
Follow		0.056
		(1.26)
SP500 Ind		-0.085
		(-1.41)
Last 6M Ret		0.015
		(0.39)
Year FE	Yes	Yes
Firm FE	Yes	Yes
Observations	5,796	5,796
Adjusted R-squared	0.116	0.122

The table above presents the effect of crypto events on the news lag in reporting an earnings announcement. *News lag* is the difference in minutes between the time of the earnings announcement by the firm and the time a news article is published. *Crypto Event* is an indicator variable equal to one if the earnings announcement falls within three days of a crypto event and zero otherwise. All other variables are defined in Appendix D in detail. All models include firm and year fixed effects. Parentheses show the T-statistics, which are estimated using standard errors clustered at the firm level. ***, **, and * denote two-tailed statistical significance at 1%, 5%, and 10%, respectively.

Table 6: Effect of Crypto Events on the Content of Earnings News Articles

	(1)	(2)	(3)	(4)	(5)	(6)
Dependent variable =	Article length		Hard-soft mix		Uncertainty ratio	
Crypto Event	**-0.053***	**-0.066****	**0.069****	**0.065****	**0.075****	**0.088****
	(-1.90)	**(-2.40)**	**(2.85)**	**(2.66)**	**(2.54)**	**(2.90)**
Abs SUE		0.008		-0.009		0.005
		(0.88)		(-1.29)		(0.50)
Busy EA day		0.007		-0.015		0.061**
		(0.34)		(-0.78)		(2.22)
Size		0.017		-0.048		-0.020
		(0.77)		(-1.61)		(-0.80)
BTM		-0.067		0.045		0.212***
		(-0.62)		(0.80)		(2.71)
ROA		-0.047		0.004		-0.079
		(-0.95)		(0.09)		(-1.11)
Leverage		-0.128		-0.052		0.135**
		(-1.42)		(-1.18)		(2.35)
Institutional Ownership		0.012		-0.065**		-0.004
		(0.38)		(-2.49)		(-0.14)
Follow		-0.048		-0.039		-0.025
		(-0.81)		(-0.82)		(-0.54)
SP500 Ind		-0.168**		-0.123**		0.100
		(-2.37)		(-2.07)		(1.57)
Last 6M Ret		0.226*		-0.099		-0.073
		(1.90)		(-1.15)		(-0.67)
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	4,308	4,308	4,308	4,308	4,308	4,308
Adjusted R-squared	0.402	0.406	0.446	0.449	0.121	0.128

The table above presents the effect of crypto events on the text of earnings announcement news articles. *Article length* is the number of words in the text of the news articles. *Hard-soft mix* is the ratio of the count of numbers to the number of words in the text of the news article. *Crypto Event* is an indicator variable equal to one if the earnings announcement falls within three days of a crypto event and zero otherwise. All other variables are defined in Appendix D in detail. All models include firm and year fixed effects. Parentheses show the T-statistics, which are estimated using standard errors clustered at the firm level. ***, **, and * denote two-tailed statistical significance at 1%, 5%, and 10%, respectively.

Table 7: Crypto Events and Flash News Coverage of Earnings Announcements

	(1)	(2)	(3)	(4)
Dependent variable =	Flash News		Post-event Flash News	
Crypto Event	**-0.004**	**-0.008**	**-0.001**	**-0.001**
	(-0.68)	**(-1.22)**	**(-1.38)**	**(-1.13)**
Abs SUE		-0.001		-0.000
		(-0.77)		(-1.21)
Busy EA day		-0.017***		-0.002***
		(-3.83)		(-3.46)
Size		-0.013		-0.004
		(-0.45)		(-1.19)
BTM		-0.006		0.001
		(-0.74)		(1.41)
ROA		-0.011*		0.001
		(-1.79)		(1.21)
Leverage		-0.020*		0.003***
		(-1.83)		(2.74)
Institutional Ownership		0.034***		-0.002
		(3.65)		(-1.39)
Follow		0.049***		-0.001
		(2.71)		(-0.56)
SP500 Ind		-0.153***		0.014***
		(-4.54)		(3.43)
Last 6M Ret		-0.021***		0.000
		(-2.73)		(0.30)
Year FE	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes
Observations	47,175	47,175	47,175	47,175
Adjusted R-squared	0.573	0.574	0.104	0.105

The table above presents the effect of crypto events on the flash articles about earnings announcements. *Flash News* is the number of flash articles related to earnings released by Dow Jones on the day of the earnings announcement. *Post-event Flash News* is the number of flash articles about a firm released by Dow Jones after the crypto event over a period of 30 days. *Crypto Event* is an indicator variable equal to one if the earnings announcement falls within three days of a crypto event and zero otherwise. All other variables are defined in Appendix D in detail. All models include firm and year fixed effects. Parentheses show the T-statistics, which are estimated using standard errors clustered at the firm level. ***, **, and * denote two-tailed statistical significance at 1%, 5%, and 10%, respectively.

Table 8: Falsification Tests: Altcoins and Pseudo Crypto Events

	(1)	(2)	(3)
Dependent variable =	*EA Media*	*Post-event Media*	*News lag*
Panel A: Altcoin			
Litecoin Event	**0.014**	**0.005**	**0.082**
	(0.76)	**(0.34)**	**(1.55)**
Controls	Yes	Yes	Yes
Year FE	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes
Observations	22,882	22,882	2,555
Adjusted R-squared	0.309	0.320	0.128
Panel B: Pseudo Events			
Pseudo Crypto Event	**0.004**	**-0.002**	**0.044**
	(0.53)	**(-0.30)**	**(1.53)**
Controls	Yes	Yes	Yes
Year FE	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes
Observations	47,175	47,175	5,796
Adjusted R-squared	0.324	0.317	0.120

The table above presents the falsification tests. Panel A presents the effect of events related to LTC-USD on the media coverage of earnings announcements. *Litecoin Event* is an indicator variable equal to one if the earnings announcement falls within three days of extreme price movement in LTC-USD and zero otherwise. Panel B presents the effect of pseudo-crypto events on the media coverage of earnings announcements. *Pseudo Crypto Event* is defined as a day which is three days before an actual crypto event, as defined in Table 3. All other variables are defined in Appendix D in detail. Dependent variables in Columns 1, 2, and 3 respectively, are the number of earnings-related full articles (*EA Media*), number of full articles after the crypto event (*Post-event media*), and delay in reporting the earnings announcement (*News lag*). All models include the controls specified in Equation (1), firm fixed effects, and year fixed effects. Parentheses show the T-statistics, which are estimated using standard errors clustered at the firm level. ***, **, and * denote two-tailed statistical significance at 1%, 5%, and 10%, respectively.

Table 9: Investors' Reactions to Earnings Announcements on Cryptocurrency Events
Panel A: Pricing of Earnings

	(1)	(2)	(3)	(4)
Dependent Variable =		CAR[0,1]		
SUE x Crypto Event x Crypto Media			**-0.001****	**-0.001***
			(-2.13)	**(-1.65)**
SUE	0.011***	0.013***	0.011***	0.013***
	(41.95)	(14.09)	(34.76)	(13.71)
Crypto Event	0.004**	0.002	-0.001	-0.002
	(2.17)	(1.35)	(-0.23)	(-0.67)
Crypto Media			-0.001	-0.002
			(-0.55)	(-1.02)
SUE x Crypto Event	-0.001***	-0.000	-0.000	0.000
	(-3.09)	(-1.49)	(-0.28)	(0.23)
SUE x Crypto Media			0.000	0.000
			(0.71)	(1.01)
Crypto Event x Crypto Media			0.007**	0.007**
			(2.03)	(2.14)
SUE x Controls	No	Yes	No	Yes
Controls	No	Yes	No	Yes
Year-Qtr FE	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes
Observations	47,175	47,175	47,175	47,175
Adjusted R-squared	0.118	0.151	0.118	0.151

Table 9 (*continued*)

Panel B: Abnormal Trading Volume around Earnings Announcements on Crypto Event Days

Dependent Variable =	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
		Retail TV				Institutional TV		
Crypto Event x Crypto Media			**-0.063*****	**-0.036****			**-0.046****	**-0.022**
			(-3.50)	**(-2.02)**			**(-2.50)**	**(-1.22)**
Crypto Event	-0.024**	-0.017*	0.007	-0.002	-0.024**	-0.019**	-0.001	-0.010
	(-2.55)	(-1.88)	(0.51)	(-0.16)	(-2.48)	(-2.03)	(-0.09)	(-0.74)
Crypto Media			0.031**	0.036***			0.021	0.025*
			(2.27)	(2.65)			(1.54)	(1.81)
Abs SUE		0.029***		0.029***		0.025***		0.025***
		(14.21)		(14.22)		(11.73)		(11.73)
Controls	No	Yes	No	Yes	No	Yes	No	Yes
Year-Qtr FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	47,175	47,175	47,175	47,175	47,175	47,175	47,175	47,175
Adjusted R-squared	0.292	0.309	0.292	0.309	0.262	0.276	0.262	0.276

This table presents the market consequences of delayed media coverage of earnings news. Panel A presents the results for the earnings response coefficient. *SUE* is the earnings surprise, which is defined as the difference between the actual EPS and median analyst estimate scaled by the market price. *Crypto Event* is an indicator variable equal to one if the earnings announcement falls within three days of a crypto event and zero otherwise. *Crypto Media* is an indicator variable equal to one if the media published an above-median number of crypto-related news articles on the earnings announcement day. Models in Columns 2 and 4 include the controls specified in Section 3.2 and the interaction of *SUE* with each control variable. All models include firm and year-quarter fixed effects. Panel B presents the results for abnormal trading volume. *Abnormal trading volume* is computed as the trading volume during the earnings announcement window minus the firm's trailing average trading volume over days [-54, -4]. Trading volume is measured as the average daily shares traded, scaled by total shares outstanding. *Retail TV* is retail abnormal trading volume and *Institutional TV* is institutional abnormal trading volume during the earnings announcements window. I classify the trades from the TAQ database as retail or institutional using the methodology specified in Boehmer et. al. (2021). All models include firm fixed effects and year-quarter fixed effects. Parentheses show the T-statistics, which are estimated using standard errors clustered at the firm level. ***, **, and * denote two-tailed statistical significance at 1%, 5%, and 10%, respectively.

Table 10: Robustness Tests

	(1)	(2)	(3)
Dependent Variable =	*EA Media*	*Post-event Media*	*News lag*
Panel A: Magnitude of BTC-USD return			
Abs BTC-USD ret	-0.007**	0.010***	0.057***
	(-2.08)	(2.78)	(3.65)
Controls	Yes	Yes	Yes
Year FE	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes
Observations	47,175	47,175	5,796
Adjusted R-squared	0.324	0.317	0.123
Panel B: Including other media outlets			
Crypto Event	-0.086***	0.064***	0.068***
	(-11.30)	(7.30)	(2.97)
Controls	Yes	Yes	Yes
Year FE	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes
Observations	46,833	46,833	10,190
Adjusted R-squared	0.335	0.325	0.119

The table above presents the robustness tests to validate the measures used in the study. Panel A estimates the model specified in Equation (1) using a continuous independent variable instead of an indicator variable. *Abs BTC-USD ret* is absolute value of overnight Bitcoin return. Panel B estimates the model specified in Equation (1) after including traditional sources of financial media other than Dow Jones. Dependent variables in Columns 1, 2, and 3 respectively, are the number of earnings-related full articles (*EA Media*), number of full articles after the crypto event (*Post-event media*), and delay in reporting the earnings announcement (*News lag*). All models include the controls specified in Section 3.2 and firm and year fixed effects. All controls are defined in Appendix D in detail. All models include firm and year fixed effects. Parentheses show the T-statistics, which are estimated using standard errors clustered at the firm level. ***, **, and * denote two-tailed statistical significance at 1%, 5%, and 10%, respectively.