

# **CMTA** 2023 ANNUAL CONFERENCE

**FOR ALL** **FLAVORS OF** **FINANCE**  
TREASURY DEBT INVESTMENTS

MARRIOTT SAN MATEO • SAN FRANCISCO AIRPORT • APRIL 26-28, 2023

## **Treasury Truths and Market Myths**

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## Rick Phillips

- FHN Main Street Advisors President-2005 to Present
  - Clark County Nevada Chief Investment Officer-1998 to 2005
  - City of Las Vegas Investment Officer-1989 to 1998
  - Government Investment Officers Association (GIOA) Founder
- 
- FHN Main Street manages and consults on ~\$70 Billion of AUM for States and Local Govts



- 1. Longer Duration Will Generate More Investment Income Over the Long Run**
- 2. Detailed Asset/Liability Matching Model (aka: Cash Flow Model) is a Must**
- 3. Interest Rate Risk (WAM/Duration) Matches Cash Flow Metrics**
- 4. Credit Can Enhance Income, But Duration is the Bigger Determinant of Income**
- 5. You...Nor Anyone Else Can't Time the Market Accurately Over the Long Run**
- 6. Limit Optionality (Callables) in the Portfolio**
- 7. Do Not Let GASB 31 (mark-to-market) Drive Investment Decisions/WAM-Duration**
- 8. Understand the Risks of Funds in LGIP and Other Pools**
- 9. Follow GAAP (Generally Accepted Accounting Principles)**
- 10. Benchmark Your Investment Program and Portfolio in Multiple Ways**
- 11. Tell the Story: Provide Quality, Timely, Transparent Reporting**

Source: FHN Main Street

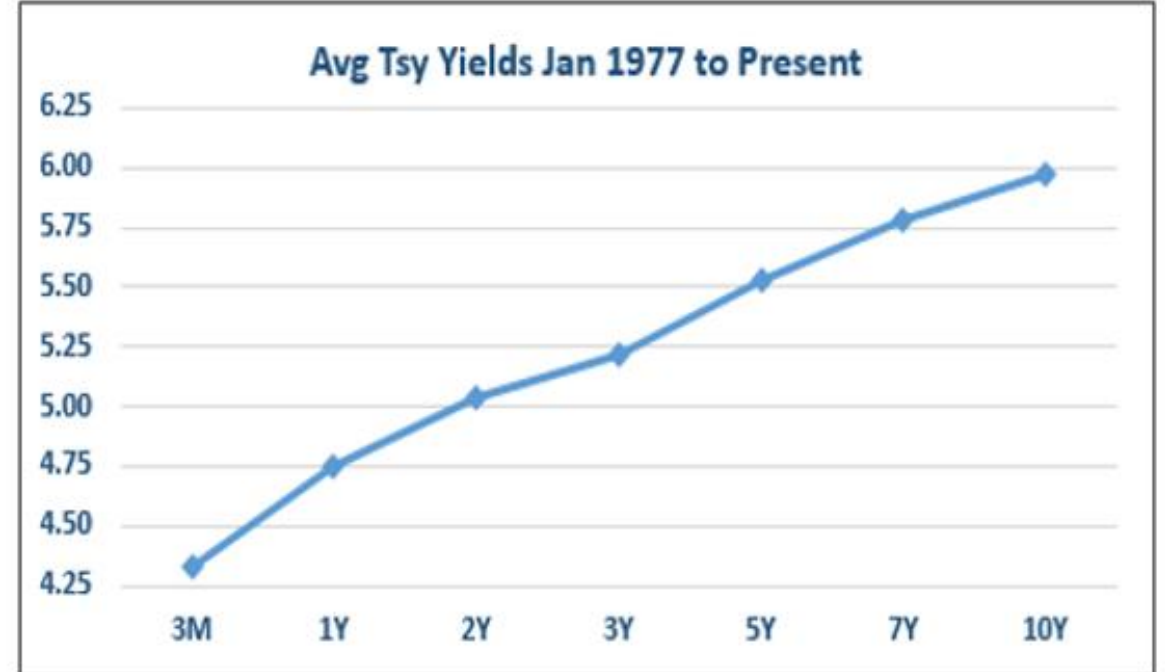
# Yield Curve History – Most Important Information

## Benchmark Treasury Modified Sharp Ratio (MSR) Analysis Jan 1977 to Present

Maturity	Avg Yield	Avg Duration	Modified Sharp Ratio	% Return of 10Yr / % 10Yr Risk
3 Mon T-Bill	4.32	0.25		72% / 3%
1 Yr T-Bill	4.75	1.00	0.43	80% / 12%
2 Yr T-Note	5.04	1.91	0.37	84% / 24%
3 Yr T-Note	5.21	2.78	0.32	87% / 34%
5 Yr T-Note	5.53	4.55	0.27	93% / 56%
7 Yr T-Note	5.78	6.24	0.23	97% / 77%
10 Yr T-Note	5.97	8.10	0.20	100% / 100%

**4.75% (1Y) - 4.32% (3M) / 1.00 (1Yr Dur) = 0.43**

**4.75% (1Y) / 5.97% (10Y) = 80%**      **1.00 (1Y) / 8.10 (10Y) = 12%**  
Yield Comparison                      Duration Comparison

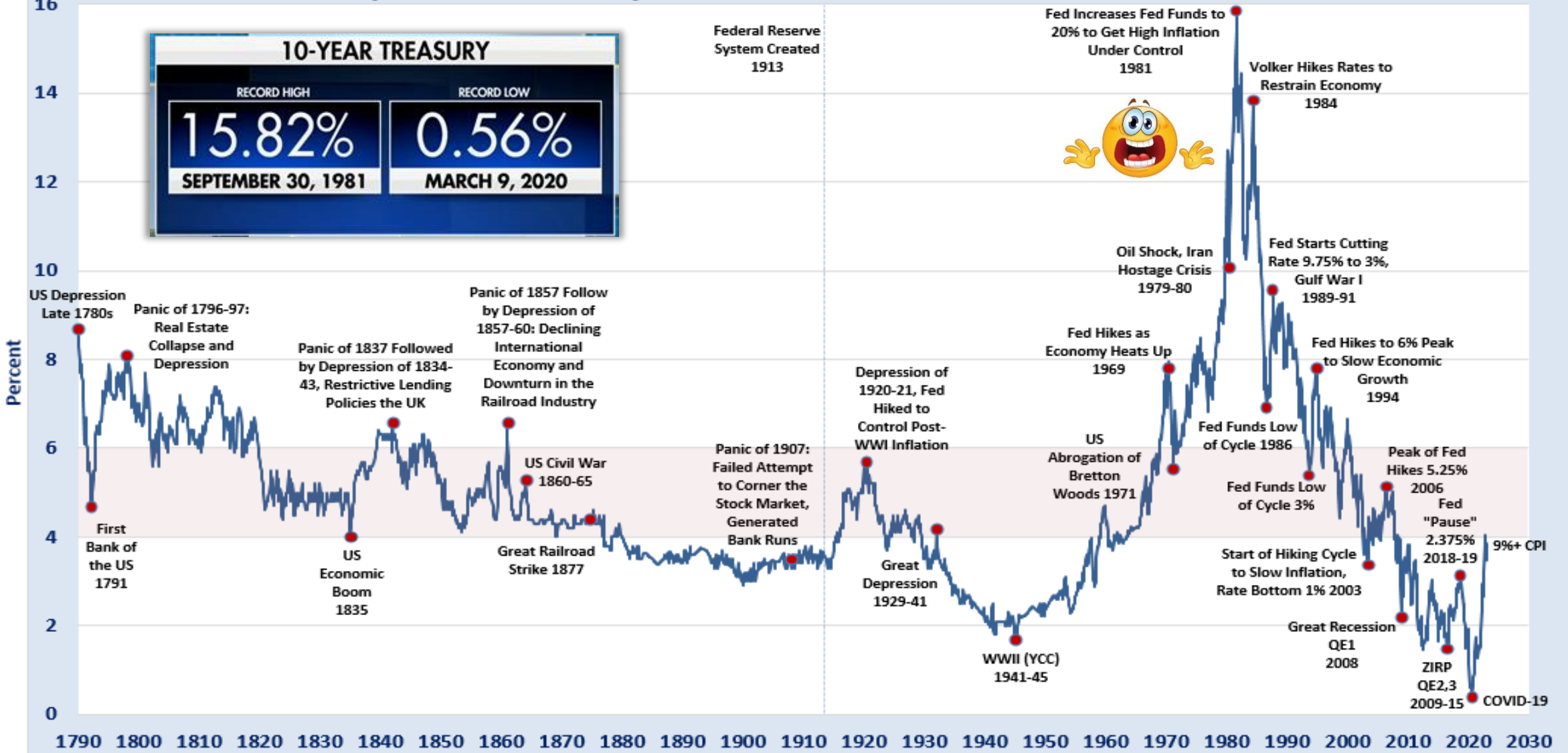


Source: Bloomberg, FHN Main Street

# US 10 Year Yields (1790 to Present)

## 10-YEAR TREASURY

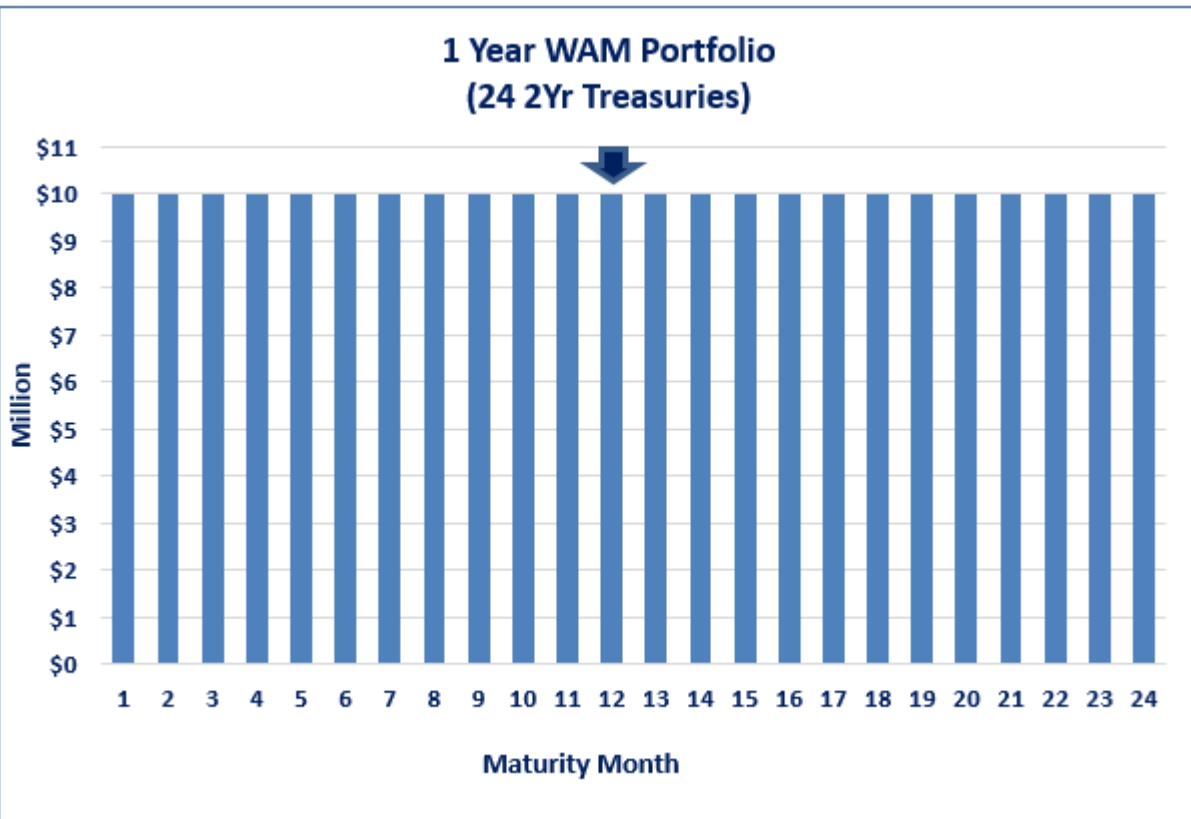
<p style="font-size: small; margin: 0;">RECORD HIGH</p> <h1 style="margin: 0;">15.82%</h1> <p style="font-size: small; margin: 0;">SEPTEMBER 30, 1981</p>	<p style="font-size: small; margin: 0;">RECORD LOW</p> <h1 style="margin: 0;">0.56%</h1> <p style="font-size: small; margin: 0;">MARCH 9, 2020</p>
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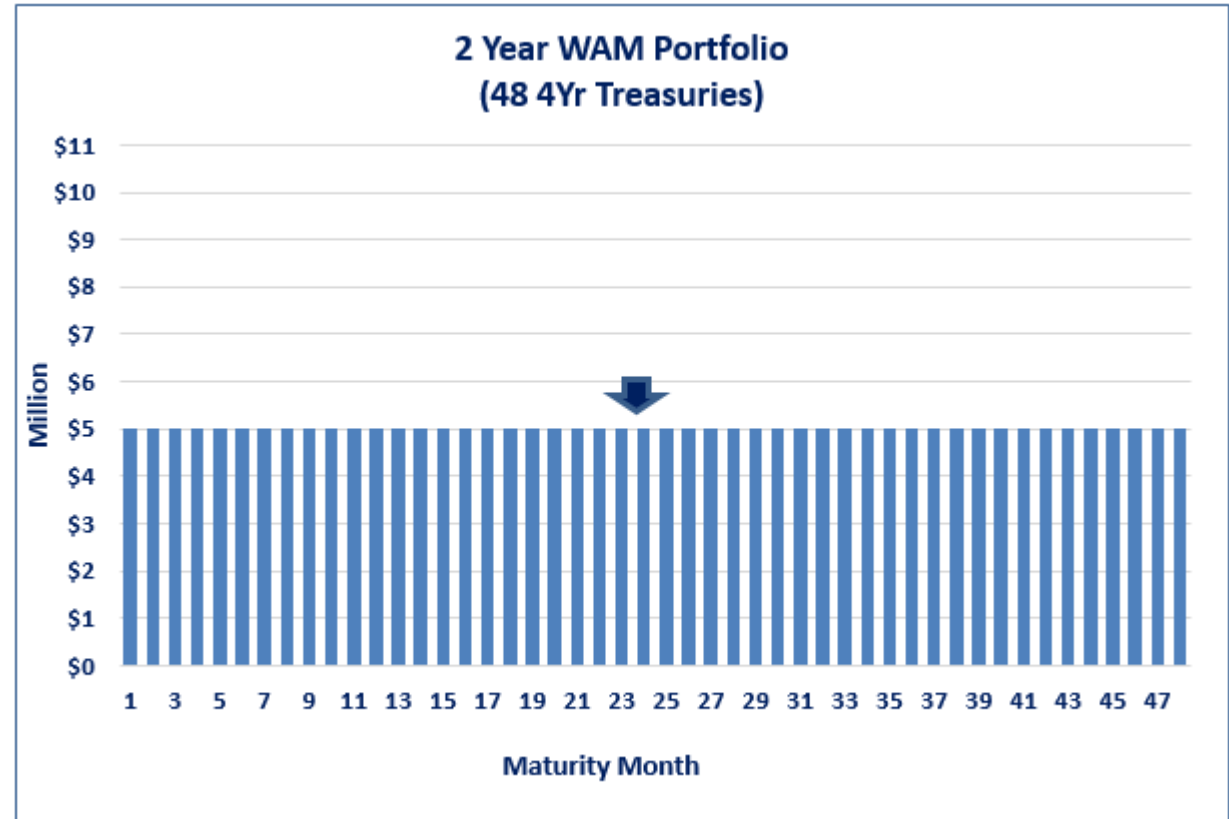
Sources: Goldman Sachs, Global Financial Database, Arbor Research, Bloomberg 1790 to 1831 British Consols, 1831 to 1919 High-Grade Long Term Railroad, 1919 to Date 10Yr Treasuries

# 1 Year WAM (Weighted Avg. Maturity) vs. 2 Year WAM

1 Year WAM Portfolio  
(24 2Yr Treasuries)



2 Year WAM Portfolio  
(48 4Yr Treasuries)



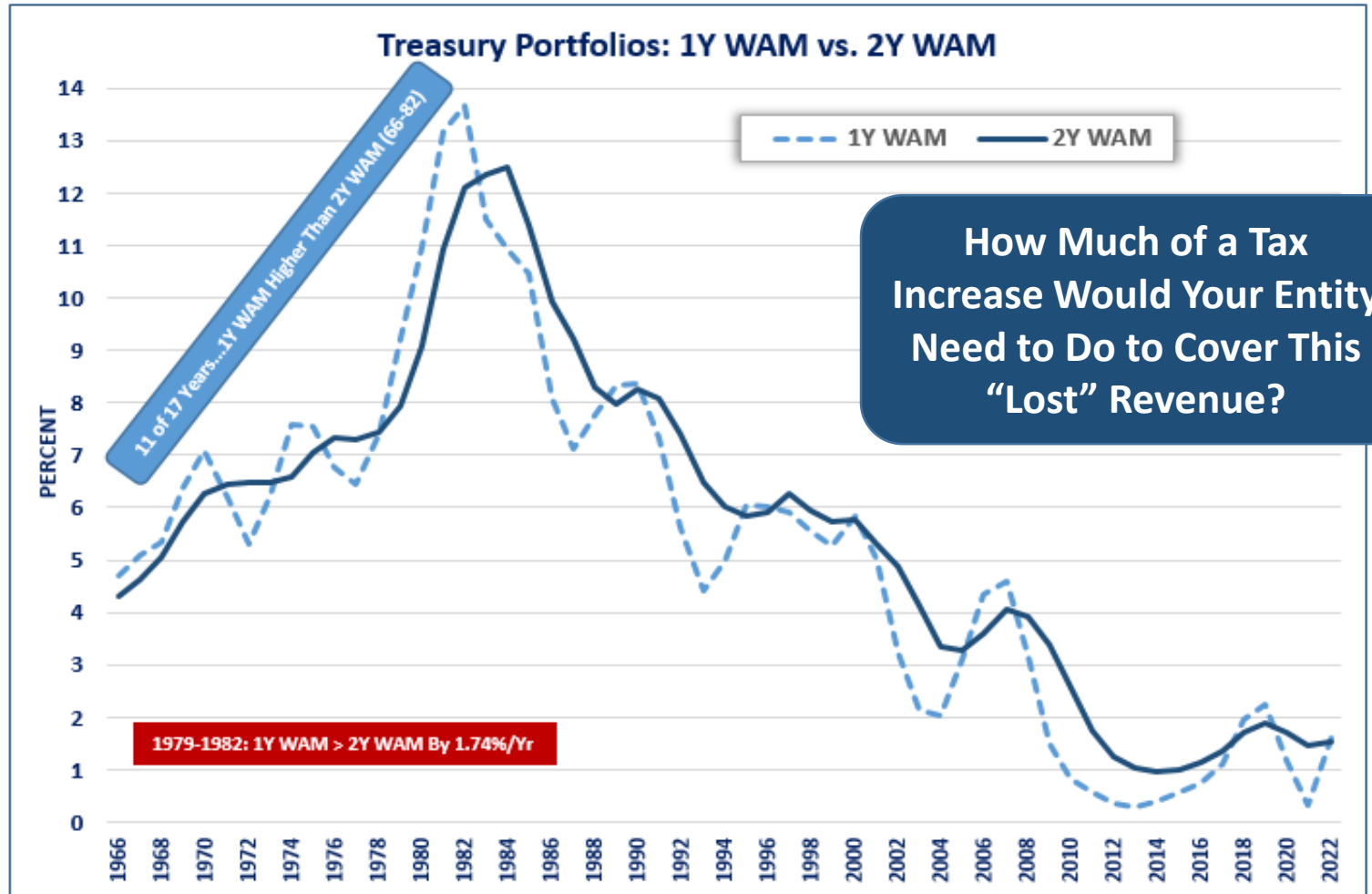
# 1 Year WAM vs. 2 Year WAM: A Long View of Returns

Year	1Y WAM	2Y WAM	Var	Year	1Y WAM	2Y WAM	Var
1966	4.70	4.30	(0.40)	1995	6.05	5.84	(0.21)
1967	5.09	4.63	(0.46)	1996	6.00	5.92	(0.08)
1968	5.33	5.04	(0.28)	1997	5.91	6.26	0.35
1969	6.38	5.73	(0.65)	1998	5.56	5.93	0.37
1970	7.08	6.27	(0.81)	1999	5.28	5.73	0.45
1971	6.18	6.45	0.28	2000	5.84	5.75	(0.09)
1972	5.30	6.49	1.19	2001	5.04	5.29	0.25
1973	6.24	6.48	0.24	2002	3.23	4.87	1.64
1974	7.57	6.60	(0.97)	2003	2.15	4.12	1.98
1975	7.56	7.05	(0.51)	2004	2.02	3.35	1.34
1976	6.77	7.33	0.57	2005	3.12	3.27	0.16
1977	6.43	7.31	0.88	2006	4.33	3.60	(0.74)
1978	7.40	7.44	0.04	2007	4.59	4.06	(0.53)
1979	9.23	7.93	(1.30)	2008	3.18	3.91	0.73
1980	10.95	9.07	(1.88)	2009	1.48	3.37	1.89
1981	13.17	10.94	(2.22)	2010	0.83	2.56	1.73
1982	13.68	12.11	(1.57)	2011	0.58	1.74	1.17
1983	11.50	12.36	0.86	2012	0.36	1.26	0.89
1984	10.93	12.50	1.57	2013	0.29	1.02	0.73
1985	10.46	11.38	0.93	2014	0.39	0.96	0.57
1986	8.07	9.94	1.87	2015	0.57	0.99	0.42
1987	7.14	9.24	2.10	2016	0.76	1.14	0.38
1988	7.75	8.31	0.56	2017	1.12	1.37	0.25
1989	8.34	7.97	(0.37)	2018	1.96	1.72	(0.24)
1990	8.37	8.25	(0.11)	2019	2.25	1.89	(0.36)
1991	7.32	8.07	0.75	2020	1.18	1.72	0.53
1992	5.63	7.42	1.79	2021	0.33	1.44	1.11
1993	4.41	6.49	2.08	2022	1.62	1.53	(0.09)
1994	4.99	6.03	1.03	2023			

1Y WAM Avg= 5.25% 2Y WAM Avg= 5.61%

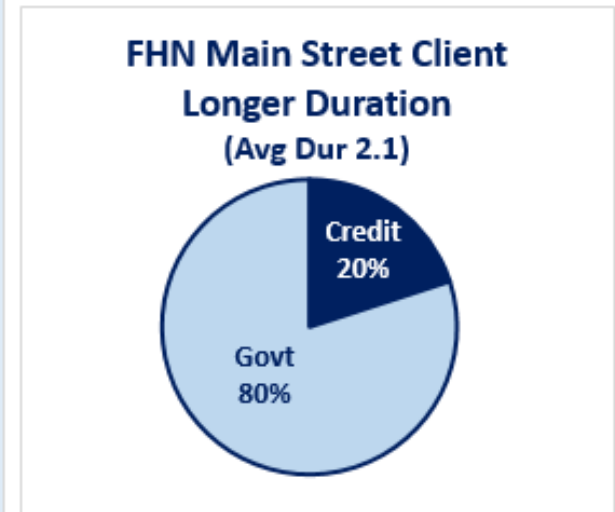
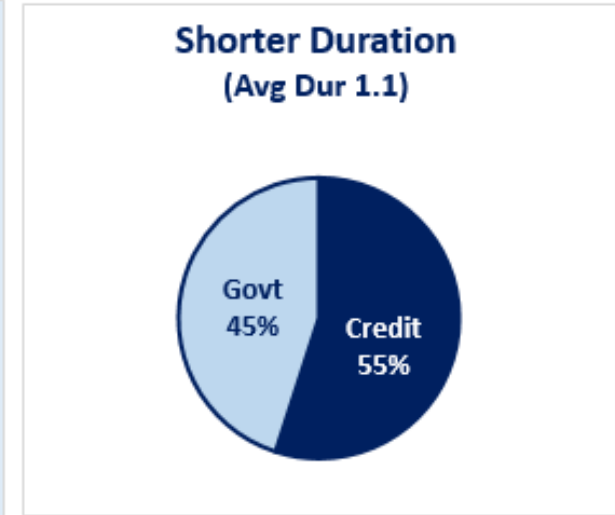
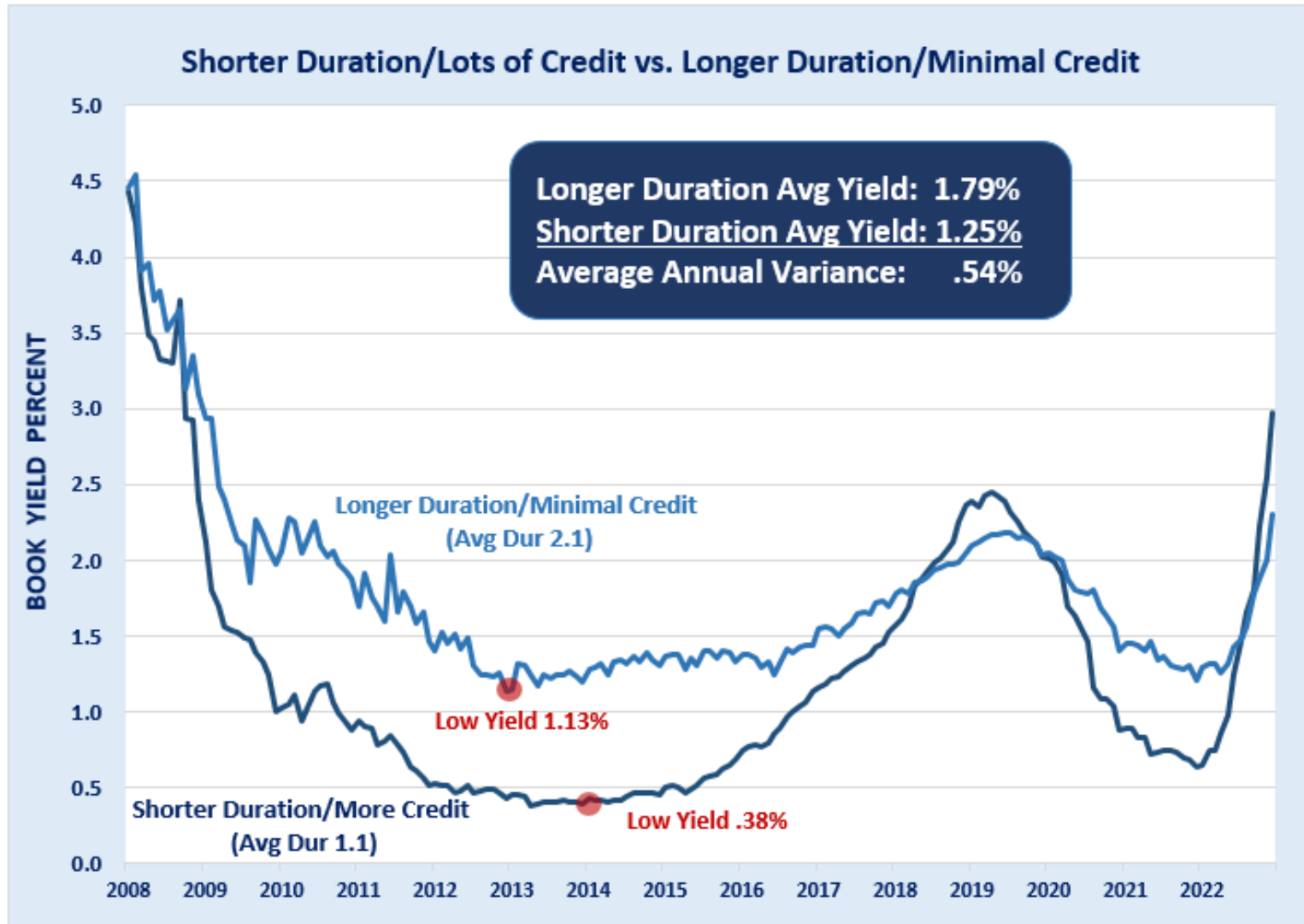
Notes: 2Y WAM is 48 Month Mov Avg of 4Y Tsy, 1Y WAM is 28 Month Mov Avg of 2Y Tsy  
The 4Y Tsy is the avg of the 3Y and 5Y Tsy since the US Treasury doesn't issue a 4Y

Source: Bloomberg, FHN Main Street



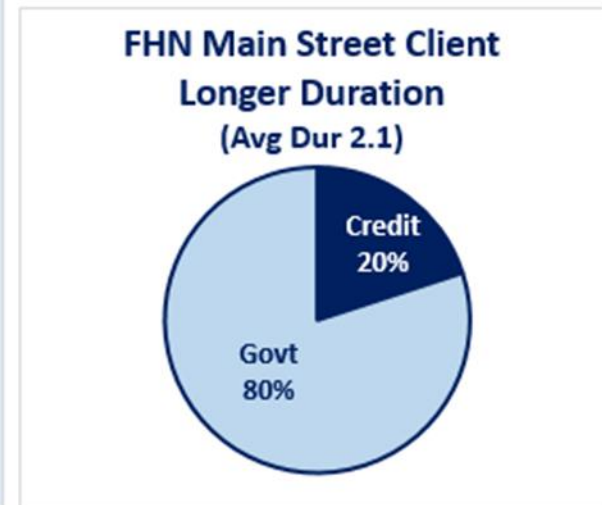
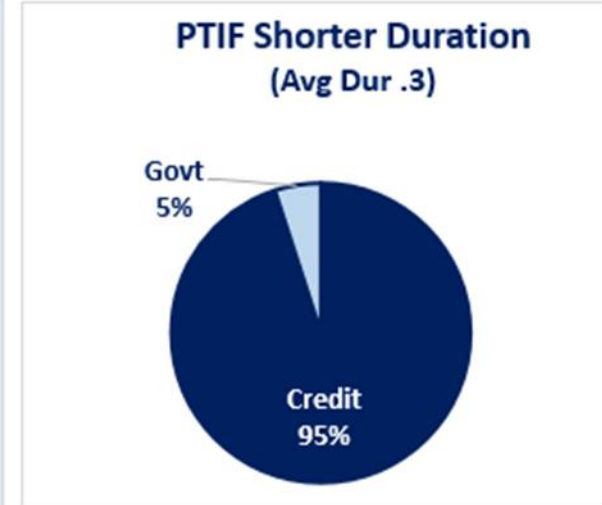
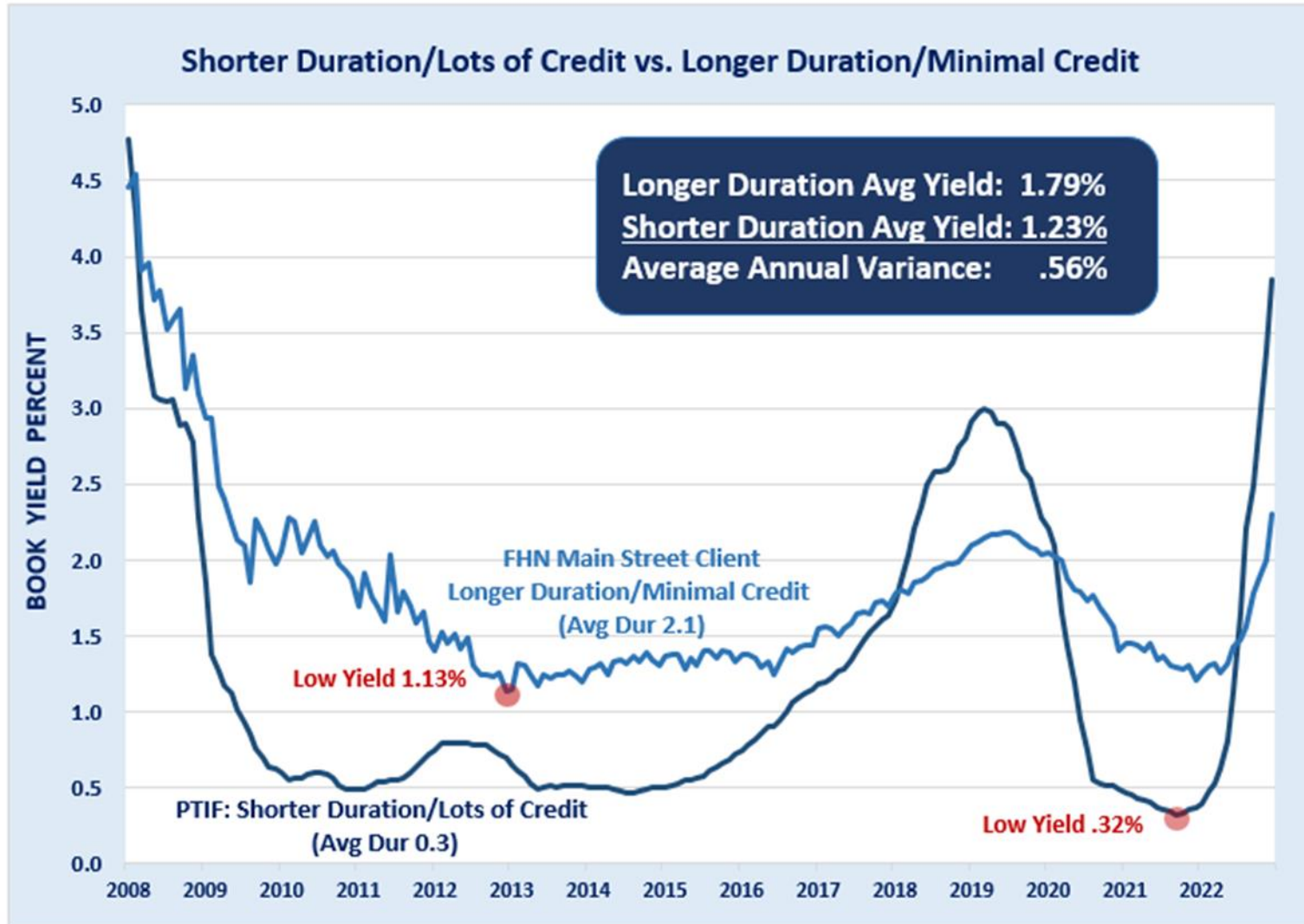
The Investment Portfolio is the Only Are of Local Govt Where Revenue Can Be Generated W/O Charging Taxes/Fees

# Real World Shorter Duration vs. Longer Duration #1



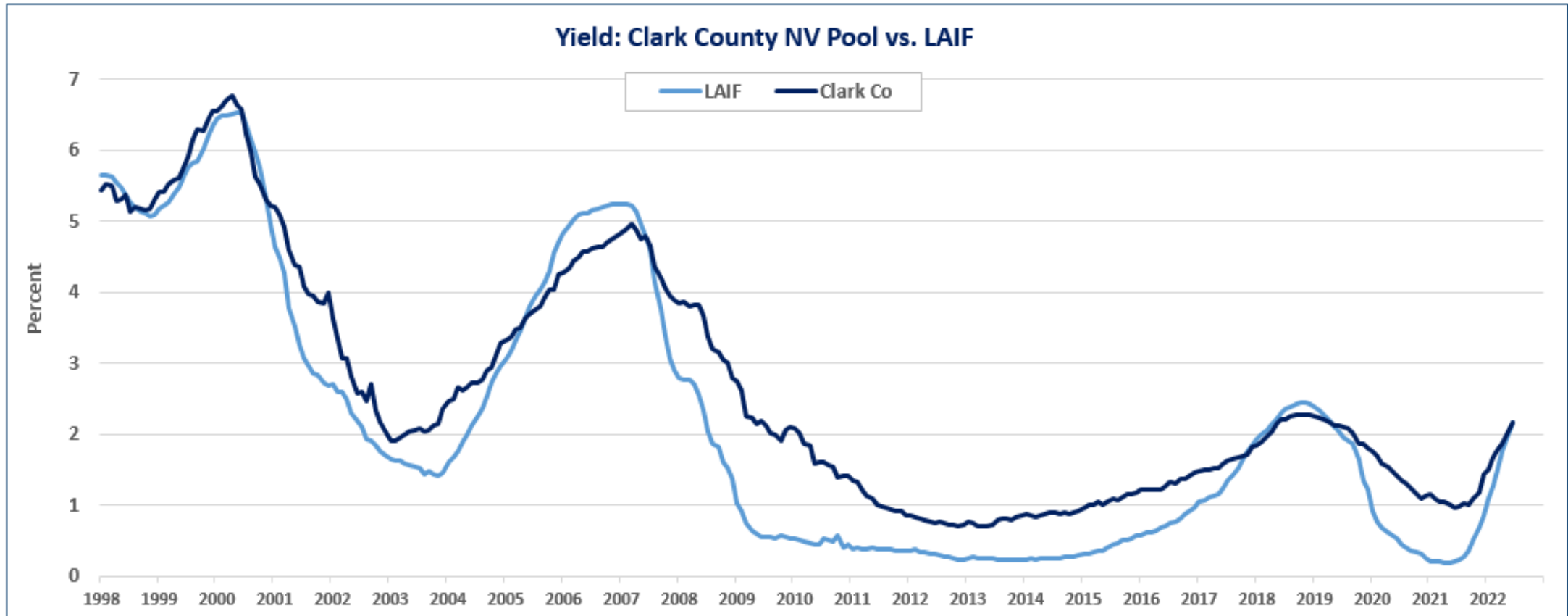
Source: FHN Main Street, Entities' Websites

# Real World Shorter Duration vs. Longer Duration #2



Source: FHN Main Street, Entities' Websites

# Real World Shorter Duration vs. Longer Duration #3



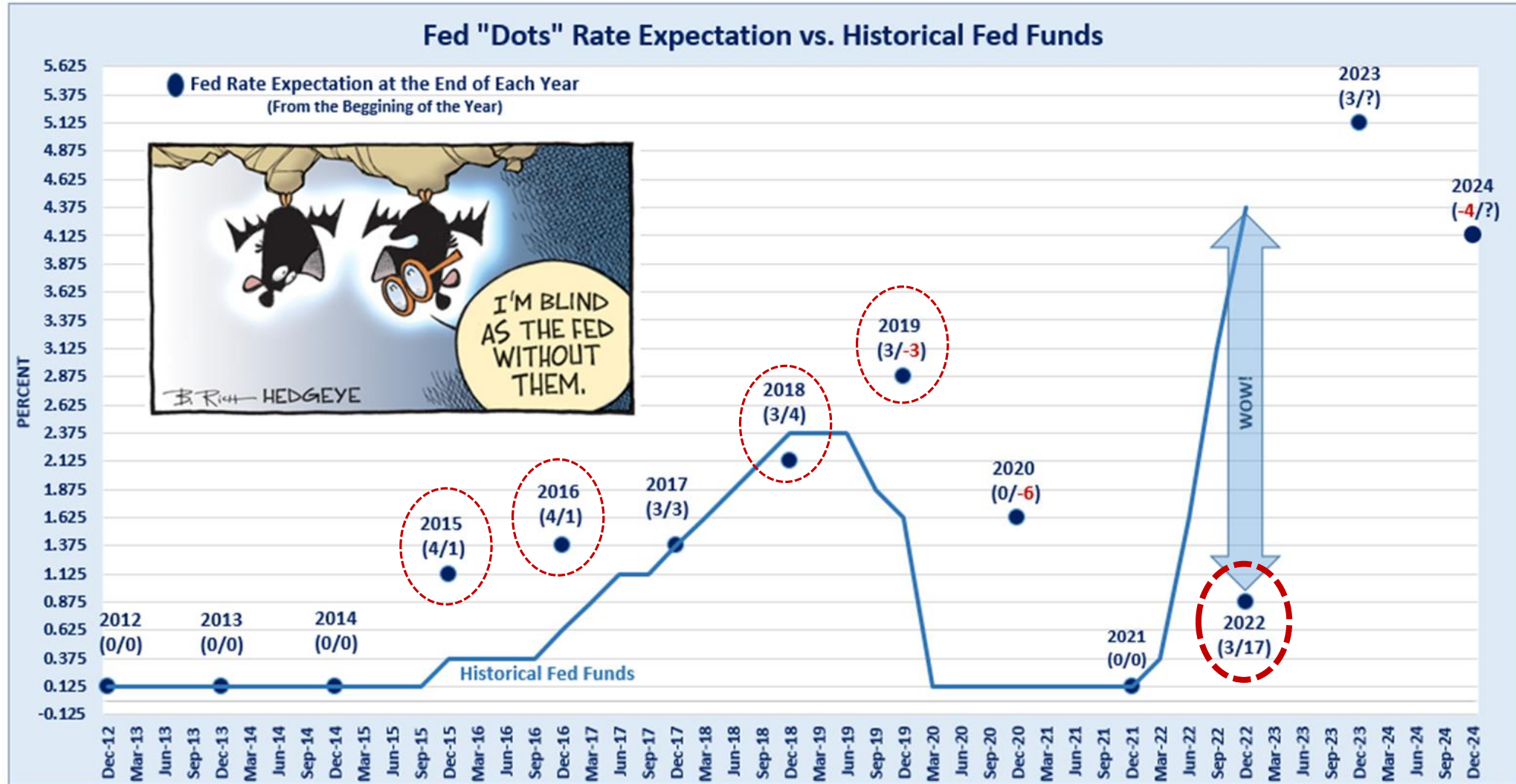
	Average Fiscal Year Yields																						YTD			
Fiscal Year	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	Avg
CC Pool	5.30	5.92	6.15	4.36	2.74	2.06	2.79	3.74	4.57	4.53	3.45	2.21	1.66	1.06	0.77	0.78	0.89	1.08	1.30	1.61	2.14	2.07	1.40	1.09	1.85	2.62
LAIF	5.36	5.68	6.13	3.43	2.18	1.53	2.23	3.85	5.12	4.38	2.19	0.66	0.49	0.38	0.31	0.25	0.27	0.43	0.75	1.36	2.26	1.94	0.52	0.35	1.64	2.15
Variance	(0.05)	0.24	0.02	0.93	0.56	0.53	0.56	(0.11)	(0.55)	0.15	1.27	1.55	1.17	0.68	0.47	0.53	0.62	0.64	0.55	0.25	(0.12)	0.13	0.88	0.74	0.21	0.47

**Avg WAMs: LAIF ~.7 Years, Clark County ~2.0 Years**

Source: FHN Main Street, Entities' Websites

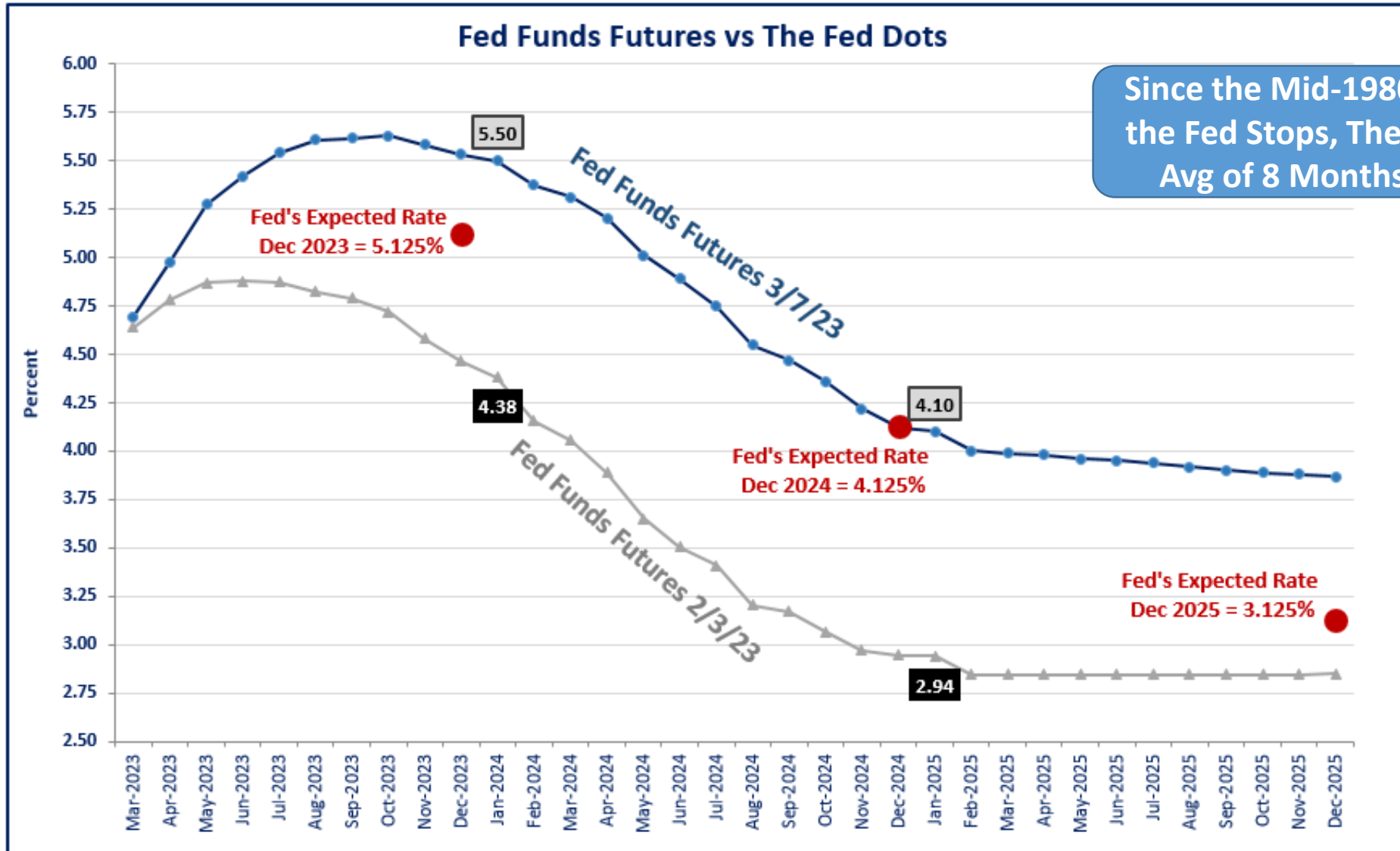


# 500+ PhDs...You'd Think They'd Do Better!



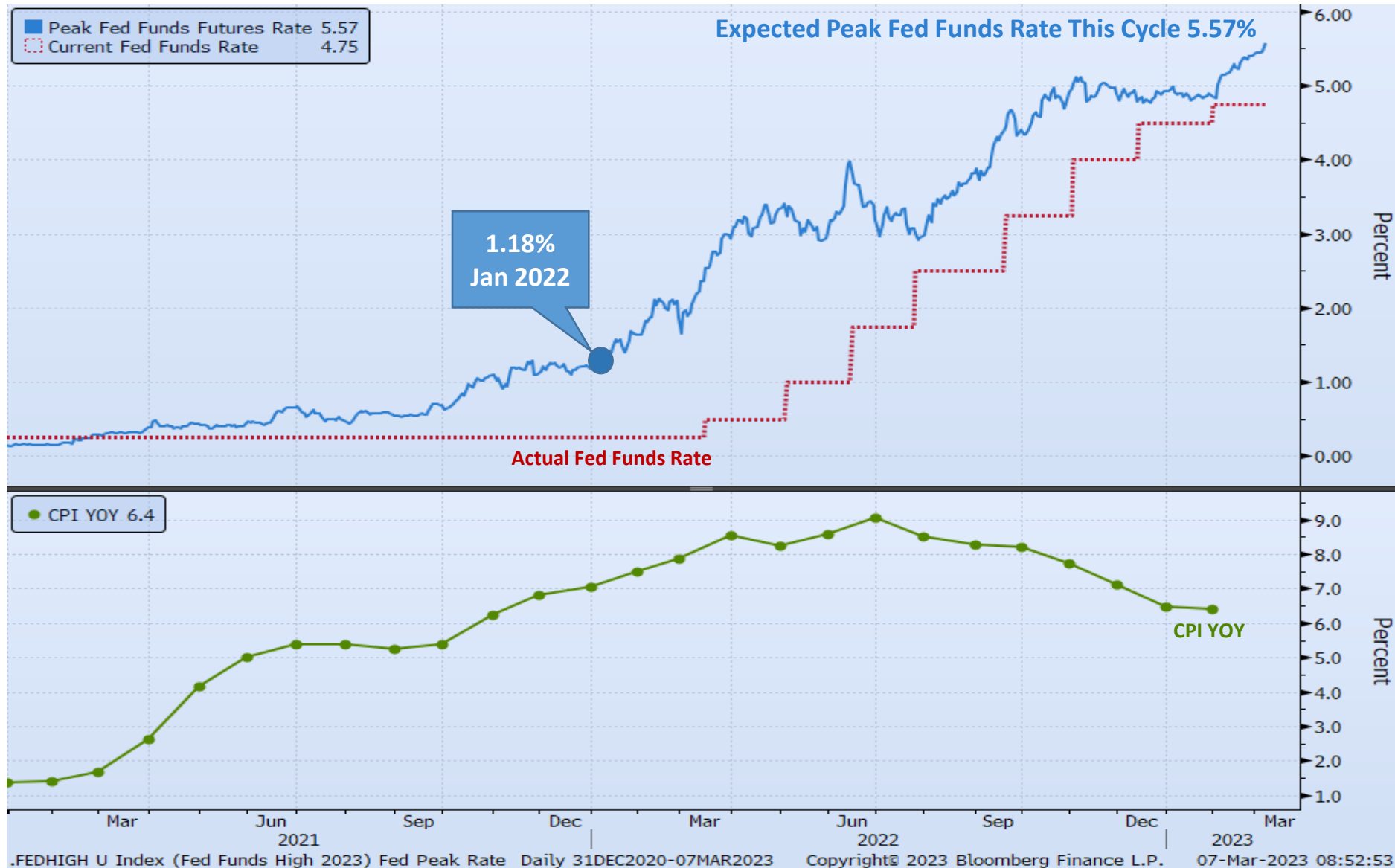
Source: Bloomberg

# Past Hikes and Forecasted Hikes/Cuts Per Fed Funds Futures



Source: Bloomberg

# Past Hikes and Current Fed Funds Futures Rates...Good Luck Timing That!



Source: Bloomberg

# “Just a Bit Outside!” Bloomberg Survey Forecast From Jan 2022 for Q1 2023

Screen Printed

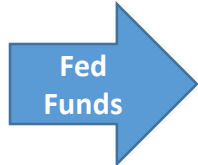


Chart Analysts		Forecast Histogram	Export	Disclaimer				Bond Yield Forecasts: Analysts				
United States			Q1 22	Q2 22	Q3 22	Q4 22	Q1 23	Q2 23	Q3 23	Q4 23	Q1 24	Q2 24
Fed Tgt Upper Bound		Bloomberg Wgt Avg	0.25	0.40	0.60	0.75	1.00	1.20	1.35	1.55	1.70	
		Median Forecast	0.25	0.50	0.50	0.75	1.00	1.25	1.38	1.50	1.75	
		Average Forecast	0.26	0.38	0.58	0.77	0.98	1.18	1.36	1.55	1.68	
		High Forecast	0.50	0.75	1.00	1.25	1.50	1.50	1.75	2.00	2.25	
		Low Forecast	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	
		Responses	67	67	66	68	58	57	56	59	42	
Market Yield 0.25												
Recent Updates												

Current  
4.75%

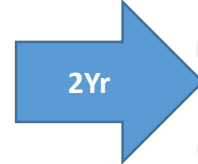


Chart Analysts		Forecast Histogram	Export	Disclaimer				Bond Yield Forecasts: Analysts				
United States			Q1 22	Q2 22	Q3 22	Q4 22	Q1 23	Q2 23	Q3 23	Q4 23	Q1 24	Q2 24
US 2-Year		Bloomberg Wgt Avg	0.98	1.13	1.29	1.43	1.56	1.68	1.79	1.88	1.99	2.09
		Implied Forward Yield	1.29	1.45	1.56	1.67	1.74	1.78	1.81	1.82	1.85	1.89
		Median Forecast	0.91	1.09	1.21	1.35	1.52	1.68	1.89	1.96	2.05	2.13
		Average Forecast	0.93	1.10	1.27	1.41	1.54	1.67	1.78	1.87	1.99	2.09
		High Forecast	1.30	1.60	1.85	2.15	2.30	2.30	2.35	2.55	2.75	2.90
		Low Forecast	0.49	0.54	0.72	0.74	0.84	0.88	0.75	0.40	0.90	0.90
		Responses	44	44	44	45	40	39	38	38	24	23
Market Yield 1.18												
Recent Updates												

Current  
5.00%

Source: Bloomberg as of 3/3/23

# It's Tough To Time the Bond Market

## S&P Dow Jones Indices

A Division of **S&P Global**

SPIVA U.S. Scorecard

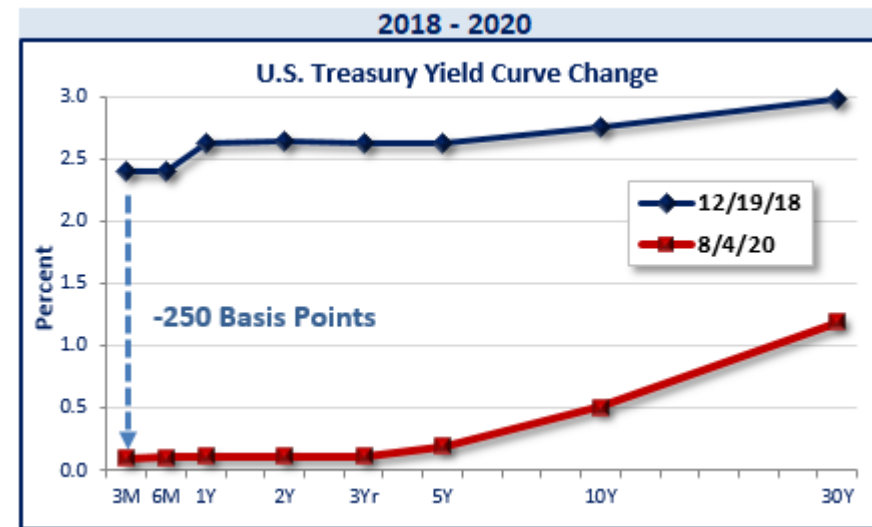
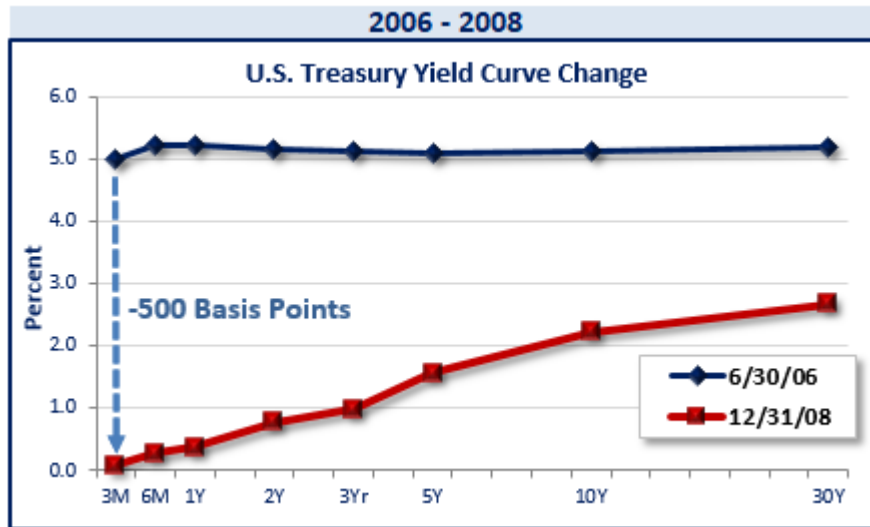
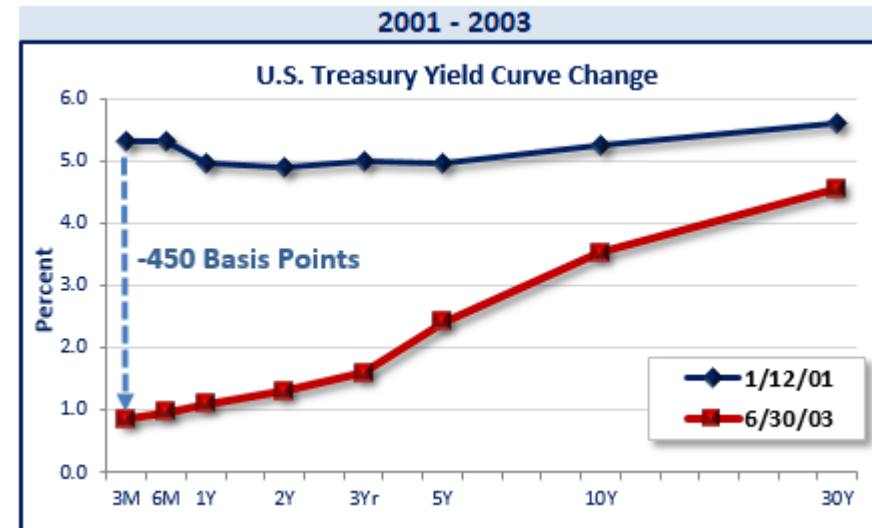
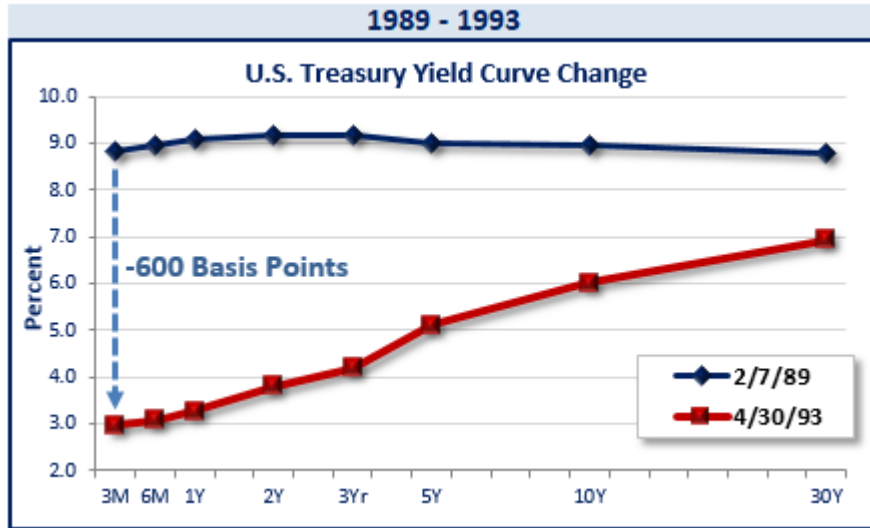
Year-End 2021

### Report 11b: Percentage of Fixed Income Funds Underperforming Their Benchmarks - Risk Adjusted Returns

FUND CATEGORY	COMPARISON INDEX	3-YEAR (%)	5-YEAR (%)	10-YEAR (%)	15-YEAR (%)
Government Short Funds	Barclays US Government (1-3 Year)	76.92	84.00	86.21	88.57
Investment-Grade Short Funds	Barclays US Government/Credit (1-3 Year)	98.98	95.74	96.49	100.00
Government Intermediate Funds	Barclays US Government Intermediate	62.50	73.68	83.87	80.00
Investment-Grade Intermediate Funds	Barclays US Government/Credit Intermediate	93.97	93.81	83.73	95.00

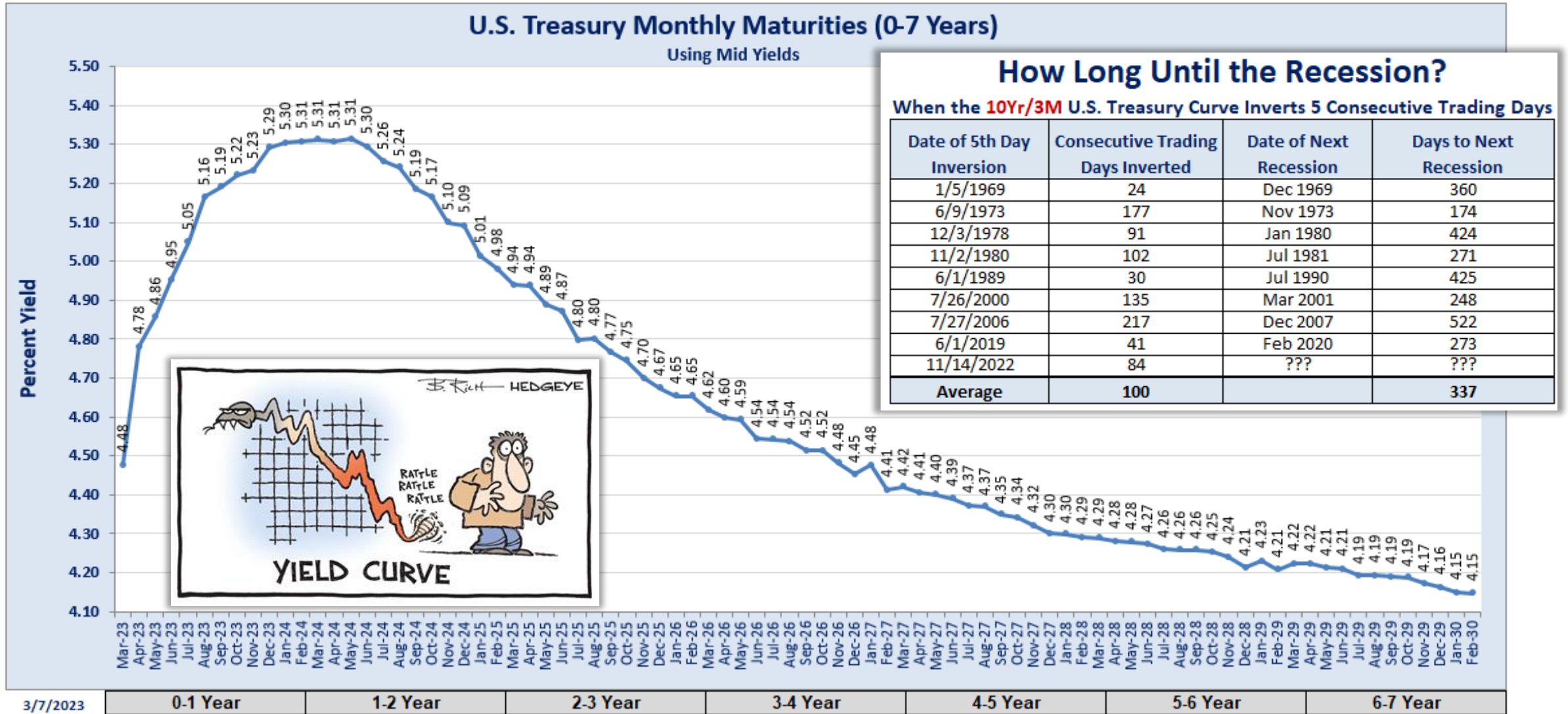
Source: S&P

# The “Yield Curve Trap” Why Would I Buy a 5 Year When the 3 Month is Higher?



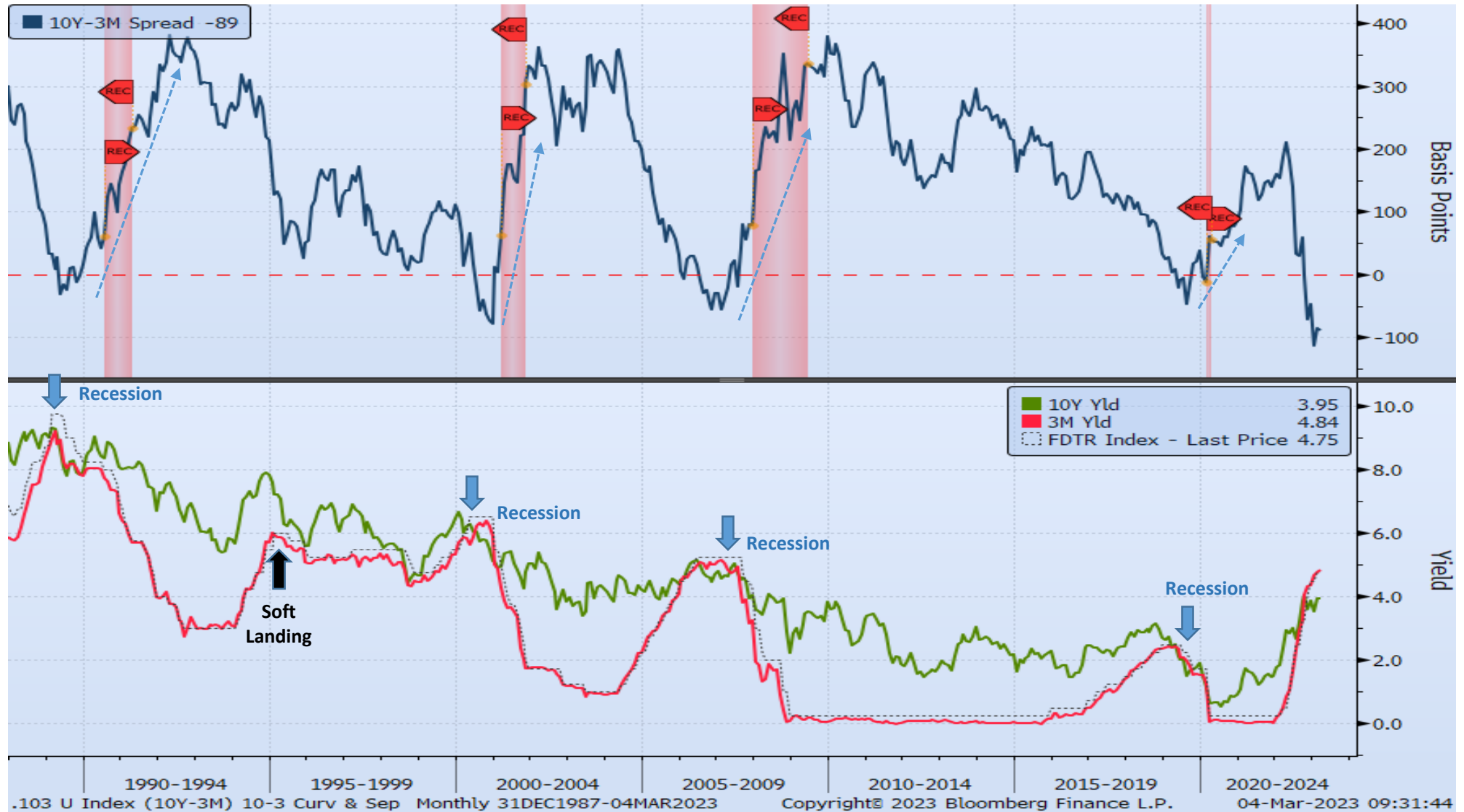
Source: Bloomberg

# Is The Yield Curve Telling Us the Economy Will Be “Snake Bitten”?



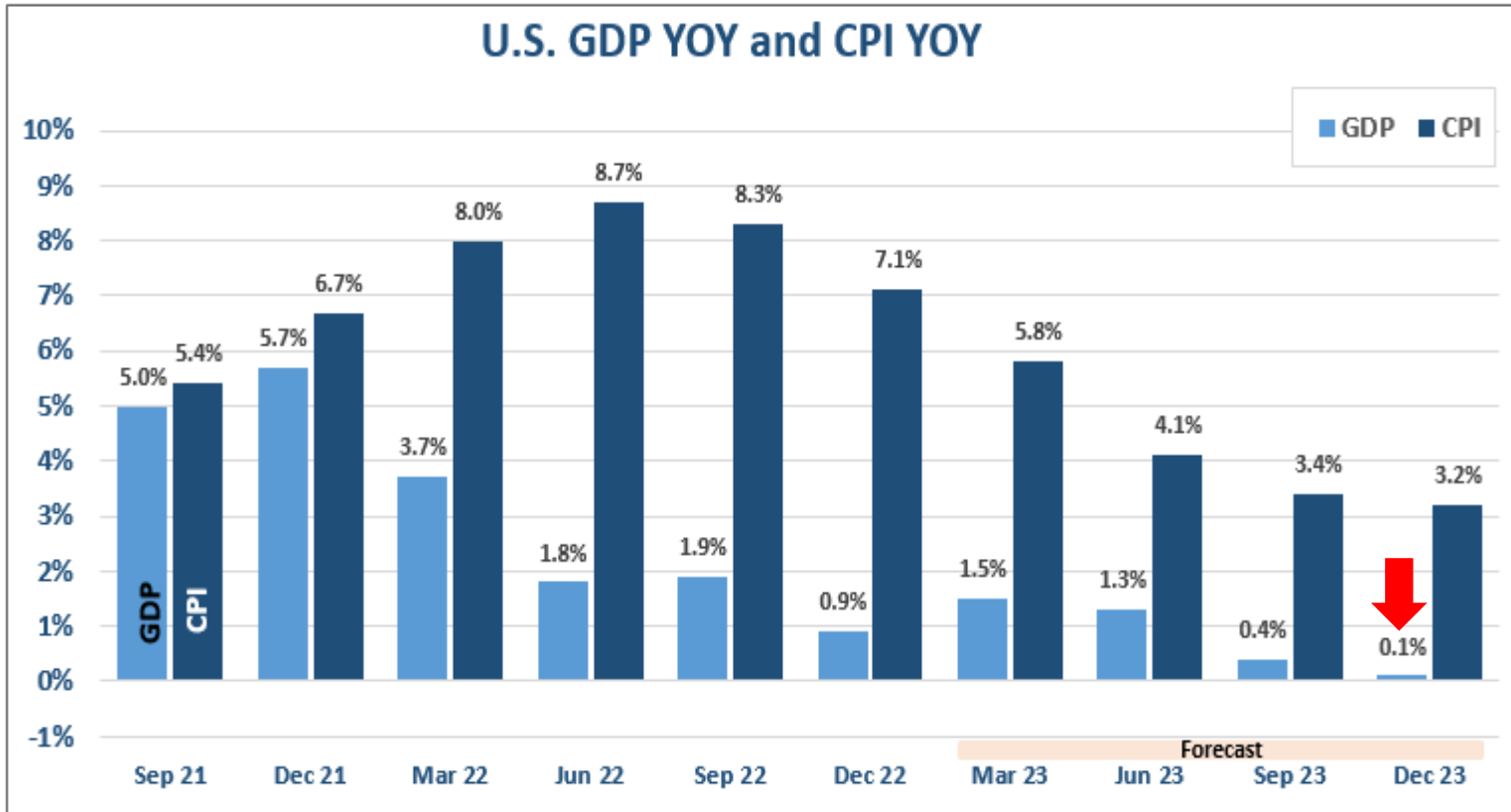
Source: Bloomberg

# When the Fed Stops Hiking, The Curve Steepens...But All Rates Fall



Source: Bloomberg

# GIF (Growth Inflation Fed) : Expectations of GDP/Inflation Drive Future Interest Rates



GDP and CPI: Quarterly Average

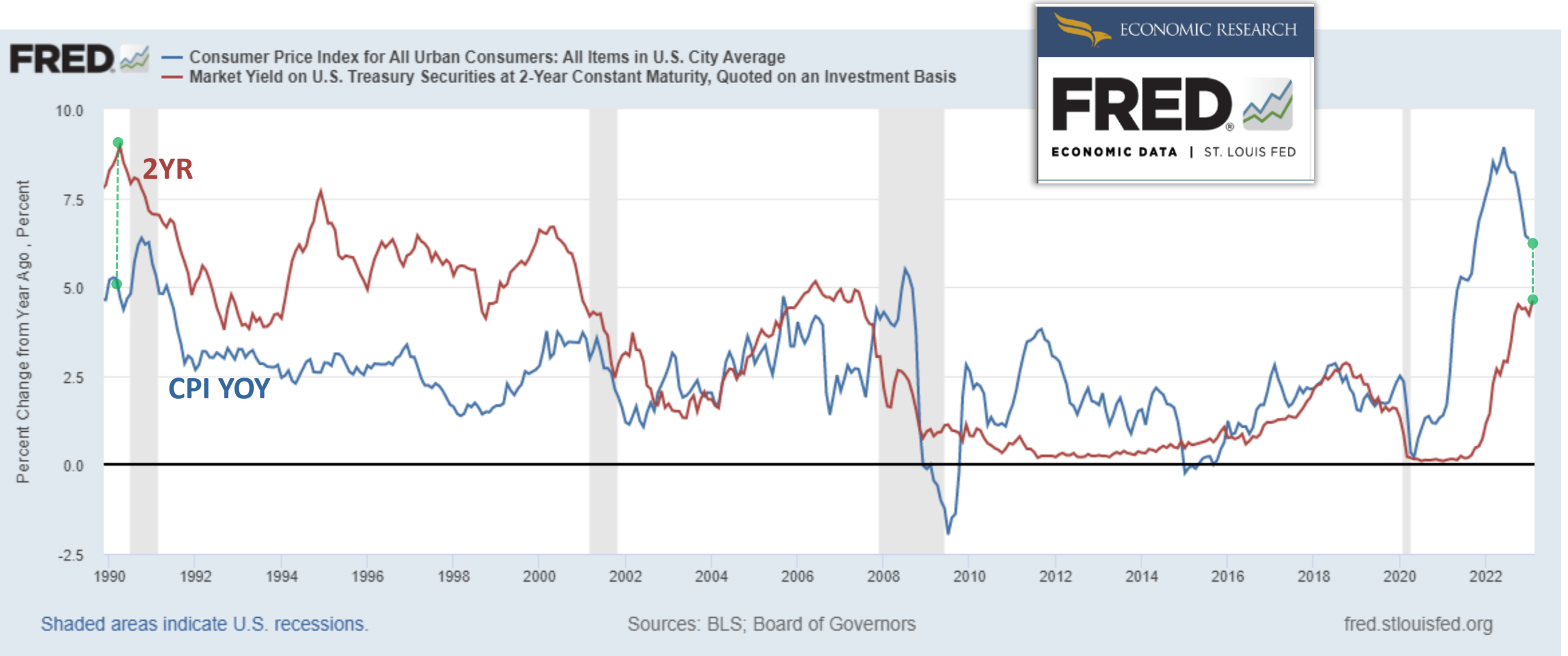
Economist Irving Fisher



The Fisher Equation:  
 Long-Term Risk-Free Rate =  
 Real Rate + Expected Inflation

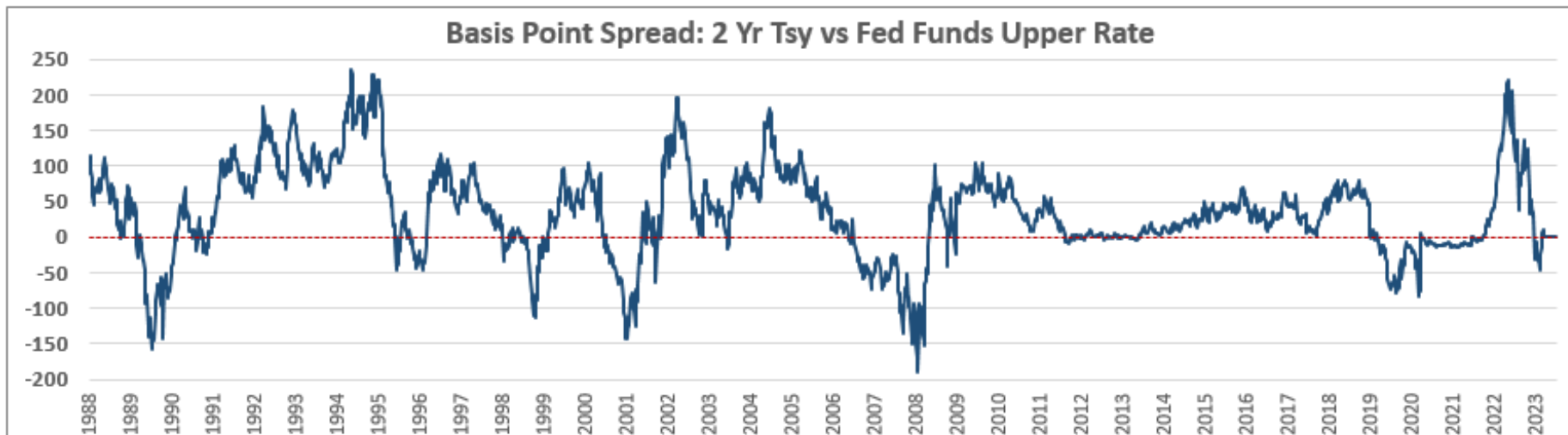
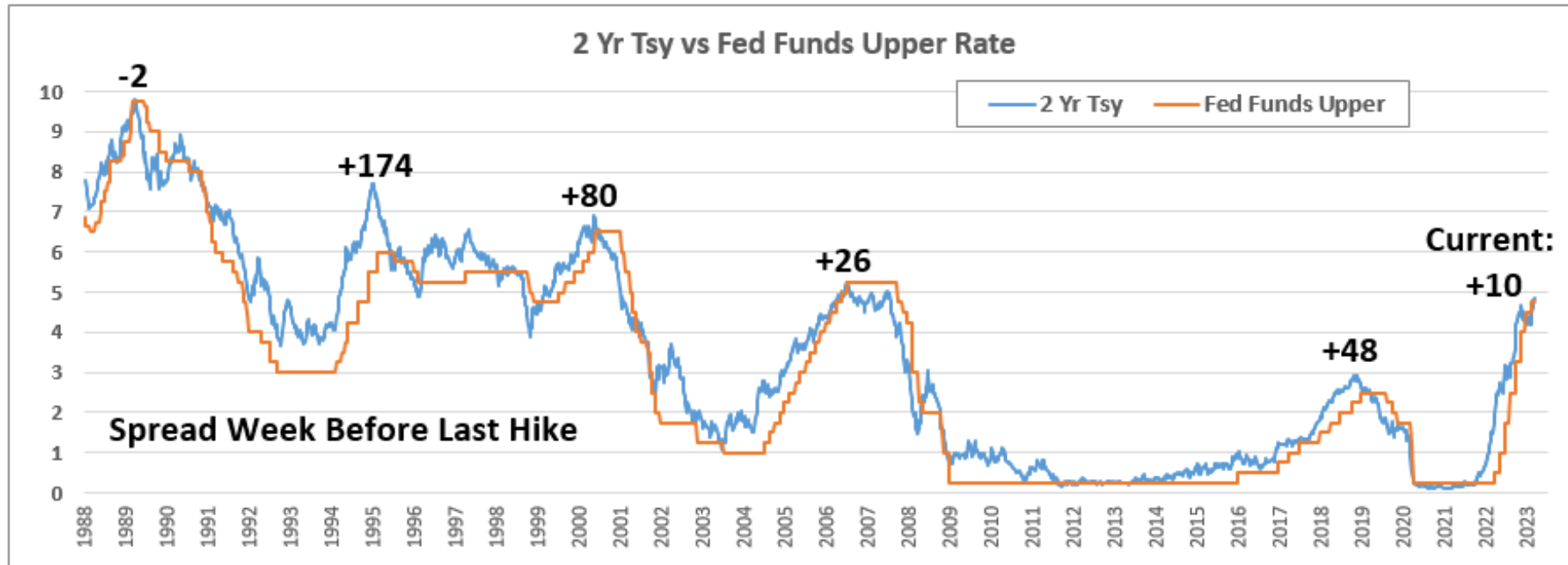
Source: Bloomberg, Google

# Inflation and Rates are Correlated...Well Kind Of



Source: FRED

# 2y Fed Funds SPREDDDDDDDDDDDDDDDDDD



Source: Bloomberg

# Investment Program's Primary Objectives

**1. Safety of Principal:** Safety of principal is the foremost objective of the [entity's] investment program. Investments by the [designated official] shall be undertaken in a manner that seeks to ensure the preservation of capital in the overall portfolio. To attain this objective, diversification of security types, sectors, issuers, and maturities is necessary in order that potential losses on individual securities do not exceed the income generated from the remainder of the portfolio.

**2. Liquidity:** The investment portfolio shall be structured to timely meet expected cash outflow needs and associated obligations which might be reasonably anticipated. This objective shall be achieved by matching investment maturities with forecasted cash outflows and maintaining an additional liquidity buffer for unexpected liabilities.

**3. Investment Income:** The investment portfolio shall be designed to earn a market rate of investment income in relation to prevailing budgetary and economic cycles, while taking into account investment risk constraints and liquidity needs of the portfolio.



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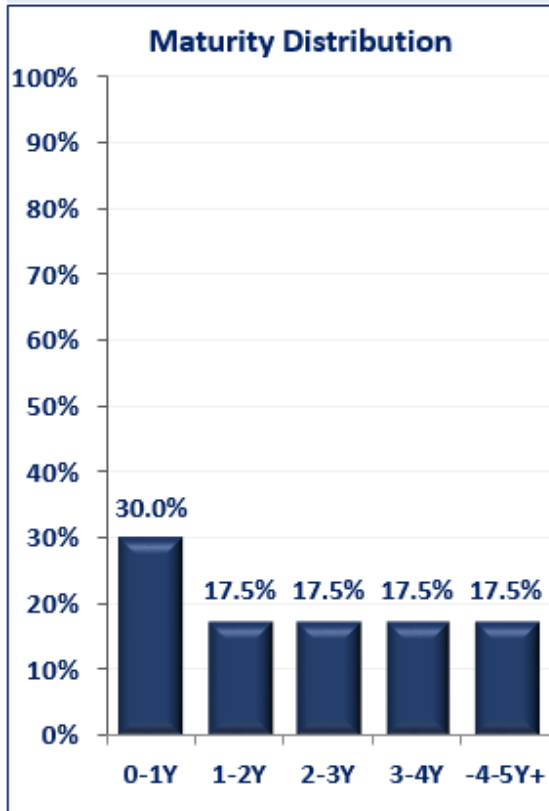


Sponsorship Benefits

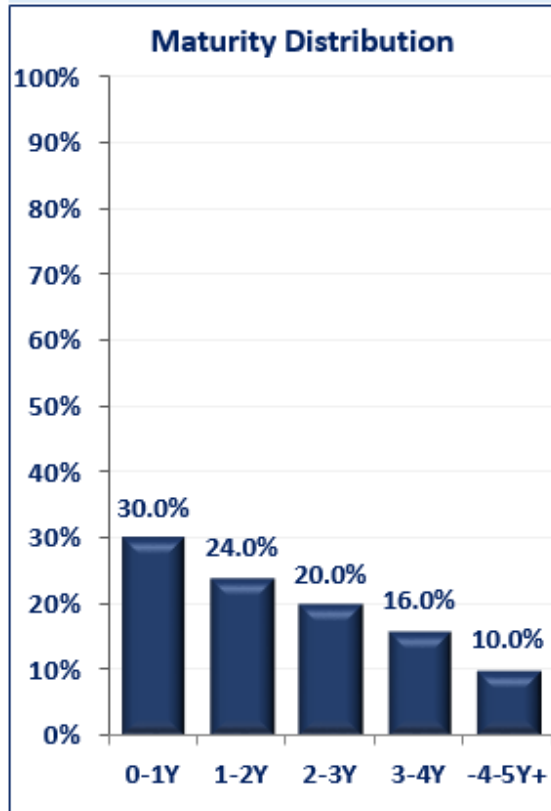
# Different Operating Portfolio Strategies/Structures

## Proactive Management or Buy & Hold

### Cash Flow Matching

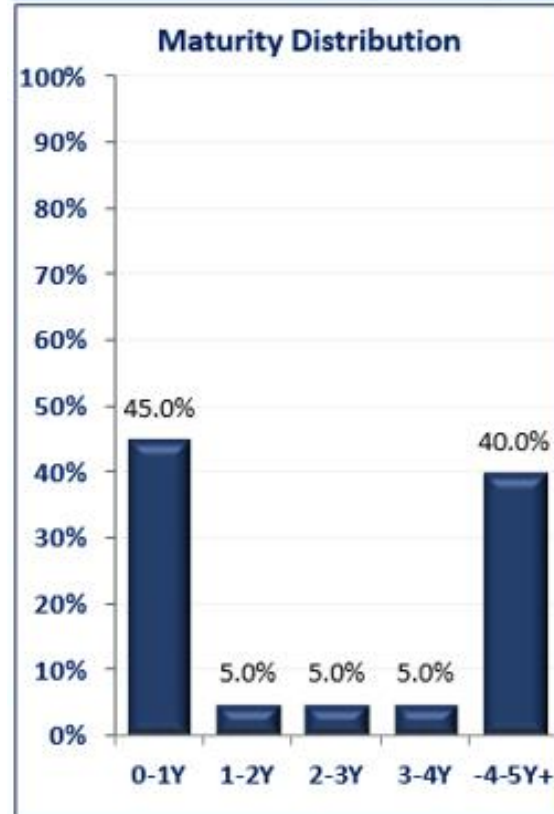


### Index Matching

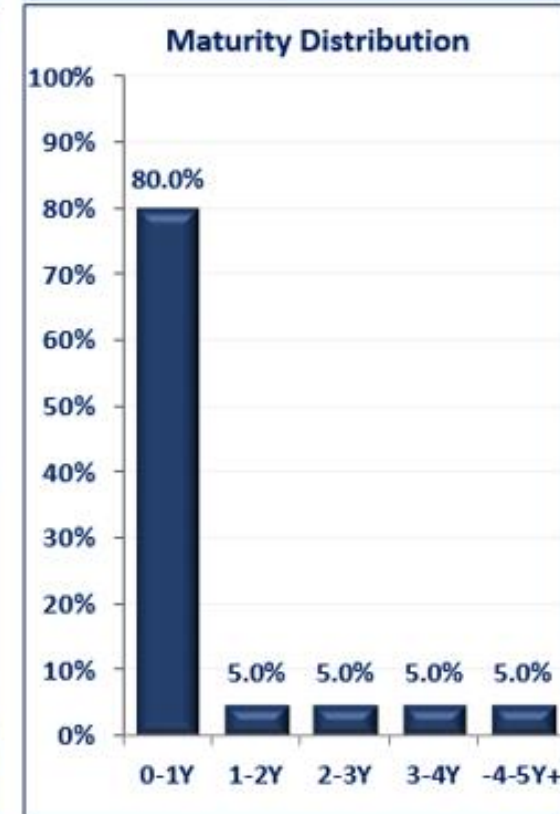


## Active Management

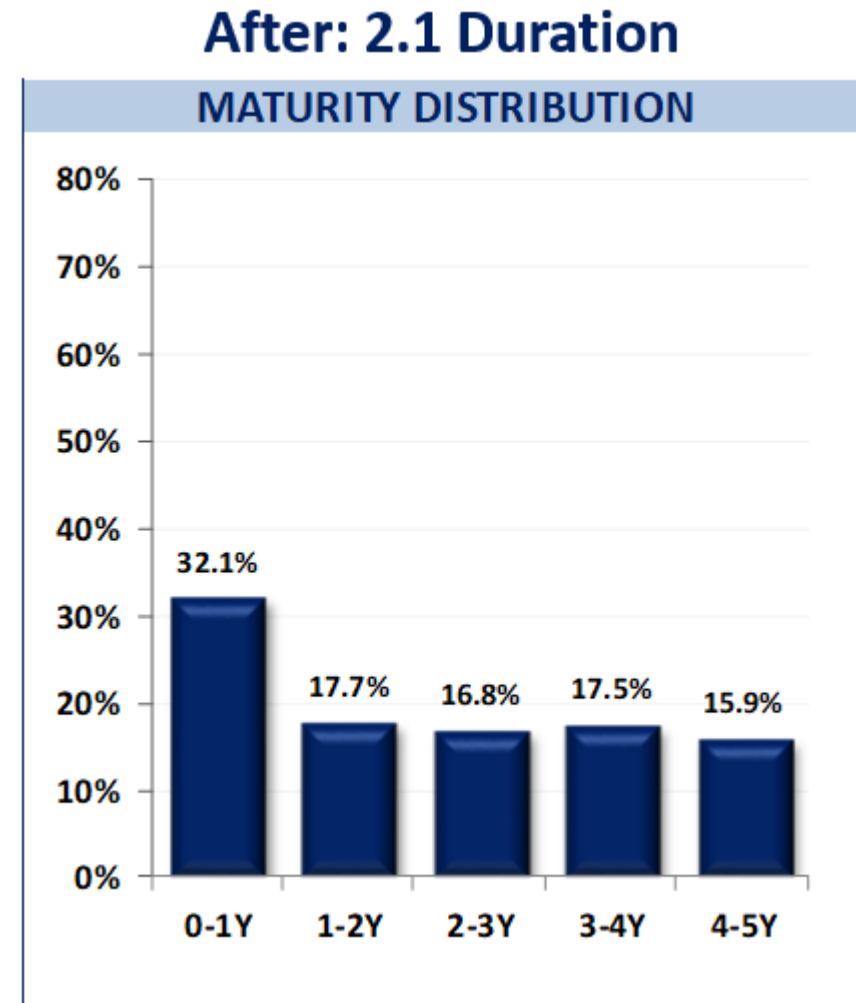
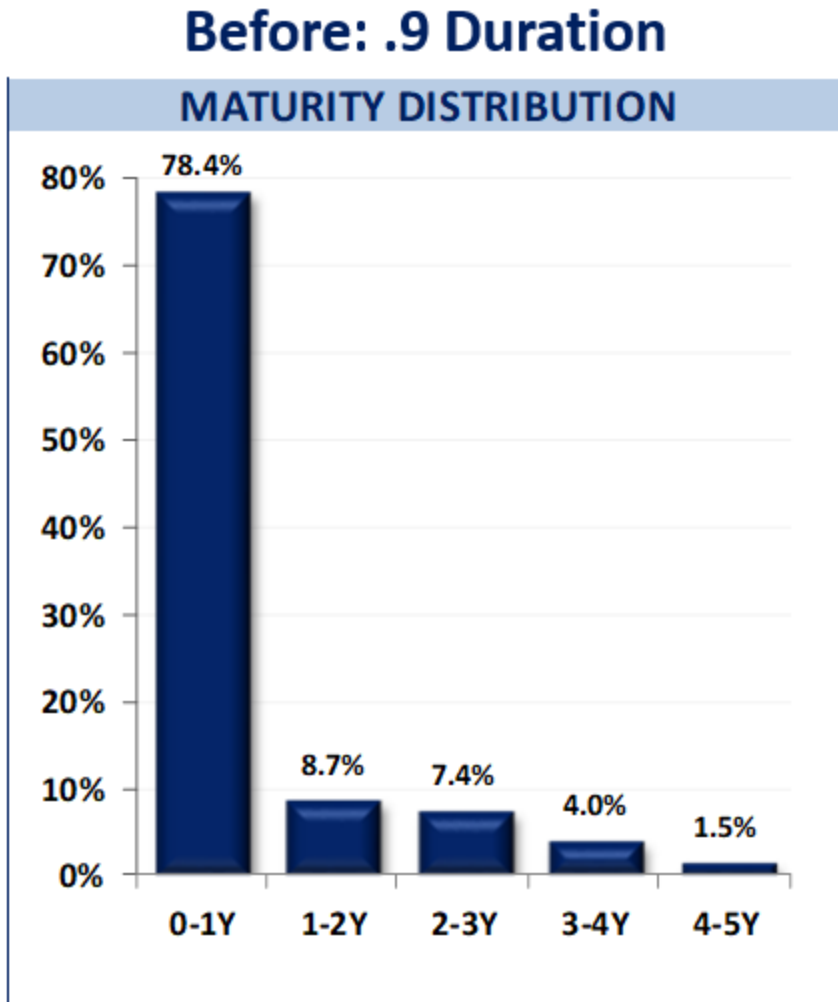
### Barbell/Maketing Timing



### Market Timing/Relative Value

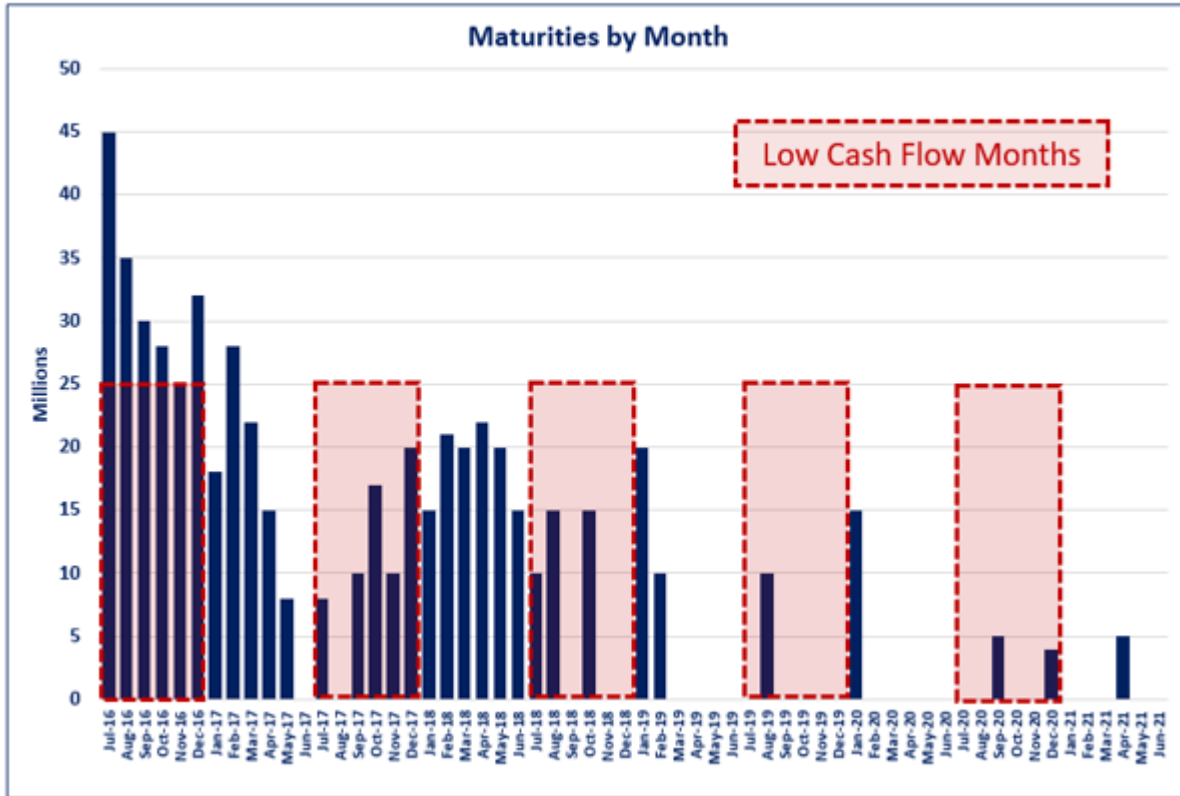


# Before/After: Implementing a Asset/Liability Matching Strategy

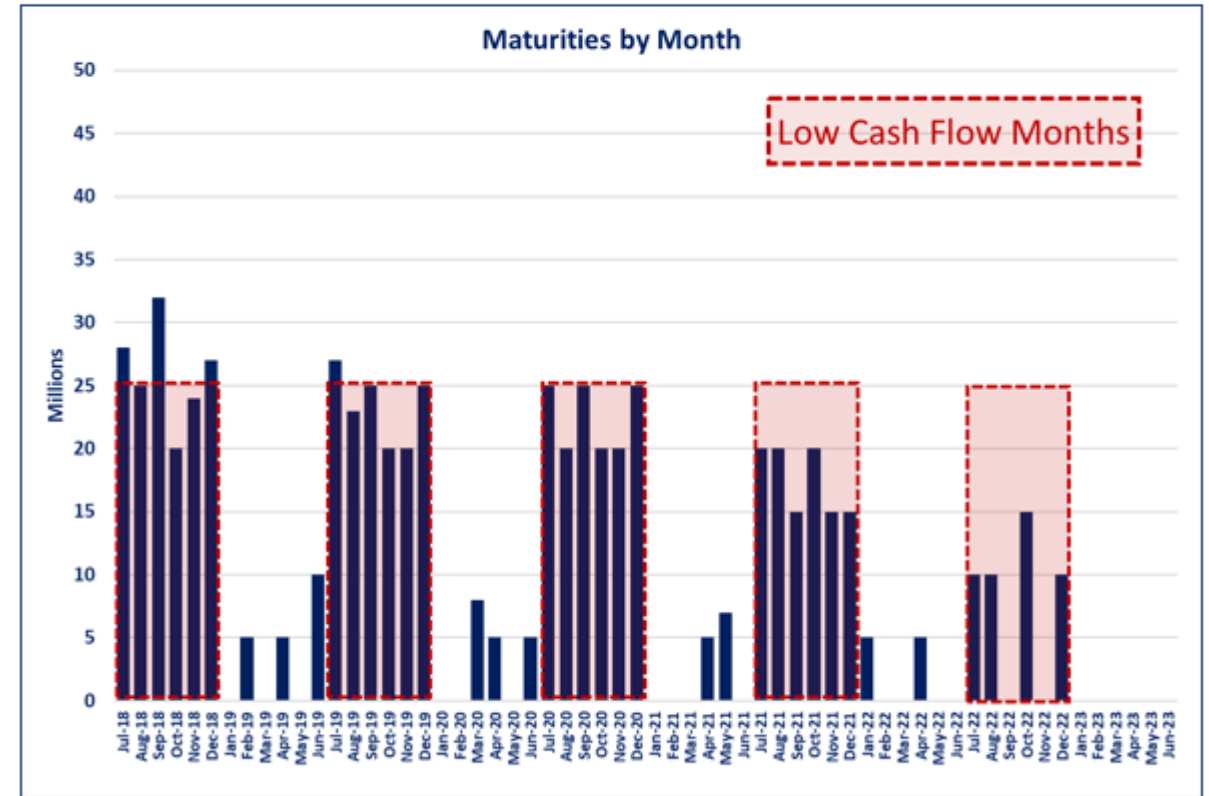


# Cash Outflow Matching Strategy Detailed Changes

## Before: .9 Duration



## After: 2.1 Duration

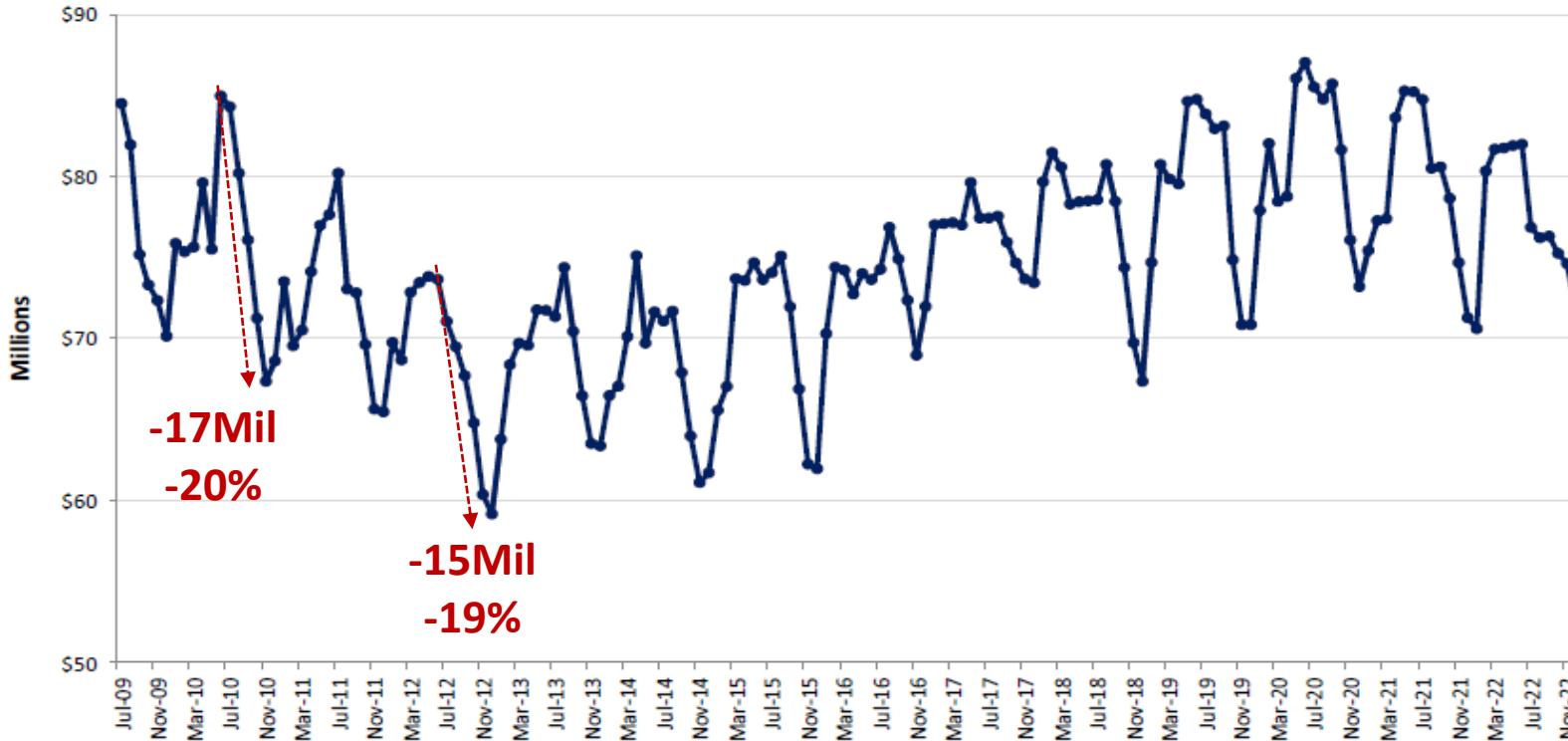


# Cash Flows May Not Repeat Exactly...But Usually Rhyme

City of San Ramon

Historical Book Values

12/31/2022



	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
Fiscal Year 2019	\$78.5	\$80.7	\$78.4	\$74.4	\$69.7	\$67.3	\$74.7	\$80.7	\$79.8	\$79.5	\$84.6	\$84.8
Fiscal Year 2020	\$83.8	\$82.9	\$83.1	\$74.8	\$70.8	\$70.8	\$77.9	\$82.0	\$78.4	\$78.8	\$86.0	\$87.0
Fiscal Year 2021	\$85.5	\$84.8	\$85.7	\$81.6	\$76.1	\$73.2	\$75.4	\$77.3	\$77.4	\$83.6	\$85.3	\$85.2
Fiscal Year 2022	\$84.7	\$80.5	\$80.6	\$78.6	\$74.7	\$71.3	\$70.6	\$80.3	\$81.7	\$81.8	\$81.9	\$82.0
Fiscal Year 2023	\$76.8	\$76.2	\$76.3	\$75.2	\$74.6	\$71.7						

Average Daily Balance

Source: FHN Main Street

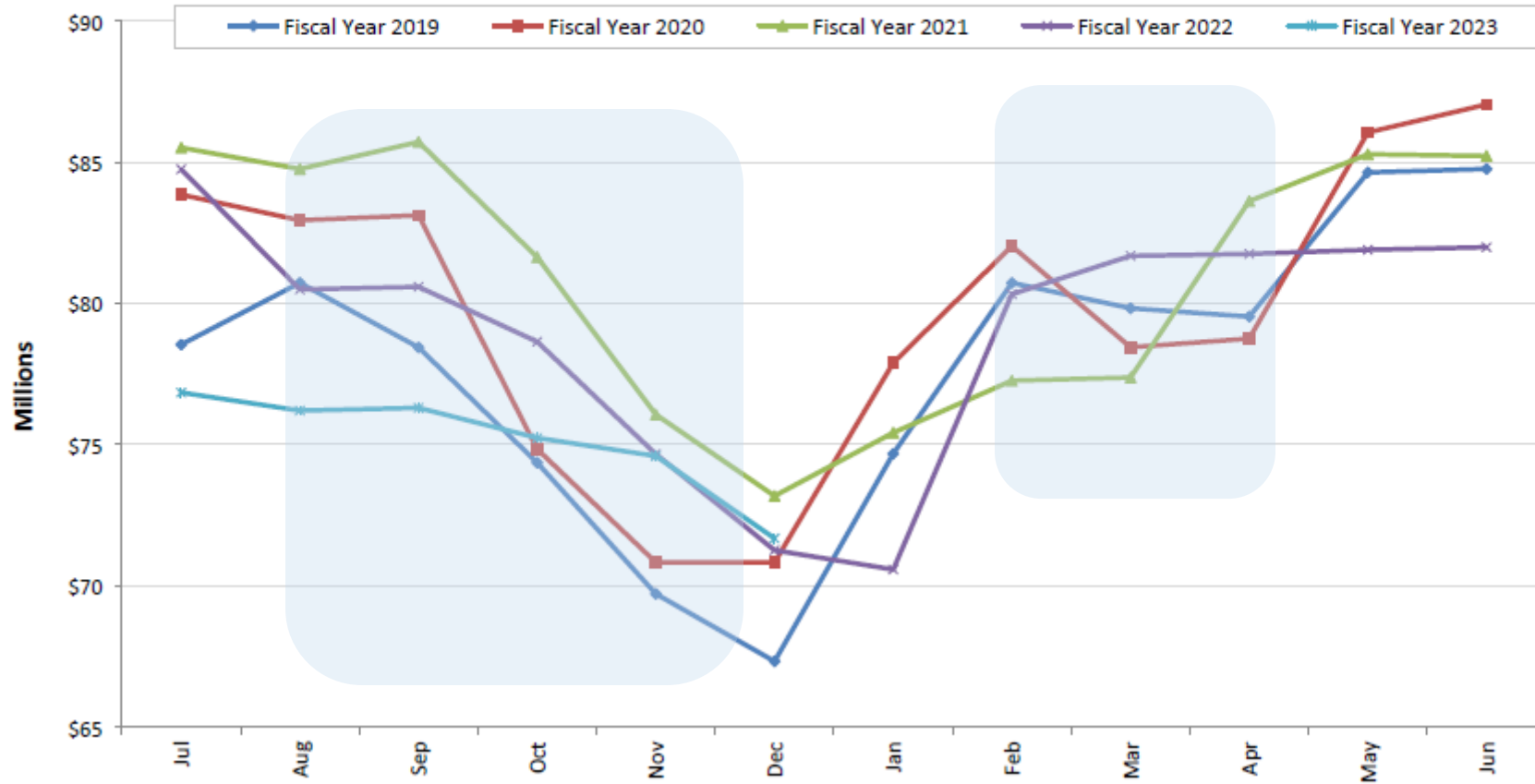


# Knowing the Rhyme Helps Match Assets with Liabilities

City of San Ramon

Historical Book Values Per Fiscal Year

12/31/2022



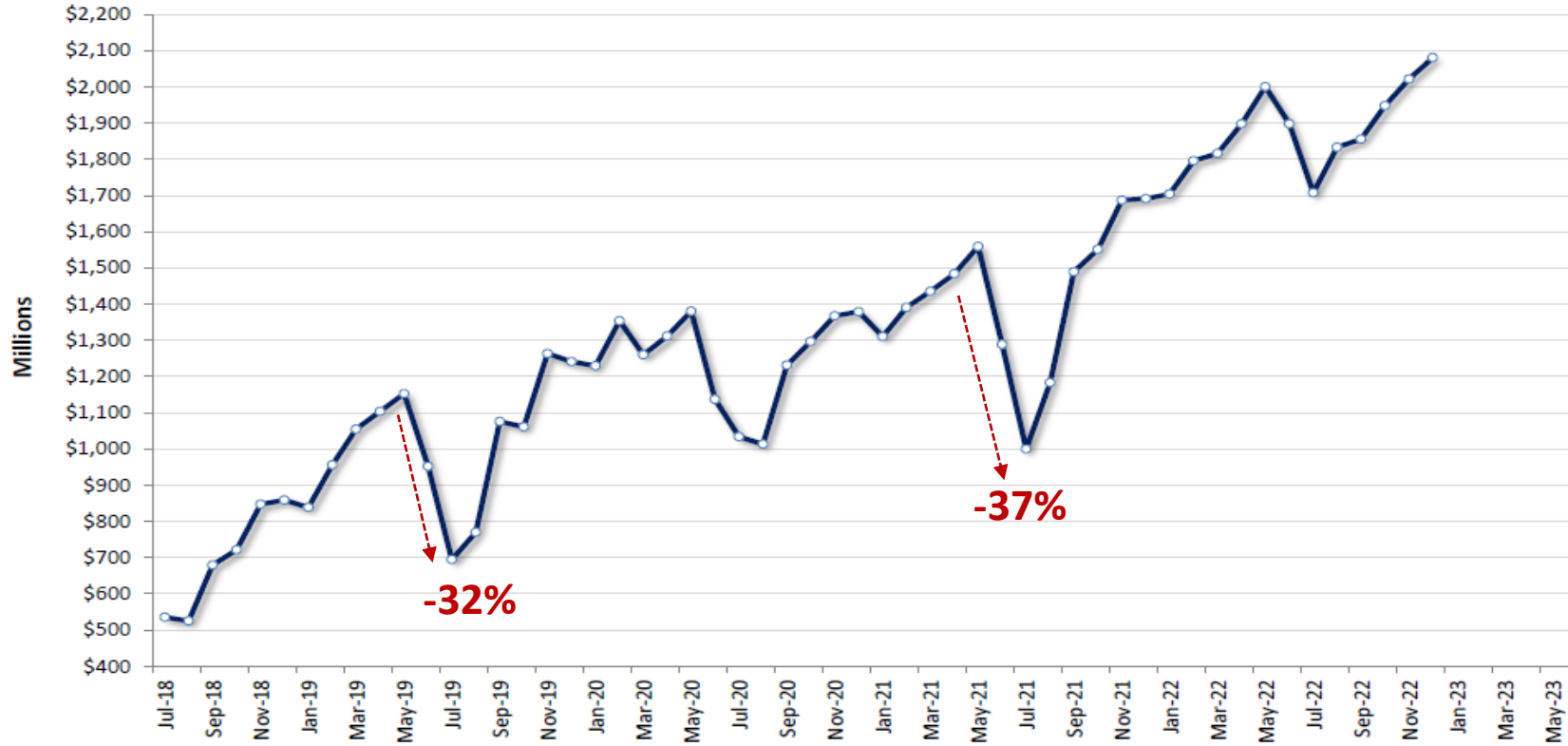
Source: FHN Main Street

# Bigger Drawdowns = Lower WAM/Duration

Combined CCSD General Portfolio

Historical Book Values

12/31/2022



	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Average
FY 2019	\$535.7	\$525.2	\$679.6	\$722.0	\$847.4	\$859.4	\$838.6	\$956.1	\$1,054.9	\$1,104.0	\$1,152.8	\$952.0	\$852.3
FY 2020	\$694.8	\$770.1	\$1,078.0	\$1,060.9	\$1,263.4	\$1,241.0	\$1,229.6	\$1,353.7	\$1,260.3	\$1,311.5	\$1,380.8	\$1,137.2	\$1,148.4
FY 2021	\$1,033.7	\$1,013.7	\$1,231.8	\$1,296.9	\$1,367.6	\$1,379.1	\$1,310.8	\$1,390.6	\$1,435.3	\$1,483.7	\$1,559.3	\$1,288.5	\$1,315.9
FY 2022	\$1,000.0	\$1,183.2	\$1,489.0	\$1,551.3	\$1,687.0	\$1,691.1	\$1,704.3	\$1,795.6	\$1,816.2	\$1,891.7	\$2,000.6	\$1,897.6	\$1,642.3
FY 2023	\$1,707.3	\$1,833.5	\$1,855.5	\$1,948.1	\$2,021.3	\$2,080.5							\$1,907.7

Figures in Millions, Average Monthly Book Value, Includes ABS/MBS Portfolio As Of July 2020

Source: FHN Main Street



# Security Type Selection for Different Strategies

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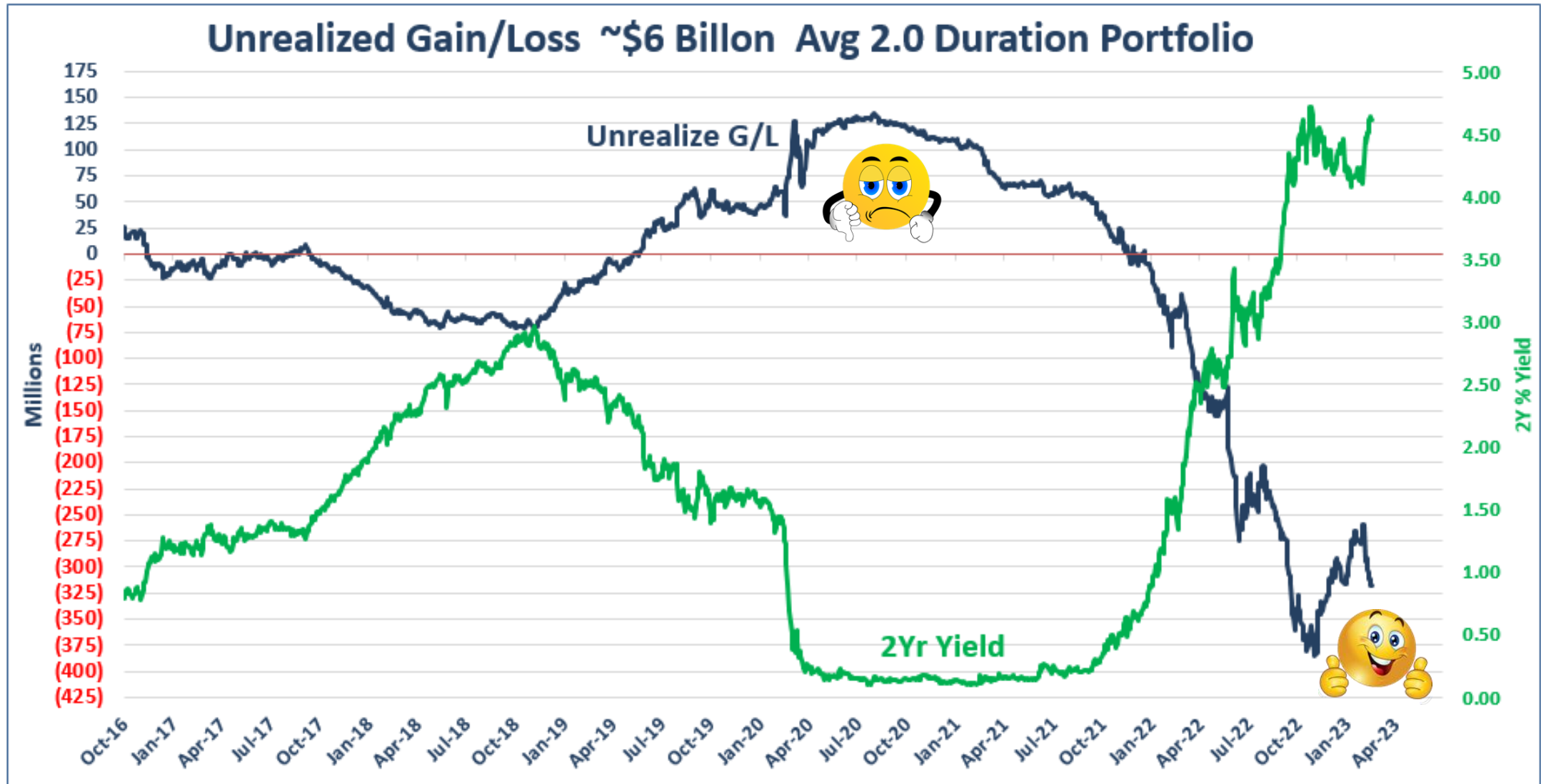
## Securities to Match Cash Outflows:

- Bullets
- ABS Credit Card (soft bullets)
- Floating Rate Notes

## Securities to Market Time:

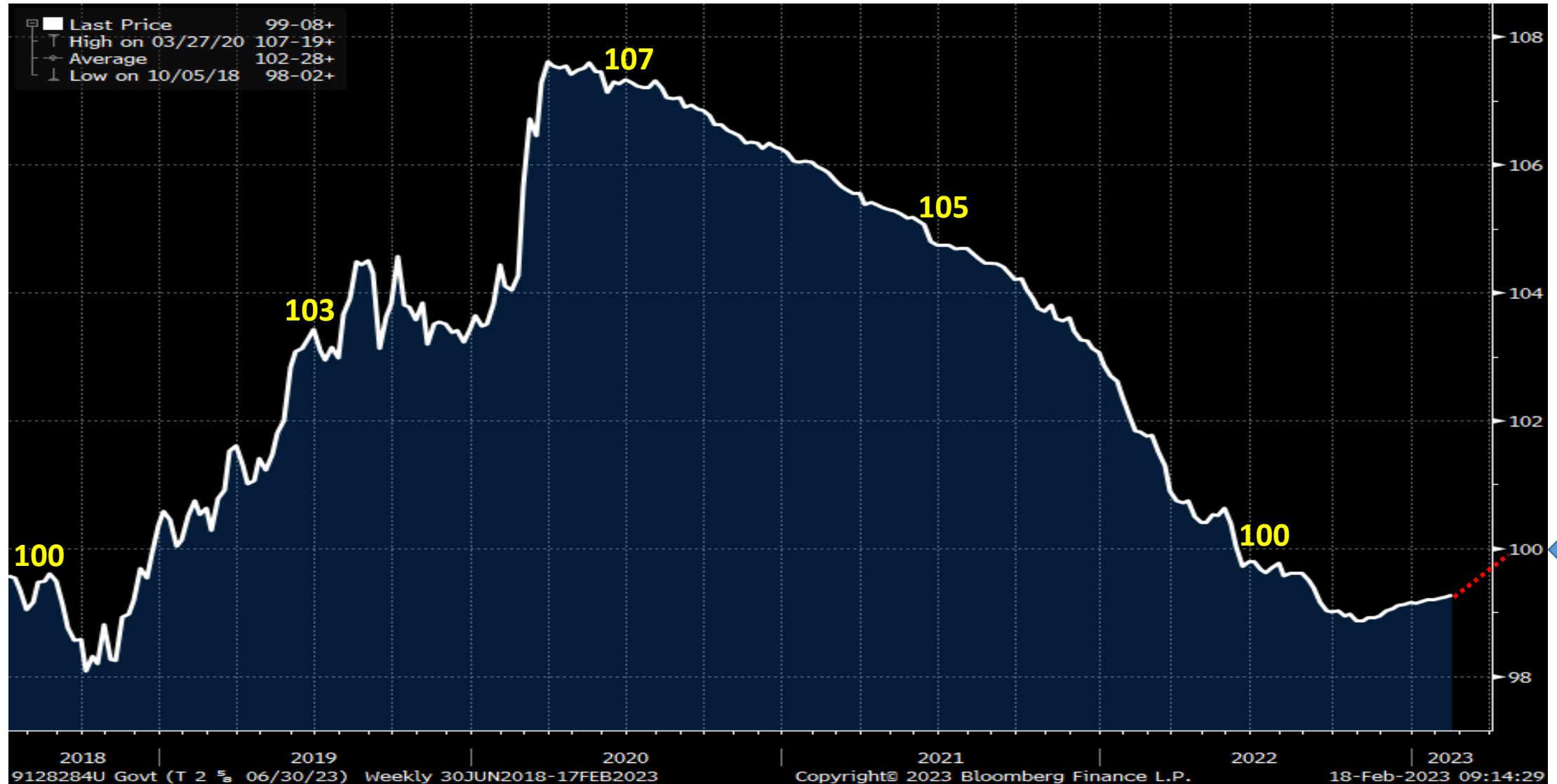
- Bullets
- Paydowns (ABS/MBS/SBA)
- Floating Rate Notes
- Callables
- Step-Ups/Step-Downs
- Bond Mutual Funds
- Floating NAV Funds

# The “Bad News of Good News”



Source: FHN Main Street

# The Goofiness of GASB 31 - 5 Year T-Note Issued 6/30/18, Matures 6/30/23



Source: Bloomberg



Bonds are Different Investment Creatures than Bond Funds, Stocks, Crypto

# Disclosure

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