

Bullish Sentiment on Price Upward Trend: A Netnographic Study of Cryptocurrency Communities

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ABSTRACT

Keywords:

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Community,
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Cryptocurrency as a digital decentralized currency has attracted many investors and obtained a lot of support from communities. Previous studies have concluded that there were indeed connections between community sentiment and cryptocurrency price movement. However, most of the research was conducted using sophisticated methods that are difficult to utilize by cryptocurrency investors. This research objective was to find practical ways to identify bullish sentiment during price upward trend especially during the Covid-19 omicron variant outbreak that started in the last quarter of 2021. Netnography method was used as a qualitative approach for this research to get insight from cryptocurrency communities. LunarCrush web application as a more user-friendly tool, was being used to analyze bullish sentiment and price data. During December 2021 until January 2022, 303 price upward trend data from 264 coins had been collected and analyzed. The result of this research revealed 5 categories of bullish sentiment messages from top influencers which are community booster, official information, project updates, achievement, and trading plan. However, it can be concluded that price movements were not always related to bullish sentiment. Thus, bullish sentiment should not be used as the sole factor to identify price upward trends. Furthermore, investors should join the cryptocurrency community to understand the characteristics of bullish sentiment and not just rely on data from monitoring tools. Interestingly, there were no Covid-19 related topics on bullish sentiment collected. Hence, it did not necessarily need to publish good news related to Covid-19 handling to create bullish sentiment among the investors.

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INTRODUCTION

Cryptocurrency is a digital currency that developed on a decentralized ledger technology called blockchains (Koroma et al., 2022, p. 1). Despite the decentralization and transparency of blockchains, cryptocurrency is considered as a very risky type of asset (Ramos, Pianese, Leach, & Oliveras, 2021, p. 1). Cryptocurrency is particularly used as a speculative investment with large returns because of its high price volatility that often leads to price bubbles (Grobys & Junttila, 2021, p. 2). The news and social media play important roles in spreading the enthusiasm of price rises that attracts more buyers to invest in a cryptocurrency (Phillips & Gorse, 2017, p. 1). Moreover, social media posts from popular public figure can affect cryptocurrency price movement, such as phenomenon tweets from Elon Musk (around May to June 2021) that caused dramatic

volatility in major cryptocurrencies prices (Hassan, Hudaefi, & Caraka, 2021, p. 2). Also, investor sentiment posted in social media is considered as one of significant influences in Bitcoin price movement (Phillips & Gorse, 2018, p. 1). However, Covid-19 pandemic has caused several cryptocurrency crashes and extreme volatility in price movements (Gurrib, Nourani, & Bhaskaran, 2022, p. 3). At the beginning of the pandemic in the first quarter of 2020, the cryptocurrency market suffered a major downfall on March 8, 2020 (Umar, Jareño, & González, 2021, p. 1). This caused a loss of \$21 billion in cryptocurrency market capitalization just in 24 hours and this situation became worse when World Health Organization (WHO) declared the Covid-19 outbreak as worldwide pandemic on March 11, 2020, which resulted in a loss of almost half of cryptocurrency market capitalization on March 13, 2020 (p. 1). It was also revealed that Covid-19 related news drove market negative sentiment and caused volatility in the market (p. 13).

There were previous studies that have discussed about the relation between social media sentiment and cryptocurrency price movements. Poongodi, Nguyen, Hamdi, & Cengiz (2021, p. 11) used Latent Dirichlet designation (LDA) for their experiment and have concluded that social media data such as investors sentiment and other related words can be used to predict global cryptocurrency price trend. Another study conducted by Kraaijeveld and De Smedt (2020, p. 32) using lexicon-based sentiment analysis discovered that Twitter sentiment can be used as one of indicators to predict several major cryptocurrency price movements, particularly using bullishness ratio as a strong predictive factor. Moreover, Chalkiadakis, Zaremba, Peters, and Chantler (2022, p. 13) stated that the polarity of sentiment in social media news feed has causal relationships with cryptocurrency price movements. The sentiment polarity ranged between positive and negative sentiment that reflected in the words collected from social media such as the word "bullish" for positive sentiment and "bearish" for negative sentiment (p. 13). Furthermore, Hassan et al. (2021, p. 12) captured words in Twitter posts related to cryptocurrency using automated web-scraping and classified it into positive and negative sentiments. The examples of words found in positive sentiment were "awesome", "free", "luck", "nice", "bullish", "supporting" and other enthusiastic words (p. 12). On the other hand, some words collected from negative sentiment were "scam", "loss", "stress", "stolen", "risk", "resistance", and "miss" (p. 12). Ballinari and Behrendt (2021, p. 182) also discussed how positive sentiment in social media can influence traders to feel optimistic or bullish about an investment. The term bullish itself is often used as a financial term that describes optimistic feelings of investors (p. 174). Thus, positive sentiment posted on social media could initiate more investors to buy than to sell, especially for short - term trading behavior of retail investors (p. 132).

Despite the findings discovered, previous studies have shown that social media sentiment affects cryptocurrency price movements and at certain points can predict the price trend. Those studies used sophisticated statistical machine learning approaches and required advanced analytical skills that are hard to utilize by common traders and investors. This research objective was to experiment with more practical tools and approaches to collect social media posts and classify the words to identify bullish sentiment, especially during the uptrend cryptocurrency price movements. Furthermore, the latest notable major cryptocurrency crash during Covid-19 pandemic happened on the fourth quarter of 2021 and the emergence of Covid Omicron variant in November 2021 was believed to be one of the causes of the market downfall (Holland, 2021, p. 1). Thus, this research tried to identify bullish sentiment characteristics that occurred during the emergence of Covid-19 omicron variant. In addition, this research tried to recognize the dominant actors or also known as social media influencers and the words they use to create bullish sentiment. The result could also benefit general traders and investors to get faster signals and confirmation about the price trend.

METHOD

Based on the objective of this study, a mix method was used to conduct the research. Netnography was used as the qualitative research method. Netnography is a method to observe and interpret interaction in virtual

communities (Ahuja & Shakeel, 2017, p. 19). With the use of netnography, the researcher has options to actively participate and engage in the community or only passively join the community to observe the interaction within the members (Kozinets, 2018, p. 389). Instead of manually capturing and saving data, the netnography method opens the possibility to save a lot of time by using a variety of tools to collect and analyze community data (p. 390), such as word groups and sentiment analysis (Ahuja & Shakeel, 2017, p. 19). For the quantitative research method, this research used the LunarCrush web application as a social intelligence tool for cryptocurrency to capture and analyze data related to this research.

The following netnography steps were conducted for this research:

1. Joining several cryptocurrency communities in Twitter and Telegram as passive observant to understand the community interaction and behavior.
2. Capturing charts and data from LunarCrush web application, which were the price changes and bullish sentiment changing within a 24-hour period for cryptocurrency coins with uptrend price movements.
3. Exploring social media influencers from LunarCrush web application and collecting their top social media posts during the uptrend price movements period.
4. Analyzing data to understand the characteristics of bullish sentiment during the uptrend price movements, such as the type of words being used, and how the sentiment relates with price movements.

This netnography research was conducted from August 2021 with passive observation in several cryptocurrency communities in Twitter and Telegram and continued with data capturing and analyzing with LunarCrush web application especially from December 2021 to January 2022 during the Covid-19 omicron variant emergence.

FINDINGS AND DISCUSSION

During the research period, there were 303 bullish sentiment and price chart data from 264 different coins that were captured from LunarCrush. The data collection was based on daily observation on the coins that were listed as Top 100 in the market with the highest AltRank® in LunarCrush. The indicators that determine AltRank® are Market Volume Rank, Social Volume Rank, Percent Change versus Bitcoin Rank, and Social Score Rank (LunarCrush, 2022). The coins that were selected in this research were the ones that had interesting price movements and bullish sentiment chart data according to the researcher's qualitative observation. The data that was collected was categorized based on the bullish sentiment changes and price changes within a 24-hour period. The coins were then sorted by bullish sentiment changes and compared it with the price changes.

There were 12 coins that obtained bullish sentiment changes more than 500% within a 24-hour period as shown in Table 1. The bullish sentiment rises also followed by relatively high price changes which ranged from 16.2% to 83.3%. Hamrick et al. (2021, p. 2) found that the median percentage of price increases in a cryptocurrency pump and dump scenario was 2.4 - 2.6 %. Thus, those price changes shown in Table 1 could be categorized as high price increases. Next, the coins were filtered by price changes within a 24-hour period. According to Gurrib, Nourani, and Bhaskaran (2022, p. 24) in their research on Fibonacci retracement as one of technical analysis tools in cryptocurrency trading, price breakout or breakdown tended to happen when 61.8% and 50% retracement levels were broken. Therefore, the coins with price changes more than 50% were selected and sorted. In result, there were 8 coins with price increases more than 50% as shown on Table 2.

The next coin's categorization was based on the bullish sentiment drops during the last 24 hours. As listed on Table 3, the top 10 coins with the highest bullish sentiment drops ranged from -69.8% to -38% in the drop value. Previous studies found that bullish sentiment could make investors feel optimistic to buy than to sell

(Ballinari & Behrendt, 2021) and bullish sentiment become a strong predictive factor for price movements (Kraaijeveld & De Smedt, 2020). In contrast to those findings, the bullish sentiment drops did not cause price decreases as shown in Table 3. Moreover, not every high price increase happened at the same time with a bullish sentiment rise, such as QUICK that had a bullish sentiment drop but at the same time also obtained a 66.8% price increase within a 24-hour period. In fact, there were 62 coins with bullish sentiment drops found in this research, and all these coins obtained price increases which ranged from 0.4% to 66.8%. From these findings, it can be concluded that price rises were not always related with bullish sentiment rises.

Table 1. Coins with bullish sentiment changes more than 500% within 24-hour period

No	Coins Symbols	Bullish Sentiment % changes in 24 hours	Price % changes in 24 hours
1	ACH	2225,3	26,4
2	SUTER	1925	41,6
3	BONE	1837,4	25,8
4	FARM	1208,2	37,4
5	FOR	1085,7	16,2
6	SXP	1066,9	24,5
7	MLN	795,9	34,7
8	API3	767,8	37,6
9	SPARTA	633,3	81,6
10	WOO	601,3	31,6
11	POND	546,2	27,9
12	FUSE	511	83,3

Table 2. Coins with price changes more than 50% within 24-hour period

No	Coins Symbols	Price % changes in 24 hours	Bullish Sentiment % changes in 24 hours
1	NCT	143,2	275,1
2	FUSE	83,3	511
3	SPARTA	81,6	633,3
4	SDT	67,1	78,3
5	MCC	66,8	42,9
6	QUICK	66,8	-9,3
7	FOR	55	500
8	ALEPH	52,8	23,1

Table 3. Coins with minus bullish sentiment changes within 24-hour period

No	Coins Symbols	Bullish Sentiment % changes in 24 hours	Price % changes in 24 hours
1	ONE	-69,8	15,3
2	AVAX	-69	3,9
3	KNC	-57,6	7,2
4	SYS	-55,9	2
5	IOTX	-55,2	8
6	MANA	-54,7	0,4
7	TIME	-47	6,9
8	FLOW	-38,9	20,8
9	FLOW	-38,5	14,6
10	ANY	-38	10,2

After comparing the bullish sentiment and price changes within a 24-hour period, this research also collected example tweets during price upward trend and analyzed the words related to bullish sentiment. LunarCrush web application was used to retrieve content with the most engagement from the most influential Twitter

accounts for each coin that obtained bullish sentiment increase more than 500% and price changes more than 50% within a 24-hour period, as listed on Table 1 and Table 2. Thus, the tweets during the price upward trend could be collected and analyzed. During the observation in the cryptocurrency community, several types of messages related with bullish sentiment were found in the social media conversation.

Community Booster

The first message type was community booster, which contains words and phrases that give encouragement and support to the community. Cryptocurrency is a speculative asset with high price volatility that could lead to price bubbles (Grobys & Junttila, 2021, p. 2), meaning the price could increase very high even more than 100% and then drop again very fast just in a few hours (Meng & Fu, 2020, as cited in Delfabbro, King, & Williams, 2021, p. 202). Based on the observation in the cryptocurrency communities, investors would feel discouraged and start questioning the future of the investment, especially when the price dropping very low and there were still no signs of price increase in the near future. Moreover, there is a lot of negative sentiment and FUD (Fear, Uncertainty, and Doubt) in social media that could make investors doubt the future of their investment. Especially in this Covid-19 pandemic situation a lot of Covid-19 related news could trigger investors' negative sentiment (Umar et al., 2021, p. 13). In a bearish trend period, there will be a lot of influencers in social media such as Twitter, who give encouragement messages to coin holders. Influencers play important roles in the community, as stated by Tjahyana (2021, p. 32) in their netnography research on a cryptocurrency community, influencers often give supports and confirmation messages to the community, so they keep on holding their investment especially in the price downtrend period.

Several community booster types of messages were found on tweets by influencers of each coin, such as this tweet from Sambuca Ray (2021) that was published around the same time when ACH obtained 2225,3% bullish sentiment changes and 26,4 price changes within 24-hour period as shown in Table 1.

Another Great Morning \$ACH Family! Have an excellent day.

Good Evening to the other half of the Family. 😊 How lucky 🌸 we are, 😊👍💎 \$ACHFAM

#alchemypay @AlchemyPay #ACH

(Sambuca Ray [@SambucaRay], 2021)

In his tweet, Sambuca Ray (2021) said his greetings to all ACH holders from many parts of the world. Also, he said that ACH family is very lucky with many cheerful icons added as part of the bullish sentiment that he tried to deliver with his tweet.

Official Information

The next message type discovered in the community was official information. This type of message was created by cryptocurrency developers and published in their social media official accounts. Developers often use their cryptocurrency social media official accounts to deliver news, programs, activities, giveaways, and other content to engage with the community. Several developers also host AMA (Ask Me Anything) sessions on Telegram and promote it on Twitter. When the investors consider a cryptocurrency for their investment, they will look for information about the cryptocurrency as much as they can. One of the first resources to look at is the official social media accounts of the cryptocurrency. Also, in this Covid-19 pandemic situation where there are limitations for offline meetings, a lot of investors rely on the information and updates from social media. However, there is a lot of fake news and hoax in the social media that could make investors confused and doubt the credibility of a cryptocurrency. Particularly, when a crisis happens such as cryptocurrency bans

in several countries, lawsuits, cryptocurrency hacks, and Covid-19 pandemic, investors will look for official information about the crisis updates in a cryptocurrency's official accounts. Thus, it is important to give trusted and reliable information to increase investors' confidence in the future of a cryptocurrency.

An example of official information is a tweet from Swipe (2021) as an official account of SXP before its rebranding to Solar.

Swipe is thrilled to announce the rebrand of #Swipechain to Solar. Follow @SolarNetwork for more details. <https://blog.swipe.io/meet-solar-an-energy-efficient-delegated-proof-of-stake-blockchain-rebranded-for-sxp-d8cc714f21c7>
(Swipe [@Swipeio], 2021)

This tweet from Swipe (2021) was an official announcement about their rebranding from Swipe to Solar as the blockchain network of SXP coin. Investors need to be confirmed about this rebranding so there will not be confusion and doubt about Solar as the new brand of SXP blockchain network. The tweet was also published around the same time as the SXP bullish period, as shown on Table 1, SXP obtained 1066,9% bullish sentiment changes and 24,5% price rise within a 24-hour period during the official rebranding announcement.

Another example of official information type of messages was a tweet delivered by Binance (2022) as one of the top cryptocurrency exchanges.

#Binance will list @API3DAO #API3
(Binance [@binance], 2022)

In their official Twitter account, Binance (2022) announced that API3 will get listed by Binance. Binance is one of the top cryptocurrency exchanges and not all cryptocurrencies could get easily listed on Binance. Although @Binance is not an official account or developer of API3, this official information could possibly drive bullish sentiment toward API3. As shown on Table 1, API3 obtained 767,8% bullish sentiment changes and 37,6 price rises within a 24-hour period, around the same time with the Binance listing announcement.

Project Updates

Another important type of messages that was part of bullish sentiment in the community was project updates. It is very important for the developers to keep the content on their social media accounts updated to show the continuous presence of the developers in the project. The common updates being published are the project roadmap and milestones, software or framework updates, rebranding, exchange listings, NFTs marketplace updates, collaborations and many other promising progresses. Those updates are crucial to make investors believe about the developers' seriousness and efforts to accomplish the project goals.

Project updates are usually published by the official account of a cryptocurrency, such as a tweet by Enzyme (2021) as official Twitter account for MLN. This tweet was published during the bullish period of MLN, as shown in Table 1, it obtained 795,9% bullish sentiment changes and 34,7% price changes within a 24-hour period.

We're already thinking about the new 2022 roadmap. What features will it include? What will this mean for users? @yogivanov & @LucaMossini will unveil these details at #E2 hosted by @dystopialabs Jan 24th 2022!

*Sign up: <https://buff.ly/3mAsEJO>
(Enzyme [@enzymefinance], 2021)*

The tweet informed investors about a session with the developers to talk about the new 2022 roadmap. In this tweet they also mentioned the Twitter accounts of the co-founder and head of product of MLN network, so the investors can also follow and interact with them. Furthermore, it could give a sense of transparency by introducing the key persons who play an important role in the project. Another example of project updates was a tweet by ForTube (2021) as official account of FOR, around the same time when FOR obtained 1085,7% bullish sentiment changes and 16,2 price changes within a 24-hour period, as shown in Table 1.

COUNTDOWN


*Only 48 HOURS to go until we reveal a surprise about #FDAO. 😊 Stay tuned for more details!
#DeFi #Lending #DAO
(ForTube [@ForTubeFi], 2021)*

This project updates messages that were delivered in a countdown mode to give a sense of curiosity about the surprise that will be revealed in 48 hours. Moreover, this type of message will give excitement and hope to the community about the future of the investment.

Achievement

Another type of message that is often seen in the cryptocurrency community is the one that shows achievements. Besides project updates, it is also important to spread bullish sentiment by publishing success goals that have been accomplished. Those achievements could be an increase in market cap and trading volumes, all time high prices, exchange listings, project roadmaps accomplishments, large institutions investments, and many more.

Achievements that have been accomplished could be published by the official account of a cryptocurrency or influencers accounts and other regular investors accounts. An example of messages that contained achievements was the one from Fuse (2022) that informed investor about the success of reaching top #500 at CoinGecko because FUSE just passed 100 million in market cap. In fact, as shown in Table 1, the tweet was published around the same time FUSE obtained 511% bullish sentiment changes and 83,3% price changes within a 24-hour period.

*@Fuse_network just passed 100 million #MarketCap putting us at top #500 according to @coingecko !
 Comment below what mcap you want to see Fuse reach this year!
(Fuse, we're hiring! [@Fuse_network], 2022)*

Trading Plan

Noise traders are type of traders who rely heavily on investors sentiment for their trading decisions (De Long et al., 1990, cited in Ballinari & Behrendt, 2021, p. 170) and there were studies that found factual evidence of noise trading activities based on investor sentiment on social media (Renault, 2017, cited in Ballinari & Behrendt, 2021, p. 171). During the community observation period in this research, it was discovered that there were indeed a lot of investors who rely on social media sentiment for their trading decisions. They looked for confirmation on social media whether other investors feel bullish or bearish about a cryptocurrency. Also,

noise traders observed in this research wanted to know what other traders think or plan for their investment in cryptocurrency. Interestingly, even though noise traders prefer to base their investment decision on sentiment, they also checked on technical analysis from experts. Analysis from experts, trading plans shared on social media also consist of casual stories about how some influencers plan their trading or predict the price movements. Moreover, many traders followed those trading plans and shared their trading success based on those trading plans they followed. Thus, trading plans can also be included in the bullish sentiment type of messages on social media.

There were several bullish sentiment tweets that contained trading plan on this research period, such as tweet from THEWIZARD (2022) which stated:

\$WOO Close above \$1.20 And we going higher 👁️🚀
 (THEWIZARD (beware scammers)
 [@CryptoWizardd], 2022)

This tweet tells his prediction about price increase for WOO based on the last closing price. In this tweet he also attached a technical analysis chart that supported his prediction. As shown in his tweet, there were also icons that were used to emphasize the bullish sentiment that he tried to convey. Those icons are the googling eyes 👁️ that told users to be aware of the current bullish situation and the rocket icons 🚀 to describe the upward price trend for WOO. At the same time with this tweet, WOO obtained 601,3% bullish sentiment changes and 31,6% price changes within a 24-hour period, as shown in Table 1.

CONCLUSION

The findings of this research show that price movements were not always related to bullish sentiment changes. The collected data shows that all the coins that obtained bullish sentiment changes more than 500% also gained uptrend price movements. Interestingly, all the coins with negative bullish sentiment changes did not obtain downtrend price movements. Moreover, not all the coins with uptrend price movements also got positive bullish sentiment changes. It can be concluded that bullish sentiment could be a sign of uptrend price movements but not every price increase happened during the bullish sentiment rises.

Despite the emergence of Covid-19 omicron variant, none of the bullish sentiment mentioned any topics or words related to Covid-19 and omicron. Even though Covid-19 pandemic has created several major cryptocurrency crashes, it did not necessarily need to publish good news related to Covid-19 handling to create positivity and confidence among the investors.

Bullish sentiment from influencers found in this research could be categorized into 5 topics, which were community booster, official information, project updates, achievement, and trading plan. These topics could be used to identify bullish sentiment, especially the ones during uptrend price movements. Thus, if any of these topics are found on social media or news then it could be a sign that an uptrend price movement was happening at the same time or was going to take place soon. However, these bullish sentiment topics should not become the only factors used to identify uptrend price movements.

Finally, it can be concluded that social data monitoring tools could be utilized to monitor bullish sentiment during price uptrend movements. Nevertheless, investors should actively join and observe the cryptocurrency community to gain more understanding and insight about investors' bullish sentiment that could be a sign of price upward trend.

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