

## Goal of the analysis

Cryptocurrency has gained attention recently because of its decentralized nature and high volatility in the market. The non-linear and disordered nature of the market makes price prediction a challenging and difficult task. The goal here is to analyze the impact of macro-economic and market sentiment factors on cryptocurrency price movements and use them for price prediction. We will consider Bitcoin, Litecoin, Ethereum, Dogecoin and Ripple for this analysis.

## Description of datasets

We will be considering the data from January 2014 to December 2021, with a total of 19 predictor variables and the number of data points will be approximately 2,024 (8 trading years with 253 trading days each year).

Feature	Frequency	Source
<a href="#">Oil</a> , <a href="#">Lumber</a> and <a href="#">Gold</a> Prices	Daily	yahoofinance.com
CBOE volatility ( <a href="#">VIX</a> ) and volatility of volatility ( <a href="#">VVIX</a> ) index	Daily	yahoofinance.com
China ( <a href="#">SSE</a> ) and Taiwan ( <a href="#">TAIEX</a> ) index	Daily	yahoofinance.com
<a href="#">SP500</a> and <a href="#">Dow Jones Index</a>	Daily	yahoofinance.com
<a href="#">Google</a> trends	Daily	trends.google.com
<a href="#">Twitter</a> sentiment	Daily	twitter.com
<a href="#">CNY/USD</a> and <a href="#">EUR/USD</a> exchange rate	Daily	yahoofinance.com
Hash rate, mining profitability and transaction value of <a href="#">crypto</a>	Daily	crypto.com
Lag prices of <a href="#">crypto currencies</a>	Daily	crypto.com
<a href="#">ADS Business Conditions index</a>	Daily	philadelphiafed.org
Realized volatility of <a href="#">SP500</a>	Daily	yahoofinance.com

## Proposed data analysis and tentative figures/tables

We aim to analyze the impact of these predictors and identify the significant ones for individual cryptocurrency price prediction. We plan to perform exploratory data analysis of these macro variables and present the output in the forms of comprehensive charts/tables and word clouds of significant words from relevant tweets.

## Why we expect the analysis to successfully address our goal

Recent studies have tried to understand the association of bitcoin prices with twitter sentiments and gold prices. Our analysis will try to expand into observing impacts of other macroeconomic variables on prices of multiple cryptocurrencies to give better insights on price prediction. Hence, we expect it to succeed in meeting the goal.