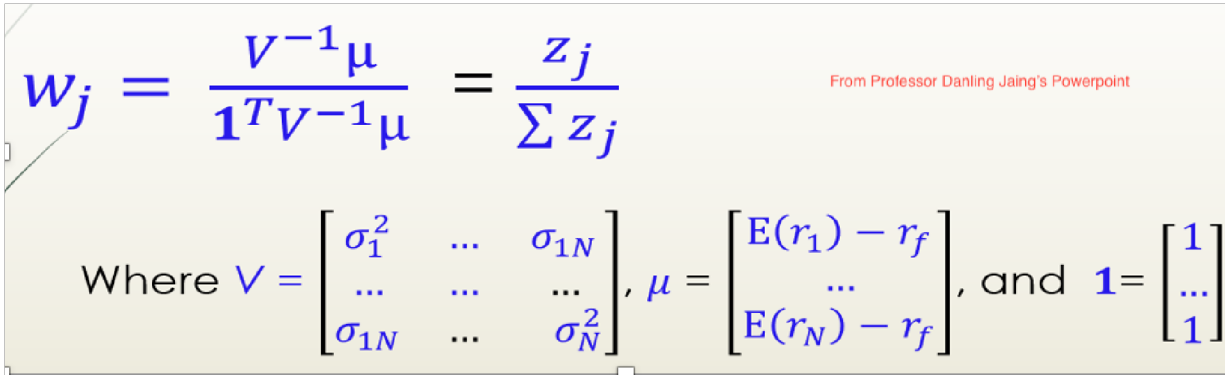


Title	Optimized Inflation-Hedge Portfolio
Main Idea of Strategy (Briefly illustrate the research background and introduction of the main strategy of this paper, use bullet points is preferred.)	
<ul style="list-style-type: none"> ▪ Create an inflation-hedge portfolio in the second phase of ultra-loose monetary policy by using MoM CPI > 2% as an indicator ▪ Maximize portfolio Sharpe ratio for the current month by using past 3 months daily closing price ▪ Adapt portfolio as markets transition to the third phase in the beginning of 2022 	
Data Selection (Briefly illustrate what dataset is being used and how the data was/will be collected, that will serve as a fundamental step of implementing this paper, use bullet points is preferred.)	
<ul style="list-style-type: none"> ▪ WRDS Compustat IQ: GLD, SLV, CPER, SPY, QQQ, XLF, XRT, XOP ▪ Stock data from 3/01/2021 to 5/31/2021 -> Daily HPR w/ dividends 	
Methodologies (Briefly classify how the author had approached the goal of this paper, ideas, theories, formulas, etc. Use bullet points is preferred.)	
<ul style="list-style-type: none"> ▪ Calculate Variance Covariance matrix from demeaned return matrix ▪ Compare daily Sharpe ratio results from solver method and Markowitz's method 	
Forecasting Model (if any) (State the key Y and X variable, what is used to forecast what? Define each key variable carefully. Use bullet points is preferred.)	
<div data-bbox="203 1129 1421 1501">  <p>From Professor Danling Jaing's Powerpoint</p> $w_j = \frac{V^{-1}\mu}{\mathbf{1}^T V^{-1}\mu} = \frac{z_j}{\sum z_j}$ <p>Where $V = \begin{bmatrix} \sigma_1^2 & \dots & \sigma_{1N} \\ \dots & \dots & \dots \\ \sigma_{1N} & \dots & \sigma_N^2 \end{bmatrix}$, $\mu = \begin{bmatrix} E(r_1) - r_f \\ \dots \\ E(r_N) - r_f \end{bmatrix}$, and $\mathbf{1} = \begin{bmatrix} 1 \\ \dots \\ 1 \end{bmatrix}$</p> </div> <ul style="list-style-type: none"> ▪ V^{-1} = Inverse Variance Covariance Matrix <ul style="list-style-type: none"> ▪ V = Variance Covariance Matrix ▪ μ = Portfolio Premium Matrix ▪ $z(j) / \sum z(j) = \omega / 1$ ▪ $\omega(j)$ = optimal weight for a stock 	
Results & Conclusion (Briefly summarize the results and conclude the paper at your own understanding, use bullet points is preferred. Also try to append 2~3 tables or charts to show the outcome of the strategy.)	

Inverse_Var_Covar	SPY	QQQ	XLF	GLD	SLV	XOP	XRT	CPER
SPY	356375.7093	-164811.525	-117609.5219	-33735.34584	16233.61595	6182.856736	-13076.80587	-14480.41578
QQQ	-164811.525	85358.77932	56162.52559	2549.040567	-3606.600913	-2572.811114	3232.117575	5178.247132
XLF	-117609.5219	56162.52559	55305.21194	12258.24117	-4582.988921	-3424.355506	-340.1708368	3290.29549
GLD	-33735.34584	2549.040567	12258.24117	92813.11532	-40443.08447	-897.9664478	7115.477148	5965.379474
SLV	16233.61595	-3606.600913	-4582.988921	-40443.08447	24512.0198	-26.56984344	-4144.785077	-5063.981844
XOP	6182.856736	-2572.811114	-3424.355506	-897.9664478	-26.56984344	2013.735525	-626.5076963	-709.2180855
XRT	-13076.80587	3232.117575	-340.1708368	7115.477148	-4144.785077	-626.5076963	5949.560311	1023.647232
CPER	-14480.41578	5178.247132	3290.29549	5965.379474	-5063.981844	-709.2180855	1023.647232	6176.43653
Stock Premium	Average Return	Risk-free Rate	Premium					
SPY	0.0013	0.0002	0.0011					
QQQ	0.0006	0.0002	0.0005					
XLF	0.0022	0.0002	0.0020					
GLD	0.0016	0.0002	0.0014					
SLV	0.0009	0.0002	0.0008					
XOP	0.0016	0.0002	0.0014					
XRT	0.0020	0.0002	0.0019					
CPER	0.0022	0.0002	0.0020					
Z(j)								
SPY	2.99							
QQQ	-17.3489405							
XLF	22.14439336							
GLD	115.2351133							
SLV	-50.27335574							
XOP	-2.306739							
XRT	5.434007507							
CPER	10.93167215							
Sum(Z(j))	86.80							
Z(j)/Sum(Z(j))								
SPY	0.03							
QQQ	-0.20							
XLF	0.26							
GLD	1.33							
SLV	-0.58							
XOP	-0.03							
XRT	0.06							
CPER	0.13							
ER(p)	0.00243445							
Variance	2.61776E-05							
Daily Sharpe Ratio	0.444125795							

Market

- Market is FED dependent
- The bond market is being nationalized just like how the MBS market was nationalized in 2008

Problems that will continue to exist in the economy:

- A good amount of small businesses that closed before the pandemic aren't reopening
- Zombie companies
- Short-term inflation will erode purchasing power of low-income and middle-income earners
- Corporate operating profits have stagnated even though GDP is growing 3 times faster than usual



What to consider in the medium and long-term:

- Are low and middle-income earners spending more conservatively due to economic conditions
- How is inflation increasing from money velocity
- Will increase in interest rates severely affect zombie companies
- Will speculative betting on inflation cause inflation to be greater
- Where does U'S government bonds stand as a safe haven asset versus gold/do people want to hold dollars in the next crisis
- Is Biden purposely devaluing the dollar so that manufacturing jobs (EV) can be created and export competitiveness can be increased
- Will the Fed choose to fight inflation at the cost of the economy or will they let it run hot before 2023
- How are trade relations with China and is there any cooperation in increasing the global economic recovery
- Have supply chain issues been fixed

If inflation not transitory: GLD & SLV