

DAILY RETURN DISTRIBUTION STATISTICAL ANALYSIS

January 2022



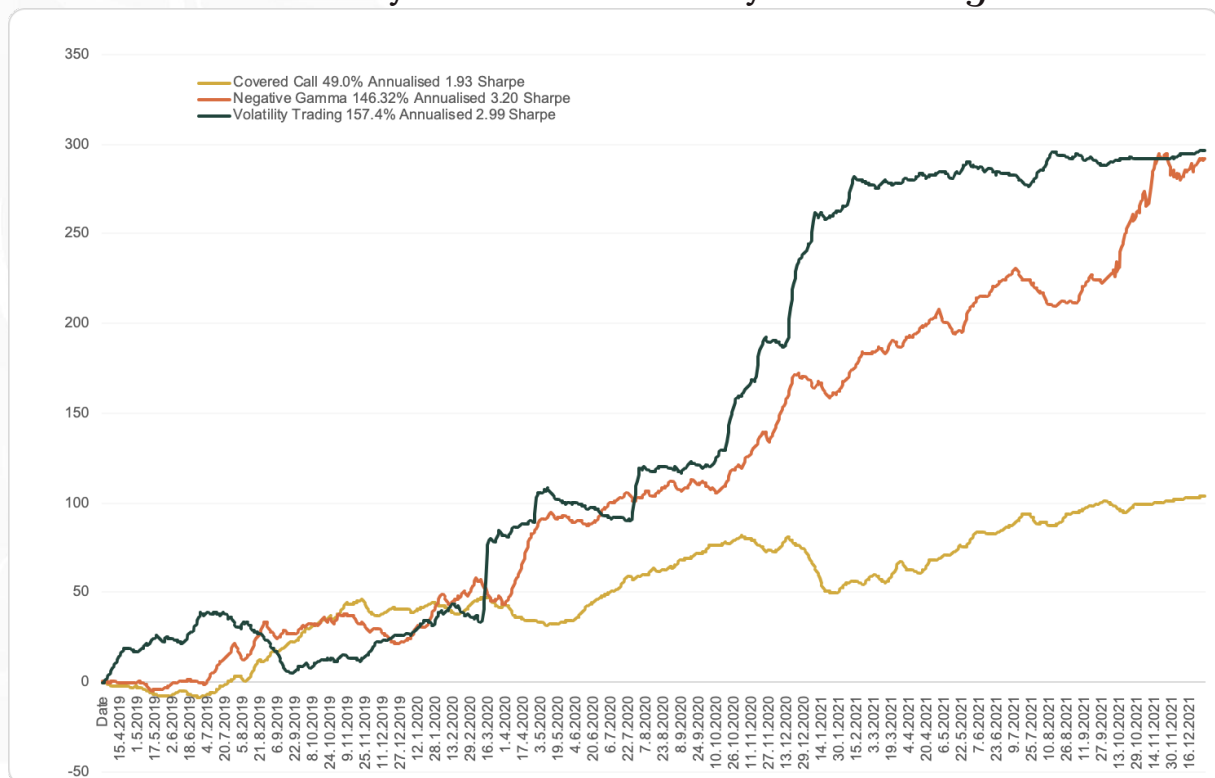
LIBERTYROAD
CAPITAL



Founded in 2018, **Liberty Road Capital** is a world class digital asset manager, specialising in yield enhancement strategies for digital currencies, especially Bitcoin. The team has decades of experience in asset management, investment banking and digital and blockchain business. Liberty Road offers three strategies:

1. **Covered Call** strategy - uses zero leverage where the USD principal is 100% protected, and the BTC balance is 95% protected.
2. **Negative Gamma** Strategy - utilises up to 3x leverage, trading the bitcoin volatility surface with a directional bias depending on fundamental blockchain analysis
3. **Full BTC Volatility Trading** program - buys and sells bitcoin calls and puts, arbitrages the volatility surface and arbitrages across products and across exchanges.

Cumulative Daily Returns - Liberty Road Programmes

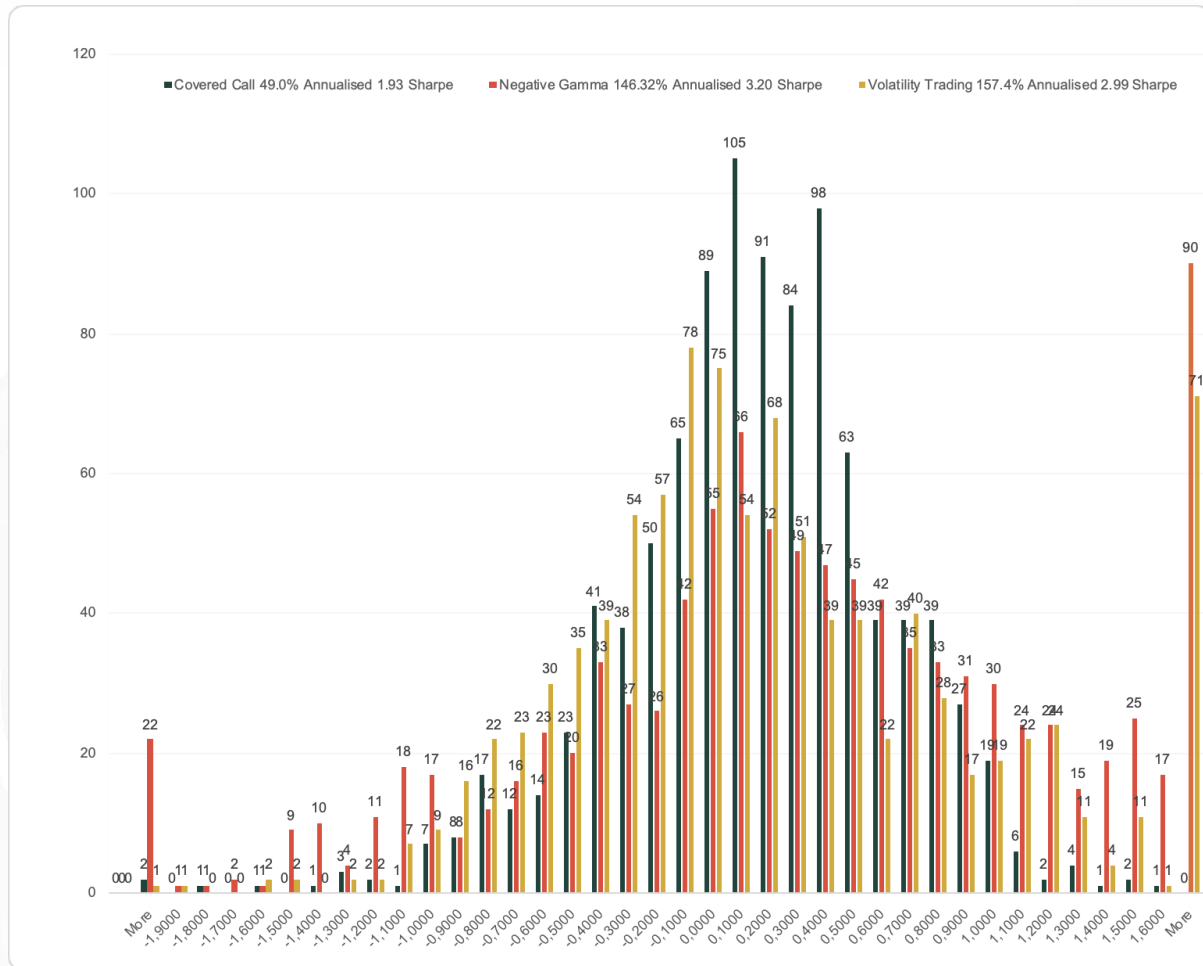


The chart above shows cumulative daily returns since April 2019. Returns are generated using a targeted level of Extreme Value at Risk (EVaR) which is a sophisticated methodology that models the tail risk and incorporates an estimate of tail risk into the portfolio modelling.

A given level of EVaR is targeted over the year, with actual EVaR being calculated and modelled in real time. Therefore where market conditions are positive from a Risk Adjusted Return perspective, targeted EVaR will be higher, and when conditions are detrimental targeted EVaR will be lower.



Overlaid Daily Return Distributions



Above are the historical distribution of returns for each strategy.

The Covered Call Strategy employs zero leverage and has returns highly condensed around the mean. It on averages 11 bp of daily returns with a daily standard deviation of 0.49.

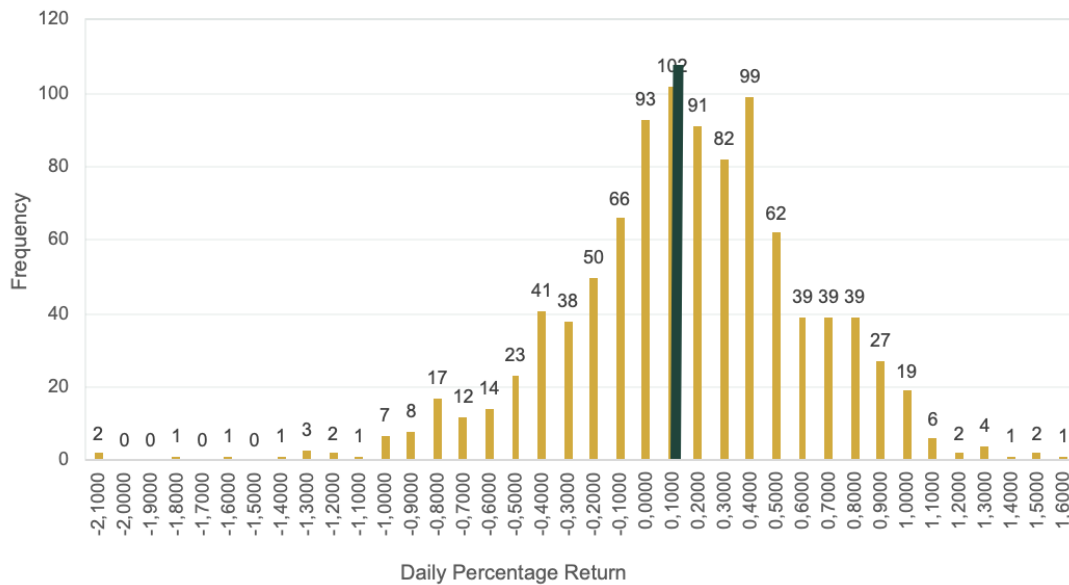
The negative gamma strategy generates on average 25 basis points of returns each day, with a daily standard deviation of 0.86. The Volatility Trading Strategy generates on average 32 basis points of return each day with a Standard Deviation of 1.32

The Volatility trading strategy is significantly skewed to the upside in its distribution of returns. This is because while it sells both puts and call, it also buys options, which on highly volatile days limits downside and skews the upside significantly higher.





Covered Call - Daily Distribution of Returns



Mean	0.11002186
Standard Error	0.016092362
Median	0.13162008
Standard Deviation	0.486511266
Sample Variance	0.236693212
Kurtosis	1.25762695
Skewness	-0.521181236
Range	3.658673823
Minimum	-2.136929227
Maximum	1.521744596
Sum	100.5599802
Count	914
Confidence Level(95.0%)	0.031582318

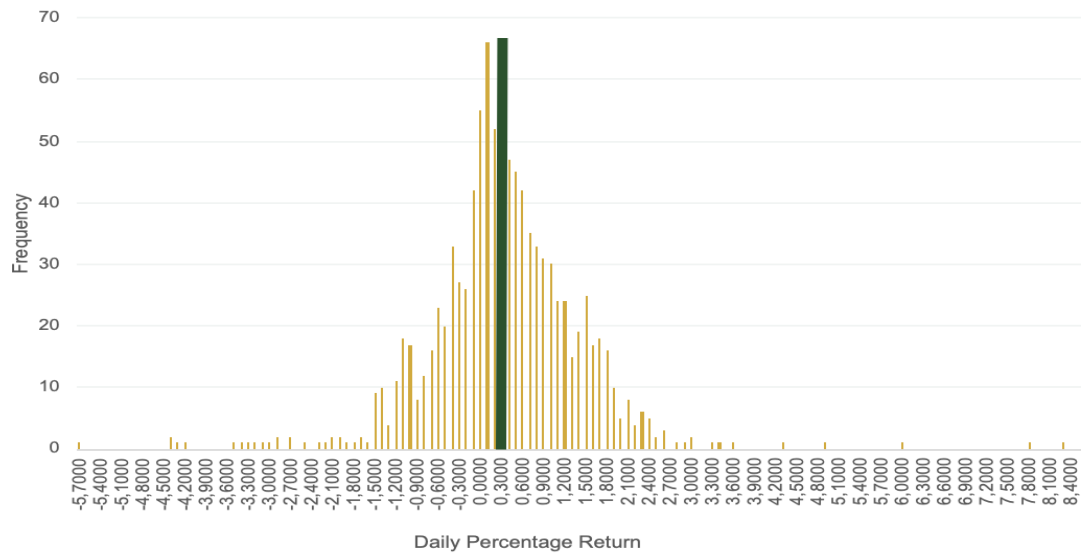
The Covered call strategy is capped at 1x leverage. Therefore it cannot sell more calls than are invested. It targets 10 bp of return a day and is constantly short gamma and long theta, receiving premium everyday. It has the closest distribution to a normal distribution and has returned 52.9% annualised return with a Sharpe Ratio of 2.0

The largest drawdown occurred on the 13/14th of January 2021 with a 2.13% drawdown when Bitcoin moved from 32k to around 40k.





Negative Gamma - Daily Distribution of Returns



Mean	0.291264064
Standard Error	0.035887348
Median	0.244494724
Standard Deviation	1.135991869
Sample Variance	1.290477527
Kurtosis	9.1225276
Skewness	0.629908885
Range	14.34
Minimum	-5.75
Maximum	8.59
Sum	291.8465919
Count	1002
Confidence Level(95.0%)	8.59

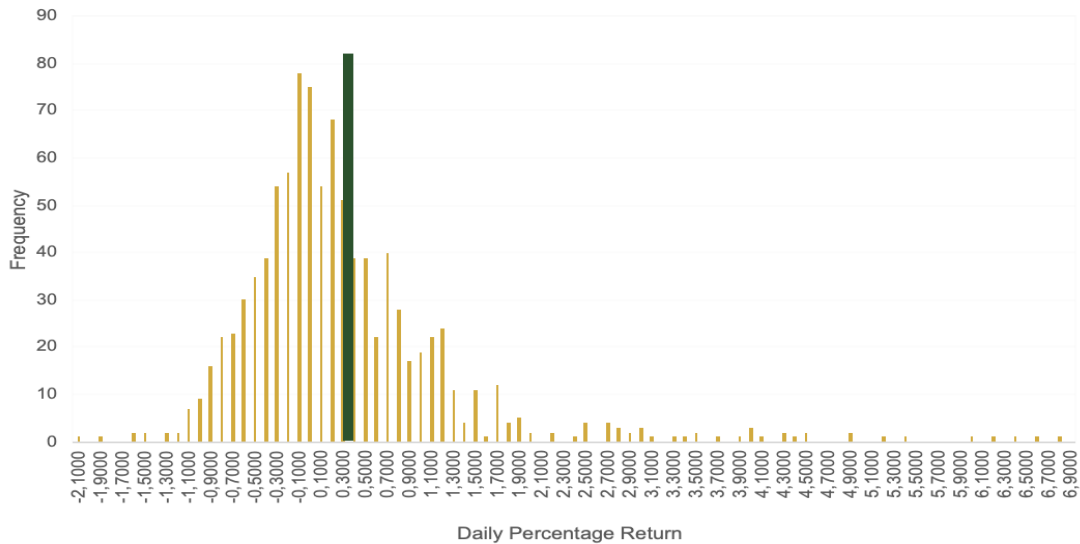
The Negative Gamma strategy is capped at 3x leverage. However it targets 24 bp of return a day which is roughly equivalent to 2x leverage. It is constantly short gamma and long theta, receiving premium everyday. It sells both puts and calls, and is directional based on fundamental and technical analysis in our AI Machine Learning algorithm. It has returned 103.1% annualised return with a Sharpe Ratio of 2.43

The largest drawdown occurred on the 5th May 2021 with a -3.05% drawdown when Bitcoin moved from 57k to around 53k.





Volatility Trading - Daily Distribution of Returns



Mean	0.304090287
Standard Error	0.040830774
Median	0.052292643
Standard Deviation	1.275594167
Sample Variance	1.62714048
Kurtosis	48.79011289
Skewness	5.128645198
Range	20.02433425
Minimum	-2.105895101
Maximum	17.91843915
Sum	296.7921201
Count	976
Confidence Level(95.0%)	17.91843915

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