FINANCE 443 PROJECT

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INVESTMENT OBJECTIVE

SUCCESSFULLY HEDGE OIL

For a 1 month period of November

WITHOUT TAKING ON MARGIN

Or shorting securities

BY CONCENTRATING ON NEGATIVELY CORRELATED SECURITIES

BENCHMARK METHODOLOGY

Source: Finviz.com/map.ashx?t=etf

BENCHMARK METHODOLOGY

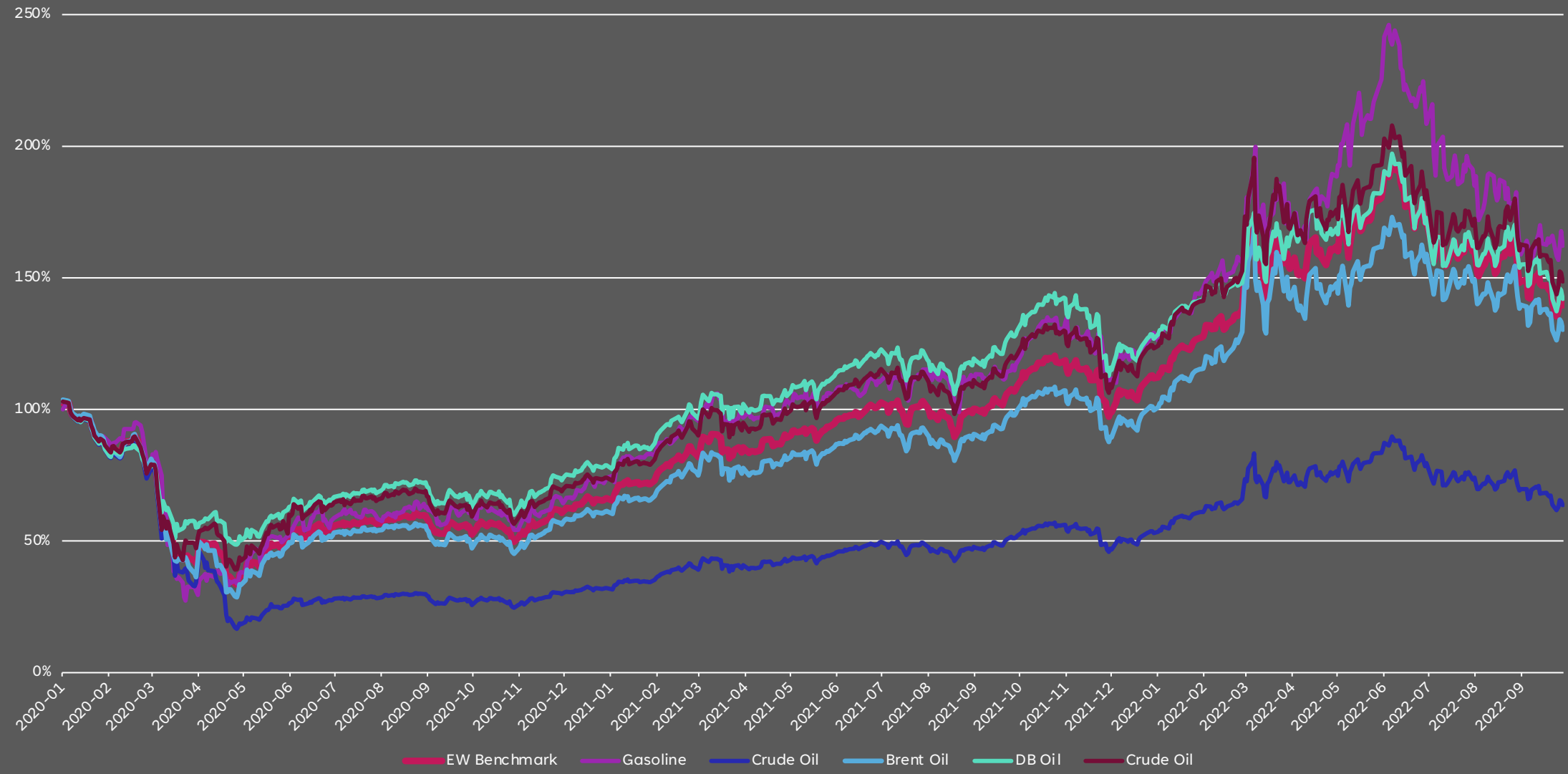| Crude Oil			Brent Oil	Gasoline
USO (US Oil Fund ETF)	DBO (Invesco DB Oil ETF)	OIL (iPath Crude Oil ETN)	BNO (US Brent Oil ETF)	UGA (US Gasoline Fund)
20% BM Weight	20% BM Weight	20% BM Weight	20% BM Weight	20% BM Weight

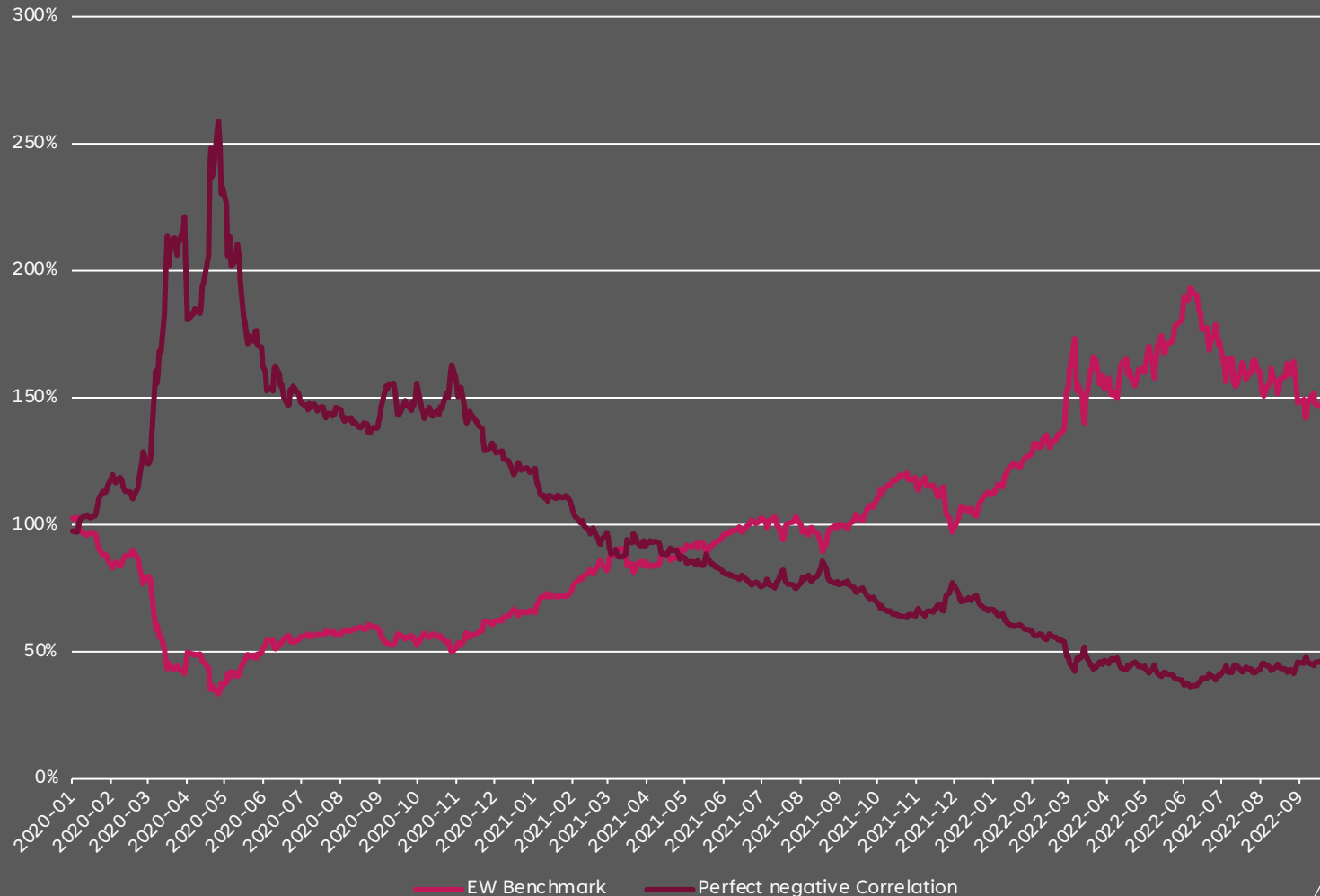All Weights are rebalanced Daily

BENCHMARK METHODOLOGY

ETF History

BENCHMARK METHODOLOGY

Benchmark History

BENCHMARK METHODOLOGY

Perfect Negative Correlation

EW Benchmark — Perfect negative Correlation

How will success be measured for our portfolio?

It will be measured by taking the total compounded return of our Benchmark, multiplying by negative 1 and comparing that to the total compounded return of our portfolio.

Additionally, Daily correlation will be measured however this is not a strong predictor of success in the strategy since it is difficult to gather a large enough sample size to run an accurate correlation with only 20-25 datapoints.

PORTFOLIO METHODOLOGY

Investable Universe Selection → Narrow Selection by Indices and data availability → Select Most Negatively Correlated Companies →

Optimize weights on 3 different time frames → Combine Weights → "Blind test" model against October data →

Identify potential risks for the portfolio's exposure → Mitigate risks → Exclude high risk companies & adding active management

SELECTION METHODOLOGY

All US listed securities — **Investable Universe**

S&P 500 & Russell 2000 — **Search Filter**

Most Negatively Correlated Companies — **Company Selection**

SELECTION METHODOLOGY

Investable Universe Weekly Correlation with EW Benchmark

WEIGHT BALANCING METHODOLOGY

| Optimize Weights on independent timeframes	Combine Optimize Weights	Run test against blind data of October
• Optimize weights on 200 period Daily Data • Optimize weights on 50 period Weekly Data • Optimize weights on 36 period Monthly Data	• SumProduct of all weights equally	• By Blind testing, you can find vulnerabilities in the methodology. • You can also see a predicted success of the strategy.

WEIGHT BALANCING METHODOLOGY

October Blind Test
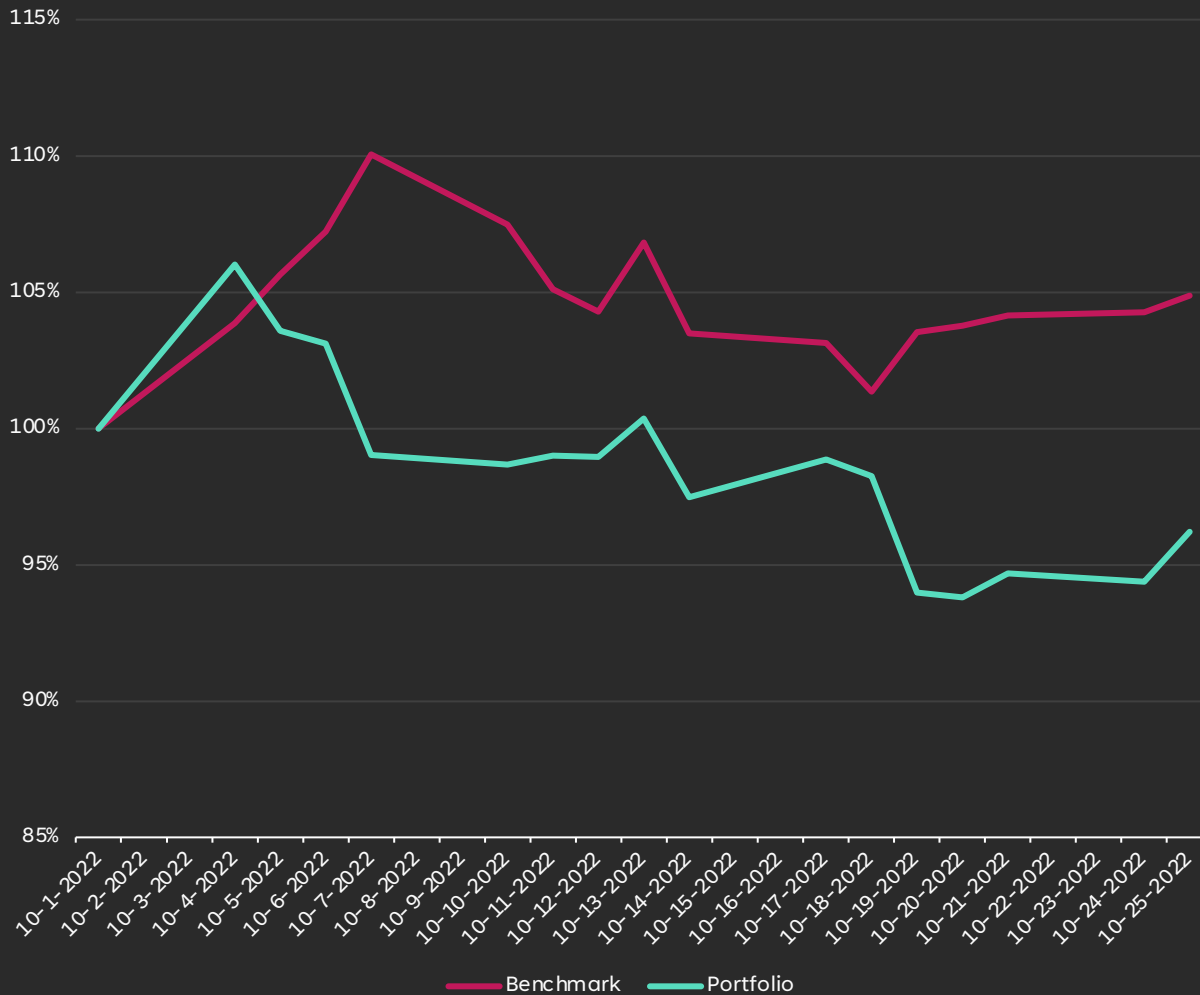
Cumulative ETF Return	4.8505%
Benchmark Return	4.8759%
Rebalancing Effect	0.0254%
Portfolio Return	-3.7992%
Expected Perfect Negative Correlation Return	-4.8505%
Difference	1.0513%

Monthly Correlation: -0.7833

Daily Correlation: 0.19314

RISKS AND MITIGATION METHODOLOGY

Sorted Filter by Sector Weight	Weight
Health Care	78.27%
Information Technology	14.86%
Financials	3.07%
Consumer Discretionary	2.98%
Real Estate	0.52%
Industrials	0.20%
Communication Services	0.10%

Weight By GICS Sector

Information Technology

Health Care
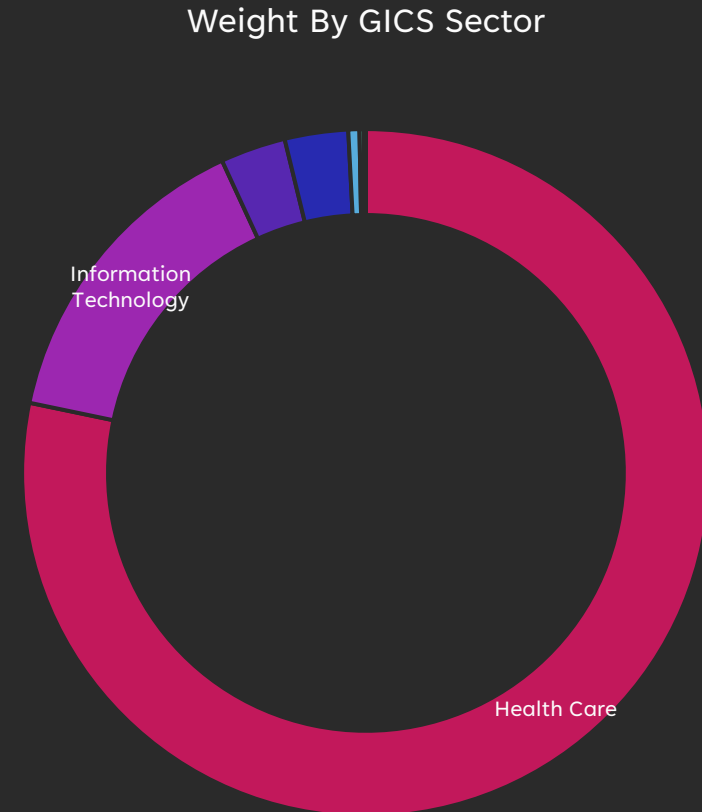
RISKS AND MITIGATION METHODOLOGY

Sorted Filter by Industry Weight	Weight
Biotechnology & Medical Research	63.04%
Banking Services	9.99%
Electronic Equipment & Parts	9.81%
Specialty Retailers	7.65%
Software & IT Services	7.63%
Financial Technology (Fintech) & Infrastructure	0.86%
Healthcare Equipment & Supplies	0.62%
Electrical Utilities & IPPs	0.10%
Investment Banking & Investment Services	0.10%
Household Goods	0.10%
Hotels & Entertainment Services	0.10%

Weight By Industry
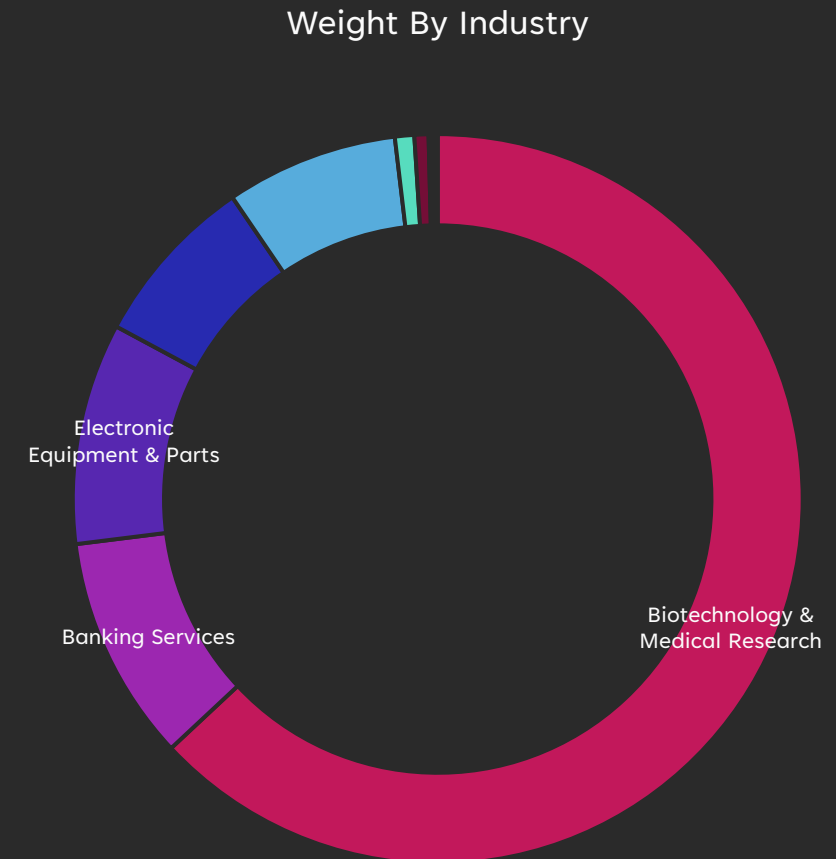
RISKS AND MITIGATION METHODOLOGY

Biotech Stocks:

Extremely volatile when undergoing an FDA approval process. They may move either sharply up or sharply down depending on FDA approval or denial.

We are mitigating this by going researching all biotech companies with a weight larger than 1% in our portfolio to see if they have any products awaiting approval during November.

RISKS AND MITIGATION METHODOLOGY

Affected Companies	Rationale	Impact
	Vera Therapeutics to Present Final Phase 2 Results of MAU868 in Kidney Transplant Recipients with Reactivated BK Virus Infection and New Analysis of Phase 2a JANUS Trial of Atacicept in IgA Nephropathy at the American Society of Nephrology Kidney Week 2022 Annual Meeting October 17, 2022 07:30 ET | Source: Vera Therapeutics	Most of the weight from Vera will be redistributed into 3 actively selected portfolio stocks. We will consider increasing Vera's weight on the rebalance date.

Active Management Selection

Transportation	Airlines	REITs
• United Parcel Service (UPS)	• Southwest Airlines (LUV)	• Realty Income Corp (O)
• Stable BlueChip within the industry	• Low cost Airline	• High monthly dividend increases stability of portfolio
	• Airlines hedge oil purchase prices	

WITH ACTIVE MANAGEMENT WEIGHTS

Sorted Filter by industry weight	Weight
Biotechnology & Medical Research	29.62%
Freight & Logistics Services	14.84%
Residential & Commercial REIT	14.84%
Passenger Transportation Services	14.84%
Banking Services	6.99%
Electronic Equipment & Parts	6.87%
Specialty Retailers	5.36%
Software & IT Services	5.34%
Financial Technology (Fintech) & Infrastructure	0.60%
Healthcare Equipment & Supplies	0.44%
Electrical Utilities & IPPs	0.07%
Investment Banking & Investment Services	0.07%
Household Goods	0.07%
Hotels & Entertainment Services	0.07%

Weight By Industry
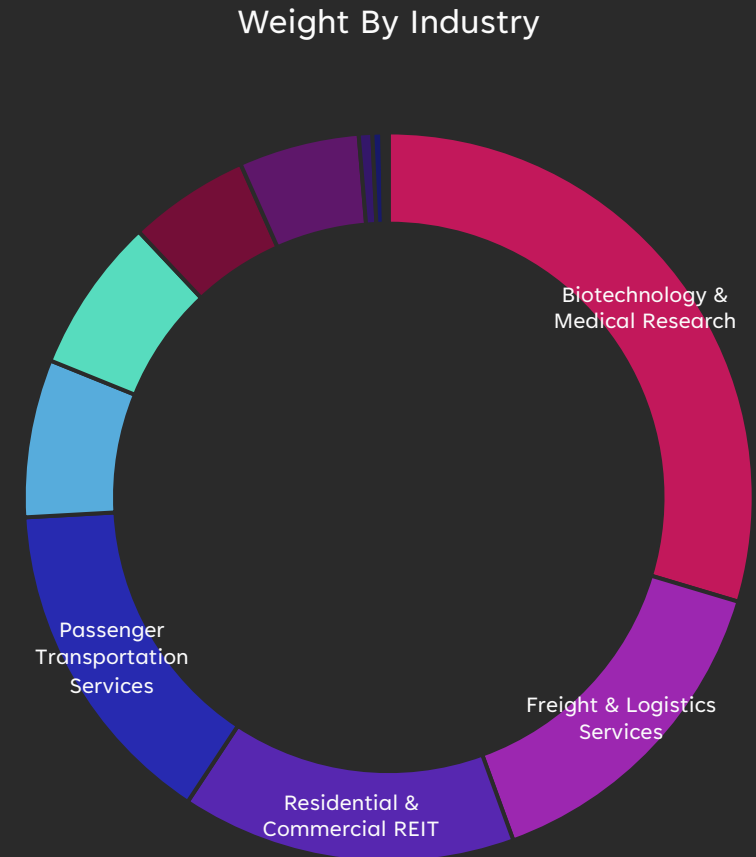
OUR PORTFOLIO PAGE 1

Ticker	Weight	Expected Shares Purchased	Management	Sector
UPS	14.84%	887	Active	Industrials
O	14.84%	2381	Active	Real Estate
LUV	14.84%	4095	Active	Industrials
DYN	11.01%	9504	Passive	Health Care
BLFY	6.99%	5739	Passive	Information Technology
MKFG	5.87%	26567	Passive	Health Care
FIGS	5.22%	7085	Passive	Health Care
DAWN	3.80%	1779	Passive	Health Care
GRNA	3.56%	19764	Passive	Health Care
VIR	3.04%	1343	Passive	Health Care
EQRX	1.88%	3488	Passive	Health Care
SQSP	1.85%	825	Passive	Financials
OLO	1.81%	2014	Passive	Information Technology
IVVD	1.80%	4588	Passive	Health Care
KNTE	1.27%	1461	Passive	Health Care
DIBS	1.19%	1695	Passive	Consumer Discretionary
CPTN	1.00%	4439	Passive	Health Care
TIL	0.88%	1668	Passive	Information Technology
KRON	0.62%	2110	Passive	Consumer Discretionary
PRDS	0.41%	3269	Passive	Health Care
EWTX	0.37%	389	Passive	Information Technology
MQ	0.36%	467	Passive	Real Estate
RBOT	0.30%	797	Passive	Health Care
ML	0.23%	2126	Passive	Financials
DICE	0.07%	20	Passive	Health Care
CTV	0.07%	208	Passive	Communication Services
AKA	0.07%	346	Passive	Health Care

OUR PORTFOLIO PAGE 1

Ticker	Weight	Expected Shares Purchased	Management	Sector
PEAR	0.07%	244	Passive	Health Care
FDMT	0.07%	78	Passive	Health Care
AMPS	0.07%	72	Passive	Health Care
AIP	0.07%	127	Passive	Information Technology
CRBU	0.07%	71	Passive	Health Care
IPSC	0.07%	64	Passive	Industrials
COUR	0.07%	52	Passive	Consumer Discretionary
CTKB	0.07%	44	Passive	Health Care
DUOL	0.07%	8	Passive	Consumer Discretionary
ICVX	0.07%	202	Passive	Health Care
INTA	0.07%	31	Passive	Information Technology
MTTR	0.07%	195	Passive	Information Technology
GLUE	0.07%	80	Passive	Health Care
NUVL	0.07%	19	Passive	Industrials
PWP	0.07%	89	Passive	Financials
PMVP	0.07%	54	Passive	Health Care
SANA	0.07%	116	Passive	Health Care
THRX	0.07%	127	Passive	Consumer Discretionary
VXRT	0.07%	404	Passive	Health Care
VERA	0.07%	37	Passive	Health Care
WEBR	0.07%	104	Passive	Consumer Discretionary
NNOX	0.07%	52	Passive	Information Technology
PNT	0.07%	71	Passive	Health Care
PTLO	0.07%	31	Passive	Health Care
CURV	0.07%	145	Passive	Information Technology
IONQ	0.07%	123	Passive	Health Care

FACTORS THAT WILL IMPACT OUR PORTFOLIO

OPEC is a group of countries that control oil prices

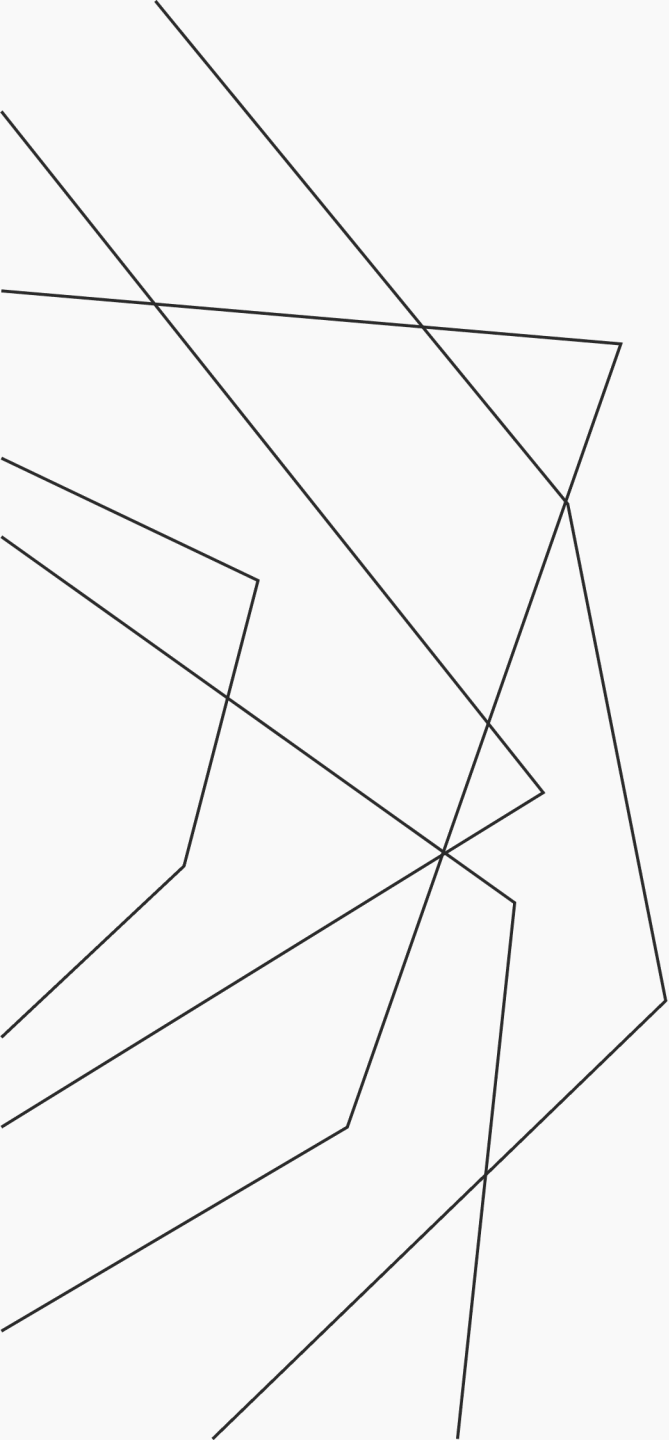OPEC is having a meeting December 4th with expectations of downward pressure on oil Prices

Standard supply and demand of Oil

As winter and cold temperatures is approaching demand for gas in Canada will increase

Russia's invasion of Ukraine has affected oil prices of recent driving the price up as the world has implemented sanctions against the Russian Federation cutting off their supply of oil

EXPECTED PERFORMANCE

Monthly Correlation near 0.00 or slightly negative — Base Case

Monthly correlation Between –0.50 and –1.00 — Better Case

Daily correlation near 0.00 or slightly negative — Best Case

THANK YOU