05MAR25
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Bitcoin EDA

Hypothesis: Bitcoin's daily price change is significantly influenced by its trading volume and market capitalization, with higher trading volumes and larger market caps correlating with more stable price movements

Variables

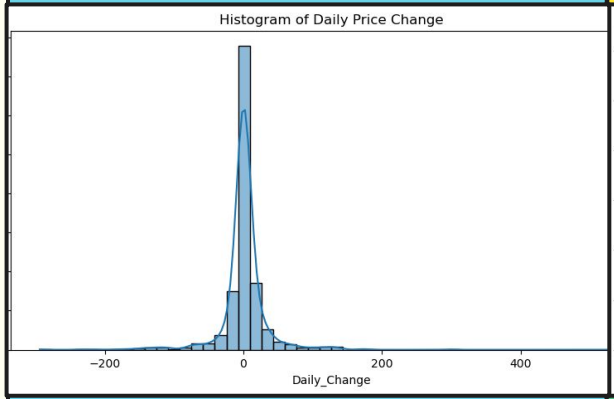
Open	High	Low	Close	Market Cap	Volume
The price of Bitcoin at the beginning of a specific trading period (e.g., daily, hourly). It is the first recorded price when the market opens.	The highest price Bitcoin reached during a given trading period.	The lowest price Bitcoin reached during a given trading period.	The price of Bitcoin at the end of a specific trading period. It represents the last recorded price before the market closes for that period.	The total value of all Bitcoin in circulation.It represents the overall valuation of Bitcoin in the market.	The total amount of Bitcoin traded (bought and sold) within a specific period. It indicates the level of trading activity and liquidity in the market.

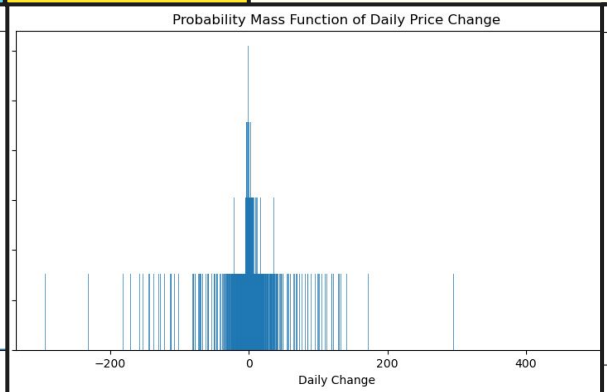
Note 1: **The market cap is currently 1.707T**

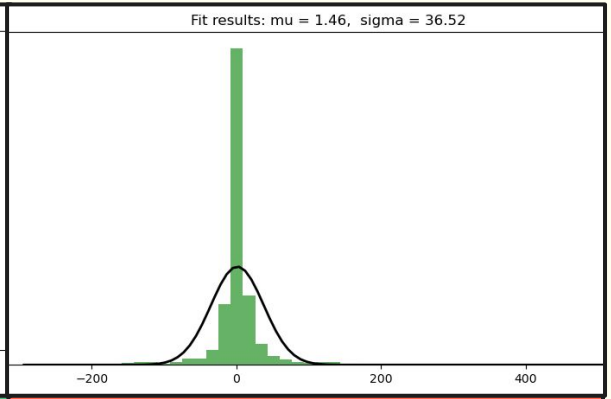
Note 2: **More than a dozen states are considering implementing a annual bitcoin budget**

https://fortune.com/crypto/2025/01/31/state-bitcoin-reserve-idea-trend-what-to-know/

Histograms







1: Daily Price change

A few positive and negative daily price changes appear on the far left and right tails of the histogram. These represent days when Bitcoin experienced sudden price spikes or crashes.

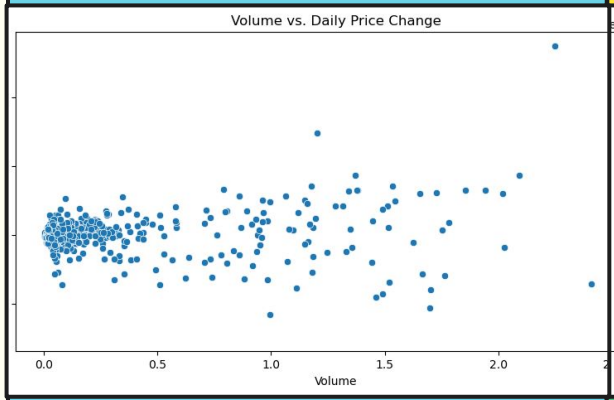
2: Probability Mass Function of Daily Price Change

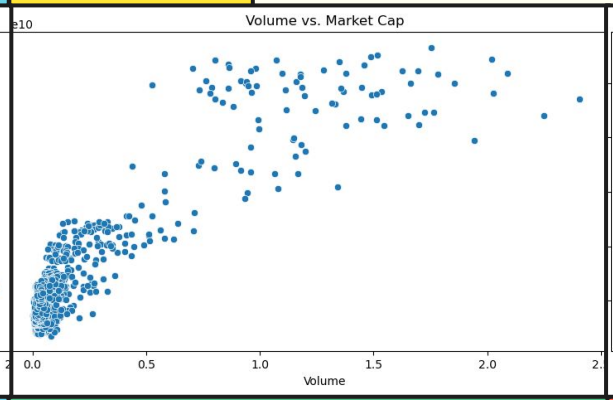
A few values have significantly higher probabilities than others, particularly at extreme daily price changes. These represent days with extreme buying or selling pressure.

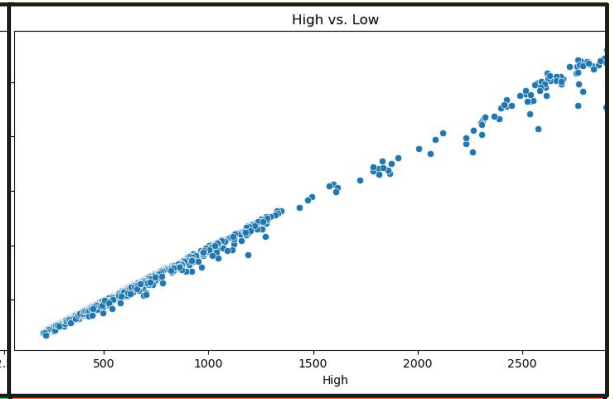
3: Fit results: mu = 1.46, sigma = 36.52

Deviations from the normal distribution fit, especially where empirical data diverges from the expected bell curve.

Scatterplots







1: Volume vs. Daily Price Change

This scatterplot illustrates the relationship between Bitcoin's trading volume and daily price change..

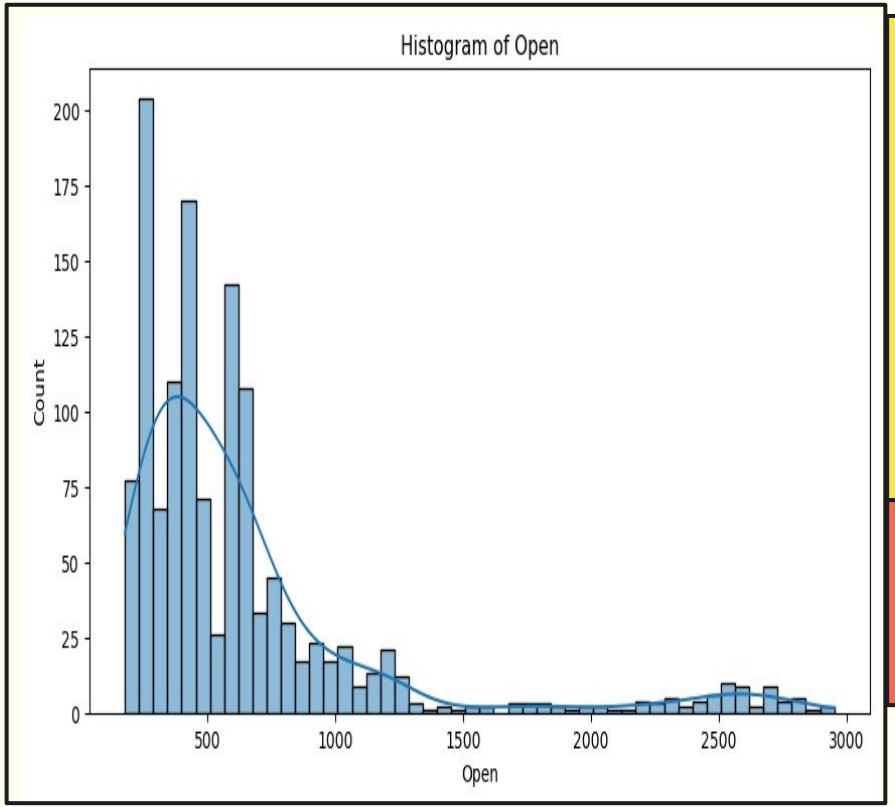
2: Volume vs. Market Cap

Evaluates how Bitcoin's trading volume relates to its market capitalization. Since market cap is derived from price and circulating supply.

3: High vs. Low

his scatterplot examines the relationship between the highest and lowest recorded prices within a trading period, typically daily.

Covariance between Volume and Market & Covariance between High and Low



Covariance between Volume and Market Cap: 26041096963700065 28.00

Pearson's correlation between Volume and Market Cap: 0.89

Covariance between High and Low: 286942.90

Pearson's correlation between High and Low: 1.00

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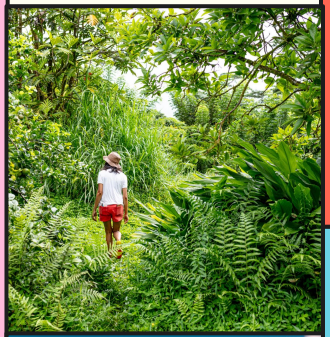
OverView

Synopsis

Overall, the initial hypothesis is partially supported through data analysis. Bitcoin maintains a linear relationship with the observed variables. Although =, when considering nonlinear variables the results may be skewed.



Future Research

The are potential factors that can significantly impact the price of bitcoin.

- Laws
- Large Market Events
- Social Media

Potential Risk

- Highly volatile
- Highly impacted by politics
- Limited Supply