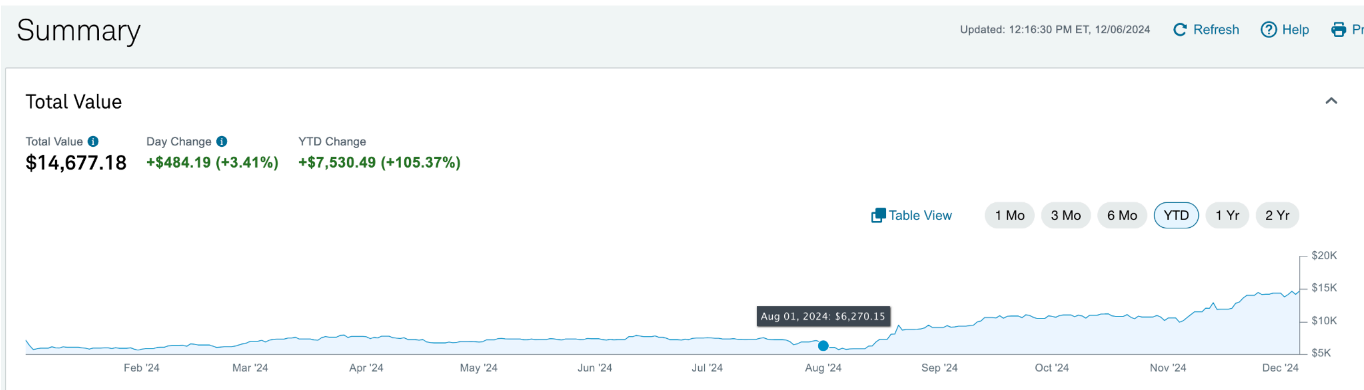
IDEA 2: Price/Volume Breakout Strategy
Background:
This idea is based on my personal investing strategy throughout the years. I used this when I was a teenager to go from $10,000 to $250,000. I also have recently revitalized this same strategy. I've been testing it with a small allocation of my own since August based mostly on intuition and I want to automate it and make it data driven. I like to test things with the smallest amount possible which in this case I think is around $5k, but would ramp it up to $100k asap if we have data behind it. It is all about choosing stocks that have positive momentum that we think have a good chance of going up 50%+ in the next 1 month. I think by combining fundamentals + short term price momentum + volume increases, we can identify which stocks are likely to have this upward momentum and I want to test it.



Goal:

- Price/Volume breakout strategy tested. Answer the question: can we identify a profitable breakout strategy using basic parameters like price and volume?

Suggestion for Priorities and Timeline:
Mini Task

1. (Days 1 and 2) Pick one ticker (BTC or MARA?) and test a bunch of combinations of previous returns through different windows of time to find the best combinations. After one ticker is completed and top ones are found, apply those to a bunch of other tickers.

Decision Point

2. Decide after step 1 if we should try to put together a strategy based on the above or switch to a volume breakout strategy testing.
3. Volume breakout strategy parameters for that would be:
    a. Identify the day of a volume and upward price breakout by looking at median or average volume of a day compared to the last X days (maybe 20 to start)
    b. Add a waiting period of x days to avoid reversion
    c. Get in stock after it goes up x% with volume above y after waiting period
    d. Likely add a stop loss and/or trailing stop loss after buying to get out if decline begins. Maybe include decreasing volume as an indicator to sell

Suggested Collaboration Log (input after each day of work + let us know so we can review and add thoughts, comments and feedback)

Plan:

Understanding the underlying strategy:

Breakout strategy with a high volume has a multitude of reasons why the price-action typically leads the stock to higher levels. The attributed reasons can be:

1) Event Driven Momentum: Good earnings pushes the stock price higher. Fed Rate cuts push growth stocks more etc. (Also Fundo-Technical)
2) Value Correction Momentum: Stocks that have either consolidated, or have been depressed for a while, but have been posting profit and revenue growth in the trailing months, typically have a surge in stock price where the value of the stock finally catches up with the momentum in the earnings.
3) Quantitative Momentum: Strategies like [Managed Futures], where momentum is quantified as the trailing month performance which allows us to make a decision as to either to go long or to go short.

Data:

After looking at Evan's sheets and also at different data sources, I have realized that the yahoo finance data is a great stepping stone to begin with. This is because, we are looking at Momentum and breakouts at a longer time-horizon (Daily), where Yahoo Finance provides it in a clean fashion.

Here I can get the data from any public company, ETF, Bond, Option in the world using a simple python library (yf library). I can get the date, open price, highest price, lowest price, closing price, adjusted closing price, and volume. For ease of access, manipulation, and better implementation, it is better to use this data, store it into a dataframe, and analyze it however we want, and only pull what we need.

	GOOG						AMZN						AAPL
	Open	High	Low	Close	Adj Close	Volume	Open	High	Low	Close	Adj Close	Volume	Open
Date													
2017-01-03	778.809998	789.630005	775.799988	786.140015	786.140015	1657300	757.919983	758.760010	747.700012	753.669983	753.669983	3521100	115.800003
2017-01-04	788.359985	791.340027	783.159973	786.900024	786.900024	1073000	758.390015	759.679993	754.200012	757.179993	757.179993	2510500	115.849998
2017-01-05	786.080017	794.479980	785.020020	794.020020	794.020020	1335200	761.549988	782.400024	760.260010	780.450012	780.450012	5830100	115.919998
2017-01-06	795.260010	807.900024	792.203979	806.150024	806.150024	1640200	782.359985	799.440002	778.479980	795.989990	795.989990	5986200	116.779999
2017-01-09	806.400024	809.966003	802.830017	806.650024	806.650024	1274600	798.000000	801.770020	791.770020	796.919983	796.919983	3446100	117.949997
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2017-04-24	851.200012	863.450012	849.859985	862.760010	862.760010	1372500	908.679993	909.989990	903.820007	907.409973	907.409973	3122900	143.500000
2017-04-25	865.000000	875.000000	862.809998	872.299988	872.299988	1672000	907.039978	909.479980	903.000000	907.619995	907.619995	3380600	143.910004
2017-04-26	874.229980	876.049988	867.747986	871.729980	871.729980	1237200	910.299988	915.750000	907.559998	909.289978	909.289978	2608900	144.470001
2017-04-27	873.599976	875.400024	870.380005	874.250000	874.250000	2026800	914.390015	921.859985	912.109985	918.380005	918.380005	5305500	143.919998
2017-04-28	910.659973	916.849976	905.770020	905.960022	905.960022	3276300	948.830017	949.590027	924.330017	924.989990	924.989990	7364700	144.089996

Process to Understand the Trend:

Decision Point 1) Which type of momentum/trend do we want to capture from the options above. I have realised that each of them require a different type of backtest feature. I also think that each of them requires a different decision making process. To ASK THE TEAM.

1) Event Driven Momentum: The process would be to find an event which we already know is going to happen. Then figure out which stock or stocks will be more in focus due to the event's decision. For example, in the case of an earnings call it will be just the company itself, and all the companies in the sector. In the case of the FED event, we will see more growth type stocks (high beta) to show more action and volumes. Then try to see the action before the event, to predict the action after the event. There are phenomena such as pre-earnings drift (where the market slows tries to price in all the different outcomes). We can trade the pre-earnings drift. We can also trade the post-earnings drift (in this case the stock says it moves higher after the announcement, then the stock will continue to move higher due to others who extrapolate the trade).
2) Value Correction Momentum: Here we fix with the sector or a group of stocks we want to work with. Then we see whether the sector ETF itself has been consolidating. Then we see relative to the sector ETF how the individual stocks are performing. Then the stock that shows the highest resilience is identified and then we take a trade on that when the sector ETF breaks out as we now see that this stock will be leading the sector breakout. A hedge would be to short the weakest stock in the sector, so that all the idiosyncratic risks are hedged out.
3) Quantitative Momentum: You take all the 500 stocks in S&P 500, then calculate the 3m, 6m, 9m trailing excess return, then you go long the ones which have high excess returns, and short the ones which have lower excess return. This is based on the paper that I linked earlier, which has alpha in it.