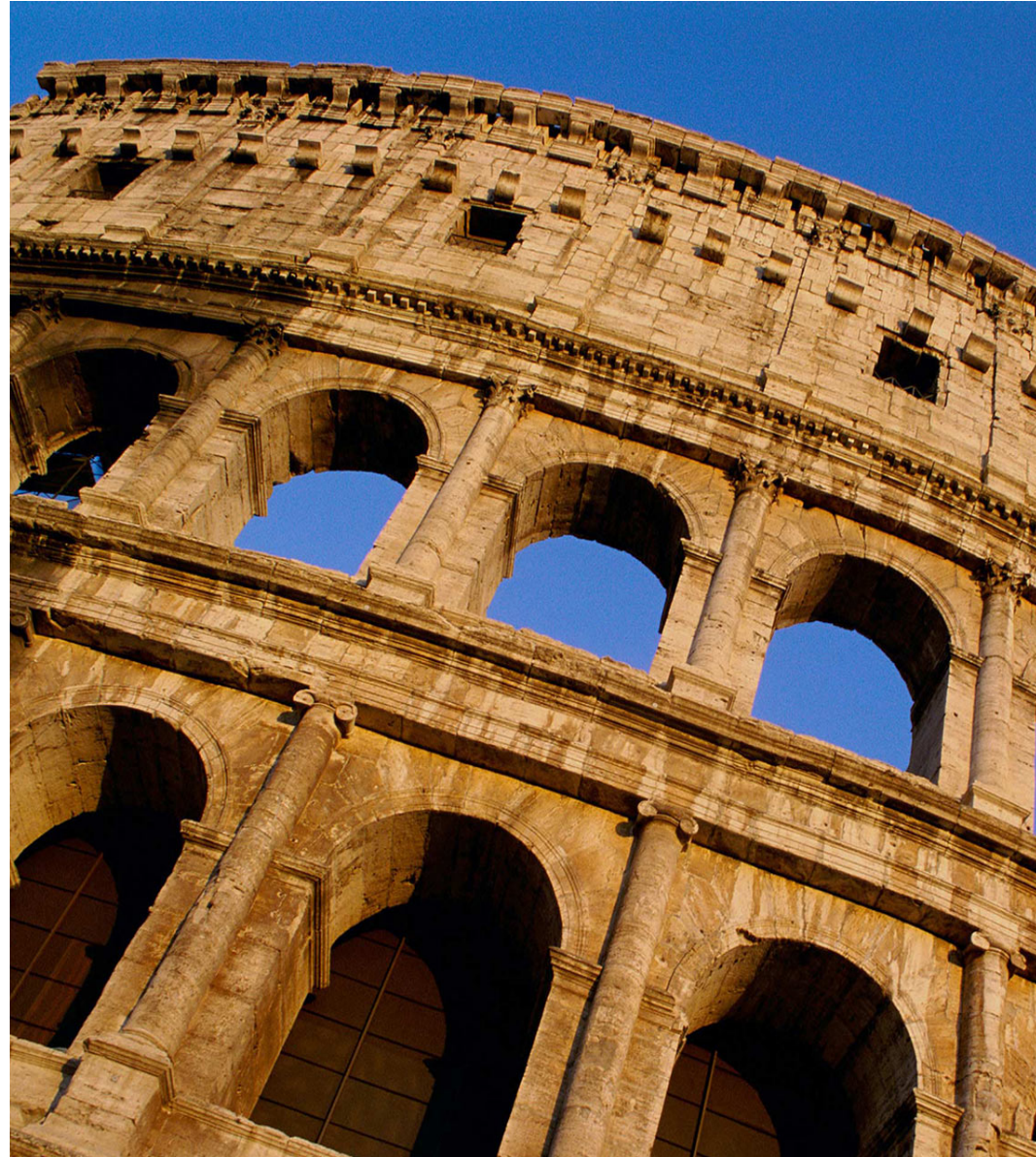Project 1 - Team #4

Cryptocurrency Growth compared to Other Assets in Current Macroeconomic Environment

Team #4 Members:

Sasha Flores
Jiaping Bian
Julian Oquendo
Kevin Machine

Columbia University -FinTech PT 06-2020

Motivation

With the introduction of **Crypto-Currency Act of 2020** bill, we believe cryptocurrencies will play a more important role in **financial investments** and **daily transactions**.

Summary

Questions we asked ourselves:

1. Are cryptocurrencies performing well and growing in popularity in comparison to traditional equities market?

2. Will stable coins eventually provide a better alternative to the US Dollar?

Why these questions?

- The U.S. equity markets serves as good benchmark to compare performance and popularity of investments in general

- The US Dollar is a very stable currency which is widely used in payments worldwide.

- We want to dig into the emerging digital currencies and compare it to traditional currencies see how this will shape our global economy.

Summary

We were **able to answer "Part I"** of our project **conclusively.**

We were **partly able to answer "Part II"** of our project as the data and research shows the **work is still in progress.**

Findings

Part I:

- During the 5-Year period between Aug 2015 - Aug 2020, despite their extreme volatility, Ethereum, Ripple and Bitcoin **outperformed** both S&P 500 and Gold by wide margins.
- Compared to Gold and the S&P 500, the trading volumes for BTC and ETH have exploded from almost 0 between August 2015 - August 2017 and accelerated between 2019 to 2020 to 7-fold and 3-fold respectively.

Part II:

-During the 5-Year period between August 2015 - August 2020, the largest cryptocurrency network (BTC) has grown 4-fold. Nevertheless, the cryptos are far more volatile as compared to the U.S. Dollar Index.
- Our analysis showed that the most widely used stablecoin, Tether, which was initially designed to be pegged to the dollar, has not lived up to its promise. Our finding was that Tether is still far too volatile when compared to the US Dollar.

Questions & Data Sources

Part I:

We retrieved the closing prices and trading volumes going back 5 years for the top 3 cryptocurrencies(ETH,BTC,XRP) from ***Messari.io***; S&P 500 and Gold data from ***Google Finance***.

Part II:

We retrieved the closing prices and trading volumes going back 5 years for XRP and Tether (the largest stablecoin) as well as the active addresses and transactions for Bitcoin rom ***Messari.io***. *We got the U.S. Dollar Index data from…..*

Data Clean-Up & Exploration (Sasha, Jiaping, Julian)

- We used Pandas to clean and format our dataset

- (Describe exploration and cleanup process)

- (Discuss any problems that arose after exploring the data, and how you resolved them)

- (Present and discuss interesting figures developed during exploration, ideally with the help of Jupyter Notebook.)

Data Analysis - Sasha, Jiaping, Julian

- (Discuss the steps you took to analyze the data and answer each question you asked in your proposal)

- (Present and discuss interesting figures developed during analysis, ideally with the help of Jupyter Notebook)

# Discussion - Daily Returns for S&_ 500, Gold & Cryptos

Daily Returns of S&P500, Gold and Crytos
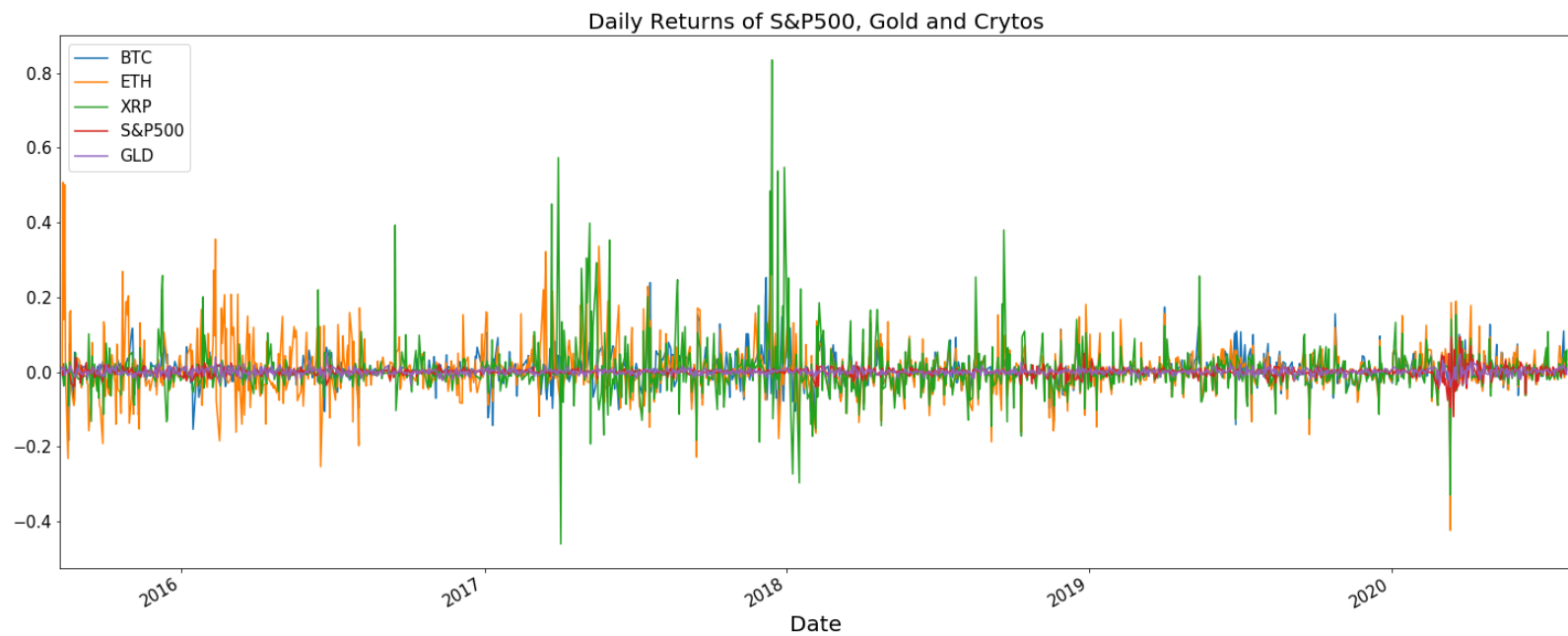
# Discussion - 5-Year Cumulative Returns - S&P 500, Gold & Cryptos

Five Year Cumulative Returns of S&P500, Gold and Crytos
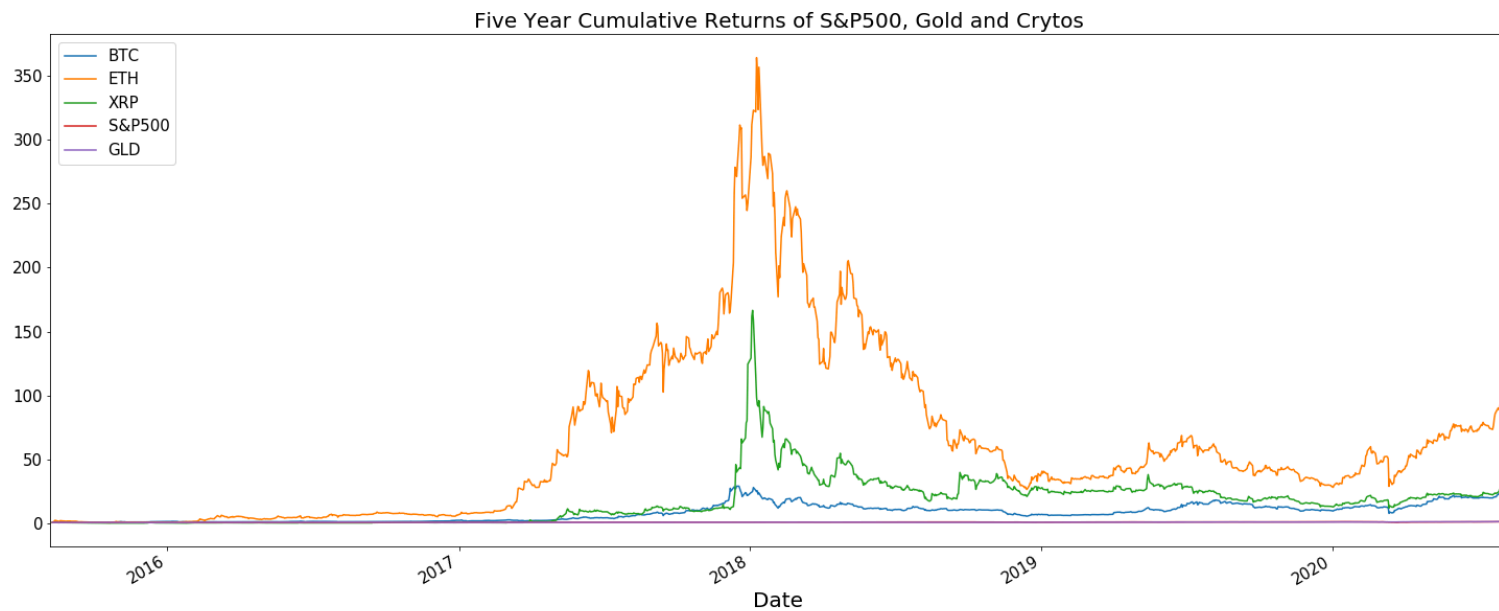
Discussion - S&P 500, Gold and Ethereum cumulative Returns

S&P500 cumulative returns | GLD cumulative returns | ETH cumulative returns
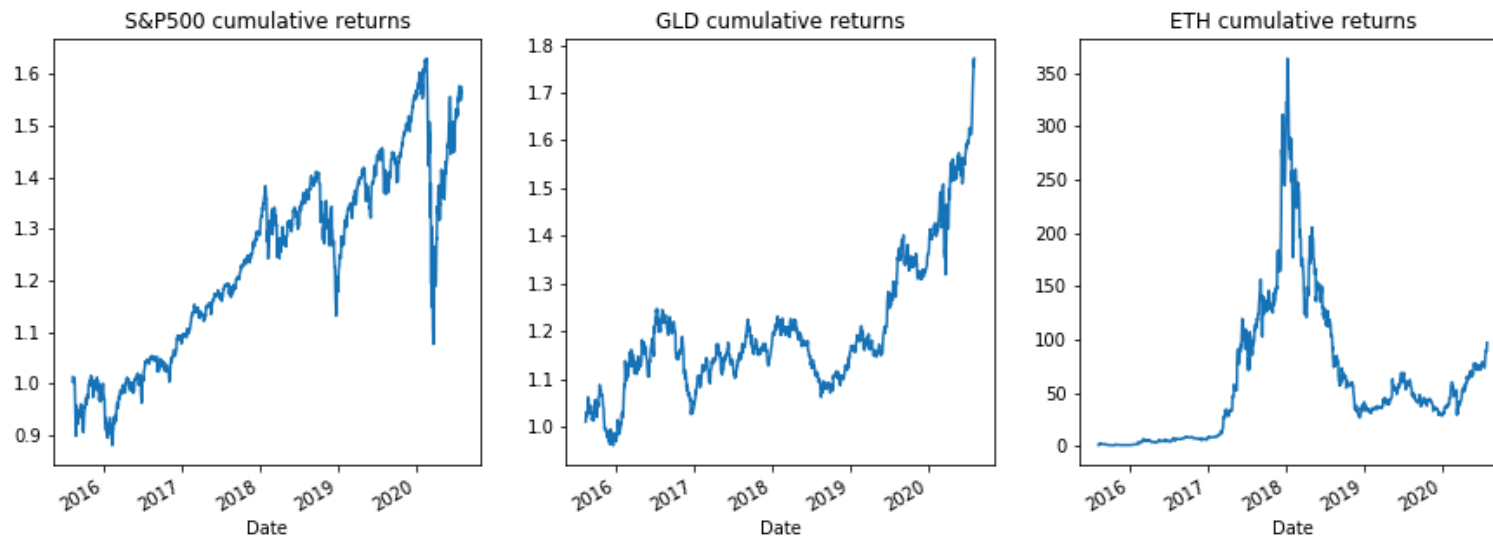
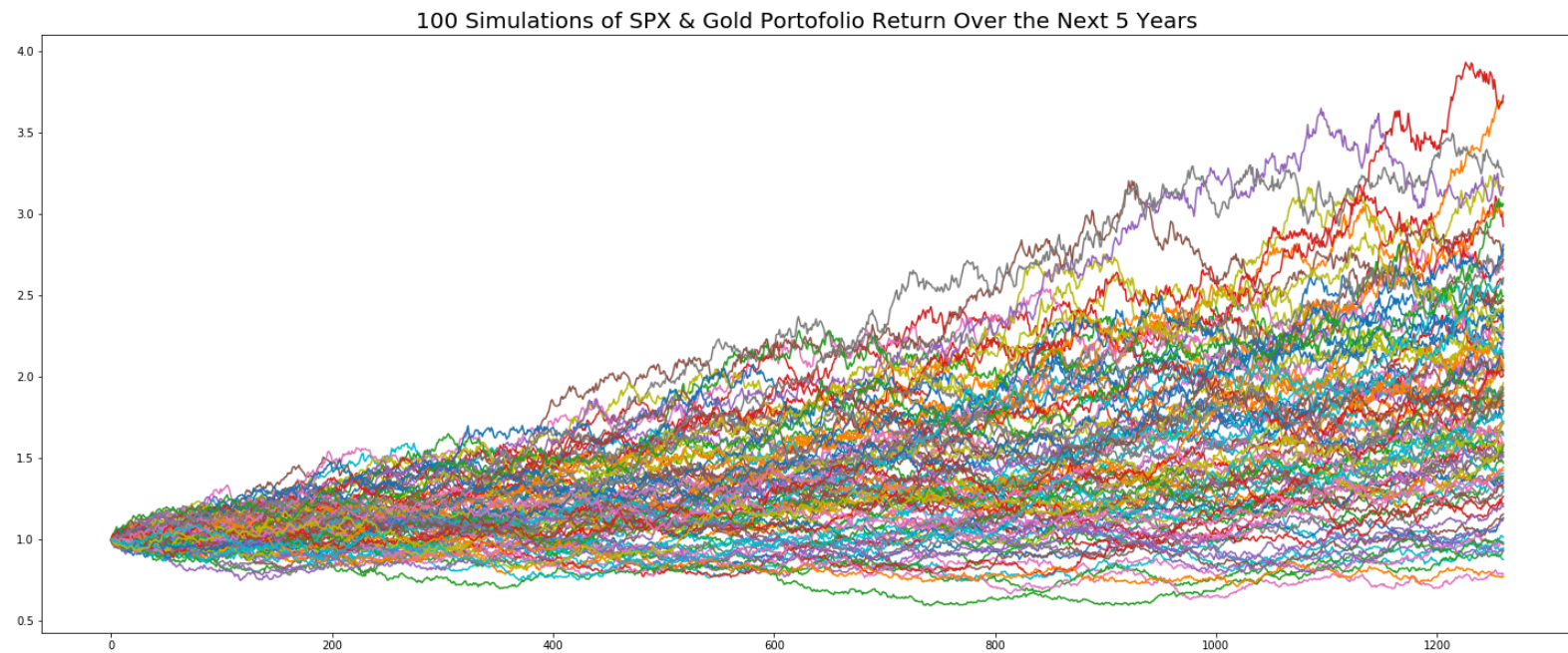# Discussion - Projection for Bitcoin Returns over the next 5 Years

100 Simulations of BitCoin Portofolio Return Over the Next 5 Years
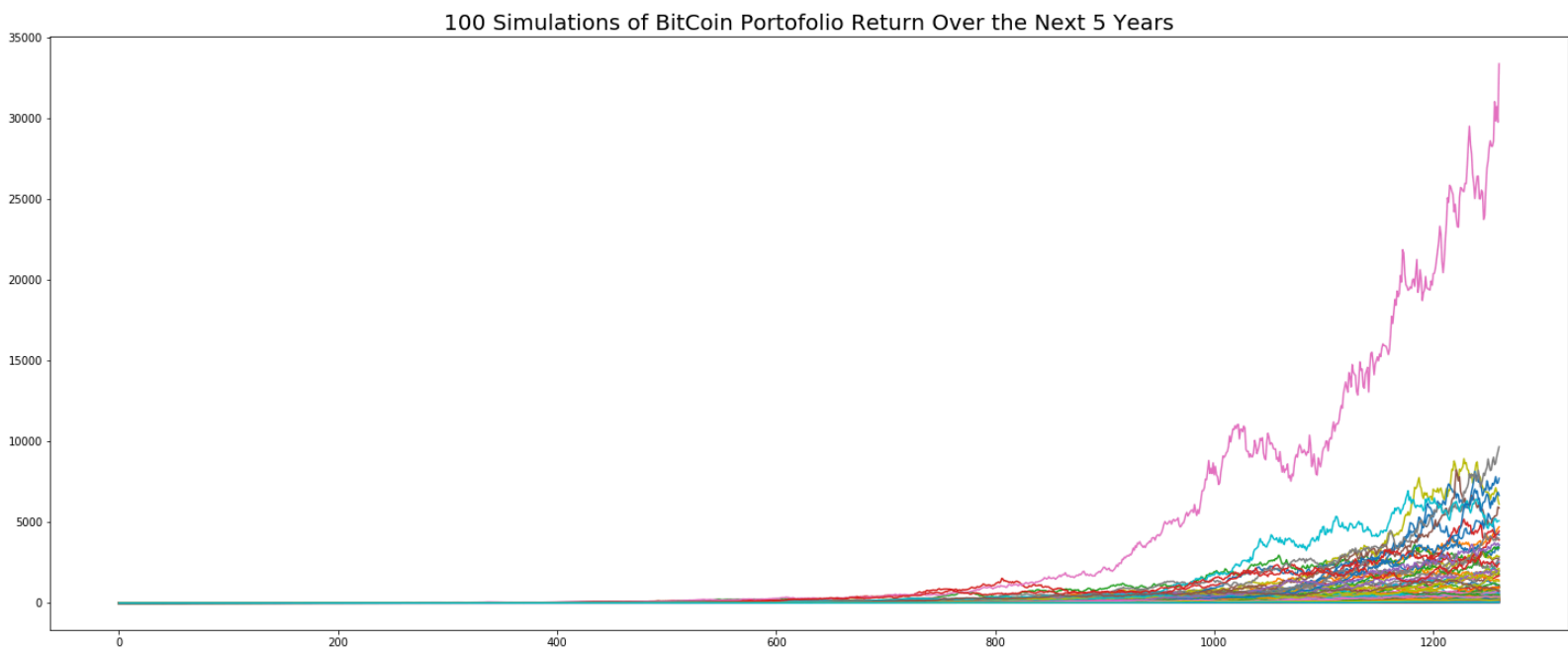
Discussion - Correlation & Sharpe Ratios
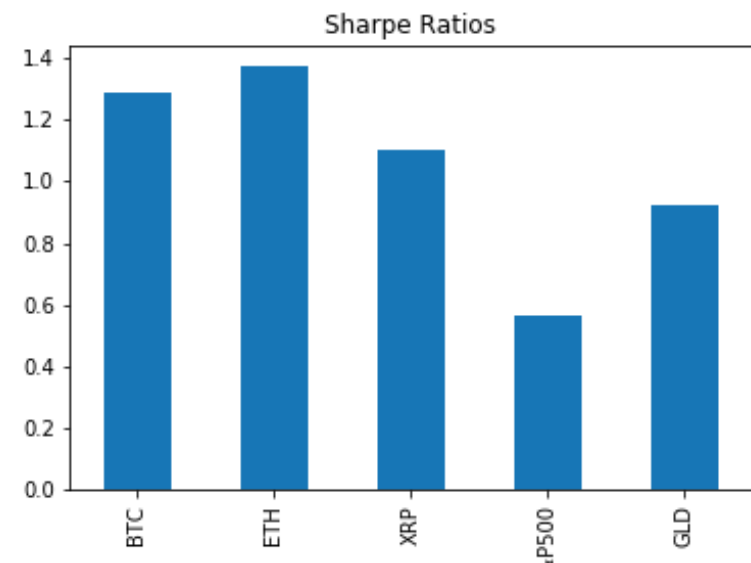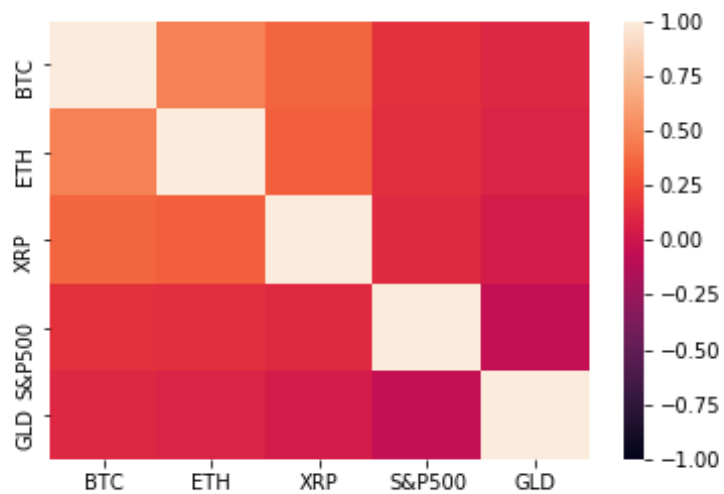
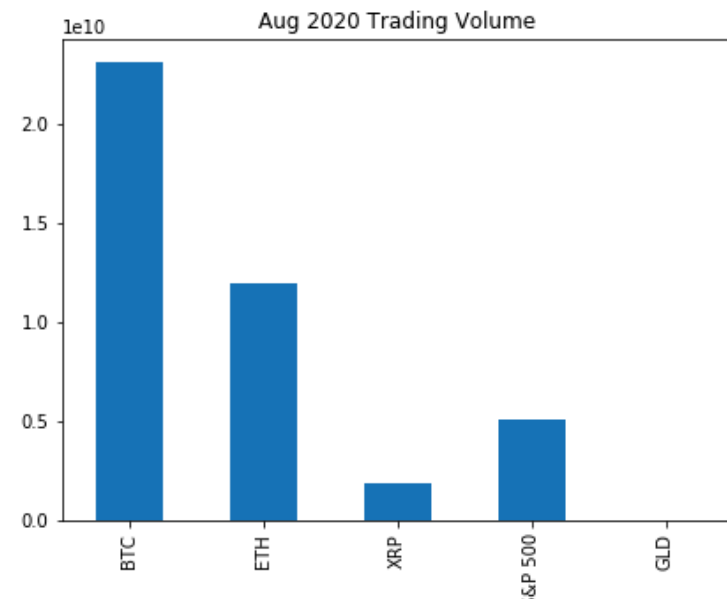# Discussion - Projecting future returns using Monte Carlo simulation

100 Simulations of SPX & Gold Portofolio Return Over the Next 5 Years

Discussion - Projecting future returns using Monte Carlo simulation

100 Simulations of BitCoin Portofolio Return Over the Next 5 Years

Discussion

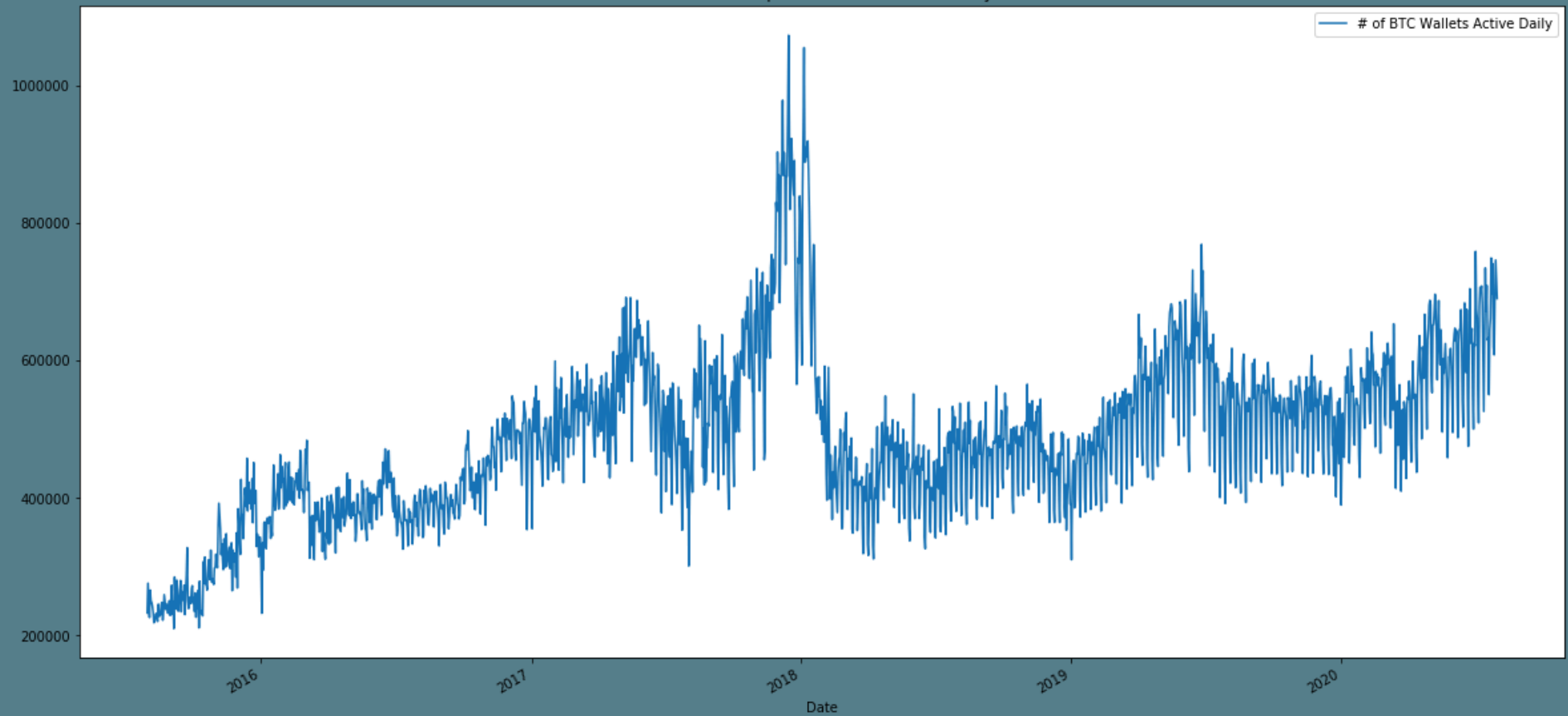5y Historical Volumes of Cryptos, SPY and GLD
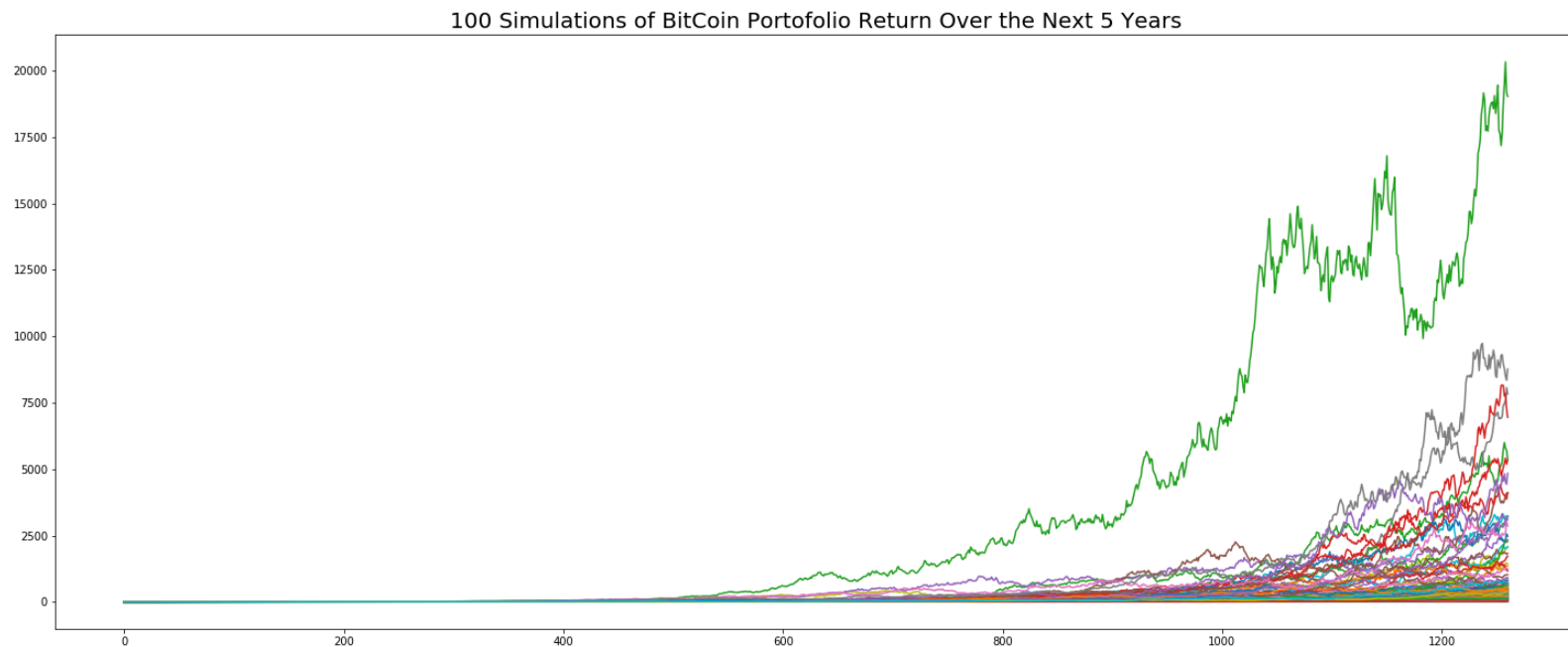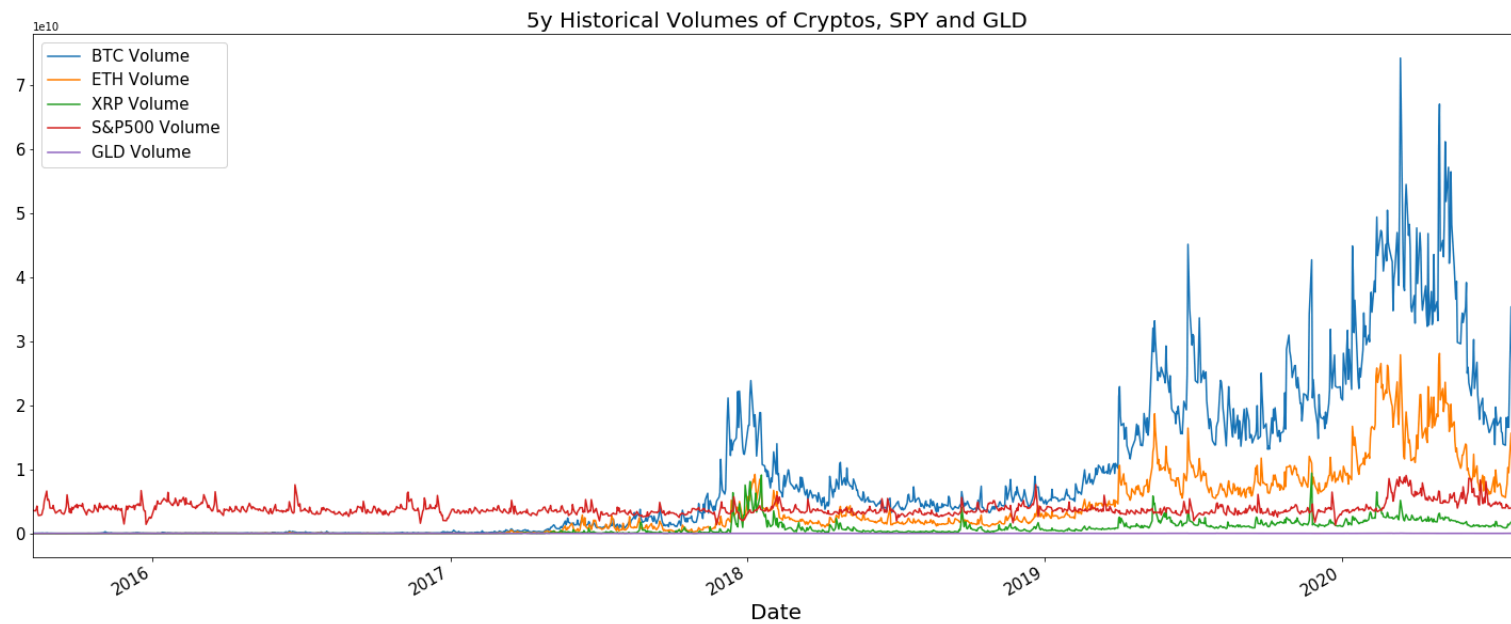
Discussion - 5-Year Trading Volume Comparison
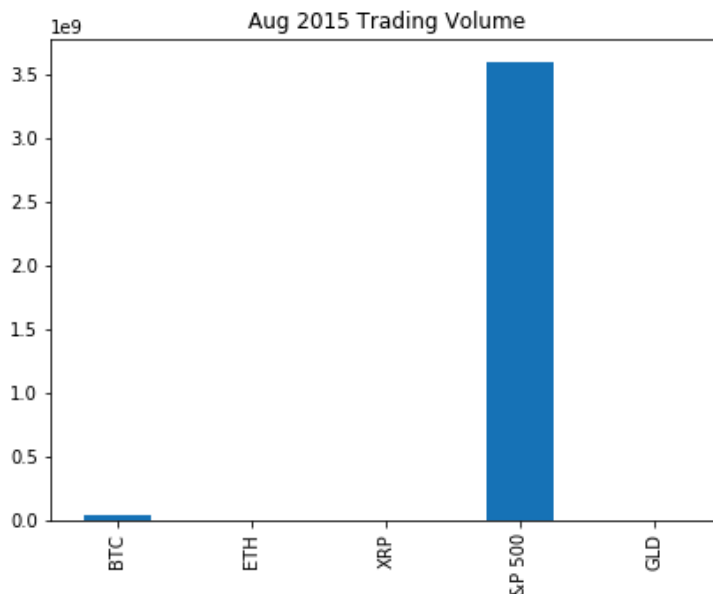
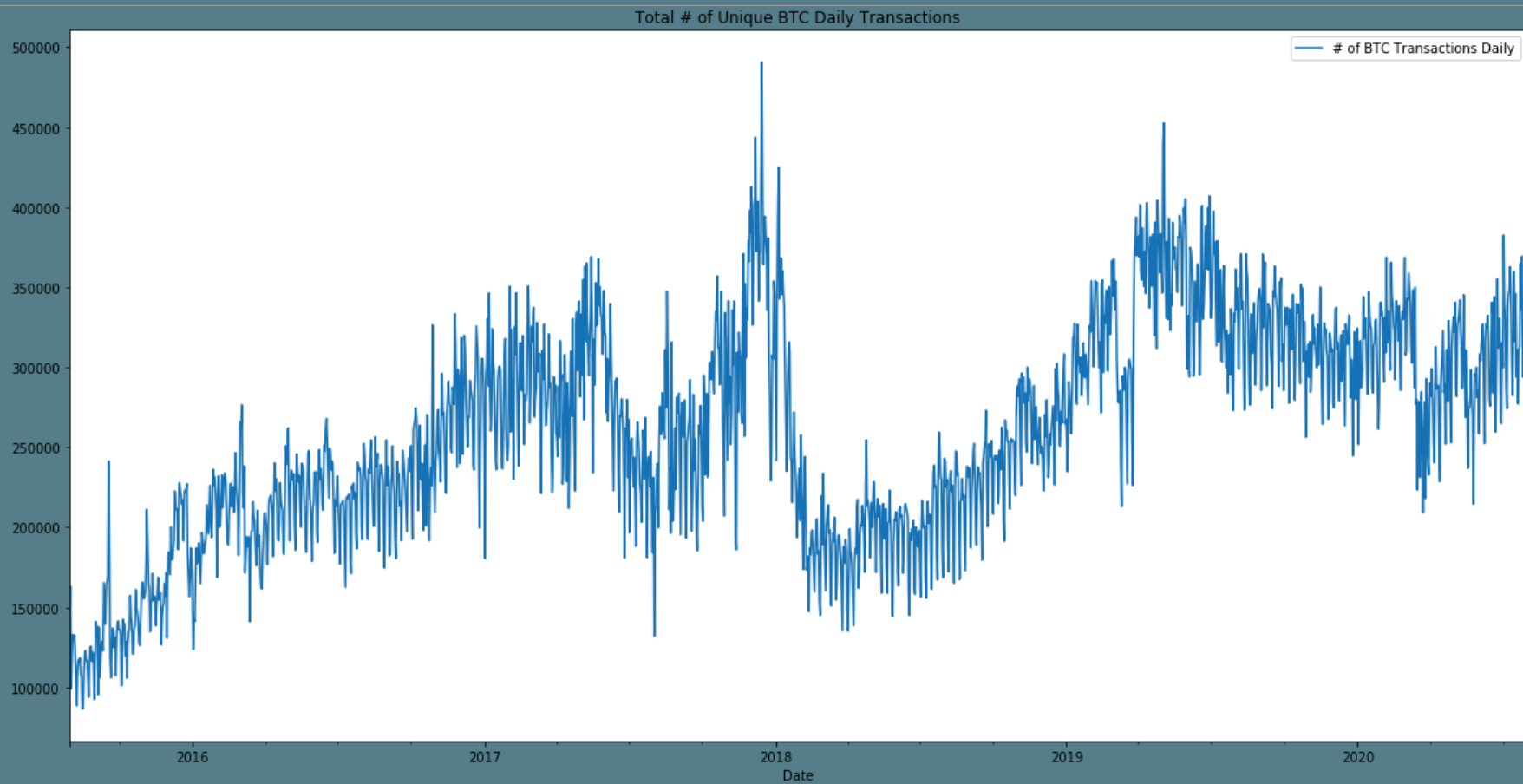# Part II: Stable Coin Stability Analysis

BTC -Wallets Active Daily

Total # of Unique BTC Wallets Active Daily

BTC - Daily Transactions
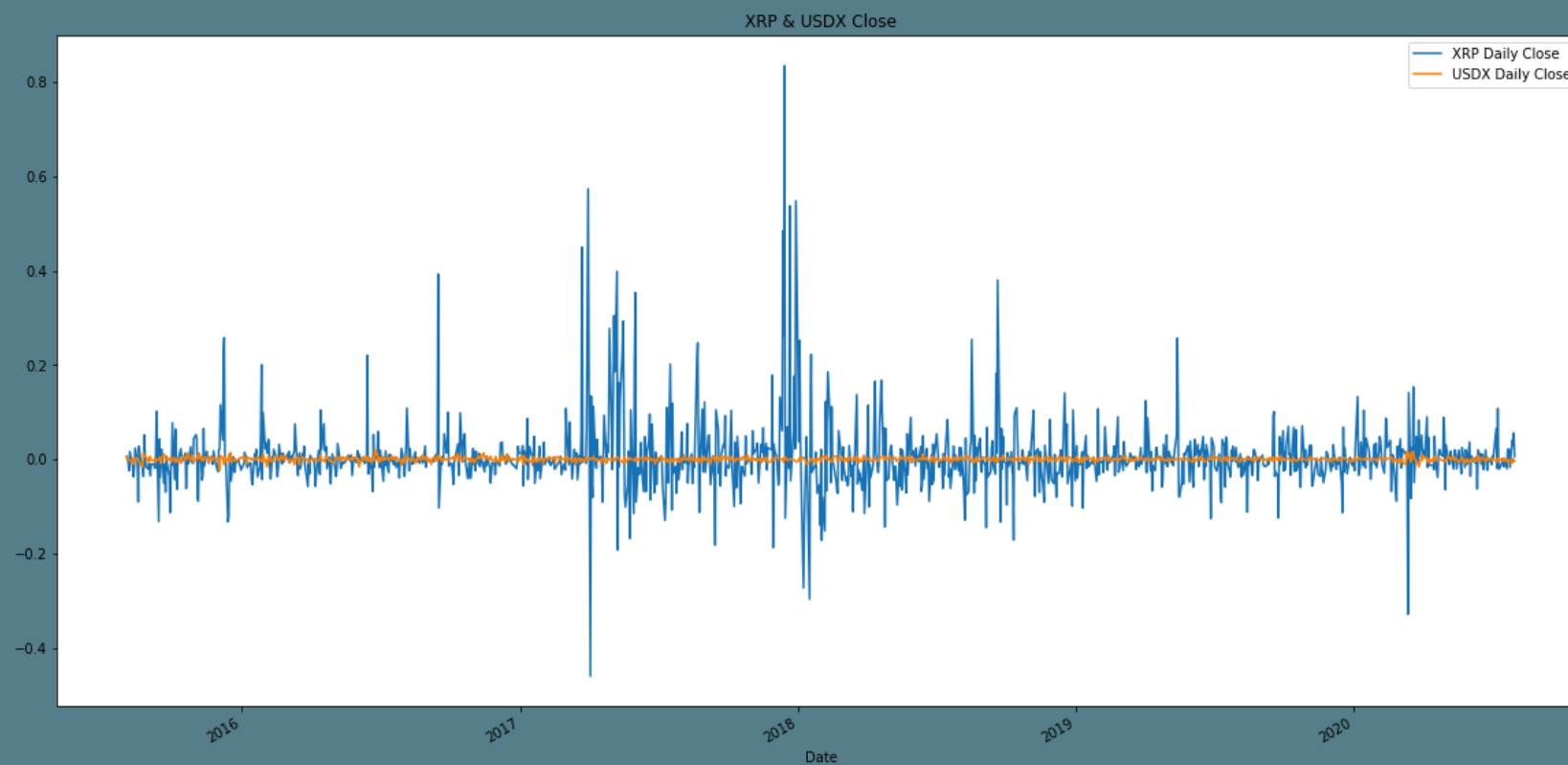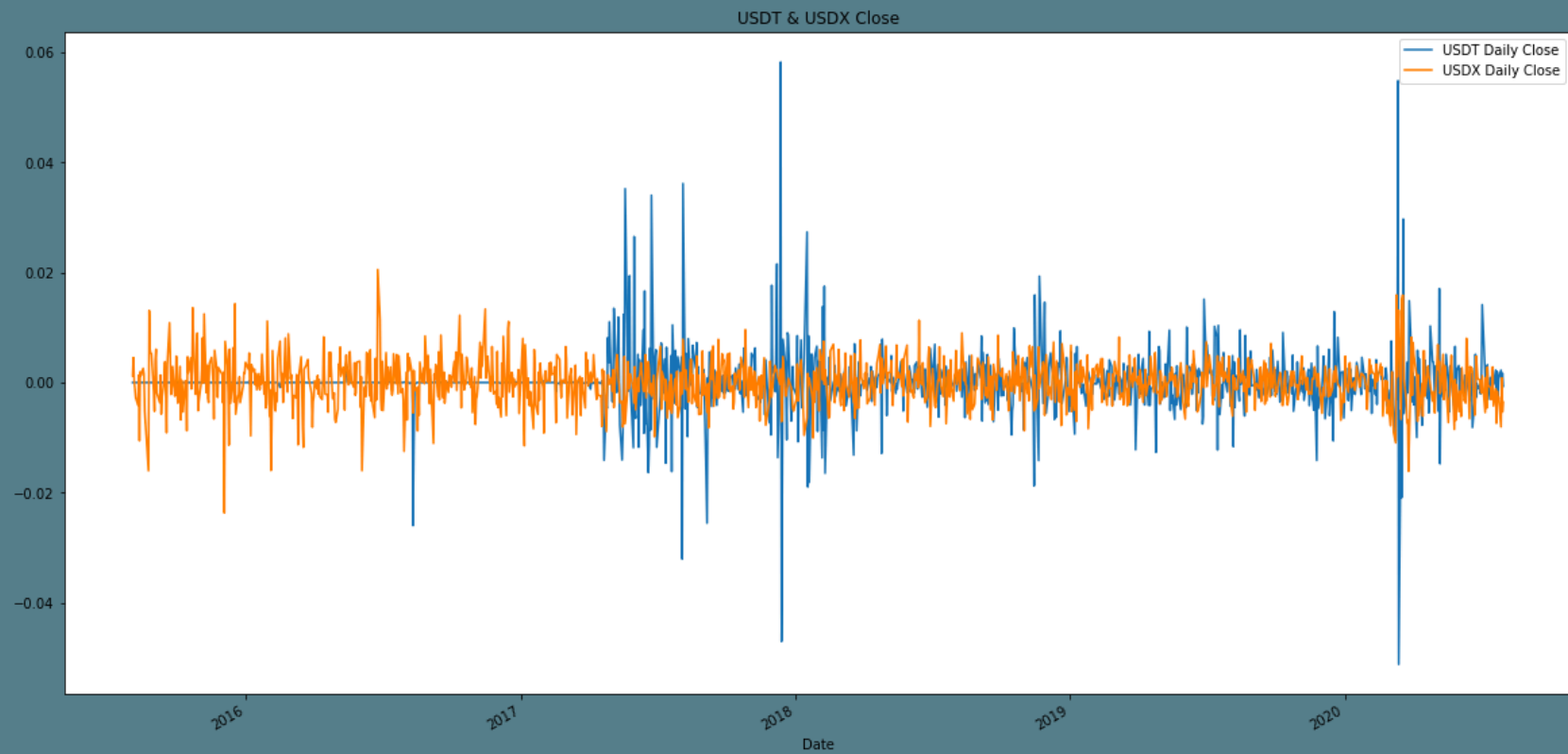

Total # of Unique BTC Daily Transactions

XRP Price Volatility vs US Dollar Index

Tether (USDT) Volatility vs the US Dollar Index (USDX)

USDT & USDX Close

Discussion - Other Stablecoins and Market developments

- Facebook Libra

- The Cryptocurrency Act of 2020

- Federal Reserve Bank of Boston & MIT Research collaboration on digital dollar

- Current markets necessitated by COVID-19 pandemic and the viability of using a digital stable coin as an extra tool in U.S. Government's and FEDs stimulus response in times of market distress.

Postmorterm

- (Discuss any difficulties that arose, and how you dealt with them.)

Postmorterm - Future Research

- What is the confidence level in the U.S. Treasuries in current market conditions?

- Could a move towards an economy centered more on cryptocurrencies be on the horizon?

- If we had two more weeks, we could analyze the data we've already collected on the **US Treasuries**, and see how the cryptos have performed relative to the 1-Year, 5-Year and 10-Year rates.

Thank you for your Attention

Questions?

Comments ?