

Twitter Thread by PyQuant News



PyQuant News

[@pyquantnews](#)



A Bloomberg Terminal costs \$24,000 per year.

It's the portal to all the world's financial data.

Unaffordable for 99% of us.

Reserved for the Wall Street elite to outfox the normal investor.

Until now:

In case you're unfamiliar:

- Over 325,000 people use Bloomberg daily
- Used for market data, trading and research
- Launched in 1981 by billionaire Michael Bloomberg

It's a modern icon of financial markets.

So, how can you compete?

With OpenBB.

The OpenBB Terminal is a Python-based environment for investment research.

There are over 500 functions covering:

- ETFs
- Forex
- Stocks
- Crypto
- Options
- Portfolio
- Economy

- Mutual funds
- Econometrics

Strap on your seat belt.

Let's dive in:



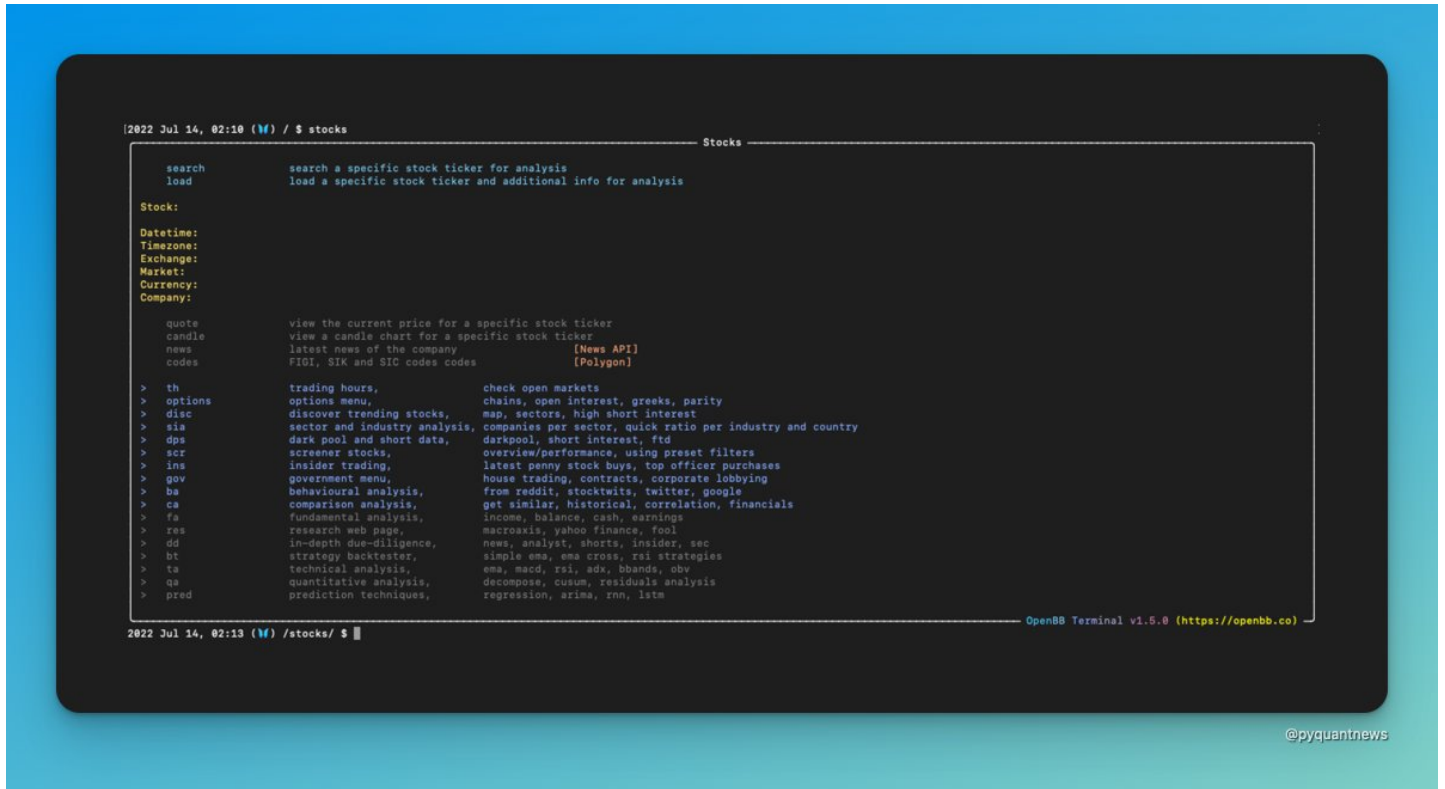
Let's start by analyzing Tesla.

First, type `*stocks*` at the command prompt to show the menu.

These are all the sub menus you can explore to analyze stocks.

The menu items in grey are not available until you load stock data.

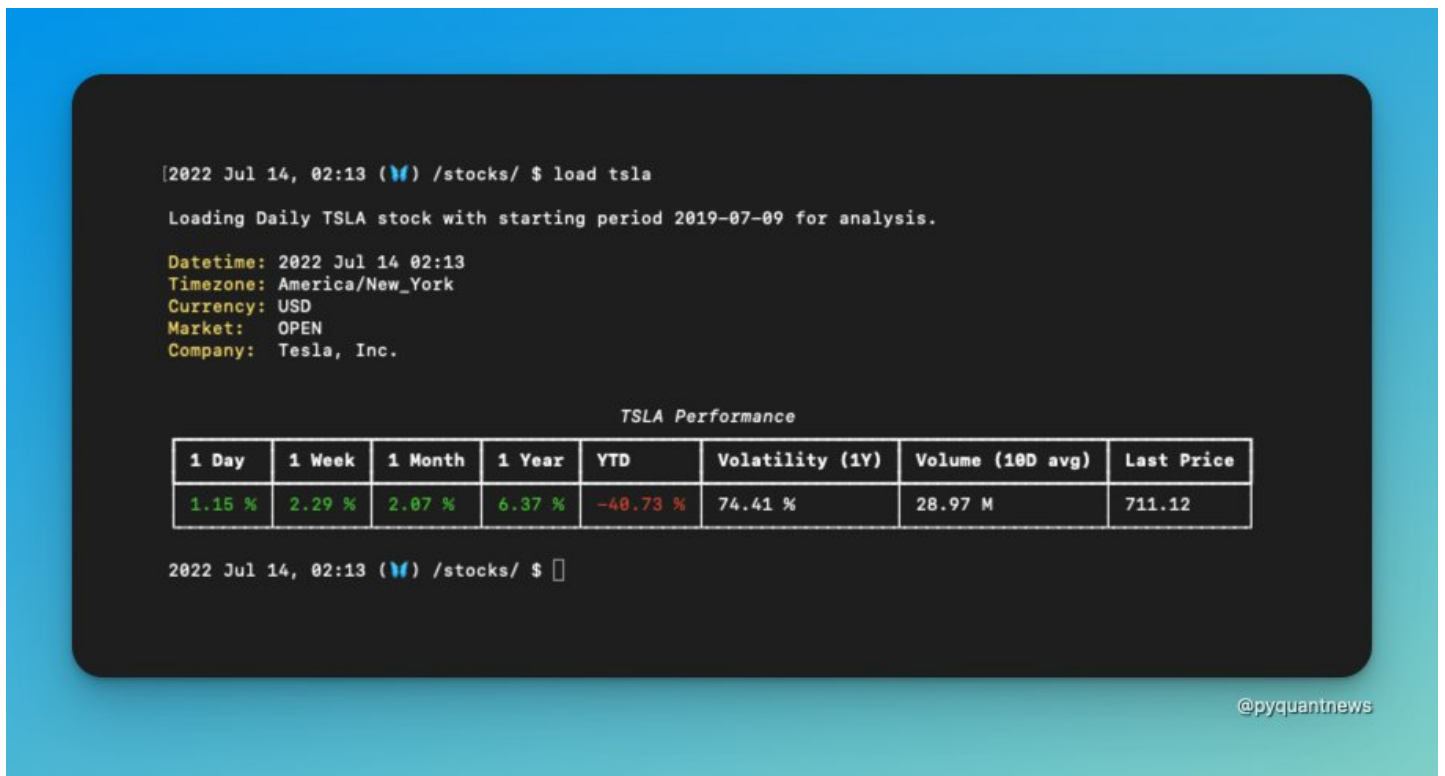
Let's load TSLA now.



Type `*load TSLA*`.

This will load TSLA price data (for free) and print out a performance summary.

Now we can start to analyze TSLA.

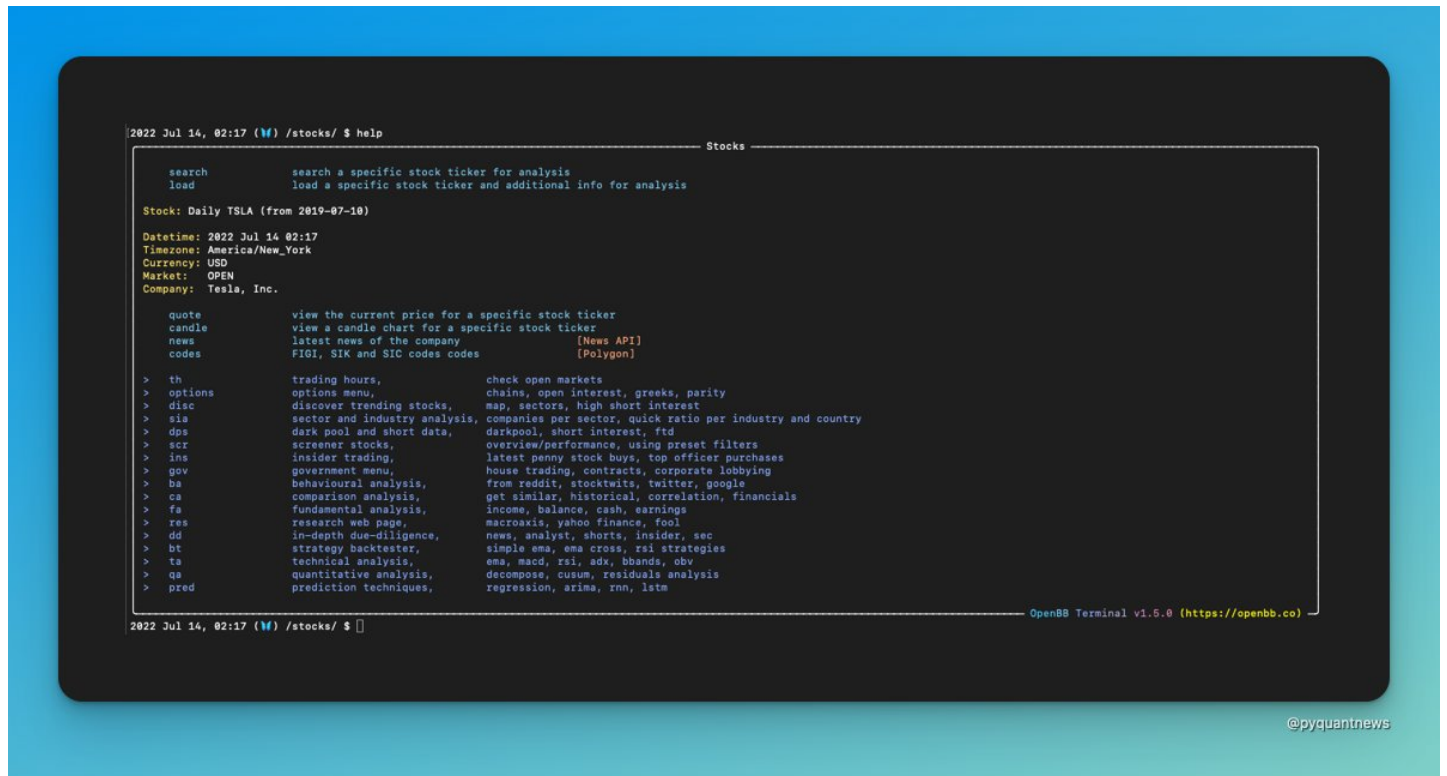


Type `*help*` to see that all 17 sub menus are now available.

There's too much here to cover in a thread.

Take some time and explore each of the sub menus to find the functions.

Let's keep going.



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We start with a fundamental analysis.

Load the fundamental analysis functions by typing `*fa*`.

OpenBB presents another list of functions to analyze TSLA's fundamentals.

Let's check out how the market capitalization has changed through time.

Type `*mktcap*`.

```
2022 Jul 14, 02:13 (W) /stocks/ $ fa
```

```
Stocks - Fundamental Analysis
```

```
load          load a specific stock ticker for analysis

Ticker: TSLA

data          fundamental and technical data of company          [Finviz]
mgmt          management team of the company                    [Business Insider]
analysis     analyse SEC filings with the help of machine learning [Elect]
score        investing score from Warren Buffett and co         [FMP]
earnings     company earnings according to Sean Seah book      [Market Watch]
dcf          advanced Excel customizable discounted cash flow  [Stockanalysis]
info         information scope of the company                   [Yahoo Finance]
mktcap       estimated market cap                               [Yahoo Finance]
shrs         shareholders (insiders, institutions and mutual funds) [Yahoo Finance]
sust         sustainability values (environment, social and governance) [Yahoo Finance]
cal          calendar earnings and estimates of the company     [Yahoo Finance]
divs         show historical dividends for company              [Yahoo Finance]
splits       stock split and reverse split events since IPO    [Yahoo Finance]
web          open web browser of the company                   [Yahoo Finance]
hq           open HQ location of the company                   [Yahoo Finance]
income       income statements of the company                   [Alpha Vantage / Polygon]
balance      balance sheet of the company                       [Alpha Vantage / Polygon]
overview     overview of the company                             [Alpha Vantage]
key          company key metrics                                [Alpha Vantage]
cash         cash flow of the company                                 [Alpha Vantage]
earnings     earnings dates and reported EPS                   [Alpha Vantage]
fraud        key fraud ratios                                   [Alpha Vantage]
dupont       detailed breakdown for return on equity            [Alpha Vantage]

Other sources:
> fmp          profile,quote,enterprise,dcf,income,ratios,growth from FMP
```

```
OpenBB Terminal v1.6.0 (https://openbb.co)
```

```
2022 Jul 14, 02:14 (W) /stocks/fa/ $
```

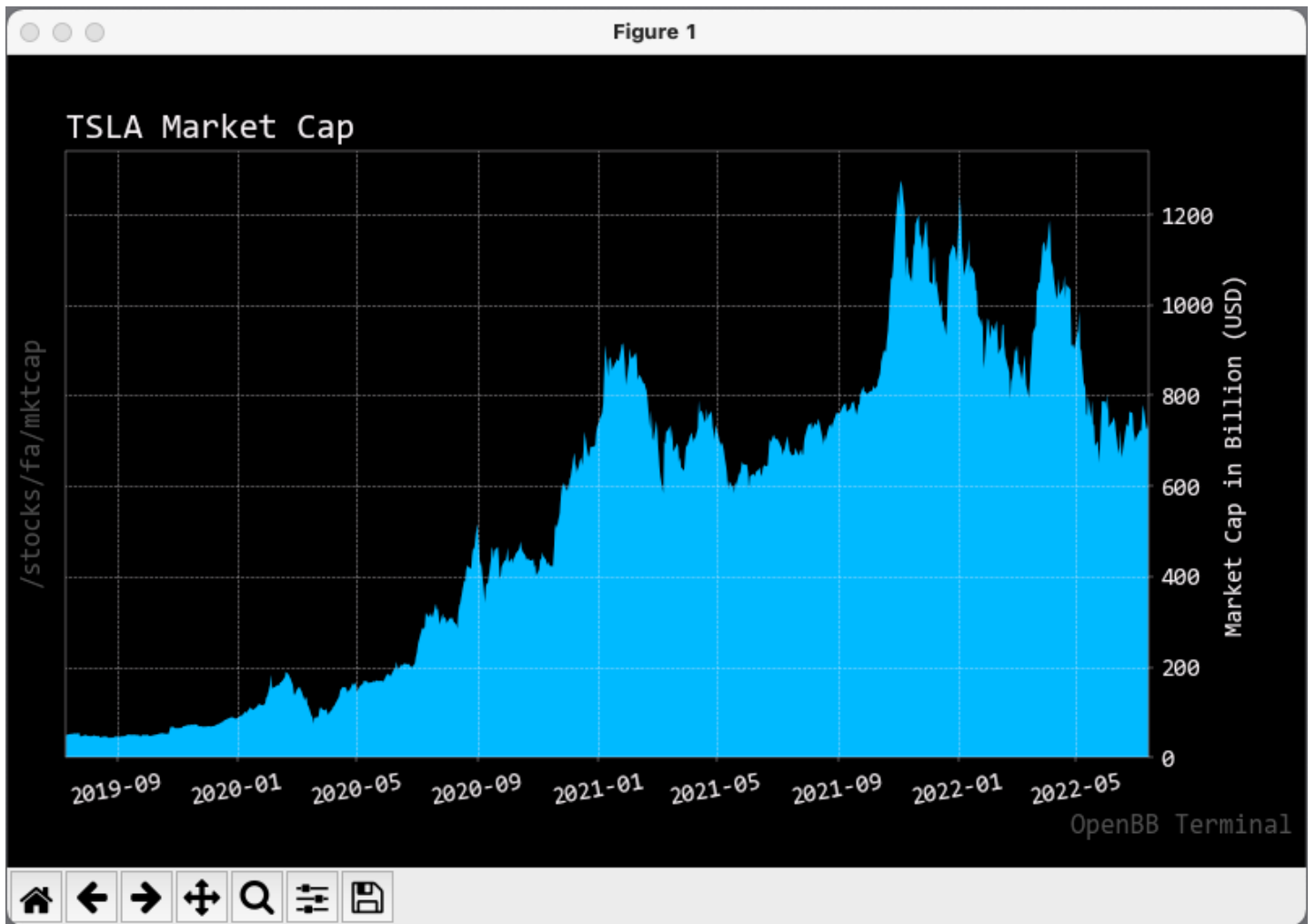
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Voilà!

OpenBB opens up a chart in a separate window.

Check out some of the other functions now.

Figure 1



To go back, type *q*.

Let's move on to technical analysis by typing *ta*.

Since TSLA is already loaded, all 25 of the menu items are lit up.

```
2022 Jul 14, 02:18 (M) /stocks/fa/ $ mktcap
2022 Jul 14, 02:19 (M) /stocks/fa/ $ q
2022 Jul 14, 02:20 (M) /stocks/ $ ta

Stocks - Technical Analysis

Ticker: Daily TSLA (from 2019-07-10)
tv          open interactive chart on          [TradingView]
view        view historical data and trendlines [Finviz]
summary     technical summary report         [FinBrain]
recom       recommendation based on technical indicators [TradingView]

Overlap:
ema         exponential moving average
sma         simple moving average
wma         weighted moving average
hma         hull moving average
zima       zero lag moving average
vwap        volume weighted average price

Momentum:
cci         commodity channel index
macd        moving average convergence/divergence
rsi         relative strength index
stoch       stochastic oscillator
fisher     fisher transform
cg          centre of gravity

Trend:
adx         average directional movement index
aroon       aroon indicator

Volatility:
bbands     bollinger bands
donchian   donchian channels
kc         keltner channels

Volume:
ad         accumulation/distribution line
adosc      chaikin oscillator
obv        on balance volume

Custom:
fib        fibonacci retracement

OpenBB Terminal v1.5.0 (https://openbb.co)
2022 Jul 14, 02:20 (M) /stocks/ta/ $
```

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Let's check out the exponential moving average

Type *ema*.

OpenBB opens up a new window with the price chart and EMA.



Let's check out all our favorite:

Quantitative analysis.

Type *q* to go back and type *qa* to open the menu.


```
2022 Jul 14, 02:21 (W) /stocks/ta/ $ ema
2022 Jul 14, 02:21 (W) /stocks/ta/ $ q
2022 Jul 14, 02:22 (W) /stocks/ $ qa
----- Stocks - Quantitative Analysis -----
load          load new ticker
pick         pick target column for analysis

Ticker: Daily TSLA (from 2019-07-10)
Target Column: returns

Statistics:
summary      brief summary statistics of loaded stock
normality    normality statistics and tests
unitroot     unit root test for stationarity (ADF, KPSS)

Plots:
line         line plot of selected target
hist         histogram with density plot
cdf          cumulative distribution function
bw           box and whisker plot
acf          (partial) auto-correlation function differentials of prices
qqplot       residuals against standard normal curve

Rolling Metrics:
rolling      rolling mean and std deviation of prices
spread       rolling variance and std deviation of prices
quantile     rolling median and quantile of prices
skew         rolling skewness of distribution of prices
kurtosis     rolling kurtosis of distribution of prices

Risk:
var          display value at risk
es           display expected shortfall
sh           display sharpe ratio
so           display sortino ratio
om           display omega ratio

Other:
raw          print raw data
decompose    decomposition in cyclic-trend, season, and residuals of prices
cusum        detects abrupt changes using cumulative sum algorithm of prices
capm         capital asset pricing model

OpenBB Terminal v1.5.0 (https://openbb.co)
2022 Jul 14, 02:22 (W) /stocks/qa/ $ █
```

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OpenBB has 23 functions for quantitative analysis.

By default, all analyses are done on returns.

If you want to change the data field, type *pick* then a space.

```
2022 Jul 14, 02:21 (W) /stocks/ta/ $ ema
2022 Jul 14, 02:21 (W) /stocks/ta/ $ q
2022 Jul 14, 02:22 (W) /stocks/ $ qa
----- Stocks - Quantitative Analysis -----
load          load new ticker
pick         pick target column for analysis

Ticker: Daily TSLA (from 2019-07-10)
Target Column: returns

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OpenBB Terminal v1.5.0 (https://openbb.co)
2022 Jul 14, 02:22 (W) /stocks/qa/ $ █
```

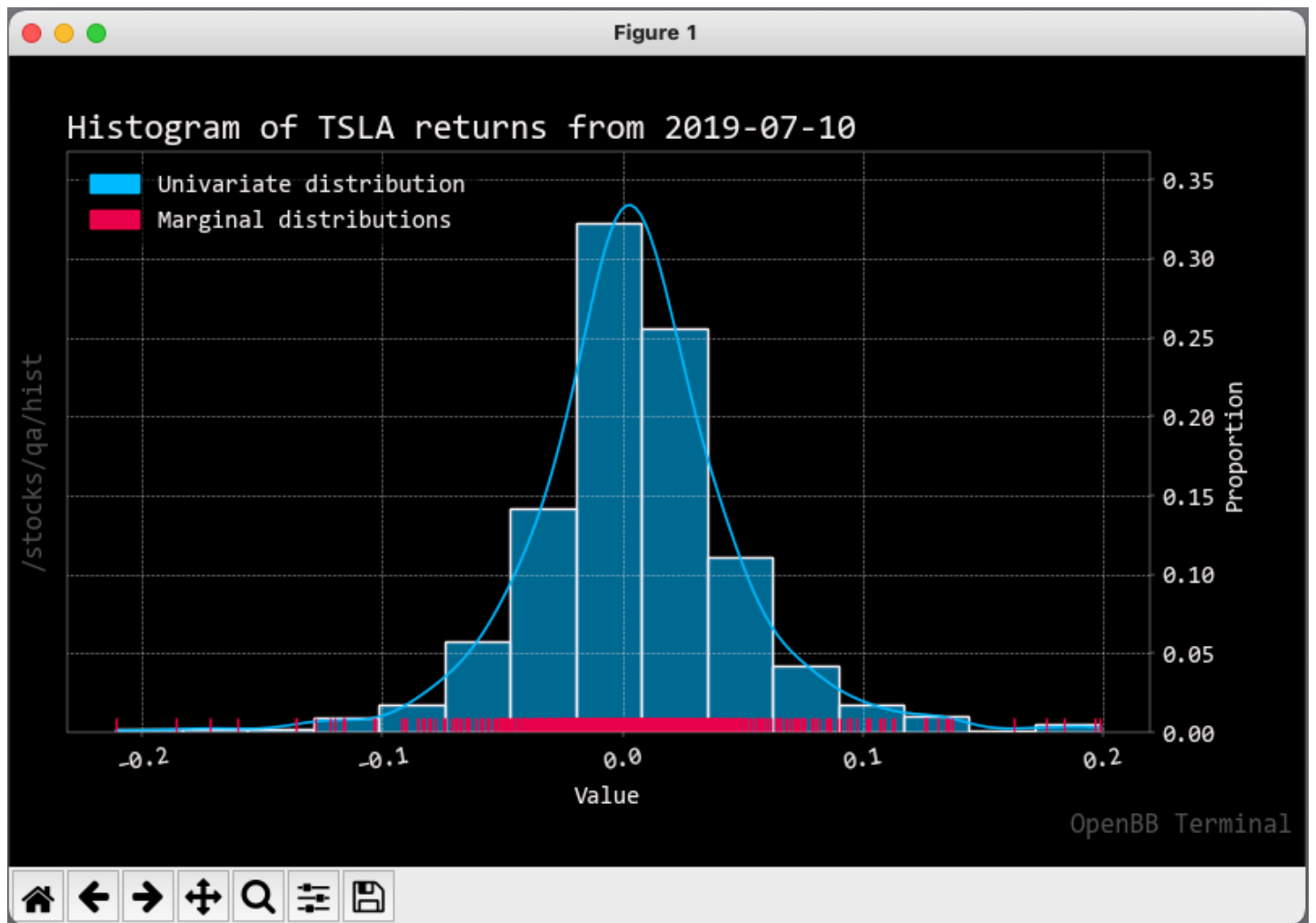
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Let's check out a histogram of returns.

This gives you an idea of the shape of the distribution.

It also lets you view and return outliers.

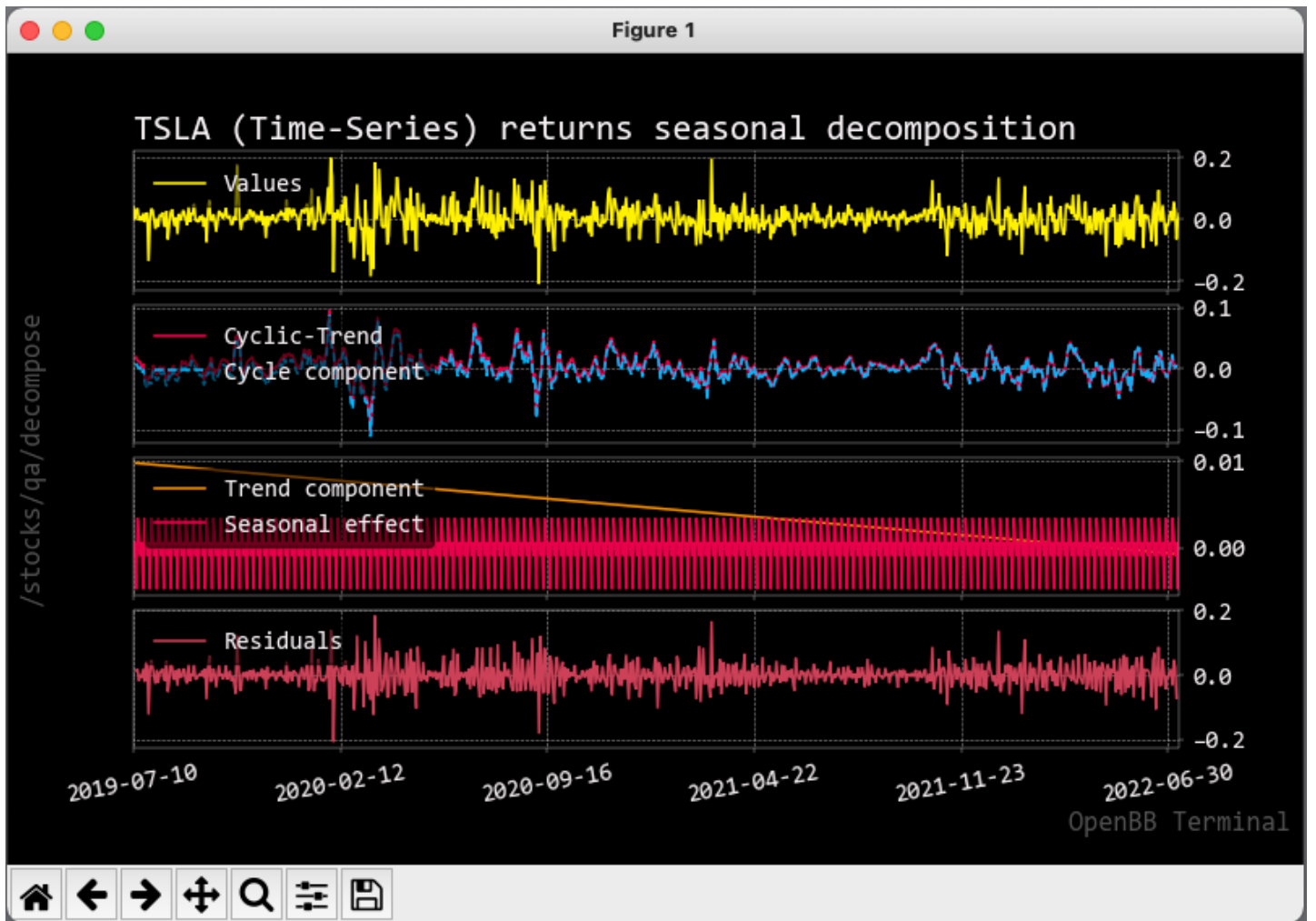
Type `*hist*` and OpenBB opens up a histogram of returns.



Rumor has it that hedge funds rely on signal processing to make trade decisions.

Let's decompose the cyclic-trend, season, and residuals of price.

Type `*decompose*`.



OpenBB has rich options analysis functionality.

Let's check it out.

Type `*q*` to go back and type `*options*`.

You can run an analysis on unusual activity or an options screener.

I want to analyze options for TSLA.

```

2022 Jul 14, 02:24 (W) /stocks/ $ options
Loaded expiry dates from Yahoo Finance

----- Stocks - Options -----
unu          show unusual options activity          [Fdscanner]
calc         basic call/put PnL calculator
> screen     screens tickers based on preset

load         load new ticker
exp          see and set expiration dates

Ticker: TSLA
Expiry:

pcr          display put call ratio for ticker        [AlphaQuery]
info        display option information (volatility, IV rank etc) [Barchart]
chains      display option chains with greeks      [Tradier]
oi          plot open interest                    [Tradier/YFinance]
vol         plot volume                          [Tradier/YFinance]
vol         plot volume and open interest         [Tradier/YFinance]
hist        plot option history                [Tradier]
vsurf       show 3D volatility surface        [YFinance]
grhist      plot option greek history          [Syncretism]
plot        plot variables provided by the user [YFinance]
parity      shows whether options are above or below expected price [YFinance]
binom       shows the value of an option using binomial options pricing [YFinance]
greeks      shows the greeks for a given option    [YFinance]

> pricing   shows options pricing and risk neutral valuation
> hedge     shows portfolio weights in order to neutralise delta

OpenBB Terminal v1.5.0 (https://openbb.co)
2022 Jul 14, 02:24 (W) /stocks/options/ $

```

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We first need to load an expiration.

Type `*exp*` to display a list of expirations.

Then type `*exp {number}` to load data for a specific option.

I'll select the September expiration for TSLA by typing `*exp 7*`.

Type `*help*` again.

All the menus are now available.

```

2022 Jul 14, 02:25 (W) /stocks/options/ $ help

----- Stocks - Options -----
unu          show unusual options activity          [Fdscanner]
calc         basic call/put PnL calculator
> screen     screens tickers based on preset

load         load new ticker
exp          see and set expiration dates

Ticker: TSLA
Expiry: 2022-09-16

pcr          display put call ratio for ticker        [AlphaQuery]
info        display option information (volatility, IV rank etc) [Barchart]
chains      display option chains with greeks      [Tradier]
oi          plot open interest                    [Tradier/YFinance]
vol         plot volume                          [Tradier/YFinance]
vol         plot volume and open interest         [Tradier/YFinance]
hist        plot option history                [Tradier]
vsurf       show 3D volatility surface        [YFinance]
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2022 Jul 14, 02:25 (W) /stocks/options/ $

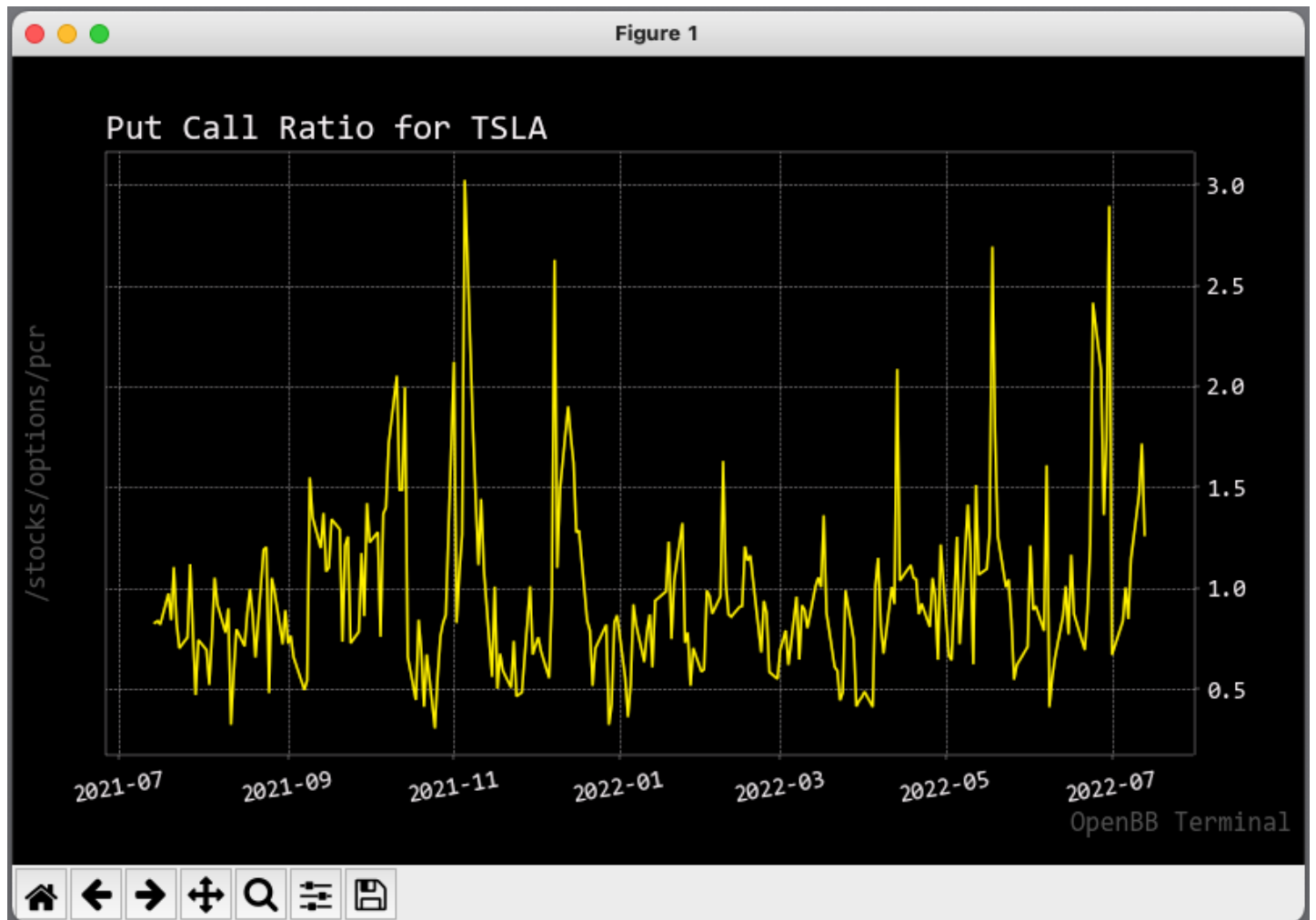
```

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The put call ratio is the ratio of open interest in put options divided by the open interest in call options.

Values over 1 indicate bearish sentiment.

Type *pcr* to plot this ratio.



If you're interested in options trading, you may like the 46-Page Ultimate Guide to Pricing Options and Implied Volatility With Python.

- Black-Scholes pricing
- Calculate the greeks
- Compute implied volatility

All with Python.

<https://t.co/uUXgYrCggx>

More with OpenBB:

- Screeners
- Sentiment
- Forex data
- Excel models

Co-integration
Autocorrelation
Max drawdown
Volatility surface
Economic indexes
Crypto order books
Time series analysis
Portfolio optimization
Brokerage integration
Mutual fund allocation
Custom reports & dashboards

A license for a Bloomberg Terminal costs \$24,000 per year.

OpenBB is free.

Get it here:

<https://t.co/AgyoVm2DLk>

That's a wrap!

If you enjoyed this thread:

- Follow [@pyquantnews](#) for the best resources for using Python for quantitative analysis
- RT the tweet below to share this thread with your audience <https://t.co/OgEZvKchHO>

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Until now:

— PyQuant News (@pyquantnews) [July 21, 2022](#)