

ArcticGuardian

AI tool to Guard your portfolio against Climate Risks



Replicate

Kamal



Objective of ArcticGuardian

1. Guard investor's portfolio from supply chain disruptions of climate change by analyzing & quantifying the climate risks that their portfolio is subjected to with Snowflake Arctic
2. Position your portfolio in order to avoid such risk **without necessarily sacrificing returns or taking higher unrewarding risk.** Active Intelligence not just risk.

Users: Retail or professional Investors - broad applicability

Datasets

- **Earning call Transcripts** - Earnings call transcripts are written records of unrehearsed discussions between company executives & analysts during quarterly conference calls, detailing financial results, strategy, Sustainability and outlook. (Mgmt discussions are unrehearsed)
- `S&P 500` constituent weights (Note- when you invest in S&P ETF (largest ETF by AUM in the world) you essentially invest in these constituent weights which might not be optimal for Climate risks)

100 randomly selected stocks from the `S&P 500` index

Enrich the above data with Stock Returns over the last 6 months

S&P 500 ETF Components						
This list shows the holdings of the SPDR S&P 500 ETF Trust (SPY).						
#	Company	Symbol	Portfolio%	Price	Chg	% Chg
1	Microsoft Corp	MSFT	7.02%	▲ 407.39	0.73	(0.18%)
2	Apple Inc.	AAPL	6.18%	▼ 181.89	-1.49	(-0.81%)
3	Nvidia Corp	NVDA	5.09%	▲ 911.87	23.98	(2.70%)
4	Amazon.com Inc	AMZN	3.95%	▼ 185.49	-0.72	(-0.39%)
5	Meta Platforms, Inc. Class A	META	2.31%	▲ 455.15	3.19	(0.71%)

Climate/ESG Risk

1. Extracts relevant statements related to Climate Risk using Snowflake Arctic (Replicate)

``The increasing frequency of extreme weather conditions is causing concerns for our supply chain and infrastructure``

``The transition to a low-carbon economy presents both risks and opportunities for our business``

``Health care costs continue to rise due to higher wages and labor shortages in the healthcare sector.``

more examples - UI

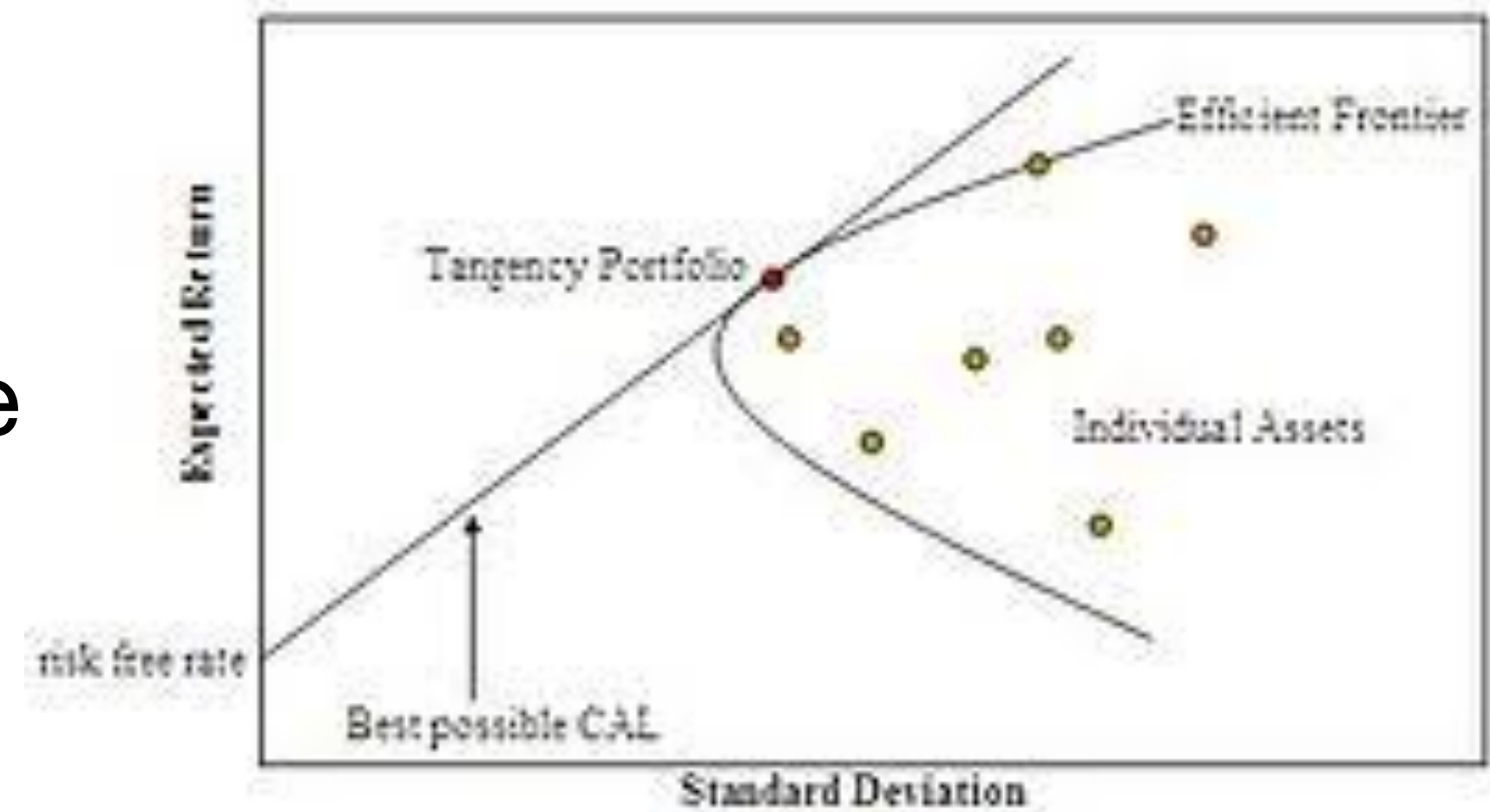
	climate_risk_count	returns_6m
climate_risk_count	1.000000	-0.117329
returns_6m	-0.117329	1.000000

Optimization

Objective -

Increase Returns, Reduce Volatility(Portfolio Risk)- Sharpe

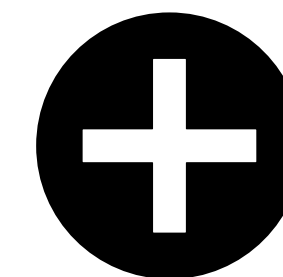
Reduce Climate Risk



Non-linear constrained optimization on Sharpe Ratio and Climate Risk

$$\text{Sharpe Ratio} = \frac{(\text{Expected Return}_{\text{Portfolio}} - \text{Risk-Free Rate})}{\text{Standard Deviation}_{\text{Portfolio}}}$$

WallStreetPrep



Climate Risk
(climate_risk_count)

Extends Modern Portfolio Theory for which Harry Markowitz won Nobel Prize

Dashboard

Select the number of stocks(5/10/20/100)

MarketCap(if chosen True then you get mega cap stocks like MSFT/ AAPL else its randomly selected)

Choose to use Climate Risk in the optimizer or not - see difference

Climate risk comparison:

Visualise and evaluate if the optimization was successful (like current portfolio risk vs optimal portfolio risk - lowered)

Optimize

	ticker	Company	returns_6m	sp500_weight_norm	optimised_weight	climate_risk_norm	trade_reco
0	ALL	The Allstate Corporation	23.1394	34.4828	30	0.5	Underweigh
1	DVN	Devon Energy Corporation	12.1834	24.1379	10	0.5	Underweigh
3	NTAP	Netapp, Inc	39.2965	17.2414	40	0	Overweigh
2	SBAC	Sba Communications Corp	-12.8165	17.2414	10	0.5	Underweigh
4	BEN	Franklin Resources, Inc.	5.524	6.8966	10	0.6	Overweigh

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Max Stocks

5

Market Cap

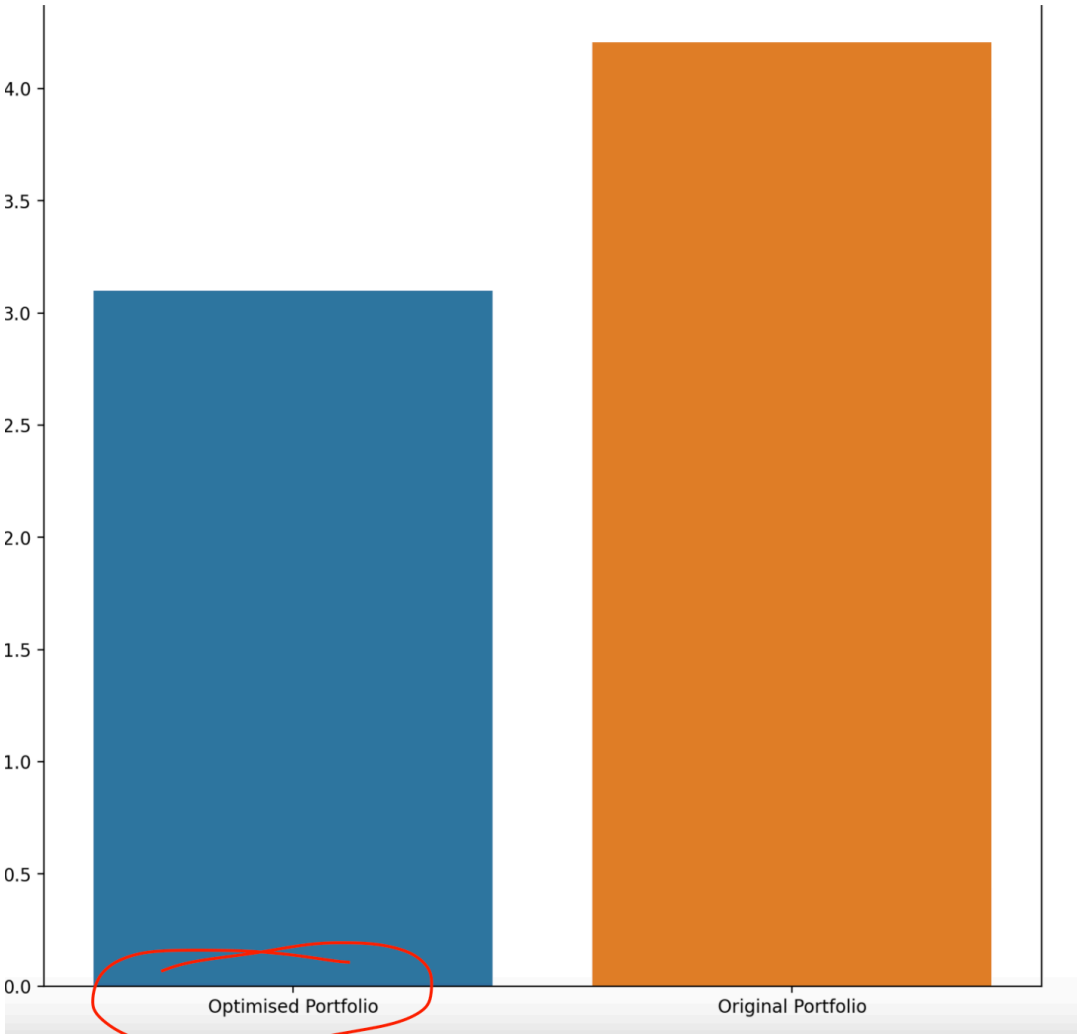
False

Climate Risk

True

Optimize

☐ Show Example Climate Risk Statements



Dashboard

Dataframe:

a) Optimised weights

b) S&P default weights normalised that you're using if you invest in S&P 500 ETF directly.

c) Trade Recommendation - Overweight/Underweight or Buy/Sell more

Max Stocks

5

Market Cap

False

ESG Risk

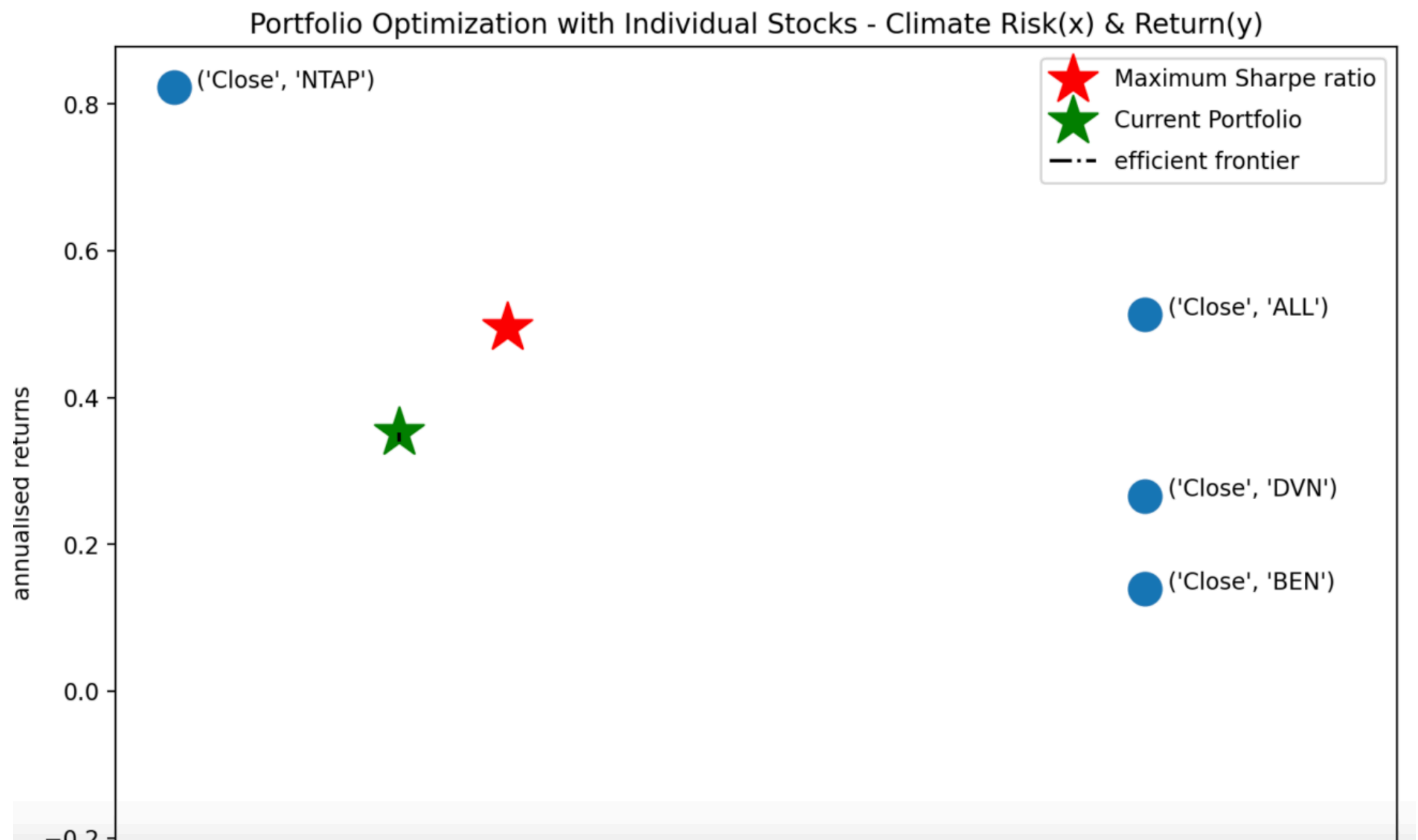
True

Optimize

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Dashboard



Disclaimer

Demo