Bonds… James Bonds

Cole Wall, Austin Glenn,
Andrew Rosen, Robert Nathanson

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Summary

Idea – *Buy Fixed Income ETFs to hedge against a potential recession for a short period*

Strategy – Asset Allocation, *Backtested during recessionary periods, ETF analysis*

Historical Performance – *Solid during downturns*

Recommendation – *Buy $457,442.52 in Fixed Income ETFs (25.7% of fund)*

What to Sell – *Use all cash and sell all of SPY*

Effect on Portfolio – *Lowers fund beta, decreases long-term expected return, hedges recession*

Kelly Criteria

$$\text{\% Allocation to Bonds} = \frac{(\text{Possible Gain \%} * \text{Prob. of Recession} - \text{Prob. of US Failure})}{(\text{Possible Gain \%})}$$

$$51.16\% = \frac{(48.44\% * 51.16\% - 0\%)}{(48.44\%)}$$

Probability of a Recession

What are the odds we have a recession this year?

What is a recession?

What is a Recession?

Economic Recession

- Duration: two consecutive quarters of negative GDP
- Scope: “Significant widespread decline in economic activity”
  - Higher unemployment
  - Lower consumer spending
  - Lower corporate earnings and reduced business investment

Market Recession

- A “sustained” drop of **20%** or more in major indices (S&P 500, Nasdaq, Dow Jones) from previous highs

Bear Markets With/Without Recessions

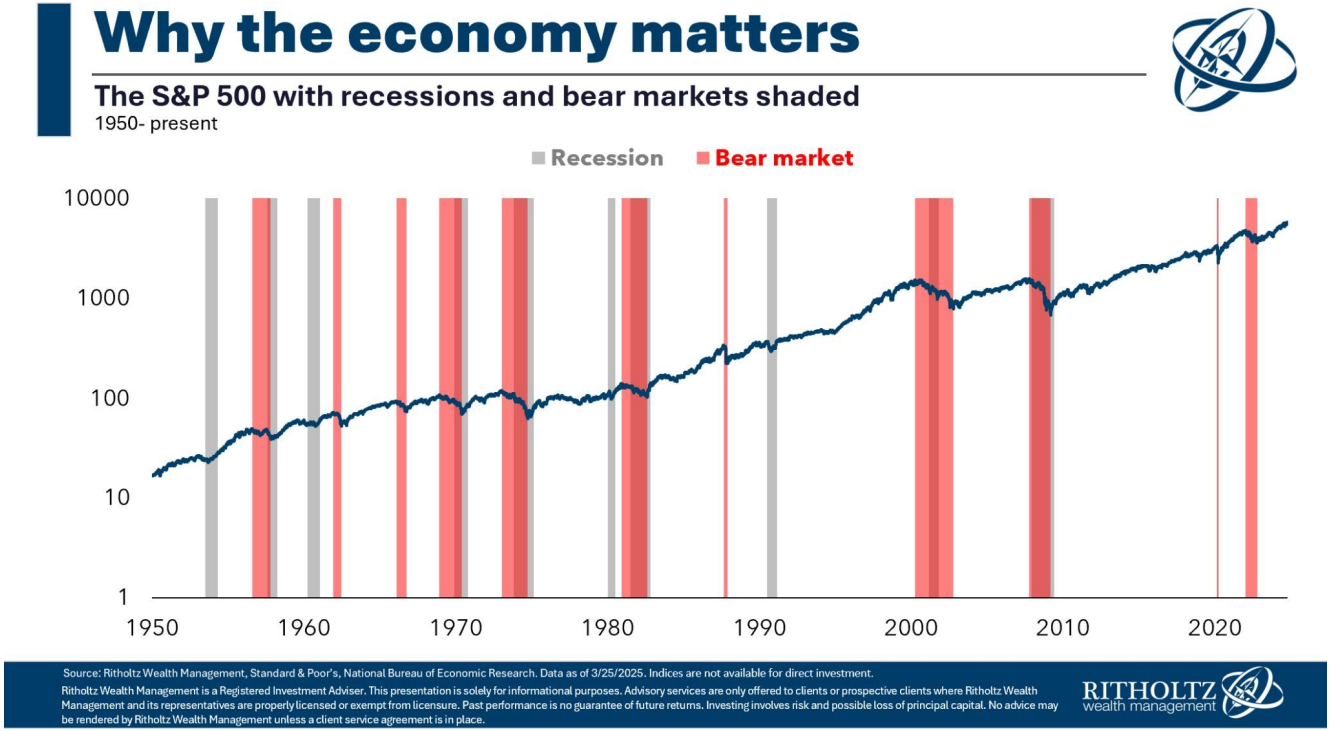
Stock Market Crash without Economic Recessions:

- 1987 Black Monday
  - Market crashed over 22% in one day
  - Due to computerized trading and investor panic
- 2018 Market Correction
  - S&P 500 dropped nearly 23% in Q4 2018
  - Fed raised interest rates
- 2022 Bear Market
  - S&P 500 fell nearly 35% over the course of the year
  - Aggressive rate hikes

Stock Market Crash with a Economic Recessions:

- 1929-1939 Great Depression
  - Markets were down 90%
  - Greater economy suffered a decade long recession
- 2000 Dot-com Bubble
  - Nasdaq plunged 78% from its peak
  - Mild 8 month recession followed due mainly to 9/11 and corporate scandals
- 2008 GFC
  - Markets were down 56%
  - Greater economy suffered for 18 months
- 2020 COVID
  - Markets were down 37% in a month
  - Sharp but short recession in greater economy

Recession vs Bear Markets



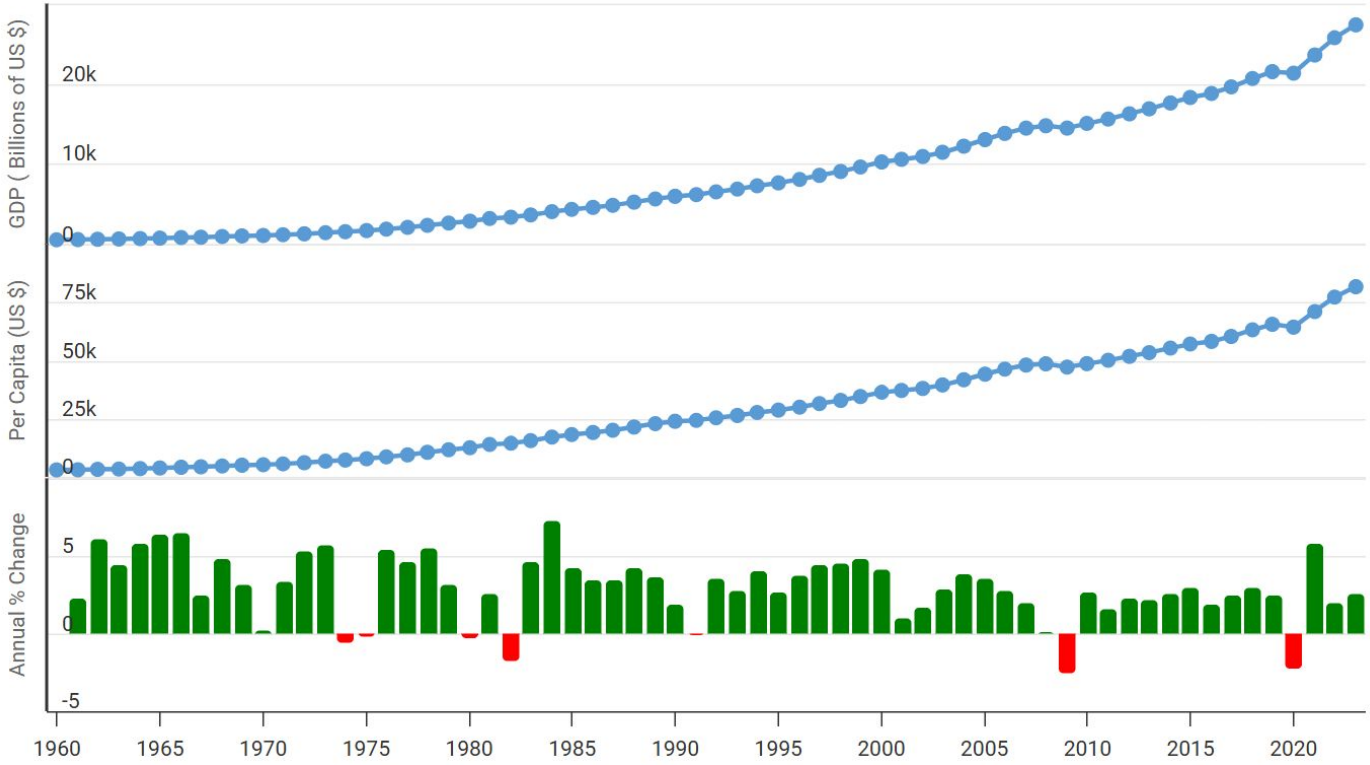
7 of the last 11 bear markets (drops of 20% or more) have overlapped with an economic downturn.

The stock market follows the economy over time, not the other way around.

Key Factors for the Greater Economy

GDP
Unemployment
Inflation
Consumer Spending
Consumer Debt
Consumer Confidence
Corporate Earnings
Corporate Bond Rates
Federal Funds Rate
Yield Curve

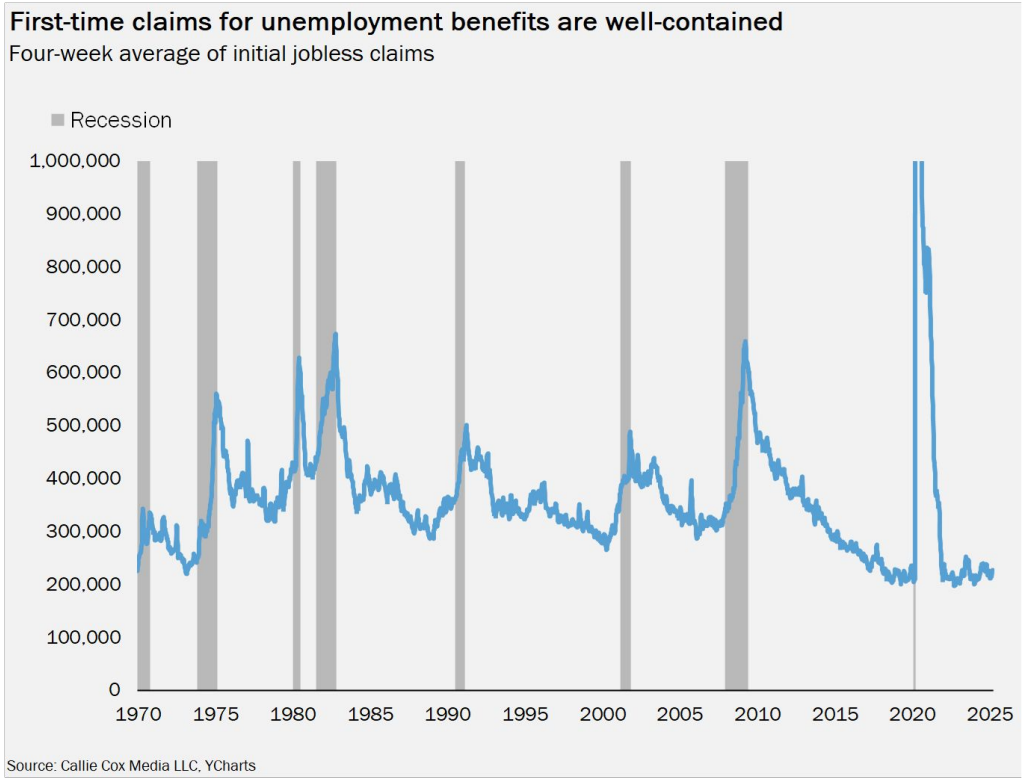
GDP



2023: +2.9%
2024: +2.8%
2025: -2.8% - +2.4%

U.S. GDP 1960-2025 | MacroTrends

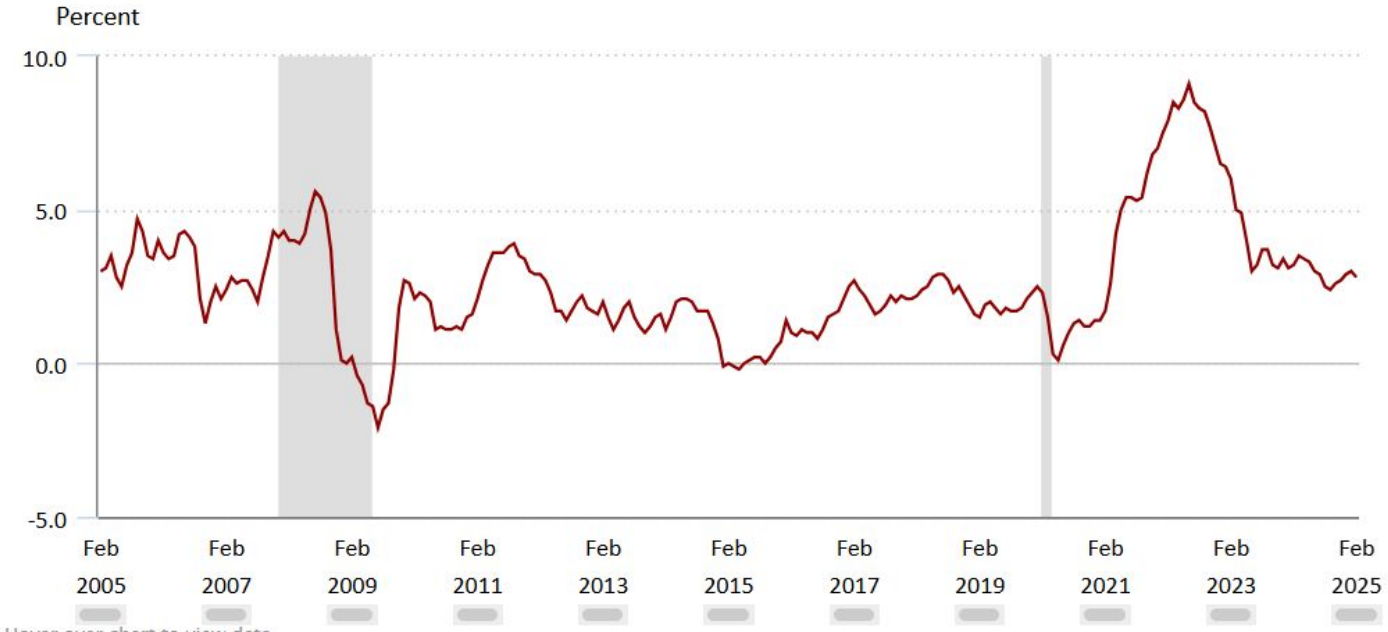
Unemployment



DOGE plans to cut 75,000 federal jobs this year compared to 220,000 for the greater economy

0.046% of employed population
1.06% of unemployed population

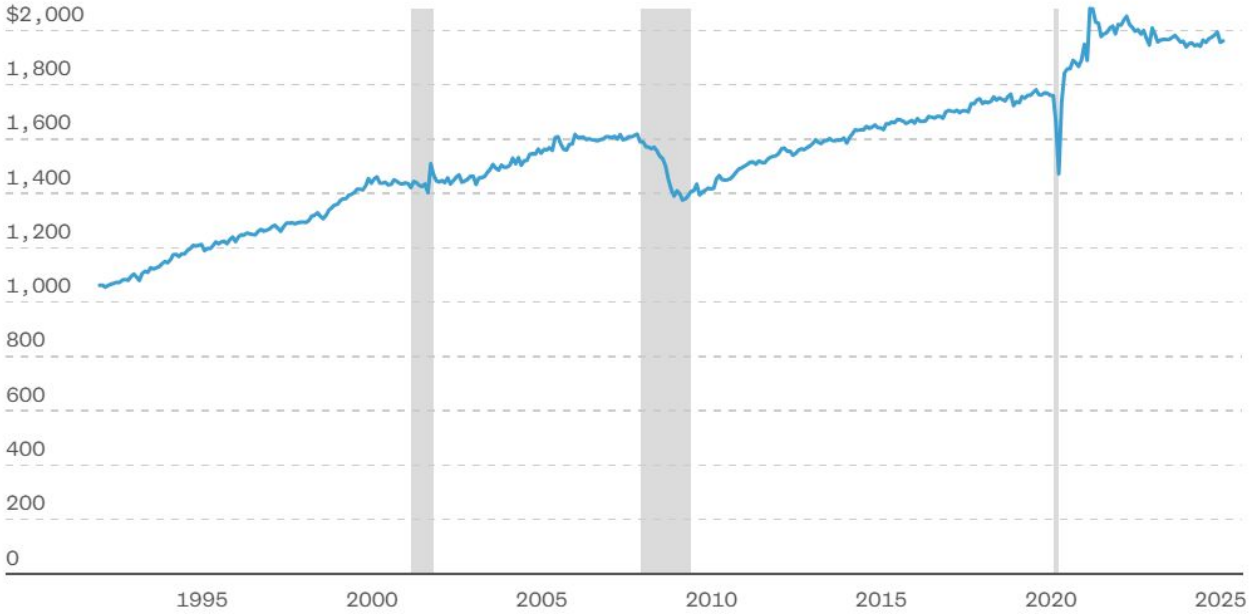
Inflation



Hover over chart to view data.
Note: Shaded area represents recession, as determined by the National Bureau of Economic Research.
Source: U.S. Bureau of Labor Statistics.

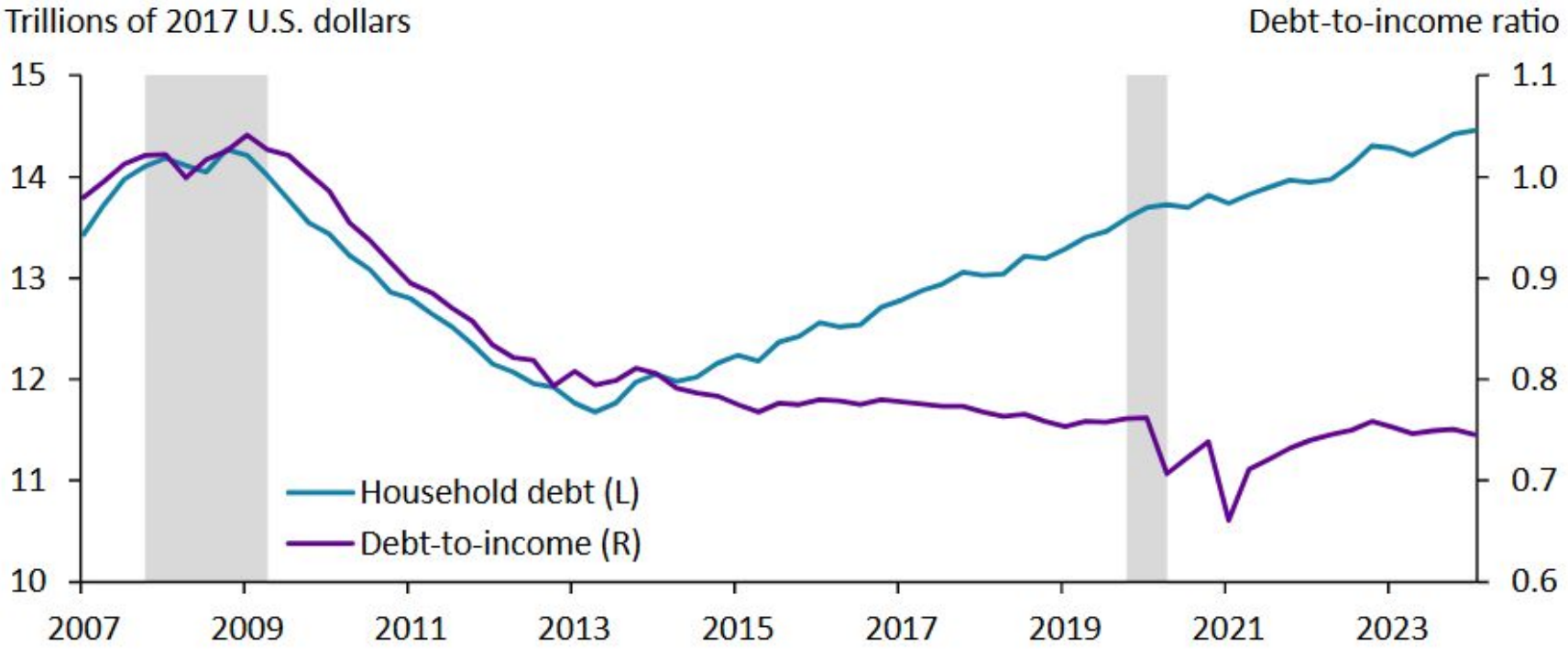
According to March CPI, inflation is currently 2.8%

Consumer Spending



Notes: Values are in millions.
Source: U.S. Census Bureau via FRED, National Bureau of Economic Research
Graphic: Jasmine Cui and Joe Murphy / NBC News

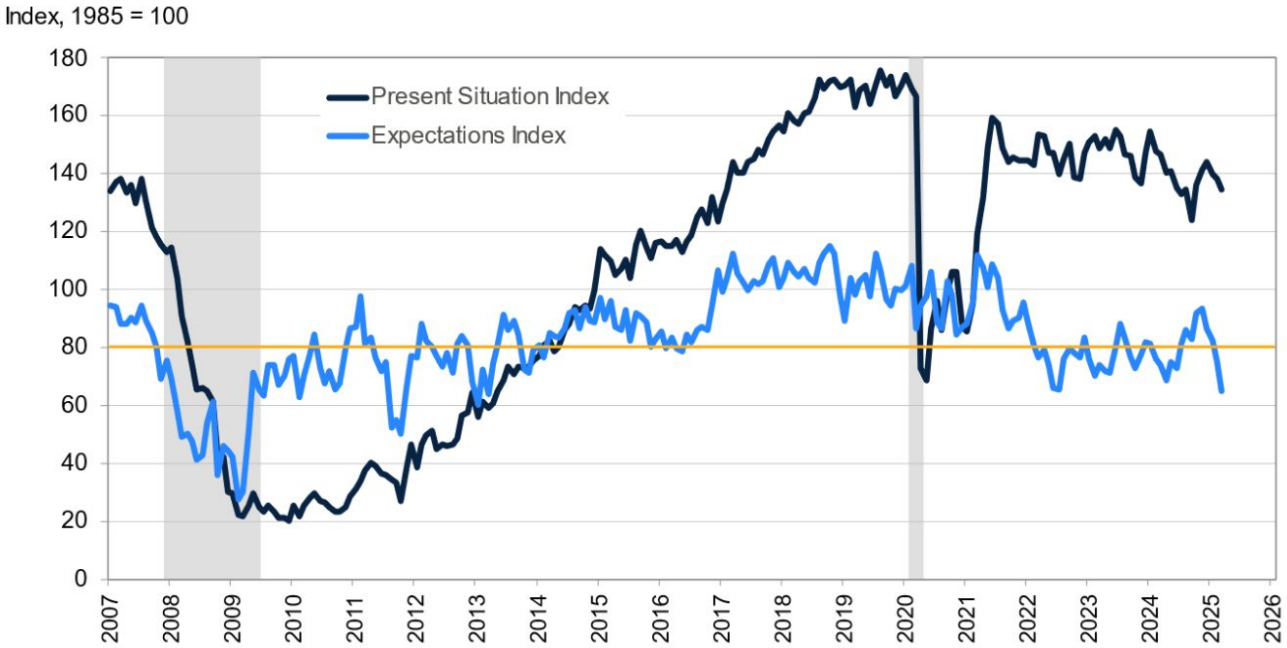
Consumer Debt



Consumer Debt Is High, but Consumers Seem to Have Room to Run - Federal Reserve Bank of Kansas City

Consumer Confidence

Present Situation and Expectations Index



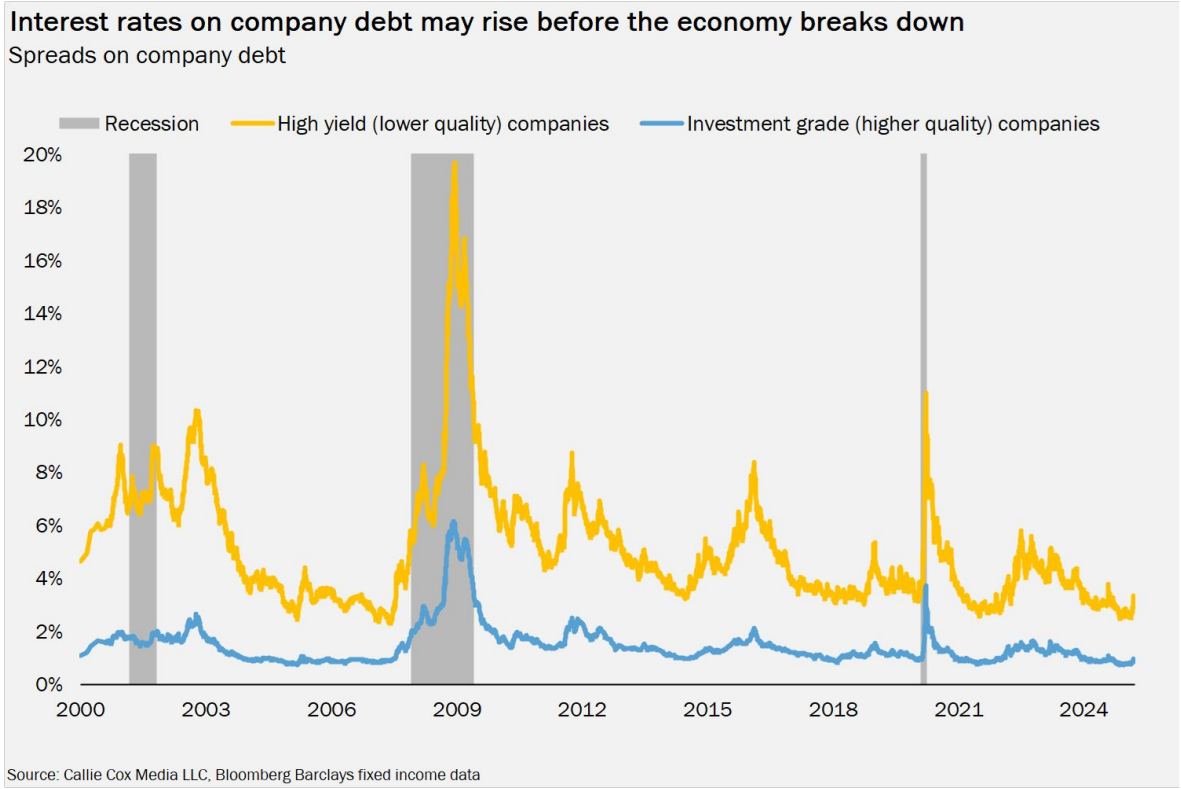
*Shaded areas represent periods of recession.
Sources: The Conference Board; NBER

US Consumer Confidence

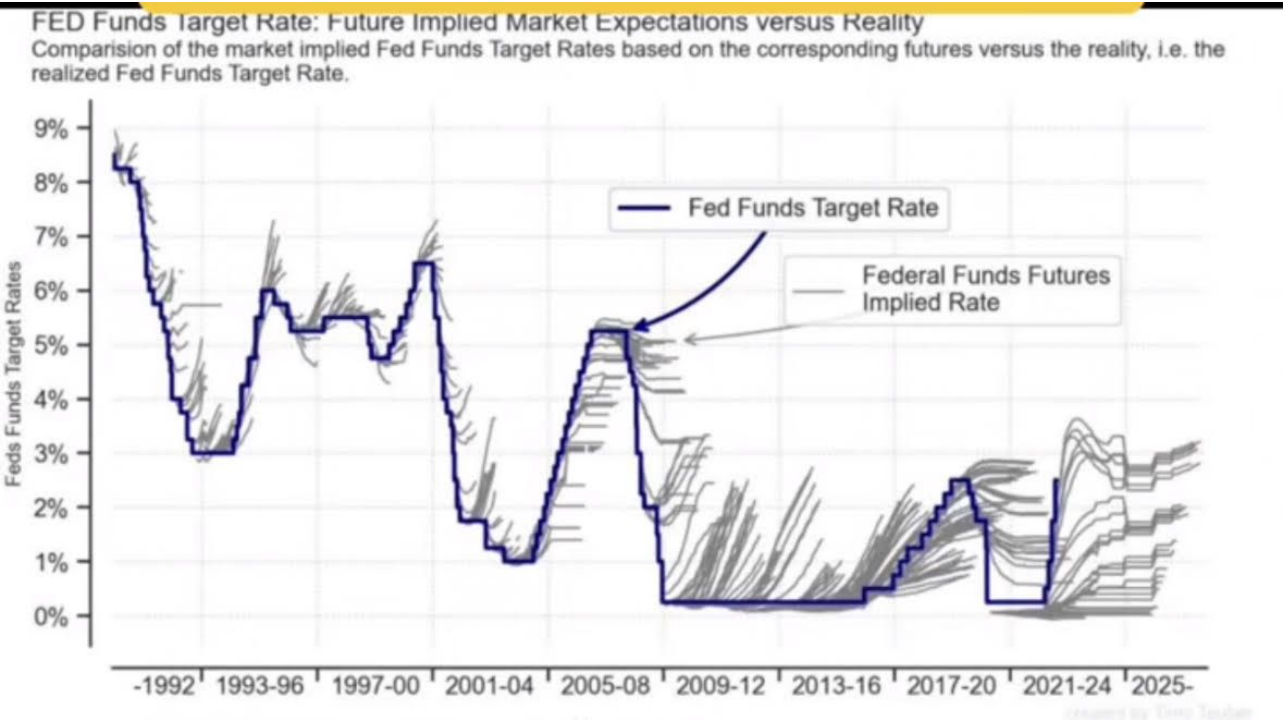
US Corporate Profits

Profits rose 5.9% in Q4 2024

Corporate Bond Rates



FED Funds Target Rate v. Actual Rates



This is the markets forecast of rate cuts in gray and the dark blue is actual rates

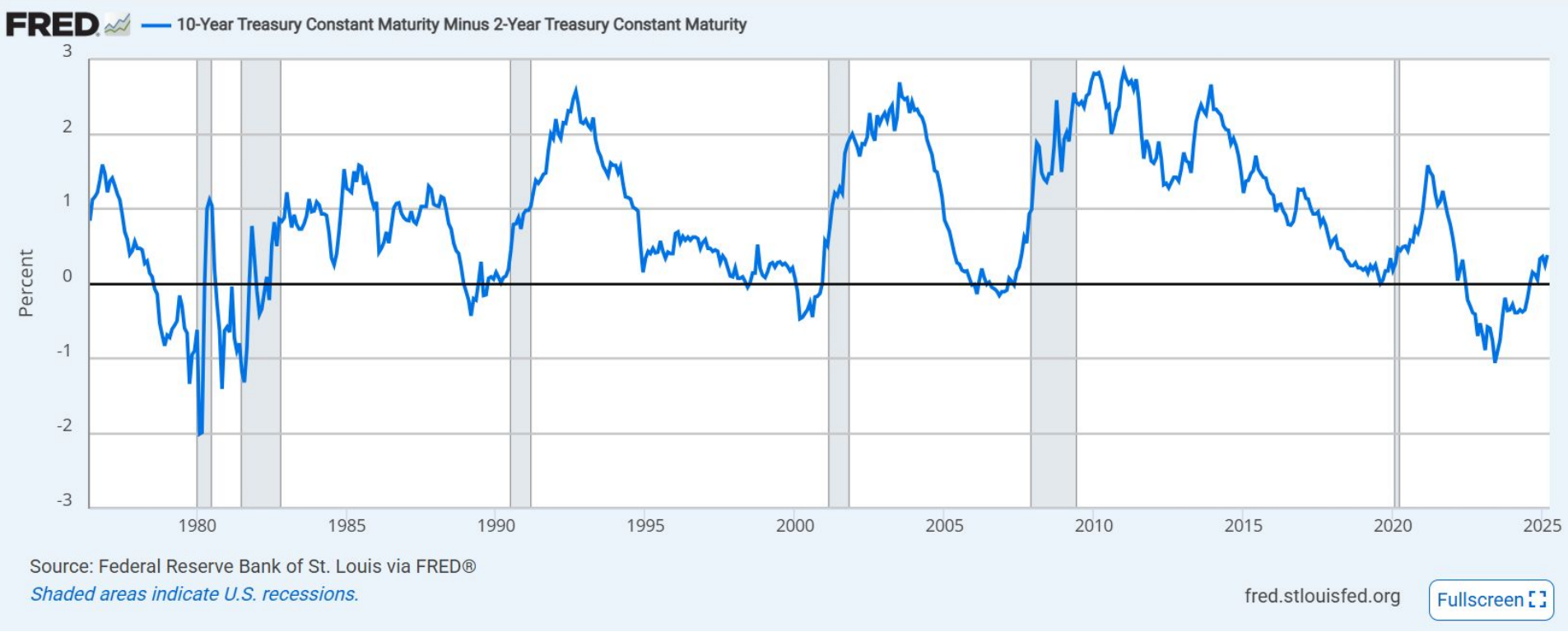
Demonstrates that the market almost always wrong with their forecasts and a “soft landing” as promised many times before 2025 never has worked, leading to sharp drop offs.

Probability of a Recession

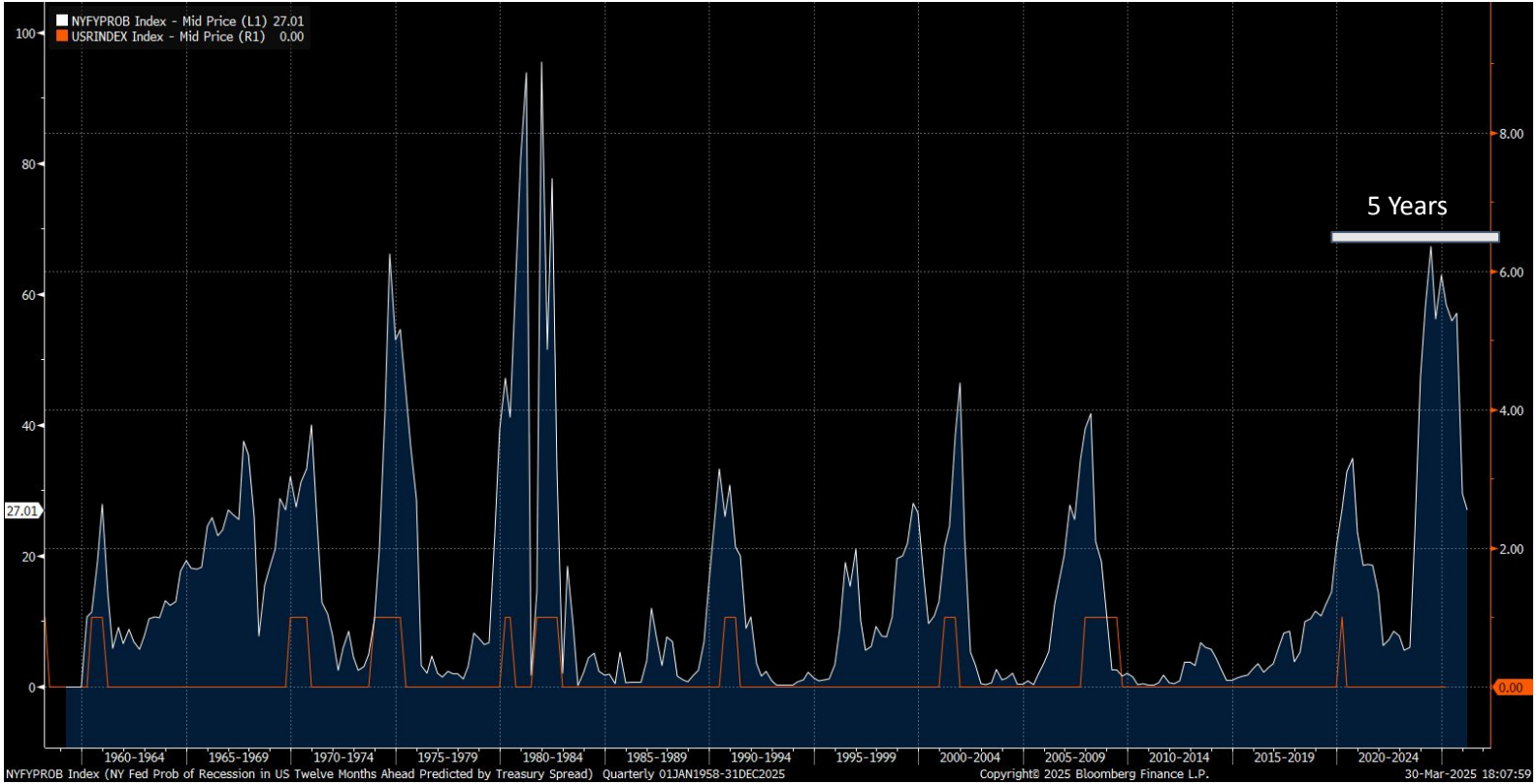
Andrew's
Odds we have a recession?

= ~44%

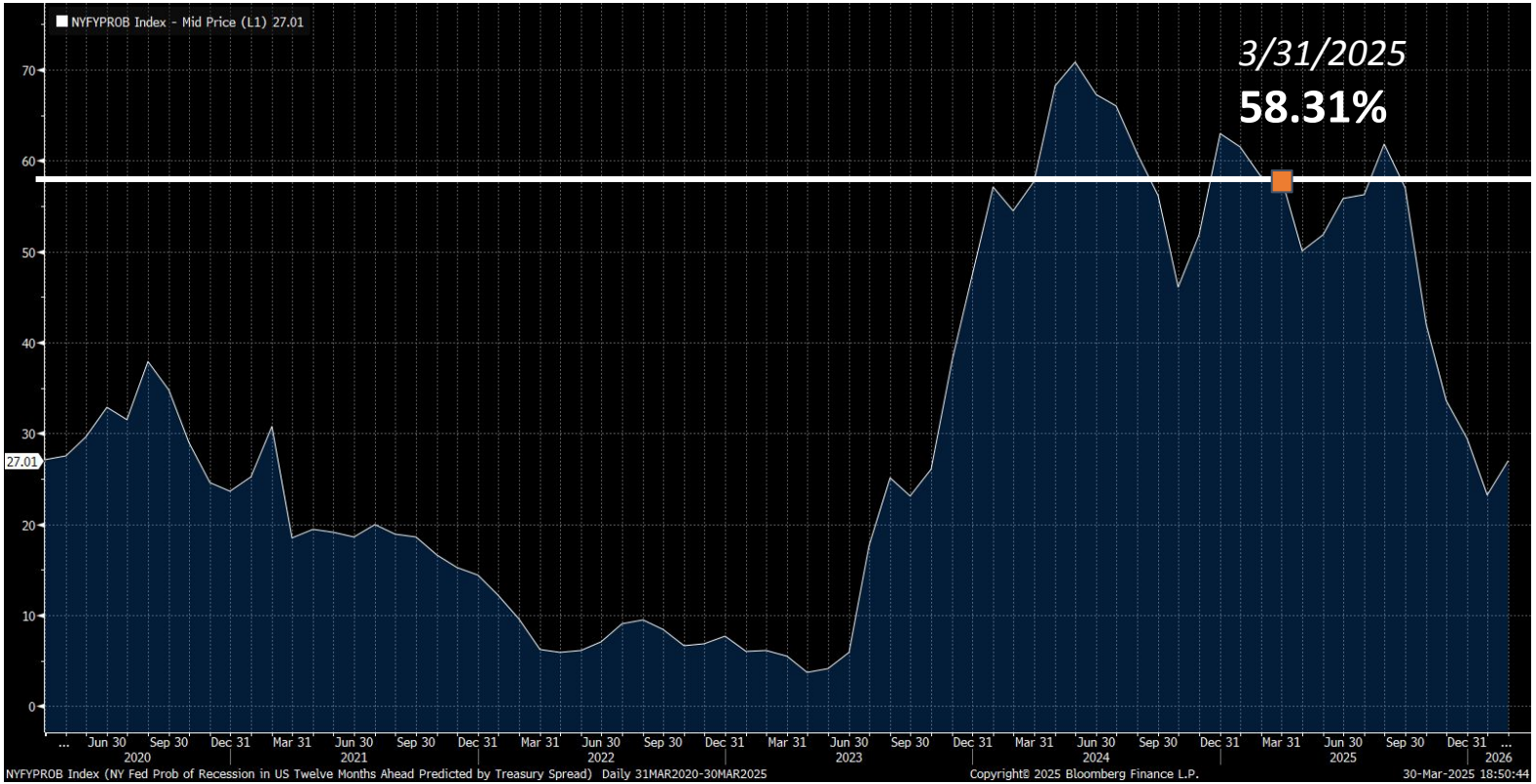
Inverted Yield Curve



NY Fed Prob of Recession 12 months projection (NYFYPROB Index MAX)



NY Fed Prob of Recession 12 months projection (NYFYPROB Index 5YR)



Probability of a Recession - Yield Curve

Austin's
Odds we have a recession?

= 58.31%

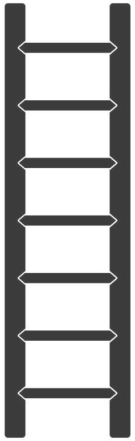
Recession Consensus

Austin's and Andrew's Average Odds we have a recession?

= 51.16%

Barbell & Ladder Strategy

Ladder Strategy



0-20+ year bonds
Stable Income
Low Interest Rate Risk

– OR –

Barbell Strategy

0-3 Year and 10+ Year
Hedge for Recession
Higher Interest Rate Risk

Barbell & Ladder Strategy

Barbell Strategy

0-3 Year Bonds
Stable Yields

10+ Year Bonds
Recession Hedge

Barbell Strategy ETFs

25%

(SGOV)
iShares® 0-3 Month Treasury Bond ETF

0-3 Month Treasuries

- Expense: 0.09%
- Dividend Yield: 4.89%
- Beta: 0.0
- Modified Duration: 0.09 (~32 days)

25%

(VGSH)
Vanguard Short-Term Treasury Index Fund

1-3 Year Treasuries

- Expense: 0.03%
- Dividend Yield: 4.16%
- Beta: -0.14
- Modified Duration: 1.9 (years)

25%

(VGLT)
Vanguard Short-Term Treasury Index Fund ETF Shares

10+ Year Treasuries

- Expense: 0.03%
- Dividend Yield: 4.25%
- Beta: 0.21
- Modified Duration: 14.8 (years)

25%

(EDV)
Vanguard Extended Duration Treasury Index Fund ETF Shares

20+ Year Treasuries

- Expense: 0.05%
- Dividend Yield: 4.5%
- Beta: 0.35
- Modified Duration: 24.2 (years)

Barbell Strategy ETFs

100%

0-3 Year Bonds &
10+ Year Bonds

Shown below are the weighted average allocations for the metrics of expense ratios, dividend yields, betas, and durations for each ETF

Averages

- Expense: 0.045%
- Dividend Yield: 4.45%
- Beta: 0.11
- Modified Duration: 10.25

Barbell Strategy ETFs (5 Year Chart)

Barbell Strategy ETFs (10 Year Chart)

Duration

For each 1% drop/rise in interest rates the price of a bond will increase/decrease by its duration (as a percentage)

Maturity (Years)	Estimated Duration (Years)
1	0.96
2	1.88
3	2.78
4	3.66
5	4.49
6	5.29
7	6.06
8	6.79
9	7.49
10	8.16
11	8.81
12	9.43
13	10.03
14	10.60
15	11.15
16	11.68
17	12.19
18	12.68
19	13.15
20	13.60
21	14.04
22	14.46
23	14.86
24	15.25
25	15.62
26	15.98
27	16.33
28	16.66
29	16.98
30	17.29

For example if the fed drops rates by 1% the price of 20 year treasury increase by 13.6%

We have an average duration of 10.25 so a 1% drop leads to a 10.25% increase in bond prices in the Barbell Strategy.

* this is a theoretical price gain or loss

Duration and Dividends to Profits

Now we are going to use our average modified duration and average dividend yield to predict our potential profit IF we enter a recession a year from now.

Average modified Duration: 10.25
Average Dividend Yield: 4.45%

**** these numbers will be used to calculate profit**

Duration and Dividends to Profits

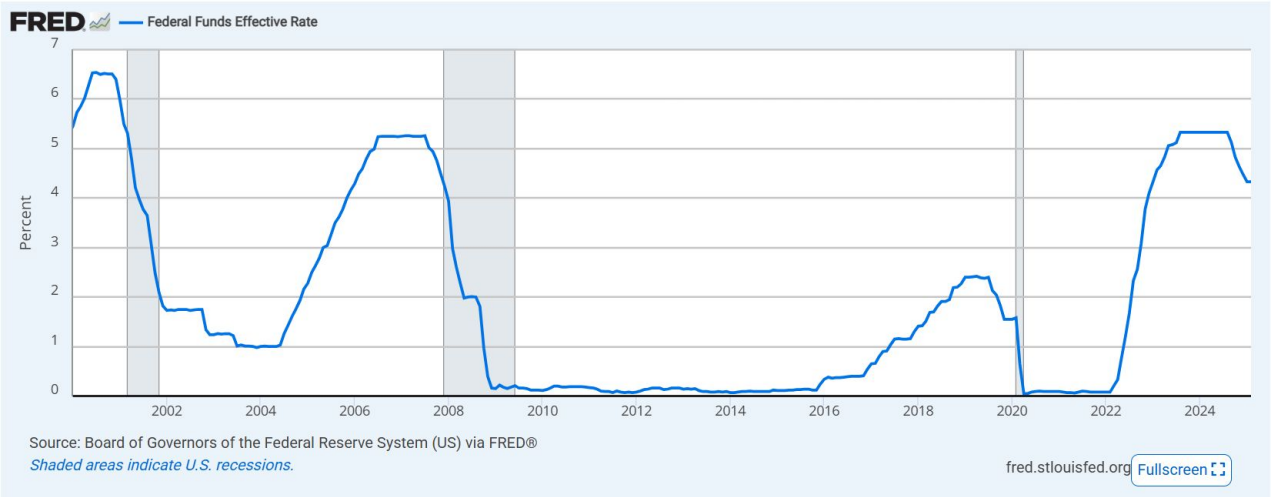
Over the past 3 economic downturns since 2000 rates where slashed on average about 4.34% dropping to a average low of 0.38%

	A	B	C	D	E
1		Peak rates	After Ressesion Rates	Difference	
2	2020	2.4	0.05	2.35	
3	2008	5.26	0.11	5.15	
4	2001	6.51	0.98	5.53	
5					
6					
7	Averages	**4.723333**	**0.38**	**4.343333**	
8					

Duration and Dividends to Profits

Currently rates are at 4.33% if we enter a recession and rates are slashed to the average low of 0.38%,

4.33 - 0.38% = 4.292% (decrease in rates)



4.292%

**** this number will be used to calculate profit**

Duration and Dividends to Profits

Putting this all together now

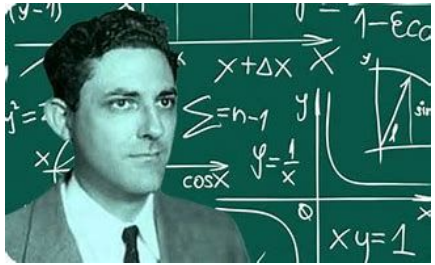
(Average Duration X % of rate Slash) + Dividend Yield

= %Profit

(10.25 X 4.292) + 4.45

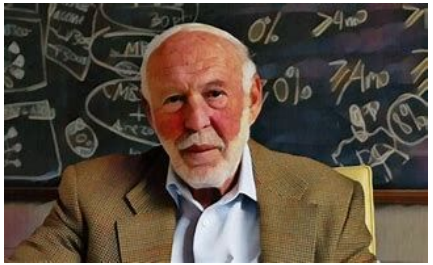
Profit if recession = 48.44%

The Kelly Criteria



What is the Kelly Criteria?

From Telephone Lines to Gambling



The Kelly Criteria

$$Y = \frac{BP-Q}{B}$$

Key

Y = Solution

B = Decimal odds - 1

P = Prob of Success

Q = Prob of failure

The Kelly Criteria

$$\text{\% Allocation to Bonds} = \frac{(\text{Possible Gain \%} * \text{Prob. of Recession} - \text{Prob. of US Failure})}{(\text{Possible Gain \%})}$$

$$51.16\% = \frac{(48.44\% * 51.16\% - 0\%)}{(48.44\%)}$$

The Kelly Criteria

What if we don't go into a recession?

The Kelly Criteria

$$\text{\% Allocation to Bonds} = \frac{(\text{Possible Gain \%} * \text{Prob. No Recession} - \text{Prob. of US Failure})}{(\text{Possible Gain \%})}$$

$$48.84\% = \frac{(6.89\% * 48.84\% - 0\%)}{(6.89\%)}$$

The Kelly Criteria

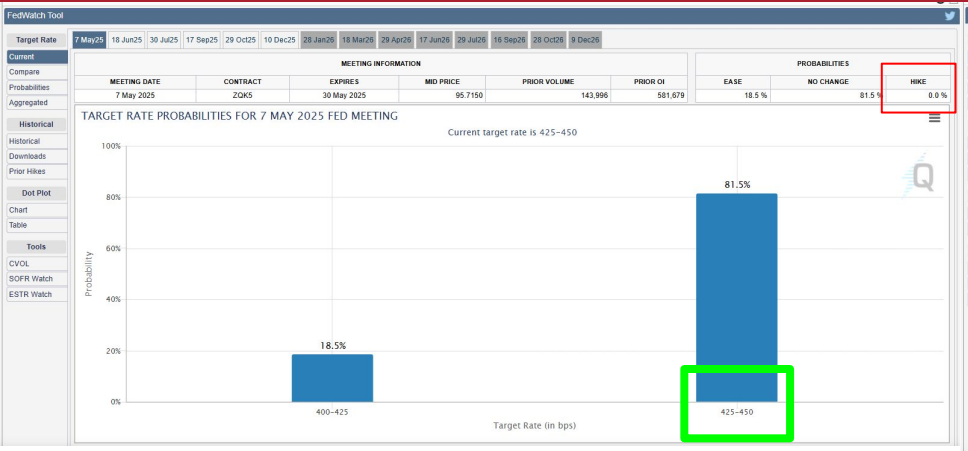
What if we don't go into a recession?

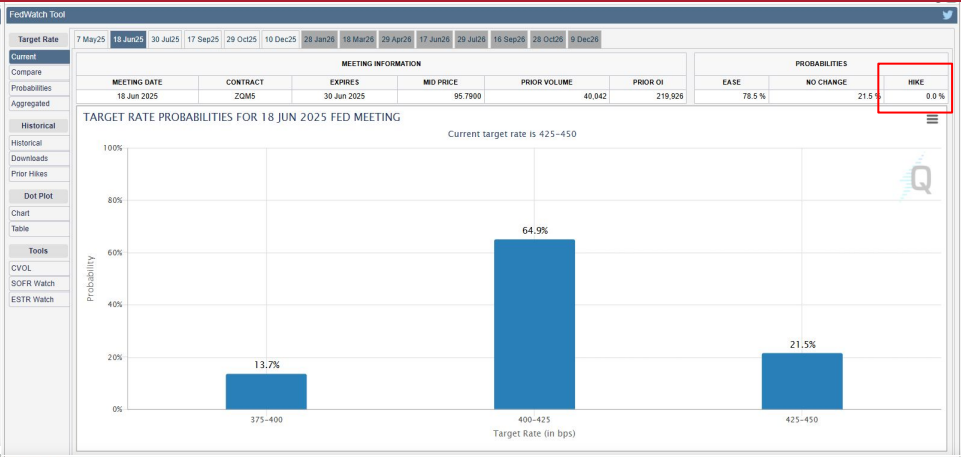
Odds of No Recession = (1 - Prob. of Recession)

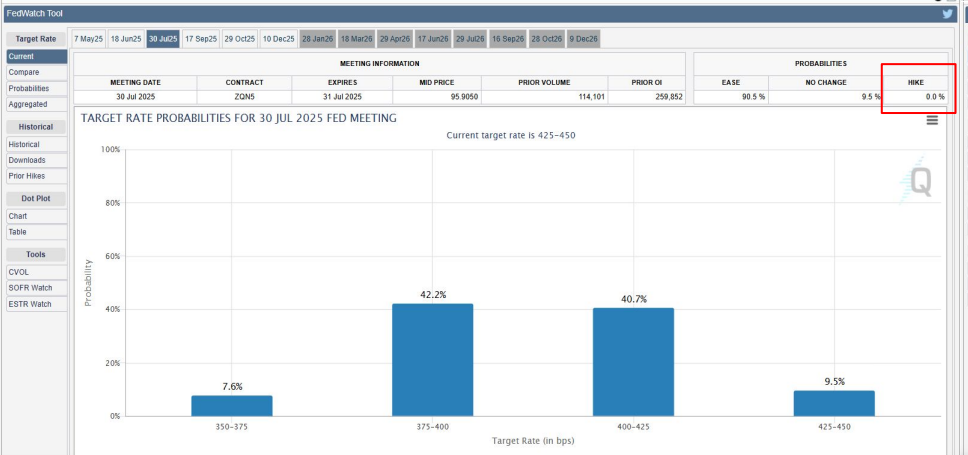
Odds of No Recession = (1 - 51.16%)

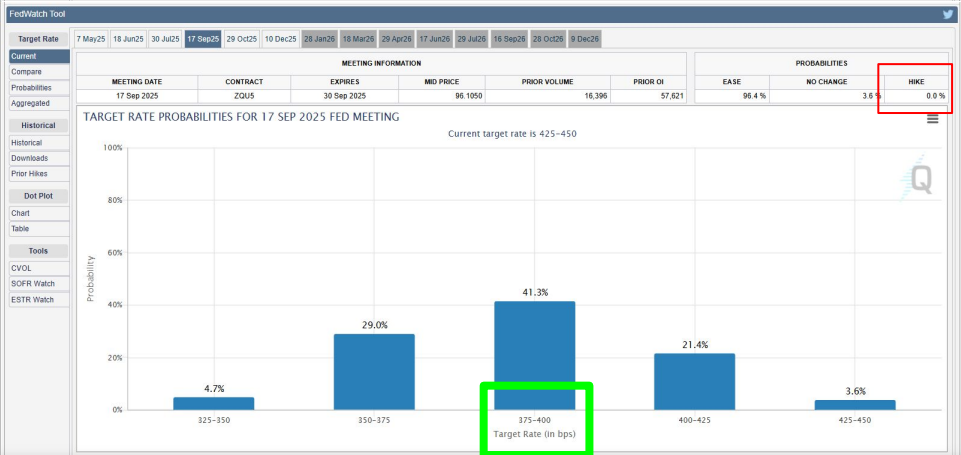
Prob. No Recession = 48.84%

FedWatch Tool









FedWatch Tool

Over the next 4 Fed meetings we expect to drop rates from 4.33% today, to ~3.875% on September 17th 2025, with NO rate hikes

4.33 - 3.875 = .455

(use this for profit if the fed can implement higher for longer and create a soft landing)

Duration and Dividends to Profits

Putting this all together now

(Average Duration X % of rate Slash) + Dividend Yield X (6/12)

*6 months of dividends until new SIF class can make the decision to hold or not

= %Profit

(10.25 X .455) + 2.23

Profit if Continued Soft Landing = 6.89%

The Kelly Criteria

$$\text{\% Allocation to Bonds} = \frac{(\text{Possible Gain \%} * \text{Prob. No Recession} - \text{Prob. of US Failure})}{(\text{Possible Gain \%})}$$

$$48.84\% = \frac{(6.89\% * 48.84\% - 0\%)}{(6.89\%)}$$

Weighting into Portfolio

Yes Recession Allocation = 51.16%

- This is the extreme but more probable outcome

No Recession Allocation = 48.84%

- Less of a allocation
- Gives slightly more room for other investments to grow

Average Kelly **~50%**

We only have 9.9% in Cash and 15.8% in SPY

We want to leave room for current investments to provide their own outcomes of potential profit

The Kelly Criteria

Use a Fractional Kelly of 50%

So ~50% * 50% = 25%

Decided Portfolio Allocation
= 25.7%

Effect on Portfolio

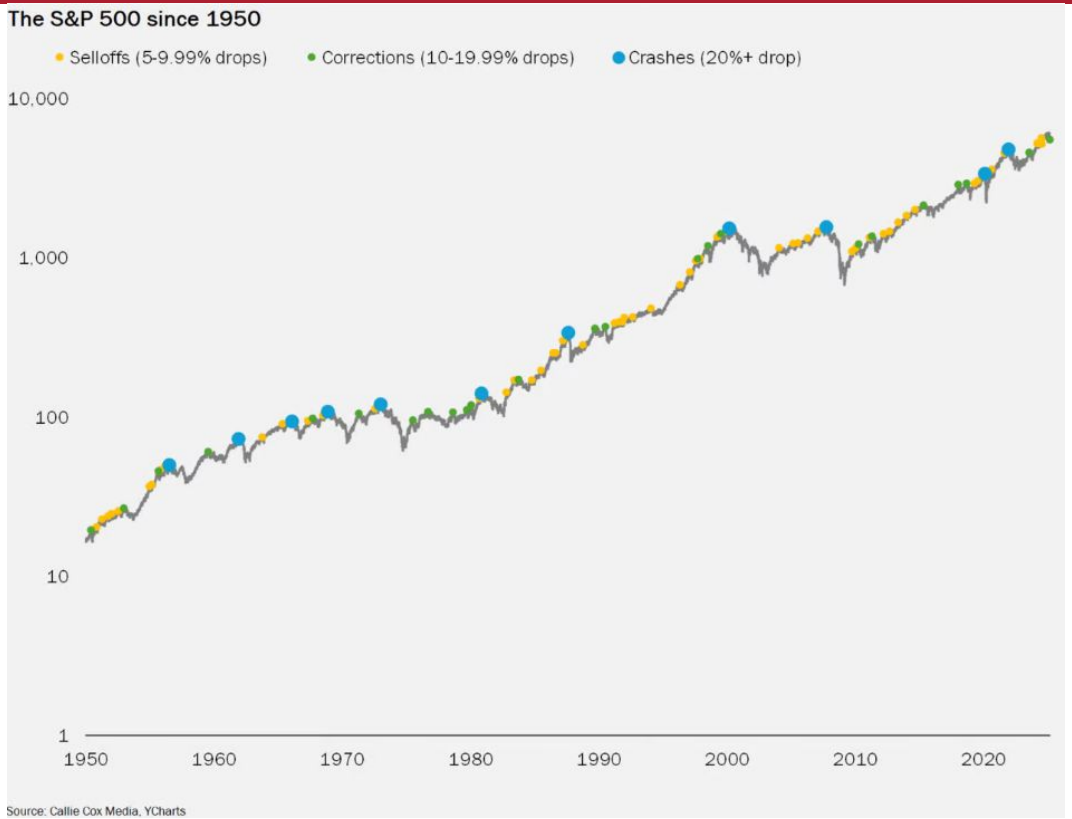
	Existing Portfolio	New Portfolio
Beta (w/ cash)	**0.910**	**0.909**
Beta (w/ no cash)	**1.052**	**0.909**

Total Fund	**1,781,030.93**
Cash	9.9%
SPY	15.8%
Total to invest in bonds	**25.7%**

Scenario Analysis

- **Market declines, no recession** → We lock in **4.45% yields**, which help offset long position losses, leading to a better **Sortino ratio**.
- **Market declines, recession** (best-case scenario for this strategy) → We collect **yields** and benefit from **bond appreciation** when the Fed inevitably cuts rates.
- **Market rises < 4.45%** → We generate **alpha** with a better **Sharpe ratio**.
- **Market rises > 4.45%** → We underperform relative to full market participation but improve **risk-adjusted returns** by reallocating SPY exposure into an **uncorrelated asset**.

Historic Selloffs, Corrections, and Crashes



Recap

Idea – *Convert cash into an alternative that will benefit in the event of a recession*

Strategy – 4 *fixed-income ETFs with different roles*

Historical Performance – *Gains during periods of economic downturn*

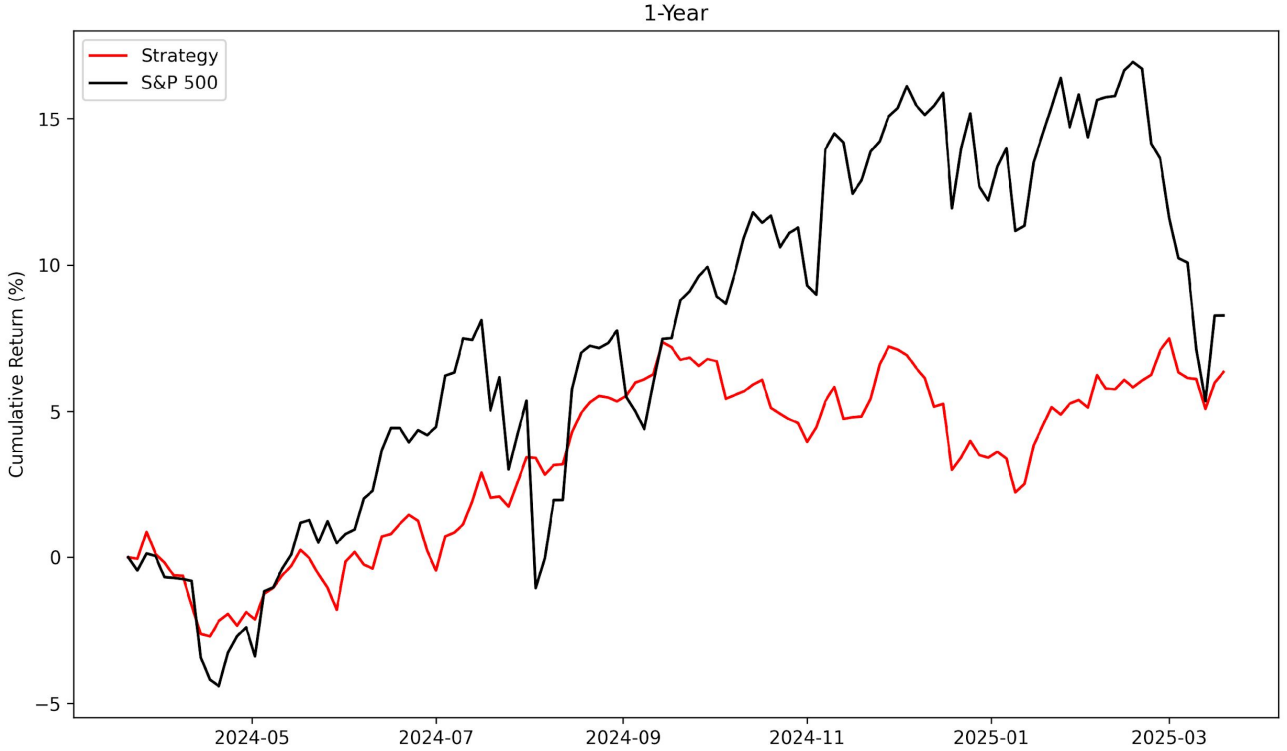
Recommendation – *Buy $30k In Milner Fund, Use cash*

Name	Price	Quantity	Total $
SGOV	$ 100.68	1117	$112,500
VGSH	$ 58.72	1916	$112,500
VGLT	$ 57.66	1955	$112,734.6194
EDV	$ 71.09	1586	$112,721.9873

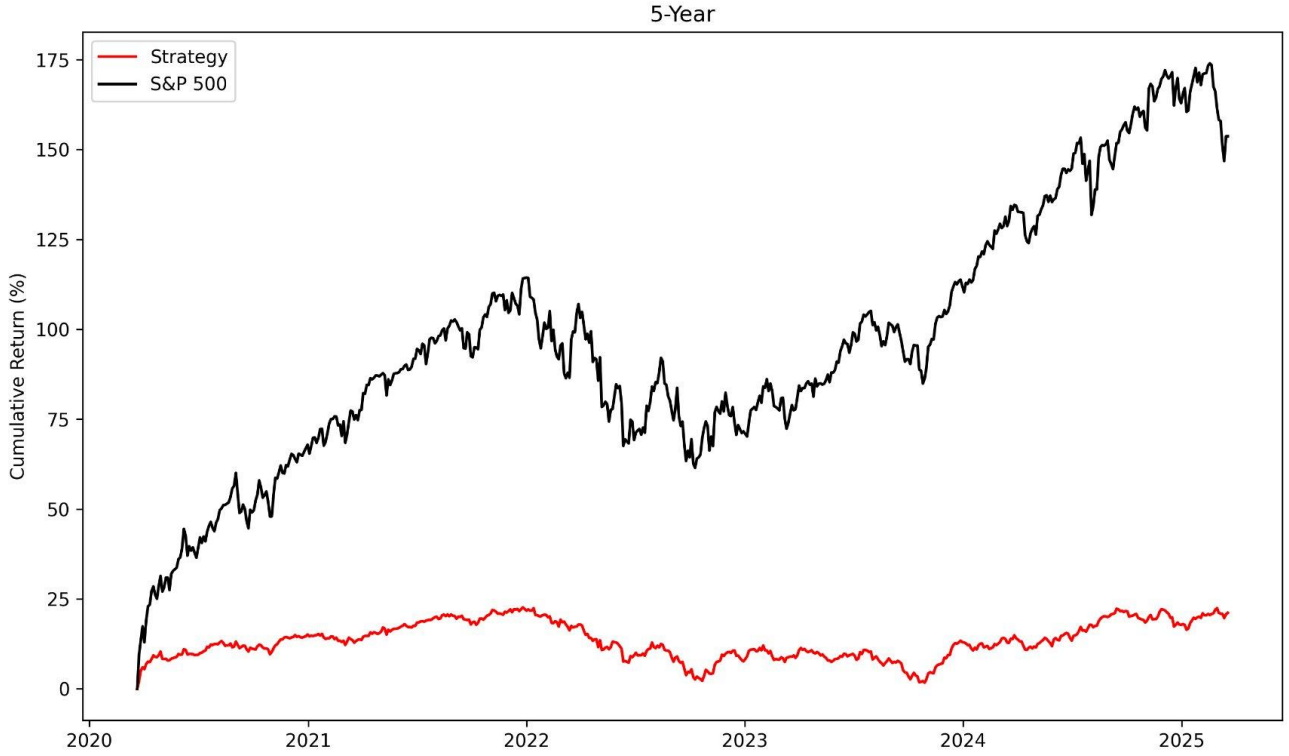
Effect on Portfolio – *Decrease Beta, decrease expected return*

Exhibits

Exhibits – 1 year backtest



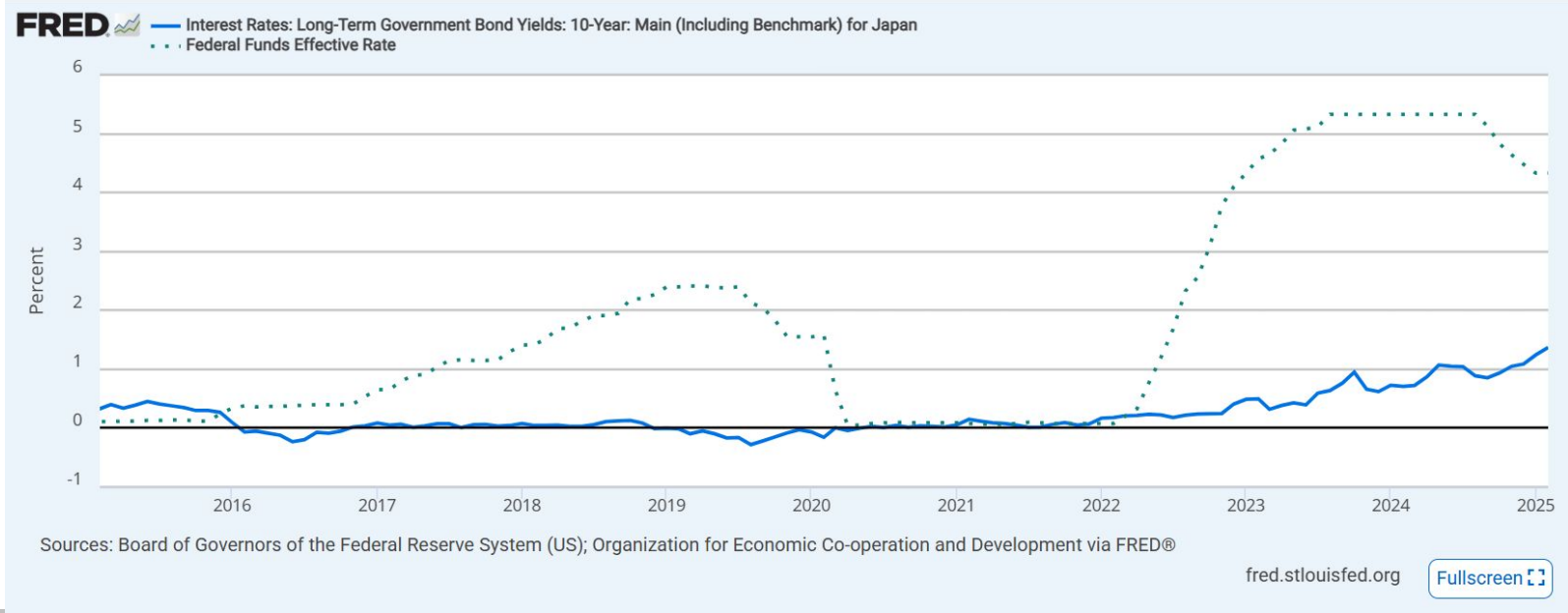
Exhibits – 5 year backtest



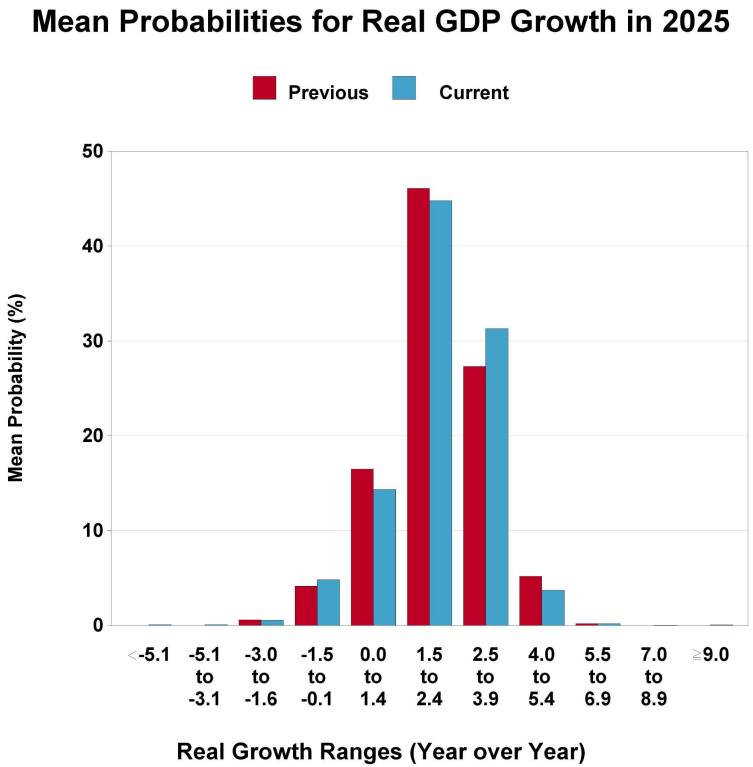
Exhibits – 10 year backtest

Japan Borrowing Rates v. US Fed Funds Rates

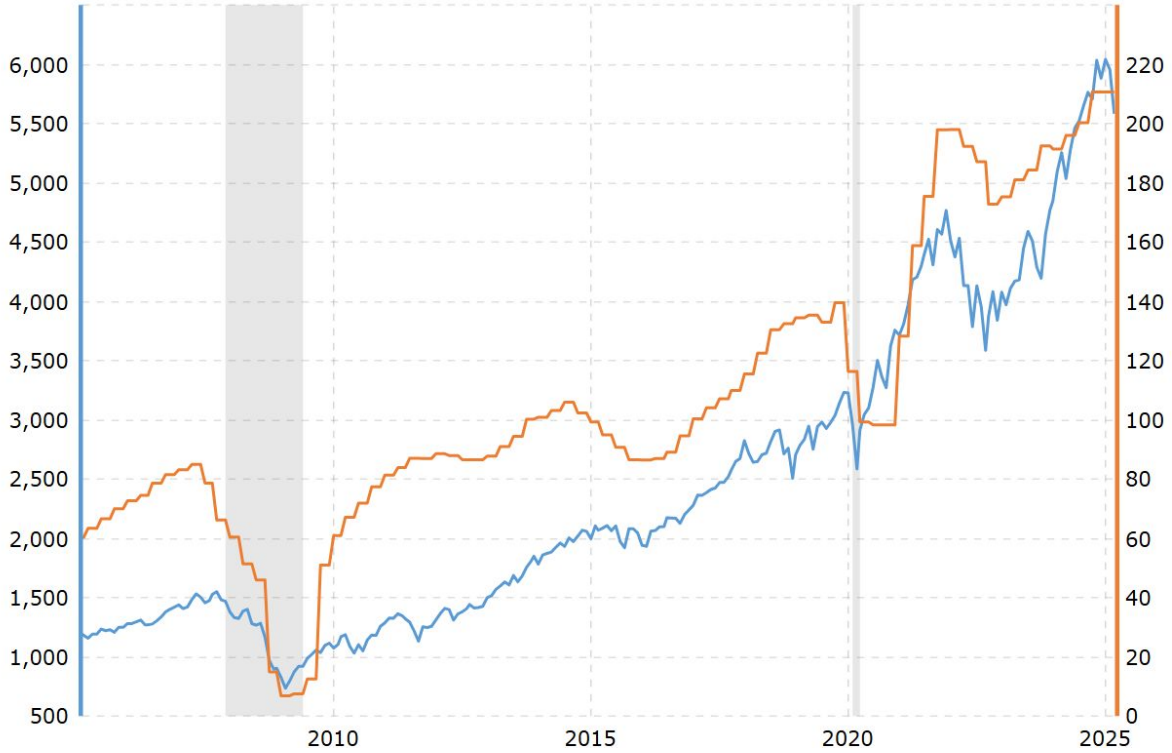
Shows us that the cost of borrowing in Japan is rising (one of the most used currencies for trading and borrowing).



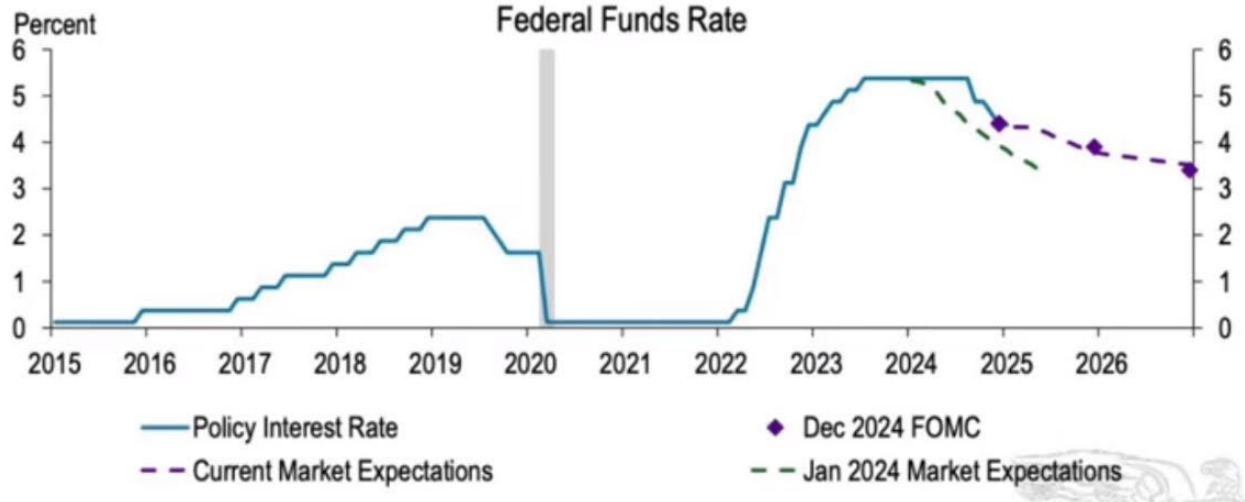
Federal Reserve Bank of Philadelphia



SPY vs SPY EPS



Markets and the FOMC expect a gradual decline in the funds rate.



Sources: FRB/Haver Analytics, CME Group