

## 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:



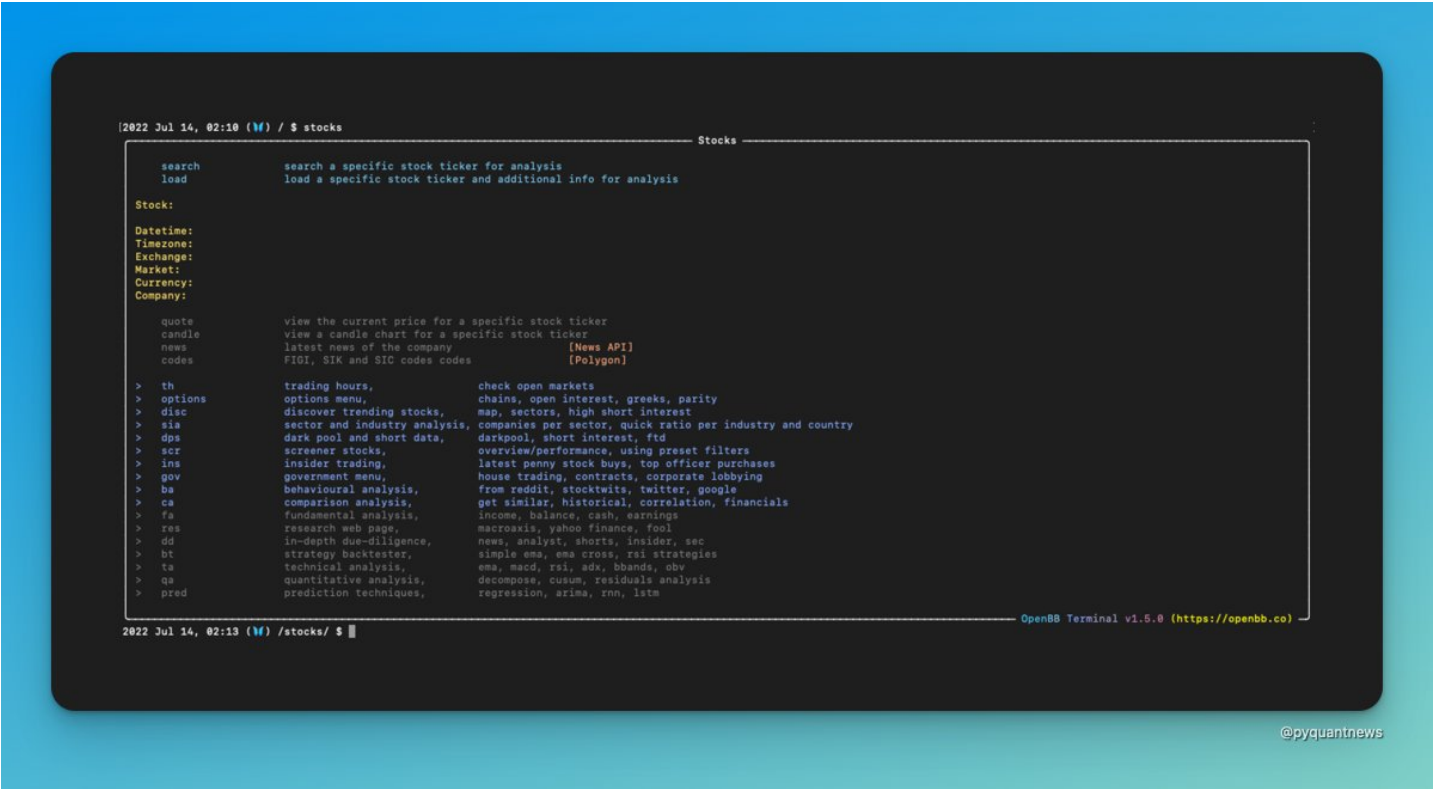
Let's start by analyzing Tesla.

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.

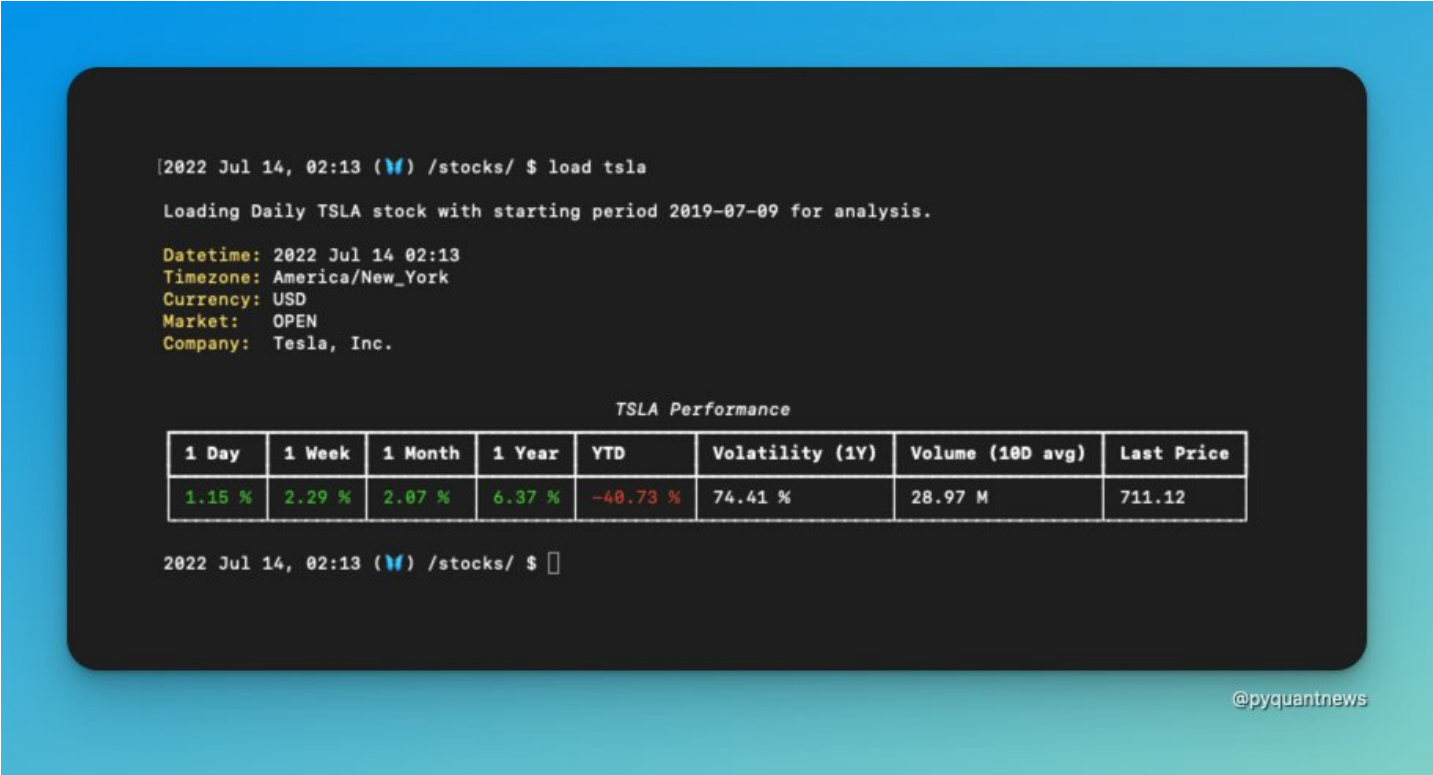
Let's load TSLA now.



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.

```
2022 Jul 14, 02:17 (W) /stocks/ $ help

Stocks

search      search a specific stock ticker for analysis
load        load a specific stock ticker and additional info for analysis

Stock: Daily TSLA (from 2019-07-10)

Datetime: 2022 Jul 14 02:17
Timezone: America/New_York
Currency: USD
Market: OPEN
Company: Tesla, Inc.

quote       view the current price for a specific stock ticker
candle      view a candle chart for a specific stock ticker
nces        latest news of the company [News API]
codes       FIGI, SIK and SIC codes codes [Polygon]

> th        trading hours, check open markets
> options   options menu, chains, open interest, greeks, parity
> disc      discover trending stocks, esp, sectors, high short interest
> sis       sector and industry analysis, companies per sector, quick ratio per industry and country
> dps       dark pool and short data, darkpool, short interest, ftd
> scr       screener stocks, overview/performance, using preset filters
> ins       insider trading, latest penny stock buys, top officer purchases
> gov       government menu, house trading, contracts, corporate lobbying
> ba        behavioural analysis, from reddit, stocktwits, twitter, google
> ca        comparison analysis, get similar, historical, correlation, financials
> fa        fundamental analysis, income, balance, cash, earnings
> res       research web page, macroaxis, yahoo finance, fool
> dd        in-depth due-diligence, news, analyst, shorts, insider, sec
> bt        strategy backtester, simple ema, ema cross, rsi strategies
> ta        technical analysis, ema, macd, rsi, adx, bbands, obv
> qa        quantitative analysis, decompose, cusum, residuals analysis
> pred      prediction techniques, regression, arima, rnn, lstm

2022 Jul 14, 02:17 (W) /stocks/ $
```

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

2022 Jul 14, 02:14 (W) /stocks/fa/ $
OpenBB Terminal v1.6.0 (https://openbb.co)

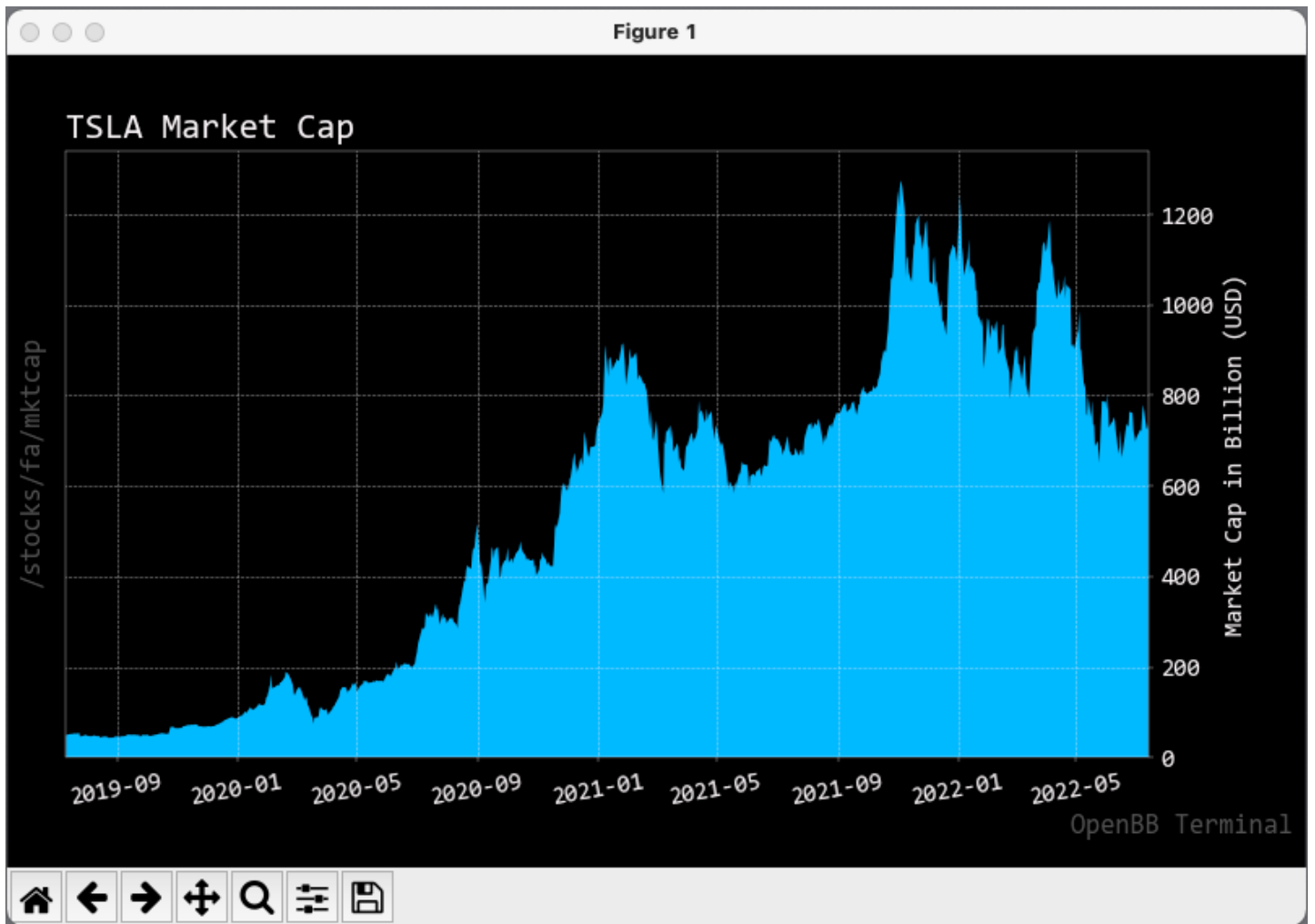
```

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Voila!

OpenBB opens up a chart in a separate window.

Check out some of the other functions now.



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 (W) /stocks/fa/ $ mktcap
2022 Jul 14, 02:19 (W) /stocks/fa/ $ q
2022 Jul 14, 02:20 (W) /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
zlas	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
-----	-----------------------

```

2022 Jul 14, 02:20 (W) /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

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

```

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

```

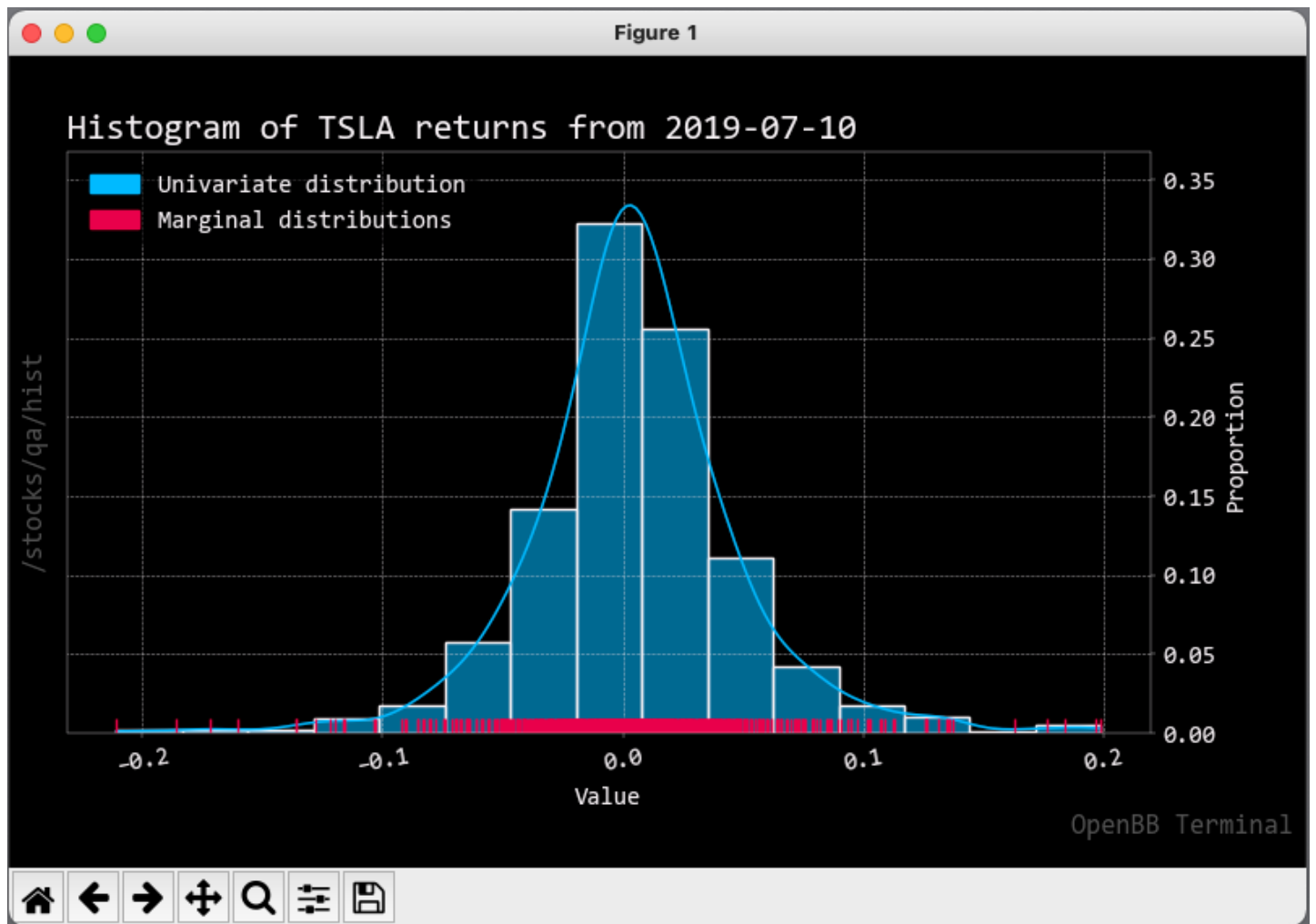
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Let's check out a histogram of returns.

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

It also lets you view and return outliers.

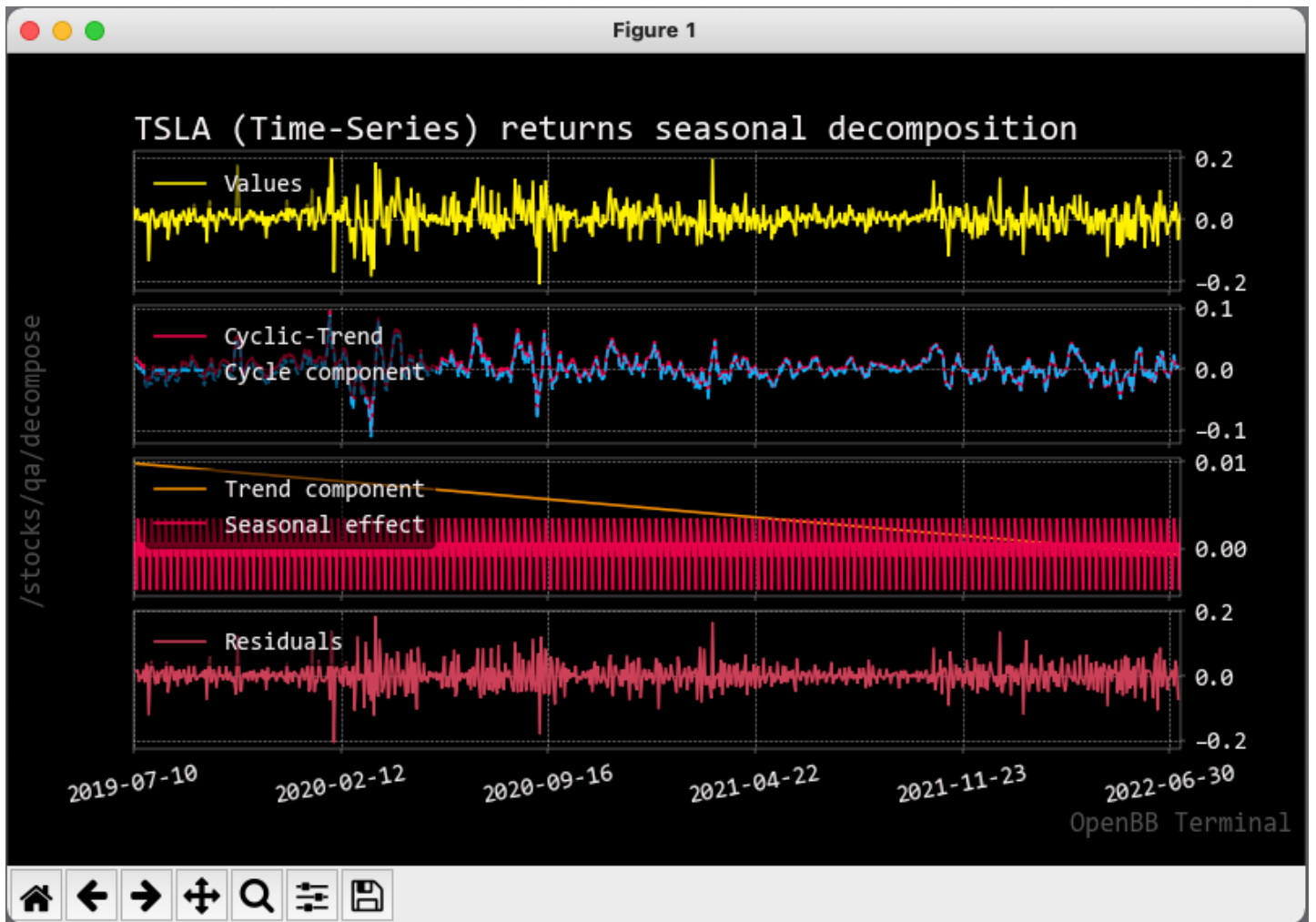
Type `*hist*` and OpenBB opens up a histogram of returns.



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

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

```

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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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OpenBB Terminal v1.5.0 (https://openbb.co)

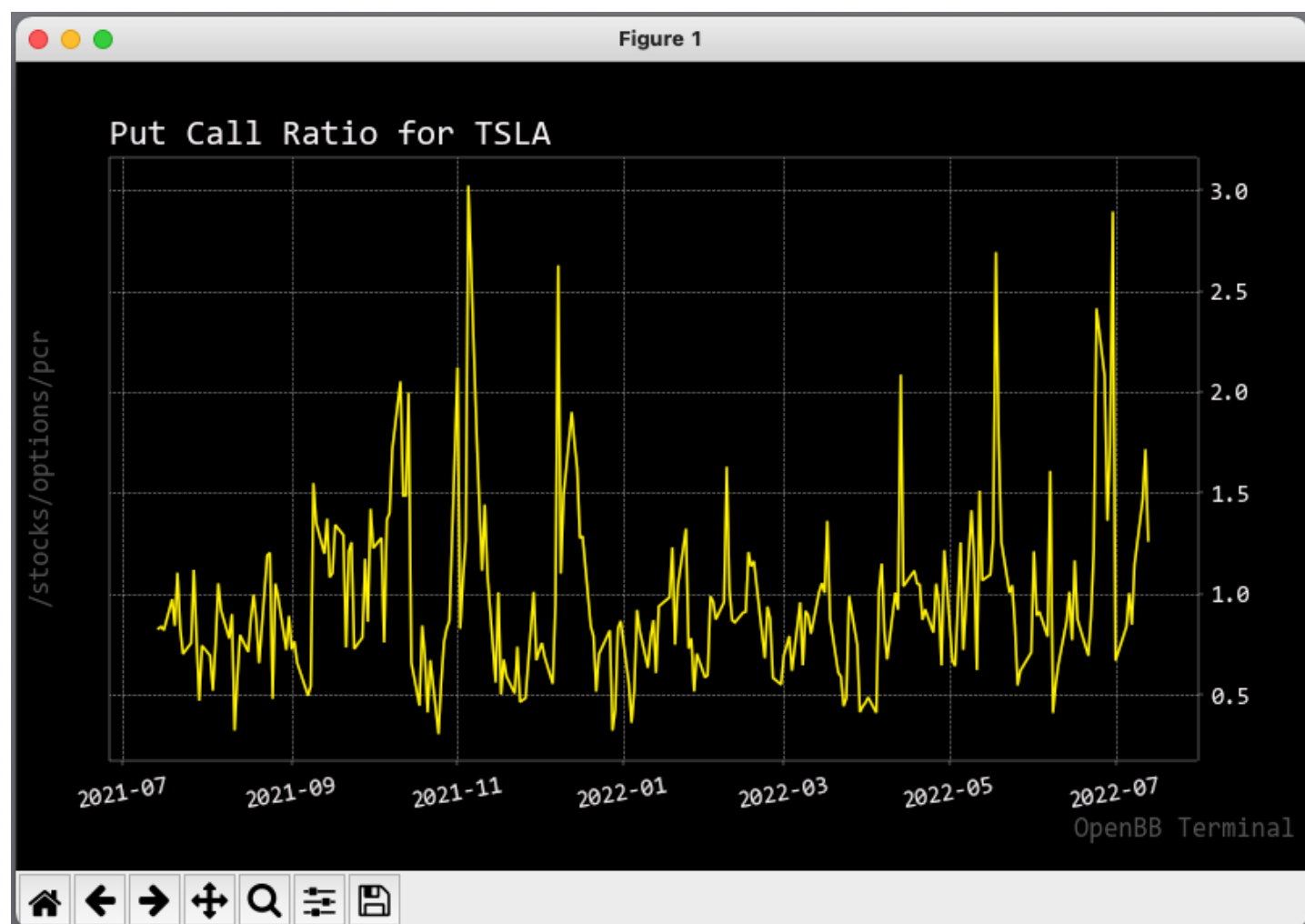
```

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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/uUXgYrCgqx>

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](#)