SHARPED ALPHA

Sharped Alpha Fund Report

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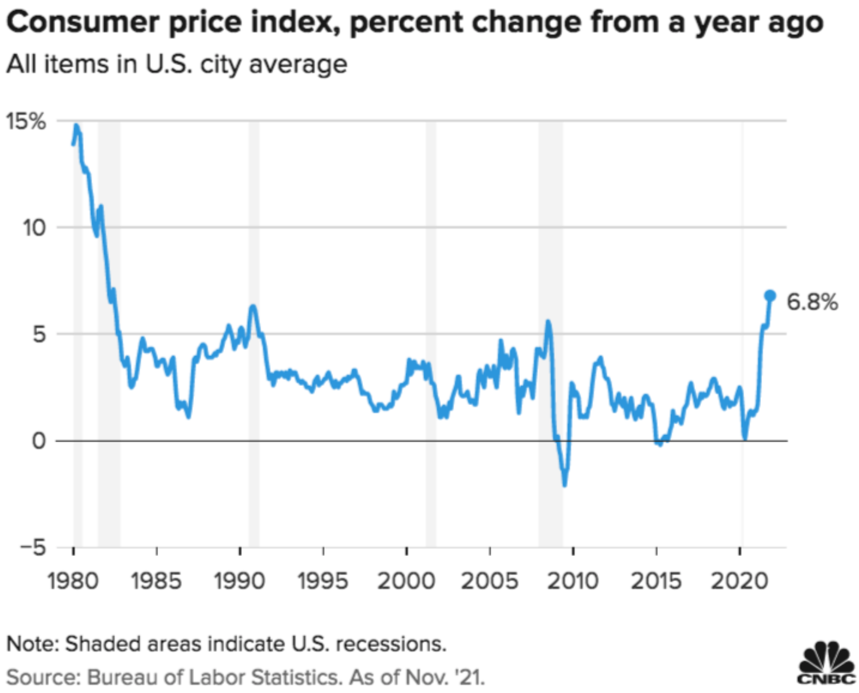
Python code link:
https://colab.research.google.com/drive/12fRmraDEJ5fTW5h8St0m2tk3-oj5aG1M?usp=sharing#scrollTo=j-kInRe5f6lU

Periodic Macro overview

Inflation nailed its expectations and it is still increasing, in the US it rises to 6.8%, which is the highest level since 1982[1].

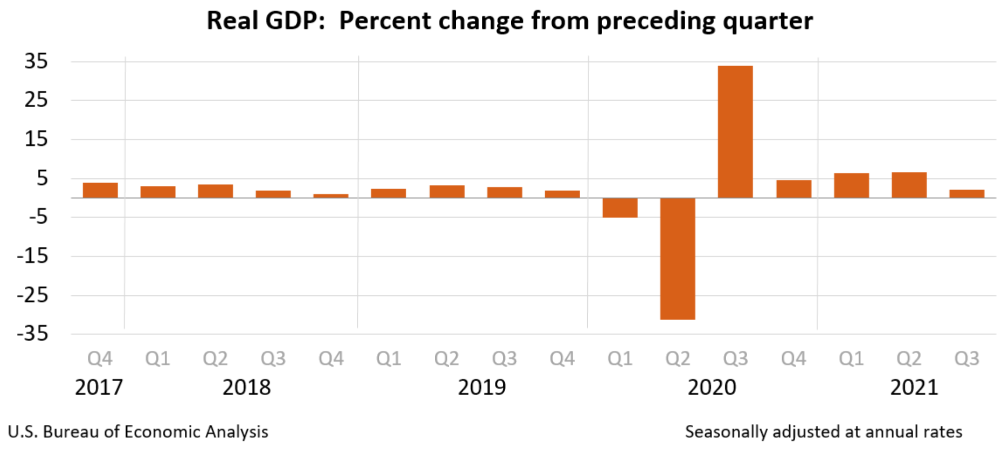


As suggested by the Phillips Curve, the soaring US inflation level drove the prices up. Wages remained constant, therefore the wage/prices ratio went down, leading to a decreasing cost of labor for companies, which is also going to drive a higher production output in the short run, since wages take more time than prices to adjust. This process is going to drive up the US GDP, and was a main driving factor in our portfolio geographic selection. The same process happened in Europe, with slightly less inflation, which led us to select some ETFs from this country as well, in order to achieve better diversification. For the same reason we decided to remove from the portfolio all the Swiss stocks that we integrated in the fund in the last round, since the inflation in Switzerland is around 1.2%, that will probably lead to a smaller GDP growth when compared to the previously mentioned peers.

However we still have a very tiny exposure to the swiss market through our ETFs position that includes also Europe and Switzerland.

The chart below shows the percentage change of GDP in real terms of recent times.

[1] https://www.cnbc.com/2021/12/10/consumer-price-index-november-2021.html



The Omicron variant of Covid initially caused fears on markets, but lately, it appears to be less lethal than the actual delta variant, however, there is still uncertainty due to the increased contagion rate.
The increase of Covid cases in Europe is bringing new lockdowns, so the impact on the markets of this new variant is still to be identified, even if it would be less severe.

We have decided to open a position in the healthcare sector through a diversified ETF to hedge other positions that could suffer most from Covid, we also believe that new future variants could become less lethal but more frequent, giving Covid a more accentuated similarity and "seasonality" to normal flu, this means that companies that sell anti-covid products and vaccine could continue to perform well in the next months.

On the oil market, there is an explosive mix in the medium-term stability of prices: from the supply side, investments over the last years have decreased on the wave of more sustainable investments[2] so the increase in demand will further drive up prices.
However in the short run, there could be a stabilization in prices thanks to non-OPEC supply growth combined with an easing in OPEC supply cuts, but the Omicron variant remains the most important risk.

The gas market is experiencing a specular situation, under-investment in the sector and increase in demand for winter have caused a massive reduction in stored levels.
So the natural gas price will suffer from an increasing volatility through the cold season in Europe and also further in the next year prices could remain pretty high.
A possible trigger situation in this market are the relations with Russia, tension on the Ukraine conflict and sanctions to Russia could further push gas prices high.

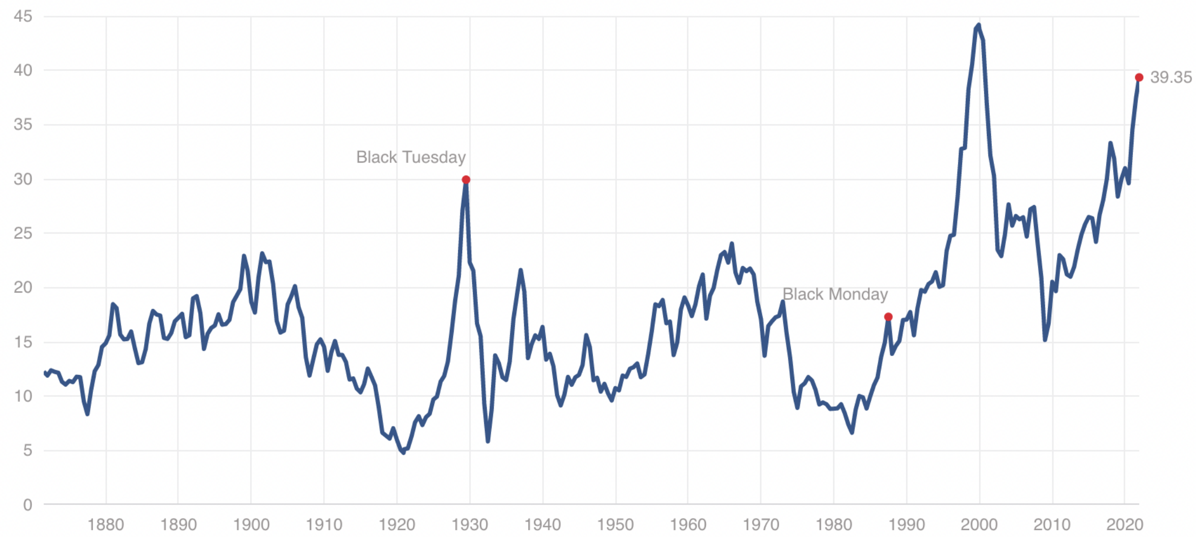
So we have decided to reintegrate our exposure to the oil & gas market through a world-wide diversified ETF in order to catch a medium term positive trend for fossil fuels prices, and also to be exposed to the long-term rising trend in the renewable energy sector through ETFs on materials, utilities and clean energy directly.

On the crypto market we continue to see a suffer in quotations in the latest weeks, the fears about Omicron variant lead "risk-on" asset, such as Bitcoin, to important losses, probably turbulence on the market could continue further till the end of the year.

[2] https://www.zerohedge.com/commodities/oil-investment-must-rise-525-billion-year-avoid-supply-crunch

However, the “investment purpose” behind our Bitcoin position remains valid in the inflationary environment ahead, we are positioned in the right asset but with not perfect timing. In the next weeks, there could be recoveries in the quotations after losses of around 35% from the recent ATH, but probably to be sure about an important recovery we need to wait some months.
So we have decided to reduce the Bitcoin weight in our portfolio in order to avoid an increase in absolute terms of our exposure and hold our position for a future recovery of the asset.

CAPE Shiller index



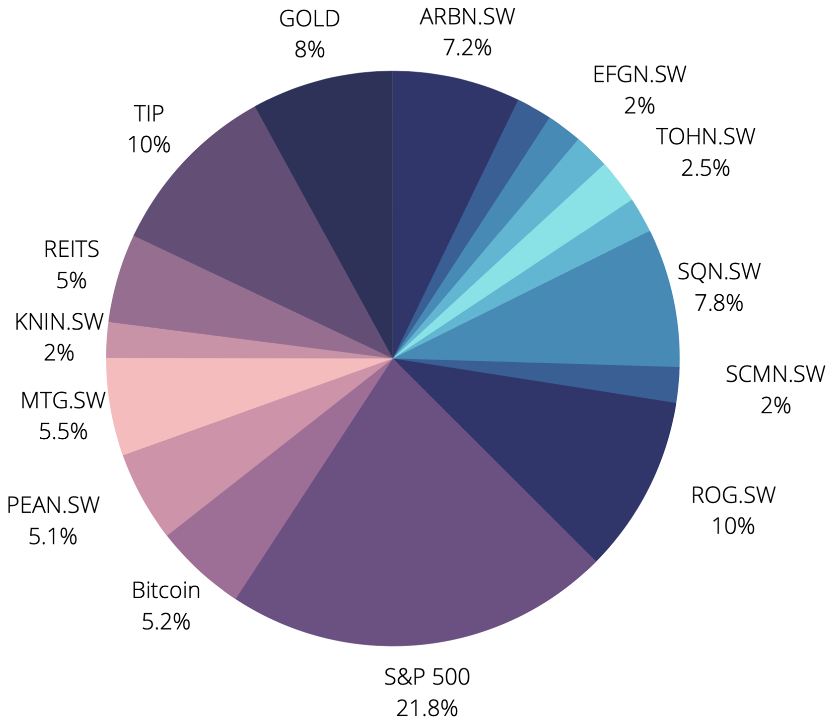
As we can see the PE Shiller index (which is calculated as the Price over the 10year average earnings) of the S&P 500 is approaching the all-time high-level[3]. This would suggest that the stocks are going to be overpriced in general.

To mitigate this current situation we chose to focus on some single value stocks, overweighting some positions in key sectors that we have identified and that could over-perform their respective index, since in an uncertain environment they behave more solidly due to their consistent cash flows.

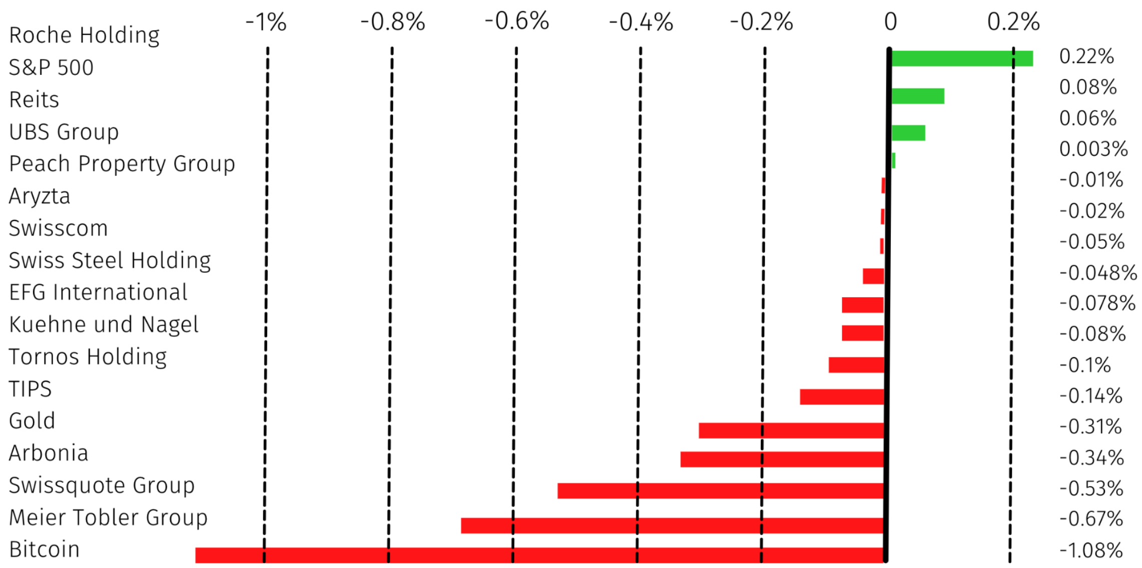
[3] https://www.robeco.com/en/insights/2021/11/risky-cape-is-there-an-alternative.html

Performance Analysis of Second Round

This was the allocation of our portfolio during the second round of the challenge.



In the following graph, we can see how the different assets contribute to our overall performance (weighting returns of every single asset).

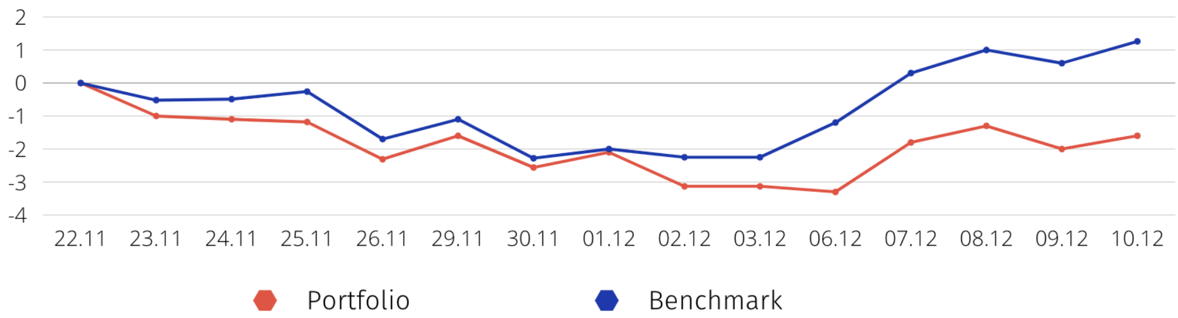


As already stated, the new Omicron covid variant scared investors of the consistent probability of new lockdowns.

This spike in volatility led institutions to reduce their portfolio positions in the most volatile assets, which reflected mostly in our BTC holdings, with a loss close to 20%, which contributed to a net 1% loss in our portfolio.

The worst-performing stocks were ARBN, MTG and SQN, three Swiss stocks that are in the Basic Material, Financial and Consumer Durable sectors.

ARBN suffered from the increase in basic material cost, which led the market to assume that their margins were going to reduce, leading to a dump of the stock price. We believe that MTG and SQN only had a temporary decrease, and suffered a bit more than the average Swiss market, we still do not consider them value traps, but we will however exit all these positions looking for better opportunities.
Gold also had a poor performance, which is probably due to the increasing fear of a more accentuated tapering, which could lead to an increase in interest rates to face inflation, this would increase the opportunity cost of owning gold rather than bonds and could have caused a temporary bad performance.
The bad performance of our portfolio is mostly due to these drivers, since the other assets are positive or slightly negative, the final return of this round is -3.013%.
These results bring our fund to an overall performance of -1.4% since the inception of the AMC (+1.6% in the first round and -3% in the second).
In the following graph, we can see the daily performance of our portfolio against the benchmark, highlighting the volatility spike starting on the first days of December that offset our portfolio from the benchmark.



To recover from the losses we decided to change our investment approach for the upcoming round, allocating more weight of our portfolio in broadly diversified ETFs across sectors, countries and promising asset classes, and giving up the Swiss stocks that plunged our performance.

Stock picking criteria

In this round we decided to invest in sectorial ETFs to gain the benefit from our macroeconomic analysis, eliminating idiosyncratic risk while also achieving geographic diversification. For the Quantitative part of this round, we decided to pick US stocks with low market beta from promising sectors that emerged in the macroeconomic overview, meaning that we build some higher exposures in the stocks we consider particularly profitable rather than having only the ETF. The sectors we decided to overweight are Technology, Healthcare, Energy and Materials. To cope with the fundamental quant approach that is key in this round, since the constraints of no trades prevented to implement of more sophisticated strategies, we decided to consider the following factors:

- Value, due to their consistent cash flows that provide a more stable structure in the eventuality of a tapering acceleration. The criteria chosen to select the value stocks are:
    - Dividends > 1%,
    - P/B ratio higher than 1 (to avoid deteriorated stocks and value traps) but lower than 5 (to pick cheap ones),
    - P/E ratio lower than 20 (to include Value and GARP stocks only).

- Momentum, by selecting only stocks that beat the 80th percentile of returns in the S&P 500 in a six months time horizon, and had consistent growth in the Economic Margin over the same timeframe.

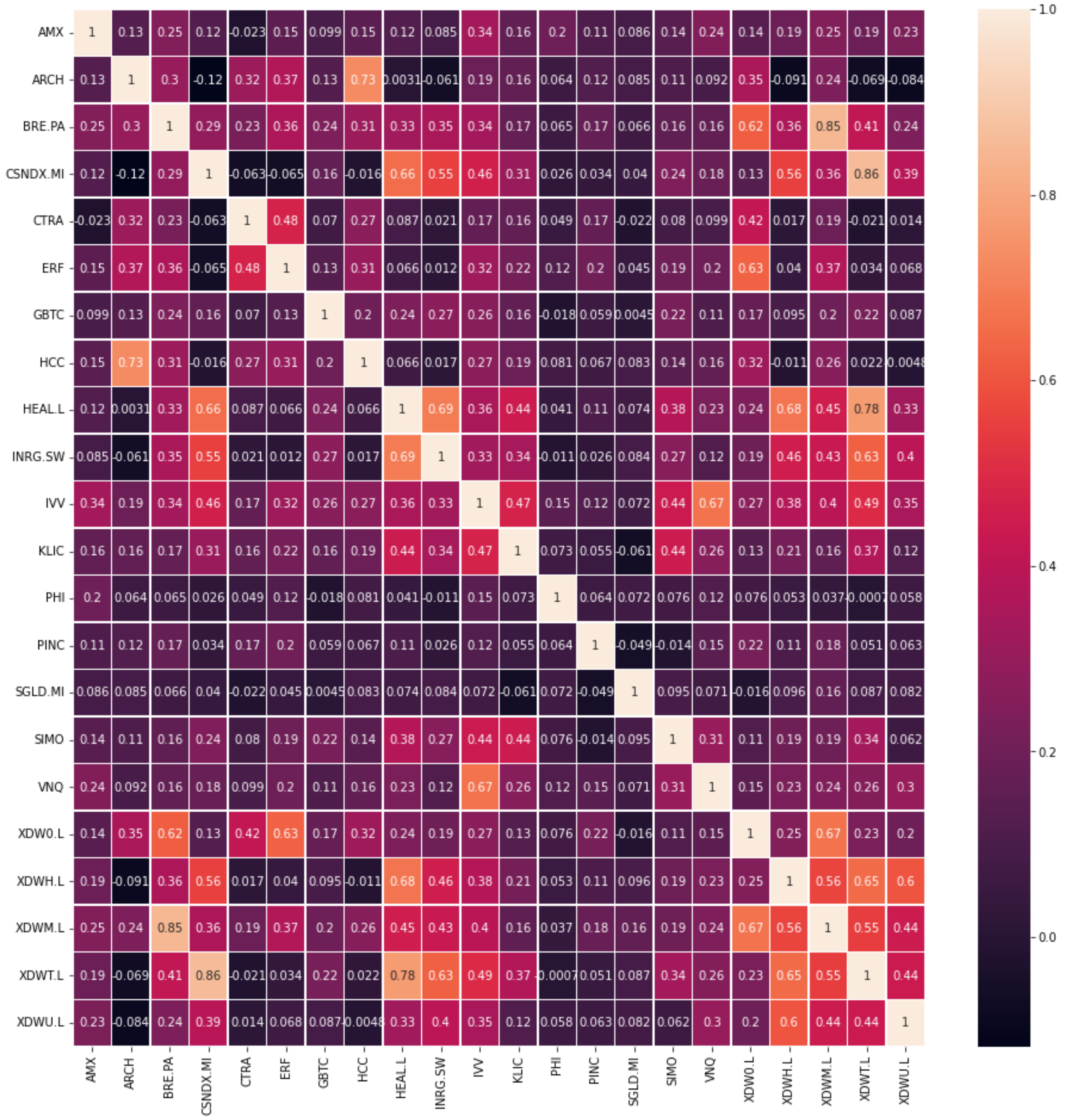
- Quality, by evaluating earnings, management and economic margins of each company

- Beta against the benchmark < 0.5 (BAB strategy), since higher volatility stocks tend to pay a premium that is not sufficient to justify their risk when compared to low-beta ones.

Company Name	Ticker	Sector
Arch Resources Inc	ARCH	Energy ad Extraction
Coterra Energy Inc	CTRA	Energy ad Extraction
Enerplus Corporation	ERF	Energy ad Extraction
Warrior Met Coal	HCC	Energy ad Extraction
Premier Inc	PINC	Healthcare
America Movil	AMX	Technology
Kulicke and Soffa Industries	KLIC	Technology
Pldt Inc	PHI	Technology
Silicon Motion Technology	SIMO	Technology

Optimization

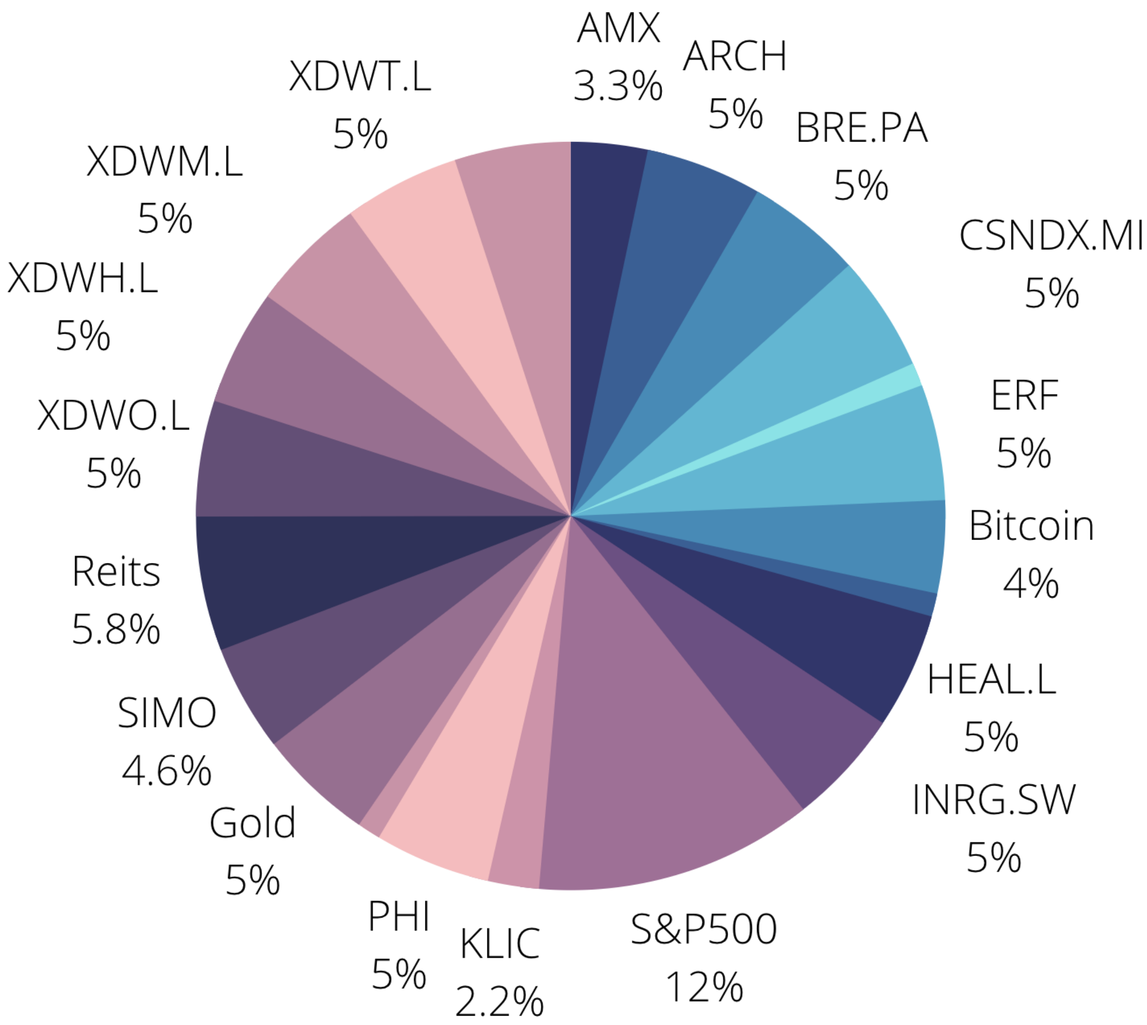
After the stock selection, we wanted to get an insight into our assets for diversification purposes, therefore we decided to generate a heatmap of the correlation among the different assets.



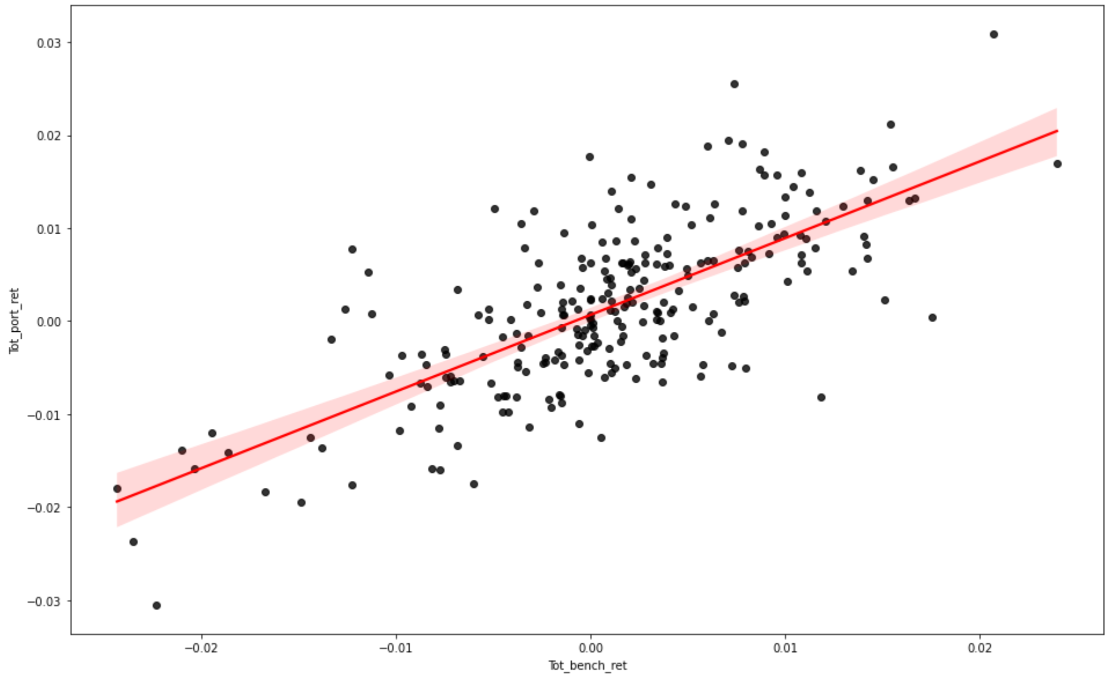
From the heatmap, we can see that, excluding ETFs, the stocks tend to have a lower correlation to the S&P 500 (IVV in this heatmap), which is in line with our BAB strategy, further emphasized by our risk parity optimization algorithm that assigns more weight to less volatile assets.

We used the same optimization algorithm from phases 1 and 2 of the AMC however, in this part of the challenge, we decided to add additional constraints to the optimization, in order to give more weight to our macroeconomic and quantitative analysis (key of this part of the challenge). Every stock selected had to have a minimum weight of 1% and a maximum of 5%, whereas ETFs could range between 5% and 10%, with the exception of the S&P 500 which is part of our benchmark, free to range between 12% and 30%.

The resulting weights are as follows:

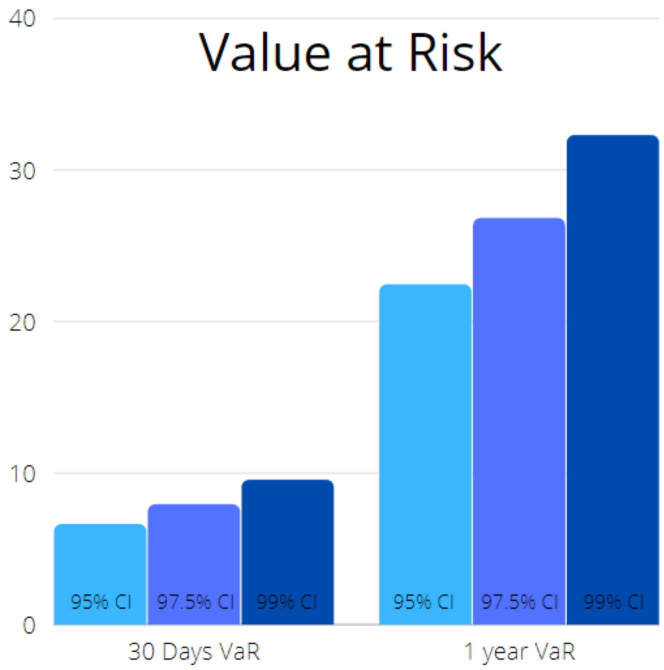


Finally, we regressed the portfolio over a benchmark that is composed of 80% of S&P 500 and the remaining 20% of MSCI world.



The resulting alpha and beta of our portfolio are respectively 0.00072 and 0.8195. This beta may seem high for a BAB strategy, but this is due to ETFs driving up the correlation of the portfolio, whereas the one if we only consider the portfolio of stocks (excluding ETFs) the beta is 0.3025.

To make sure that our portfolio allocation was in line with the risk profile we wanted to target, we computed the parametric Value at Risk for 95, 97.5 and 99 percentiles:



Leaving us with a maximum potential loss of $ 6.628 M with 95% confidence, $ 7.921 M with 97.5% and $ 9.538 M with 99% confidence for the 30 day VaR, and 22.433 M, 26.811 M and 32.282 M for the 1 year VaR.