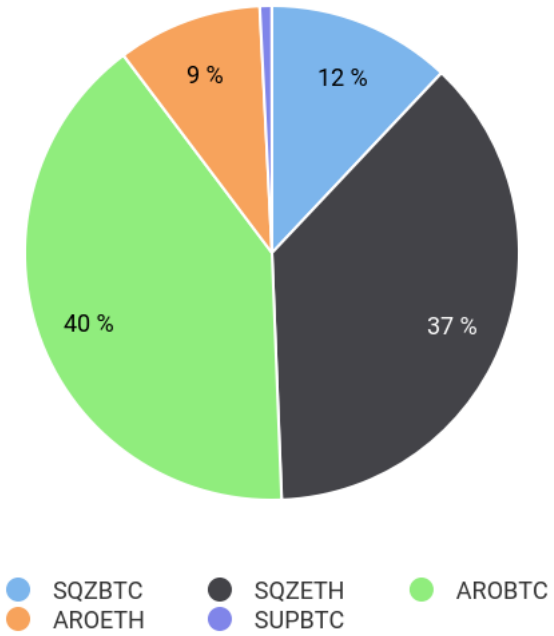
## Report Parameters

| | |
|---|---|
| **Model** | Historical Returns |
| **Start Date** | 01/01/2018 |
| **End Date** | 09/30/2022 |
| **Initial Balance** | $10,000 |
| **Optimization Goal** | Maximize Omega Ratio subject to... |
| **Targeted Annual Return** | 0.00% |
| **Rebalancing** | Rebalance monthly |

## Maximum Omega Ratio at 0.00% Return

| Ticker | Name | Allocation | Min. Weight | Max. Weight |
|---|---|---|---|---|
| SQZBTC | SQZBTC | 12.03% | 0.00% | 100.00% |
| SQZETH | SQZETH | 37.35% | 0.00% | 100.00% |
| AROBTC | AROBTC | 40.35% | 0.00% | 100.00% |
| AROETH | AROETH | 9.47% | 0.00% | 100.00% |
| SUPBTC | SUPBTC | 0.79% | 0.00% | 100.00% |

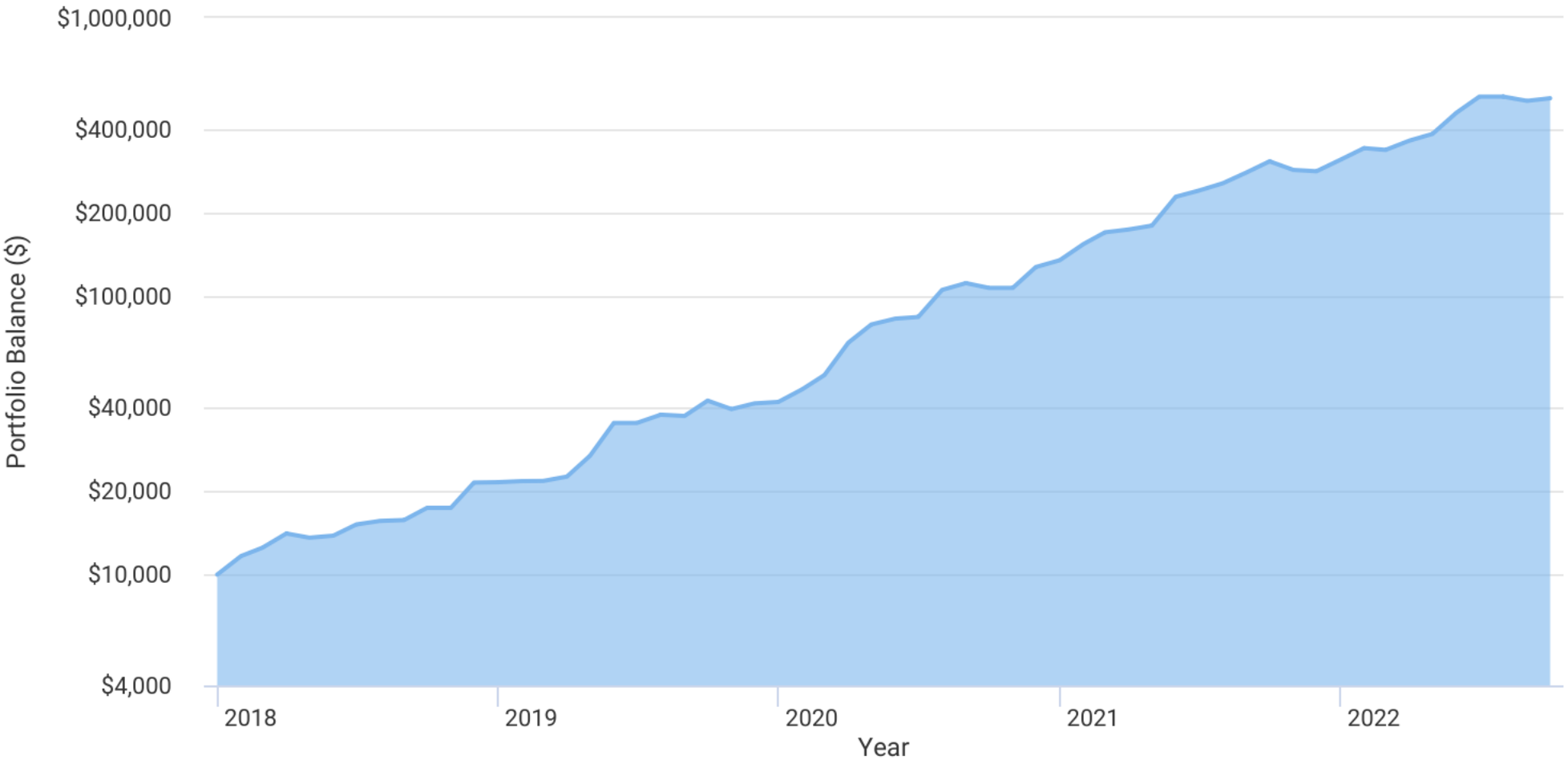



## Portfolio Performance (Jan 2018 - Sep 2022)

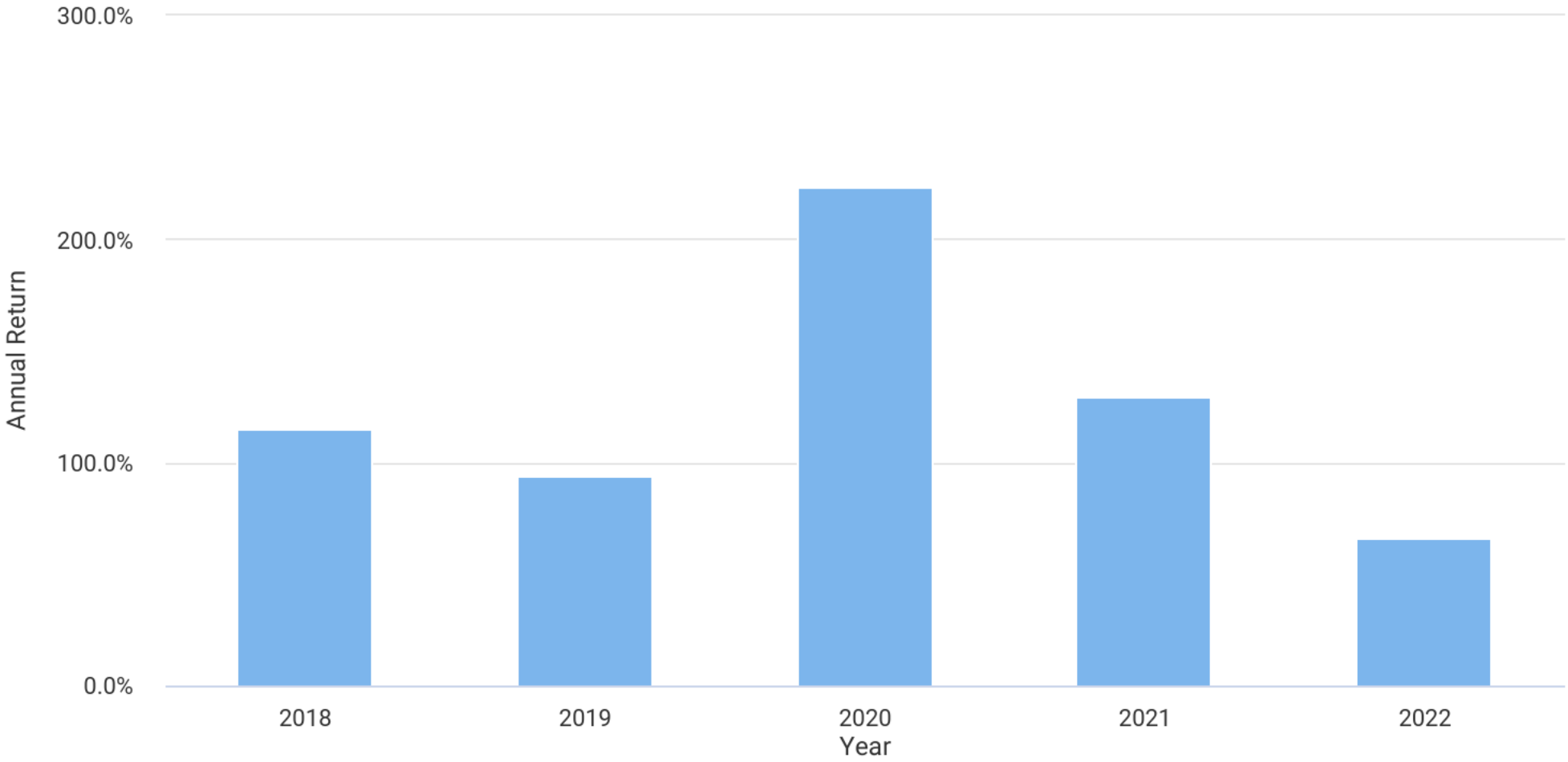
| Metric | Maximum Omega Ratio at 0.00% Return |
|---|---|
| Start Balance | $10,000 |
| End Balance | $514,725 |
| Annualized Return (CAGR) | 129.26% |
| Expected Return | 90.14% |
| Standard Deviation | 31.03% |
| Best Year | 222.93% |
| Worst Year | 66.45% |
| Maximum Drawdown | -7.90% |
| Sharpe Ratio (ex-ante) | 2.87 |
| Sharpe Ratio (ex-post) | 2.87 |
| Sortino Ratio | 16.35 |
| Omega Ratio | 16.33 |
| Stock Market Correlation | -0.10 |

*Results based on historical returns. Expected return is the annualized monthly arithmetic mean return.*

## Portfolio Growth



## Annual Returns



## Trailing Returns

| Name | Total Return | | | Annualized Return | | Annualized Standard Deviation |
|---|---|---|---|---|---|---|
| | 3 Month | Year To Date | 1 year | 3 year | Full | 3 year |
| Maximum Omega Ratio at 0.00% Return | -1.33% | 66.45% | 68.53% | 130.23% | 129.26% | 31.14% |

*Trailing return and volatility are as of last full calendar month ending September 2022*

## Risk and Return Metrics (Jan 2018 - Sep 2022)

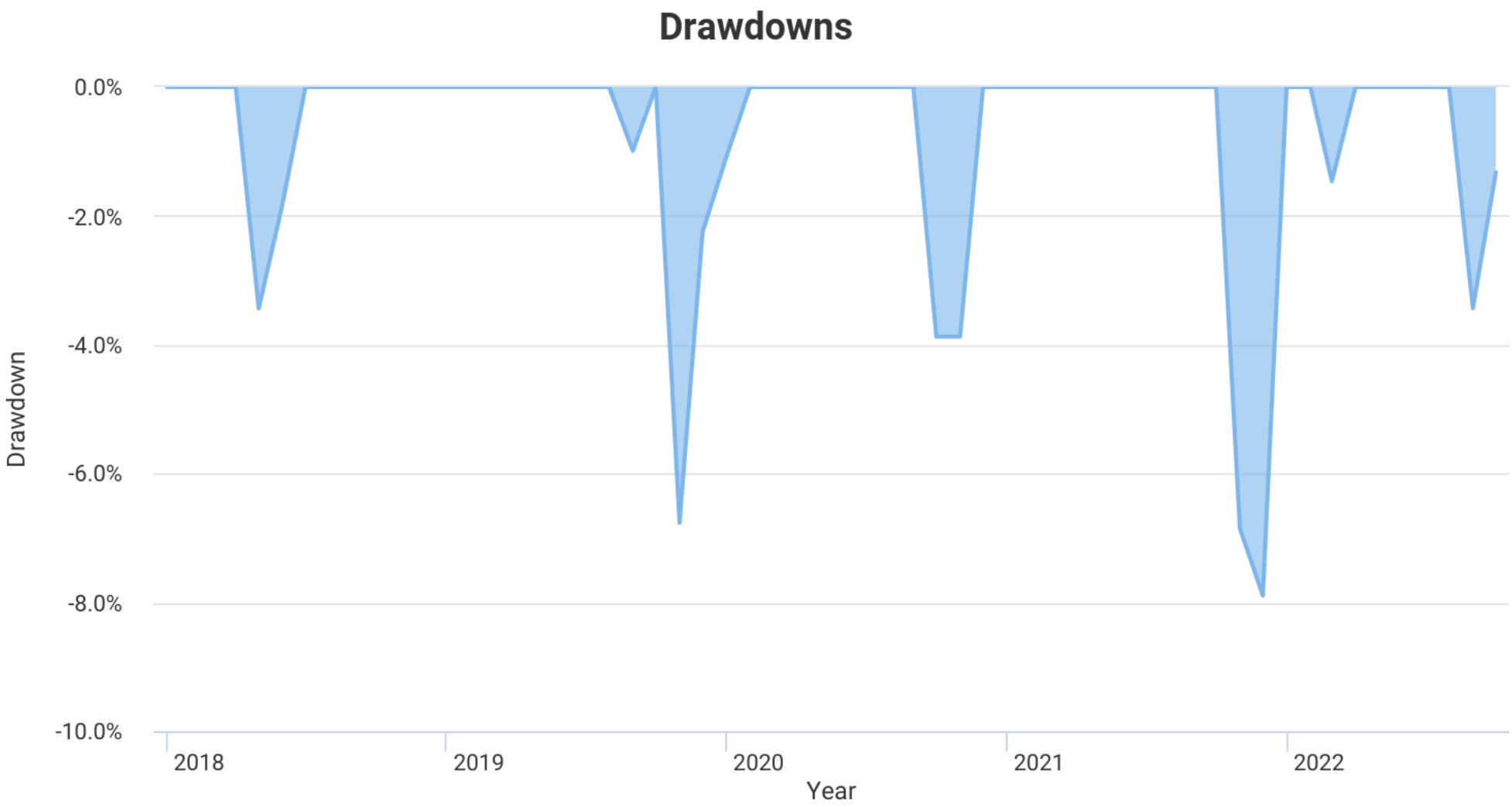
| Metric | Maximum Omega Ratio at 0.00% Return |
|---|---|
| Arithmetic Mean (monthly) | 7.51% |
| Arithmetic Mean (annualized) | 138.49% |
| Geometric Mean (monthly) | 7.16% |
| Geometric Mean (annualized) | 129.26% |
| Standard Deviation (monthly) | 8.96% |
| Standard Deviation (annualized) | 31.03% |
| Downside Deviation (monthly) | 1.54% |
| Maximum Drawdown | -7.90% |
| Stock Market Correlation | -0.10 |
| Beta (*) | -0.16 |
| Alpha (annualized) | 91.57% |
| R Squared | 0.93% |
| Sharpe Ratio | 2.87 |
| Sortino Ratio | 16.35 |
| Treynor Ratio (%) | -565.87 |
| Calmar Ratio | 16.49 |
| Active Return | 121.76% |
| Tracking Error | 37.96% |
| Information Ratio | 3.21 |
| Skewness | 0.85 |
| Excess Kurtosis | 0.38 |
| Historical Value-at-Risk (5%) | -3.52% |
| Analytical Value-at-Risk (5%) | -7.09% |
| Conditional Value-at-Risk (5%) | -5.83% |
| Upside Capture Ratio (%) | 186.45 |
| Downside Capture Ratio (%) | -188.95 |
| Positive Periods | 47 out of 57 (82.46%) |
| Gain/Loss Ratio | 2.78 |

*(*) US stock market is used as the benchmark for calculations. Value-at-risk metrics are based on monthly values.*

## Maximum Omega Ratio at 0.00% Return Returns

| Year | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec | Total | Inflation | Balance |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2018 | 16.56% | 7.22% | 12.46% | -3.44% | 1.68% | 9.74% | 2.98% | 0.68% | 10.66% | 0.00% | 23.25% | 0.30% | 114.78% | 1.91% | $21,478 |
| 2019 | 0.91% | 0.13% | 3.68% | 18.81% | 31.18% | 0.00% | 7.04% | -0.99% | 13.49% | -6.77% | 4.84% | 1.19% | 94.24% | 2.29% | $41,718 |
| 2020 | 11.02% | 12.54% | 30.65% | 16.31% | 4.92% | 1.41% | 25.07% | 5.79% | -3.88% | 0.00% | 18.82% | 5.77% | 222.93% | 1.36% | $134,719 |
| 2021 | 14.36% | 10.20% | 2.39% | 3.23% | 26.96% | 5.23% | 6.19% | 9.40% | 9.66% | -6.85% | -1.12% | 9.93% | 129.54% | 7.04% | $309,239 |
| 2022 | 10.17% | -1.46% | 7.99% | 5.69% | 19.11% | 14.30% | 0.00% | -3.44% | 2.18% | | | | 66.45% | 6.46% | $514,725 |

*Annual return for 2022 is from 01/01/2022 to 09/30/2022*




**Drawdowns for Historical Market Stress Periods**

| Stress Period | Start | End | Maximum Omega Ratio at 0.00% Return |
|---|---|---|---|
| COVID-19 Start | Jan 2020 | Mar 2020 | 0.00% |

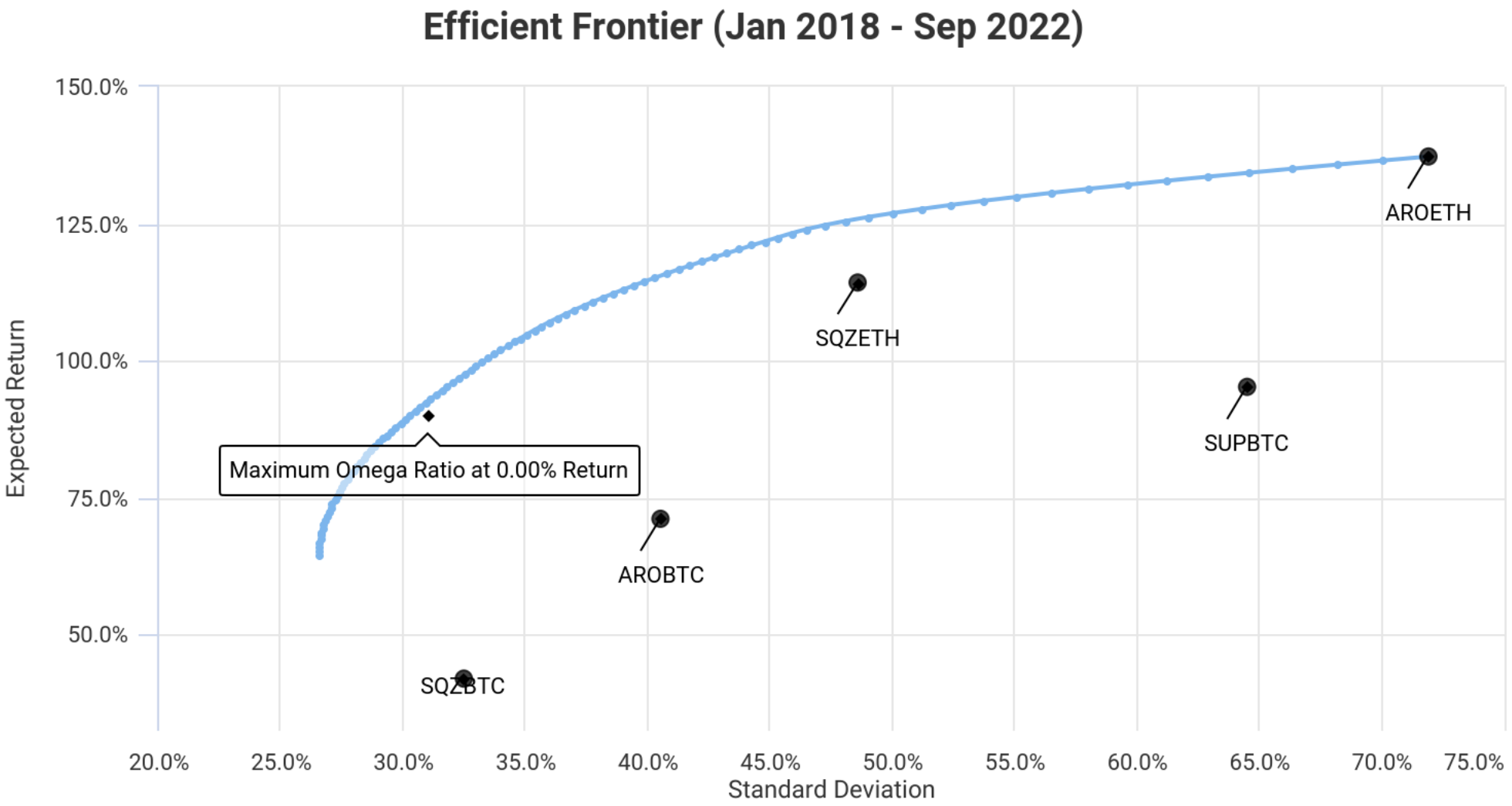
## Drawdowns for Maximum Omega Ratio at 0.00% Return

| Rank | Start | End | Length | Recovery By | Recovery Time | Underwater Period | Drawdown |
|---|---|---|---|---|---|---|---|
| 1 | Oct 2021 | Nov 2021 | 2 months | Dec 2021 | 1 month | 3 months | -7.90% |
| 2 | Oct 2019 | Oct 2019 | 1 month | Jan 2020 | 3 months | 4 months | -6.77% |
| 3 | Sep 2020 | Sep 2020 | 1 month | Nov 2020 | 2 months | 3 months | -3.88% |
| 4 | Apr 2018 | Apr 2018 | 1 month | Jun 2018 | 2 months | 3 months | -3.44% |
| 5 | Aug 2022 | Aug 2022 | 1 month | | | | -3.44% |
| 6 | Feb 2022 | Feb 2022 | 1 month | Mar 2022 | 1 month | 2 months | -1.46% |
| 7 | Aug 2019 | Aug 2019 | 1 month | Sep 2019 | 1 month | 2 months | -0.99% |

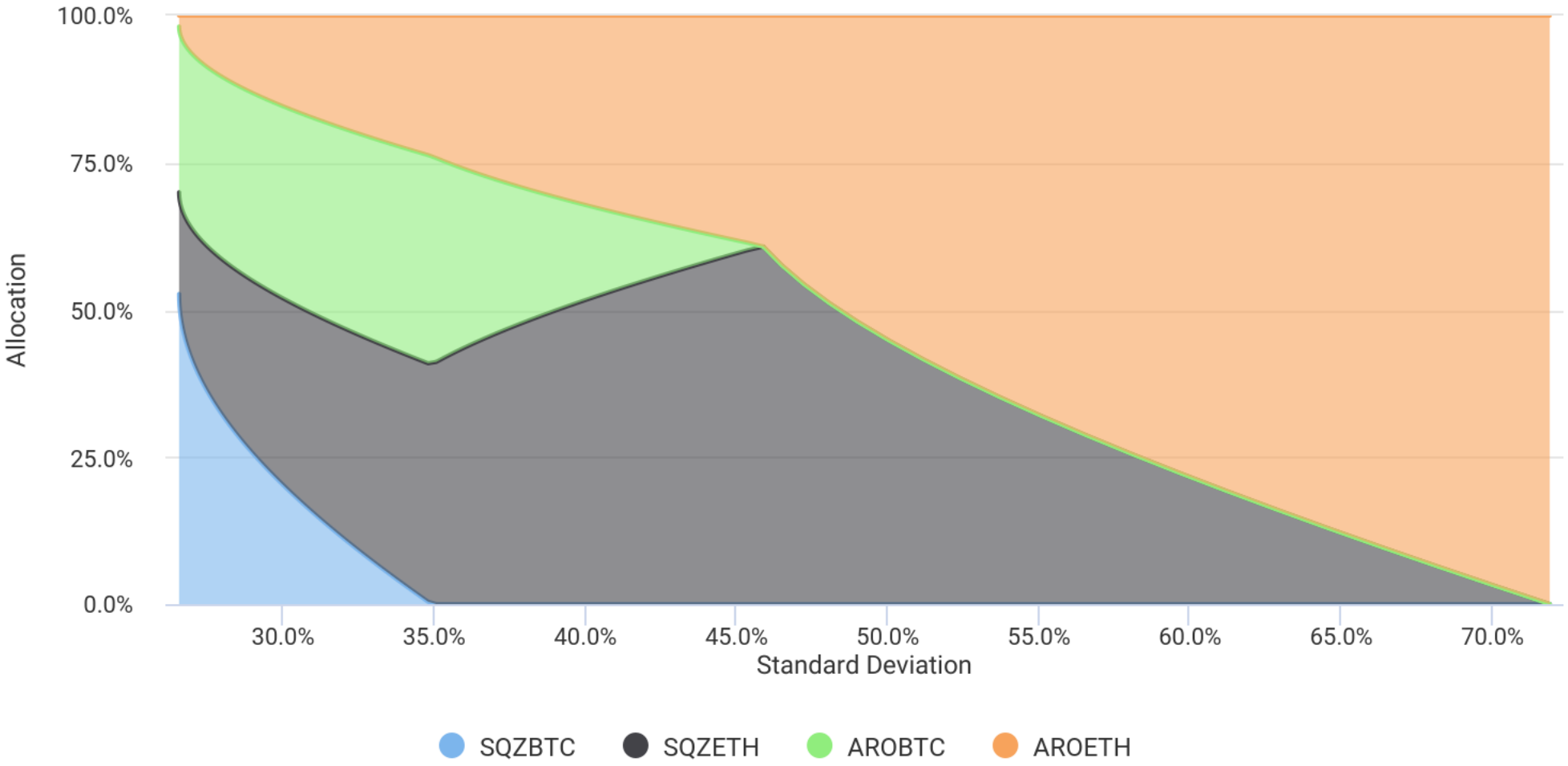
## Efficient Frontier Assets (Jan 2018 - Sep 2022)

| # | Asset | Expected Return | Standard Deviation | Sharpe Ratio | Min. Weight | Max. Weight |
|---|---|---|---|---|---|---|
| 1 | SQZBTC | 41.88% | 32.46% | 1.256 | 0.00% | 100.00% |
| 2 | SQZETH | 114.23% | 48.55% | 2.330 | 0.00% | 100.00% |
| 3 | AROBTC | 71.07% | 40.49% | 1.728 | 0.00% | 100.00% |
| 4 | AROETH | 137.25% | 71.89% | 1.894 | 0.00% | 100.00% |
| 5 | SUPBTC | 95.18% | 64.47% | 1.459 | 0.00% | 100.00% |

*Results based on historical returns. Expected return is the annualized monthly arithmetic mean return. Ex-ante Sharpe Ratio calculated using 3-month treasury bill returns as the risk-free rate.*


Efficient Frontier (Jan 2018 - Sep 2022)
150.0%
125.0%
100.0%
75.0%
50.0%
Expected Return
Maximum Omega Ratio at 0.00% Return
AROETH
SQZETH
SUPBTC
AROBTC
SQZBTC
20.0%
25.0%
30.0%
35.0%
40.0%
45.0%
50.0%
55.0%
60.0%
65.0%
70.0%
75.0%
Standard Deviation

## Efficient Frontier Transition Map (Jan 2018 - Sep 2022)



## Efficient Frontier Points

| # | SQZBTC | SQZETH | AROBTC | AROETH | SUPBTC | Expected Return (*) | Standard Deviation (*) | Sharpe Ratio (*) |
|---|---|---|---|---|---|---|---|---|
| 1 | 52.68% | 17.28% | 28.17% | 1.87% | 0.00% | 64.39% | 26.56% | 2.382 |
| 2 | 51.71% | 17.71% | 28.30% | 2.27% | 0.00% | 65.12% | 26.56% | 2.410 |
| 3 | 50.74% | 18.14% | 28.44% | 2.67% | 0.00% | 65.86% | 26.57% | 2.436 |
| 4 | 49.78% | 18.57% | 28.57% | 3.08% | 0.00% | 66.60% | 26.59% | 2.463 |
| 5 | 48.81% | 19.00% | 28.70% | 3.48% | 0.00% | 67.33% | 26.61% | 2.488 |
| 6 | 47.84% | 19.43% | 28.84% | 3.89% | 0.00% | 68.07% | 26.64% | 2.513 |
| 7 | 46.87% | 19.87% | 28.97% | 4.29% | 0.00% | 68.80% | 26.68% | 2.537 |
| 8 | 45.90% | 20.30% | 29.10% | 4.70% | 0.00% | 69.54% | 26.72% | 2.561 |
| 9 | 44.94% | 20.73% | 29.24% | 5.10% | 0.00% | 70.28% | 26.77% | 2.584 |
| 10 | 43.97% | 21.16% | 29.37% | 5.51% | 0.00% | 71.01% | 26.82% | 2.606 |
| 11 | 43.00% | 21.59% | 29.50% | 5.91% | 0.00% | 71.75% | 26.88% | 2.627 |
| 12 | 42.03% | 22.02% | 29.64% | 6.31% | 0.00% | 72.48% | 26.95% | 2.648 |
| 13 | 41.06% | 22.45% | 29.77% | 6.72% | 0.00% | 73.22% | 27.02% | 2.668 |
| 14 | 40.09% | 22.88% | 29.90% | 7.12% | 0.00% | 73.96% | 27.10% | 2.687 |
| 15 | 39.13% | 23.31% | 30.04% | 7.53% | 0.00% | 74.69% | 27.19% | 2.706 |
| 16 | 38.16% | 23.74% | 30.17% | 7.93% | 0.00% | 75.43% | 27.28% | 2.724 |
| 17 | 37.19% | 24.17% | 30.30% | 8.34% | 0.00% | 76.16% | 27.38% | 2.741 |
| 18 | 36.22% | 24.60% | 30.44% | 8.74% | 0.00% | 76.90% | 27.49% | 2.757 |
| 19 | 35.25% | 25.03% | 30.57% | 9.15% | 0.00% | 77.64% | 27.60% | 2.773 |
| 20 | 34.29% | 25.46% | 30.70% | 9.55% | 0.00% | 78.37% | 27.71% | 2.788 |
| 21 | 33.32% | 25.89% | 30.84% | 9.96% | 0.00% | 79.11% | 27.83% | 2.802 |
| 22 | 32.35% | 26.32% | 30.97% | 10.36% | 0.00% | 79.84% | 27.96% | 2.816 |
| 23 | 31.38% | 26.75% | 31.10% | 10.76% | 0.00% | 80.58% | 28.09% | 2.829 |
| 24 | 30.41% | 27.18% | 31.24% | 11.17% | 0.00% | 81.32% | 28.23% | 2.841 |
| 25 | 29.45% | 27.61% | 31.37% | 11.57% | 0.00% | 82.05% | 28.38% | 2.852 |
| 26 | 28.48% | 28.04% | 31.50% | 11.98% | 0.00% | 82.79% | 28.52% | 2.863 |
| 27 | 27.51% | 28.47% | 31.64% | 12.38% | 0.00% | 83.52% | 28.68% | 2.873 |
| 28 | 26.54% | 28.90% | 31.77% | 12.79% | 0.00% | 84.26% | 28.84% | 2.883 |
| 29 | 25.57% | 29.33% | 31.90% | 13.19% | 0.00% | 85.00% | 29.00% | 2.892 |
| 30 | 24.61% | 29.76% | 32.04% | 13.60% | 0.00% | 85.73% | 29.17% | 2.900 |
| 31 | 23.64% | 30.19% | 32.17% | 14.00% | 0.00% | 86.47% | 29.35% | 2.908 |
| 32 | 22.67% | 30.62% | 32.30% | 14.40% | 0.00% | 87.20% | 29.53% | 2.915 |

| # | SQZBTC | SQZETH | AROBTC | AROETH | SUPBTC | Expected Return (*) | Standard Deviation (*) | Sharpe Ratio (*) |
|---|---|---|---|---|---|---|---|---|
| 33 | 21.70% | 31.05% | 32.44% | 14.81% | 0.00% | 87.94% | 29.71% | 2.922 |
| 34 | 20.73% | 31.48% | 32.57% | 15.21% | 0.00% | 88.68% | 29.90% | 2.928 |
| 35 | 19.76% | 31.91% | 32.70% | 15.62% | 0.00% | 89.41% | 30.09% | 2.934 |
| 36 | 18.80% | 32.34% | 32.84% | 16.02% | 0.00% | 90.15% | 30.29% | 2.939 |
| 37 | 17.83% | 32.77% | 32.97% | 16.43% | 0.00% | 90.88% | 30.49% | 2.944 |
| 38 | 16.86% | 33.20% | 33.10% | 16.83% | 0.00% | 91.62% | 30.70% | 2.948 |
| 39 | 15.89% | 33.63% | 33.24% | 17.24% | 0.00% | 92.36% | 30.91% | 2.952 |
| 40 | 14.92% | 34.06% | 33.37% | 17.64% | 0.00% | 93.09% | 31.13% | 2.955 |
| 41 | 13.96% | 34.49% | 33.50% | 18.04% | 0.00% | 93.83% | 31.35% | 2.958 |
| 42 | 12.99% | 34.92% | 33.64% | 18.45% | 0.00% | 94.56% | 31.57% | 2.960 |
| 43 | 12.02% | 35.35% | 33.77% | 18.85% | 0.00% | 95.30% | 31.80% | 2.962 |
| 44 | 11.05% | 35.79% | 33.90% | 19.26% | 0.00% | 96.04% | 32.03% | 2.964 |
| 45 | 10.08% | 36.22% | 34.04% | 19.66% | 0.00% | 96.77% | 32.26% | 2.965 |
| 46 | 9.12% | 36.65% | 34.17% | 20.07% | 0.00% | 97.51% | 32.50% | 2.966 |
| 47 | 8.15% | 37.08% | 34.30% | 20.47% | 0.00% | 98.24% | 32.74% | 2.966 |
| 48 | 7.18% | 37.51% | 34.44% | 20.88% | 0.00% | 98.98% | 32.99% | 2.967 |
| 49 | 6.21% | 37.94% | 34.57% | 21.28% | 0.00% | 99.72% | 33.24% | 2.967 |
| 50 | 5.24% | 38.37% | 34.70% | 21.69% | 0.00% | 100.45% | 33.49% | 2.966 |
| 51 | 4.28% | 38.80% | 34.84% | 22.09% | 0.00% | 101.19% | 33.74% | 2.966 |
| 52 | 3.31% | 39.23% | 34.97% | 22.49% | 0.00% | 101.93% | 34.00% | 2.965 |
| 53 | 2.34% | 39.66% | 35.10% | 22.90% | 0.00% | 102.66% | 34.26% | 2.964 |
| 54 | 1.37% | 40.09% | 35.24% | 23.30% | 0.00% | 103.40% | 34.53% | 2.962 |
| 55 | 0.40% | 40.52% | 35.37% | 23.71% | 0.00% | 104.13% | 34.79% | 2.961 |
| 56 | 0.00% | 41.16% | 34.62% | 24.22% | 0.00% | 104.87% | 35.07% | 2.959 |
| 57 | 0.00% | 41.95% | 33.23% | 24.82% | 0.00% | 105.61% | 35.35% | 2.956 |
| 58 | 0.00% | 42.74% | 31.84% | 25.42% | 0.00% | 106.34% | 35.65% | 2.951 |
| 59 | 0.00% | 43.52% | 30.46% | 26.02% | 0.00% | 107.08% | 35.97% | 2.946 |
| 60 | 0.00% | 44.31% | 29.07% | 26.62% | 0.00% | 107.81% | 36.30% | 2.939 |
| 61 | 0.00% | 45.10% | 27.68% | 27.21% | 0.00% | 108.55% | 36.65% | 2.932 |
| 62 | 0.00% | 45.89% | 26.30% | 27.81% | 0.00% | 109.29% | 37.00% | 2.923 |
| 63 | 0.00% | 46.68% | 24.91% | 28.41% | 0.00% | 110.02% | 37.38% | 2.914 |
| 64 | 0.00% | 47.47% | 23.52% | 29.01% | 0.00% | 110.76% | 37.76% | 2.904 |
| 65 | 0.00% | 48.26% | 22.14% | 29.60% | 0.00% | 111.49% | 38.16% | 2.893 |
| 66 | 0.00% | 49.05% | 20.75% | 30.20% | 0.00% | 112.23% | 38.56% | 2.881 |

| # | SQZBTC | SQZETH | AROBTC | AROETH | SUPBTC | Expected Return (*) | Standard Deviation (*) | Sharpe Ratio (*) |
|---|---|---|---|---|---|---|---|---|
| 67 | 0.00% | 49.84% | 19.37% | 30.80% | 0.00% | 112.97% | 38.98% | 2.869 |
| 68 | 0.00% | 50.62% | 17.98% | 31.40% | 0.00% | 113.70% | 39.41% | 2.856 |
| 69 | 0.00% | 51.41% | 16.59% | 31.99% | 0.00% | 114.44% | 39.86% | 2.843 |
| 70 | 0.00% | 52.20% | 15.21% | 32.59% | 0.00% | 115.17% | 40.31% | 2.830 |
| 71 | 0.00% | 52.99% | 13.82% | 33.19% | 0.00% | 115.91% | 40.77% | 2.816 |
| 72 | 0.00% | 53.78% | 12.43% | 33.79% | 0.00% | 116.65% | 41.24% | 2.801 |
| 73 | 0.00% | 54.57% | 11.05% | 34.38% | 0.00% | 117.38% | 41.72% | 2.787 |
| 74 | 0.00% | 55.36% | 9.66% | 34.98% | 0.00% | 118.12% | 42.21% | 2.772 |
| 75 | 0.00% | 56.15% | 8.27% | 35.58% | 0.00% | 118.85% | 42.71% | 2.756 |
| 76 | 0.00% | 56.94% | 6.89% | 36.18% | 0.00% | 119.59% | 43.22% | 2.741 |
| 77 | 0.00% | 57.72% | 5.50% | 36.78% | 0.00% | 120.33% | 43.74% | 2.726 |
| 78 | 0.00% | 58.51% | 4.11% | 37.37% | 0.00% | 121.06% | 44.26% | 2.710 |
| 79 | 0.00% | 59.30% | 2.73% | 37.97% | 0.00% | 121.80% | 44.79% | 2.694 |
| 80 | 0.00% | 60.09% | 1.34% | 38.57% | 0.00% | 122.53% | 45.33% | 2.678 |
| 81 | 0.00% | 60.75% | 0.00% | 39.25% | 0.00% | 123.27% | 45.88% | 2.663 |
| 82 | 0.00% | 57.55% | 0.00% | 42.45% | 0.00% | 124.01% | 46.49% | 2.643 |
| 83 | 0.00% | 54.35% | 0.00% | 45.65% | 0.00% | 124.74% | 47.22% | 2.618 |
| 84 | 0.00% | 51.16% | 0.00% | 48.84% | 0.00% | 125.48% | 48.06% | 2.588 |
| 85 | 0.00% | 47.96% | 0.00% | 52.04% | 0.00% | 126.21% | 49.00% | 2.553 |
| 86 | 0.00% | 44.76% | 0.00% | 55.24% | 0.00% | 126.95% | 50.04% | 2.515 |
| 87 | 0.00% | 41.56% | 0.00% | 58.44% | 0.00% | 127.69% | 51.17% | 2.473 |
| 88 | 0.00% | 38.37% | 0.00% | 61.63% | 0.00% | 128.42% | 52.39% | 2.430 |
| 89 | 0.00% | 35.17% | 0.00% | 64.83% | 0.00% | 129.16% | 53.69% | 2.385 |
| 90 | 0.00% | 31.97% | 0.00% | 68.03% | 0.00% | 129.89% | 55.07% | 2.338 |
| 91 | 0.00% | 28.77% | 0.00% | 71.23% | 0.00% | 130.63% | 56.51% | 2.292 |
| 92 | 0.00% | 25.58% | 0.00% | 74.42% | 0.00% | 131.37% | 58.02% | 2.245 |
| 93 | 0.00% | 22.38% | 0.00% | 77.62% | 0.00% | 132.10% | 59.59% | 2.198 |
| 94 | 0.00% | 19.18% | 0.00% | 80.82% | 0.00% | 132.84% | 61.21% | 2.152 |
| 95 | 0.00% | 15.99% | 0.00% | 84.01% | 0.00% | 133.57% | 62.89% | 2.106 |
| 96 | 0.00% | 12.79% | 0.00% | 87.21% | 0.00% | 134.31% | 64.61% | 2.061 |
| 97 | 0.00% | 9.59% | 0.00% | 90.41% | 0.00% | 135.05% | 66.37% | 2.018 |
| 98 | 0.00% | 6.39% | 0.00% | 93.61% | 0.00% | 135.78% | 68.18% | 1.975 |
| 99 | 0.00% | 3.20% | 0.00% | 96.80% | 0.00% | 136.52% | 70.02% | 1.934 |
| 100 | 0.00% | 0.00% | 0.00% | 100.00% | 0.00% | 137.25% | 71.89% | 1.894 |

*(*) Annualized ex-ante values shown for portfolio return and volatility. Ex-ante Sharpe Ratio calculated using historical 3-month treasury bill returns as the risk-free rate.*

## Portfolio Components (Jan 2018 - Sep 2022)

| Name | CAGR | Stdev | Best Year | Worst Year | Max Drawdown | Sharpe Ratio | Sortino Ratio | Market Correlation |
|---|---|---|---|---|---|---|---|---|
| SQZBTC | 44.22% | 32.46% | 83.78% | 20.09% | -21.57% | 1.26 | 3.85 | -0.06 |
| SQZETH | 171.66% | 48.55% | 525.39% | 63.27% | -18.30% | 2.33 | 10.80 | -0.10 |
| AROBTC | 86.33% | 40.49% | 117.25% | 61.94% | -15.70% | 1.73 | 5.74 | -0.09 |
| AROETH | 199.35% | 71.89% | 397.05% | 14.18% | -36.96% | 1.89 | 5.02 | 0.06 |
| SUPBTC | 111.19% | 64.47% | 267.29% | 4.07% | -39.14% | 1.46 | 3.84 | 0.11 |

## Monthly Correlations (Jan 2018 - Sep 2022)

| Name | SQZBTC | SQZETH | AROBTC | AROETH | SUPBTC |
|---|---|---|---|---|---|
| SQZBTC | 1.00 | 0.18 | 0.23 | 0.35 | 0.36 |
| SQZETH | 0.18 | 1.00 | 0.24 | 0.26 | 0.46 |
| AROBTC | 0.23 | 0.24 | 1.00 | 0.03 | 0.44 |
| AROETH | 0.35 | 0.26 | 0.03 | 1.00 | 0.31 |
| SUPBTC | 0.36 | 0.46 | 0.44 | 0.31 | 1.00 |

## Portfolio Asset Performance

| Name | Total Return | | | Annualized Return |
|---|---|---|---|---|
| | 3 Month | Year To Date | 1 year | 3 year |
| SQZBTC | 8.17% | 20.09% | 16.97% | 45.74% |
| SQZETH | -18.30% | 63.27% | 55.35% | 192.90% |
| AROBTC | 4.11% | 61.94% | 66.39% | 63.73% |
| AROETH | 35.09% | 137.01% | 180.42% | 313.11% |
| SUPBTC | -27.71% | 6.59% | 25.12% | 126.26% |

*Trailing returns as of last calendar month ending September 2022*

## Return Decomposition (Jan 2018 - Sep 2022)

| Name | Maximum Omega Ratio at 0.00% Return |
|---|---|
| SQZBTC | $25,568 |
| SQZETH | $227,517 |
| AROBTC | $152,716 |
| AROETH | $95,146 |
| SUPBTC | $3,778 |

*Return attribution decomposes portfolio gains into its constituent parts and identifies the contribution to returns by each of the assets.*

## Risk Decomposition (Jan 2018 - Sep 2022)

| Name | Maximum Omega Ratio at 0.00% Return |
|---|---|
| SQZBTC | 5.49% |
| SQZETH | 46.58% |
| AROBTC | 37.29% |
| AROETH | 9.61% |
| SUPBTC | 1.04% |

*Risk attribution decomposes portfolio risk into its constituent parts and identifies the contribution to overall volatility by each of the assets.*

**Notes:**

- IMPORTANT: The projections or other information generated by Portfolio Visualizer regarding the likelihood of various investment outcomes are hypothetical in nature, do not reflect actual investment results and are not guarantees of future results. Results may vary with each use and over time.
- The results do not constitute investment advice or recommendation, are provided solely for informational purposes, and are not an offer to buy or sell any securities. All use is subject to terms of service.
- Investing involves risk, including possible loss of principal. Past performance is not a guarantee of future results.
- Asset allocation and diversification strategies do not guarantee a profit or protect against a loss.
- Hypothetical returns do not reflect trading costs, transaction fees, commissions, or actual taxes due on investment returns.
- The results are based on information from a variety of sources we consider reliable, but we do not represent that the information is accurate or complete.
- Refer to the related documentation sections for more details on terms and definitions , methodology , and data sources.
- Portfolio optimization is a process of choosing the proportions of various assets to be held in a portfolio in such a way as to make the portfolio better than any other combination according to the selected objective function such as maximizing risk-adjusted return. Portfolio optimization determines target weights for portfolio assets based on mathematical models that can use either historical or forecasted data as inputs. Optimization results are not guarantees of future performance.
- The results are based on the total return of assets and assume that all received dividends and distributions are reinvested.
- Compound annualized growth rate (CAGR) is the annualized geometric mean return of the portfolio. It is calculated from the portfolio start and end balance and is thus impacted by any cashflows.
- The time-weighted rate of return (TWRR) is a measure of the compound rate of growth in a portfolio. This is calculated from the holding period returns (e.g. monthly returns), and TWRR will thus not be impacted by cashflows. If there are no external cashflows, TWRR will equal CAGR.
- The money-weighted rate of return (MWRR) is the internal rate of return (IRR) taking into account cashflows. This is the discount rate at which the present value of cash inflows equals the present value of cash outflows.
- Standard deviation (Stdev) is used to measure the dispersion of returns around the mean and is often used as a measure of risk. A higher standard deviation implies greater the dispersion of data points around the mean.
- Sharpe Ratio is a measure of risk-adjusted performance of the portfolio, and it is calculated by dividing the mean monthly excess return of the portfolio over the risk-free rate by the standard deviation of excess return, and the displayed value is annualized.
- Sortino Ratio is a measure of risk-adjusted return which is a modification of the Sharpe Ratio. While the latter is the ratio of average returns in excess of a risk-free rate divided by the standard deviation of those excess returns, the Sortino Ratio has the same denominator divided by the standard deviation of returns below the risk-free rate.
- Treynor Ratio is a measure of risk-adjusted performance of the portfolio. It is similar to the Sharpe Ratio, but it uses portfolio beta (systematic risk) as the risk metric in the denominator.
- Calmar Ratio is a measure of risk-adjusted performance of the portfolio. It is calculated as the annualized return over the past 36 months divided by the maximum drawdown over the past 36 months based on monthly returns.
- Risk-free returns are calculated based on the Federal Reserve 3-Month Treasury Bill (secondary market) rates.
- Downside deviation measures the downside volatility of the portfolio returns unlike standard deviation, which includes both upside and downside deviations. Downside deviation is calculated based on negative returns that hurt the portfolio performance.
- Correlation measures to what degree the returns of the two assets move in relation to each other. Correlation coefficient is a numerical value between -1 and +1. If one variable goes up by a certain amount, the correlation coefficient indicates which way the other variable moves and by how much. Asset correlations are calculated based on monthly returns.
- Skewness is a measure of the asymmetry of the probability distribution or returns from a normal Gaussian distribution shape about its mean. Negative skewness is associated with the left (typically negative returns) tail of the distribution extending further than the right tail; and positive skewness is associated with the right (typically positive returns) tail of the distribution extending further than the left tail.
- Excess kurtosis is a measure of whether a data distribution is peaked or flat relative to a normal distribution. Distributions with high kurtosis tend to have a distinct peak near the mean, decline rather rapidly, and have heavy or fat tails.
- A drawdown refers to the decline in value of a single investment or an investment portfolio from a relative peak value to a relative trough. A maximum drawdown (Max Drawdown) is the maximum observed loss from a peak to a trough of a portfolio before a new peak is attained. Drawdown values are calculated based on monthly returns.
- Value at Risk (VaR) measures the scale of loss at a given confidence level. If the 5% VaR is -3% the portfolio return is expected to be greater than -3% 95% of the time and less than -3% 5% of the time. Value at Risk can be calculated directly based on historical returns based on a given percentile or analytically based on the mean and standard deviation of the returns.
- Conditional Value at Risk (CVaR) measures the scale of the expected loss once the specific Value at Risk (VaR) breakpoint has been breached, i.e., it calculates the average tail loss by taking a weighted average between the value at risk and losses exceeding the value at risk.
- Beta is a measure of systematic risk and measures the volatility of a particular investment relative to the market or its benchmark. Alpha measures the active return of the investment compared to the market benchmark return. R-squared is the percentage of a portfolio's movements that can be explained by movements in the selected benchmark index.
- Active return is the investment return minus the return of its benchmark. For periods longer than 12 months this is displayed as annualized value, i.e., annualized investment return minus annualized benchmark return.
- Tracking error, also known as active risk, is the standard deviation of active return. This is displayed as annualized value based on the standard deviation of monthly active returns.
- Information ratio is the active return divided by the tracking error. It measures whether the investment outperformed its benchmark consistently.
- Gain/Loss ratio is a measure of downside risk, and it is calculated as the average positive return in up periods divided by the average negative return in down periods.
- Upside Capture Ratio measures how well the fund performed relative to the benchmark when the market was up, and Downside Capture Ratio measures how well the fund performed relative to the benchmark when the market was down. An upside capture ratio greater than 100 would indicate that the fund outperformed its benchmark when the market was up, and a downside capture ratio below 100 would indicate that the fund lost less than its benchmark when the market was down. To calculate upside capture ratio a new series from the portfolio returns is constructed by dropping all time periods where the benchmark return is less than equal to zero. The up capture is then the quotient of the annualized return of the resulting manager series, divided by the annualized return of the resulting benchmark series. The downside capture ratio is calculated analogously.
- All risk measures for the portfolio and portfolio assets are calculated based on monthly returns.
- The annual results for 2022 are based on full calendar months from January to September.

- Omega ratio is a weighted risk-return ratio for a given level of expected return. Omega ratio is calculated using the given target annual return of 0.00%.
- The optimization results assume monthly rebalancing of portfolio assets to match the specified allocation.
- The results from the evolutionary algorithm for non-convex optimization may vary slightly between optimization runs depending on convergence to the global optimum.