

StableOps

Team Members

Name	email
Quintin Bland	quintinbland2@gmail.com
Kevin Corstorphine	kevincorstorphine@gmail.com
John Gruenewald	john.h.gruenewald@gmail.com
Martin Smith	msmith92663@gmail.com
Yanick Wilisky	yanickw@gmail.com

Project Description / Outline

The objective of this project is to analyze volatility in stablecoin pricing and assess whether this volatility could provide profitable arbitrage opportunities. Analysis will include:

- volatility analysis of stablecoins
- cost analysis associated with trading stablecoins
- risk / reward analysis of stablecoin arbitrage
- simulation of stablecoin arbitrage profitability projections

Questions to Answer

- Can the volatility of stablecoin pricing yield sufficiently profitable arbitrage opportunities? (MVP)
- Is the volatility of stablecoins pegged to the US Dollar similar or are some stablecoins more volatile than others? (MVP)
- Is the arbitrage based on volatility a better strategy than "safer" alternative, e.g. yield farming (MVP)
- Are the volatilities short lived or persistent? (MVP)
- Are the risk, effort and costs associated with stablecoin arbitrage worth the potential reward? (MVP)
- Are there any correlations between the volatility of various stablecoins?
- Do some pairs yield better arbitrage opportunities?

Datasets to be used

Dataset	URL	Description	Size	Records
daiusd.csv	https://www.kaggle.com/datasets/tencars/392-crypto-currency-pairs-at-minute-resolution	DAI USD price at 1 minute resolution, from the Kaggle 400+ crypto currency pairs at 1-minute resolution dataset	13.7 MB	256,066
paxusd.csv	https://www.kaggle.com/datasets/tencars/392-crypto-currency-pairs-at-minute-resolution	PAX USD price at 1 minute resolution, from the Kaggle 400+ crypto currency pairs at 1-minute resolution dataset	7.2 MB	143,564
ustusd.csv	https://www.kaggle.com/datasets/tencars/392-crypto-currency-pairs-at-minute-resolution	UST USD price at 1 minute resolution, from the Kaggle 400+ crypto currency pairs at 1-minute resolution dataset	13.7 MB	1,230,255
GUSD	https://api.coingecko.com/api/v3/coins/gemini-dollar/market_chart?vs_currency=usd&days=1095&interval=daily	Daily price for GUSD from coingecko API		1096
USDC	https://api.coingecko.com/api/v3/coins/usd-coin/market_chart?vs_currency=usd&days=1095&interval=daily	Daily price for USDC from coingecko API		1096
USDT	https://api.coingecko.com/api/v3/coins/tether/market_chart?vs_currency=usd&days=1095&interval=daily	Daily price for USDT from coingecko API		1095

Dataset	URL	Description	Size	Records
PAX	https://api.coingecko.com/api/v3/coins/paxos-standard/market_chart?vs_currency=usd&days=1095&interval=daily	Daily price for PAX from coingecko API		1096
DAI	https://api.coingecko.com/api/v3/coins/dai/market_chart?vs_currency=usd&days=1095&interval=daily	Daily price for DAI from coingecko API		905
UST	https://api.coingecko.com/api/v3/coins/nusd/market_chart?vs_currency=usd&days=1095&interval=daily	Daily price for UST from coingecko API		1095

Rough breakdown of tasks

- Research and identify a selection of stablecoins pegged to the US Dollar (MVP)
- Identify data sources for daily stablecoin pricing data, with 4 years of data (MVP)
- Identify data sources for intraday stablecoin pricing data (MVP)
- Research and analyze stablecoin trading costs (MVP?) (done?) assume 1%
- Characterize and perform quantitative analysis of stablecoin volatility for selected stablecoins (MVP)
- Risk/Reward (Sharpe Ratio) analysis of stablecoin arbitrage (MVP)
- Presentation preparation (MVP)
- Project documentation (MVP)
- Team formation / organization / git repo (MVP)
- Montecarlo simulations to project future gains of stablecoin arbitrage