

# Business Analysis

Crypto & Stock 2023 Potential  
Performance, Risk, Sentiment

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# Our motivations

Our motivation began with trying to figure out how certain age groups invest their money & how can we predict what their portfolio's would look like. As we went through and began searching for data, we found that there was a lot more to this question than we initially thought.



# Questions we asked ourselves

An illustration in the background shows a person's head and shoulders. The head is composed of various colored puzzle pieces (brown, tan, red, blue, yellow). A hand is shown holding a single green puzzle piece. The overall style is a detailed, textured illustration.

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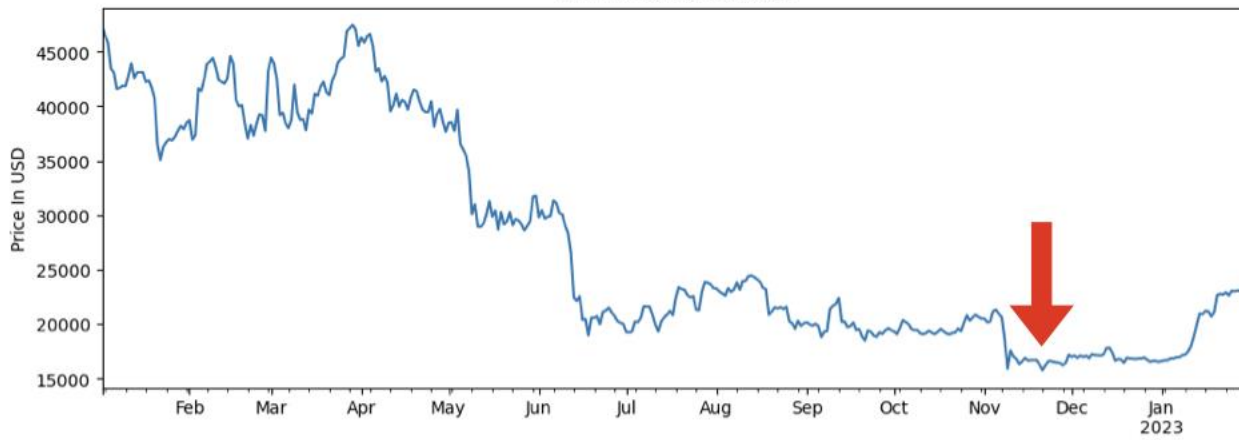
Once we asked ourselves how do these demographics invest and struggling to find any solid leads, we began to think of how can we assess how these different age groups invest. How far does our data set need to be to obtain an accurate analysis? What assets would be valuable in assessing our data? What should our approach to these data sets be? We concluded that if we create tools that can find the performance, risk, and sentiment of different assets we can better analyze what these age groups would likely want to invest in.



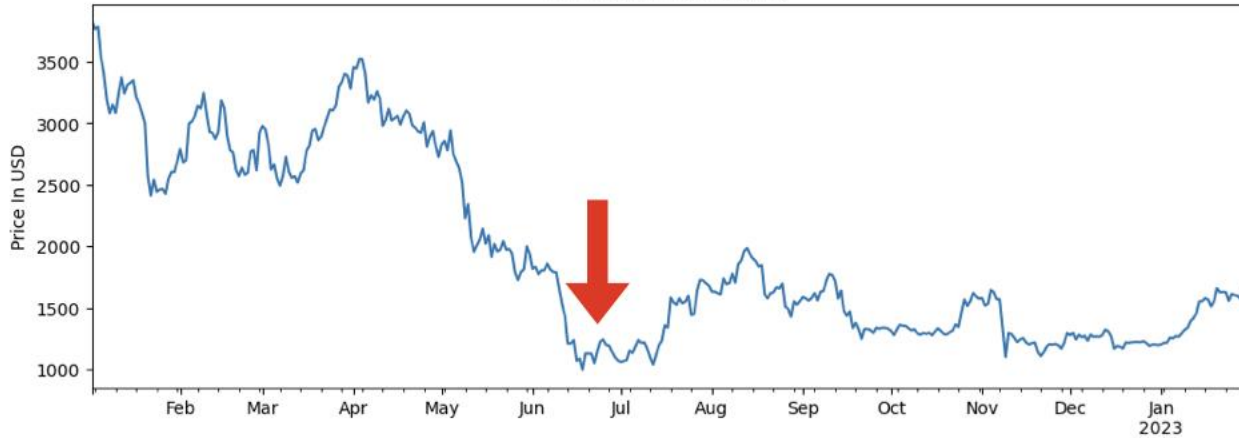
Is it a good time to add crypto to my portfolio?

# 2022 Performance

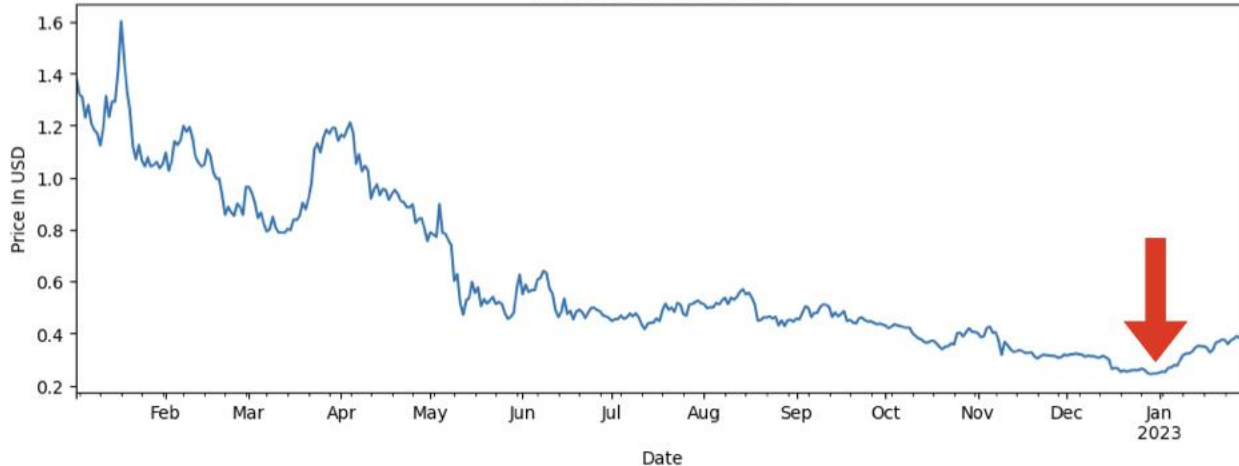
BTC Performance 2022



ETH Performance 2022

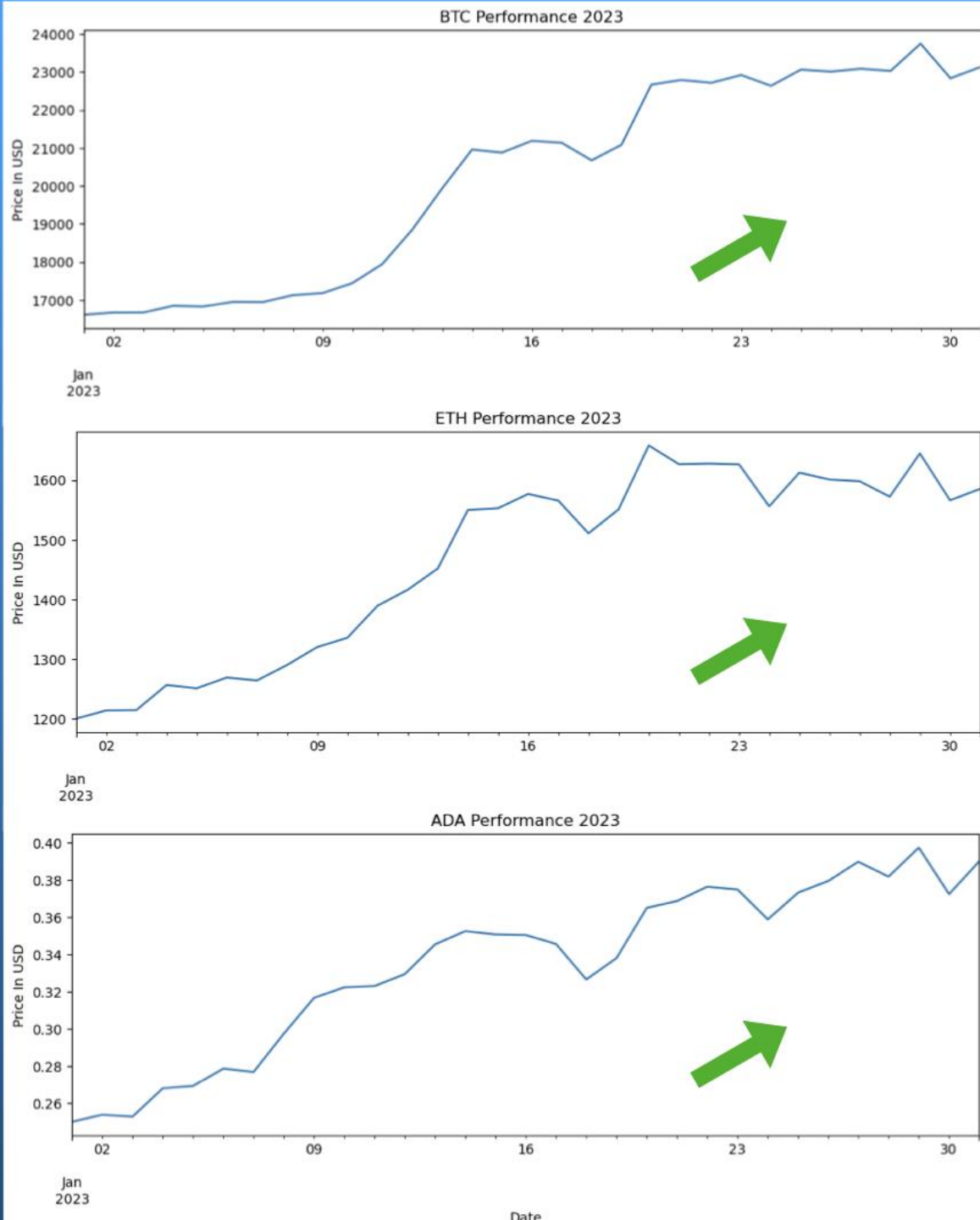


ADA Performance 2022



- **All** crypto continued to fall in **2022**
- **BTC** fell 66.8%; low in **Nov/Dec**
- **ETH** fell 74%; low in **Jun/July**
- **Cardano** fell 84%; low in **Dec/Jan**

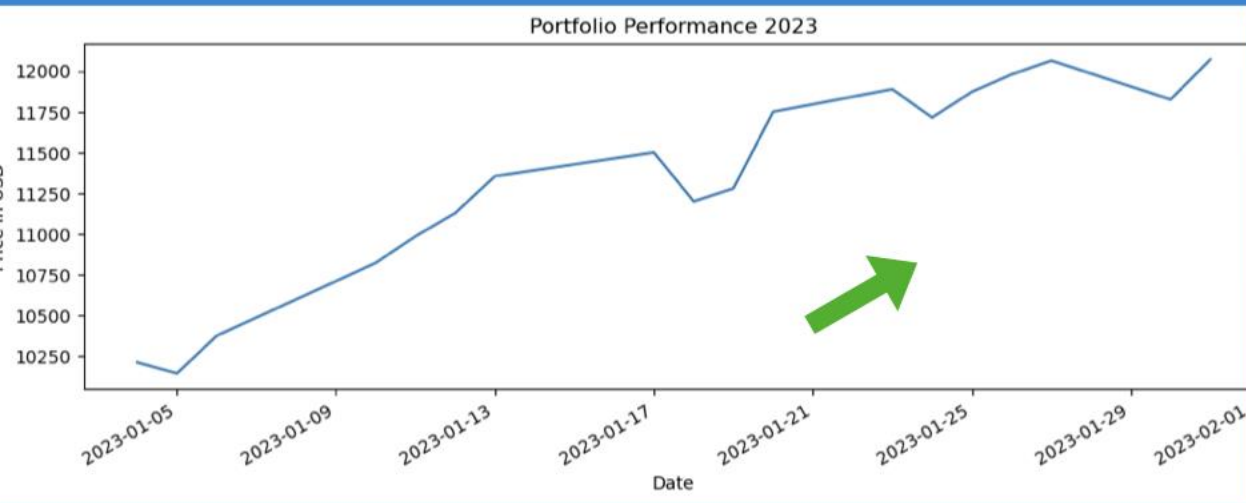
# 2023 Performance



- **All** crypto bounced up in **2023**
- **BTC** bounced **30%**
- **ETH & ADA** bounced **27%**
- **Upward** trajectory into **Feb**
- **Crypto winter** may be over



# Mock \$10k Portfolio 2023 Performance



- **Initial** investment value of \$10k
- **Final** investment value \$12,072
- **Gain \$2,072**
- **All** portfolio securities had gains



RISK

# Stock & Crypto Risk Analysis



The background of the slide is a dark blue/black gradient with various financial data visualizations. On the left, there are several vertical bars in shades of cyan and green, resembling a bar chart. Overlaid on these are several line graphs: a prominent red line that trends upwards, a blue line that fluctuates, and a green line that also trends upwards. There are also some faint, large numbers like '10' and '1' visible in the background, suggesting a data-heavy context.

## What is risk?

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Risk is the probability of an assets likelihood to gain or lose value based on market volatility.

# Why is understanding risk important to your portfolio?


Understanding the potential risk of the assets in your portfolio will help you make a more informed decision with how you want to invest.

## Risk appetite vs. risk tolerance

If risk appetite represents the official speed limit of 70, risk tolerance is how much faster you can go before likely getting a ticket.



SOURCE: MIKE CHAPPLE, SPEEDOMETER: ONYXPRJ/GETTY IMAGES

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# Crypto & Stock Sentiment

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# Before analysis

## Risk Profile Ticker

- ☐ Minimal Risk
- ☐ Maximum
- ☐ Maximum Risk
- ☐ Maximum Risk
- ☐ Maximum Risk
- ☐ Maximum Risk

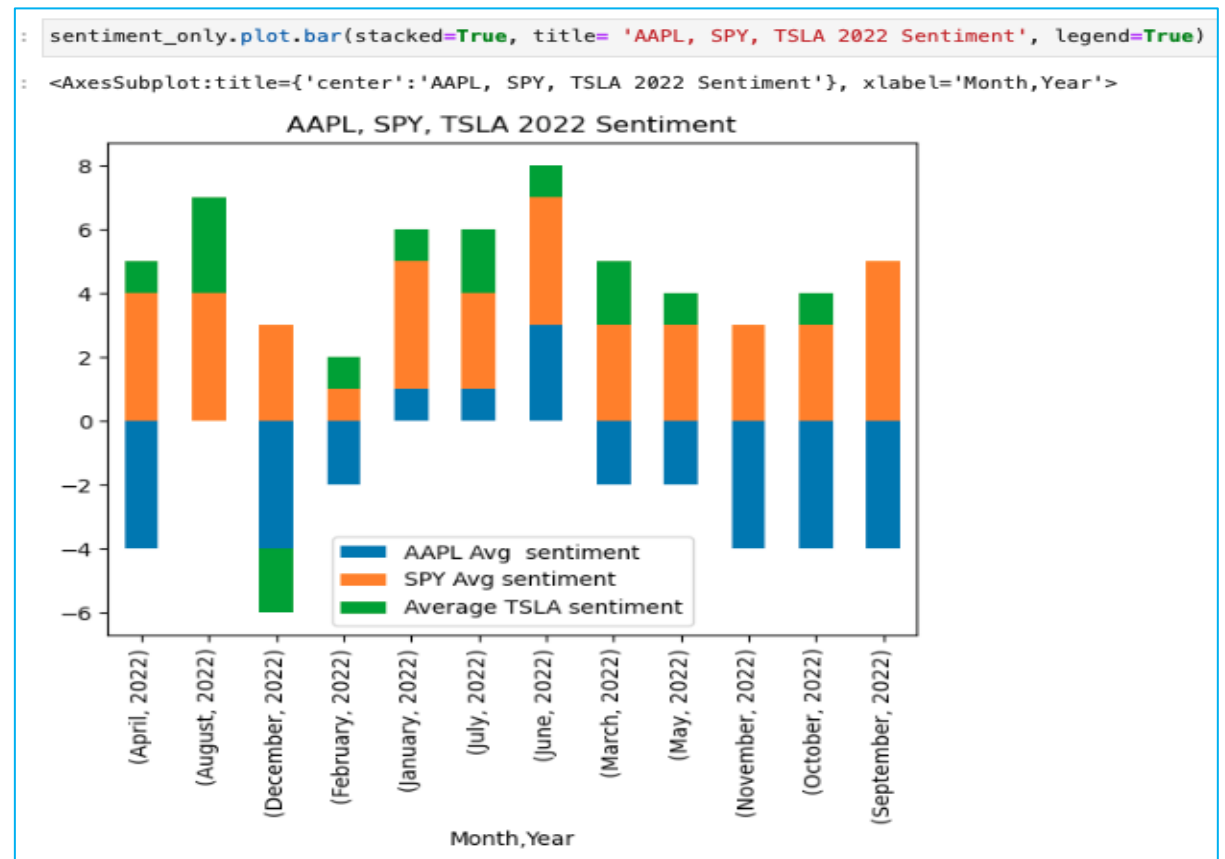
## Risk Profile Ticker

- Minimal Risk stocks have favorable sentiment.
- Maximum Risk stocks/ETFs will have negative/less favorable sentiment.

# Stock Sentiment

		AAPL Avg sentiment	SPY Avg sentiment	Average TSLA sentiment
Month	Year			
April	2022	-4.0	4.0	1.0
August	2022	0.0	4.0	3.0
December	2022	-4.0	3.0	-2.0
February	2022	-2.0	1.0	1.0
January	2022	1.0	4.0	1.0

- AAPL total avg sentiment = -2
- SPY total avg sentiment = 3
- TSLA total avg sentiment = 0



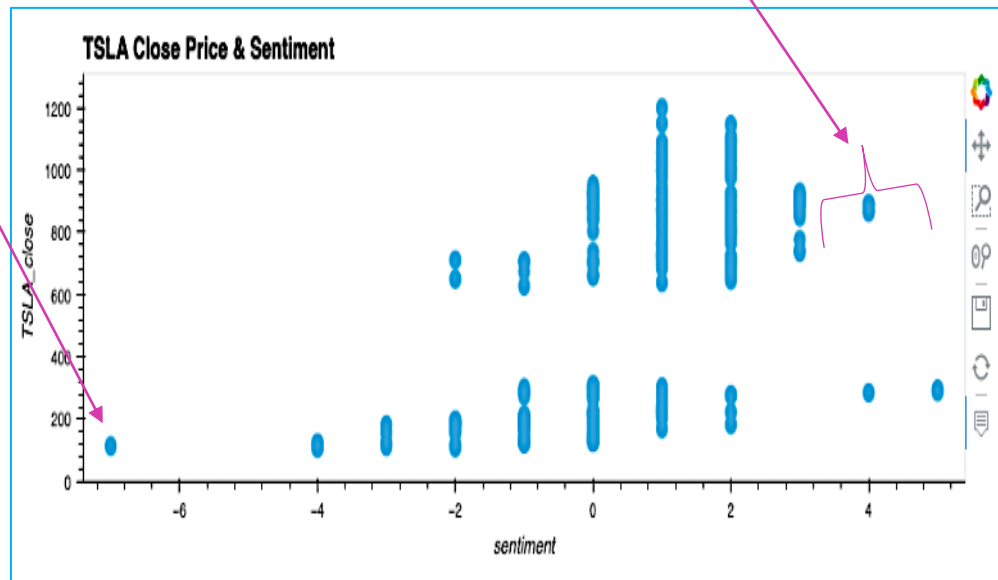
# TSLA

- The highest sentiment was during TSLA stock split.
- Lowest sentiment – Jan 2023.

```
x = pn.widgets.Select(name='TSLA_close', options= ['sentiment', 'TSLA_close'])
y = pn.widgets.Select(name='sentiment_frequency', options= ['TSLA_close', 'sentiment_frequency'])

kind = pn.widgets.Select(name='kind', value='scatter', options=['bivariate', 'scatter'])

plot = tsla_all.hvplot(x=x, y=y, kind=kind, colorbar=True, width=900, size=100, title="TSLA Close Price & Sentiment")
pn.Row(pn.WidgetBox(x, y, kind), plot)
```



TSLA\_close

sentiment

sentiment\_frequency

TSLA\_close

kind

scatter



# Risk & Sentiment

## Risk Profile Ticker

- ☐ Minimal Risk AAPL
- ☐ Maximum ADA
- ☐ Maximum Risk BTC
- ☐ Maximum Risk ETH
- ☐ Maximum Risk SPY
- ☐ Maximum Risk TSLA

## Findings After Analysis:

- Sentiment Analysis can be used as a technical trigger to invest or purchase options contracts.
- Minimal Risk stocks have less favorable market sentiment.
- Maximum Risk stocks have high sentiment.



A wooden figure of a person walking on a wooden block, with a hand placing another wooden block in front of it. The background is a dark wood surface.

# What we found after researching

Creating tools that could be used to better to evaluate assets was a much more effective method to articulate why and where specific demographics should invest in, rather than simply “how” they invest in themselves.



# Summary

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- We begin by analyzing the historical performance data from 2022 into 2023, using an various sources. Following this, we simulate a portfolio investing \$10k at the beginning of the year to verify performance. After we have a sense of market performance, the portfolio is assigned a risk profile that can be checked against our client's risk tolerance. Finally, we analyze current market sentiment and gauge the confidence levels of traders and investors for the crypto and stock markets.





# Sources

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- Kaggle: <https://www.kaggle.com/>
- Historic\_Crypto API: <https://pypi.org/project/Historic-Crypto/>
- Pandas: <https://pandas.pydata.org/docs/>
- Relative Risk theory: [Link](#)
- Investopedia: <https://www.investopedia.com/terms/r/risk-analysis.asp>
- <https://codelabs.developers.google.com/codelabs/cloud-natural-language-python3#7>
- Gcloud Google Cloud: <https://console.cloud.google.com/apis/library?project=sentimentandrisk&cloudshell=true>
- Sentiment data – RTAT nasdaq reports. <https://docs.data.nasdaq.com>
- Plots: [https://hvplot.holoviz.org/user\\_guide/Timeseries\\_Data.html](https://hvplot.holoviz.org/user_guide/Timeseries_Data.html)
- News: <https://alpaca.markets/docs/market-data/news/>