Margaritaville Mutual*

*Not Financial Advice

Pitch by: Anton Cronet

Pitch overview

- The Strategy
- Copulas
- The Data
- Modelling
- Backtesting

The Strategy

Retrieving Stock data

- Any type data would work
- The data must be correlated

Fitting Copula

Goal:

model dependence structure

Trading Signals

- Identify unusual spike
- Spike down -> Buy
- Spike up -> sell

Copulas - Economic Intuition

Definition

A Function to join (or couple) multivariate distribution functions

How does it work?

Regardless of each variable's distribution, copulas model the dependency between these

Usage

- ➔ Specifically good at modelling tail dependencies
- ➔ Model complex dependencies

The Data and Pre-processing

Getting Data

FAANG companies
- \+ MSFT
- \+ NVDA

The data spans from: start of 2022 – end on 2024

Log Returns

Scale-invariant

Stationary Data

Statistically convenient

Fit GARCH(1, 1)

Clusters volatility

Copula is fit on residuals

Copula

Gaussian multivariate

Doesn’t need normal returns

Likelihoods

Tech data correlate

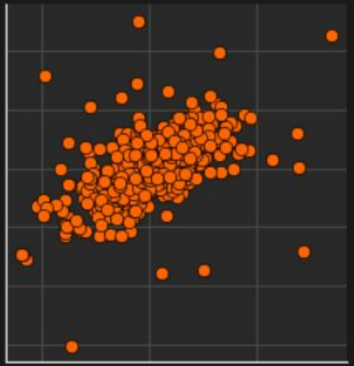
Low likelihood = Extreme event

Same core idea as mean reversion

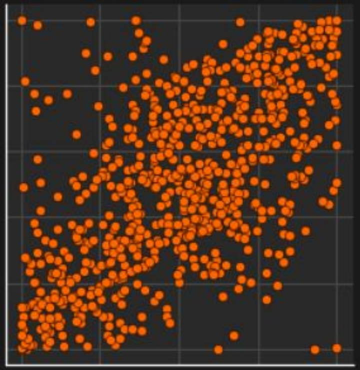
Modelling: Fitting the Copula

Example: AAPL – AMZN

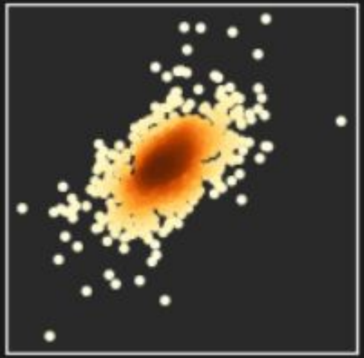
Raw data



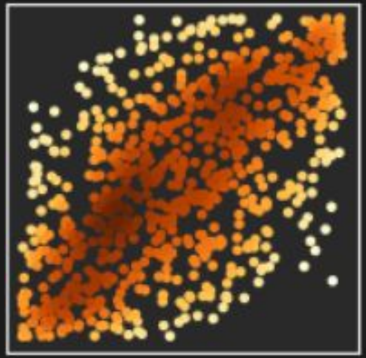
Raw Data – Uniform



Copula Sample



Copula – Uniform



Backtesting - NFLX

Start Value	End
100 000	171 828
Benchmark:	150 906

Sharpe Ratio	1.19

Parameters	
Likelihood Cut Off	20%
Fees	0.001
Slippage	0.0002

Backtesting - AAPL

Start Value	End
100 000	121 861
Benchmark:	139 377

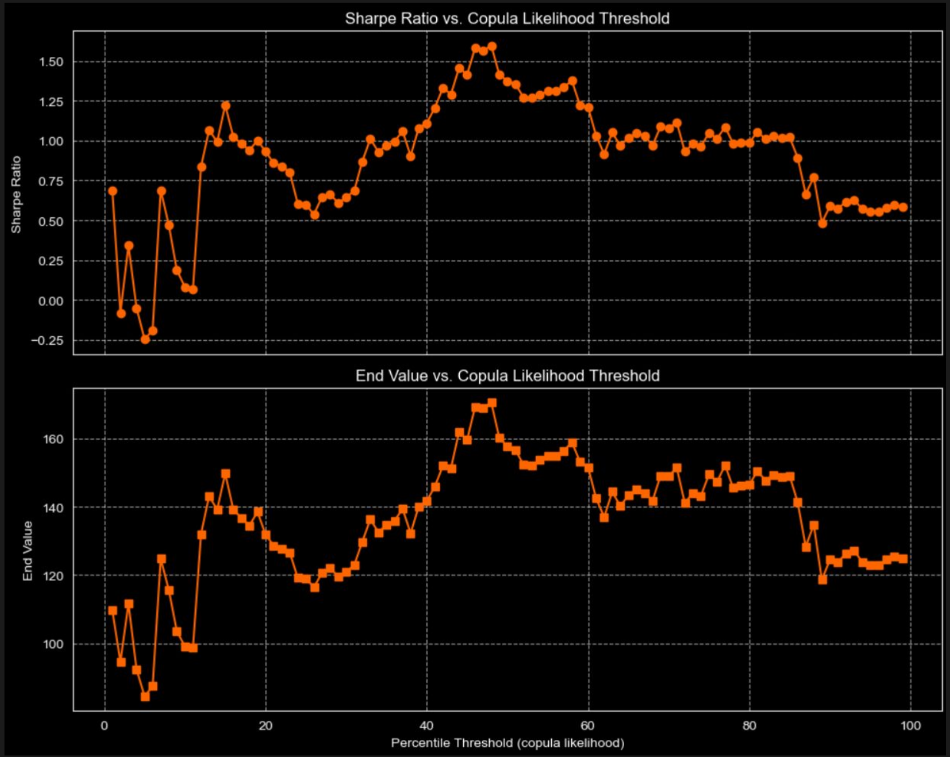
Sharpe Ratio	0.81

Parameters	
Likelihood Cut Off	20%
Fees	0.001
Slippage	0.0002

Backtesting - AAPL

Sensitivity	[1, 99]

Sharpe Ratio	[-0.25, 1.5]



Revenue

Min	Max
- 15 000	+ 55 000
Benchmark:	+ 39 377

Risks and Limitations

Mean Reversion

Spike up or down can be a new market equilibrium

Assumes the rest of the market's behaviour as baseline

Market crashes

Signals: A stock is significantly different from the rest

Does not capture market crashes as signals

Relationships over time

Copulas require much data for estimation

Relationships between stock returns can change over time

Thank you for Investing

... your time into listening