

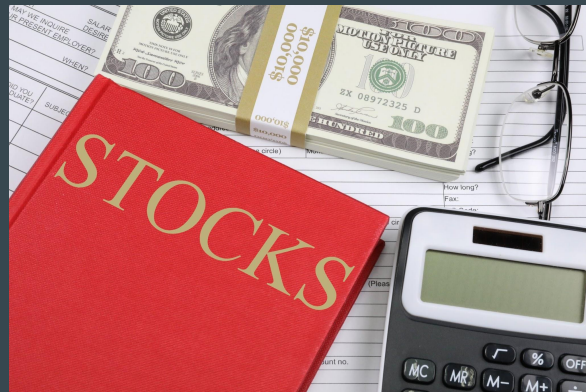
Stocks Analysis for Distribution of Capital



October 2023

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Overview

The company has recently acquired additional capital resources, and wants to invest in the two most compelling stocks from a list of eight prospective options.

The board of directors at a company has assigned this team the responsibility of conducting a thorough analysis of potential investment opportunities within the highly prominent stocks listed on the NASDAQ stock index.

To fulfill this mission, we have been entrusted with the task of meticulously evaluating the performance of the stocks.

TSLA (Tesla), AAPL (Apple), AMZN (Amazon), INTC (Intel), META (Meta), MSFT (Microsoft), AMD (Advanced Micro Devices), and NVDA (NVIDIA Corp).

Questions:

Question 01:

- Which stocks are trending upward?
- Which are trending downward?

Question 02:

- Which stocks have the best Price-to-Earning (P/E) Ratio?

Question 03:

- Which stocks have the most volatility relative to the overall market? (Based on Beta)

Question 04:

- Based on the data, what two stocks would you recommend to The board of directors at the company to buy?

Data and Code

- ❏ Data was collected through APIs from Alpha Vantage and Yahoo Finance.
- ❏ The last year of data was collected for each stock.
- ❏ Pandas Libraries were used to create dataframes of clean and sorted information for all stocks.
- ❏ Code was reduced & simplified through the use of functions & for loops.
- ❏ Pyplot & Plotly.express was used to display the charts visualizations.
- ❏ Used Time Series analysis to determine stock trends.
- ❏ Classified P/E Ratio and Stock Beta in bar charts for easier visualizations.
- ❏ Time limitations added via “import time” to account for API request waiting time.

Bollinger Bands consist of three lines:

The middle band, which is typically a simple moving average (SMA).●

An upper band that is placed above the middle band and is typically two standard deviations away from the SMA. ●

A lower band that is placed below the middle band and is also usually two standard deviations away from the SMA. ●

Stock Price. ●

Delta Chart:

The percent change in price of the stocks compared to the previous week's prices.

Beta Chart:

Beta measures how much a stock's price typically moves compared to the overall stock market.

Beta Value per stock:

TSLA, NVDA, and AMD have higher levels of volatility compared to the market within our group, whereas INTC and MSF are characterized by their more conservative nature in relation to the market.



PE Ratio Value per Stock:

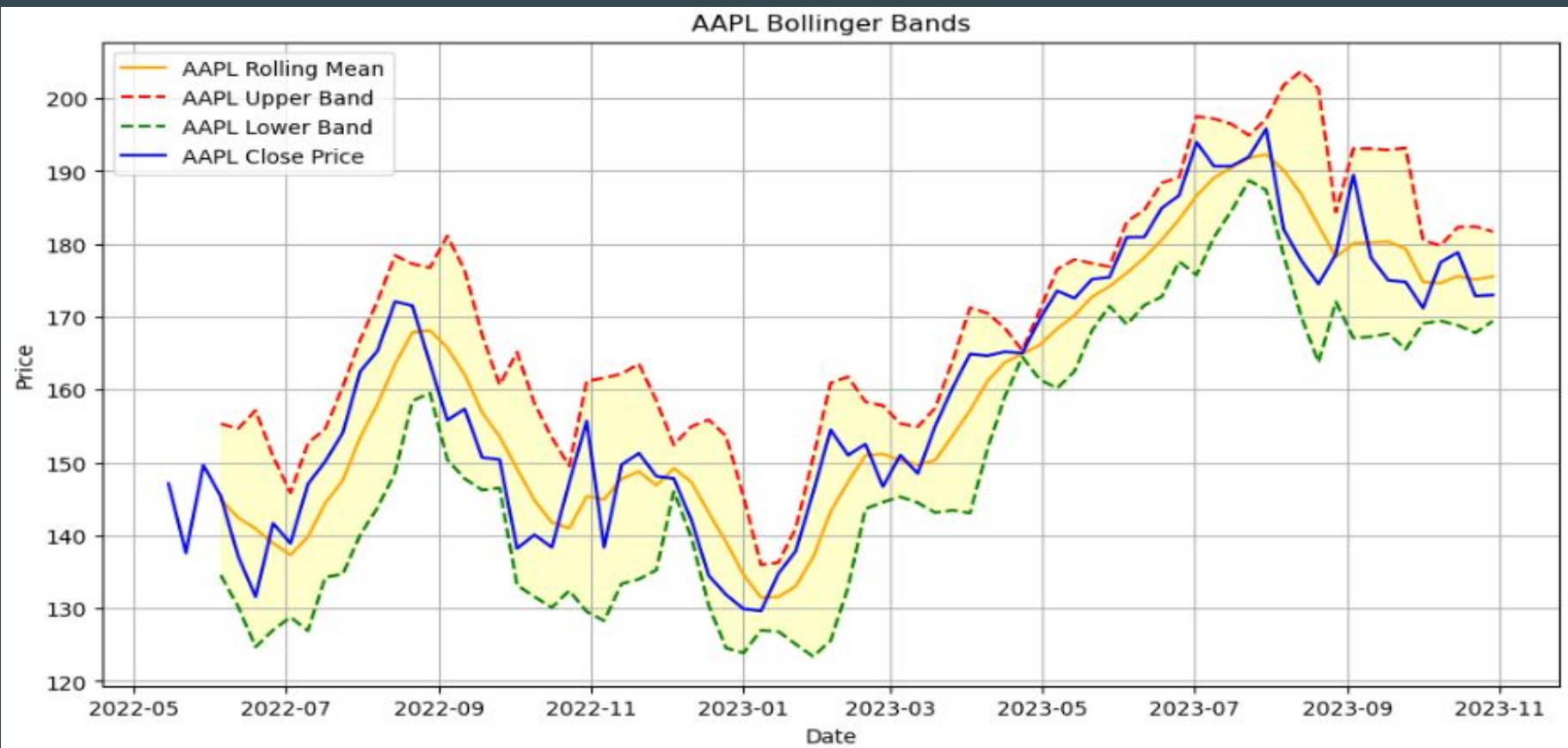
TSLA & AMZN have a high PE ratio, indicating that investors are willing to pay a premium for its earnings. This could be due to high growth expectations.

META and AAPL have PE ratios of 36.6 and 29.03, respectively, indicating moderate valuations compared to TSLA and AMZN.

For both AMD and INTC, data was not available via the Yahoo finance API. (Both P/E ratio's are negative showcasing low performance)



AAPL



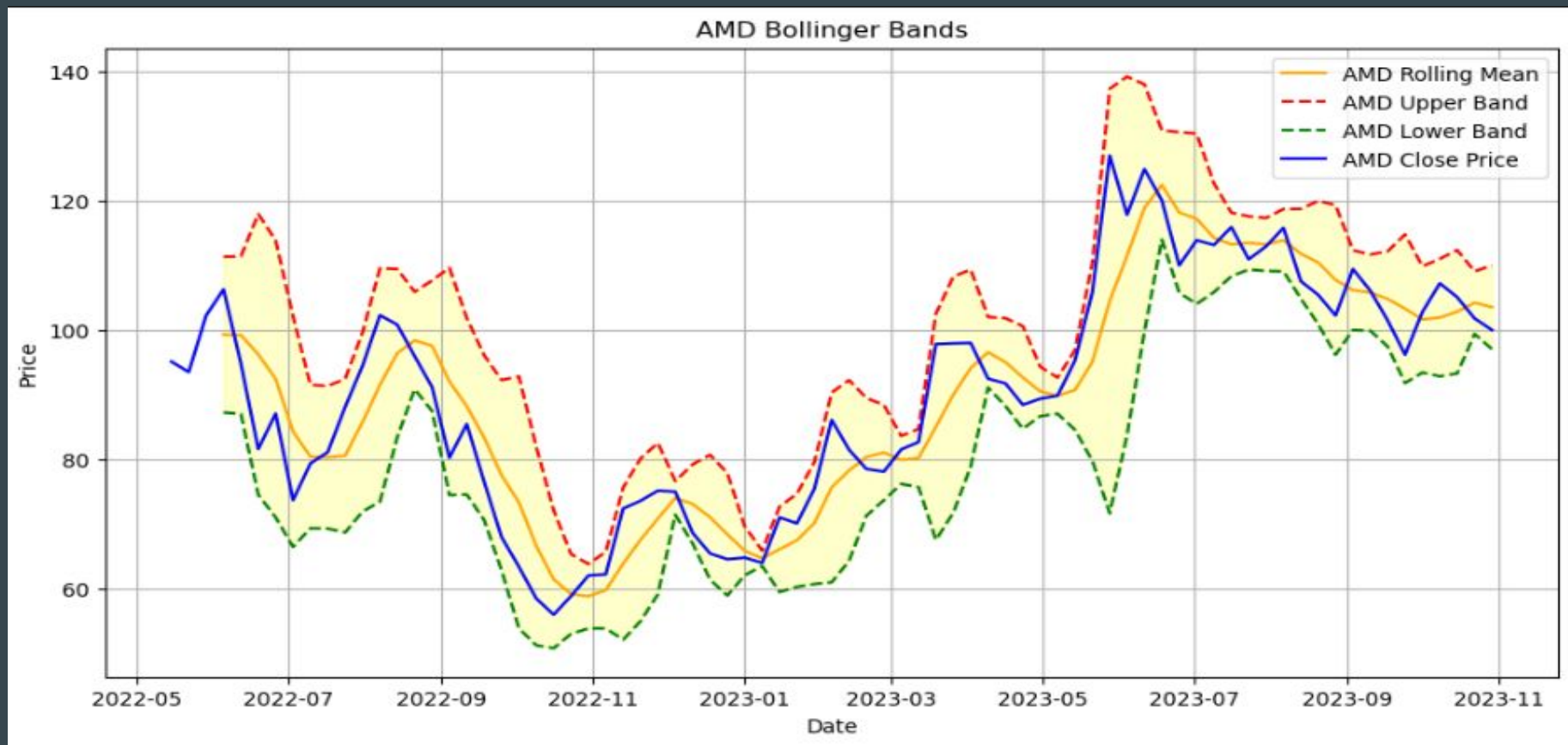
AAPL

AAPL Delta Over Time

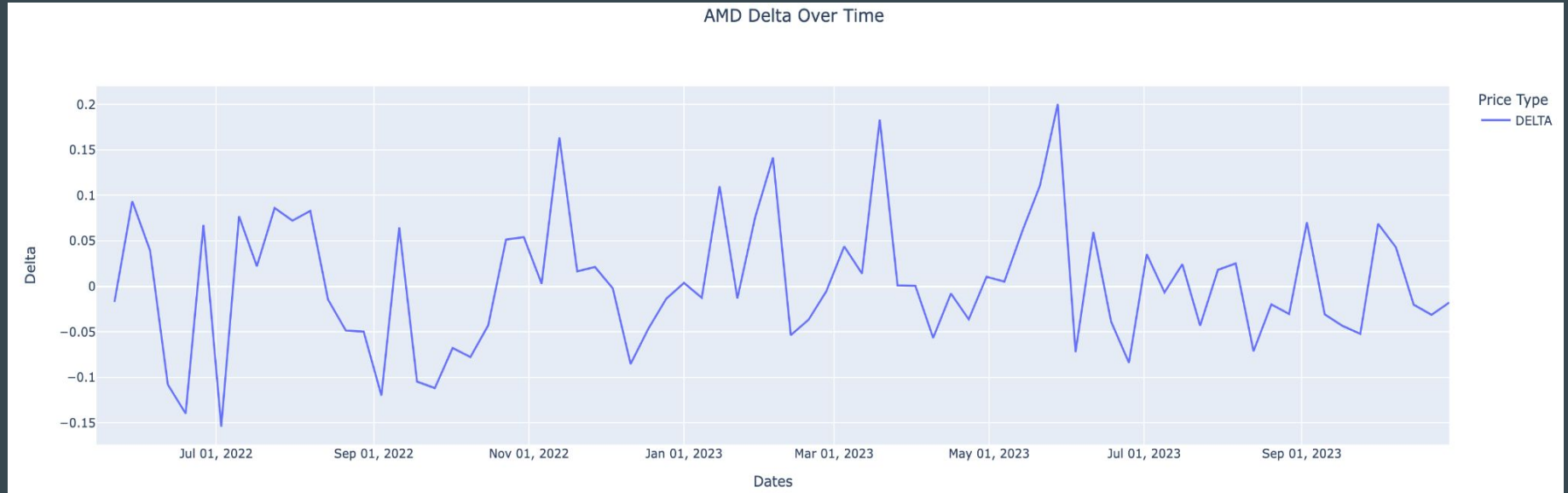


Recommendation: HOLD

AMD

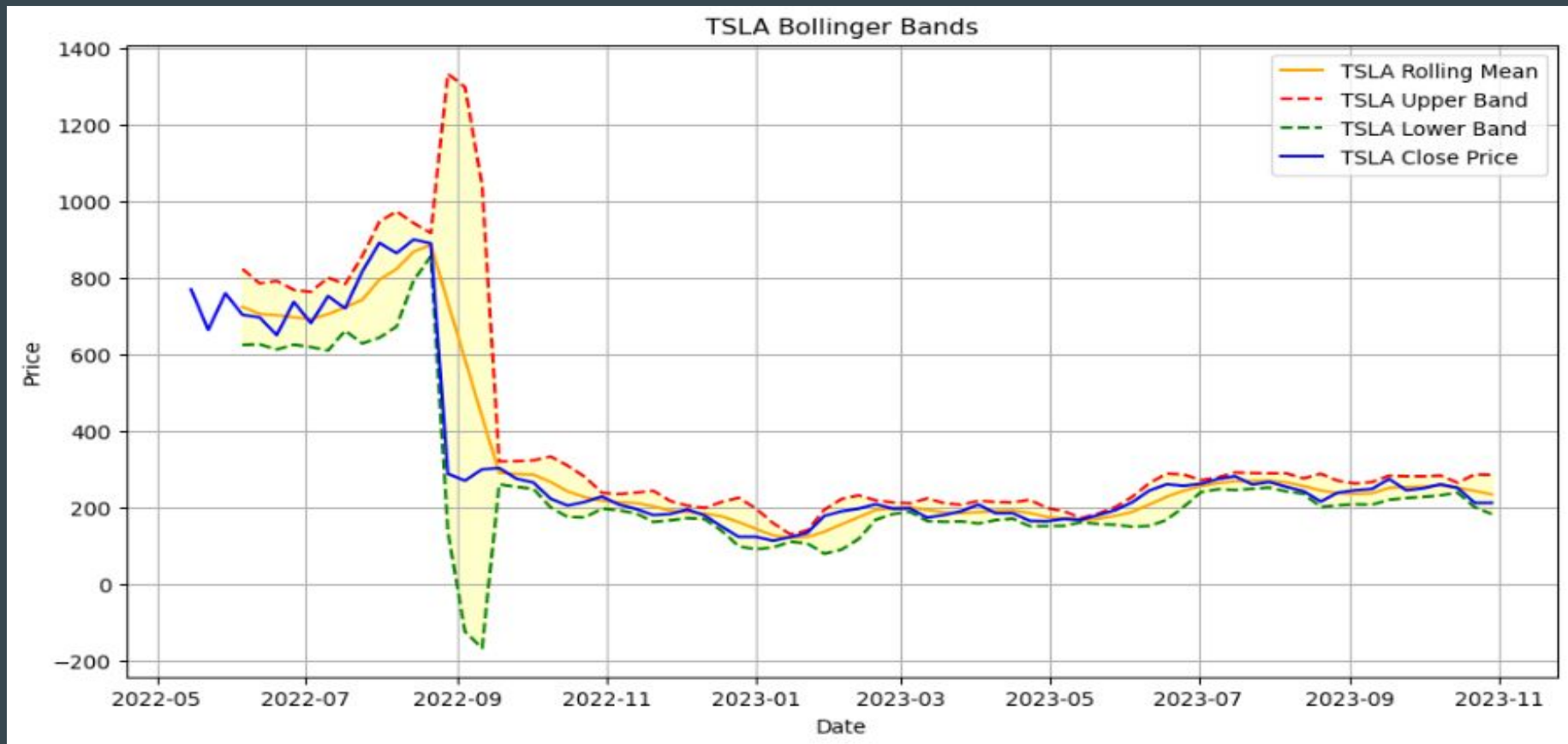


AMD

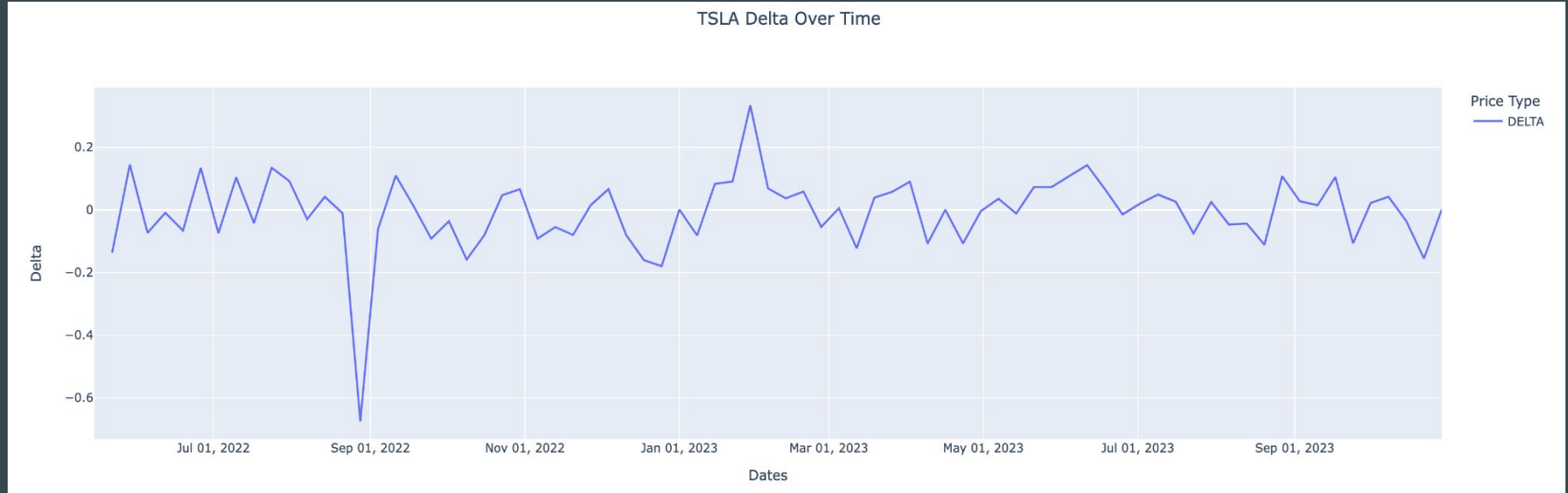


Recommendation: Sell

TSLA

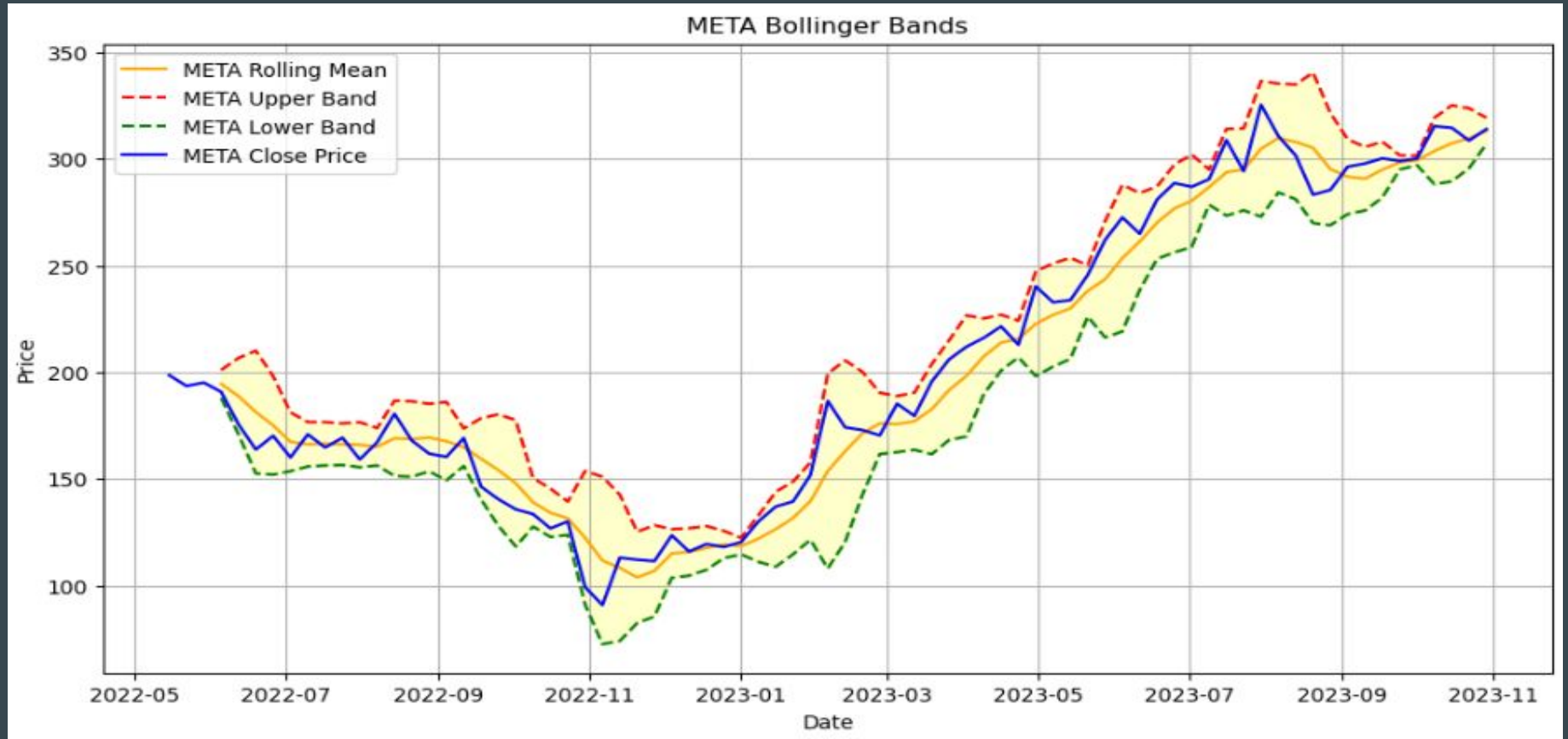


TSLA



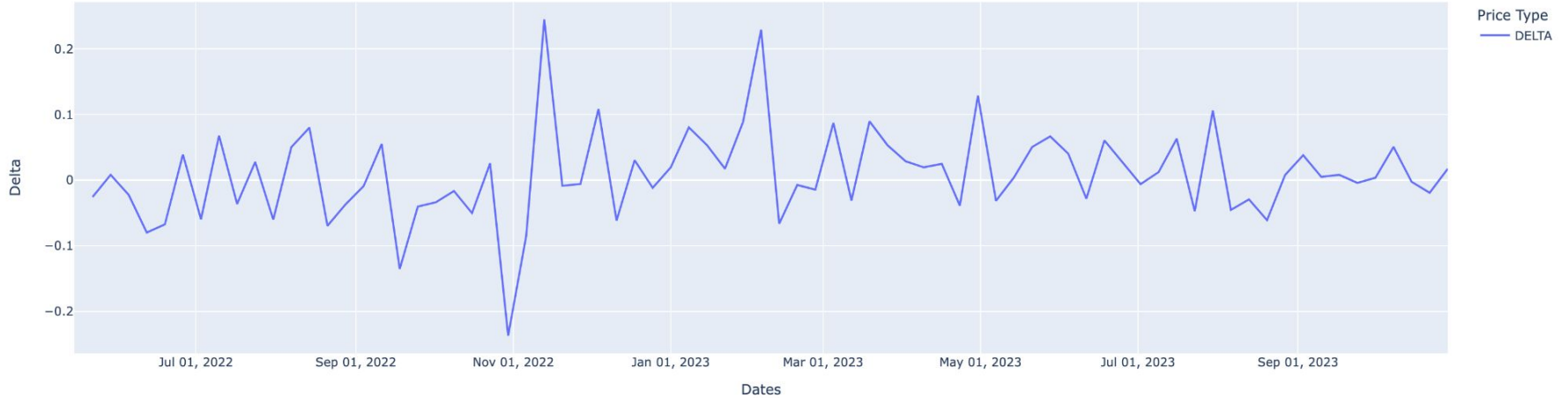
Recommendation: Sell

META



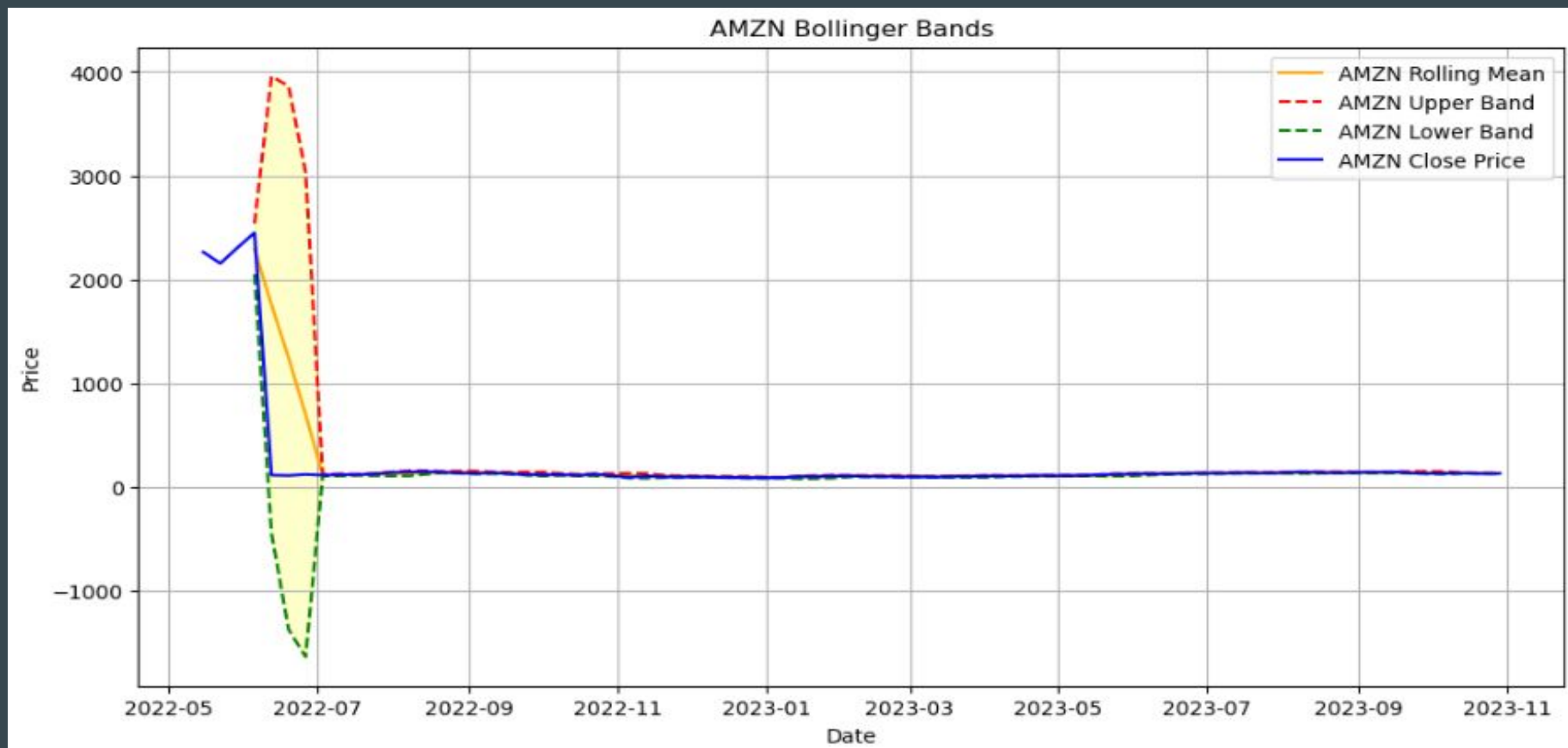
META

META Delta Over Time

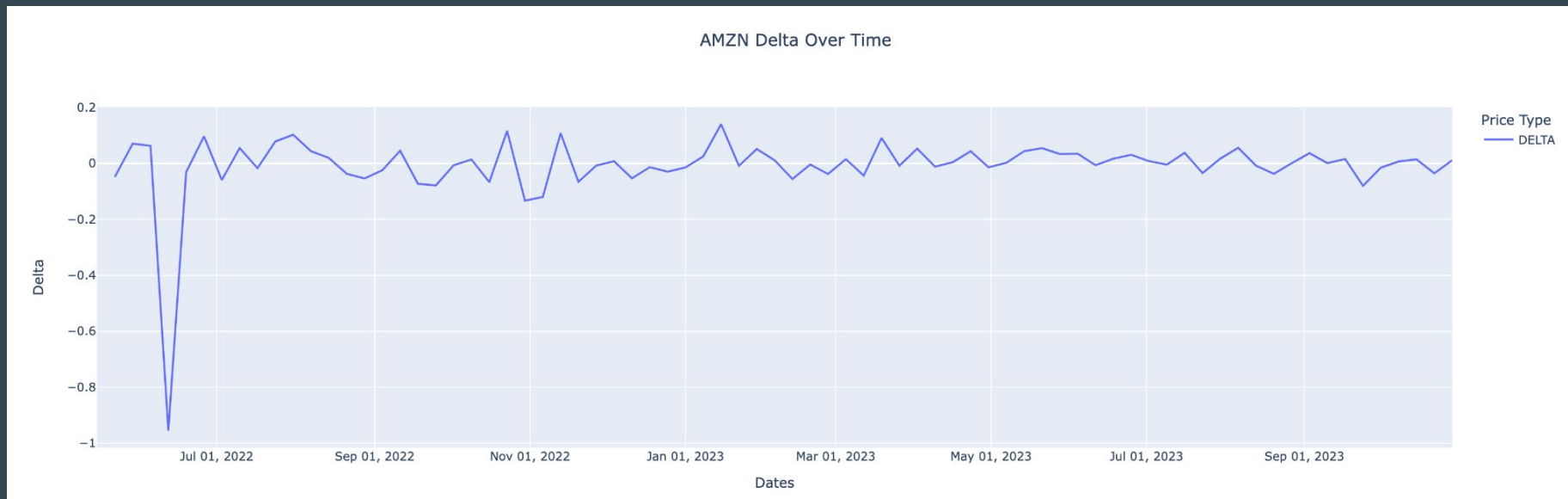


Recommendation: Buy

AMZN

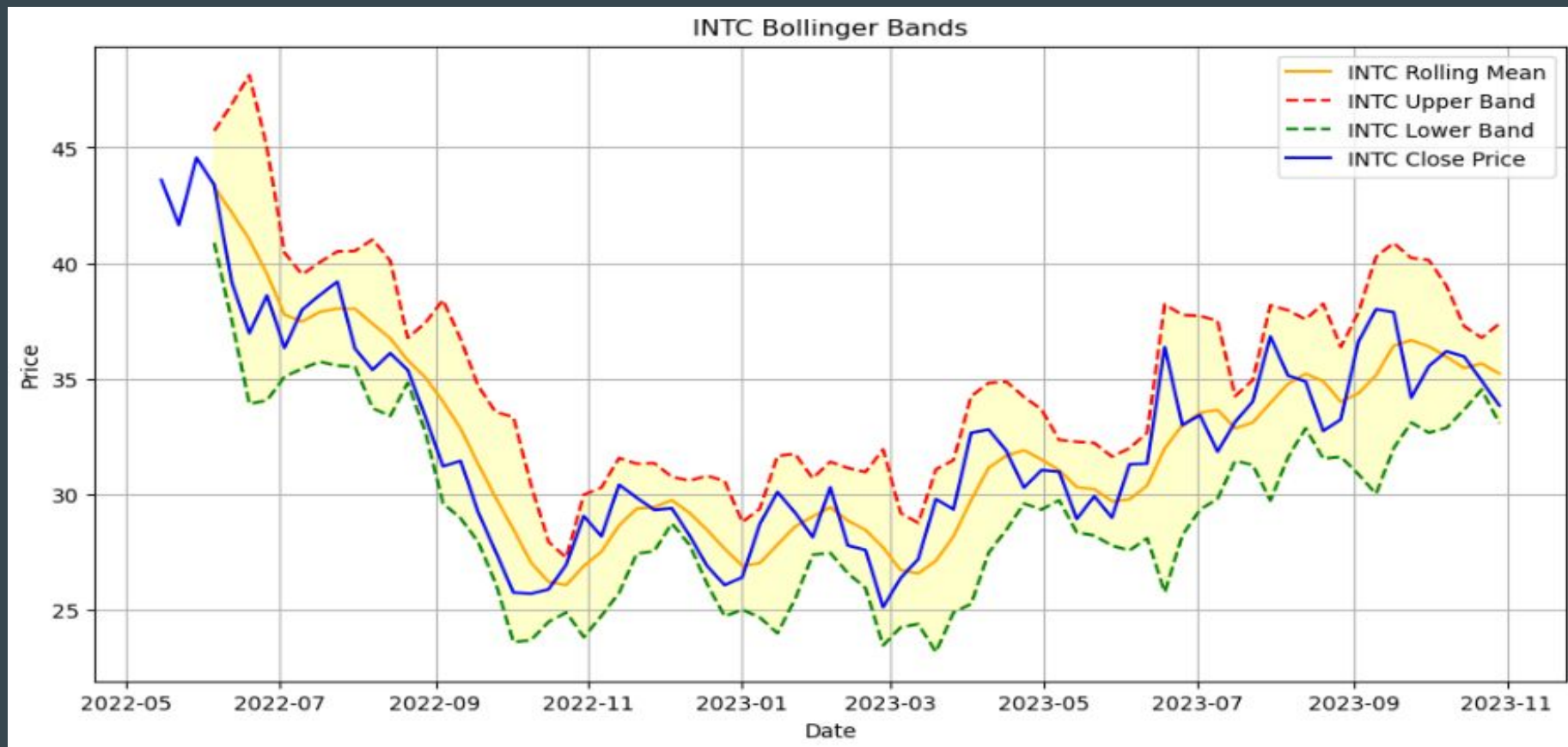


AMZN



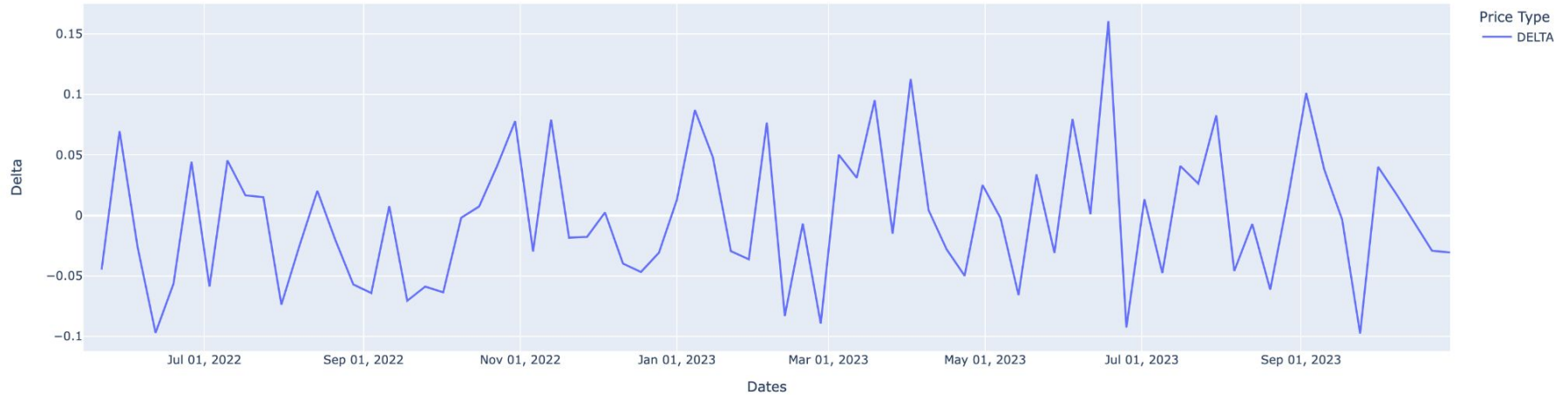
Recommendation: Buy

INTC



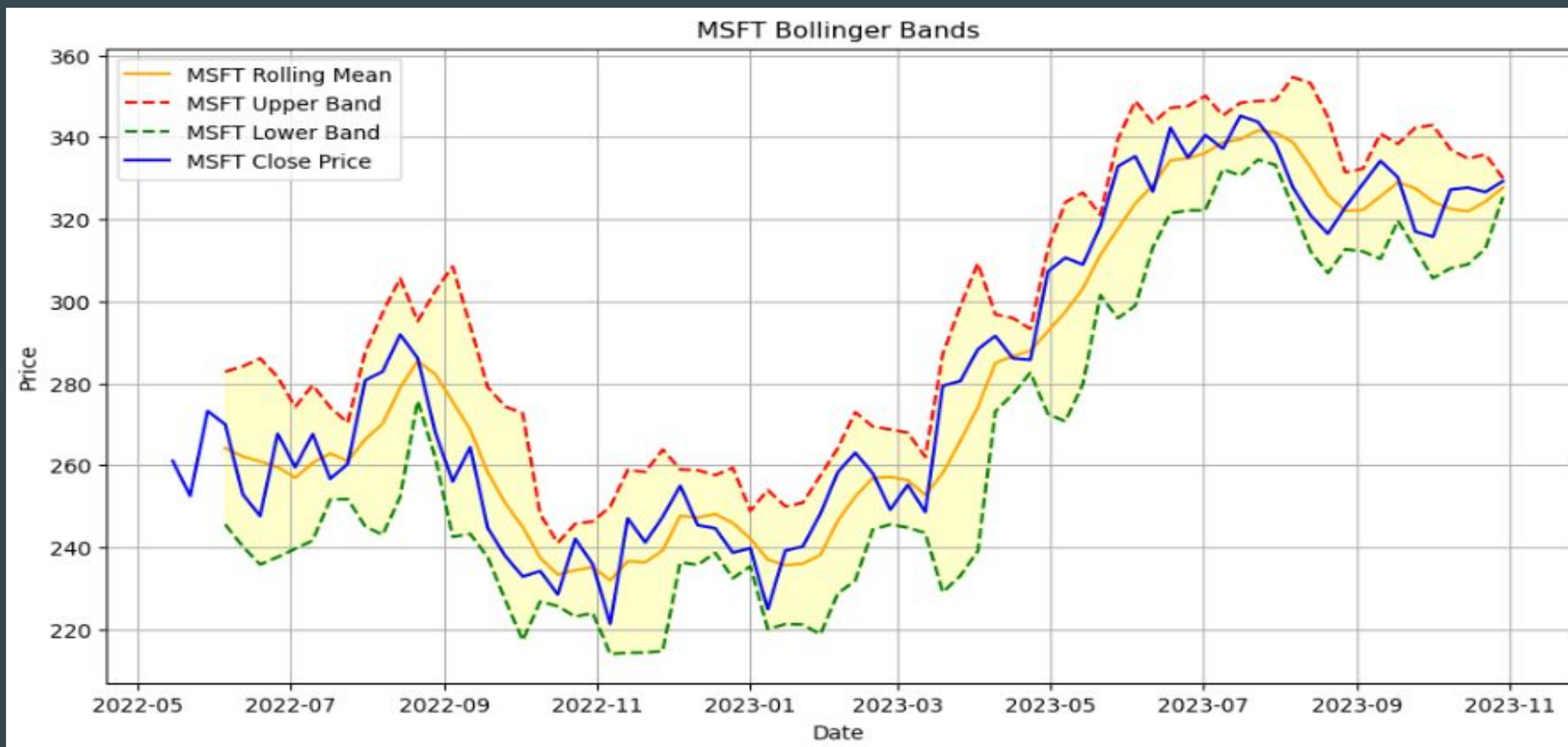
INTC

INTC Delta Over Time

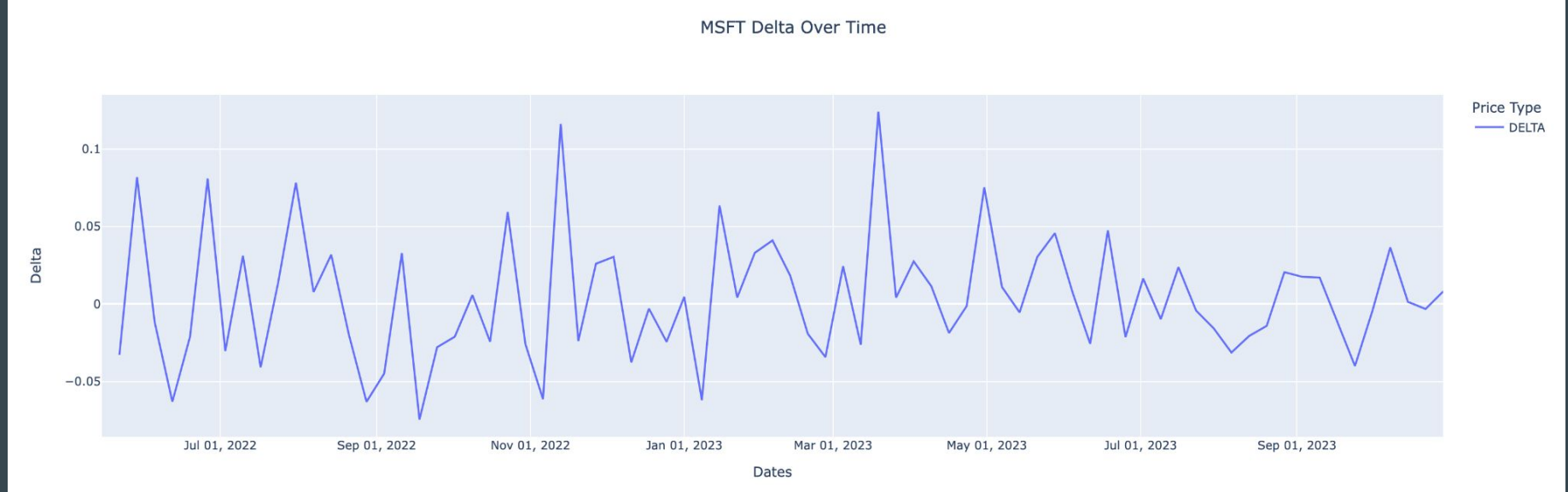


Recommendation: Sell

MSFT

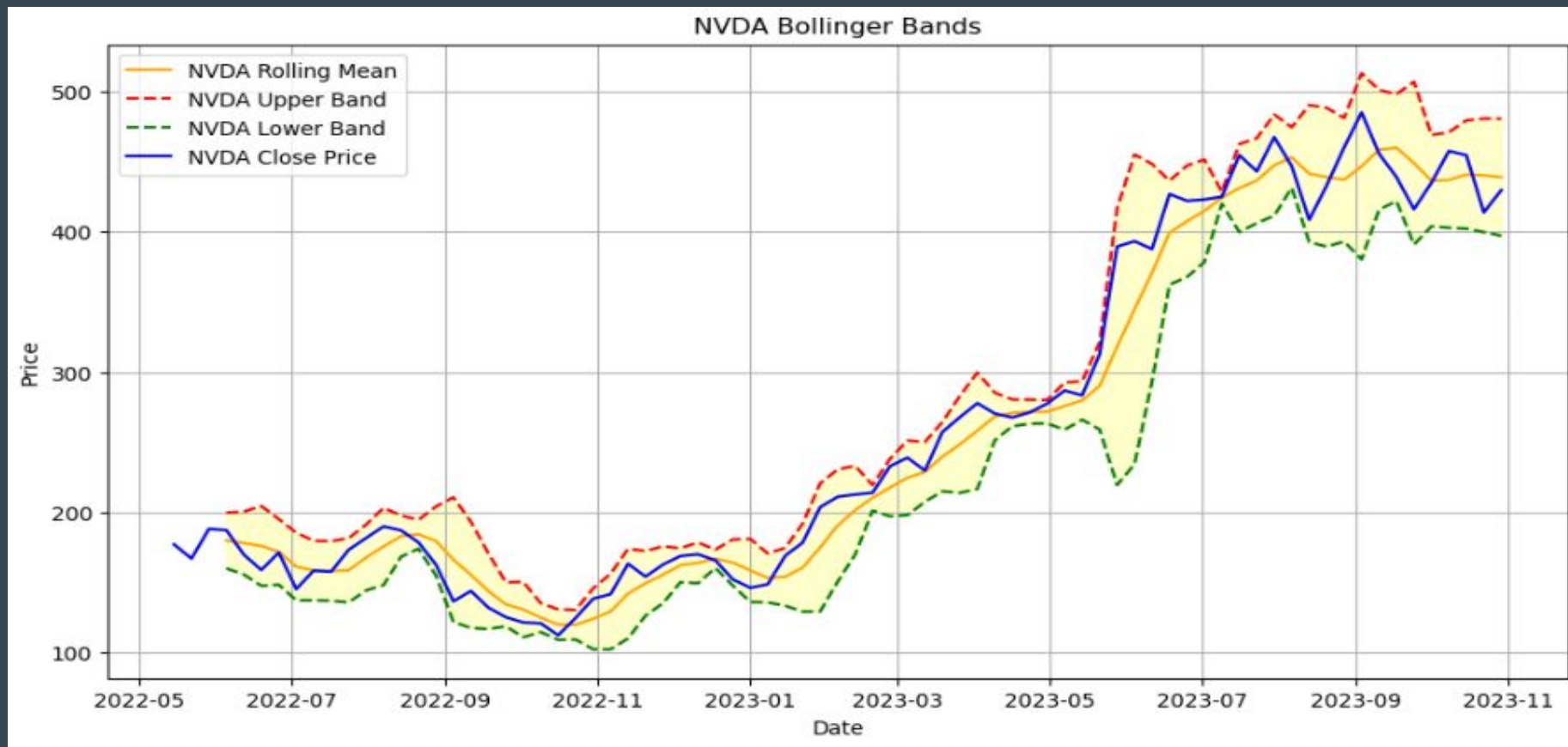


MSFT



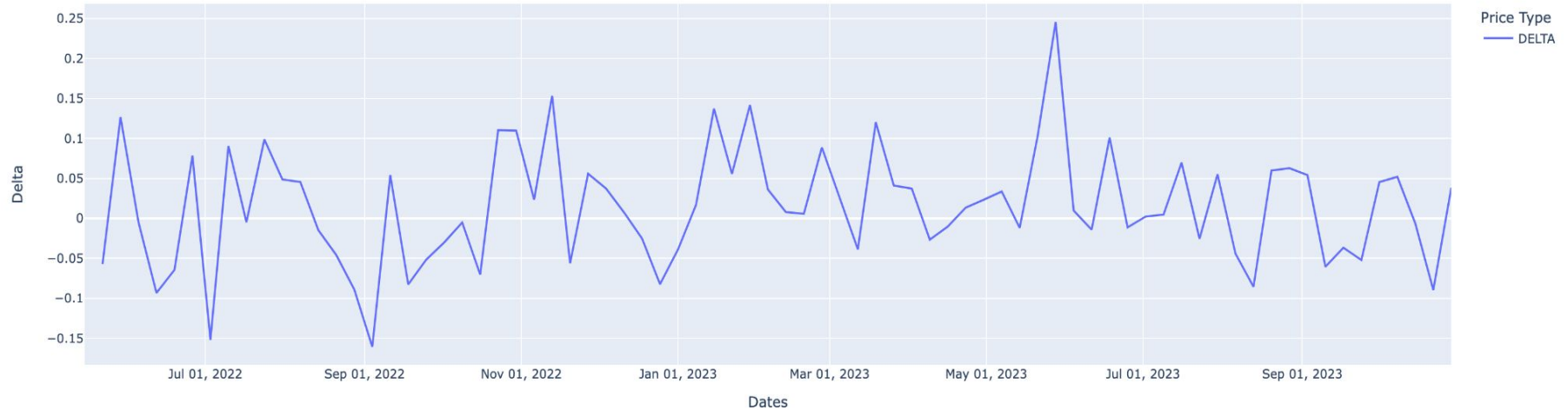
Recommendation: Hold

NVDA



NVDA

NVDA Delta Over Time



Recommendation: Buy

Conclusion

Which stocks are trending up & down?

- Up: AMZN, NVDA, META, MSFT, AAPL
- Down: INTC, AMD, TSLA

Which stocks have the best (P/E) Ratio?

- TSLA, NVDA, AAPL

Which stocks have the most volatility relative to the overall market?

- TSLA, AMD, NVDA

Based on the data, what two stocks would you recommend...

- META & NVDA

Source Websites and API:

[Yahoo Finance API](#)

[Alpha Vantage](#)

Methodology used for Analysis:

- Delta for graphs:
applied to visualize and analyze market trends and price movements.
- Price-to-Earnings (P/E) ratio:
utilized as a valuation metric
- Bollinger bands For Technical Indicator:
gauge the volatility and potential price movements of the stock

Source Websites and API:

Yahoo Finance API

Alpha Vantage

API Limitations

- 1 call every 5 minutes
- 5 stocks per call
- Data availability is binary: Either a small sample or full sample
 - No date filtering available

Why not NASDAQ API?

- Only “old” data available (Data until 1887)

Joke of the year:

“Why did the computer refuse to invest in Intel and AMD stocks? Because it couldn't handle the chip on their shoulders!”

Q&A

