

Hi Team!

Portfolio Analysis

Crypto Data Showcase

Cryptos used: Date, BADGER/USDT:USDT, Frax Share, Maker, OCEAN/USDT:USDT, RNDR/USDT:

Select number of rows to display:

3

187

Displaying 3 rows of data:

	Date	BADGER/USDT:USDT	Frax Share	Maker	OCEAN/USDT:USDT	RPL/USDT:USDT	
87	2024-01-01 00:00:00	-30,510.77	0.0006	0	-9,982.43	0	9
86	2024-01-02 00:00:00	-31,547.94	0.0007	0	-9,394.36	0	8
85	2024-01-03 00:00:00	-22,063.31	0.0006	0	-5,276.71	0	8

Select number of rows to display:

4

187

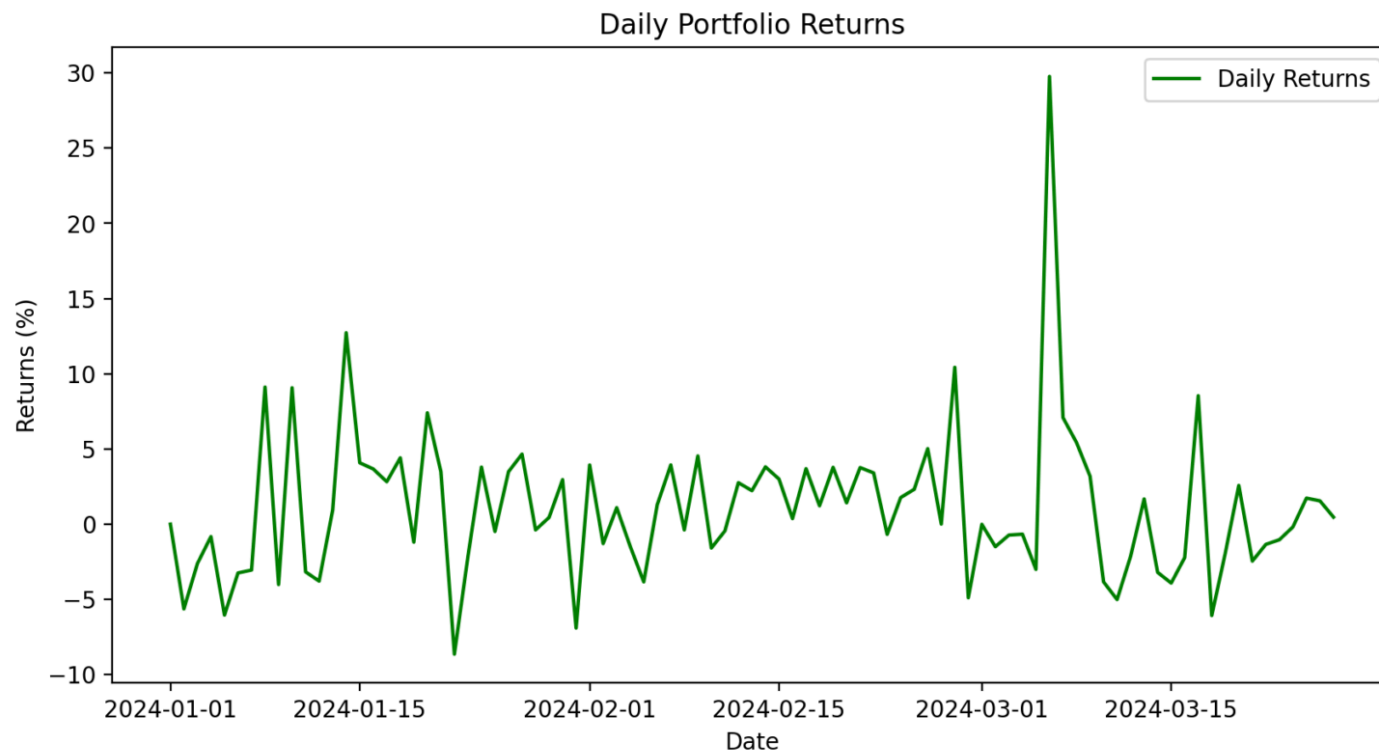
Returns datadrame:

Displaying 4 rows of data:

	Date	BADGER/USDT:USDT	Frax Share	Maker	OCEAN/USDT:USDT	RPL/USDT:USDT	
0	2024-01-01 00:00:00	-30,510.77	0.0006	0	-9,982.43	0	5
1	2024-01-02 00:00:00	-31,547.94	0.0007	0	-9,394.36	0	8
2	2024-01-03 00:00:00	-22,063.31	0.0006	0	-5,276.71	0	8
3	2024-01-04 00:00:00	-23,361.13	0.0006	0	-6,716.23	0	8

Returns Plot:

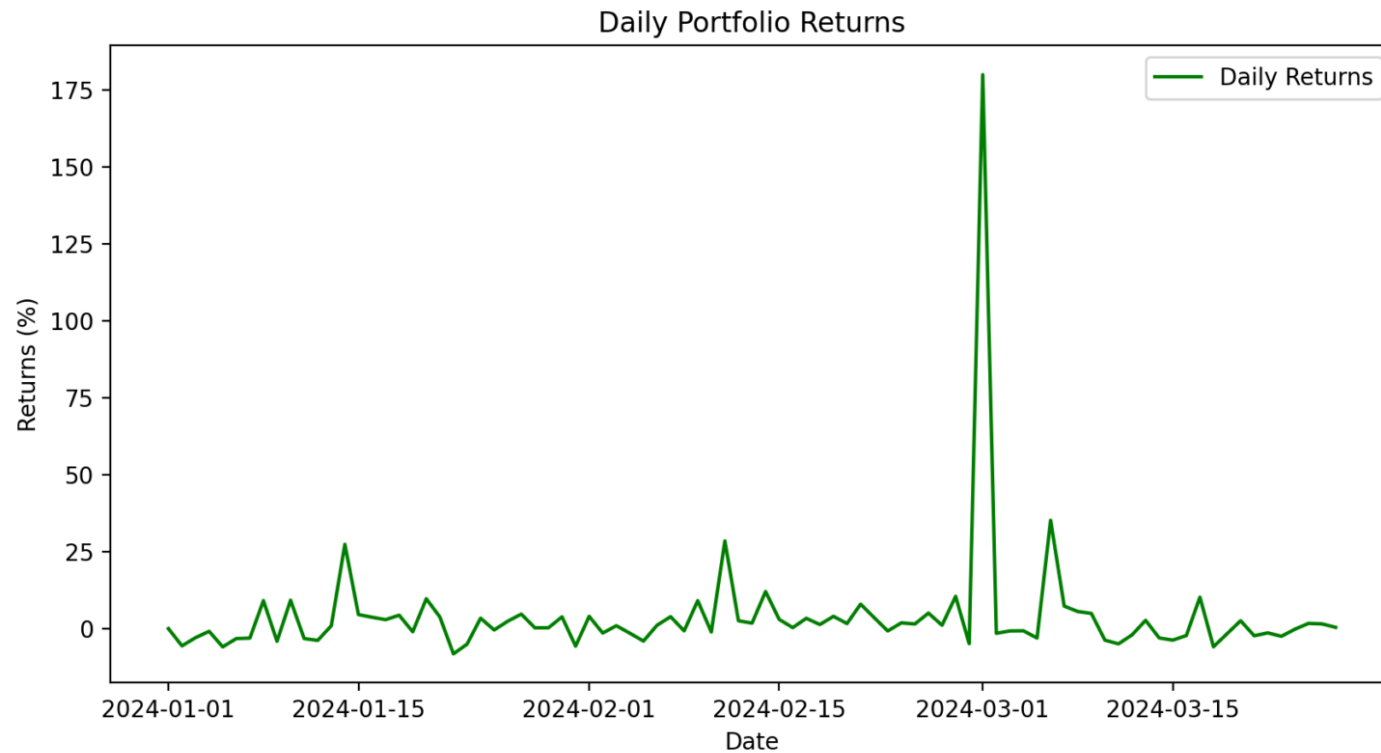
Inflow Outflow Adjusted returns:



The plot depicts the daily returns of a financial portfolio that exhibits good volatility, Most returns fluctuate between -10% and +15%, indicating some risk control. A prominent feature is a sharp spike around the 60th data point, where returns shoot up to about 30%, suggesting a significant positive impact on the portfolio at that time.

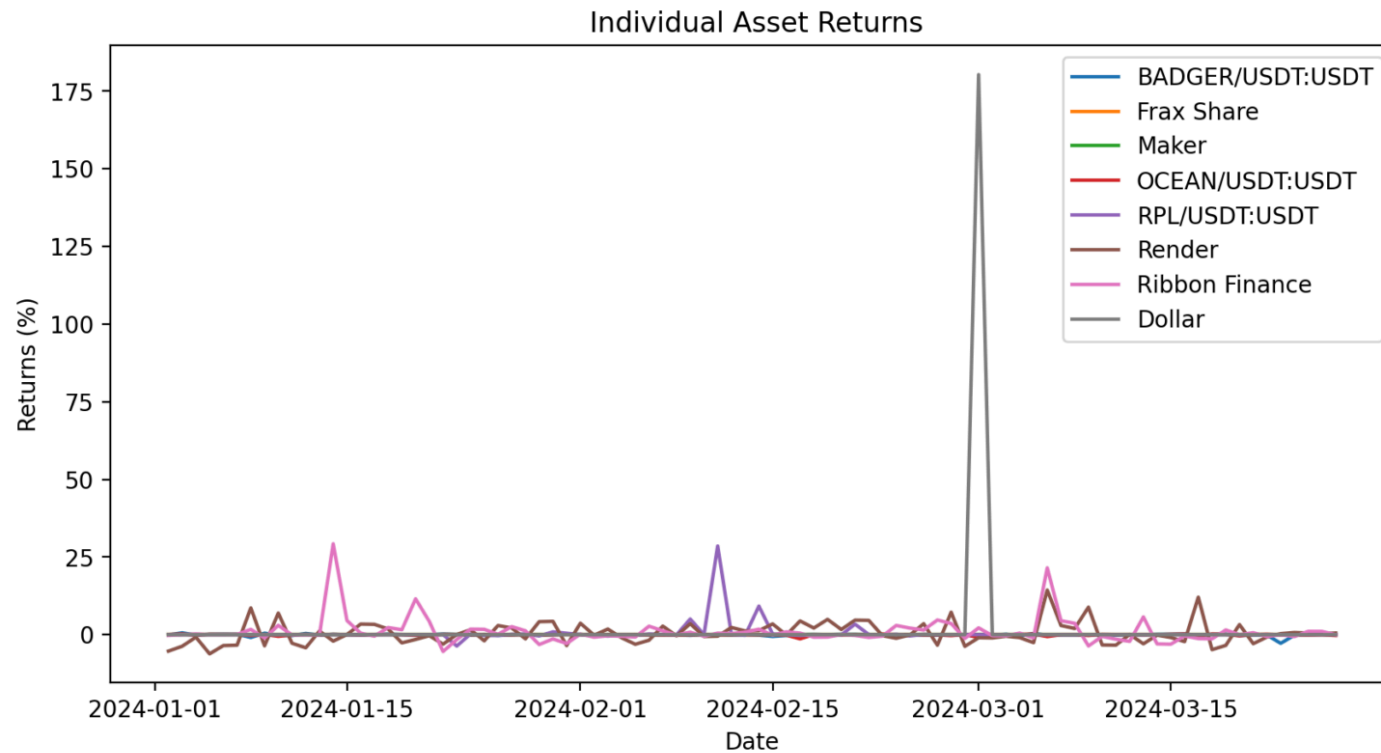
The actual dates are not specified, making it challenging to link the performance with specific external events without further information.

Weight Adjusted returns:



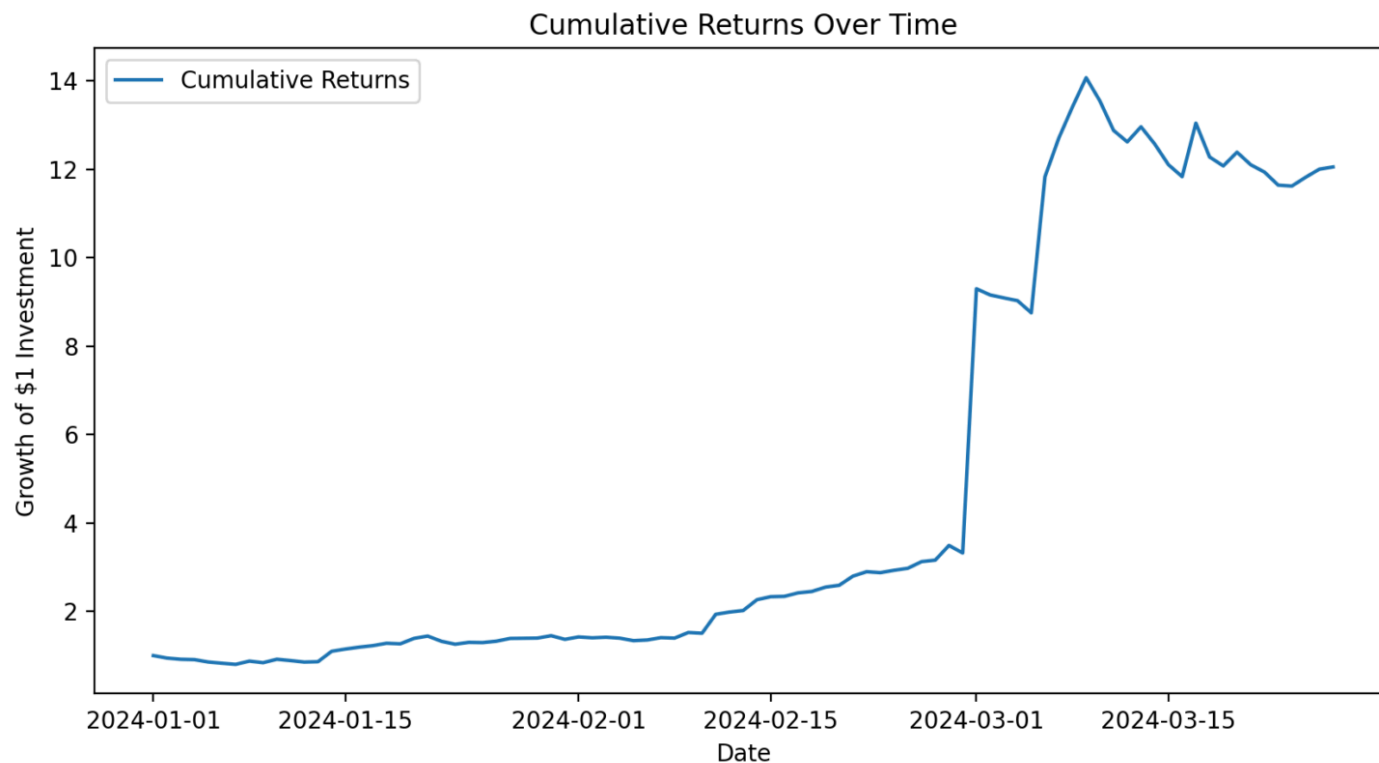
The plot shows weight-adjusted daily portfolio returns, reflecting performance after accounting for the proportional impact of each asset. The returns demonstrate volatility, with most values oscillating near zero, indicating days with minimal gain or loss. However, there's a notable anomaly with returns spiking above 150% due to the inflow of cash, which could point to a significant event affecting a heavily weighted asset. This extreme spike is an outlier compared to the general trend of the portfolio's performance.

\Individual Asset returns:



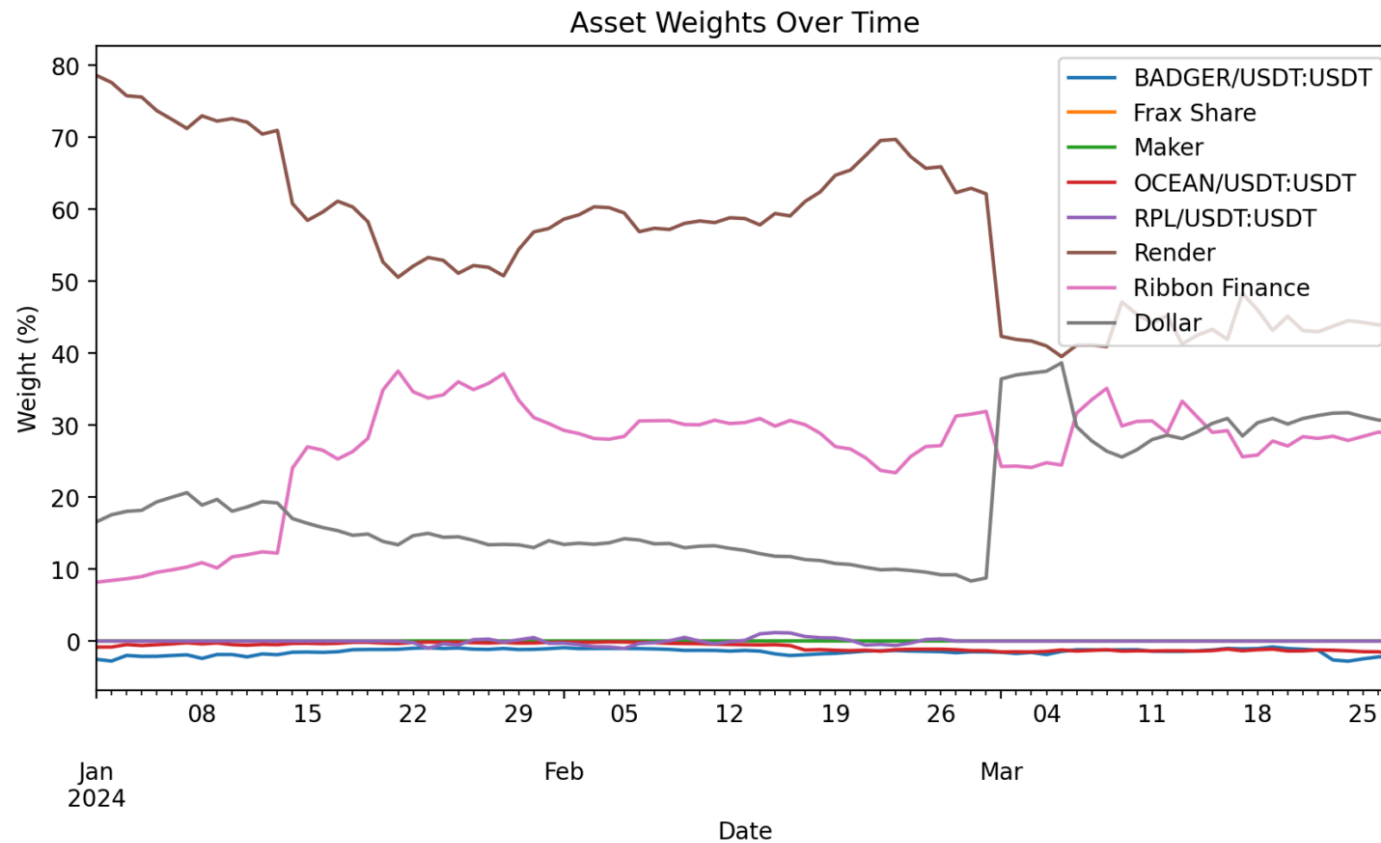
The graph illustrates the varied performance of different assets over the specified timeframe with most assets showing minimal returns and a couple displaying short-term volatility with sharp increases in returns. From the visual, it's clear that most assets have returns fluctuating close to the 0% line, suggesting stable or nominal growth over the observed period.

Cumulative Returns Chart:



The plot represents the cumulative returns on an investment over time. It shows the growth of \$1 invested in the portfolio. The investment value grows steadily at first, indicating a gradual increase in returns. Around early February, there is a significant jump in the value of the investment, indicating a period of high returns. The investment value continues to increase at a more moderate pace, with some fluctuation, until it levels off toward the end of the period shown.

Weights Plot:



The weights plot displays the changing daily weight composition of a portfolio. The most notable movements are the significant increase in the weight of OCEAN/USDT in late February, where it rises sharply to over 60% of the portfolio, and a corresponding increase in RPL/USDT. BADGER/USDT initially holding the majority share, decreases slightly but remains a substantial portion of the portfolio. Other assets like Frax Share, Maker, Render, Ribbon Finance, and Dollar have minimal changes, indicating stable but smaller positions within the portfolio.

Average Return

	0
OCEAN/USDT:USDT	-5.1098
BADGER/USDT:USDT	-4.6681
Frax Share	0
Maker	0
RPL/USDT:USDT	42.4752
Render	43.1648
Ribbon Finance	90.9184
Dollar	182.5098
Daily_Portfolio_Return	345.2754

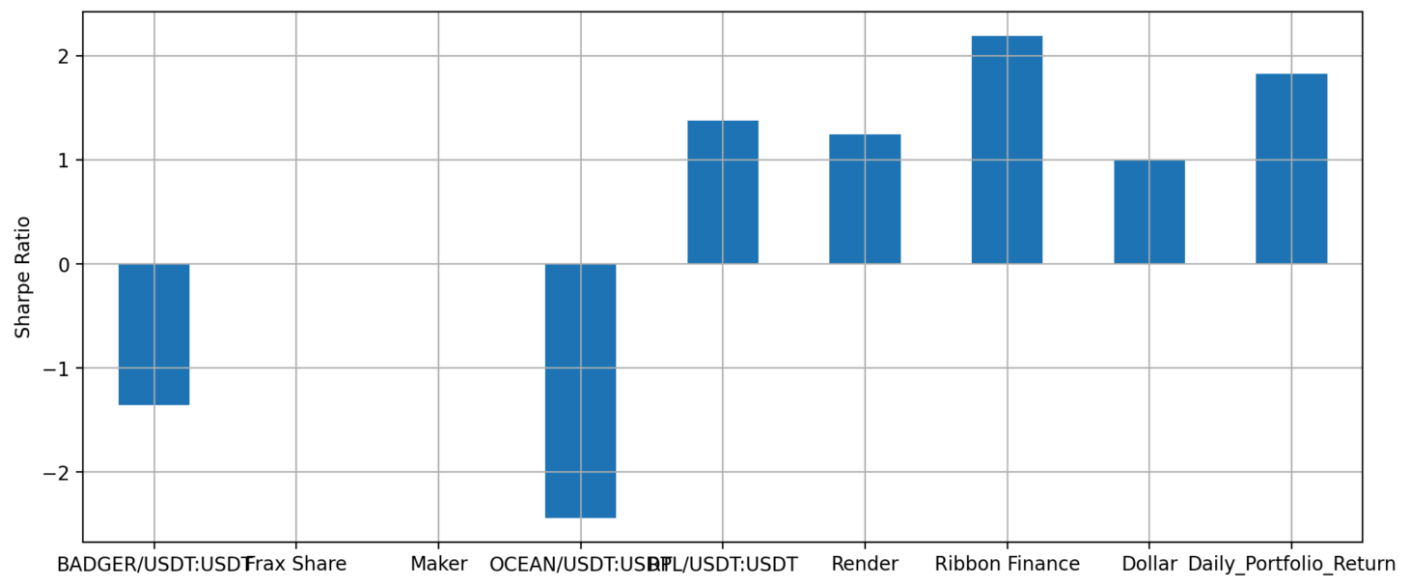
Standard Deviation

	0
Frax Share	0
Maker	0
OCEAN/USDT:USDT	2.0957
BADGER/USDT:USDT	3.4374
RPL/USDT:USDT	30.879
Render	34.5916
Ribbon Finance	41.4325
Dollar	181.3641
Daily_Portfolio_Return	189.1901

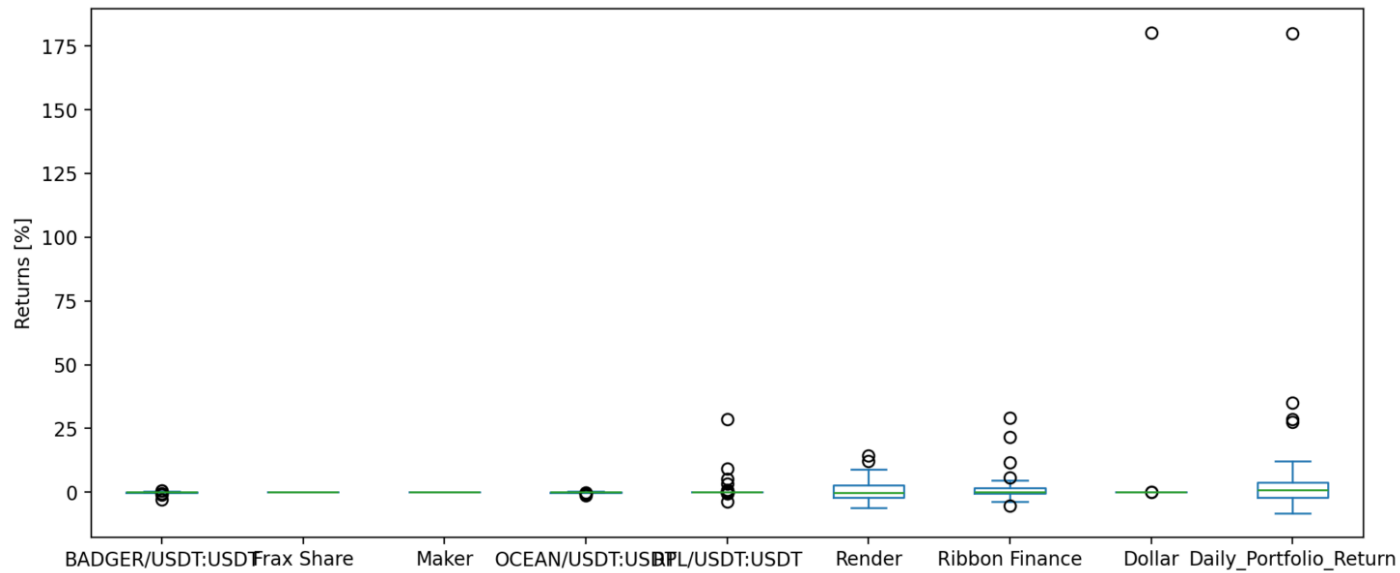
Sharpe Ratio

	0
OCEAN/USDT:USDT	-2.4382
BADGER/USDT:USDT	-1.358
Dollar	1.0063
Render	1.2478
RPL/USDT:USDT	1.3755
Daily_Portfolio_Return	1.825
Ribbon Finance	2.1944
Frax Share	None
Maker	None

Sharpe Ratio Plot:



Box Plot of Crypto Daily Returns



The table displays the Sharpe Ratios for various assets and the overall daily portfolio return. Sharpe Ratios above zero, like those for Dollar, Render, RPL/USDT, and the overall portfolio, indicate returns that compensate for risk better than a risk-free investment. Ribbon Finance stands out with the highest Sharpe Ratio, suggesting the best risk-adjusted performance. In contrast, OCEAN and BADGER have negative Sharpe Ratios, showing that they performed worse than a risk-free asset when factoring in risk. Frax Share and Maker lack Sharpe Ratio data, possibly due to insufficient data or no variation in returns. Overall, the portfolio appears to be well-managed in terms of risk-adjusted returns, barring a few underperforming assets.

Feature Importance Analysis

Covariance Matrix:

	BTC-USD	^GSPC	ETH-USD	Daily_Portfolio_Return
BTC-USD	10.4115	0.2443	8.5637	9.3927
^GSPC	0.2443	0.3327	0.3506	2.0566
ETH-USD	8.5637	0.3506	10.8963	12.4577
Daily_Portfolio_Return	9.3927	2.0566	12.4577	411.4126

Correlation Matrix:

	BTC-USD	^GSPC	ETH-USD	Daily_Portfolio_Return
BTC-USD	1	0.1313	0.804	0.1435
^GSPC	0.1313	1	0.1841	0.1758
ETH-USD	0.804	0.1841	1	0.1861
Daily_Portfolio_Return	0.1435	0.1758	0.1861	1

Factor impact on returns of a portfolio:

	Parameter	Value
0	Alpha	2.8388
1	Beta_BTC-USD	-0.0646
2	Beta_^GSPC	5.1448
3	Beta_ETH-USD	1.0285

Covariance Matrix: The covariance between the assets and the Daily_Portfolio_Return shows ETH-USD has the highest covariance, followed by BTC-USD, implying these cryptocurrencies' returns move more in tandem with the portfolio's returns compared to ^GSPC.

Correlation Matrix: All assets have a positive but weak correlation with the Daily_Portfolio_Return, with ETH-USD having the highest correlation (0.1861), suggesting it has the strongest relationship with the portfolio's returns among the three.

Factor Impact (Alpha and Beta Values):

Alpha (2.8388): Indicates that the portfolio's returns are well above the return that would be predicted by its exposure to the systematic risk of the market (as represented by the beta measures). This suggests good portfolio management.

Beta Values: Measure the portfolio's sensitivity to the movements of the underlying assets or market.

A beta of -0.0646 for BTC-USD indicates a very slight inverse relationship with the portfolio.

A beta of 5.1448 for ^GSPC implies that the portfolio is highly sensitive to movements in the equity market, moving more than five times in the same direction for any change in ^GSPC.

The beta of 1.0285 for ETH-USD suggests that the portfolio's performance is likely to follow ETH-USD's movements closely.

Overall, the portfolio is heavily influenced by movements in the equity market and has a strong positive relationship with ETH-USD. BTC-USD's influence is relatively small and slightly negative. The high alpha suggests that the portfolio is performing decently given its risk profile.

Below is the feature importance calculated based on permutation importance method.

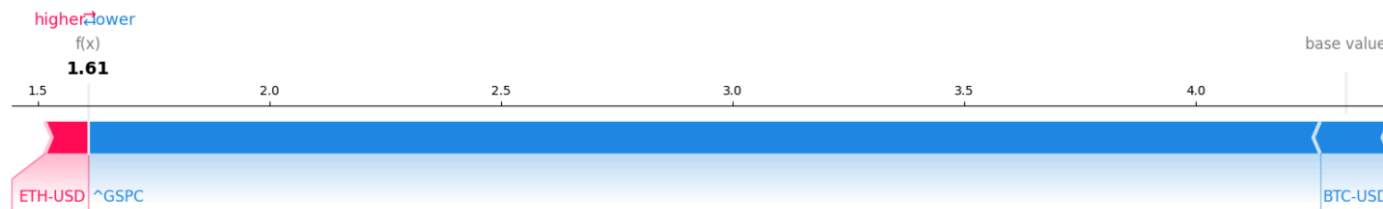
ETH-USD: 0.214 +/- 0.202 - Not Significant

^GSPC: 0.014 +/- 0.143 - Not Significant

BTC-USD: -0.010 +/- 0.034 - Not Significant

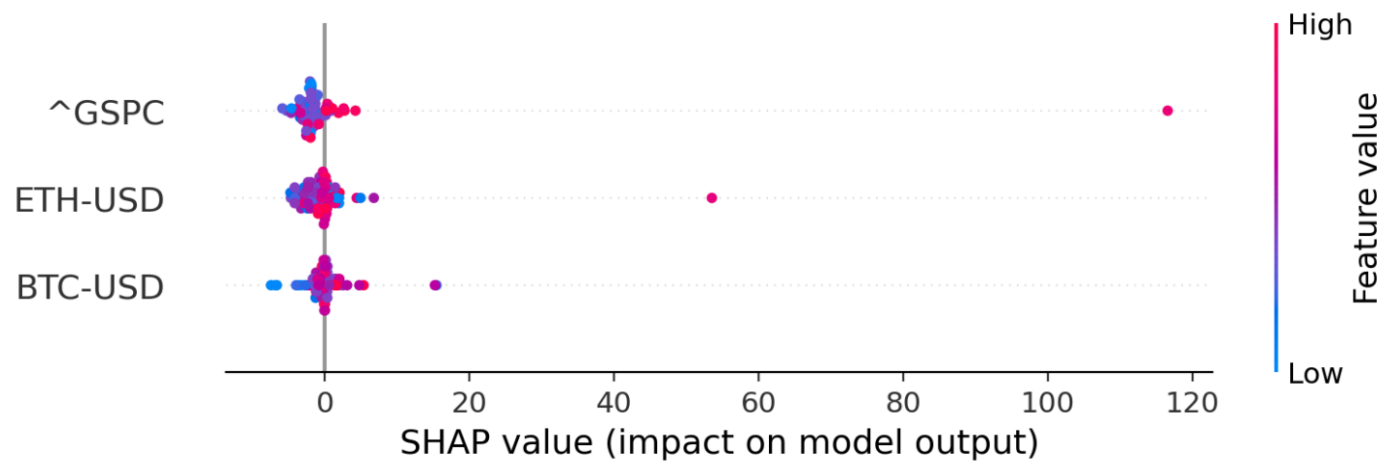
SHAP Visualizations

Force Plot



SHAP Force Plot

Summary Plot



Dependence Plot:

Select the feature index for SHAP Dependence Plot:

0

0

2

Showing SHAP Dependence Plot for: BTC-USD

