Description of Bot Tau

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Contents

1 Introduction

This document describes the simulated in-sample performance of Bot Tau's trading strategy. It does not describe the strategy itself, which is proprietary.

2 Trading Plan

Table 1: Specifics of the trading plan.

Assets	Currently undecided
Overnight?	We close positions at end of each trading day, because we don't want overnight exposure.
Number of trades per day	Currently undecided
Performance	• Yearly return > ? • Sharp Ratio > ? • Calmar Ratio > ?
Over-fitting	How many times can the strategy be adjusted? How many back tests?

Risk management conditions:

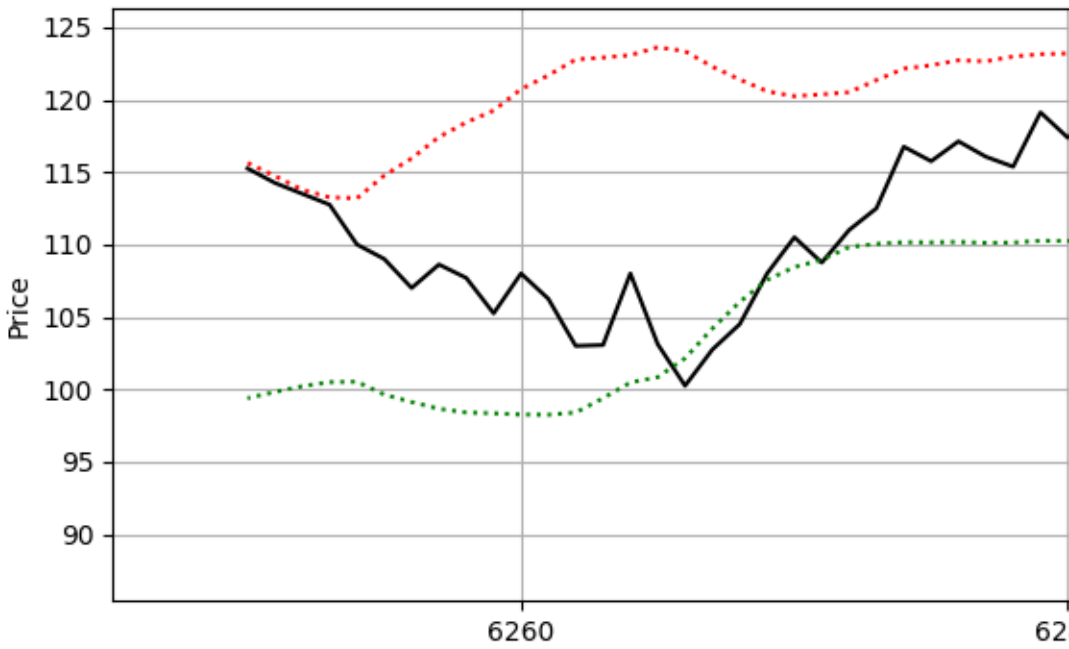
- If we have more than 3 losing trades per day, we stop the algorithm for the day.
- We stop the algorithm after X % loss in one month.
- We stop the algorithm if the drawdown in live trading becomes times higher than the drawdown in incubation.

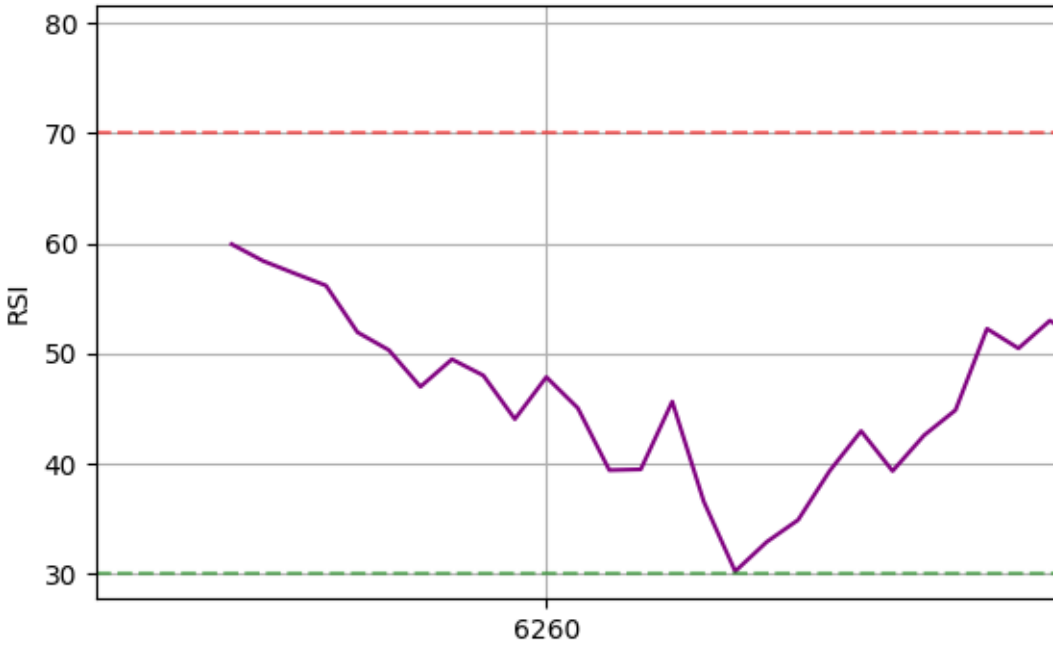
3 The Dataset

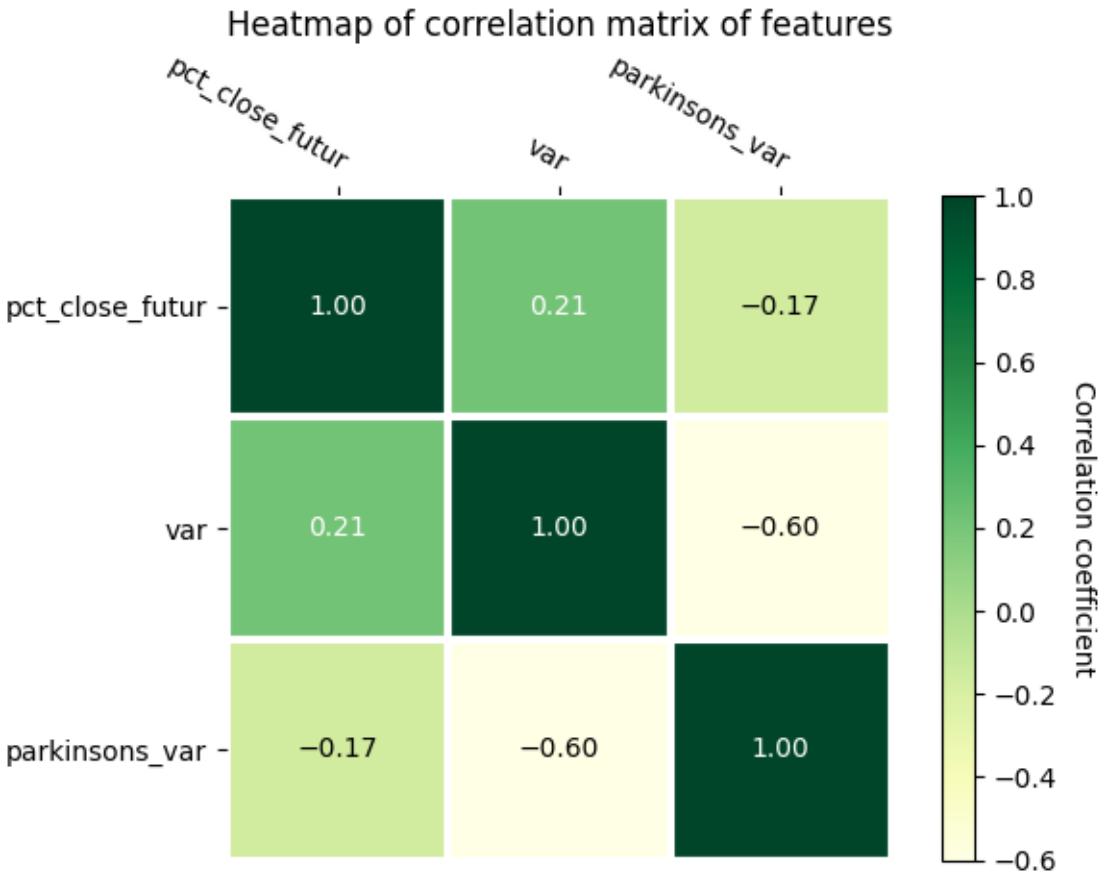
The dataset stretches from 1999-11-01 00:00:00 to 2000-03-23 00:00:00.

4 Features

Some form of property, typically derived from the OLHCV. An example is volatility. The features used are as follows.




80
70
60
50
40
30
RSI
6260


Heatmap of correlation matrix of features
pct_close_futur
var
parkinsons_var
pct_close_futur
var
parkinsons_var
1.00
0.21
−0.17
0.21
1.00
−0.60
−0.17
−0.60
1.00
1.0
0.8
0.6
0.4
0.2
0.0
−0.2
−0.4
−0.6
Correlation coefficient

5 Targets

6 Model

OLS Regression Results

Dep. Variable:	target_future_returns_sign	R-squared:	0.023
Model:	OLS	Adj. R-squared:	0.013
Method:	Least Squares	F-statistic:	2.308
Date:	Wed, 06 Aug 2025	Prob (F-statistic):	0.132
Time:	12:15:06	Log-Likelihood:	-71.235
No. Observations:	100	AIC:	146.5
Df Residuals:	98	BIC:	151.7
Df Model:	1		
Covariance Type:	nonrobust		

	coef	std err	t	P>|t|	[0.025	0.975]
const	0.5408	0.050	10.743	0.000	0.441	0.641
signal	0.5408	0.356	1.519	0.132	-0.166	1.247

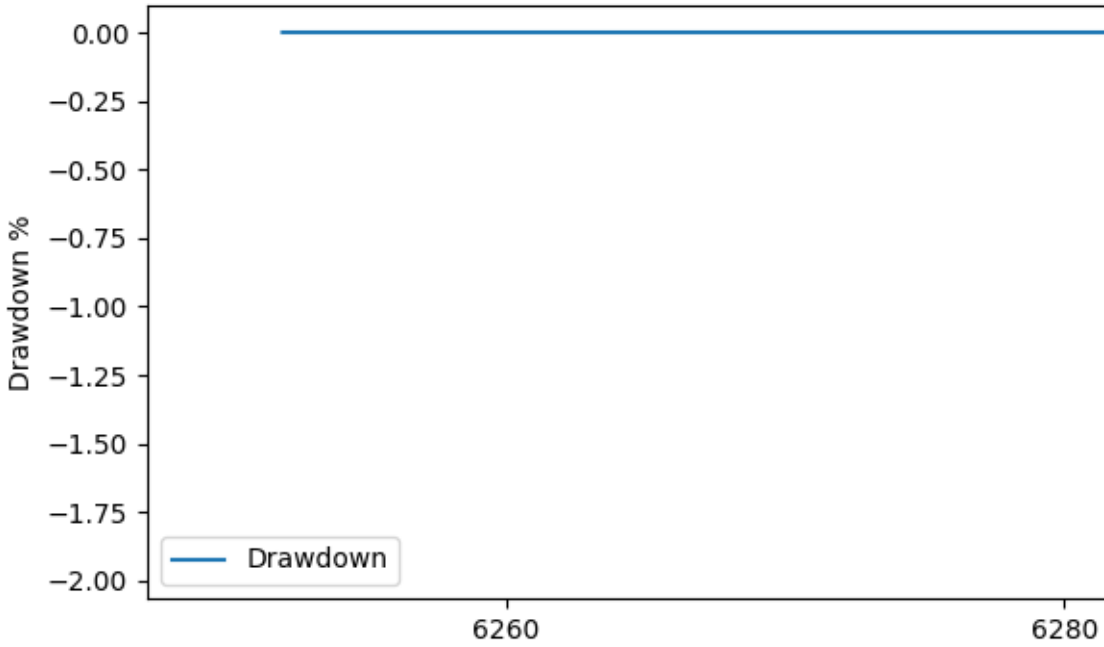
Omnibus:	847.060	Durbin-Watson:	0.599
Prob(Omnibus):	0.000	Jarque-Bera (JB):	16.336
Skew:	-0.165	Prob(JB):	0.000284
Kurtosis:	1.048	Cond. No.	7.15

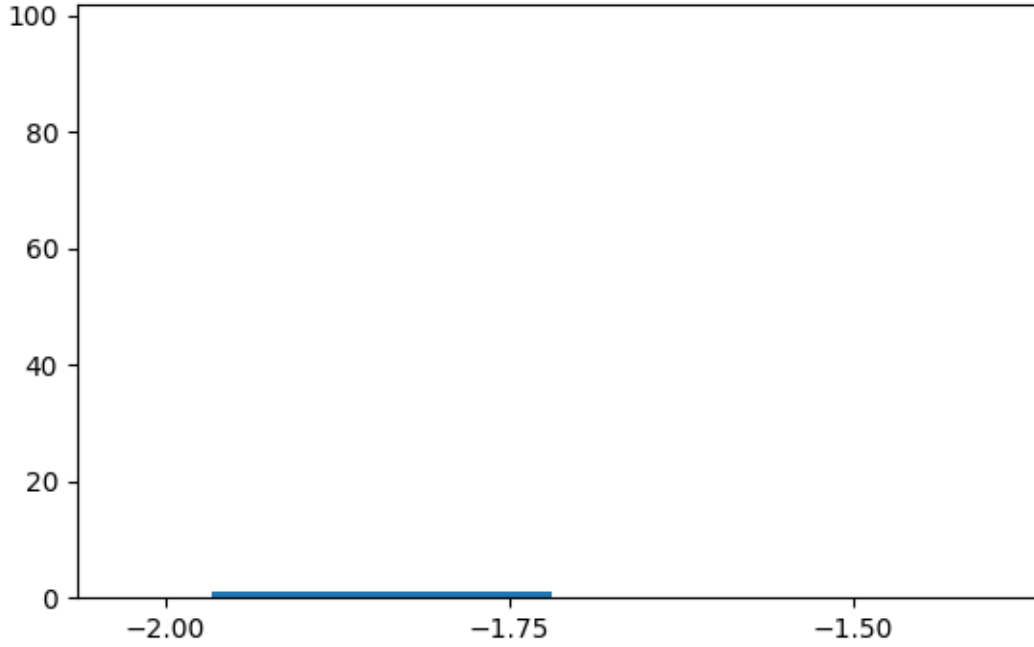
Notes:
[1] Standard Errors assume that the covariance matrix of the errors is correctly specified.

7 Back Test

7.1 Drawdown

Maximum drawdown is 1.97%. We consider 20% an acceptable maximum.



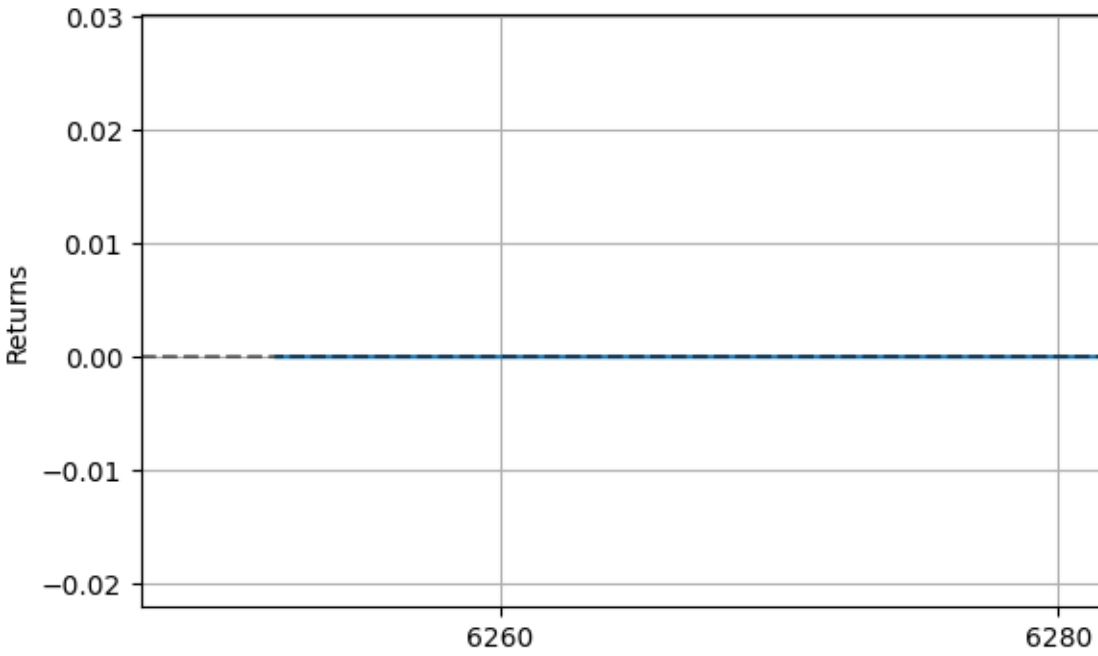


7.2 Returns

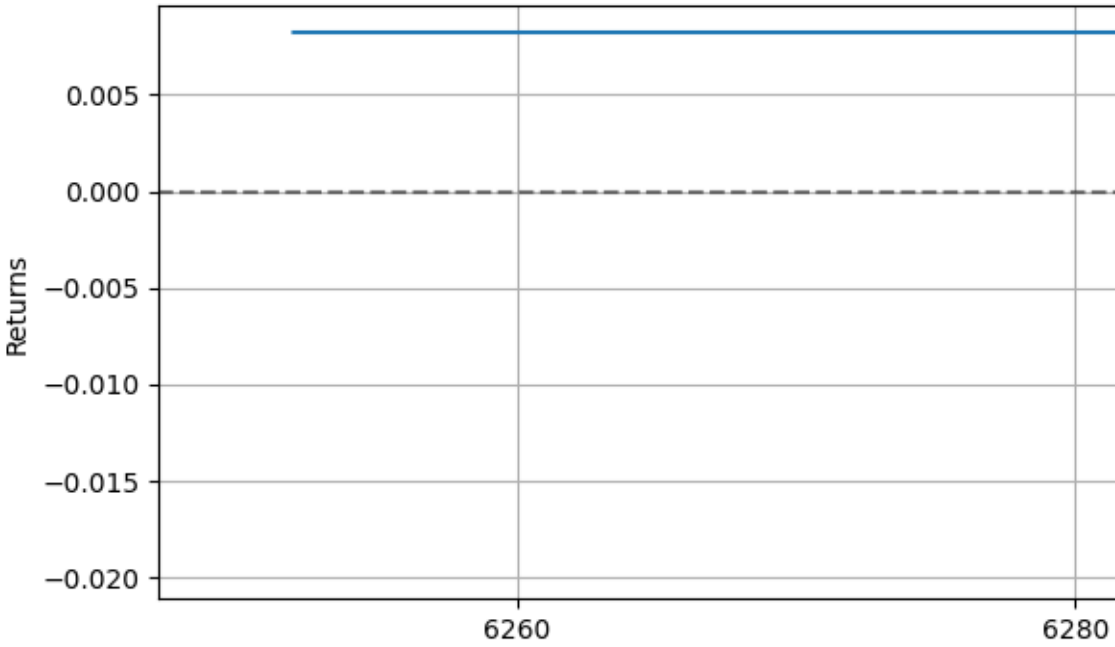
This is the returns of our trading strategy.

Table 2: Statistics of returns.

Mean returns	0.0084%
Standard deviation (SD)	0.0035
Sharpe Ratio (SR)	0.3843
Calmar Ratio (CR)	0.0042

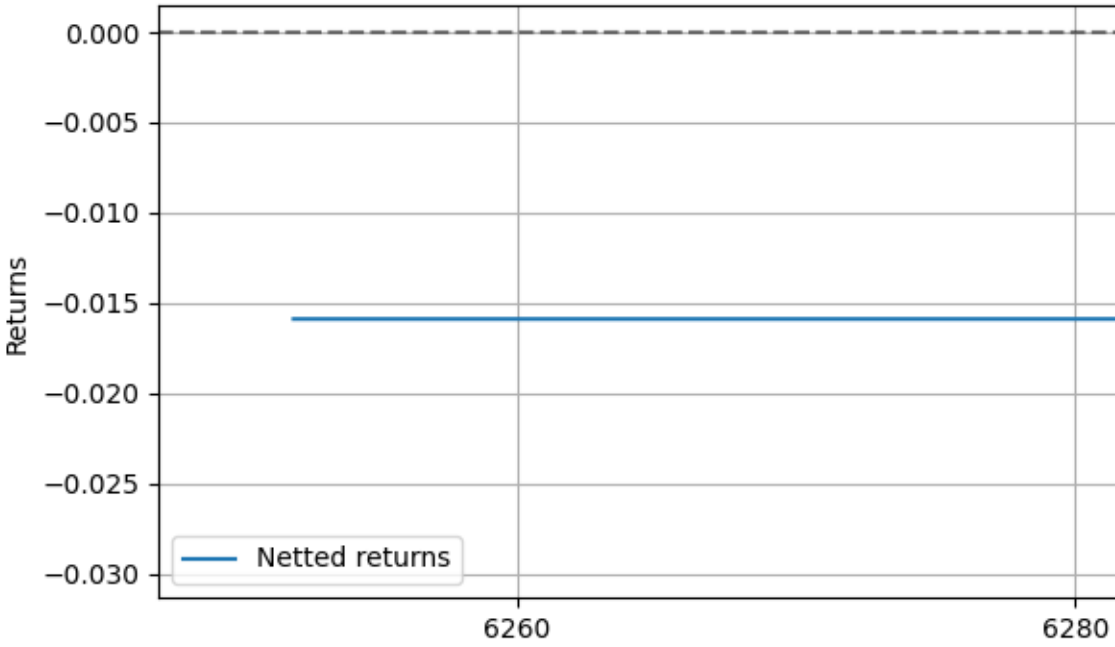


The cumulative returns are not compounding, while the annualized returns are. However, we close the position, meaning compounding isn't relevant.



The transaction cost, C, is calculated using the formula, where t is the trade amount:

$$C = 0.02 * t + spread/2 \tag{1}$$



8 Live Performance

The plan is to paper trade in a one month incubation period.

TODO compare return dist to back test return using Kolmogorov statistical test.

8.1 Performance Report

(Copy Discord report.)

8.2 Trading Journal

No trading have taken place, so nothing here yet.