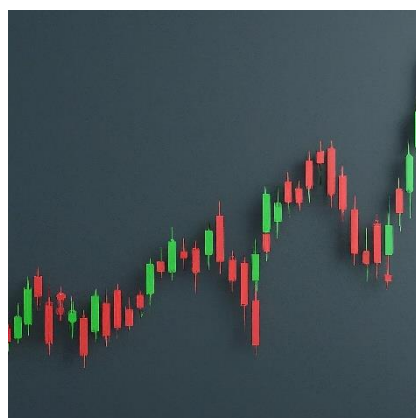


# Analyzing the factors that have influenced the price of Cryptocurrencies over the years.



- Aryan Patil



# HYPOTHESES

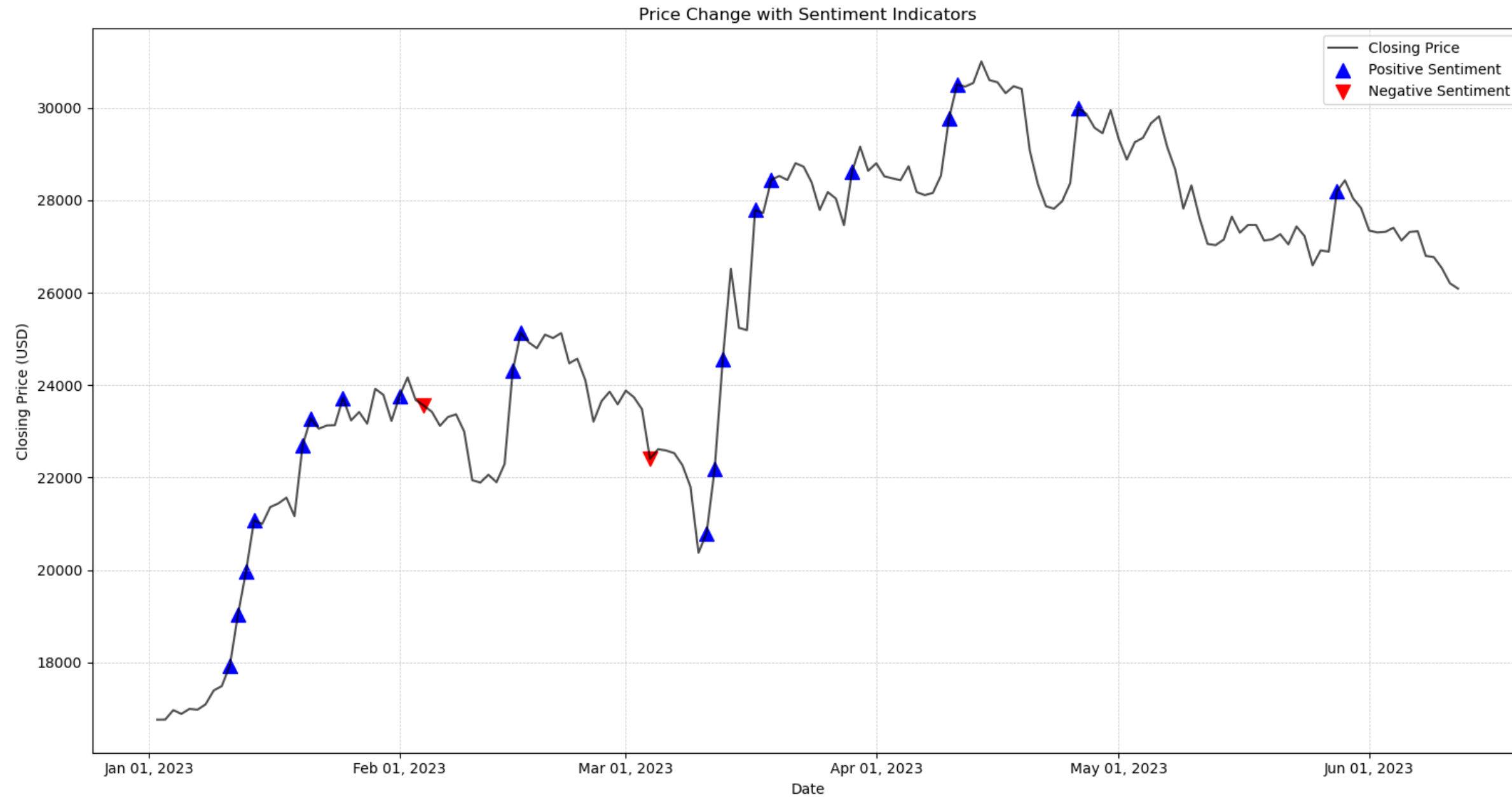
- Social Media opinions can positively or negatively impact the price of cryptocurrencies based on the sentiment.
- Low Unemployment rates can lead to increase in Cryptocurrency prices, and vice versa
- The Federal Interest rates have a strong influence and inverse relation over Cryptocurrency prices
- Rise in inflation can cause the prices of Cryptocurrencies to decrease
- Cryptocurrency has similar trends to that of the US Dollar

# Twitter Sentiment

- In February 2021, Elon Musk tweeted that Tesla had purchased \$1.5 billion worth of Bitcoin and would start accepting it as a form of payment for their products. This news sent Bitcoin's price soaring:
  - Before the tweet, Bitcoin was trading at around \$36,859
  - Within hours of the tweet, Bitcoin's price surged to an all-time high of \$44,200
- Dogecoin's price rose by 50% on 4 February shortly after Elon Musk tweeted that "Dogecoin is the people's crypto".
- Such tweets acts as a catalyst, and due his influence, it impacts the prices of Cryptocurrencies
- Dataset used in the analysis is taken from an ongoing research on the same topic.
- Dataset contains filtered tweets from more than 50 Cryptocurrency Influencers, from Jan 2023 to June 2023.
- Sentiment has been selected based on the 'importance\_coefficient' , which was calculated using parameters of number of likes, retweets, comments, followers.

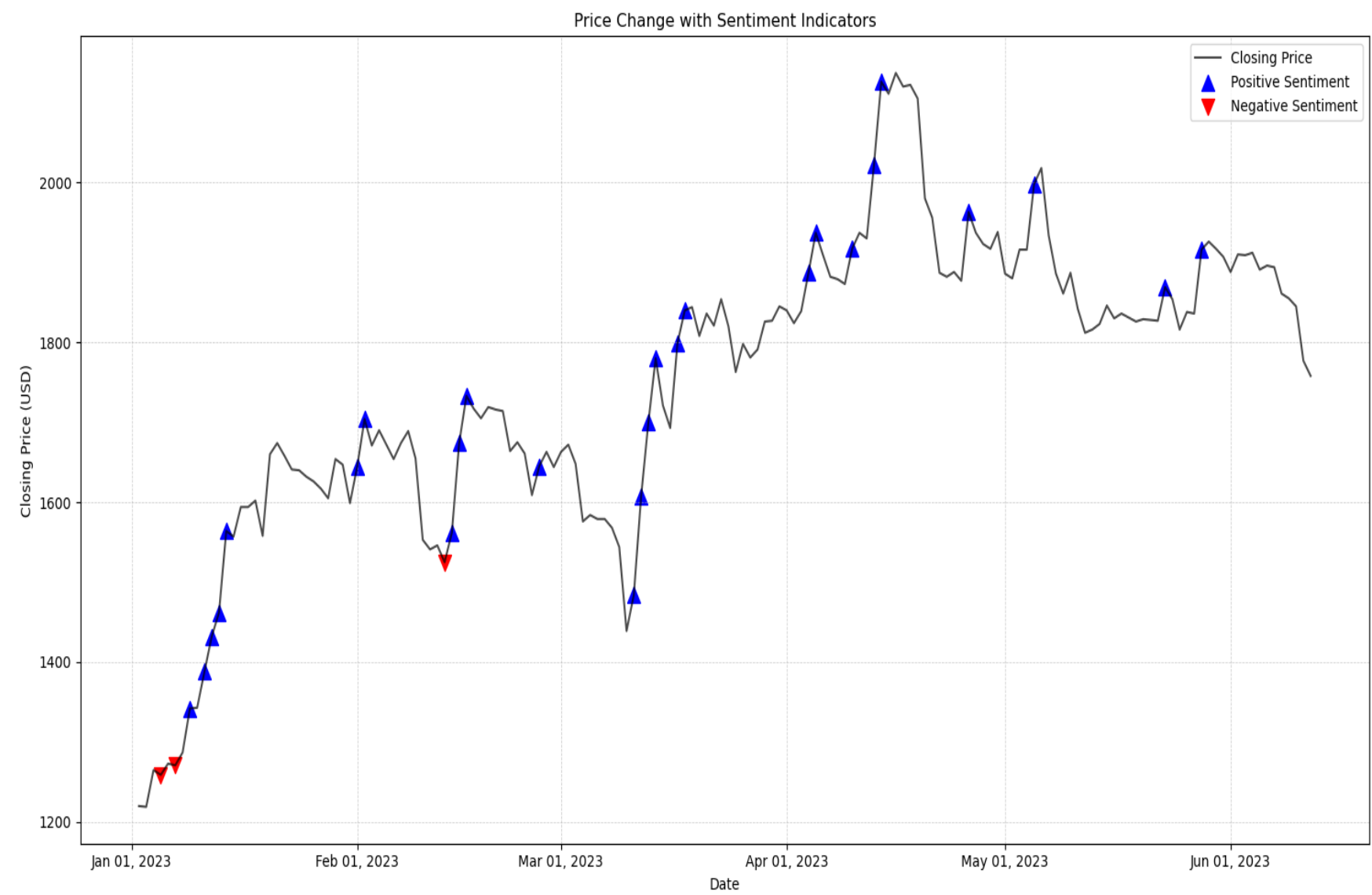


# BITCOIN

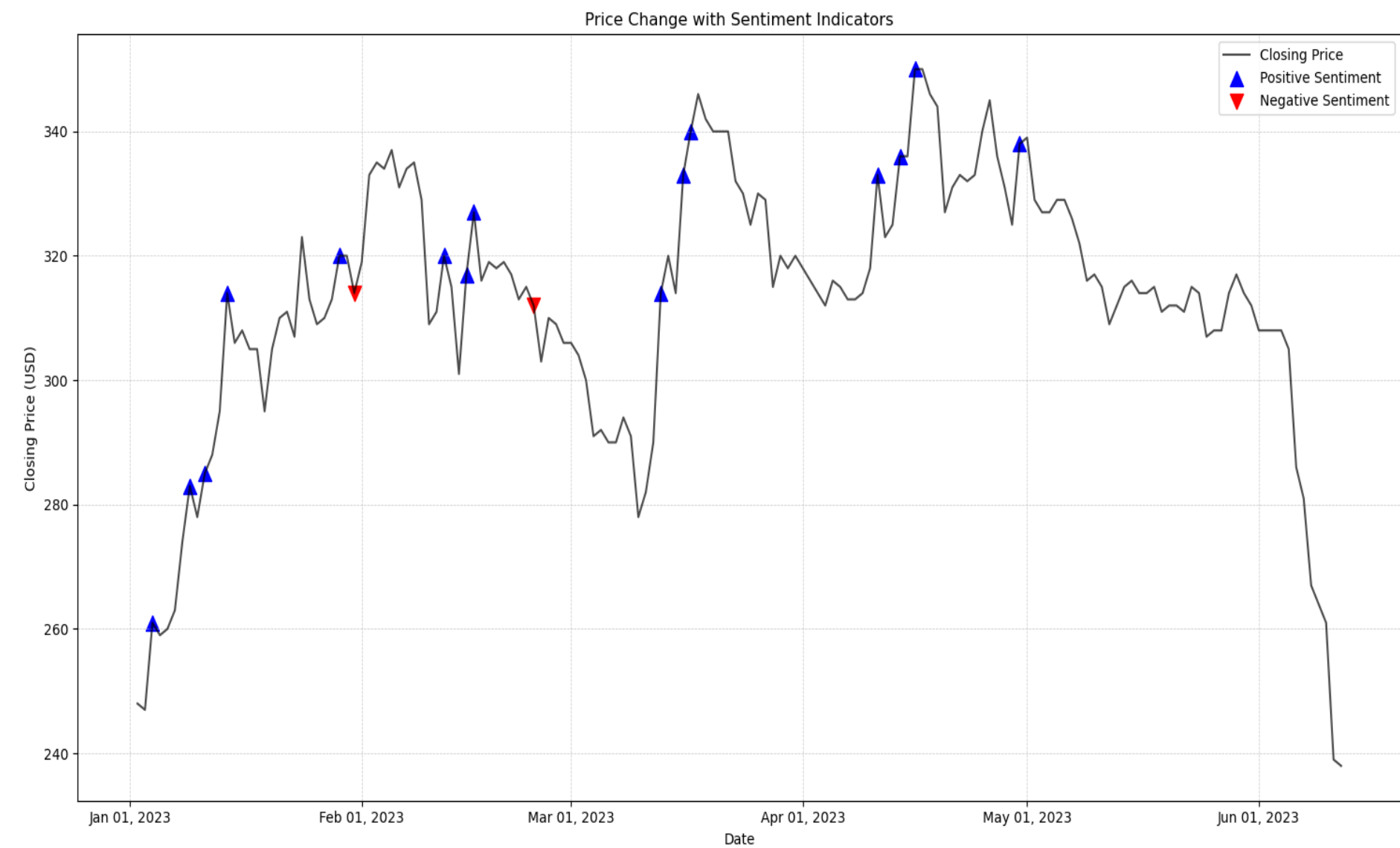


While not a perfect correlation, there seem to be instances where positive sentiment aligns with price increases and negative sentiment coincides with price drops. This suggests that market sentiment, as captured by the indicators, can play a role in influencing short-term price movements.

# Ethereum



# Binance Coin



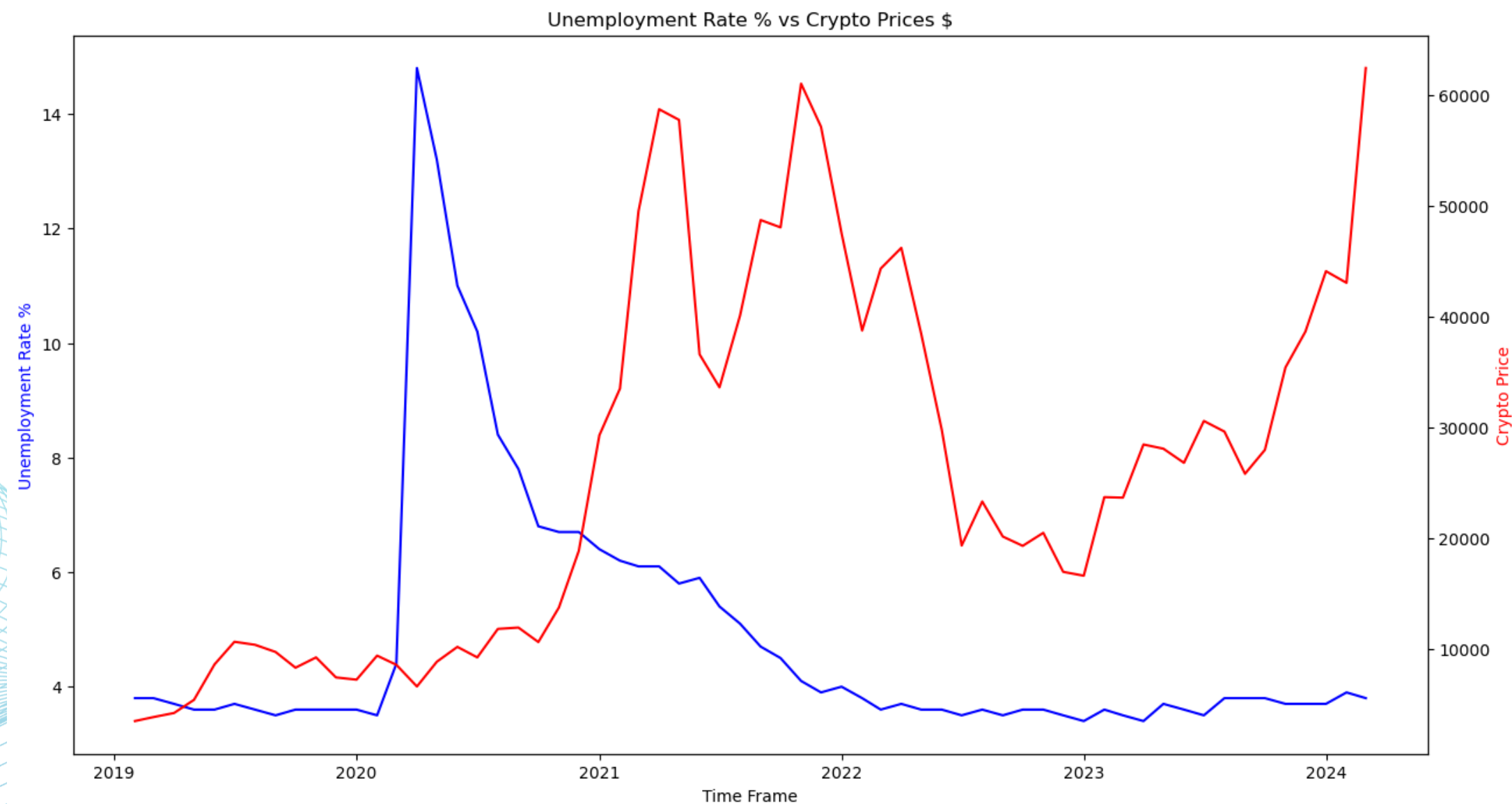
# Twitter Sentiment

- More Data is needed to support the hypothesis that Social Media Sentiment plays a role in driving Cryptocurrency Prices
- Although, there have been some instances where the increase in prices of Bitcoin and Ethereum aligned with the overall positive sentiment on Twitter
- Cryptocurrencies are highly volatile, and the sentiments, not just from Twitter but from other social media platforms and news play an important role in determining the price of Cryptocurrencies.



# Economic Factors – Unemployment Rates

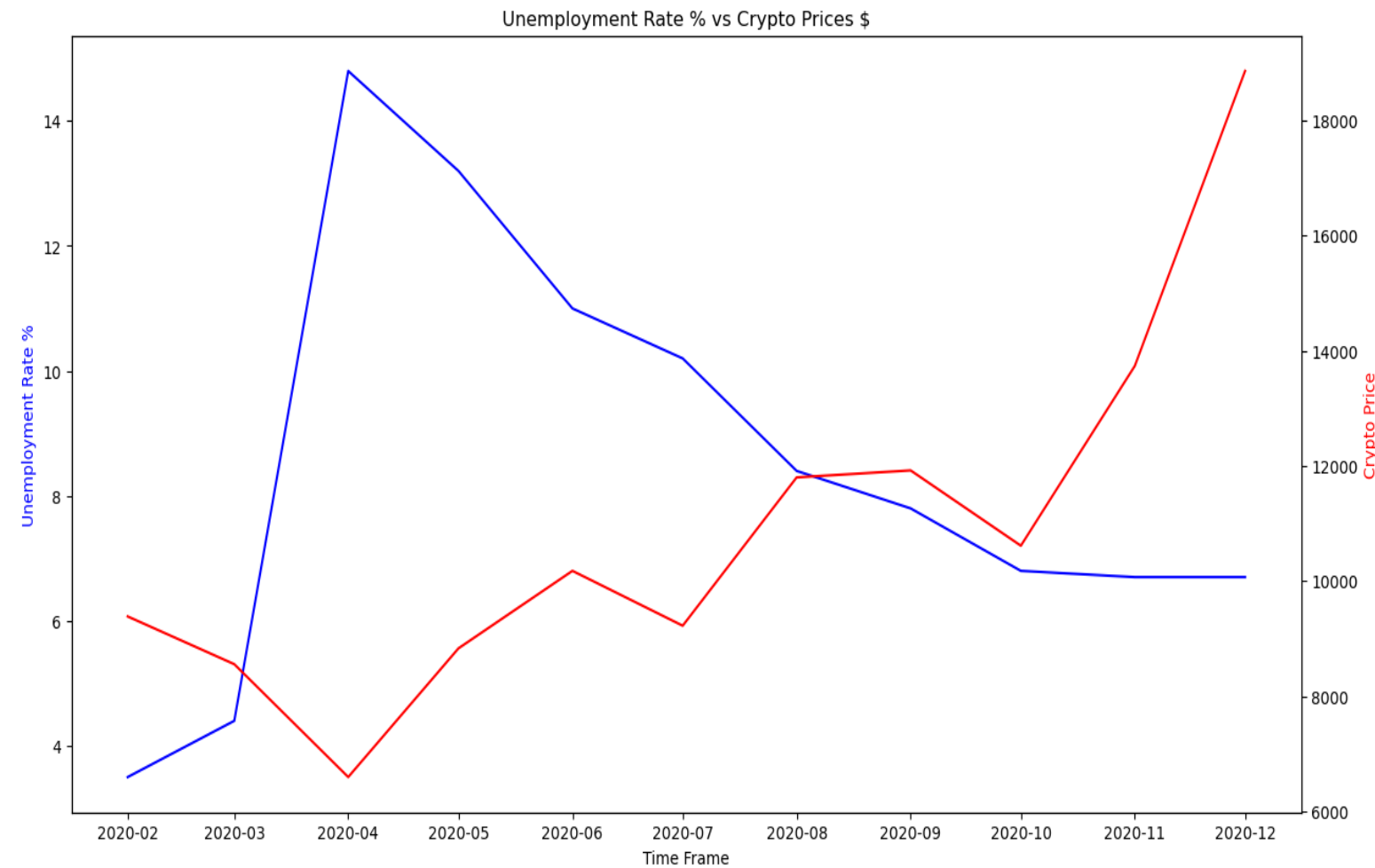
- Talking about the second hypothesis, one can hypothesize that low unemployment rates generally indicate a healthy economy with higher income among individuals, can lead to an increase in cryptocurrency investments
- During COVID, unemployment rates skyrocketed around the world, which also had an impact on Cryptocurrency prices



BITCOIN



# Economic Factors – Unemployment Rates

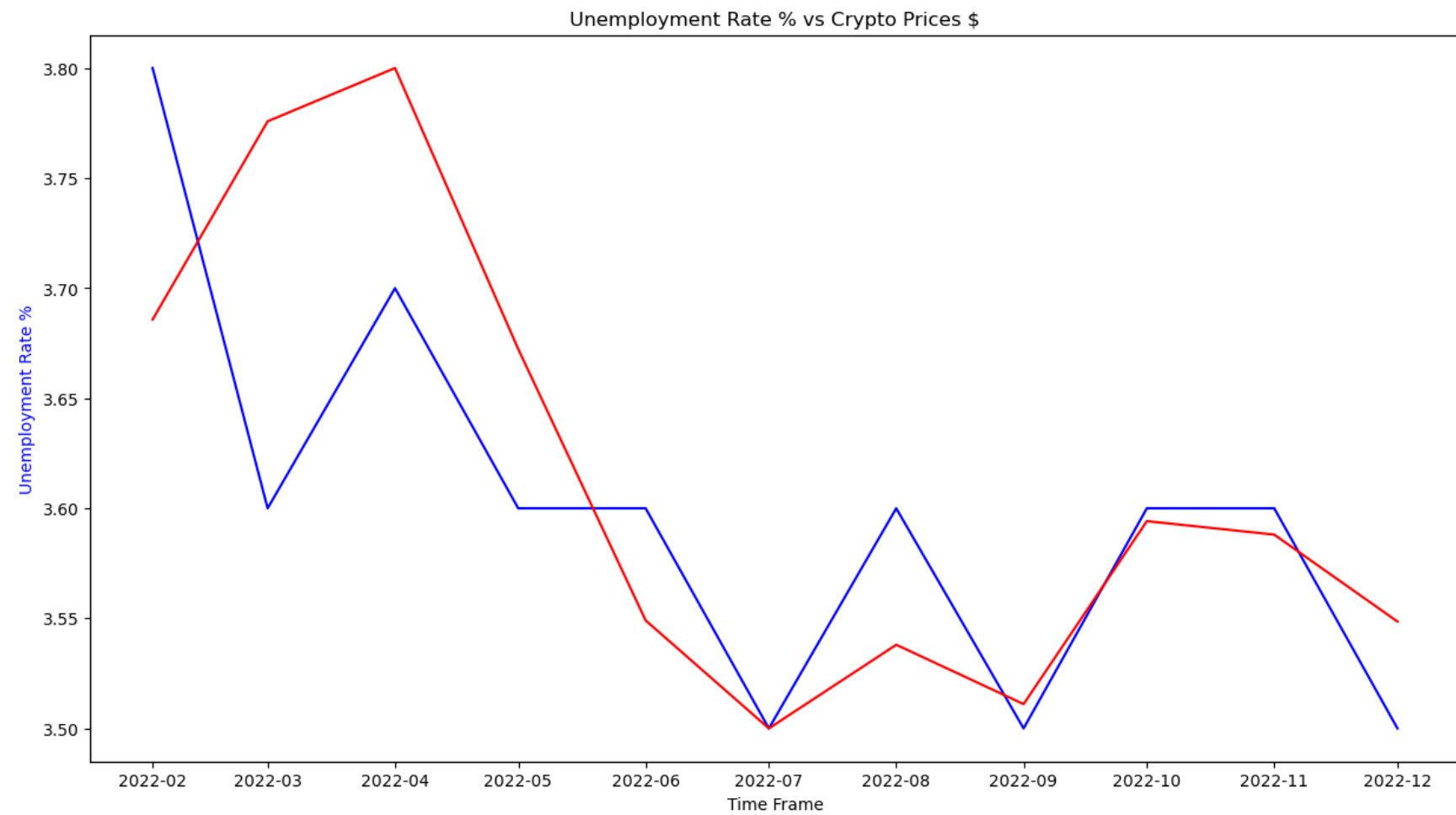


**BITCOIN  
2020**

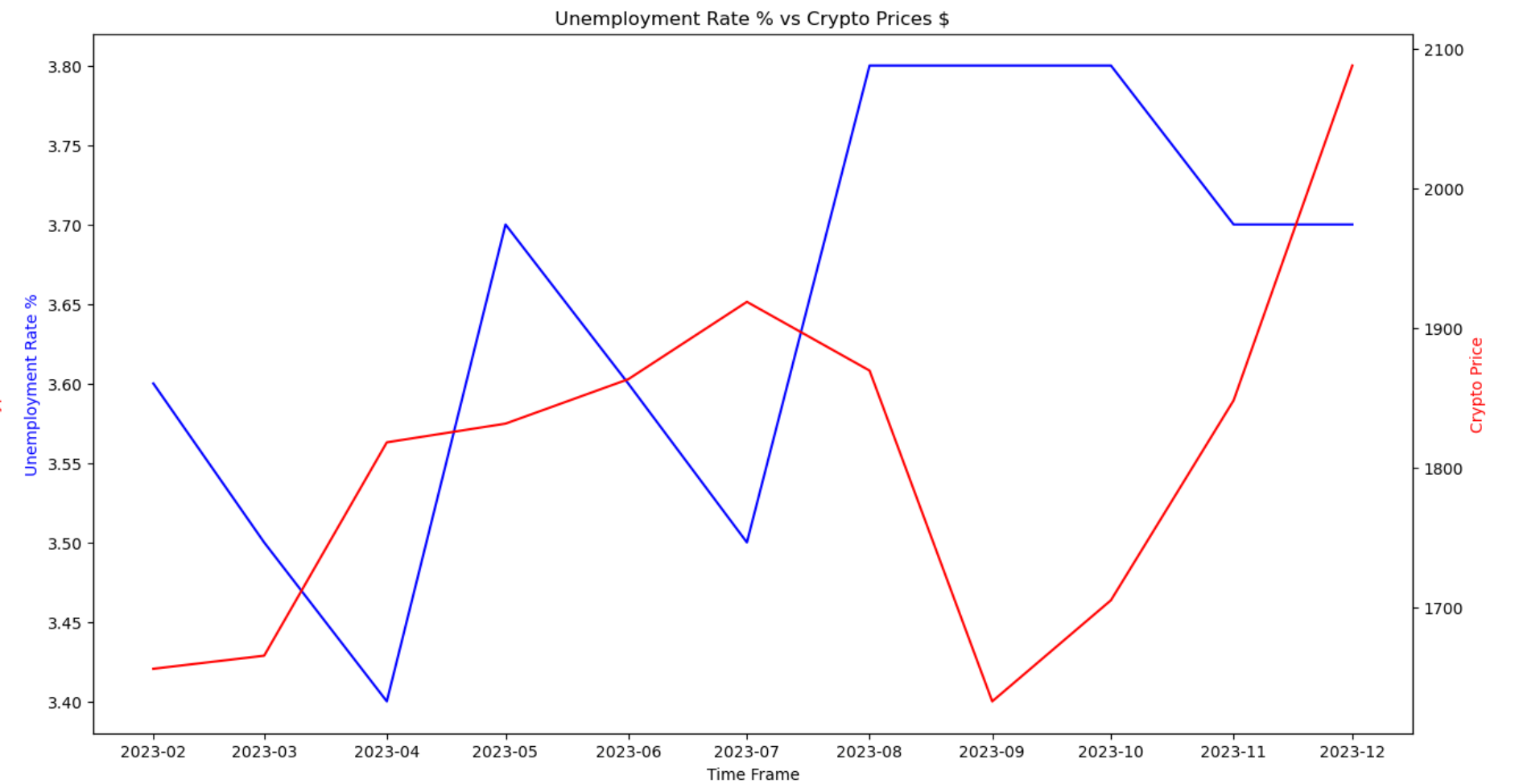
**BITCOIN  
2021**



# Economic Factors – Unemployment Rates



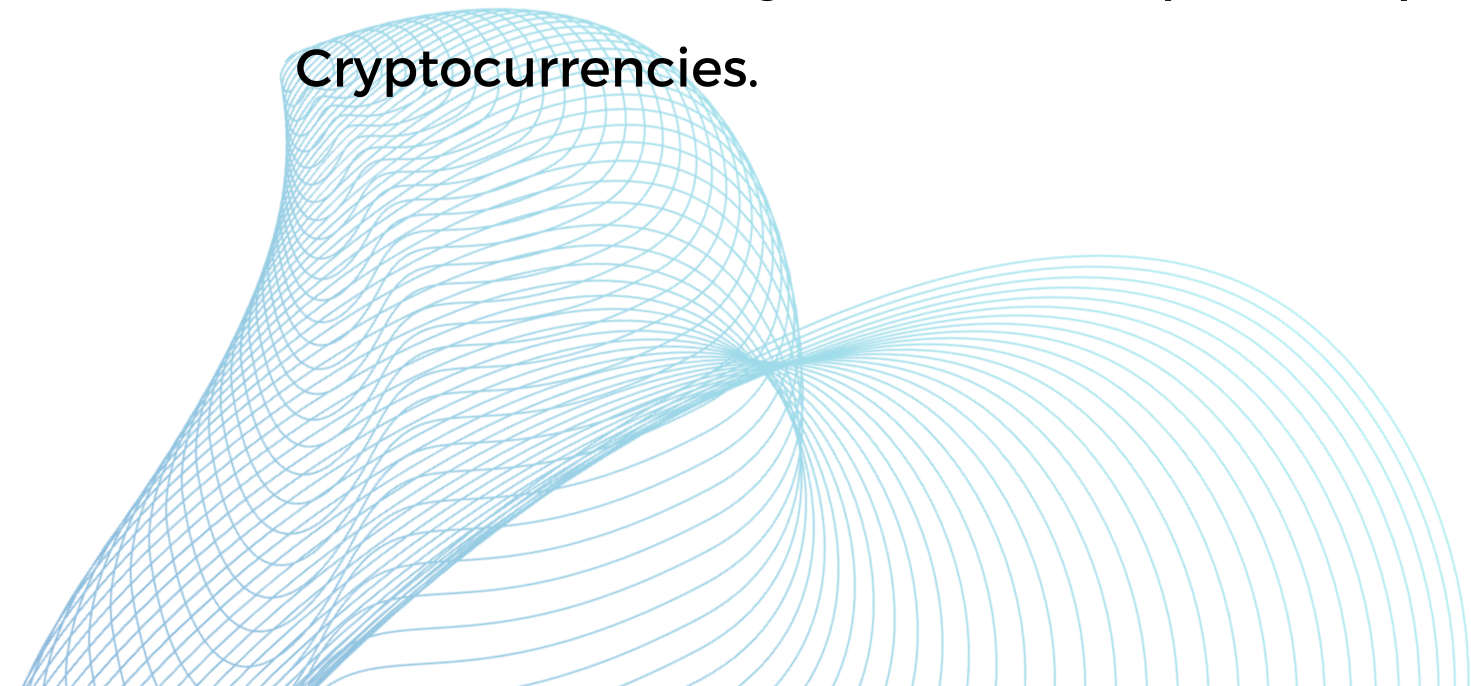
**Ripple : 2022**



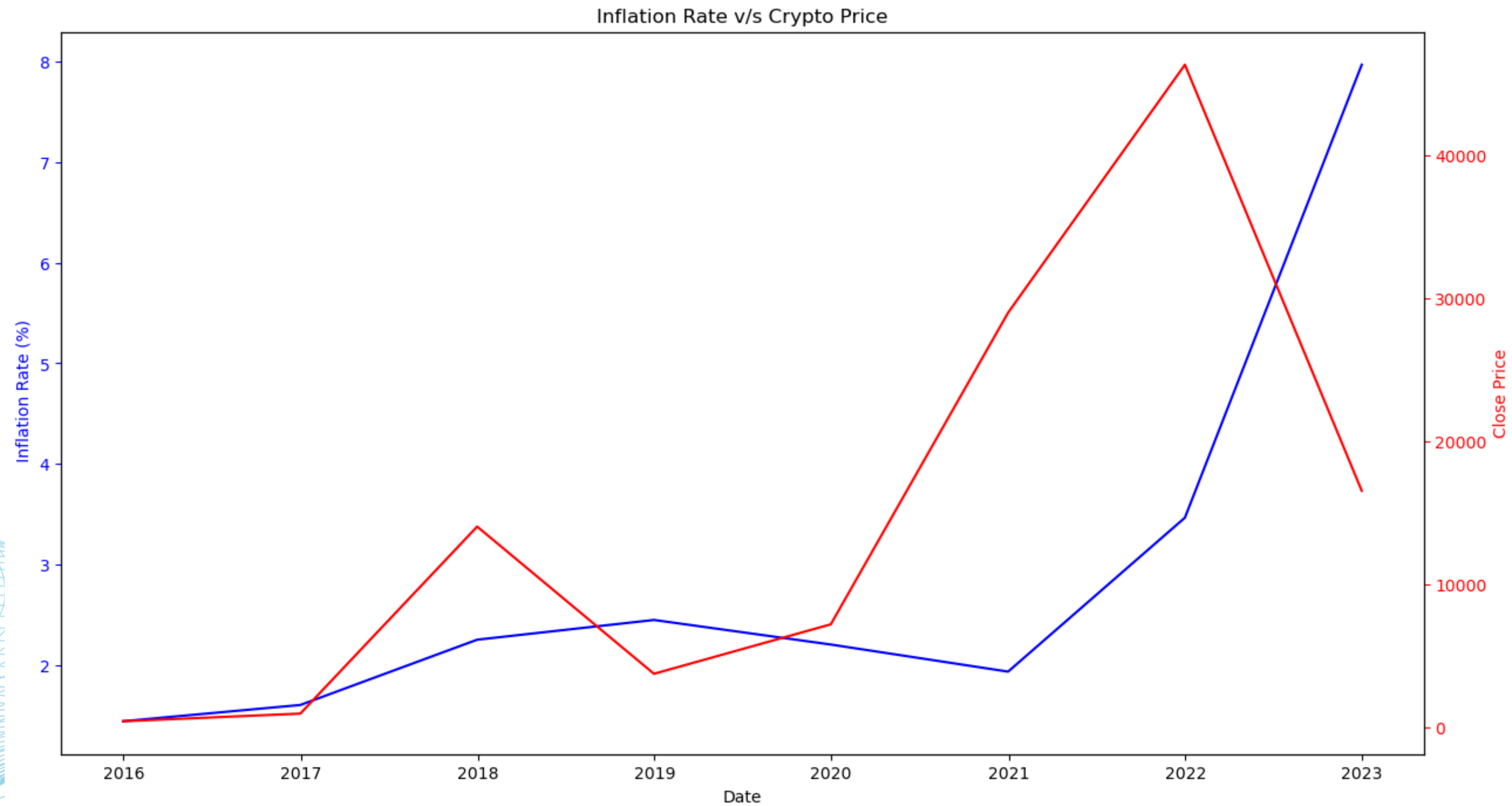
**Ethereum : 2023**

# Economic Factors – Unemployment Rates

- There are periods where the Unemployment rate was low, and the prices of certain cryptocurrencies were high
- The trend is not same for Ethereum and Ripple
- In the US, government stimulus packages during the pandemic likely played a significant role in boosting asset prices, including cryptocurrencies.
- Post pandemic, the unemployment rate in the US started to decline, and the crypto prices gradually increased.
- Although, there's no direct relation, we can see some trends in 2022 and early 2024. But the relationship is not consistent.
- There is not enough evidence required to prove that Unemployment rates have an influence over Cryptocurrencies.

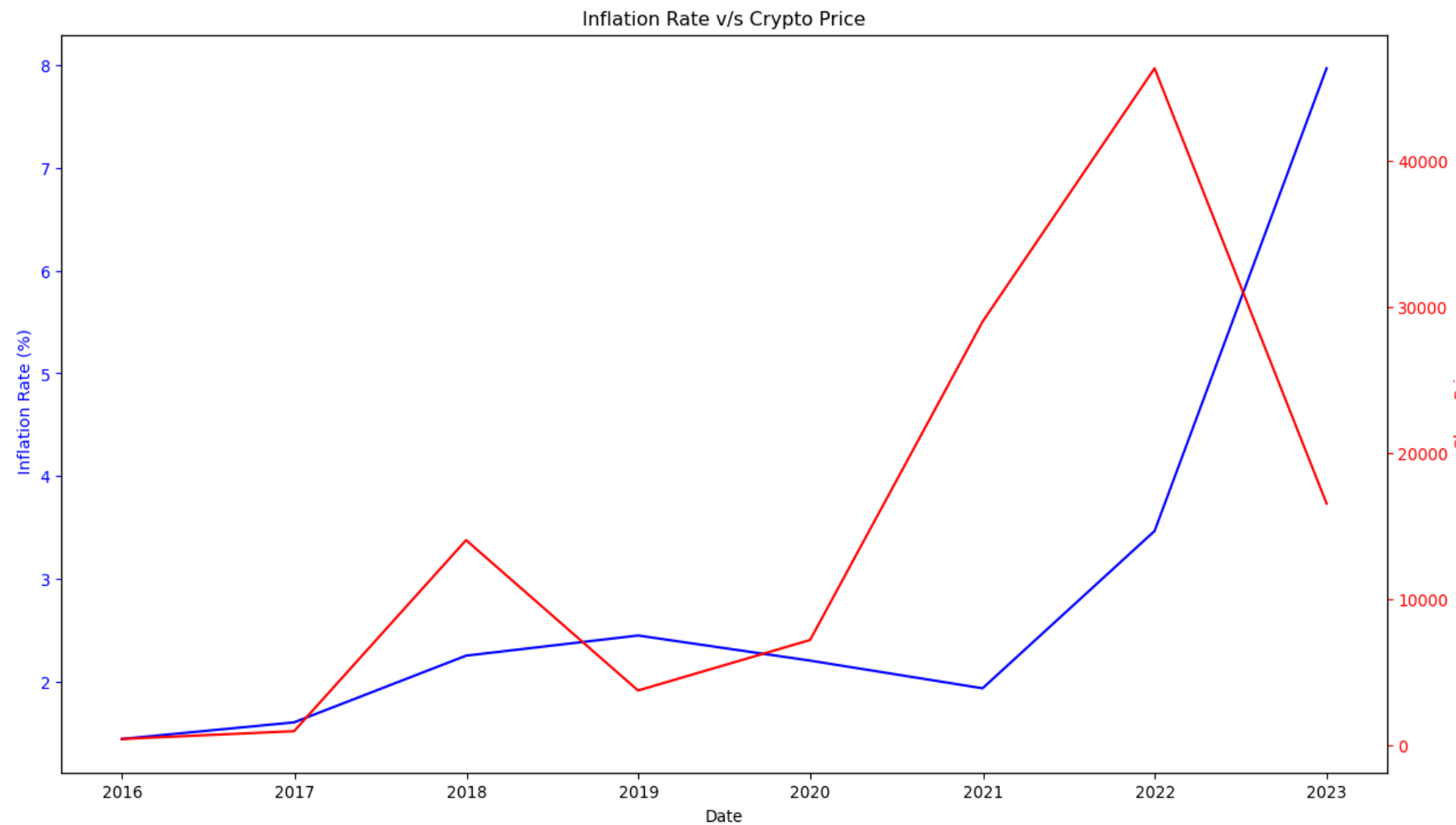


# Economic Factors – Inflation Rates

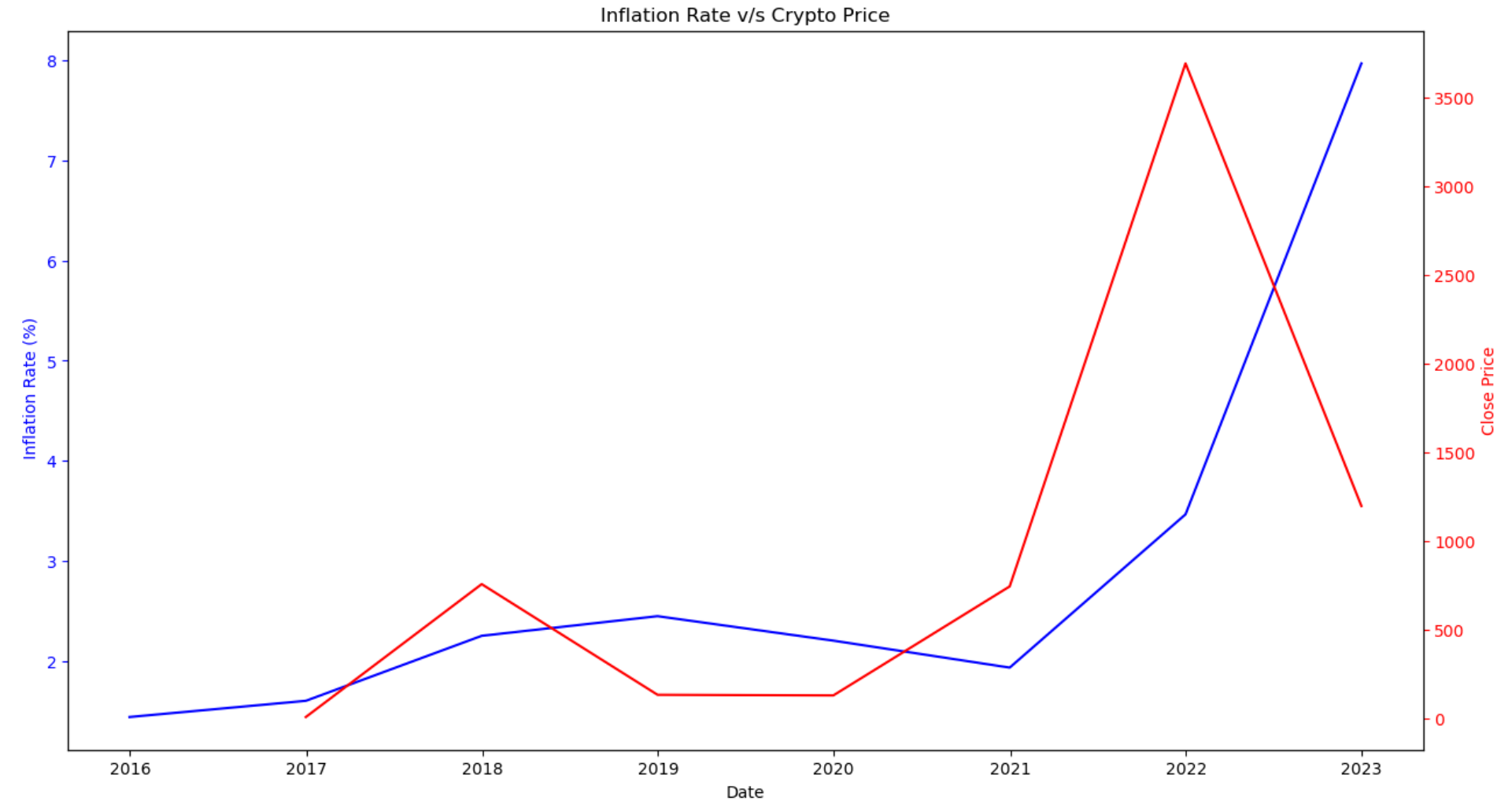




# Economic Factors – Inflation Rates

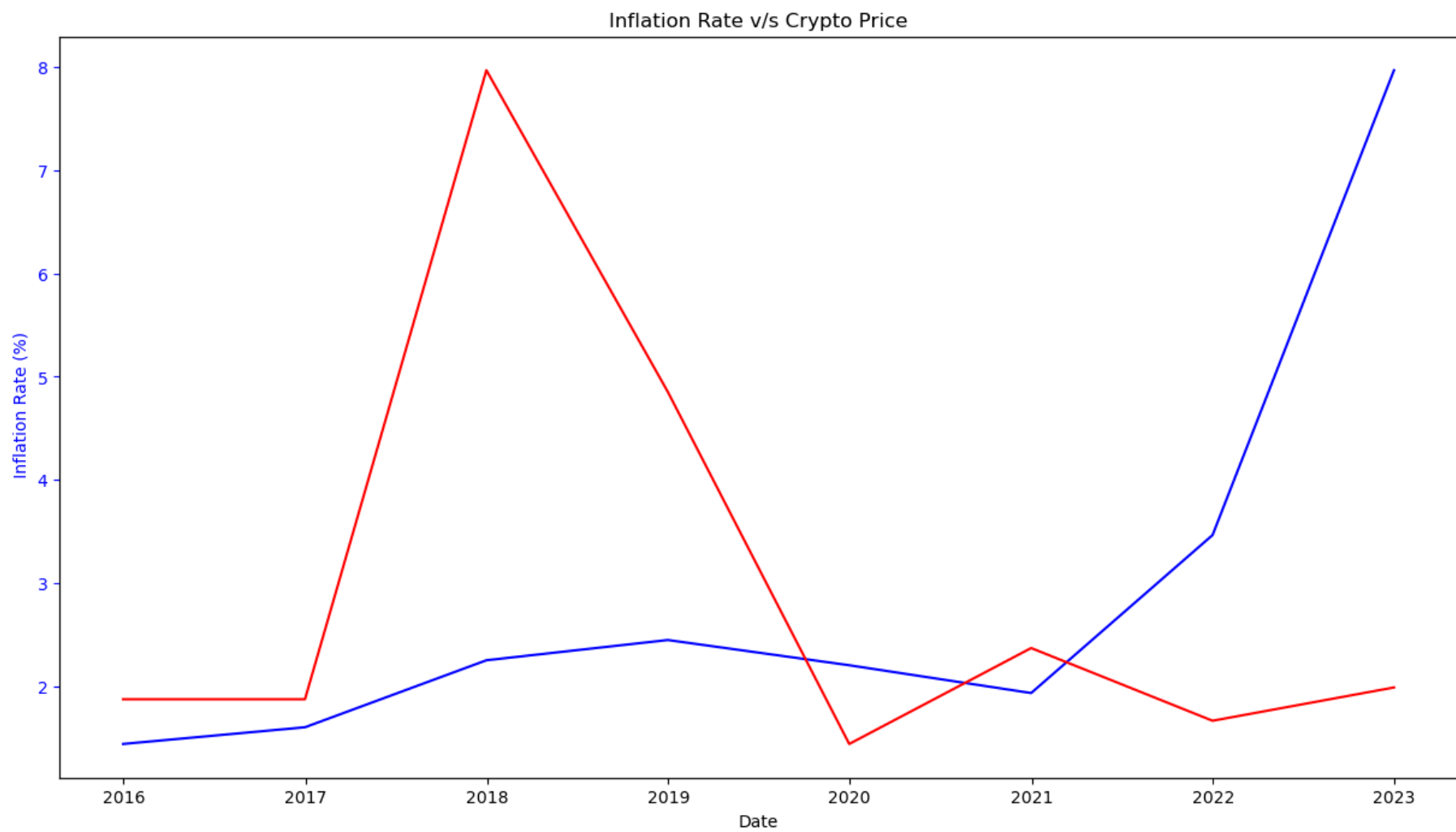


**BITCOIN**

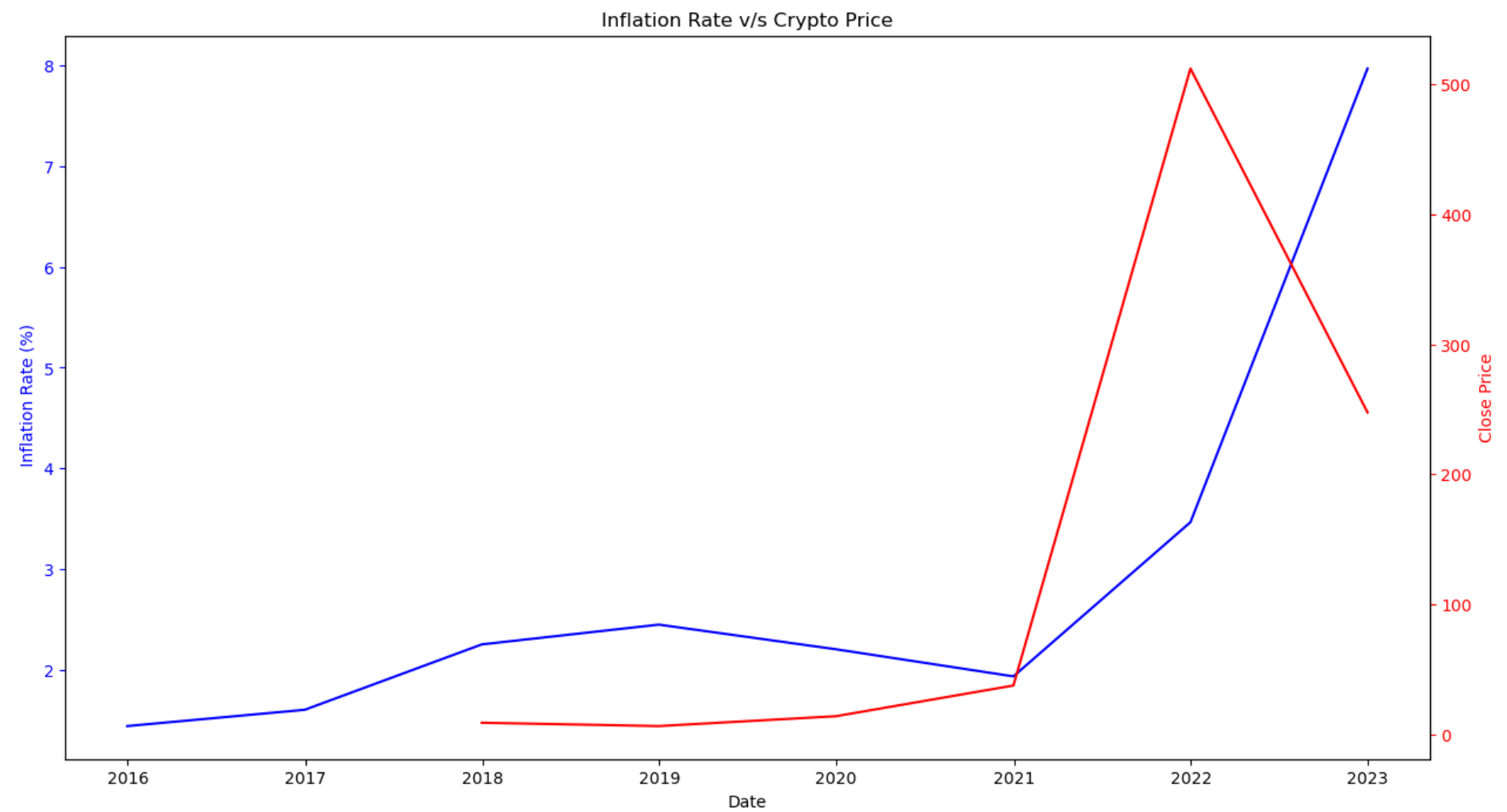


**ETHEREUM**

# Economic Factors – Inflation Rates



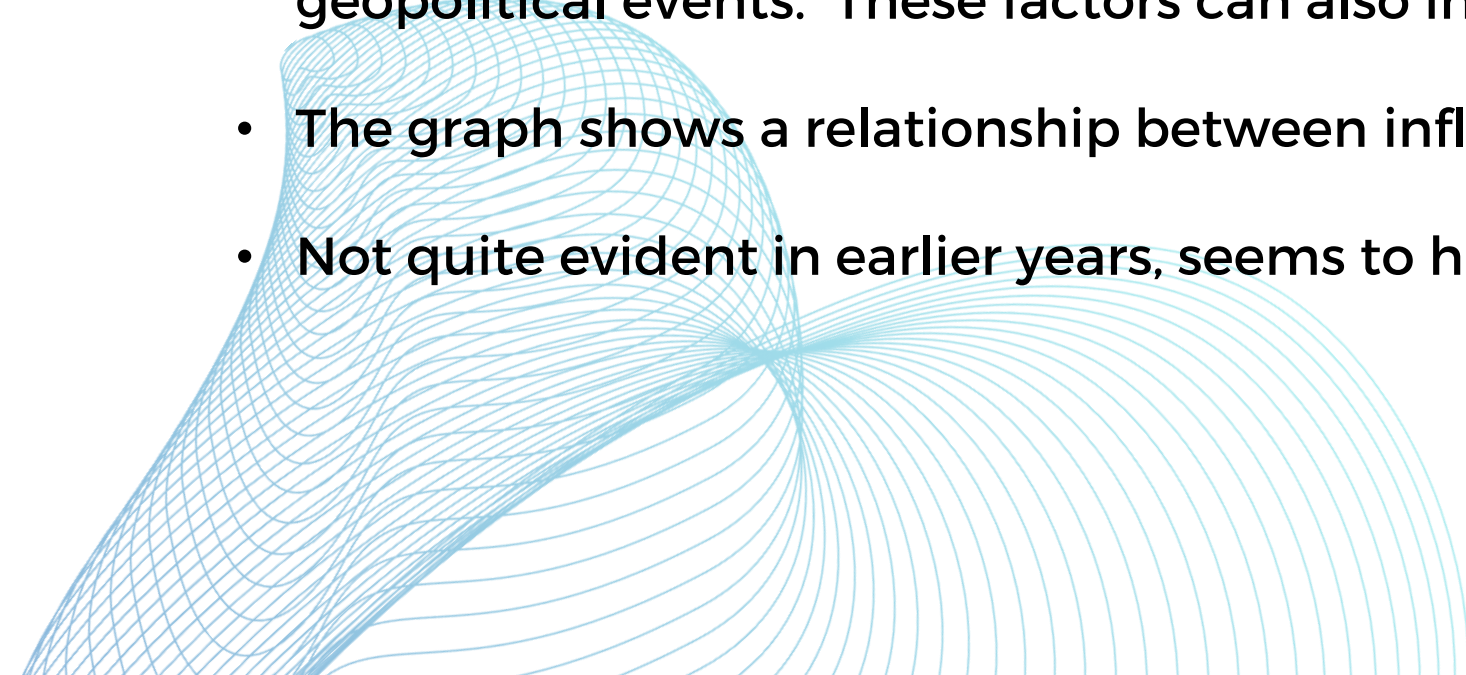
**USDT**



**BINANCE COIN**

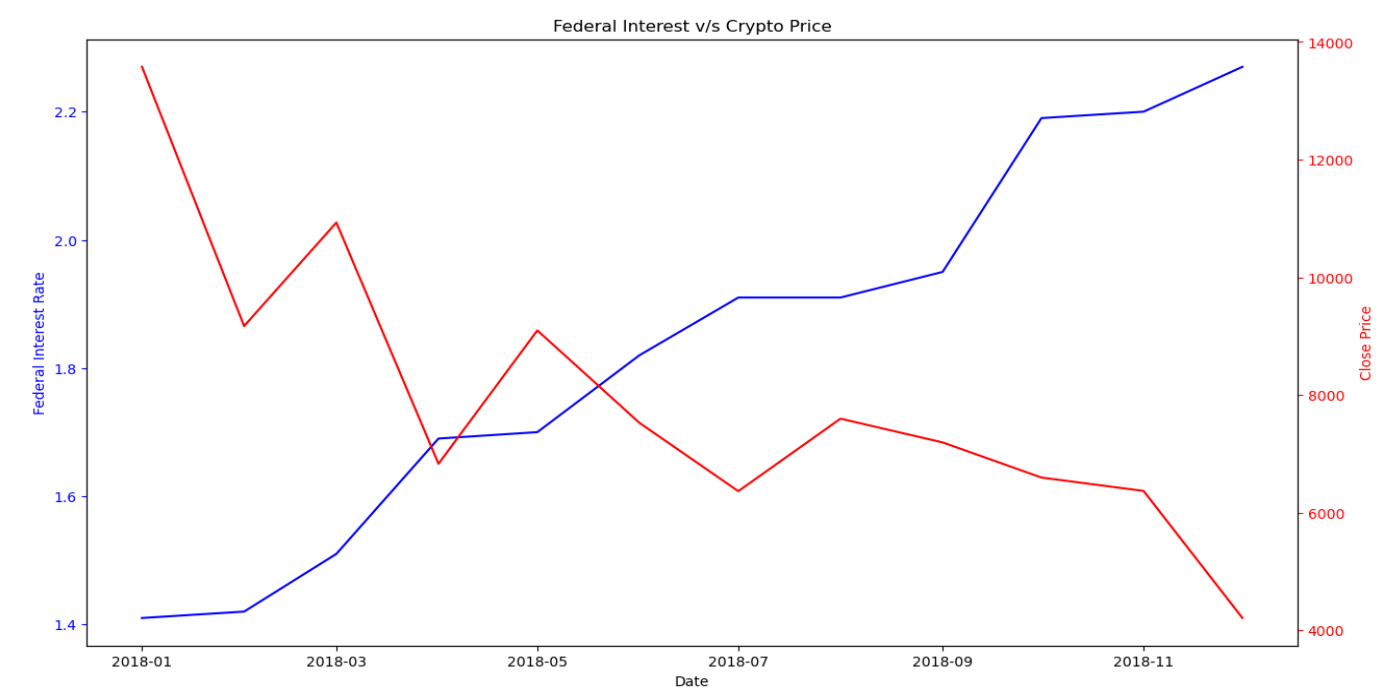
# Economic Factors – Inflation Rates

- We can see some trends after 2020, especially in the year 2022, the inflation rate is low and the bitcoin price is high, but then as inflation increases, the price decreases.
- Both the inflation rate and crypto price display volatility during this period.
- Trends are quite evident after 2022, with most of the cryptocurrencies dipping low due to the rise in inflation rate around the world.
- Inflation is influenced by various economic factors such as supply chain disruptions, energy prices, monetary policy, and geopolitical events. These factors can also indirectly impact cryptocurrency prices.
- The graph shows a relationship between inflation and crypto prices, but in combination with other economic factors.
- Not quite evident in earlier years, seems to have a trend in recent years.

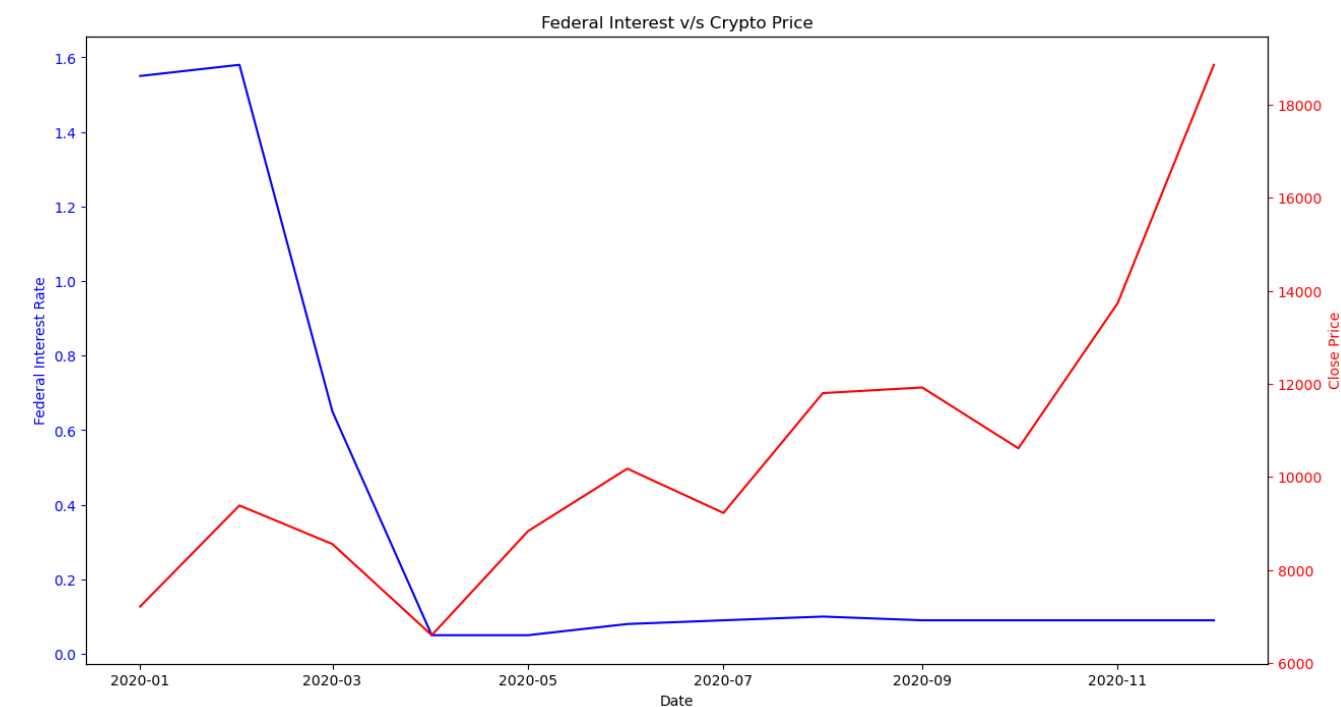




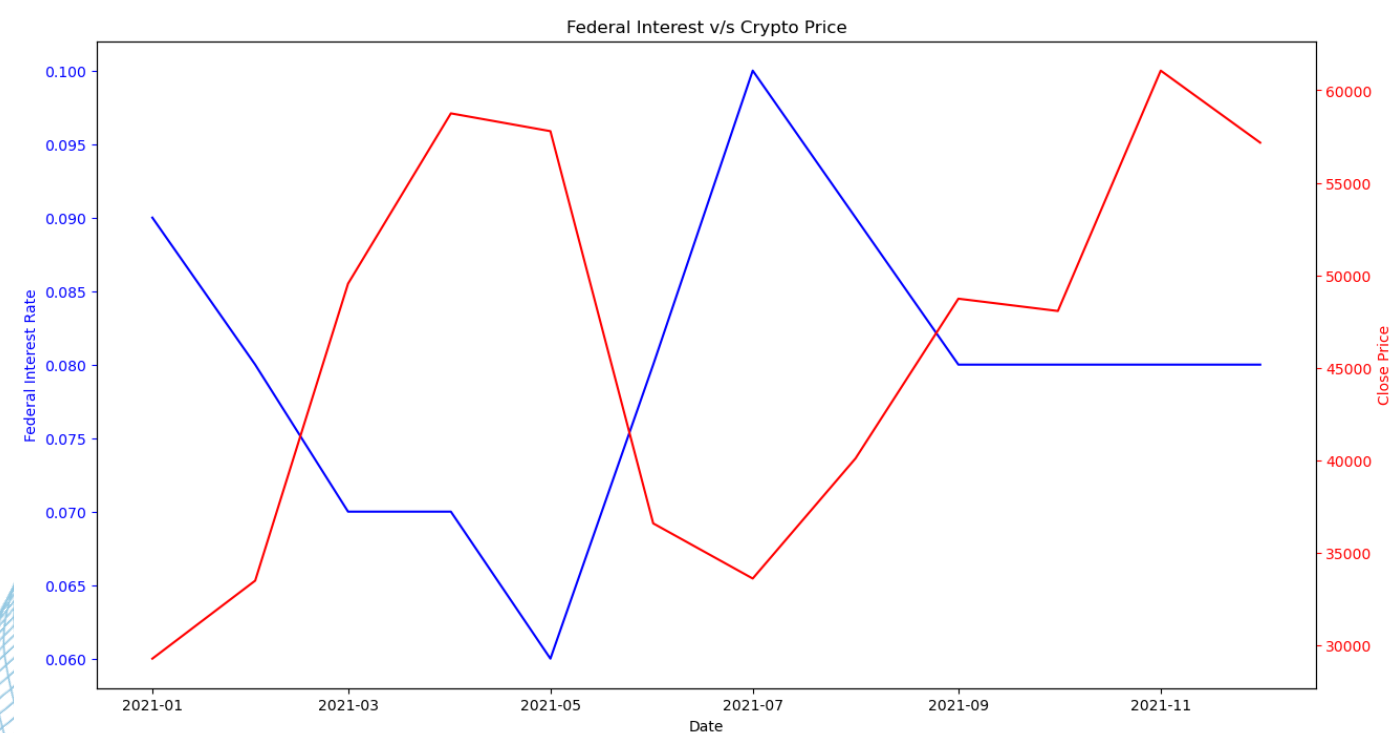
# Economic Factors – Federal Interest Rates



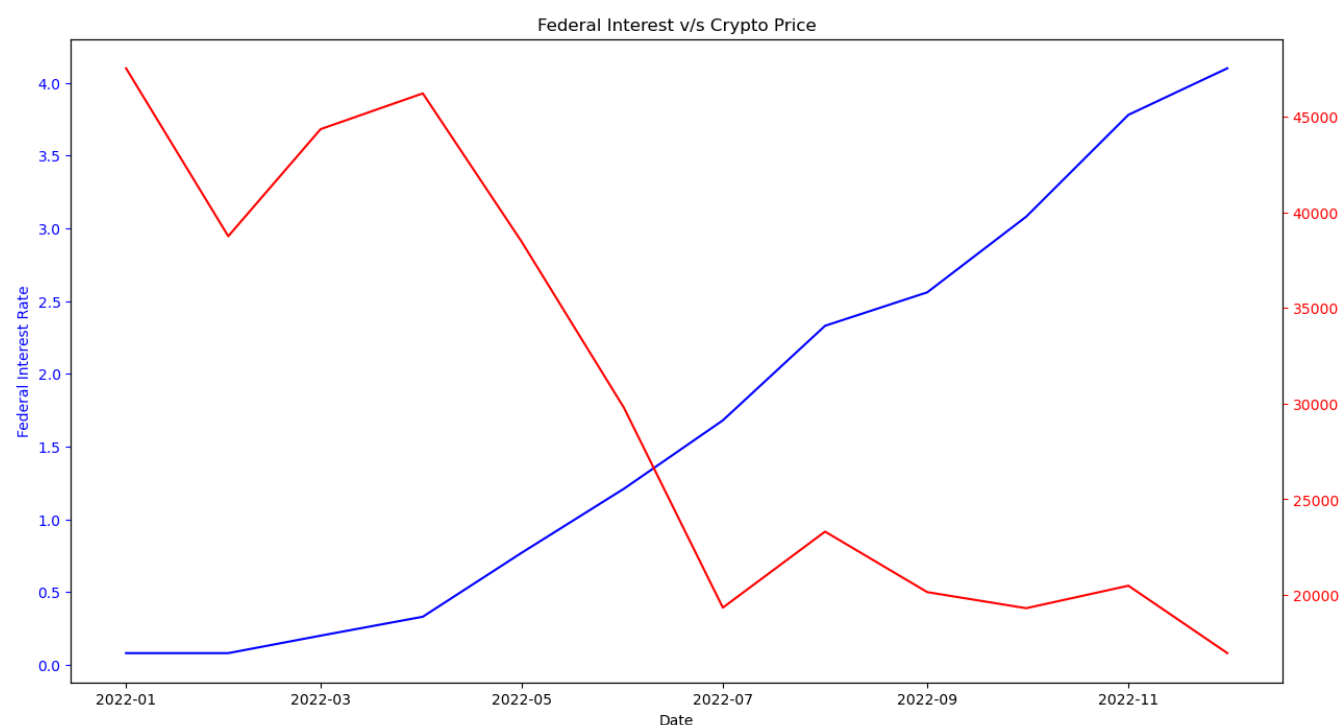
Year : 2018  
Correlation Coefficient : -0.84



Year : 2020  
Correlation Coefficient : -0.36



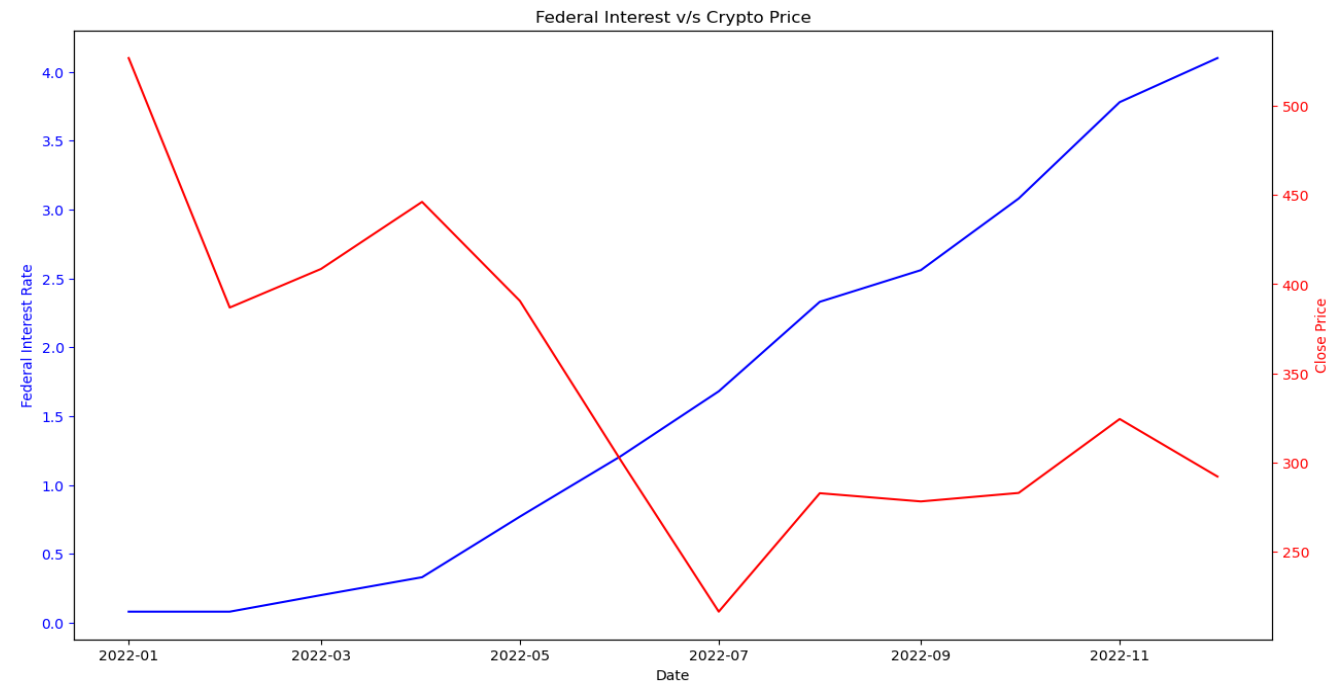
Year : 2021  
Correlation Coefficient : -0.67



Year : 2022  
Correlation Coefficient : -0.90

**BITCOIN**

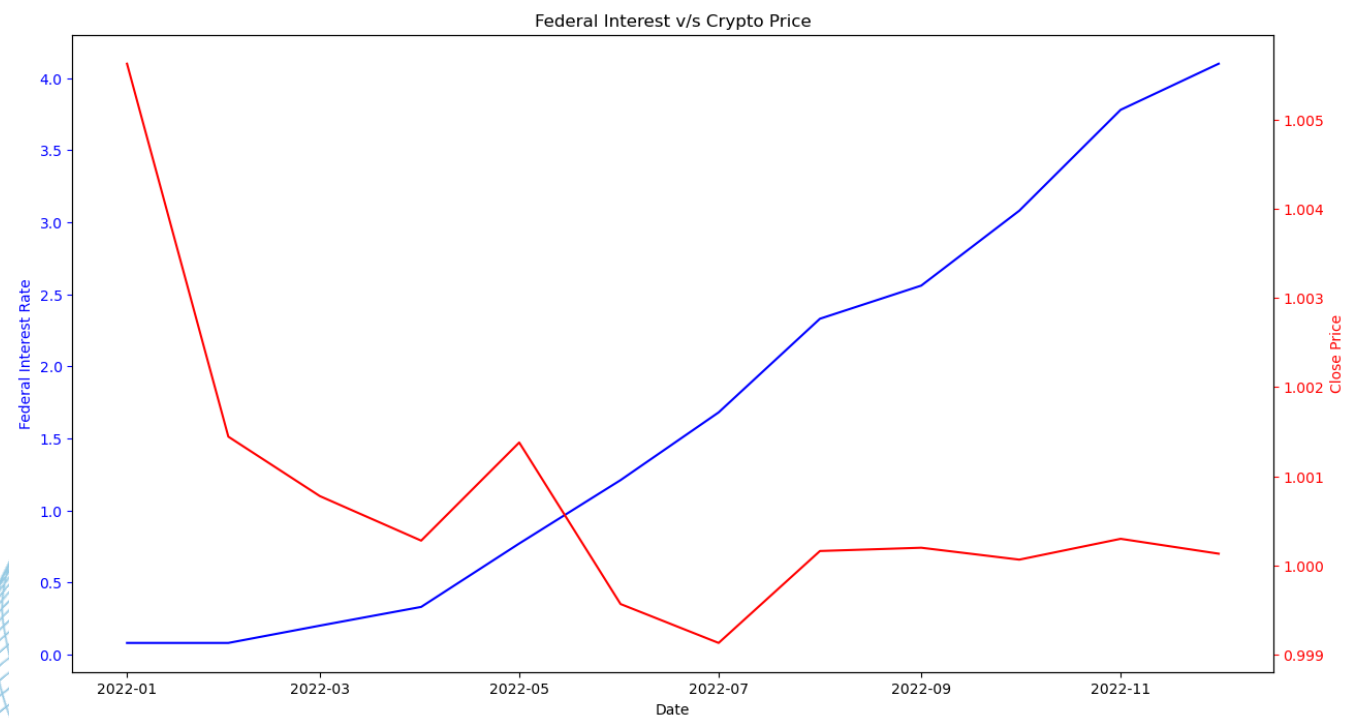
# Economic Factors – Federal Interest Rates



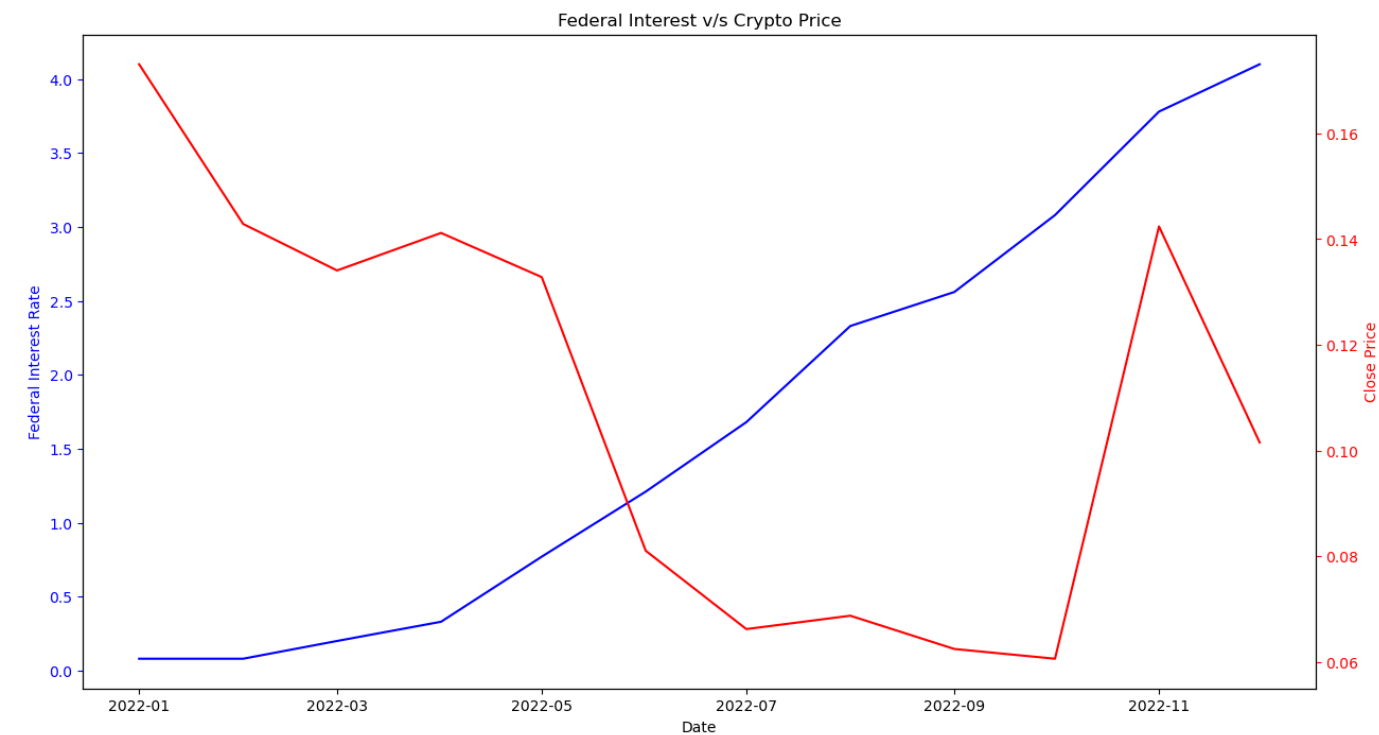
Binance Coin  
Correlation Coefficient : -0.68



Ethereum  
Correlation Coefficient : -0.82



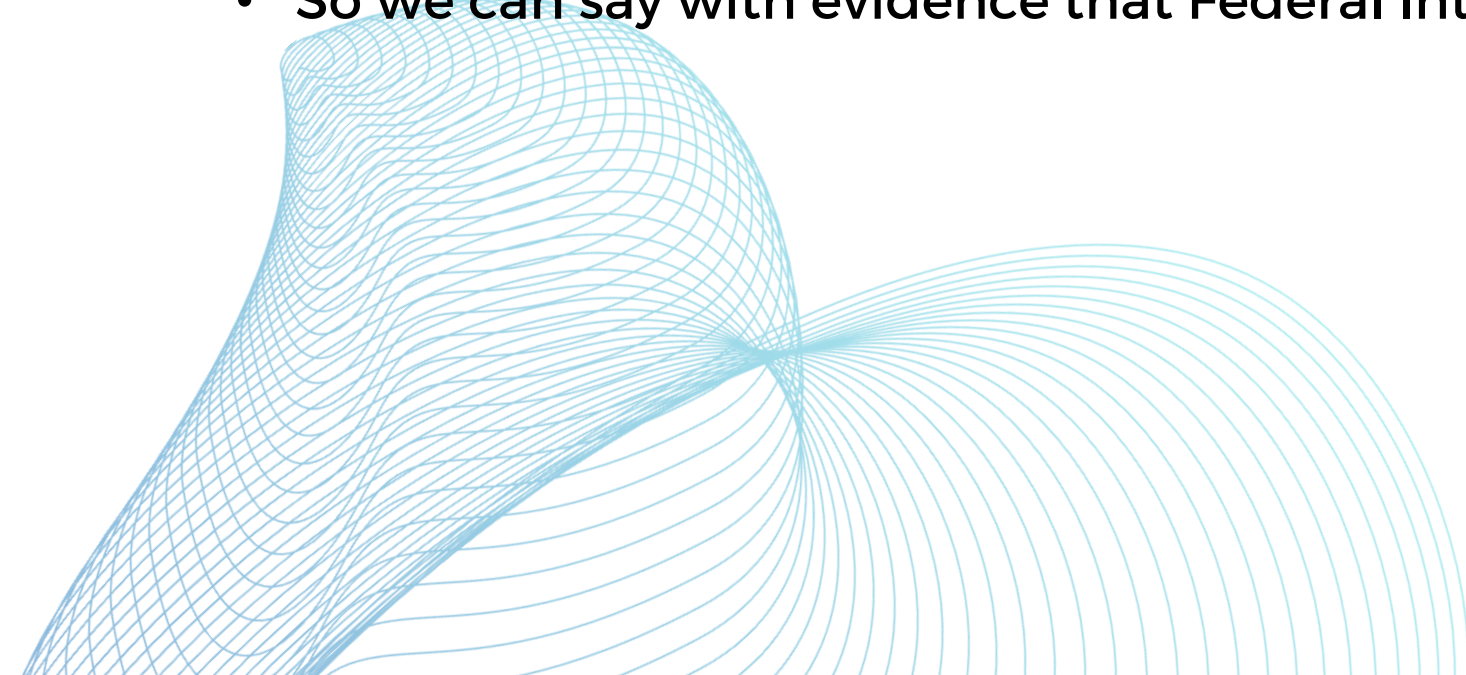
USDT  
Correlation Coefficient : -0.46



Doge  
Correlation Coefficient : -0.51

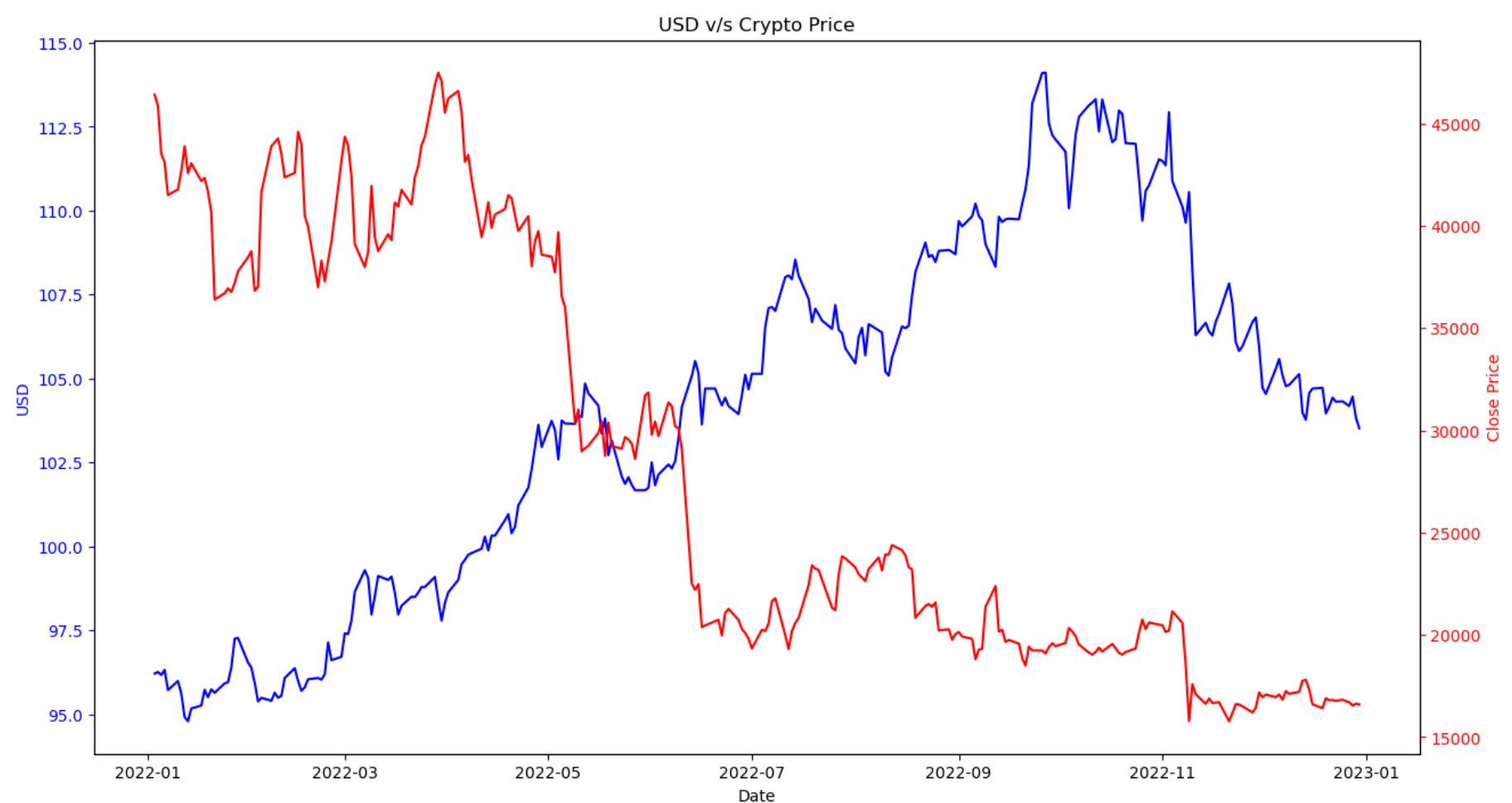
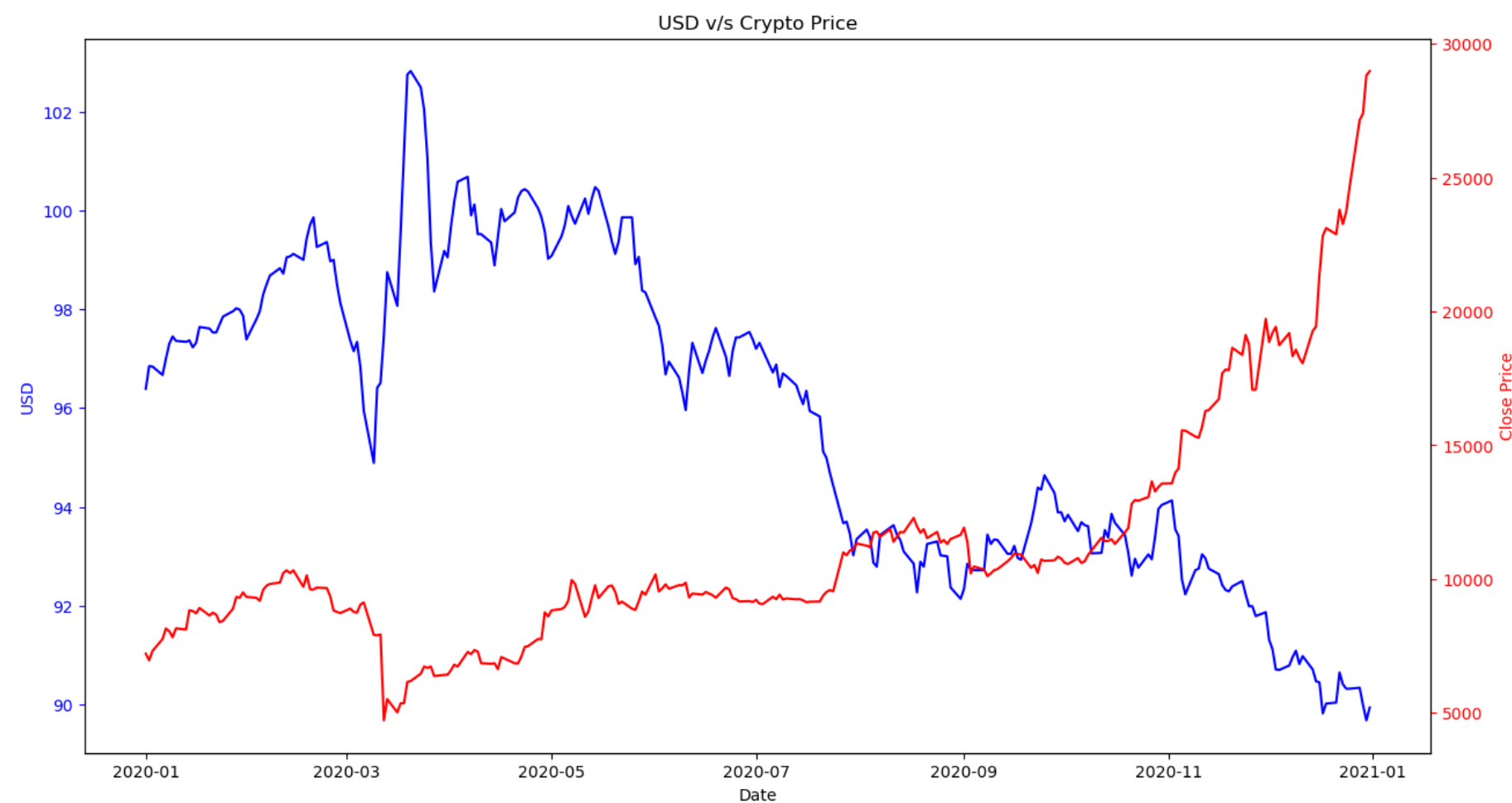
# Economic Factors – Federal Interest Rates

- According to our Hypothesis, Federal Interest Rates and Cryptocurrencies have an inverse relation. When the feds increase the interest rates, it often impacts the crypto market, causing a sharp decrease in prices.
- As evident from the plots, they do inhibit an inverse relationship, like in the year 2022, where there was a drastic increase in federal interest rates to combat inflation, which led to disruption in crypto market.
- Interest rate changes are often implemented by feds in response to economic conditions and inflation. Broader economic factors such as inflation, economic growth, and unemployment can also impact cryptocurrency prices as we've seen earlier.
- So we can say with evidence that Federal Interest Rates do have an influence over cryptocurrencies.





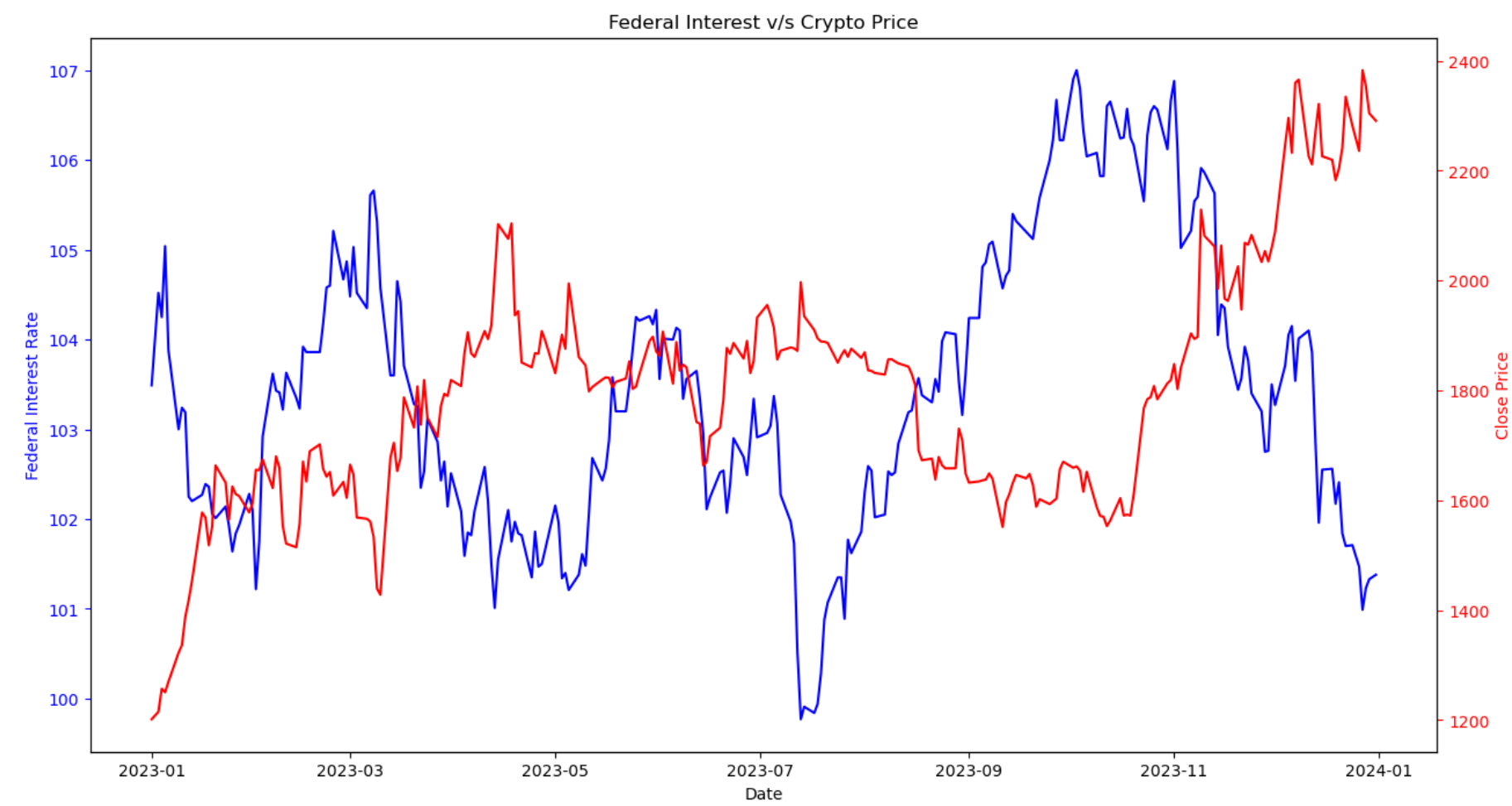
# Economic Factors – US Dollar Rates



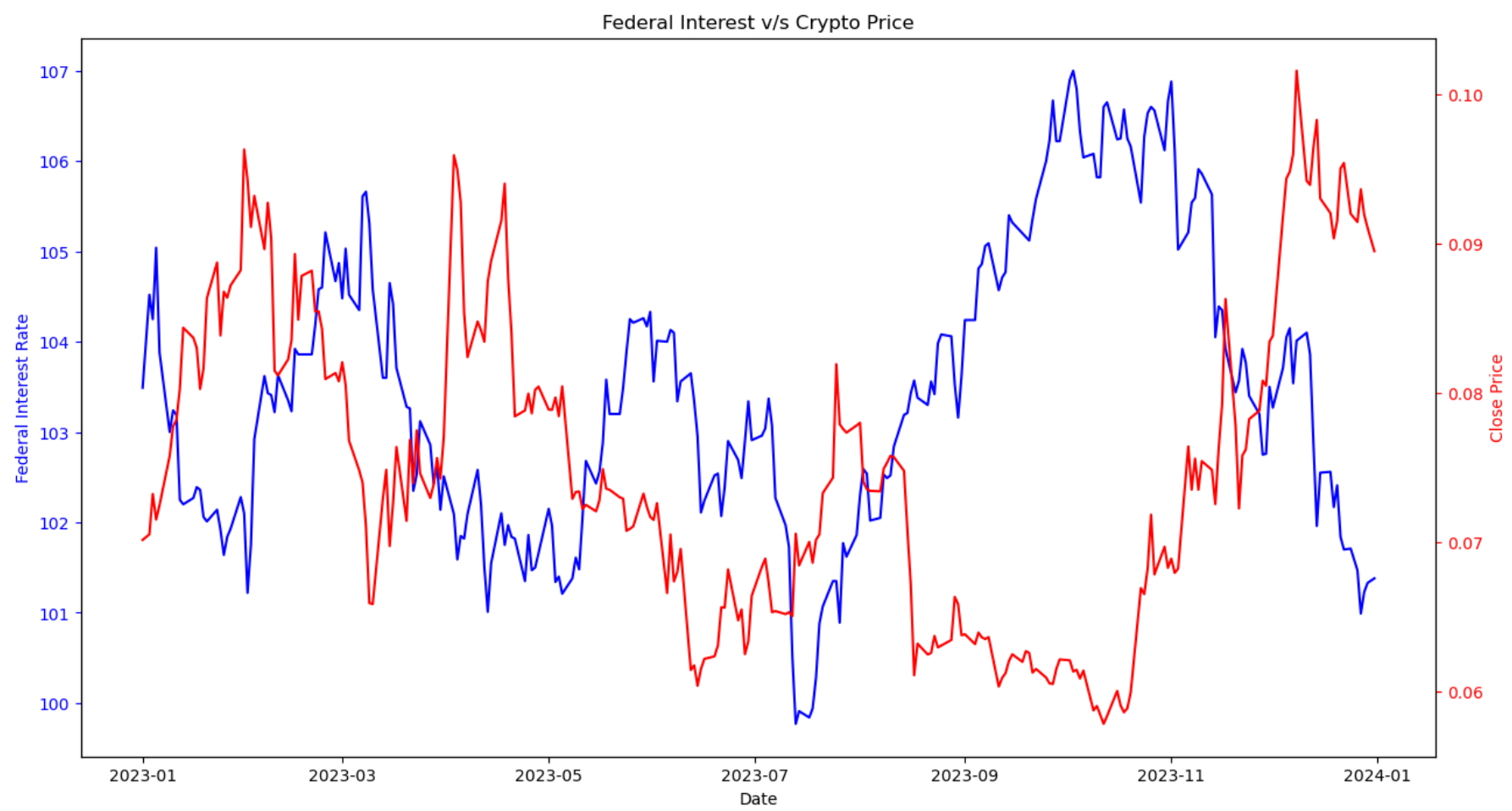
BITCOIN

BITCOIN

# Economic Factors – US Dollar Rates



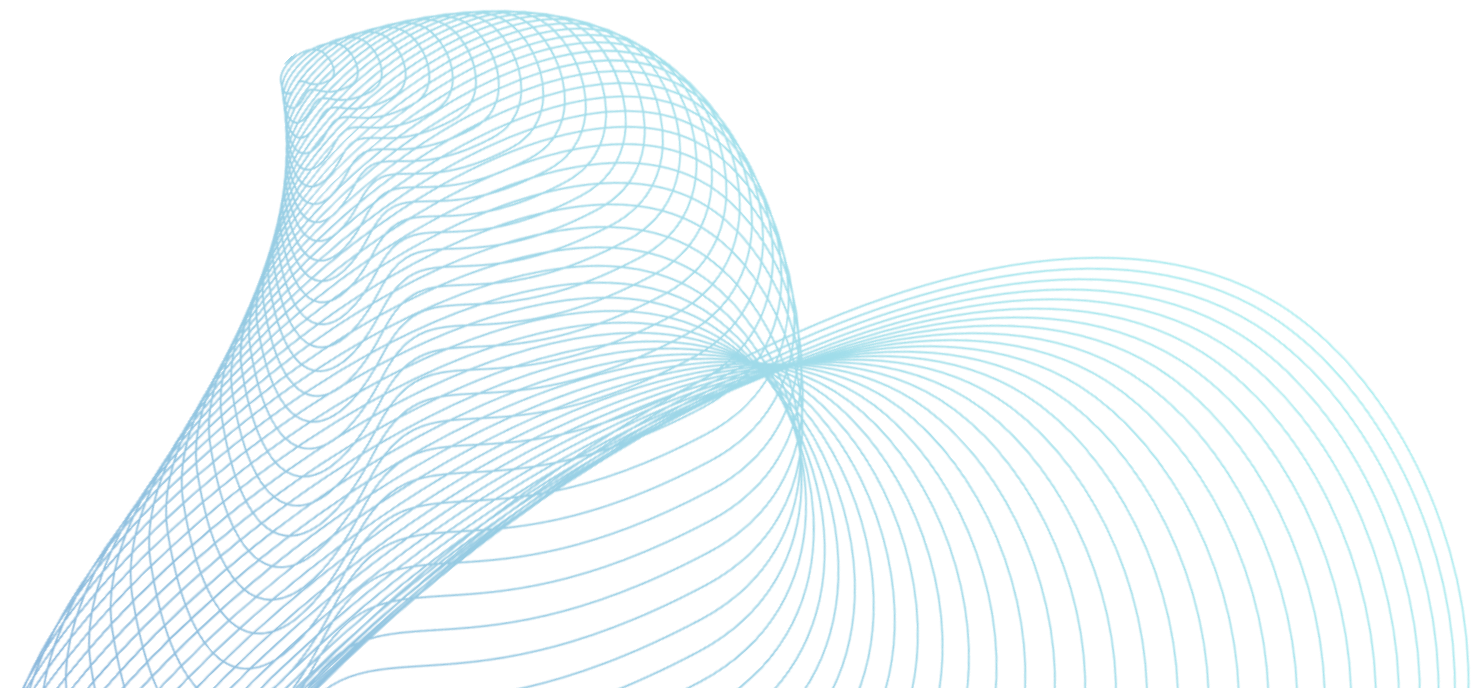
ETHEREUM



DOGECOIN

# Economic Factors – US Dollar Rates

- In the year 2022, the graph displays a general inverse correlation between the value of the US Dollar (USD) and the crypto price. As the USD strengthens, the crypto price tends to decrease, and vice versa. This aligns with the concept of currency correlation, where a stronger USD can make cryptocurrencies appear less attractive, potentially leading to a decrease in demand and price.
- Some periods where the relationship is consistent, especially in the later half of 2023.
- USD alone does have a strong influence on cryptocurrencies, but in combination with other economic factors might play a role in shaping the cryptocurrency market.





# CONCLUSION

- Not one single dominating factor. We cannot say with certainty that any one particular factor has a direct influence over cryptocurrencies.
- Cryptocurrencies being highly volatile are sensitive towards the market sentiment. People with strong influence can act as a catalyst to move the cryptocurrency market.
- Economic factors in combination can play a role in influencing the prices of cryptocurrencies.
- One observation is that Ethereum has trends very similar to that of Bitcoin. Bitcoin has a direct influence over Ethereum.
- Invest Wisely!



**THANK YOU!**

