Analyzing the Impact of Tether's USDT Minting on Bitcoin Price Movements

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Created in 2009, at the onset of the Great Financial Crisis, Bitcoin is the first cryptocurrency ever created, and remains the largest by market capitalization, which at the time of writing is $2T, with a price of over $100,000. Since its modest beginnings, Bitcoin has evolved into a highly respected asset, bridging the world of TradFi and attracting retail and institutional investors, but also companies and even national governments.

In the early days of cryptocurrency markets, due to regulatory hurdles and skepticism from banks and financial institutions, fiat gateways were limited, so Bitcoin was the dominating trading pair on exchanges. But Bitcoin's price volatility made it challenging to trade other altcoins. This problem was addressed in 2014 with the introduction of the first stablecoin, Tether's USDT.

A stablecoin is a cryptocurrency designed to maintain a 1:1 peg with a fiat currency (most commonly the U.S. dollar). Stablecoins gave traders and investors the possibility to trade cryptocurrencies without large fees and lengthy transfer processes. They also allowed for easier profit taking.

With time, USDT became one of the most important cryptocurrencies, with a marketcap of $130B, making it the fourth largest coin in the space. Other stablecoin projects followed, including Circle's USDC, Binance's BUSD and Terraform Labs' ill-fated UST.

Today, many companies are launching their own stablecoins, with Ripple and even PayPal joining in. But despite growing competition, USDT maintains a dominant stablecoin market share of 65% at the time of writing.

Content

Introduction

The Tether USDT Minting Narrative

Tether's USDT is the main trading pair for cryptocurrencies on a wide range of exchanges, including major platforms like Binance, ByBit and OKX. According to The Block, USDT-denominated trading pairs account for 65% of all trading volume, significantly surpassing the US Dollar, which only accounts for 15%.

With such a dominant role, USDT is pivotal to cryptocurrency markets.

Each time Tether mints another 1 billion USDT on-chain, traders and investors often interpret this as a bullish signal. This perception has become a very powerful narrative within the crypto trading community, so much so that Tether's CEO, Paolo Ardoino, frequently posts disclaimers to clarify the purpose of these minting events and manage market expectations.

This analysis seeks to answer this critical question: Does Tether's USDT minting impact the price of Bitcoin? If so, in what manner and to what extent?

By employing an unbiased methodology and rigorously analyzing the data, we'll aim to draw conclusions based on empirical evidence rather than speculation.

Overview of Bitcoin Markets

All financial markets, are subject to manipulation, but this is especially pronounced in the Bitcoin and crypto space compared to traditional finance. This is largely due to the lack of regulation on most cryptocurrency exchanges. Platforms such as Coinglass, The King Fisher, TradingLite, and Material Indicators provide tools and insights into the "whale games" that occur daily, like: order spoofing, stop-loss hunting, and liquidation triggering. These manipulative tactics are pervasive in Bitcoin markets and widely recognized by experienced traders.

Bitcoin markets are heavily influenced by a small group of large players who are active across most trading avenues for BTC. These venues include spot markets, delivery and perpetual futures markets on cryptocurrency exchanges, delivery futures markets on the CME, options markets on Deribit, and, more recently, ETF markets and ETF options.

These dominant players consist of market makers, institutional investors, and large funds, leveraging significant resources and expertise to shape market activity.

Strategic Market Behaviour

Before analyzing the data, it's important to consider the potential impact of Tether minting events on Bitcoin's price. While these events might seem bullish at first glance, they are unlikely to drive an immediate price increase. Some retail traders may use newly minted USDT to make Bitcoin purchases, but the majority of the inventory is acquired by large, informed players.

These traders typically avoid executing large market orders, as this could lead to significant price slippage. Instead, they are more likely to strategically lower market prices to fill their bids at more favorable levels.

Another key point to consider is that USDT is used to trade a wide range of cryptocurrencies, not just Bitcoin. Although Bitcoin often leads the market, the influx of new USDT liquidity is distributed across many assets. This means that any potential bullish impact on Bitcoin is diluted when considering the broader cryptocurrency ecosystem.

The Tether Minting Process

Lastly, it’s important to understand how the Tether minting process works at a high level:

Blockchain Selection: Tron and Ethereum are the two chains Tether uses most often, and this is where we'll get our minting data from.

Minting: Tether mints new USDT tokens by calling a function in its smart contract on the blockchain.

Treasury Storage: After minting, the tokens are transferred to the Tether Treasury wallet, where they are held as inventory.

Distribution: These tokens remain in inventory until they are distributed to crypto exchanges, institutional customers, OTC traders, or other entities.

Fiat Exchange: The final step occurs when USDT is transferred out of the Treasury wallet, at which point it is exchanged for fiat currency deposited by customers.

Data Collection

In the attached Jupyter Notebook, we provide a detailed breakdown of the sources utilized in this analysis, as well as the methods used for collection. For the purposes of this presentation, however, we will give a short summary instead.

Bitcoin price data was retrieved using the Binance API and consists of daily candlestick data along with trading volume. Tether minting data was collected separately for the two main blockchains that support USDT: Tron and Ethereum. Tron minting data was obtained through the Tronscan API, while Ethereum minting data was sourced using the Tokenview API. Once retrieved, the data was cleaned and preprocessed to ensure consistency and usability.

For this analysis, we focused on data starting from January 2020. This timeframe was selected because Tether began minting USDT in large quantities (1 billion or more) in August 2020.

Additional details about the data retrieval and preprocessing steps can be found in the attached Jupyter Notebook.

Exploratory Data Analysis

Descriptive Statistics for Bitcoin Price Data

We start by examining Bitcoin's price statistics during the selected time period. Over this timeframe, Bitcoin experienced a dramatic price increase, rising from $5,000 to $100,000 – a staggering 20-fold increase. The data also reveals that the median price was around $33,000, and for 75% of the period, the price remained under $52,000. These figures highlight the extreme price volatility in Bitcoin markets, with 2024 exhibiting particularly aggressive movements.

Count:	1844
Mean:	$36,865.66
Standard Deviation:	$21,811.75
Minimum:	$4,800.00
First Quartile:	$19,801.68
Median:	$32,910.44
Third Quartile:	$51,700.43
Maximum:	$106,133.74

Bitcoin Average Returns

Analyzing average returns, Bitcoin achieves a monthly price return (2020–2024) of nearly 6% – half of the S&P 500's annual return of approximately 10%.
In other words, Bitcoin can generate in a single month what the S&P 500 typically delivers in half a year.

Average daily percentage return: 0.20%
Average weekly percentage return: 1.38%
Average monthly percentage return: 5.89%

Bitcoin Average Absolute Price Changes

When considering the absolute price changes (ignoring whether the price moved up or down), Bitcoin's volatility becomes even more apparent. On average, Bitcoin's price changes by 2.3% daily, 6.3% weekly, and 16% monthly. These figures emphasize Bitcoin's status as a highly volatile asset, offering substantial profit opportunities but also considerable risk of significant losses.

Average absolute daily percentage change: 2.28%
Average absolute weekly percentage change: 6.29%
Average absolute monthly percentage change: 15.90%

Largest Moves in Bitcoin Price

Examining extreme price movements, Bitcoin's largest daily drop occurred on the day global COVID lockdowns began, with a 39.5% decline. Conversely, one of its largest daily gains (19.5%) came nearly a year later when Tesla announced its $1.5 billion Bitcoin investment. On a yearly scale, 2022 was marked by a sharp 64% decline in Bitcoin's price, driven by catastrophic events such as the collapse of Terra-Luna, Celsius and FTX. However, Bitcoin rebounded strongly in 2023, rising 155% from its $15,000 lows.

Largest daily positive move: 19.54% on 08 Feb 2021
Largest daily negative move: -39.50% on 12 Mar 2020

Largest weekly positive move: 27.17% 13-19 Mar 2023
Largest weekly negative move: -33.26% 09-15 Mar 2020

Largest monthly positive move: 46.85% in Dec 2020
Largest monthly negative move: -37.29% in Jun 2022

Average Daily Price Range

Lastly, we analyze what is the average daily price range. We define the daily price range as the difference between the daily high and low, expressed as a percentage of the closing price.

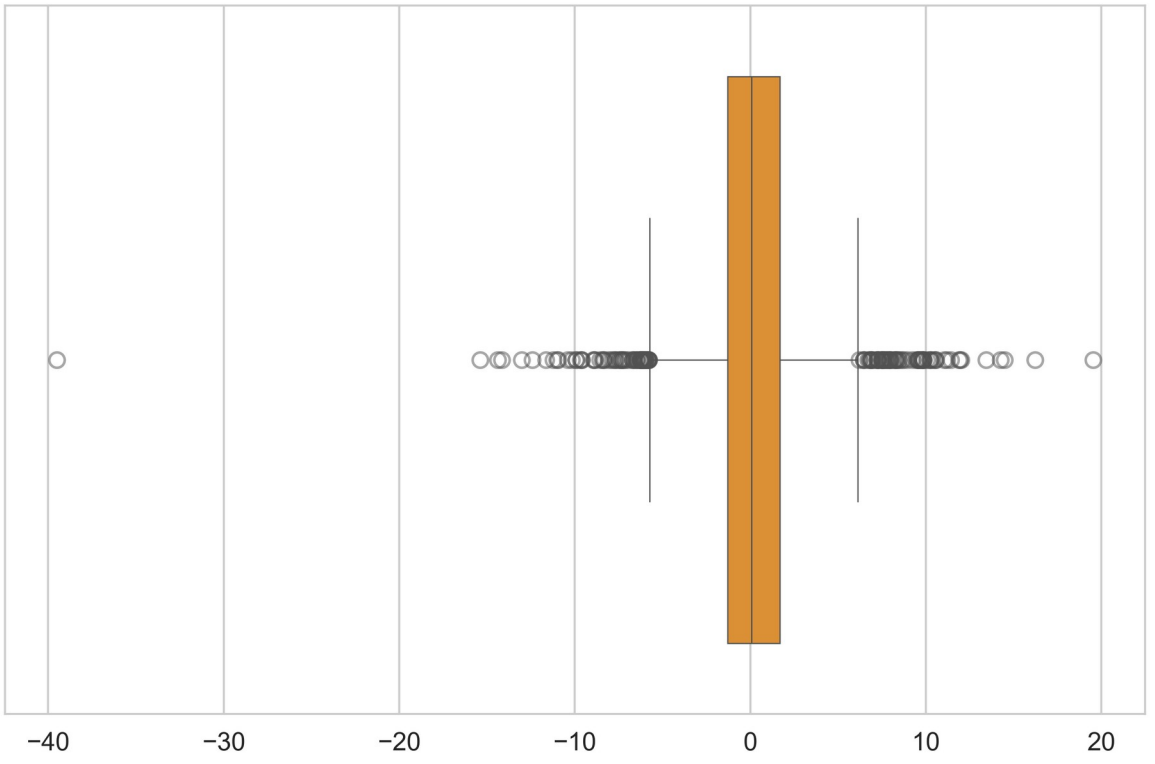
Average daily price range as percentage: 4.83%
Average daily price range in dollars: $1,768.68

Data Visualization

Box Plot of Daily Percentage Returns

We created a box plot of Bitcoin's daily percentage returns, revealing that most daily price changes fall within the range of approximately −1.3% to +1.7%. Referring back to our exploratory data analysis, the average absolute daily percentage change is approximately 2.3%, while the average daily price range is around 5%.

From these observations, we define a "large move" for Bitcoin as any price change (up or down) exceeding 5% in a single day.



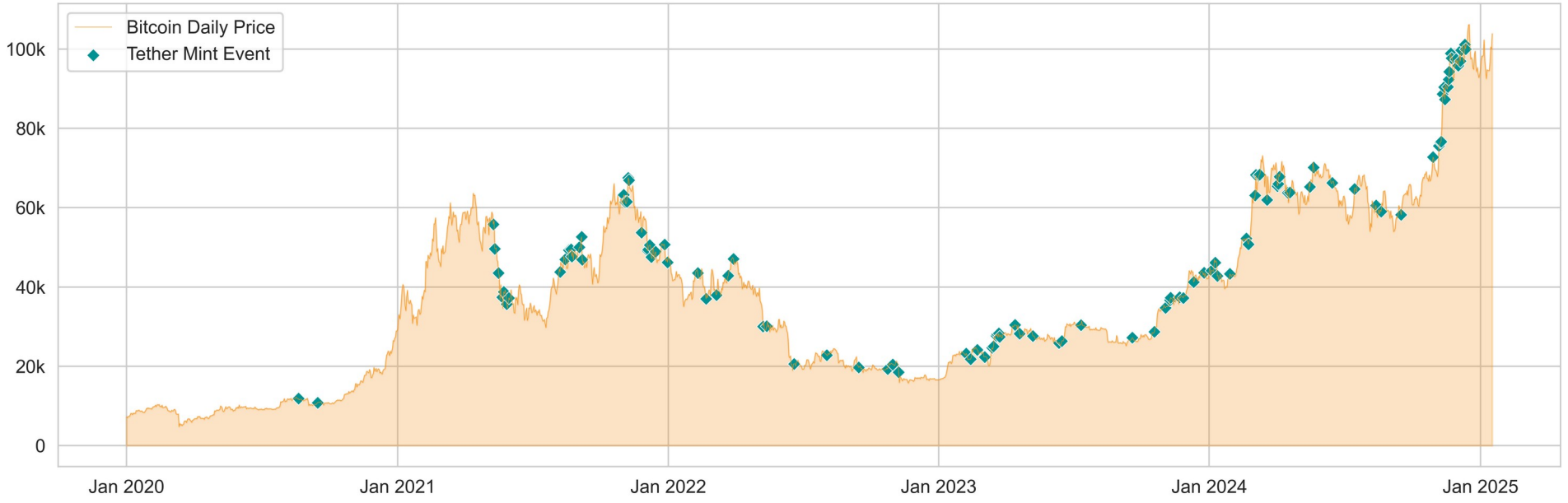
Analyzing Tether Mint Events

The first step in our analysis is a visual inspection of Tether minting events overlaid on Bitcoin's daily price chart. Even from a simple visual analysis, we can begin to draw some preliminary conclusions. One noticeable pattern is that mint events tend to occur in clusters, likely influenced by the prevailing market narrative at the time.
In 2021, significant USDT minting occurred during a broader downtrend in Bitcoin's price. A notable cluster of minting activity is observed around August to September 2021, when Bitcoin was trading at approximately $50,000.
In 2022, mint events continued throughout Bitcoin's prolonged downtrend, coinciding with a period when many investors were buying the dip.

By 2023, investor positioning appeared more strategic, with substantial buying activity at local price bottoms as Bitcoin climbed steadily to the $40,000 mark. In 2024, there was a surge in USDT minting during an eight-month consolidation period when Bitcoin ranged between $50,000 and $70,000. Notably, heightened activity is observed at Bitcoin's peak above $90,000.

This period was characterized by aggressive buying and widespread FOMO among investors.

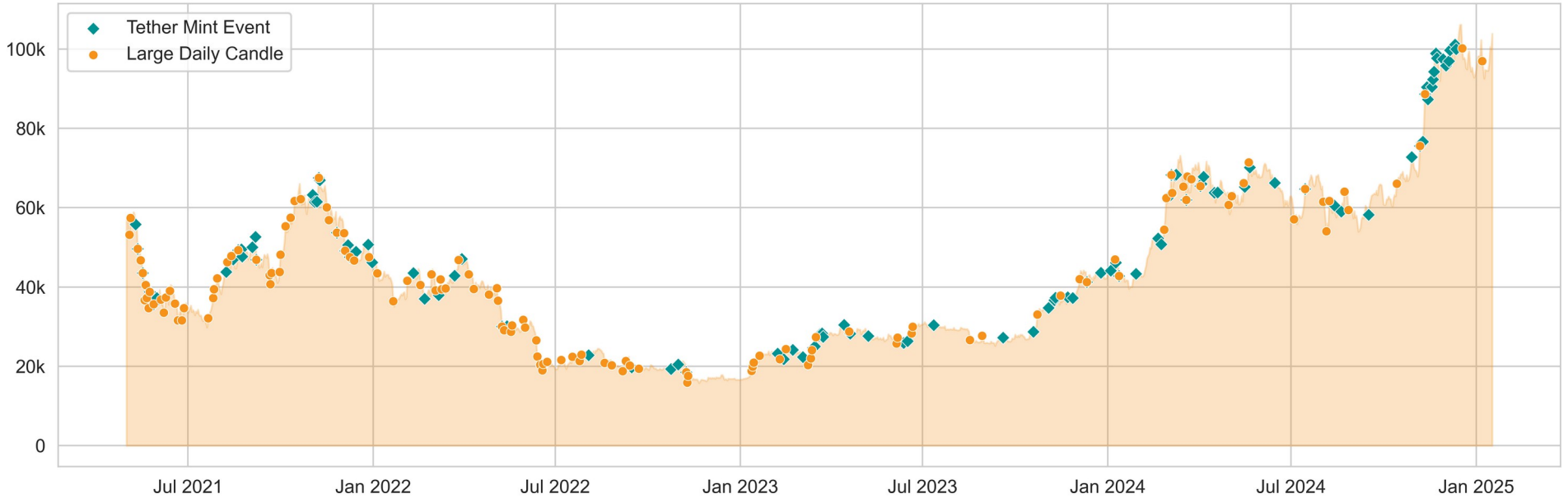
Bitcoin Daily Price with Tether Mint Events



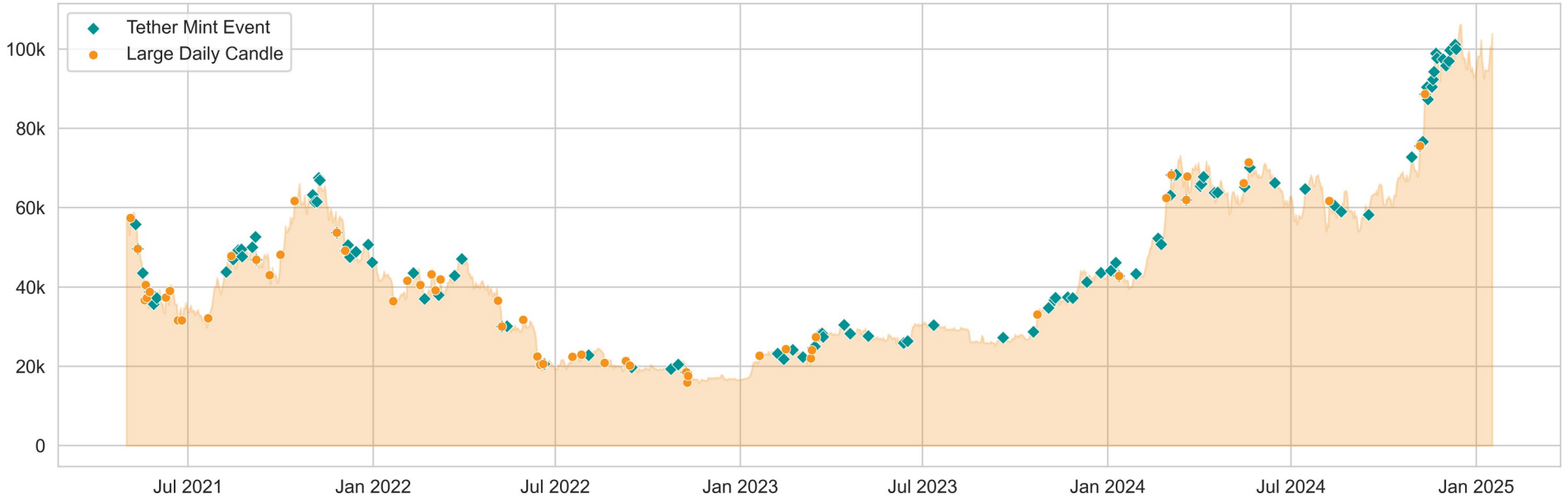
Tether Mint Events and Large Daily Candles

Continuing with the visual analysis, we created several charts overlaying Tether mint events with large daily candles in Bitcoin's price. Upon inspecting these charts, no clear correlation between mint events and price movements can be identified.

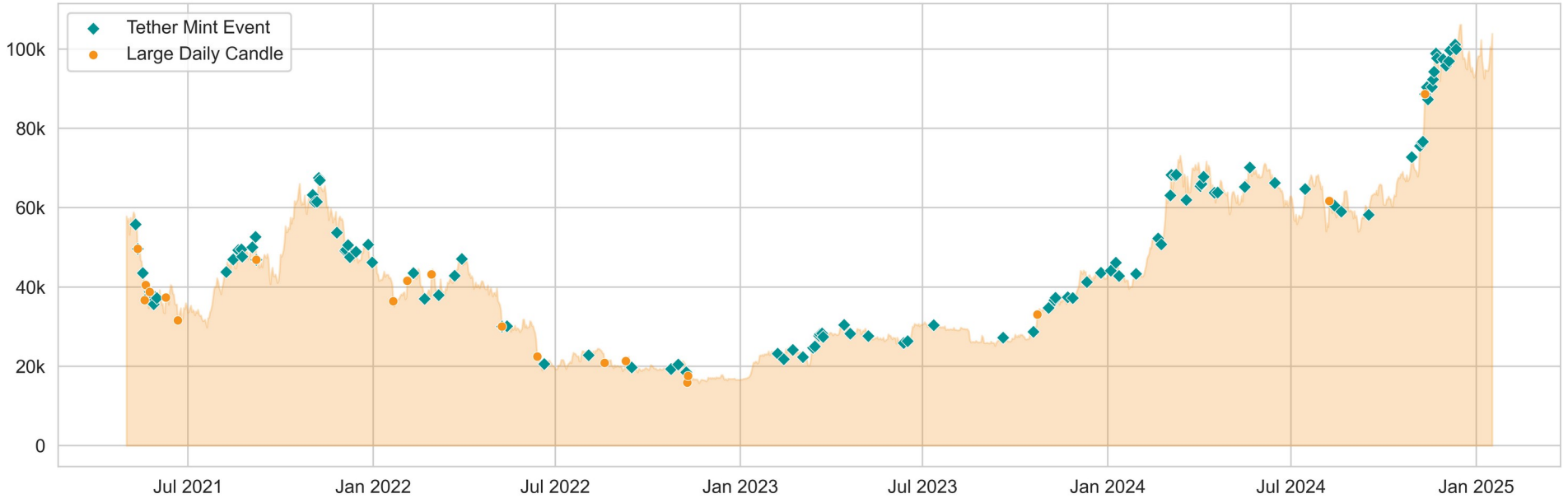
Tether Mint Events and Daily Candles Larger than 5%



Tether Mint Events and Daily Candles Larger than 7.5%



Tether Mint Events and Daily Candles Larger than 10%



Statistical Analysis

Bitcoin Price Moves after a Tether Mint Event

As mentioned earlier, a Bitcoin price move is considered significant if it exceeds at least 5%. In our analysis, we will evaluate three thresholds: 5%, 7.5%, and 10%, calculating relevant statistics for each.
We will analyze two types of price movements following a Tether mint event:

1. The number of days until Bitcoin exhibits a large positive or negative daily price change (a single candle).

2. The number of days until Bitcoin experiences an overall price increase or decrease (multiple candles).

Both positive and negative price movements will be observed. The rationale is that large market participants who influence prices may aim to push the market downward to secure Bitcoin at lower prices, creating an incentive to "dump" the market before accumulating.

How Many Days After a Tether Mint Event Does Bitcoin Make a Large Positive Daily Candle?

On average, Bitcoin takes approximately three weeks to produce a 5% daily positive move. This statistic suggests that any bullish effect from the minting of USDT is not immediate. For larger daily moves, such as 7.5% or 10%, the timeframe extends to around 2–4 months.

A daily candle larger than 5%: 22.66
A daily candle larger than 7.5%: 50.35
A daily candle larger than 10%: 121.64

How Many Days After a Tether Mint Event Does Bitcoin Make a Large Negative Daily Candle?

The results for large negative daily moves are similar to those for positive moves. However, very large negative moves tend to occur slightly sooner than their positive counterparts, although the differences are marginal.

A daily candle larger than 5%: 19.51
A daily candle larger than 7.5%: 82.18
A daily candle larger than 10%: 41.14

How Many Days After a Tether Mint Event Does the Price of Bitcoin Increase?

The price of Bitcoin appears to increase more quickly following a Tether mint event than it takes to form a very large positive daily candle. This indicates that smaller, cumulative price gains may precede large individual moves.

A price increase of more than 5%: 21.84
A price increase of more than 7.5%: 40.67
A price increase of more than 10%: 57.65

How Many Days After a Tether Mint Event Does the Price of Bitcoin Decrease?

The timeframes for price decreases after a Tether mint event are broadly similar to those for increases, with no significant deviations observed.

A price decrease of more than 5%: 16.28
A price decrese of more than 7.5%: 24.60
A price decrease of more than 10%: 31.04

Frequency of Large Daily Bitcoin Price Moves

To provide a better comparison, we analyze how often Bitcoin produces a large daily candle without considering Tether mint events. The process involves identifying each instance where Bitcoin prints a large daily candle and marking the corresponding date. We then measure the time interval between consecutive large candles. This process is repeated for all instances, and the average interval is calculated separately for positive and negative daily candles.

Examining these statistics, the results remain inconclusive. The average interval between large positive or negative moves in Bitcoin's price is similar to the average interval observed following Tether mint events.

This reinforces the idea that there is no clear correlation between Tether minting and Bitcoin's price movements.

How Often does Bitcoin Make a Large Positive / Negative Daily Candle?

A daily positive candle larger than 5%: 16.13
A daily positive candle larger than 7.5%: 33.26
A daily positive candle larger than 10%: 100.24

A daily negative candle larger than 5%: 19.39
A daily negative candle larger than 7.5%: 52.57
A daily negative candle larger than 10%: 88.36

Insights from Statistical Analysis

The initial results indicate that any impact of Tether mint events on Bitcoin's price is delayed, rather than immediate, contrary to the assumptions often seen on Crypto Twitter. While the data shows that Bitcoin's price tends to experience significant movement (both positive and negative) within a few weeks of a mint event, the presence of both upward and downward moves prevents us from drawing definitive conclusions about a consistent directional impact.

One notable observation concerns negative price movements following Tether mint events.

On average, Bitcoin experiences a negative daily candle larger than 10% within 40 days of a mint. Larger price decreases exceeding 10% occur even sooner, within an average of 31 days. In contrast, large positive daily candles greater than 10% occur much later, with an average delay of 120 days. Similarly, positive price movements exceeding 10% typically take 58 days from the minting event.

When considering Bitcoin's negative price movements independently of Tether mint events, we observe that a negative daily candle larger than 10% occurs, on average, every 88 days. Comparing this to the 40-day average following a Tether mint suggests a possible correlation between mint events and accelerated large price declines.

These statistics indicate a higher likelihood of a significant price drop – specifically, a 10% decline – occurring within approximately one month of a Tether mint event.

However, given the multitude of factors influencing Bitcoin's price, this correlation remains inconclusive and should be interpreted with caution.

Final Conclusions

In conclusion, the minting of USDT does not have a significant short-term impact on Bitcoin markets. While there is evidence of an effect on longer timeframes, it typically takes about a month for Bitcoin's price to respond to the influx of USDT into the market.

Furthermore, the impact can be either positive or negative, making it impossible to predict a consistent directional outcome.

The effect also depends on the broader context of the Bitcoin cycle and prevailing market narratives. During some periods, investors use new USDT liquidity to "buy the dip," while in others, they chase rising prices with a "buy high, sell higher" strategy.

It's also important to note that other stablecoins and fiat currencies, such as the US dollar, play a role in Bitcoin trading. Many markets operate with direct USD inflows, but unfortunately, we lack comprehensive data to track the timing and volume of these dollar-based contributions. These additional inflows also influence Bitcoin's price dynamics.

Ultimately, while the minting of Tether's USDT can be considered a bullish event in the broader sense – representing new capital entering the cryptocurrency market – our data and analysis suggest that it is not a reliable predictor of Bitcoin's price direction or magnitude.

Although Tether USDT minting has become a popular topic on Crypto Twitter, it should not be viewed as a definitive trading signal.