

Diversified Investment Portfolio with Data Science



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Executive summary

Investment experts often recommend that small investors build a well-diversified portfolio to mitigate risks. By diversifying, the impact of significant price fluctuations in individual assets or asset classes can be balanced by the performance of others.

In this project, the task was to download data for 20 financial instruments from ****Yahoo Finance**** and perform correlation analysis. The goal was to select four assets that exhibit minimal correlation with each other, thereby creating a well-diversified portfolio.

⚠ Important Note: This project aims to deepen Python programming and data analysis skills rather than to represent a viable investment strategy.

CREATE A WELL DIVERSIFIED PORTFOLIO

DATA SOURCING

Retrieve pricing information for 20 randomly chosen financial assets.

2 - STOCK TICKERS

- Tesla (ticker: TSLA)
- BYD Motor (ticker: BYDDF)
- Clean Energy ETF (ticker: IQQH.F)
- Bitcoin (ticker: BTC-USD)
- Ethereum (ticker: ETH-USD)
- Solana (ticker: SOL-USD)
- Coinbase részvény (ticker: COIN)
- Amazon (ticker: AMZN)
- Meta/Facebook (ticker: META)
- Microsoft (ticker: MSFT)
- NVIDIA (ticker: NVDA)
- Paypal (ticker: PYPL)
- Berkshire Hathaway (ticker: BRK-A)
- S&P 500 ETF (ticker: CSPX.AS)
- Developed Asia ETF (ticker: VAPU.SW)
- Gold (ticker: GC=F)
- Silver (ticker: SI=F)
- Mineral-oil (ticker: CL=F)
- Under Armour (ticker: UA)
- Gartner (ticker: IT)

CREATE A WELL DIVERSIFIED PORTFOLIO

CORRELATION ANALYSIS

To construct a highly diversified portfolio, pick four assets that exhibit the lowest correlation with one another.

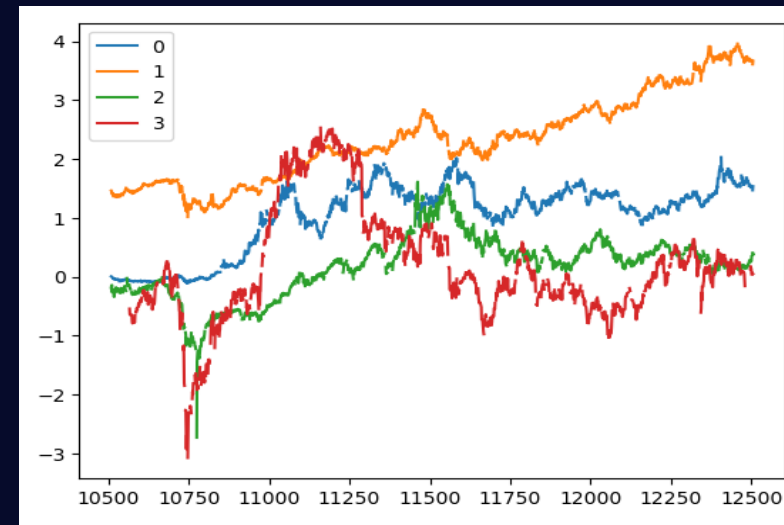
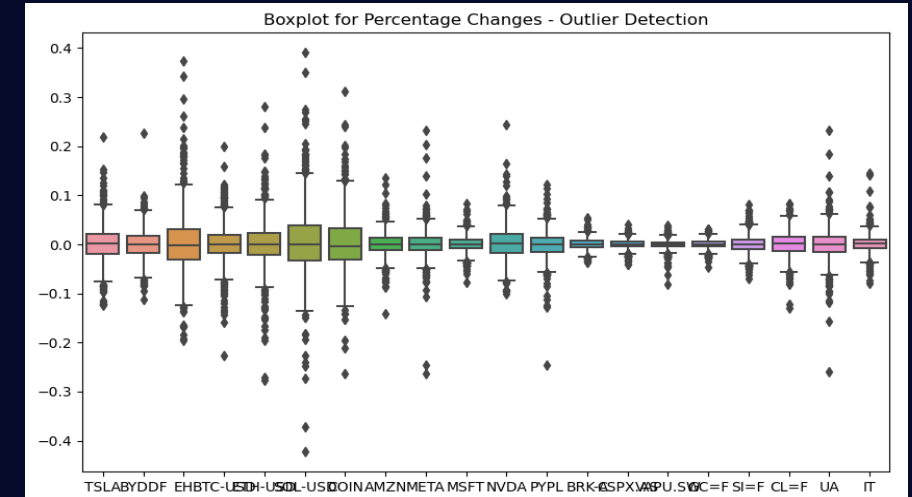
PORTFOLIO VALUE

Illustrate the fluctuation of the portfolio's value over the given time period.

VISUALIZATION and CORRELATION

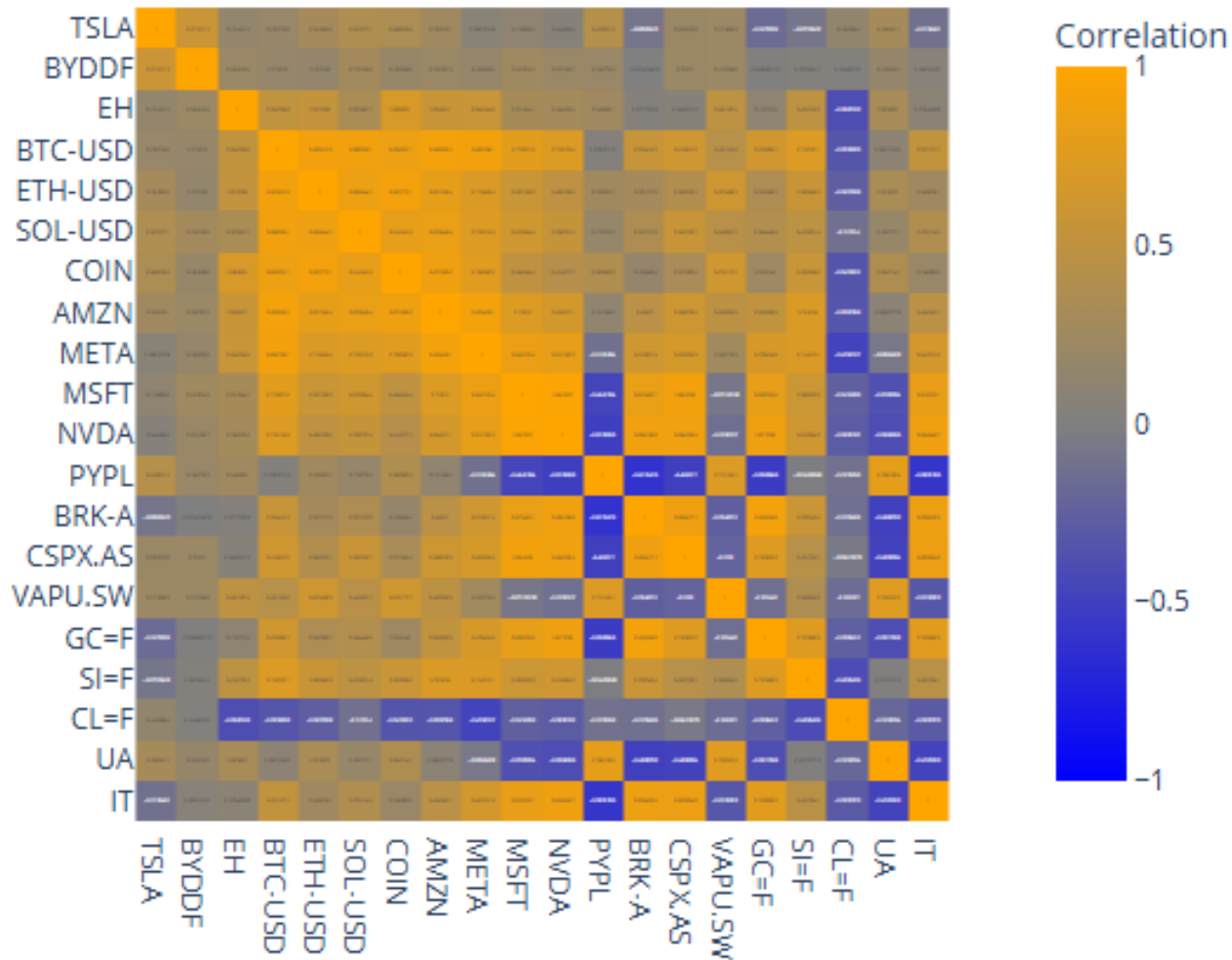
Using the yfinance library, historical pricing data for 20 randomly chosen assets was collected.

Non-trading days, including weekends and holidays, were excluded from the dataset.



CORRELATION ANALYSIS

Correlation Heatmap



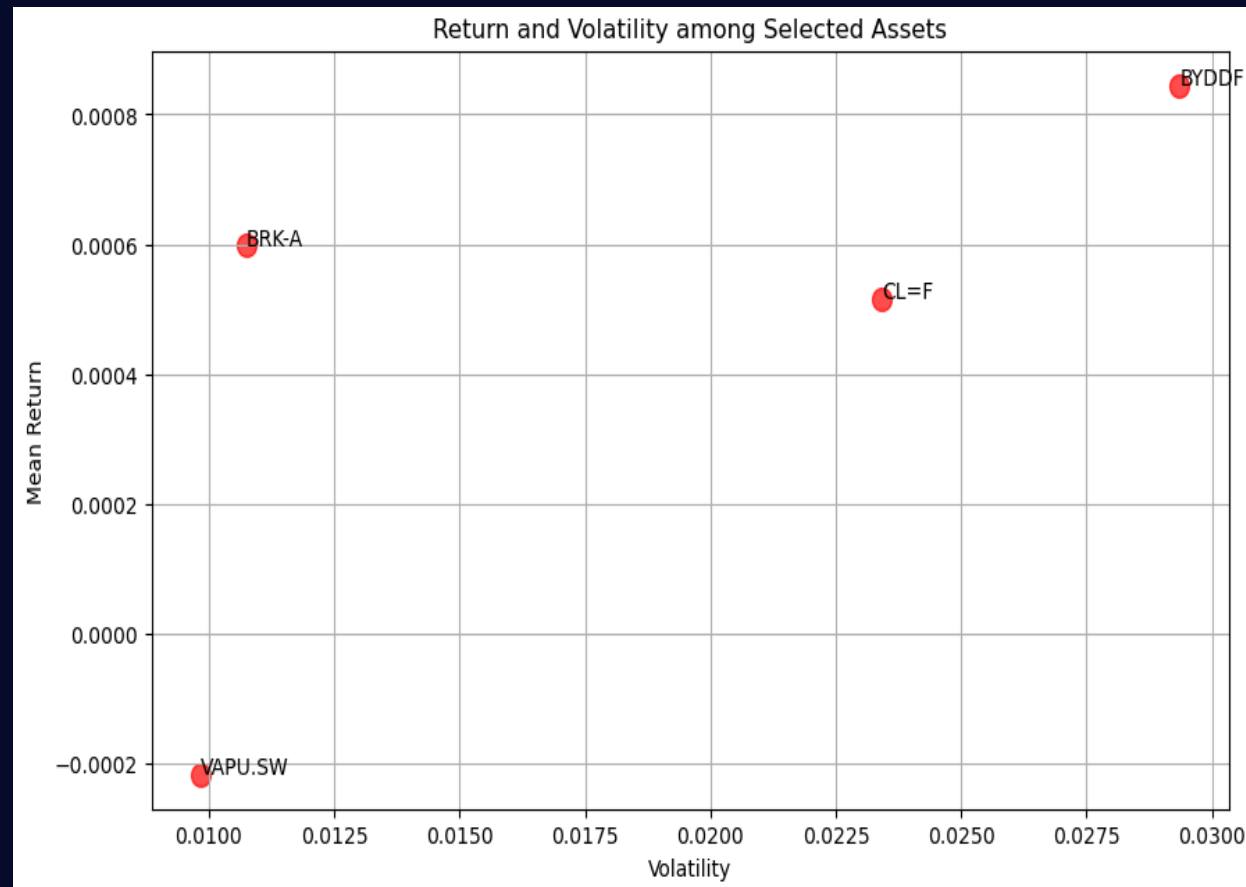
Assets with strong correlations often come from the same industry or serve similar functions, such as:

- Microsoft, Meta, and Amazon
- Bitcoin and Ethereum
- Gold and Silver

Commodities like gold, silver, and crude oil show no significant correlation with stock and cryptocurrency markets.

WELL DIVERSIFIED ASSETS

Based on the overall analysis, BYD Motor, Berkshire Hathaway, Mineral-oil, and Developed Asia ETF are essential components for achieving a well-diversified and low-correlation portfolio.



THANK YOU FOR ATTENTION

