



**PUBLIC FUNDS INVESTMENT: STRATEGY IN PRACTICE**  
JANUARY 25-26, 2023 | MONTEBELLO, CALIFORNIA

# Public Fund Investment Bootcamp

## Rick Phillips

- City of Las Vegas Investment Officer 1989-1998
- Clark County Chief Investment Officer 1998-2005
- FHN Main Street President & Chief Investment Officer 2005 - Present
- Manage/Consult on \$50+ Billion AUM for states and local agencies
- GIOA Founder

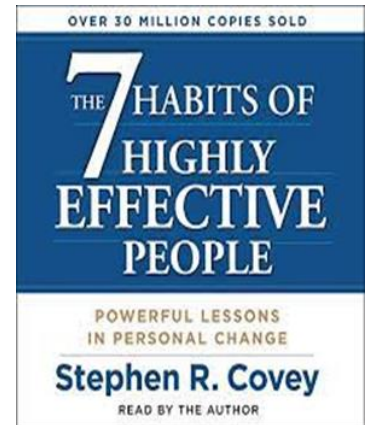
## Kevin Webb, CFA

- RW Baird, Managing Director



# 7 Habits of Highly Effective Investment Programs

1. You Have a Detailed Asset/Liability Matching Model (aka: Cash Flow Model)
2. You Have a Responsible Amount of Interest Rate Risk and Credit Risk
3. You Don't Try to Time the Market
4. You Love Losses and Hate Gains (the unrealized kind)
5. You Follow GAAP (Generally Accepted Accounting Principles)
6. You Benchmark Your Investment Program and Portfolio in Multiple Ways
7. You Provide Quality, Timely, Transparent Reporting



Putting the  in Your Favor

# Habit #1

**You Have a Detailed Asset/Liability Matching Model  
(aka: Cash Flow Model)**

# GIOA Model Investment Policy 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.

# Detailed Asset/Liability (Cash Flow) Model

- **If You Don't Know Where You've Been, You Won't Know Where You're Going**
- **Many Municipalities Have Too Much Liquidity** (But Your Risk is Asymmetrical)

## Cash Flow Model:

- Daily for 12 Months
- Monthly for 5 Years
- Worry About the Big Rocks (80/20 Rule)
- Excel is Awesome!

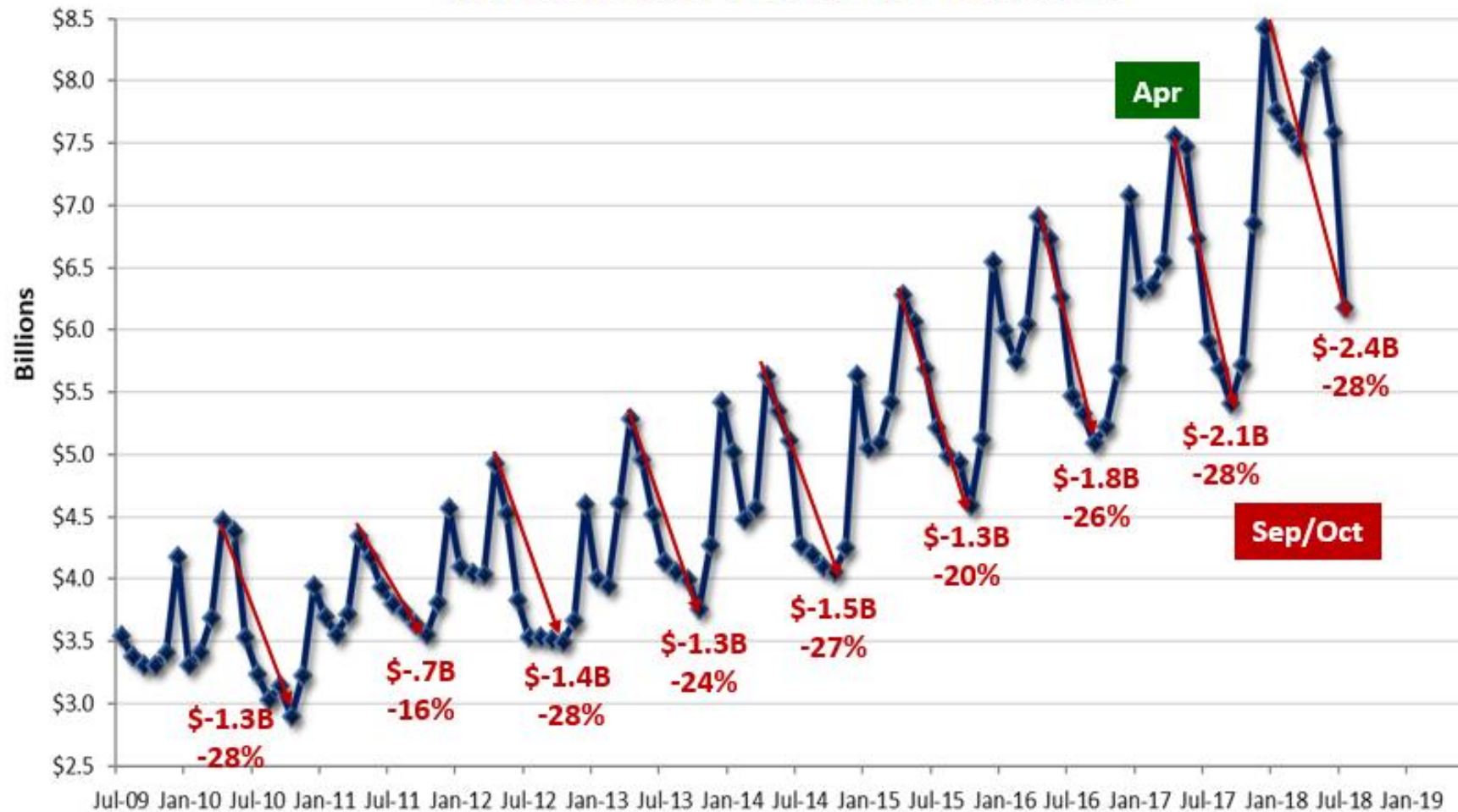
**You Have a Responsible  
Amount of Liquidity to  
Ensure You Don't Need  
to Sell a Security for  
Liquidity**

# Cash Flow Model...Excel is Awesome!

		Current FY: 701.5 166.5 220.2 343.9 0.0 0.0						288.6 19.0 90.5 436.8 0.0 192.4 408.5						LGIP/MMF			
\$789.9		WASHOE COUNTY INFLOWS (\$Mil)							WASHOE COUNTY OUTFLOWS (\$Mil)							137.1	
Date	Begin	Inv	Prop	Top	Other	Bond	Total	Inv	Debt	OPEB /	Other/	Prop Tax	Total	End			
	MMF/LGIP	Mat/Sell	Tax	Rev	InterGov	C-Tax	Proceeds	Misc	Purchase	Payroll	Svs	PERS	A/P	RBIF	Misc	Apport	MMF/LGIP
Sun	12/25/22	69.9					69.9									0.0	69.9
Mon	12/26/22	69.9					69.9						0.6			0.6	59.5
Tue	12/27/22	59.5			0.5		60.0		2.3				1.5			3.8	59.5
Wed	12/28/22	59.5		45.0	2.0		106.5						7.9	2.0		9.9	59.5
Thu	12/29/22	59.5			0.1		59.6		0.7				1.2			2.0	59.5
Fri	12/30/22	59.5		24.9	4.0	0.0	26.3			3.6			2.0		6.2	11.8	135.1
Sat	12/31/22	135.1					135.1									0.0	135.1
Sun	1/1/23	135.1					135.1									0.0	135.1
Mon	1/2/23	135.1					135.1									0.0	135.1
Tue	1/3/23	135.1					135.1									0.0	135.1
Wed	1/4/23	135.1					135.1									0.0	135.1
Thu	1/5/23	135.1					135.1						8.1			8.1	127.0
Fri	1/6/23	127.0		32.5	2.3	4.0	165.8		11.3						2.7	14.0	151.8
Sat	1/7/23	151.8					151.8									0.0	151.8
Sun	1/8/23	151.8					151.8									0.0	151.8
Mon	1/9/23	151.8					151.8									0.0	151.8
Tue	1/10/23	151.8					151.8									0.0	151.8
Wed	1/11/23	151.8					151.8									0.0	151.8

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

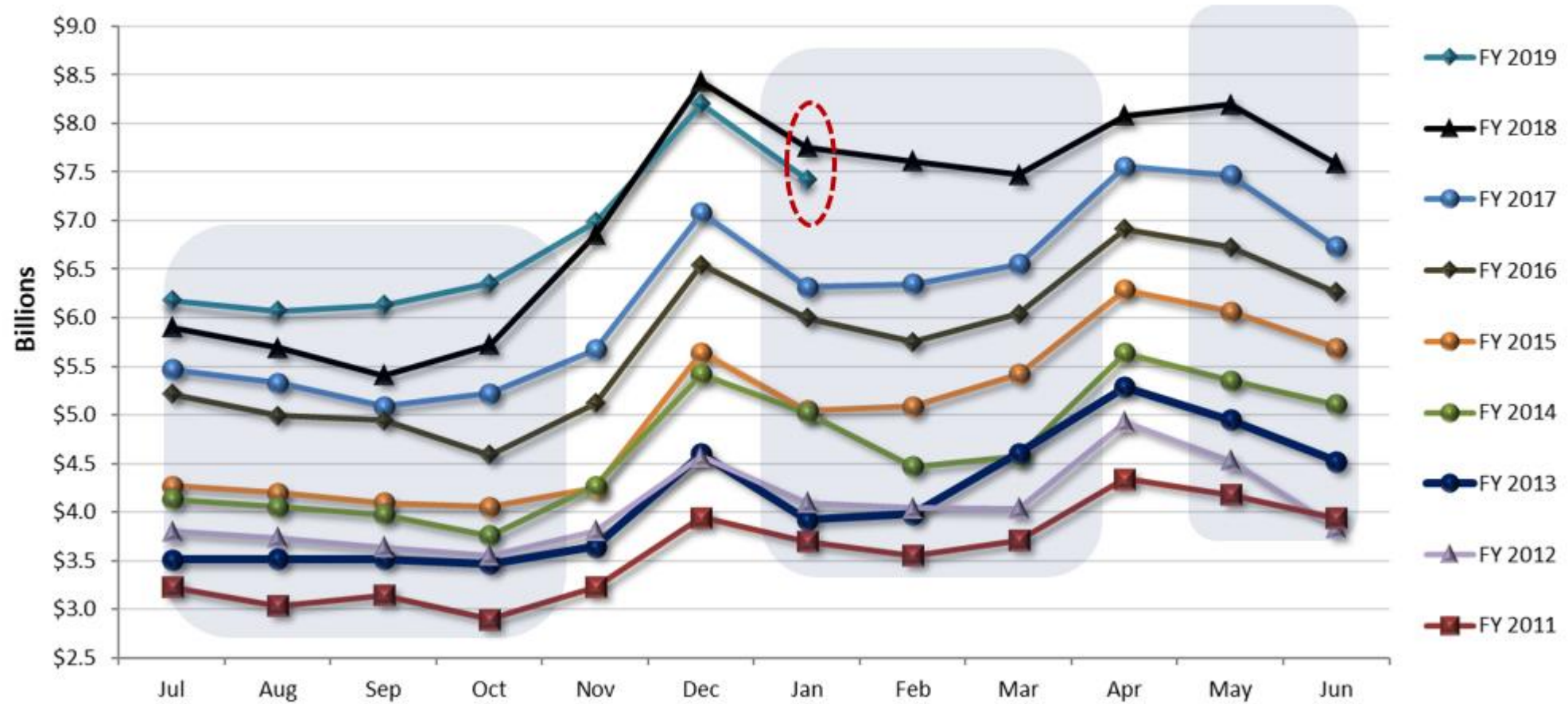
## Month End Portfolio Balance





# Knowing the Rhyme Helps Match Assets with Liabilities

## Month End Portfolio Balance by Fiscal Year



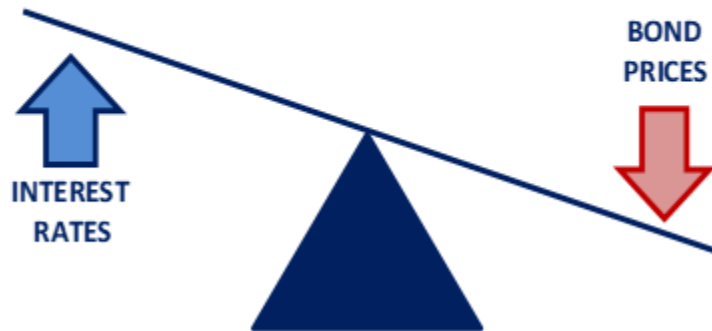
# Habit #2

**You Have a Responsible Amount of  
Interest Rate Risk and Credit Risk**



Which Risk Has the Largest Long-Term Impact on My Investment Income?

## Interest Rate Risk



## Credit Risk



# Optimal Operating Fund Duration: Risk Adjusted Return



**Benchmark Treasury Modified Sharp Ratio Analysis**  
1/31/1990 to 12/31/2019

Maturity	Avg Yield	Avg Duration	Modified Sharp Ratio	% Return of 30Yr / % 30Yr Risk
3 Mon T-Bill	2.78	0.24		62% / 3%
6 Mon T-Bill	2.91	0.48	0.277	65% / 6%
1 Yr T-Bill	3.04	0.97	0.271	67% / 12%
<b>Sweet Spot</b> 2 Yr T-Note	3.35	1.90	0.299	74% / 24%
3 Yr T-Note	3.57	2.85	0.277	79% / 36%
5 Yr T-Note	3.97	4.45	0.267	88% / 56%
10 Yr T-Note	4.52	7.96	0.218	100% / 100%

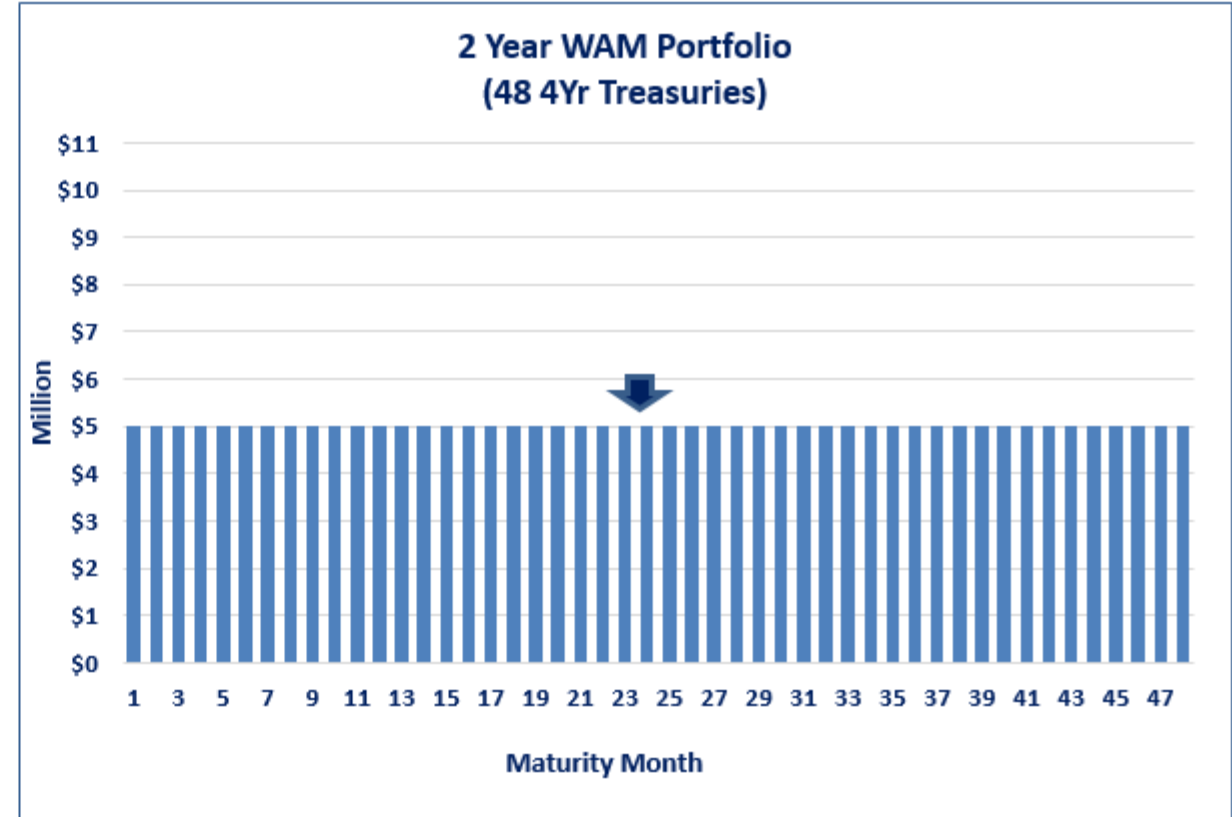
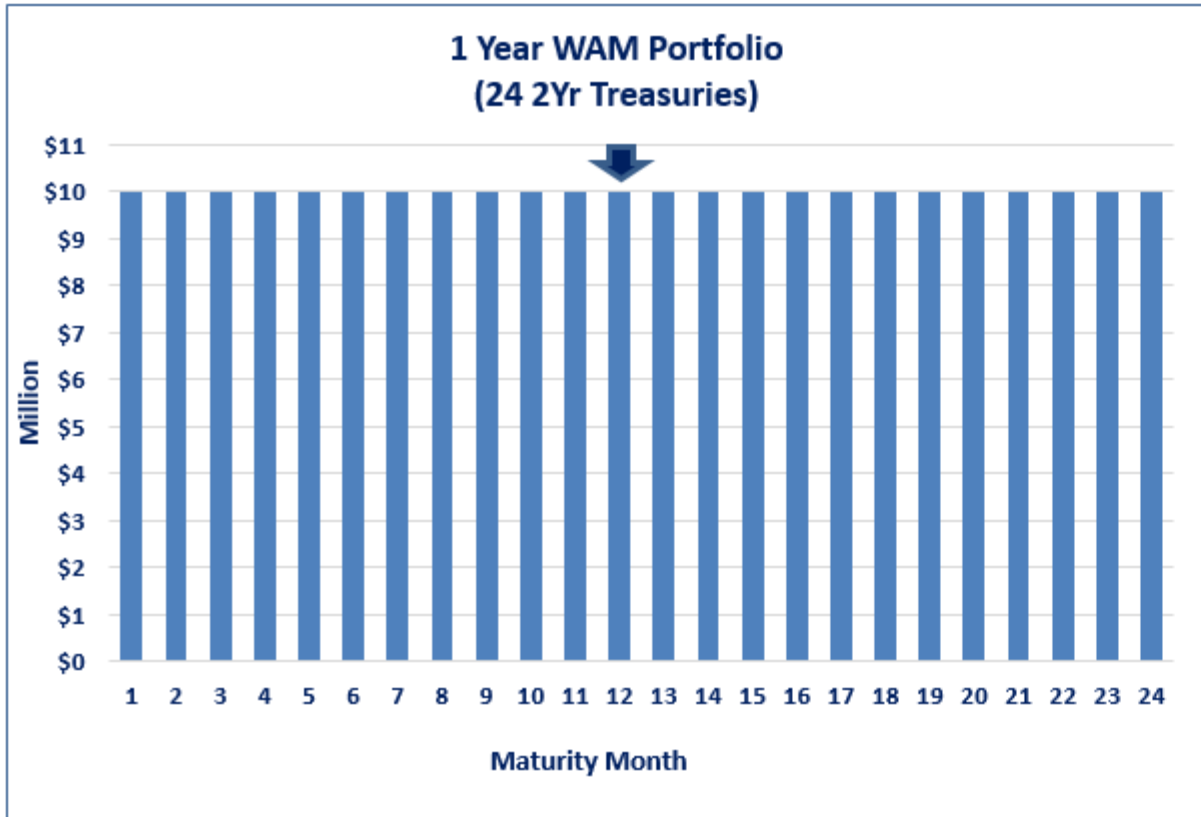


$$(\text{Avg Yield} - \text{Risk Free Yield}) / \text{Avg Duration} = \text{MSR}$$

$$(3.35\% \text{ 2y} - 2.78\% \text{ 3m}) / 1.90 \text{ 2y} = .299$$

<p>3.35% 2yr / 4.52% 10yr = 74%</p> <p><b>Yield Comparison</b></p>	<p>1.90 2Yr / 7.96 10Yr = 24%</p> <p><b>Duration Comparison</b></p>
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# 1 Year Weighted Avg Maturity vs. 2 Year Weighted Avg Maturity





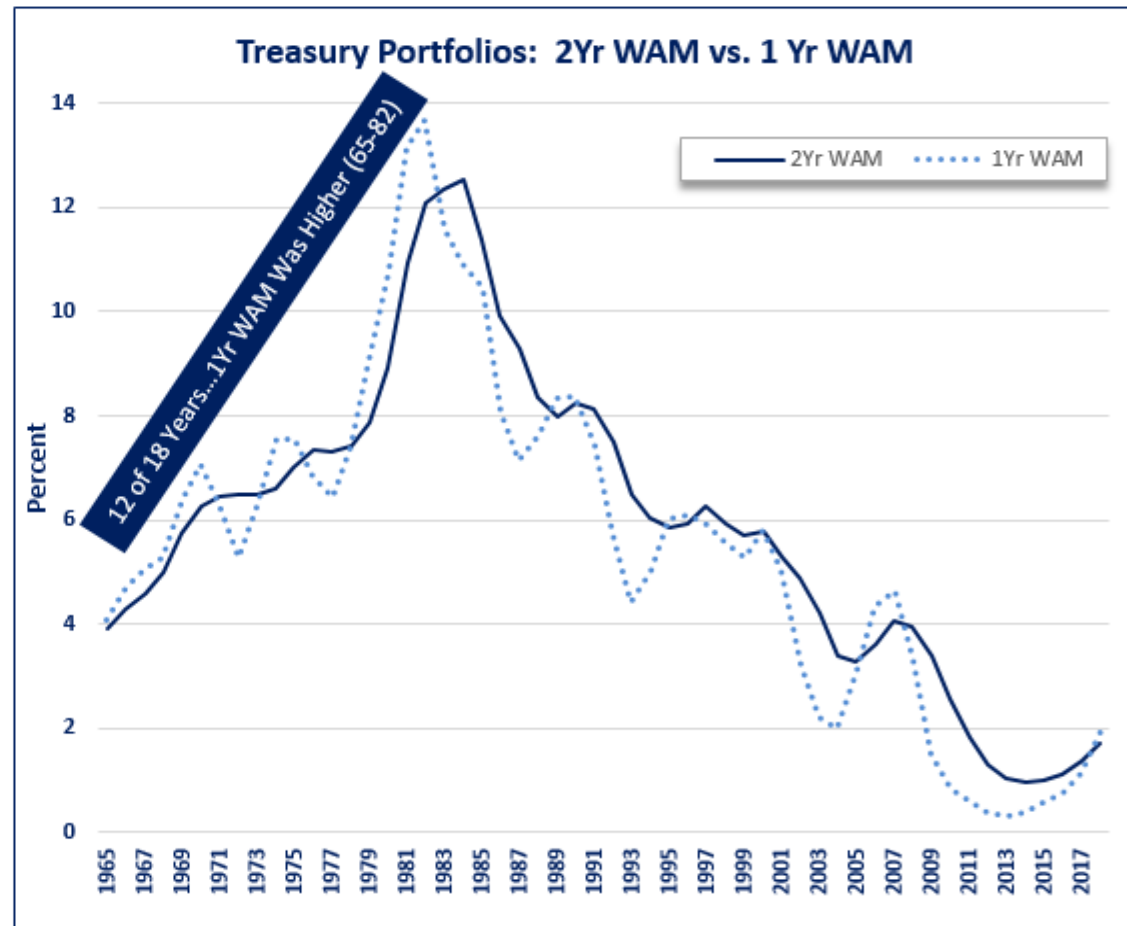
# 1 Year WAM vs. 2 Year WAM: A Long View of Returns

Year	1Y WAM	2Y WAM	Var
1965	4.06	3.90	(0.16)
1966	4.70	4.30	(0.40)
1967	5.05	4.60	(0.45)
1968	5.28	5.00	(0.29)
1969	6.38	5.73	(0.65)
1970	7.08	6.27	(0.81)
1971	6.31	6.46	0.15
1972	5.29	6.50	1.21
1973	6.24	6.48	0.24
1974	7.57	6.60	(0.97)
1975	7.56	7.01	(0.56)
1976	6.85	7.34	0.49
1977	6.43	7.31	0.88
1978	7.40	7.44	0.04
1979	9.06	7.87	(1.18)
1980	10.77	8.91	(1.86)
1981	13.17	10.94	(2.22)
1982	13.68	12.11	(1.57)
1983	11.61	12.34	0.74
1984	10.91	12.55	1.65
1985	10.46	11.38	0.93
1986	8.07	9.94	1.87
1987	7.15	9.30	2.15
1988	7.64	8.35	0.71
1989	8.34	7.97	(0.37)
1990	8.37	8.25	(0.11)
1991	7.44	8.13	0.69

1Yr WAM Avg Yield= 5.53

Year	1Y WAM	2Y WAM	Var
1992	5.74	7.49	1.75
1993	4.41	6.49	2.08
1994	4.99	6.03	1.03
1995	6.00	5.84	(0.16)
1996	6.08	5.91	(0.16)
1997	5.91	6.26	0.35
1998	5.56	5.93	0.37
1999	5.26	5.71	0.45
2000	5.81	5.77	(0.04)
2001	5.04	5.29	0.25
2002	3.23	4.87	1.64
2003	2.20	4.19	2.00
2004	1.97	3.39	1.42
2005	3.12	3.27	0.16
2006	4.33	3.60	(0.74)
2007	4.64	4.05	(0.59)
2008	3.34	3.95	0.61
2009	1.48	3.37	1.89
2010	0.83	2.56	1.73
2011	0.60	1.80	1.20
2012	0.38	1.27	0.89
2013	0.29	1.02	0.73
2014	0.39	0.96	0.57
2015	0.55	0.98	0.43
2016	0.74	1.12	0.38
2017	1.12	1.37	0.25
2018	1.96	1.72	(0.24)

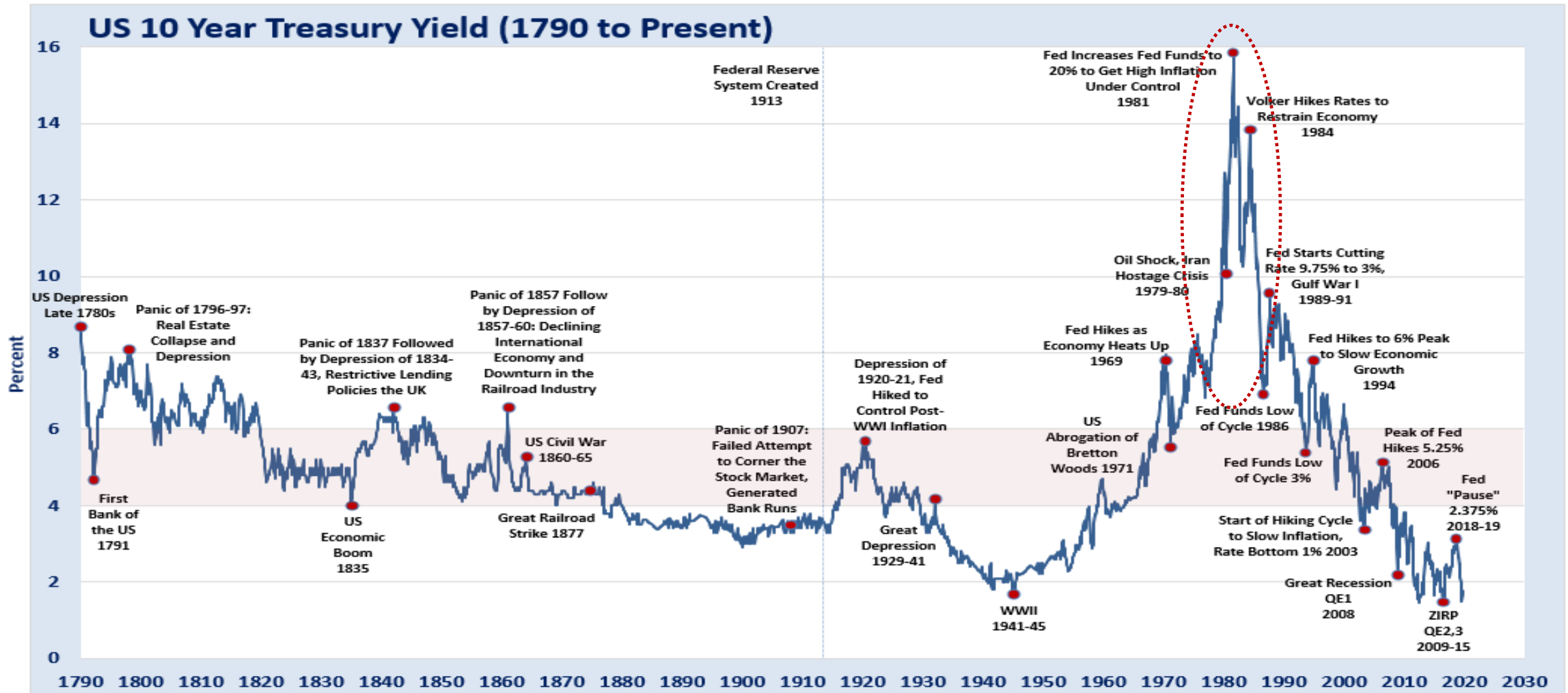
2Yr WAM Avg Yield= 5.87



Notes: 2Yr WAM is the 48 month moving average of the 4yr treasury, the 1Yr WAM is the 24 month moving average of the 2 year treasury  
The 4yr treasury is the average of the 3yr and 5yr treasury, since the US Treasury does not issue a 4 yr treasury

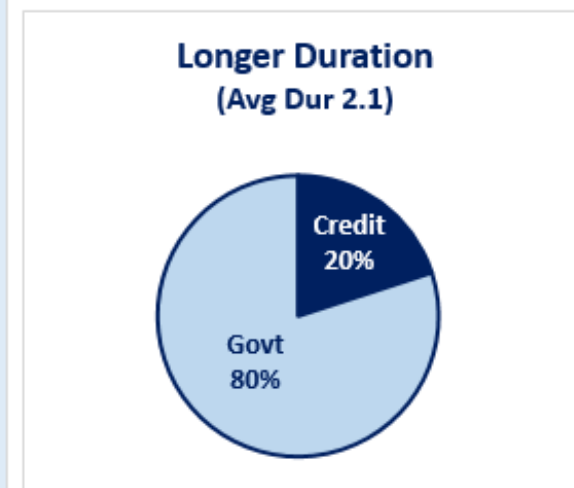
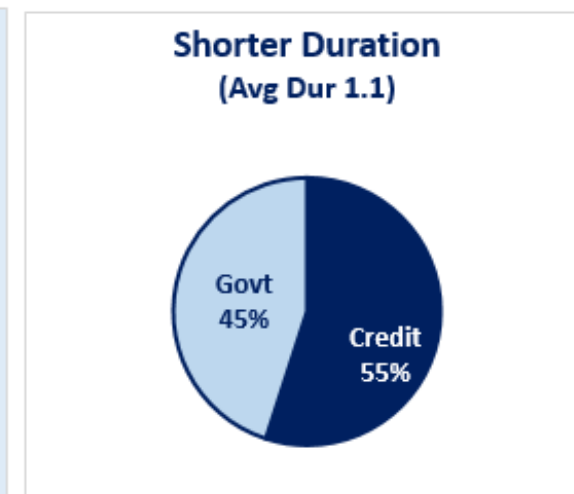
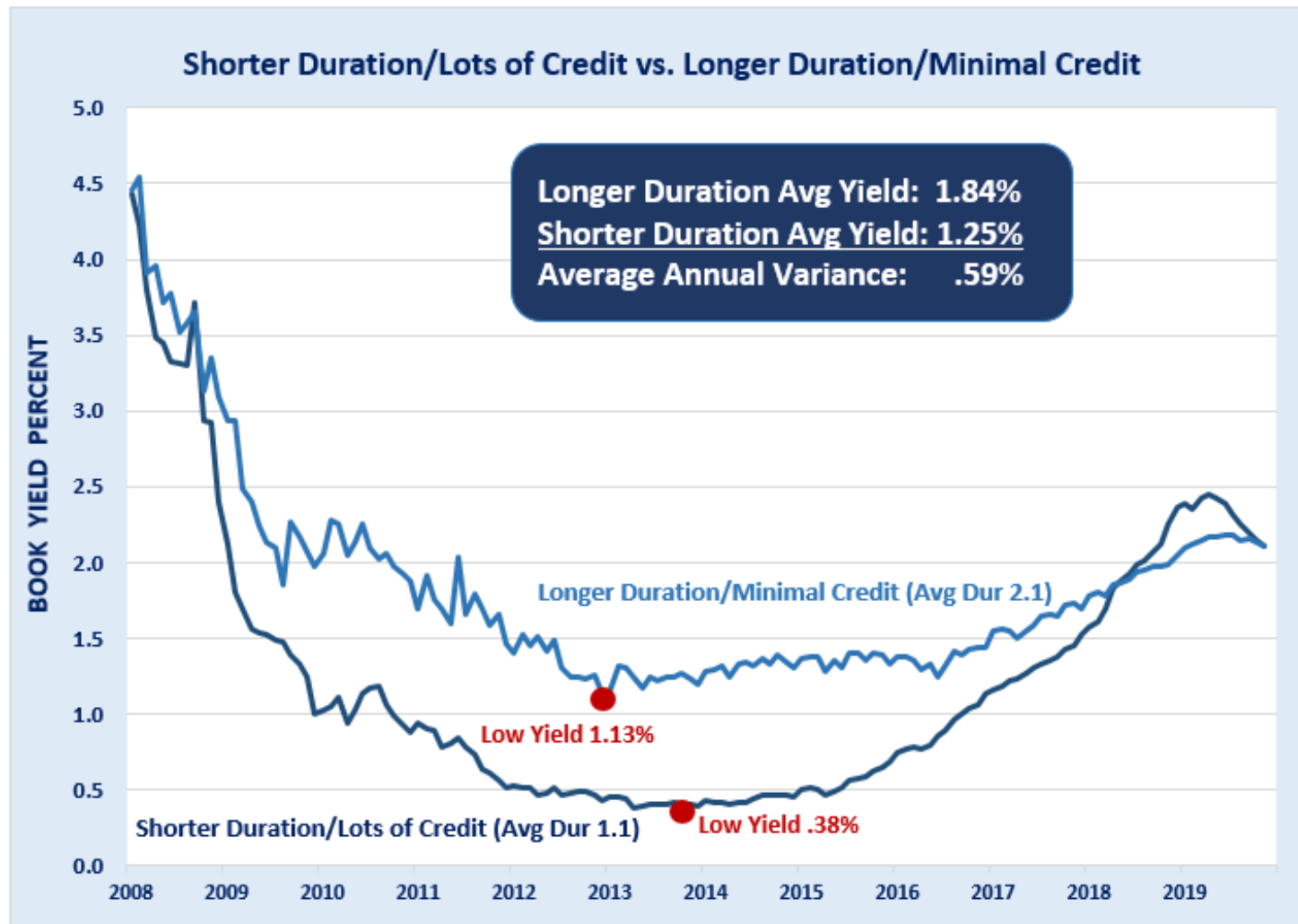
Source: Bloomberg

# The Worry of Skyrocketing Interest Rates??

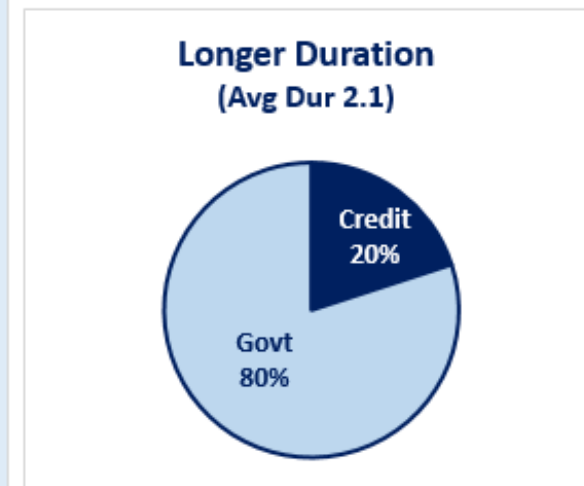
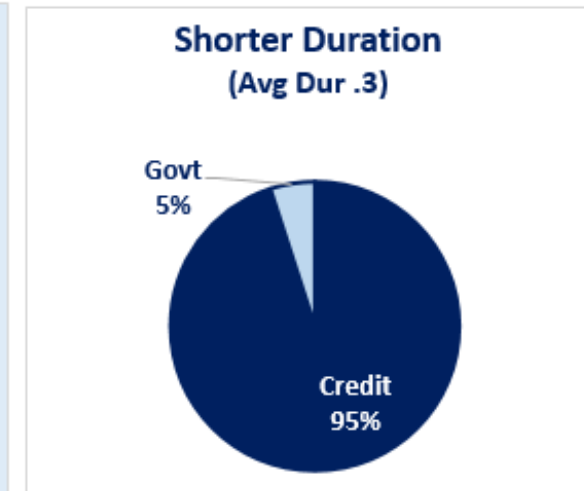
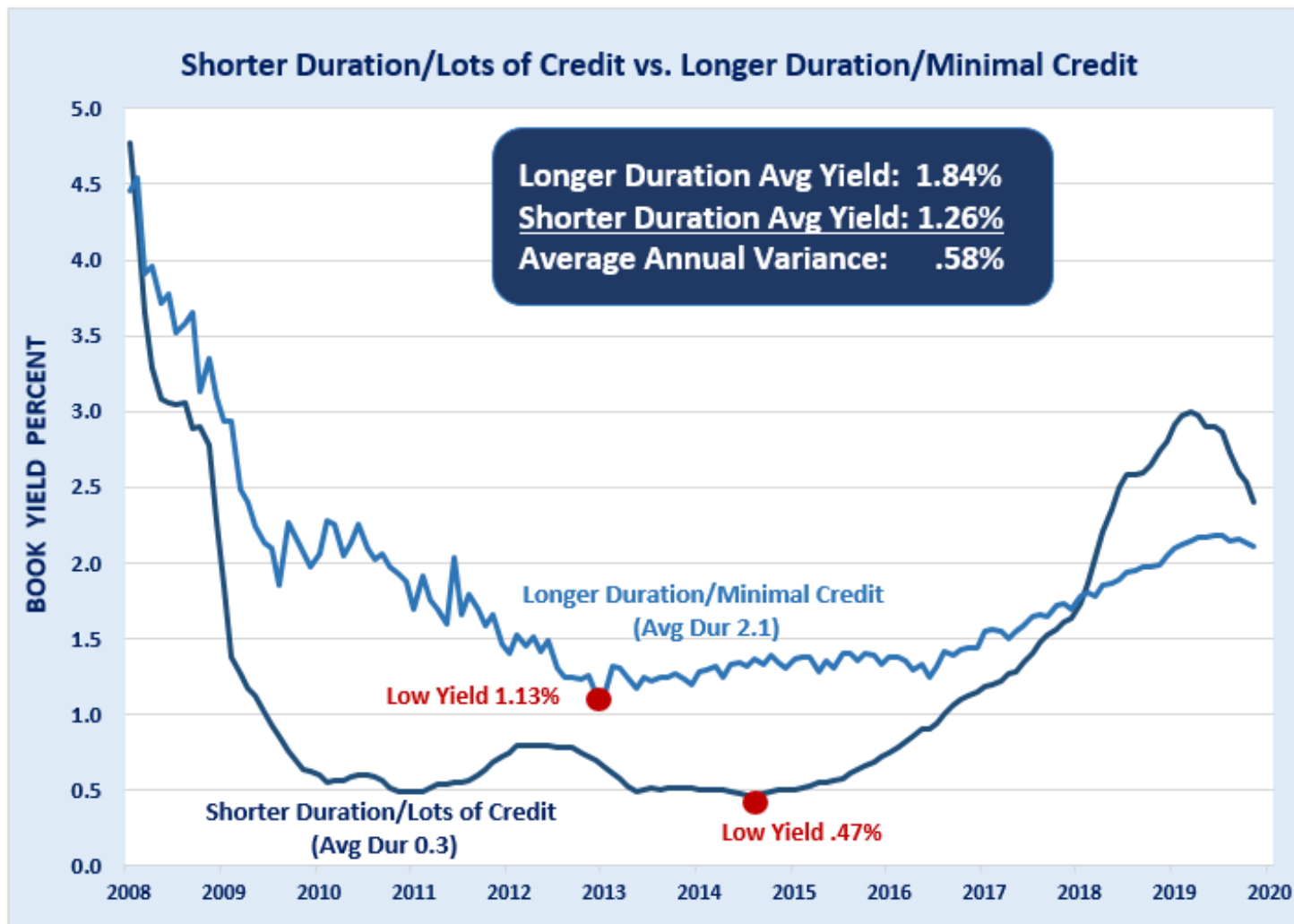


Sources: Goldman Sachs, Global Financial Database, Arbor Research

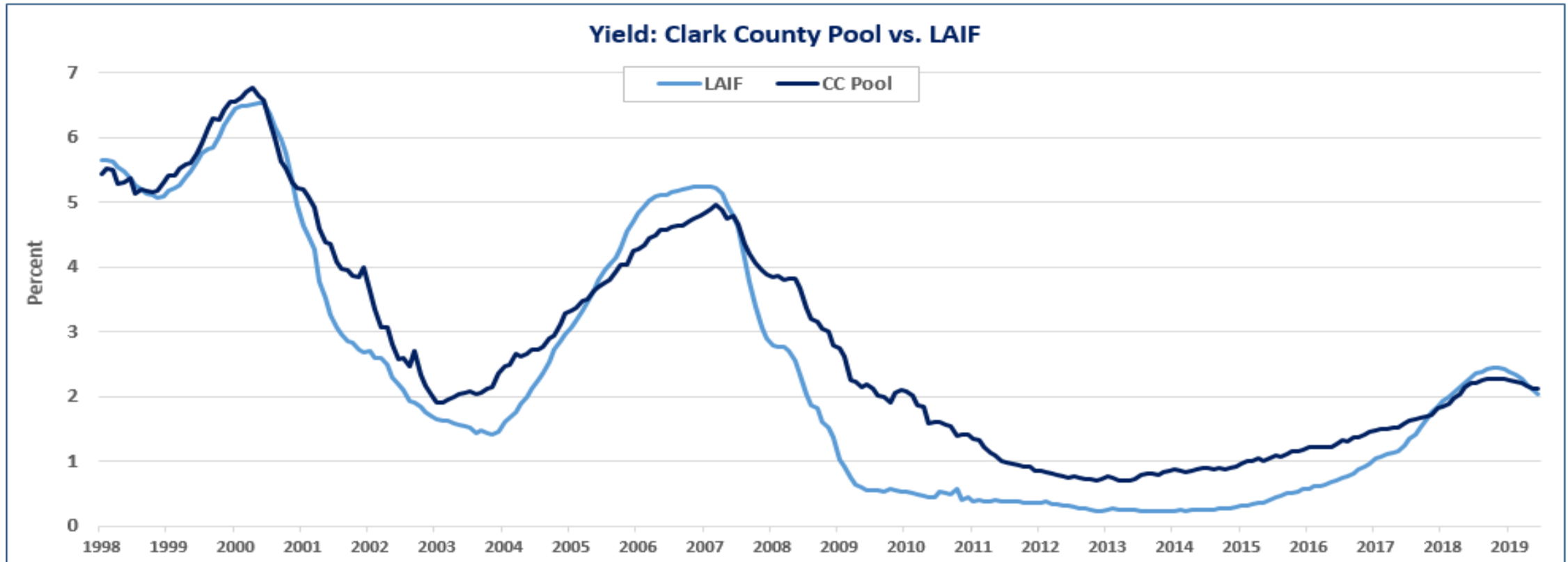
# Real World Shorter Duration vs. Longer Duration #1



# Real World Shorter Duration vs. Longer Duration #2



# Real World Shorter Duration vs. Longer Duration #3



Average Fiscal Year Yields

Fiscal Year	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020*	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	2.19	2.79
NV LGIP	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	2.22	2.34
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)	(0.03)	0.45

\*FYTD 2020

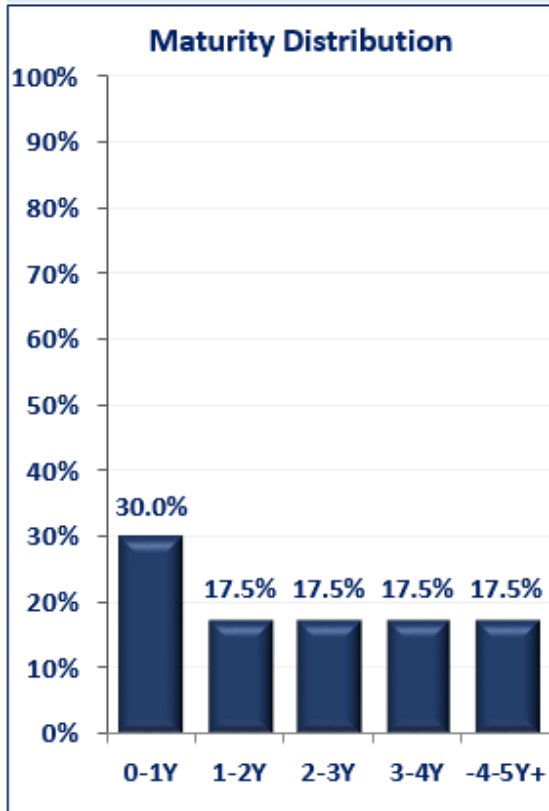
Avg WAMs: LAIF ~.5 Years, Clark County ~1.8 Years



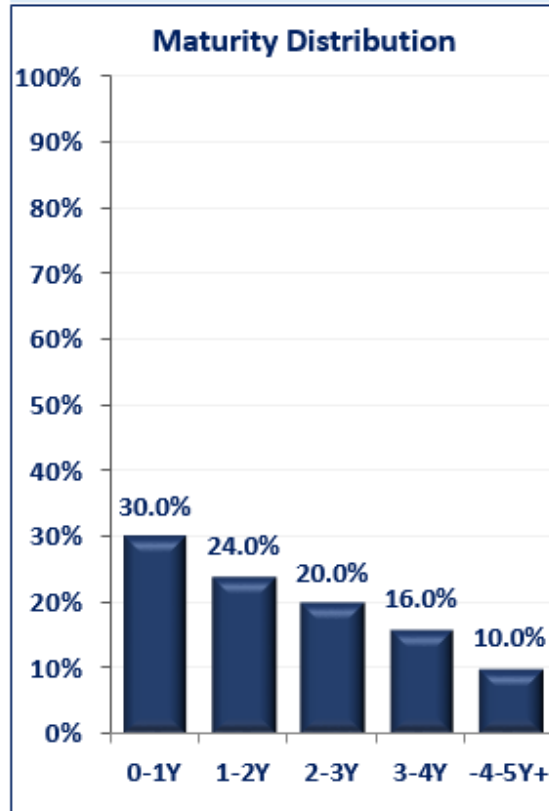
# Different Operating Portfolio Strategies/Structures

## Proactive Management or Buy & Hold

### Cash Flow Matching

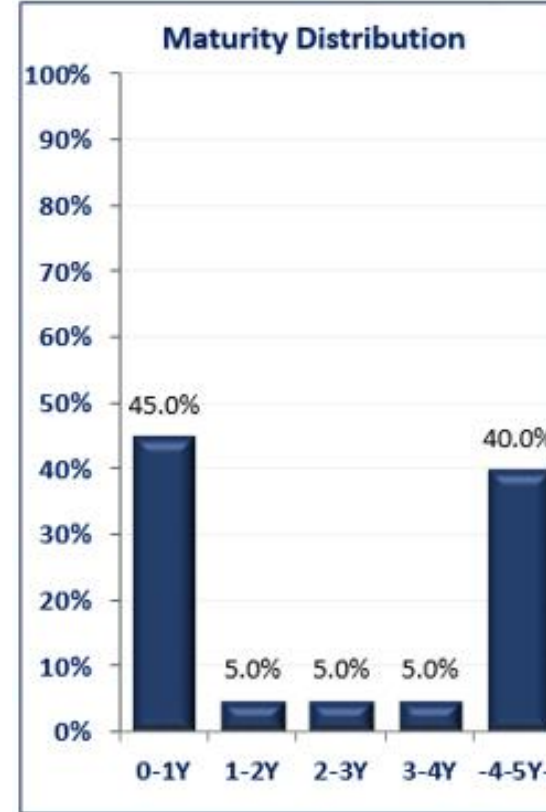


### Index Matching

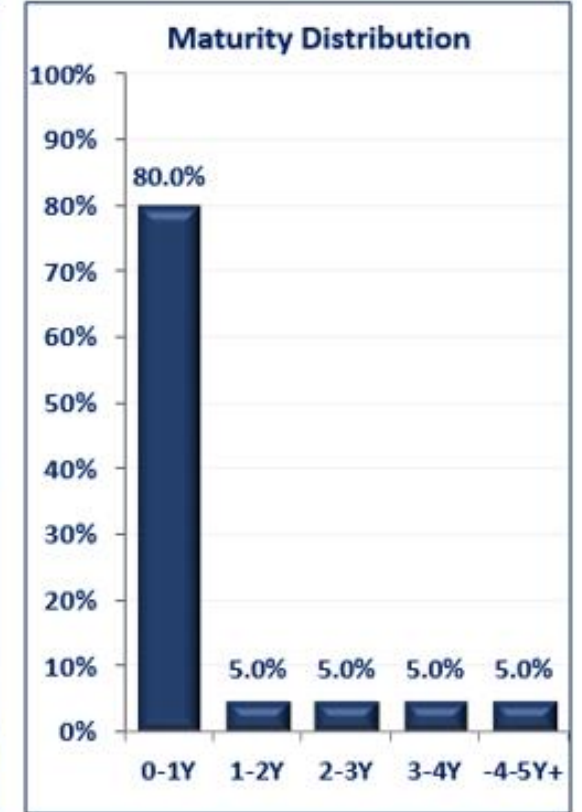


## Active Management

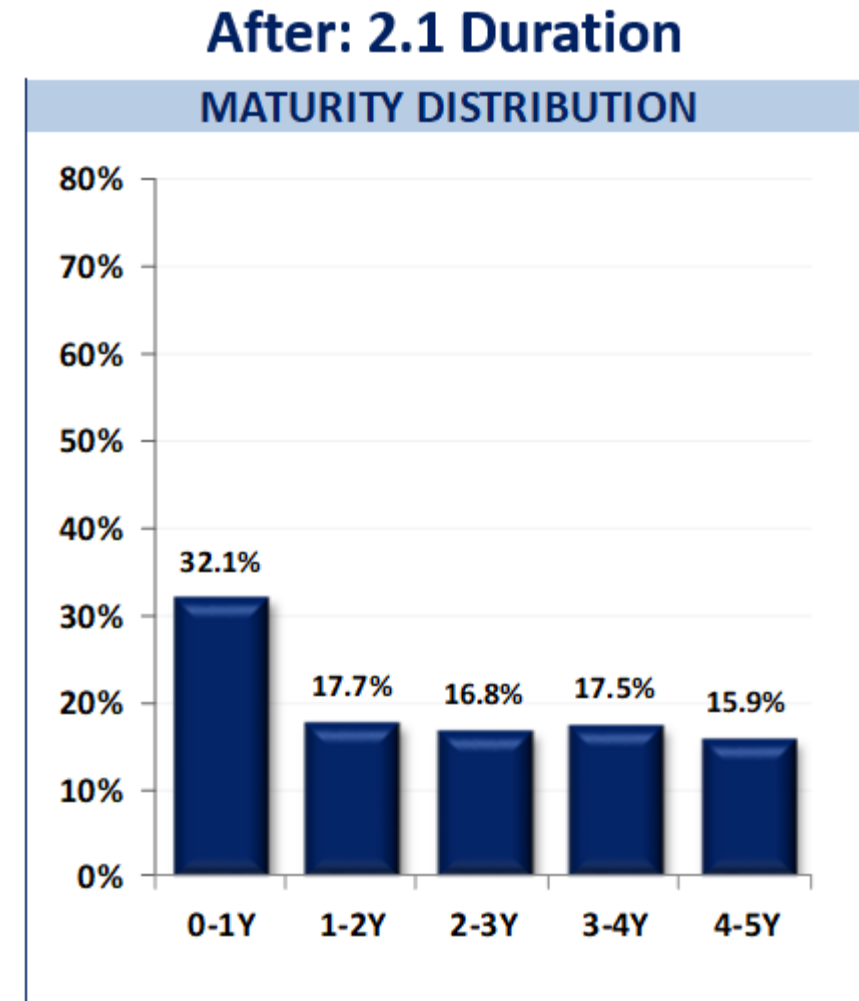
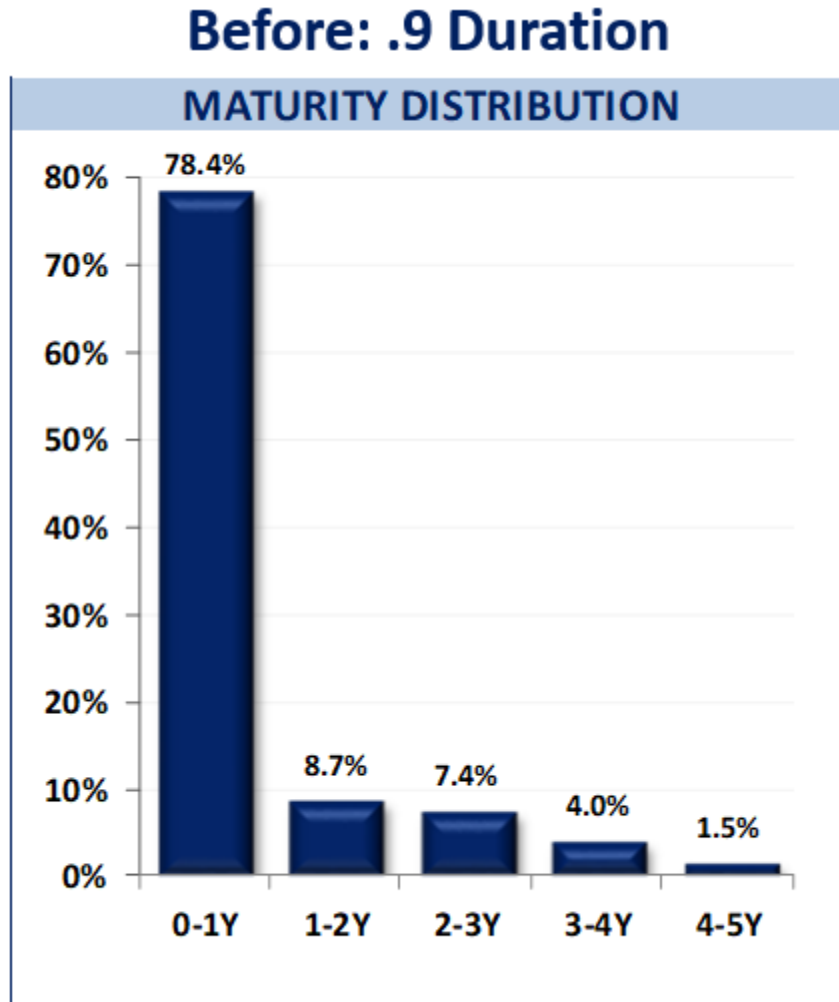
### Barbell/Maketing Timing



### Market Timing/Relative Value

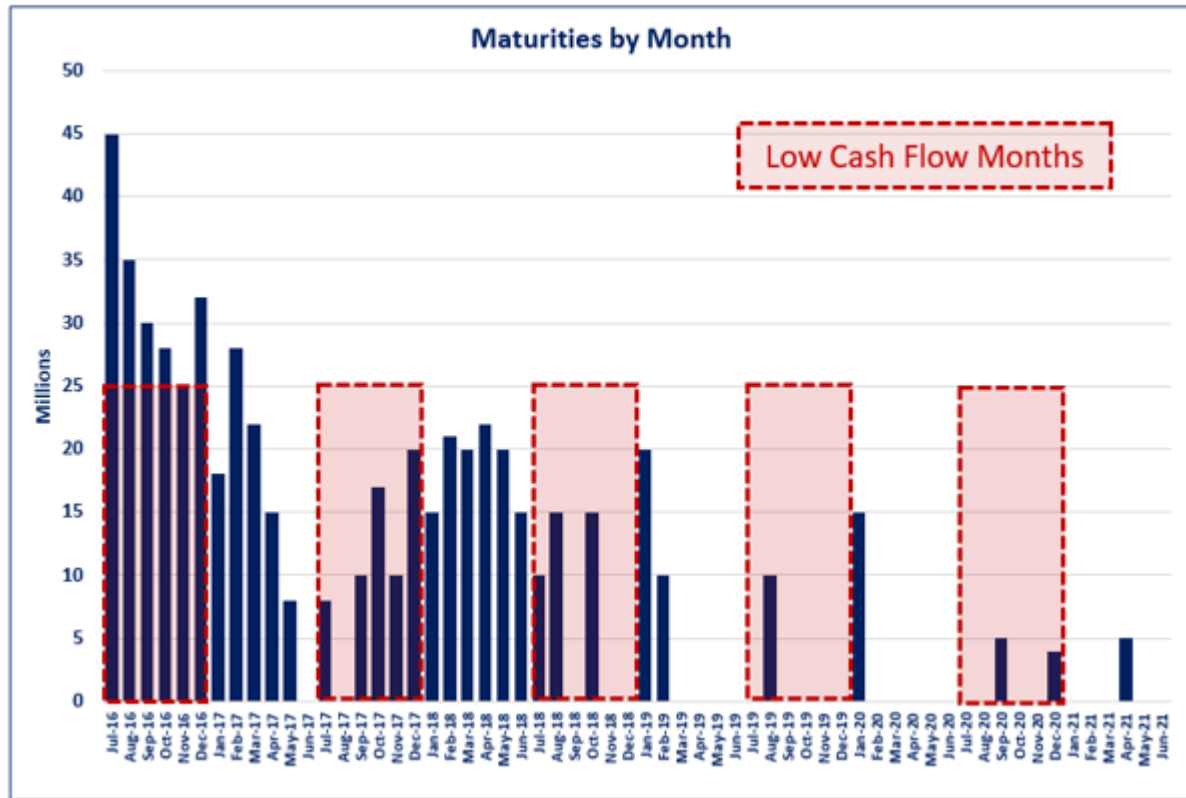


# Before/After: Implementing a Asset/Liability Matching Strategy

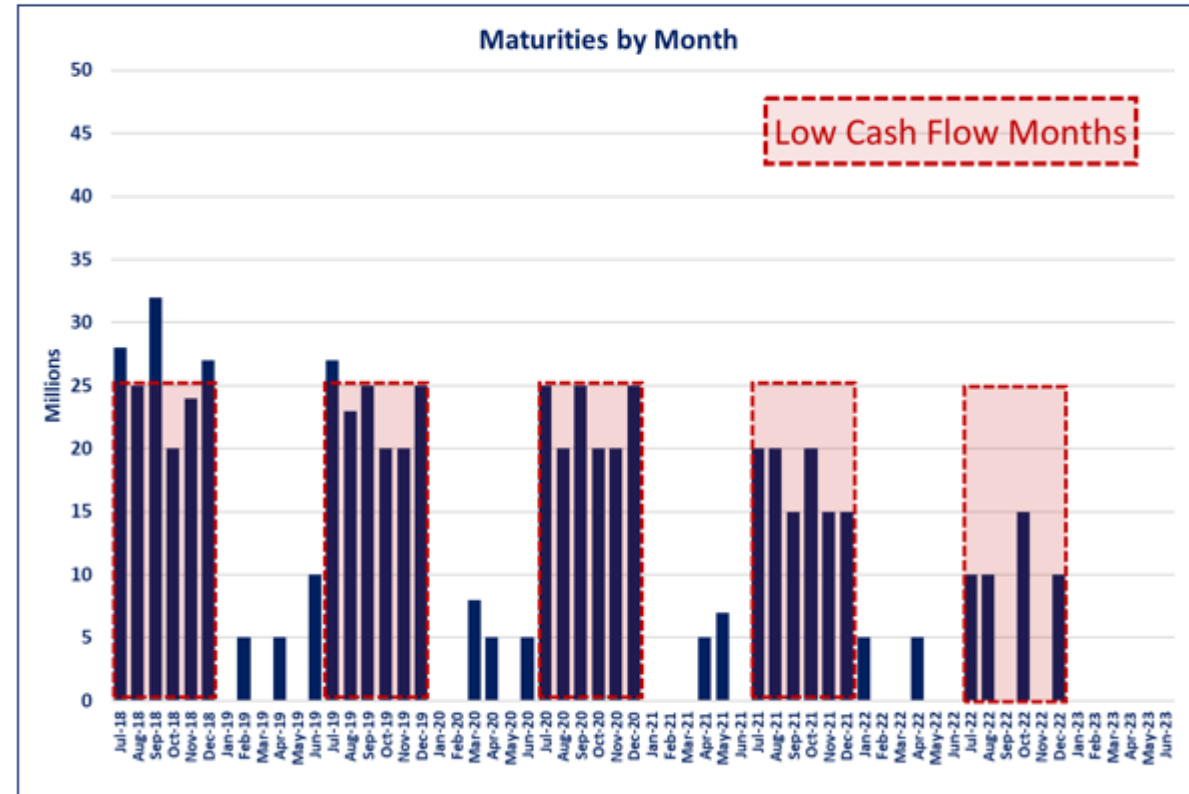


# You Have a Responsible Amount of Interest Rate Risk

## Before: .9 Duration



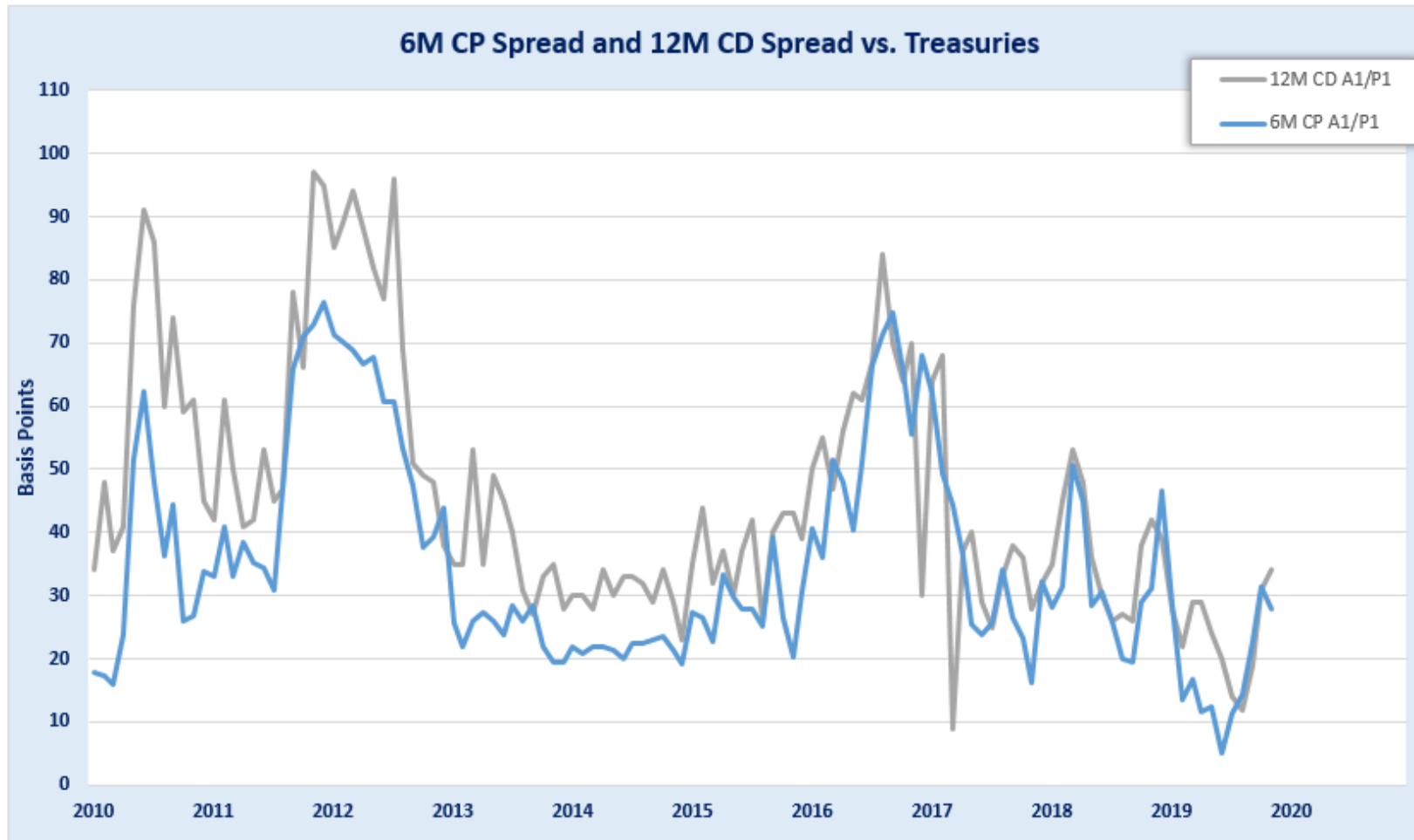
## After: 2.1 Duration



# CREDIT



# Is Credit Worth the Risk?



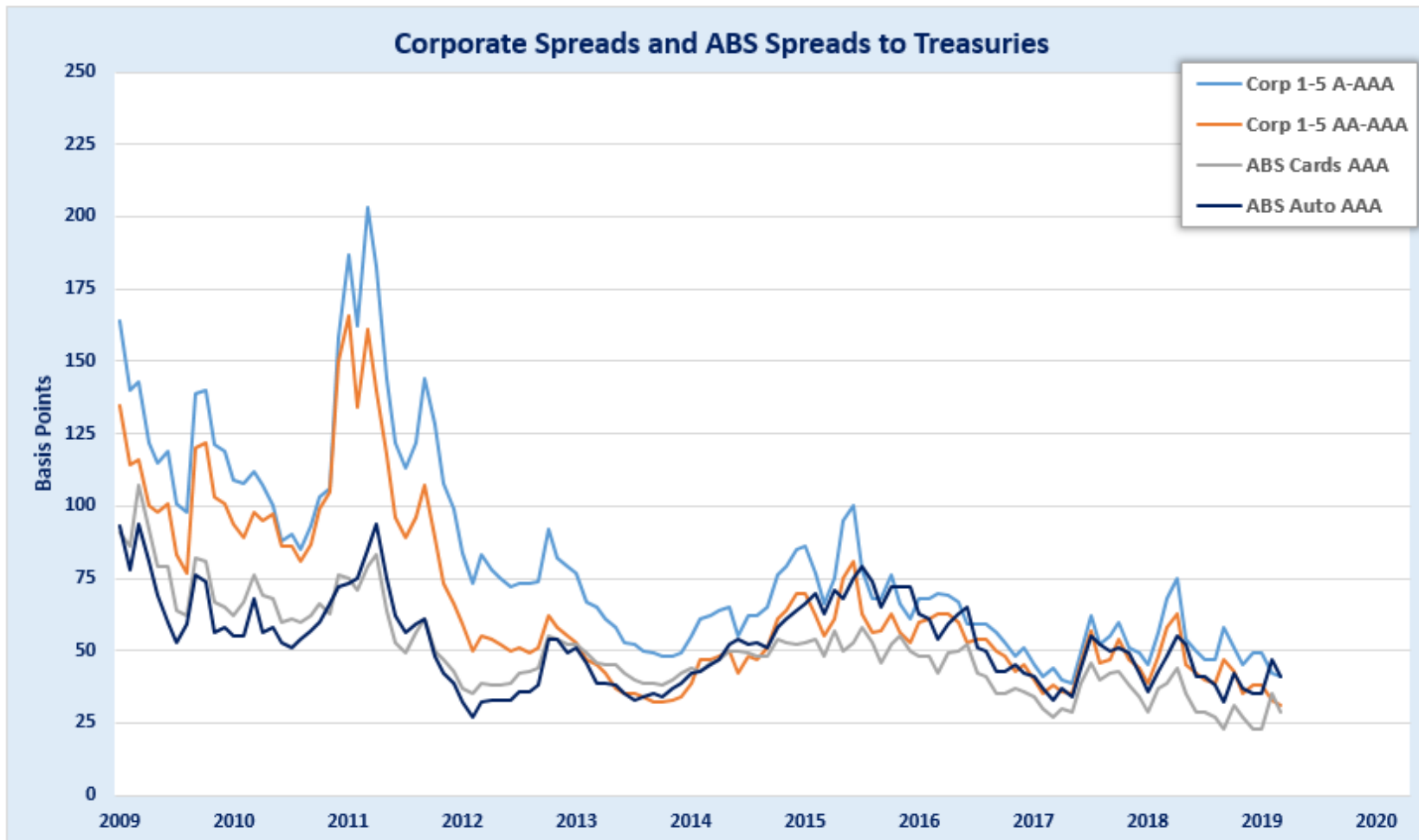
Avg Spd	35	46
Sector	CP 6M A1/P1	CD 12M A1/P1

Source: Bloomberg





# Is Credit Worth the Risk?



Avg Spd	81	66	50	53
Sector	Corp A-AAA	Corp AA-AAA	ABS Cards	ABS Auto

Source: Bloomberg



$\$1,000,000,000 \times 45\% \text{ Credit Exposure} \times 40 \text{ BPs Avg Spread} = \$1,800,000/\text{Yr Investment Income}$



# One-Year Default Rates

## Descriptive Statistics On One-Year Global Default Rates

	AAA	AA	A	BBB	BB	B	CCC/C
Minimum	0.00	0.00	0.00	0.00	0.00	0.25	0.00
Maximum	0.00	0.38	0.39	1.02	4.22	13.84	49.46
Weighted long-term average	0.00	0.02	0.06	0.17	0.65	3.44	26.63
Median	0.00	0.00	0.00	0.06	0.58	3.40	24.83
Standard deviation	0.00	0.07	0.10	0.26	1.00	3.29	11.47
2008 default rates	0.00	0.38	0.39	0.49	0.81	4.10	27.27
Latest four quarters (2018Q1-2018Q4)	0.00	0.00	0.00	0.00	0.00	0.98	27.18
Difference between last four quarters and weighted average	0.00	(0.02)	(0.06)	(0.17)	(0.65)	(2.46)	0.54
Number of standard deviations	0.00	(0.29)	(0.55)	(0.64)	(0.64)	(0.75)	0.05

Sources: S&P Global Fixed Income Research and S&P Global Market Intelligence's CreditPro®.

# Cumulative Default Rates

Average Cumulative Default Rates For Corporates By Region (1981-2018)

(%)	--Time horizon (years)--														
Rating	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
<b>U.S.</b>															
AAA	0.00	0.04	0.17	0.29	0.41	0.54	0.58	0.66	0.75	0.83	0.88	0.92	0.97	1.06	1.16
AA	0.03	0.08	0.17	0.30	0.43	0.58	0.72	0.83	0.92	1.03	1.12	1.20	1.29	1.36	1.45
A	0.07	0.19	0.34	0.52	0.69	0.90	1.12	1.33	1.56	1.78	1.99	2.18	2.37	2.53	2.71
BBB	0.20	0.54	0.92	1.41	1.92	2.44	2.90	3.37	3.82	4.26	4.70	5.02	5.31	5.64	5.97
BB	0.75	2.36	4.28	6.17	7.89	9.54	10.93	12.22	13.36	14.39	15.24	16.02	16.74	17.33	17.95
B	3.63	8.45	12.71	16.08	18.70	20.85	22.60	23.98	25.21	26.36	27.32	28.06	28.73	29.35	29.96
CCC/C	28.89	39.73	45.37	48.83	51.42	52.62	54.10	55.02	55.89	56.58	57.25	57.79	58.36	58.89	58.89

Sources: S&P Global Fixed Income Research and S&P Global Market Intelligence's CreditPro®.

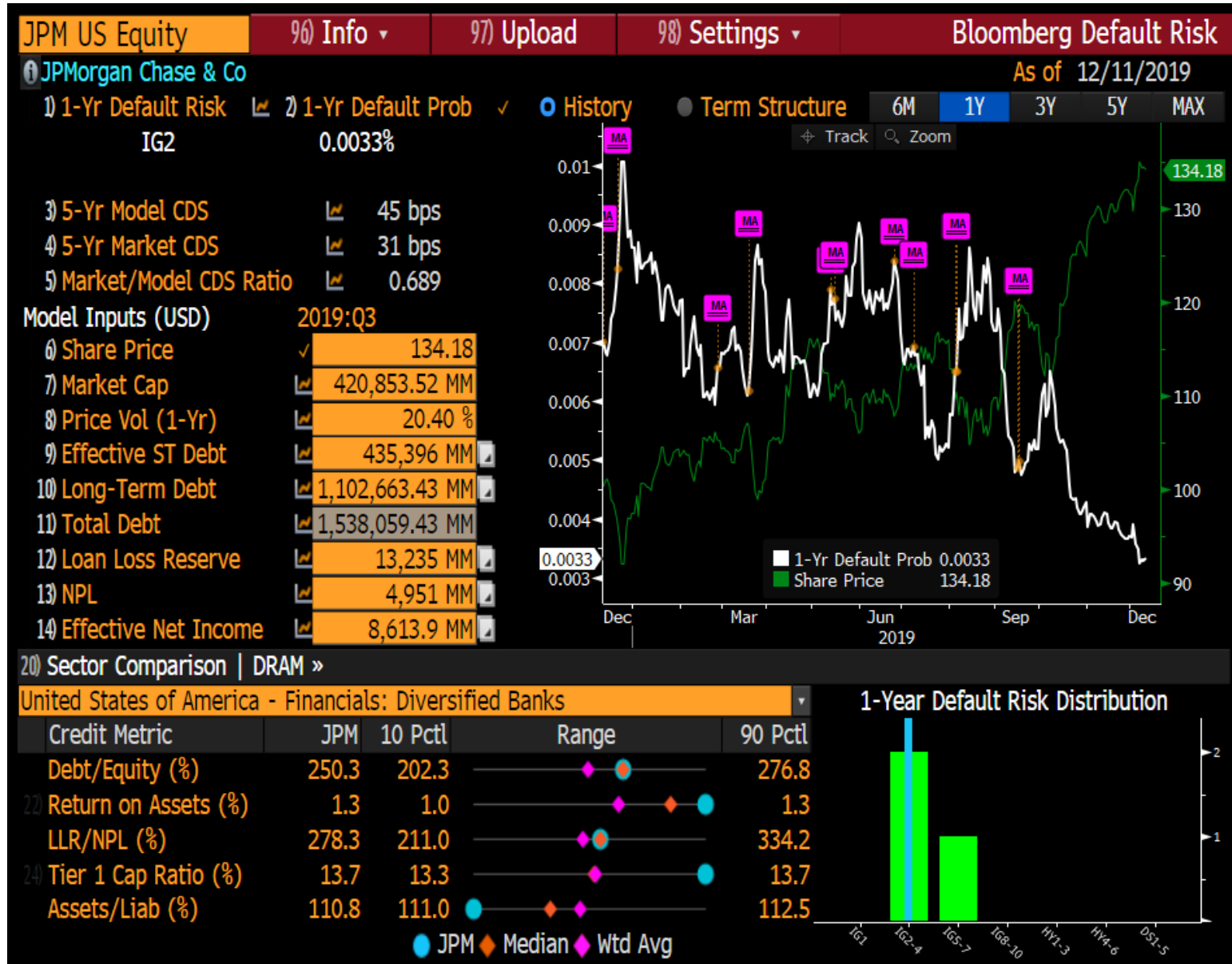
# Composite Credit Rating: JPMorgan

Numeric Rating	Composite Rating	Moody's Rating	S&P Rating	Fitch Rating
1	AAA	Aaaa	AAA	AAA
2	AA1	Aa1	AA+	AA+
3	AA2	Aa2	AA	AA
4	AA3	Aa3	AA-	AA-
5	A1	A1	A+	A+
6	A2	A2	A	A
7	A3	A3	A-	A-
8	BBB1	Baa1	BBB+	BBB+
9	BBB2	Baa2	BBB	BBB
10	BBB3	Baa3	BBB-	BBB-

JPMorgan		
NRSRO	Rating	Number
Moody's	A2	6
S&P	A-	7
Fitch	AA-	4
Average		5.67
Rounded		6
Composite	A2	

Source: Bloomberg

# Credit Risk Tools



Source: Bloomberg





# Habit #3

**You Don't Try to Time the Market**

# Forecasting



"The only function of economic (and interest rate) forecasting is to make astrology look respectable."

John Kenneth Galbraith, Economist



"The Federal Reserve is currently not forecasting a recession."

Ben Bernanke (former Fed Chair), January 10, 2008



"Our ability to forecast is limited".

Alan Greenspan (former Fed Chair) November 2019

# The “Bond King’s” Predictions



The image shows a CNBC news segment with Jeffrey Gundlach. On the right side of the video frame, there is a financial data box for a 10-year Treasury note. The data includes a price of 97.5156, a change of +0.4531, and a yield of 3.171%. Below this is an 'INTRA DAY' line chart showing price fluctuations from 8A to 2P, with a 'CLOSE' price of 97.0625. A blue banner at the bottom of the video frame reads 'GUNDLACH: 30-YEAR COULD GO TO FOUR PERCENT'. The CNBC logo is visible in the bottom right corner of the video frame.

**Bond King Gundlach predicts yields are headed much higher before this move ends**

Published 12:44 PM ET Thu, 11 Oct 2018



**Jeffrey Gundlach** ✓  
@TruthGundlach

Long maturity US Treasury price action today was consistent with a blowoff momentum top. I suspect buyer's remorse will set in fairly soon.

4:59 PM · 5/29/19

Source: CNBC, Twitter

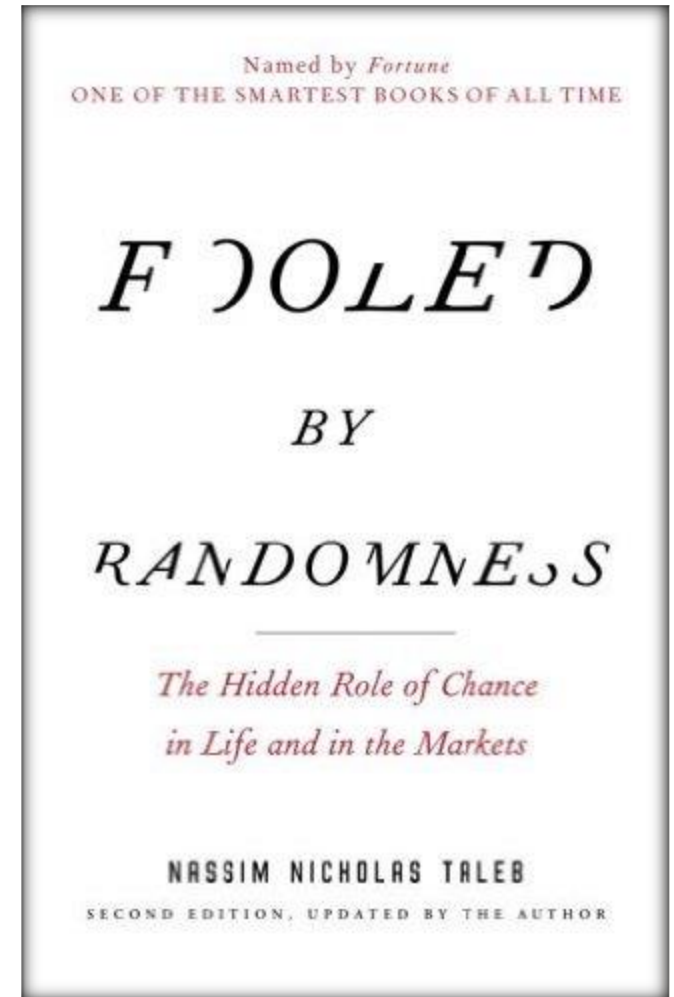
# How'd He Do? "Just a Bit Outside"



Source: Bloomberg

# Fooled By Randomness

“Generate a long series of coin flips, producing heads and tails with 50% odds each and fill up sheets of paper. If the series is long enough you may get eight heads or eight tails in a row, perhaps even ten of each. Yet you know that in spite of these wins the conditional odds of getting a head or a tail is still 50%.”



Source: Fooled by Randomness, Nassim Taleb



# Investment Newsletter Forecasters

There's a large body of evidence demonstrating that stock market forecasts have no value (though they supply plenty of fodder for my writings) because their accuracy is no better than one would randomly expect. For example, David Bailey, Jonathan Borwein, Amir Salehipour and Marcos López de Prado, authors of the March 2017 study, [Evaluation and Ranking of Market Forecasters](#), covering 6,627 market forecasts (specifically for the S&P 500 Index) made by 68 forecasters who employed technical, fundamental and sentiment indicators, and the period 1998 through 2012, found:

- Across all forecasts, accuracy was 48% – worse than the proverbial flip of a coin.
- Two-thirds of forecasters had accuracy scores below 50%.
  - About 40% of forecasters had an accuracy score between 40% and 50%.
  - About 3% of forecasters fell in the left tail, with accuracy scores below 20%.
  - About 6% of forecasters fell in the far right tail, with accuracy scores between 70% and 79%.
  - The highest accuracy score was 78% and the lowest was 17%.

The distribution of forecasting accuracy by the gurus examined in the study looks very much like the common bell curve – what you would expect from random processes. That makes it very difficult to tell if any skill is present.

Evidence such as this led Warren Buffett to state, "We have long felt that the only value of stock forecasters is to make fortune-tellers look good." Even now, Charlie (Munger) and I continue to believe that short-term market forecasts are poison and should be kept locked up in a safe place, away from children and also from grown-ups who behave in the market like children." Remarking on the value of forecasts, *Wall Street Journal* columnist Jason Zweig stated "Whenever some analyst seems to know what he's talking about, remember that pigs will fly before he'll ever release a full list of his past forecasts, including the bloopers."

Source: Larry Swedroe



# It's Tough to Time the Bond Market

## S&P Dow Jones Indices

A Division of **S&P Global**

Research

## SPIVA<sup>®</sup> U.S. Scorecard

### Report 11: Percentage of Fixed Income Funds Outperformed by Benchmarks

FUND CATEGORY	COMPARISON INDEX	1-YEAR (%)	3-YEAR (%)	5-YEAR (%)	10-YEAR (%)	15-YEAR (%)
Government Long Funds	Bloomberg Barclays US Government Long	100.00	76.79	98.31	98.73	98.00
Government Intermediate Funds	Bloomberg Barclays US Government Intermediate	94.12	89.47	85.71	85.29	91.07
Government Short Funds	Bloomberg Barclays US Government (1-3 Year)	91.67	84.00	82.14	69.70	82.86
Investment-Grade Long Funds	Bloomberg Barclays US Government/Credit Long	97.65	72.04	98.91	95.97	97.50
Investment-Grade Intermediate Funds	Bloomberg Barclays US Government/Credit Intermediate	50.50	39.90	55.50	51.65	72.68
Investment-Grade Short Funds	Bloomberg Barclays US Government/Credit (1-3 Year)	83.87	37.50	62.12	41.27	68.00

# Security Type Selection for Different Strategies

## Securities to Match Cash Outflows:

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

## Securities to Market Time:

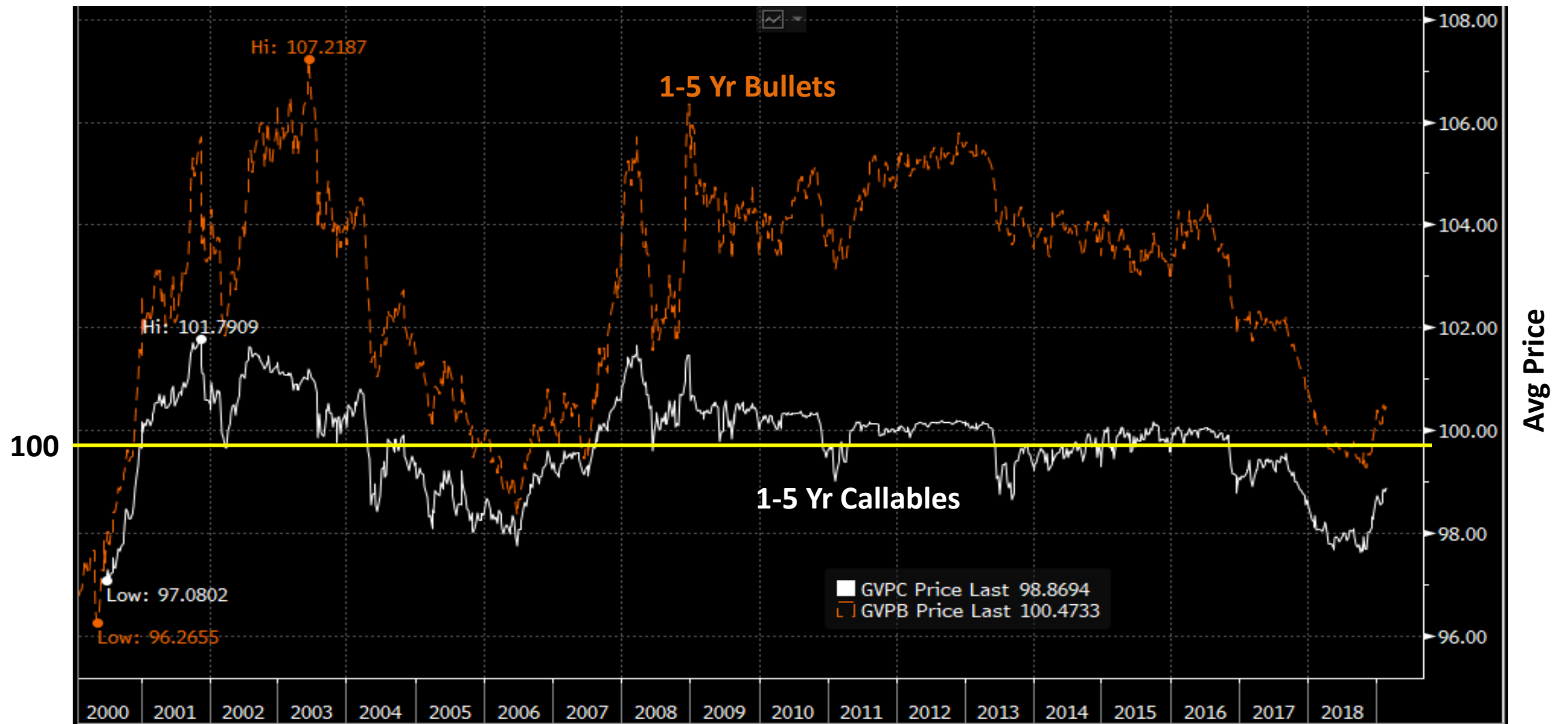
- Bullets
- Paydowns (ABS/MBS/SBA)
- Floating Rate Notes
- Callables
- Step-Ups/Step-Downs
- Bond Mutual Funds
- Floating NAV Funds

# Effective Duration: Agency 1-5Yr Bullets vs. 1-5Yr Callables



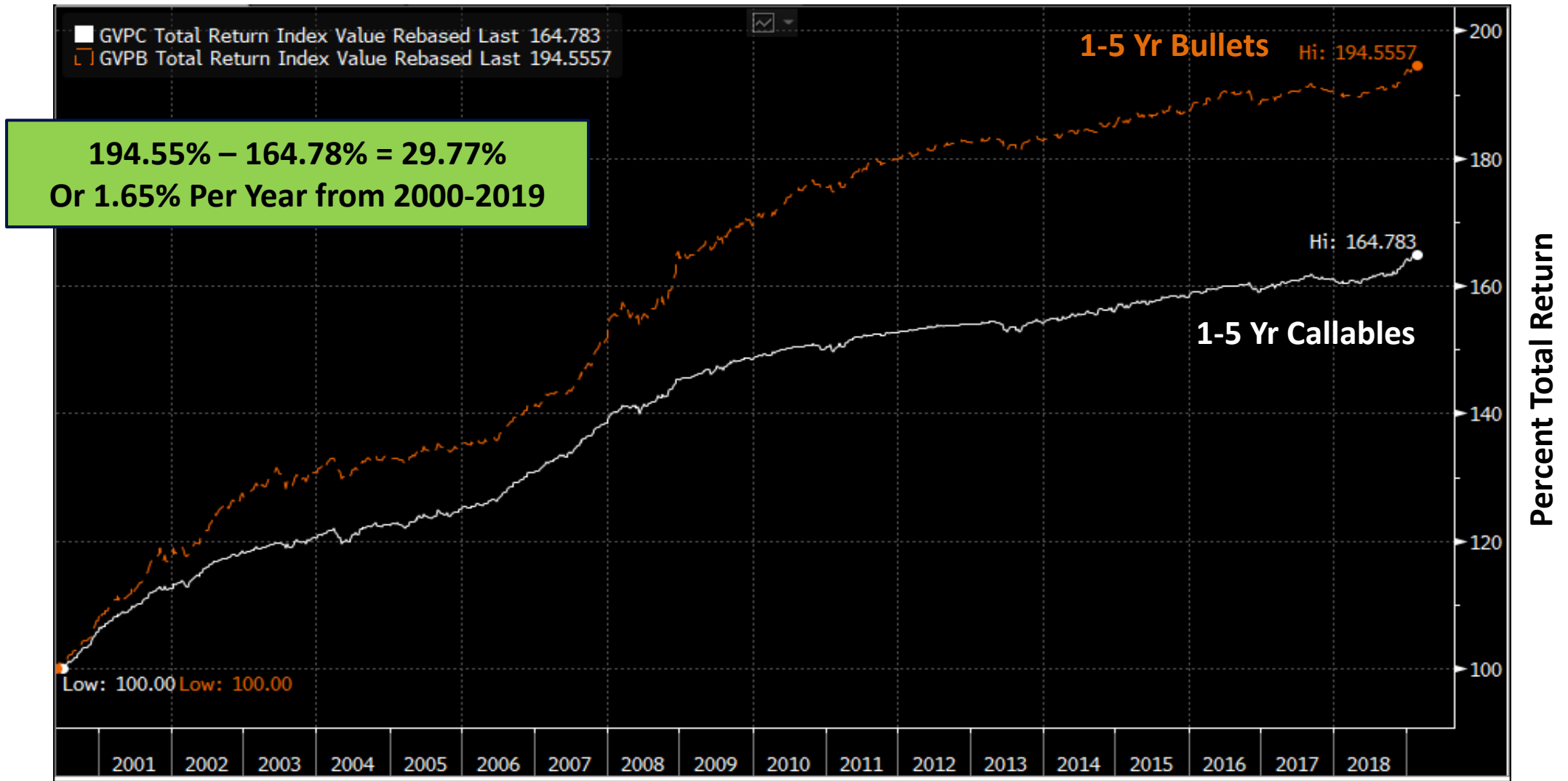
Source: Bloomberg

# Average Prices: 1-5Yr Callables vs. 1-5Yr Bullets



Source: Bloomberg

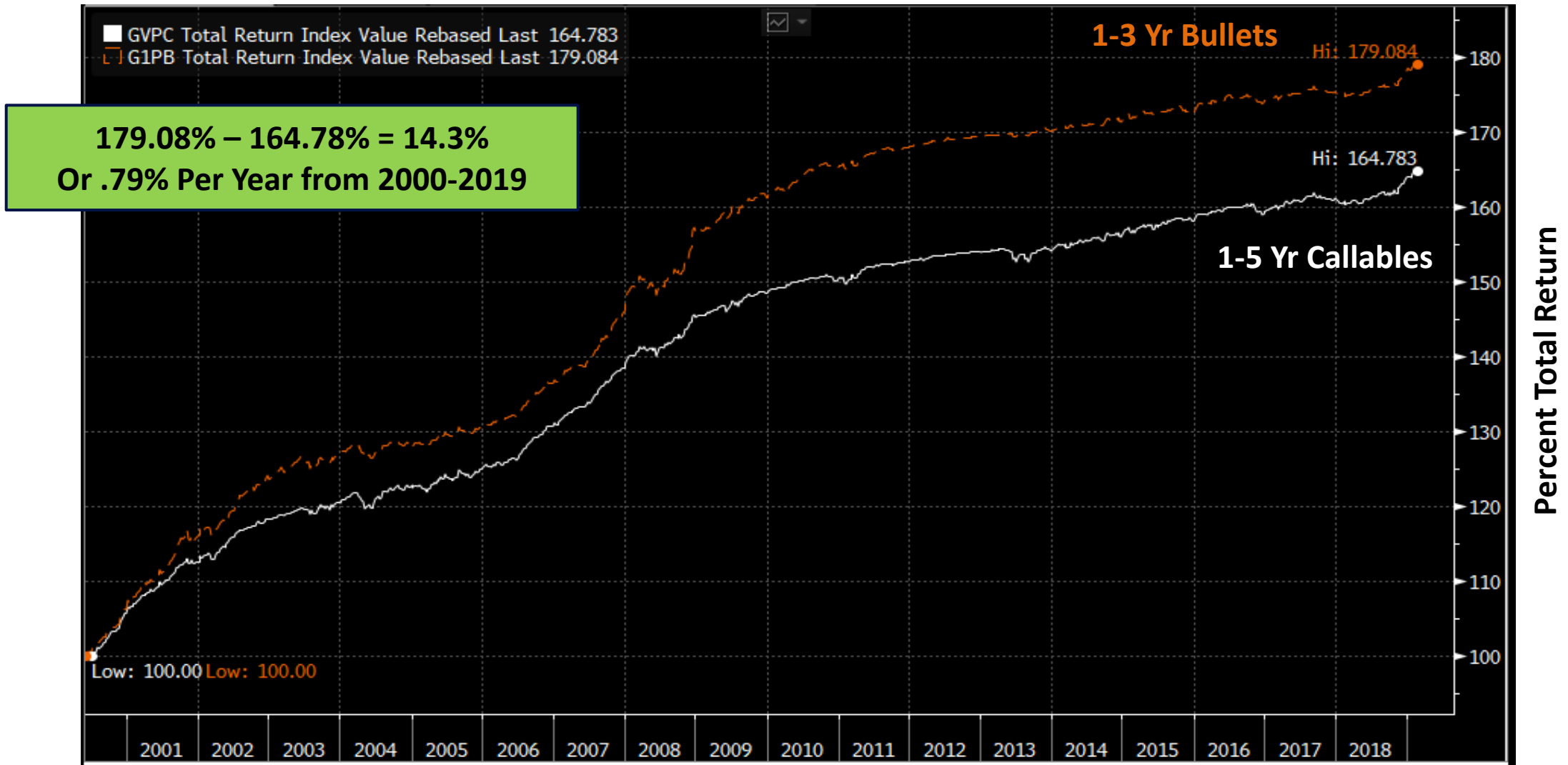
# Total Return: 2000-2019 1-5Yr Callables vs. 1-5Yr Bullets



Source: Bloomberg

**Avg Effective Duration: Bullets 2.33 Callables 1.48**

# Total Return: 2000-2019 1-5Yr Callables vs. 1-3Yr Bullets



Source: Bloomberg

**Avg Effective Duration: Bullets 1.78 Callables 1.48**

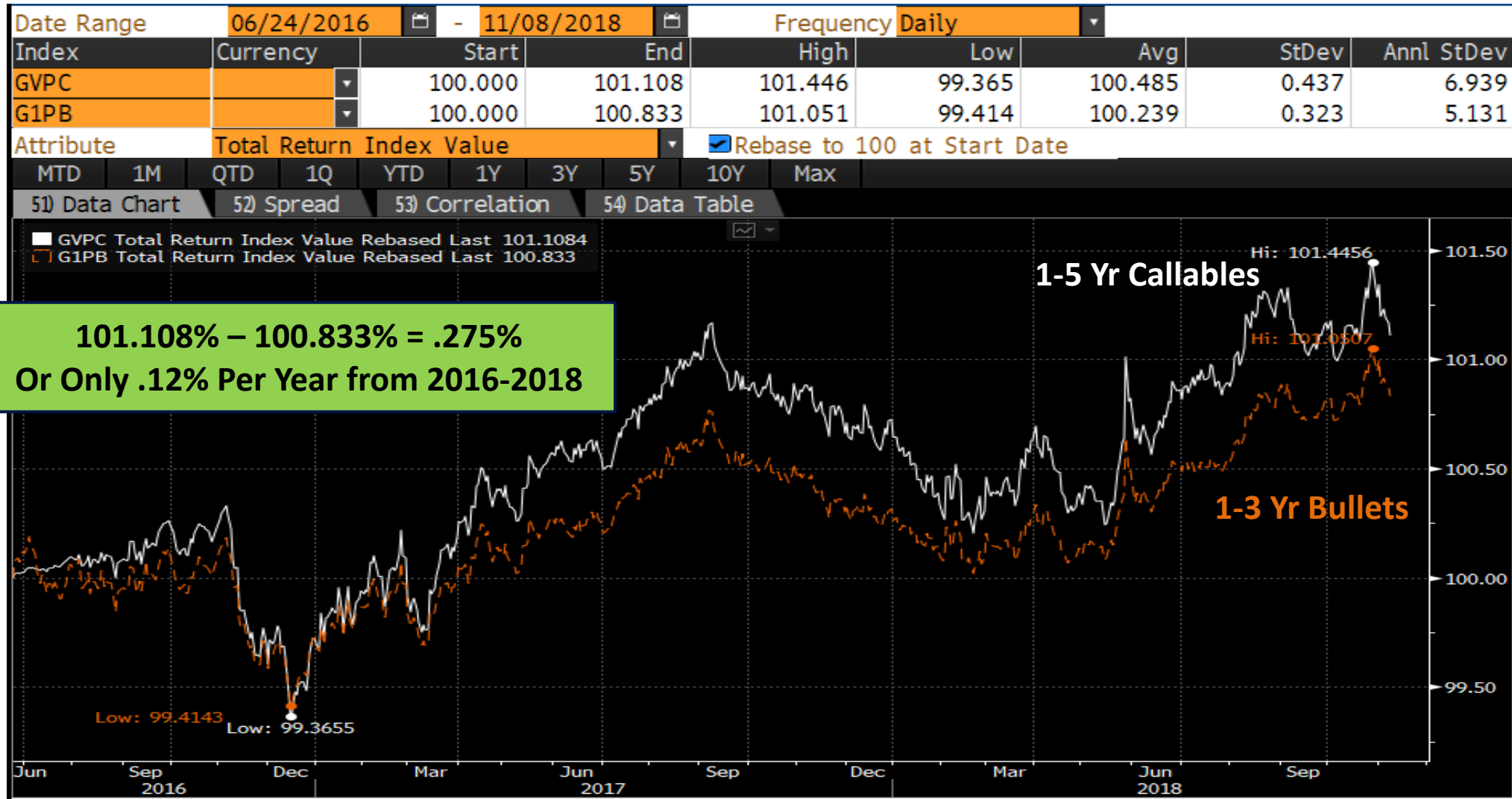


# But What If Your Timing Was Awesome!



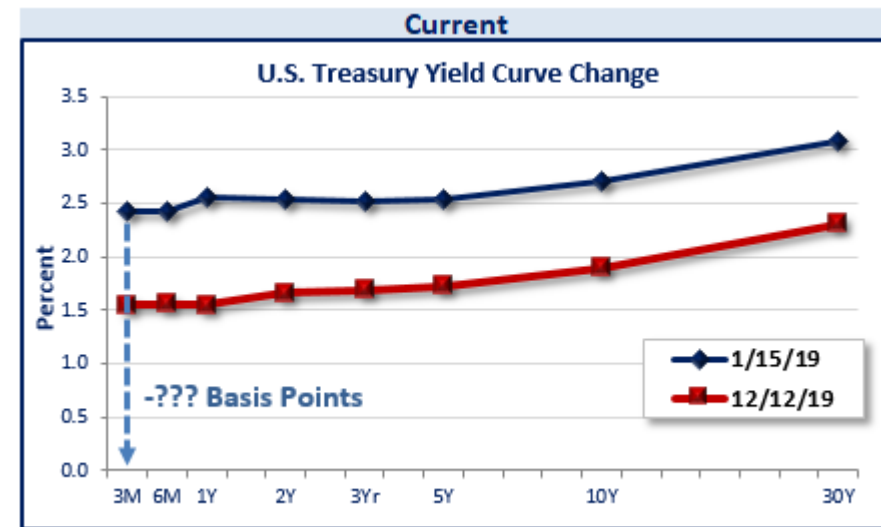
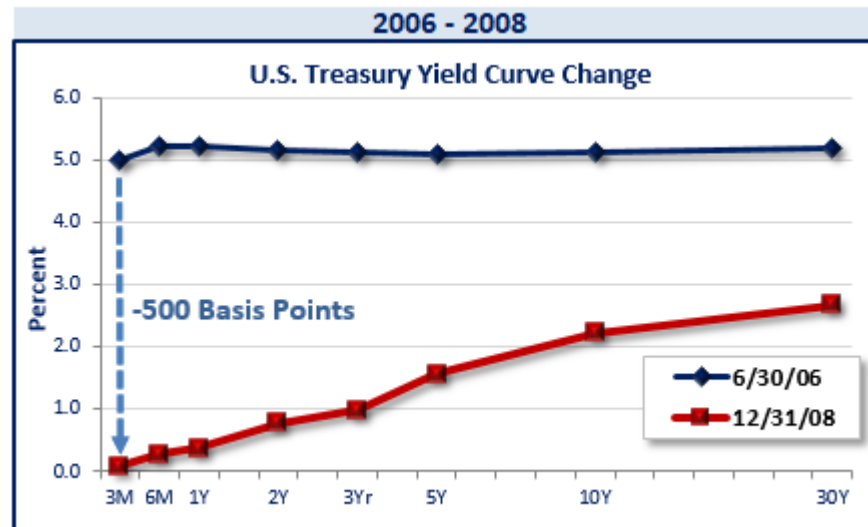
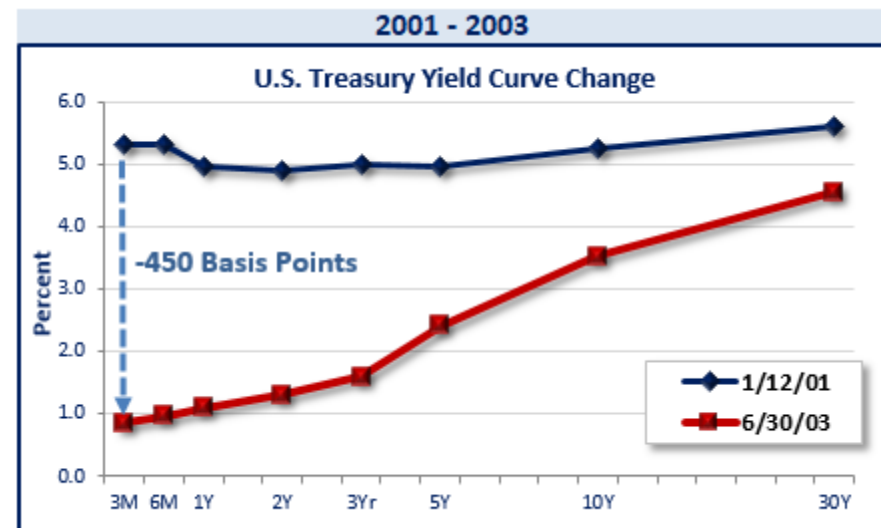
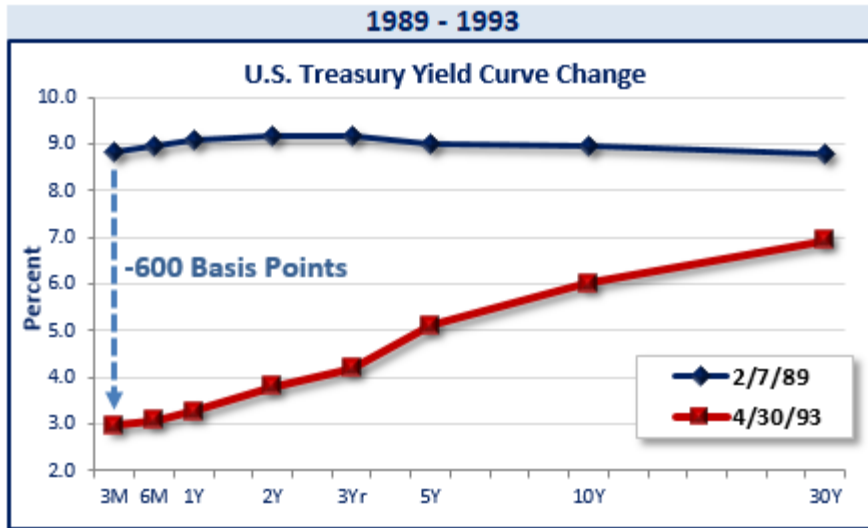
Source: Bloomberg

# Awesome Timing: 1-3Yr Bullets vs. 1-5Yr Callables Total Return



Source: Bloomberg

# “Why Would I Buy a 5Yr When the 3Mo is the Same or Higher?”



Source: Bloomberg

# Habit #4

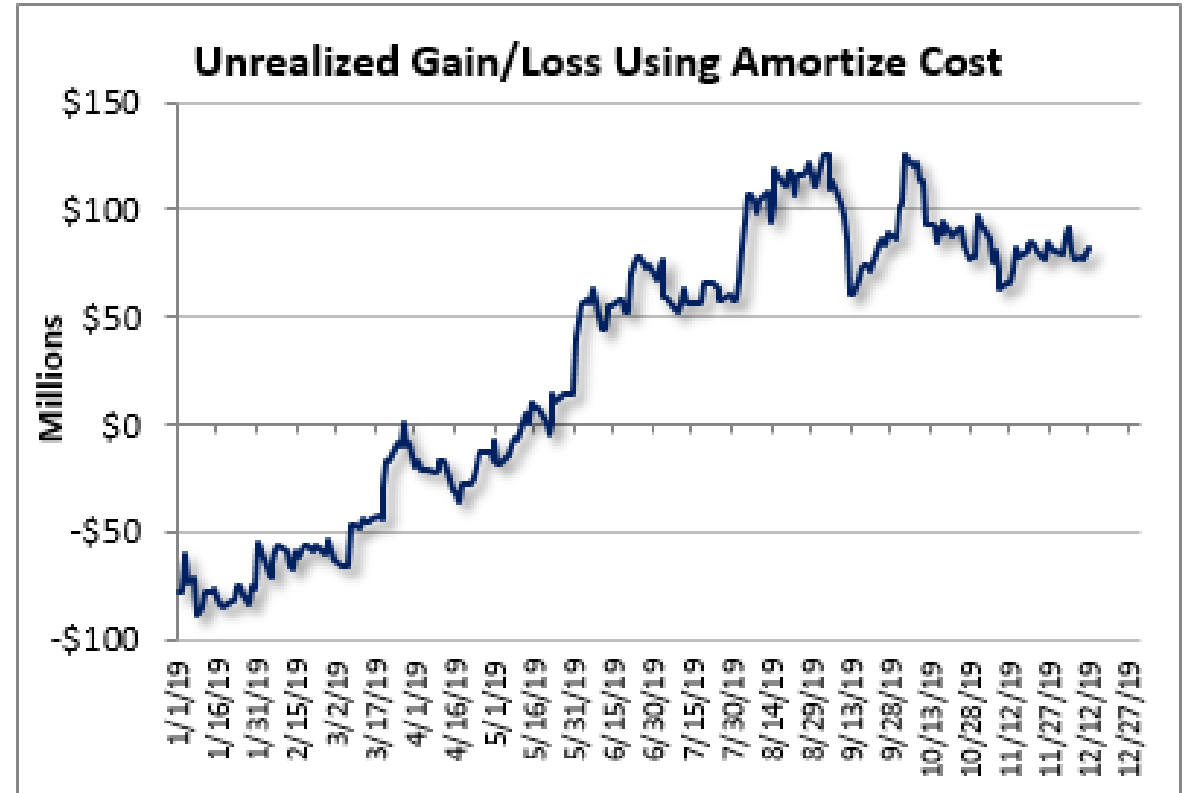
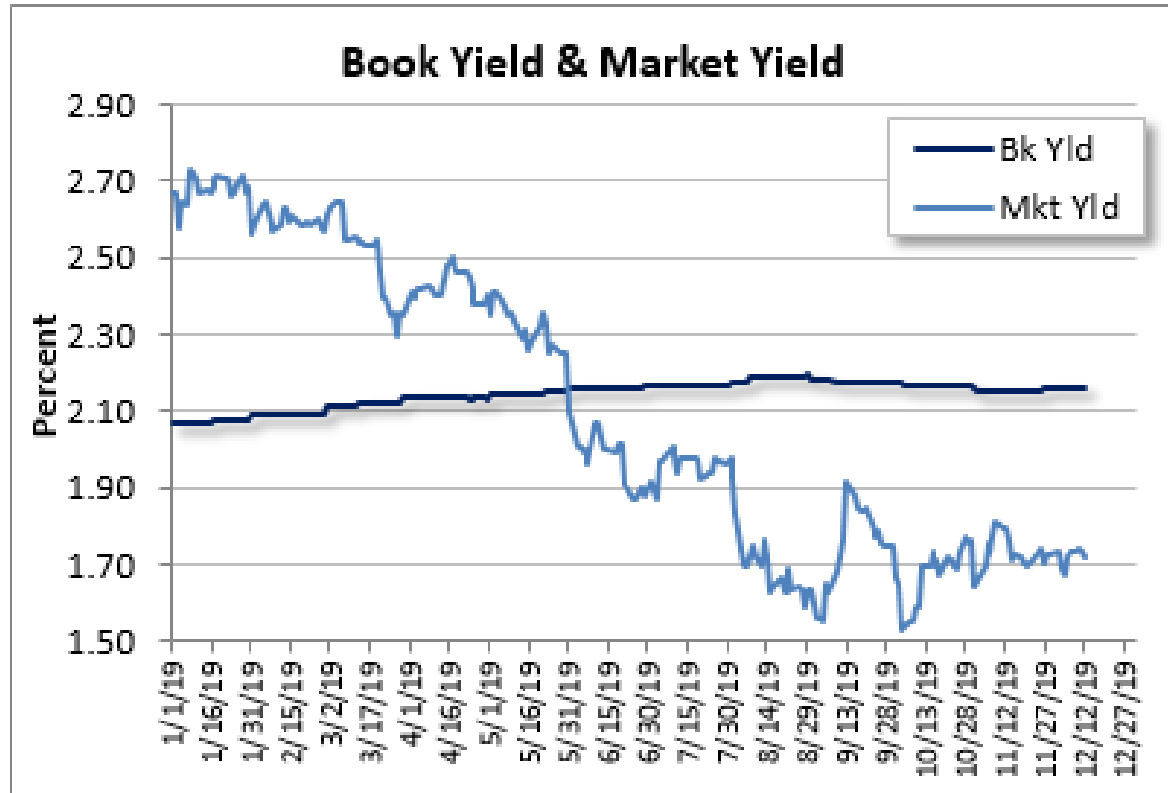
**You Love Losses and Hate Gains**  
(the unrealized kind)



It is not the return on my  
investment that I am concerned  
about; it's the return of my  
investment

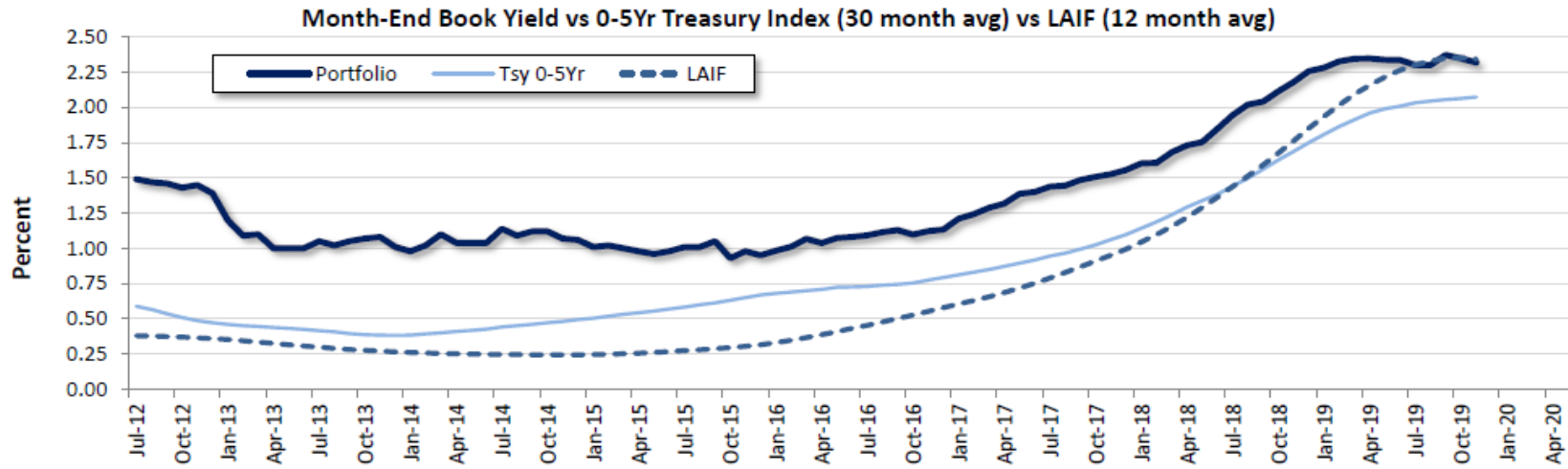
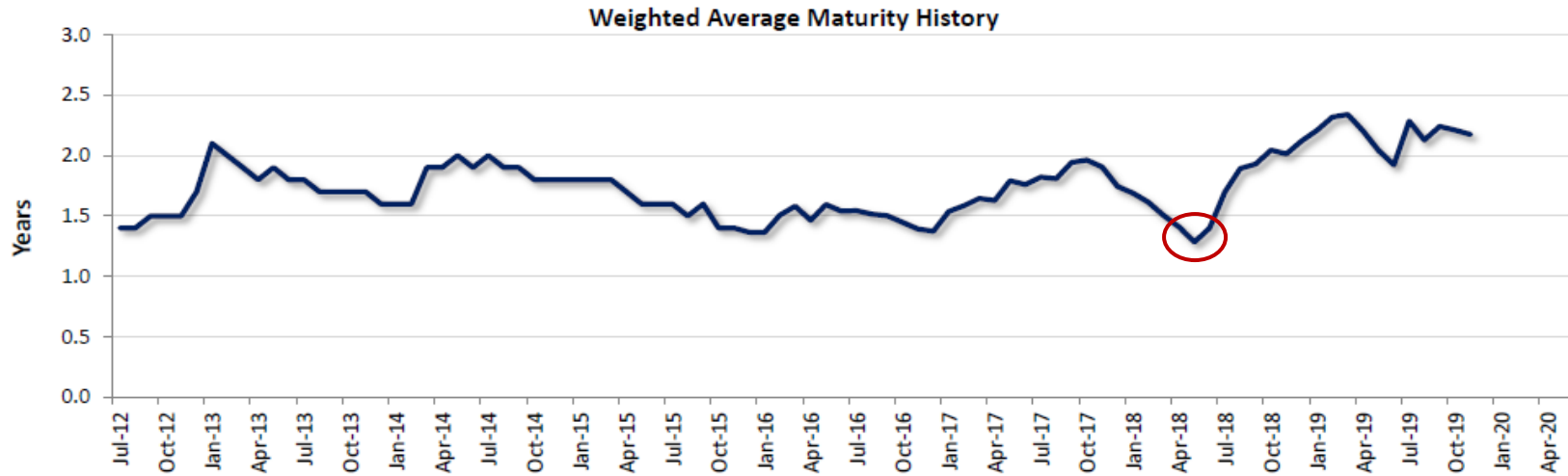
— *Will Rogers* —

# The “Bad News” of “Good News”





# Creating a Stable'r Investment Income



Source: Bloomberg



ICE BofAML Index: 0-5Yr Treasury Index



# Habit #5

**You Follow GAAP  
(Generally Accepted Accounting Principles)**

## ABOUT US



### About the GASB

Established in 1984, the GASB is the independent, private-sector organization based in Norwalk, Connecticut, that establishes accounting and financial reporting standards for U.S. state and local governments that follow Generally Accepted Accounting Principles (GAAP). >> [More](#)

Source: GASB.org

# #5: You Follow GAAP (Generally Accepted Accounting Principles)

## You Amortize

Buy/Sell	Buy	Cusip	313588HP3		
Issue	FNDN 0 07/01/19	Broker			
Audit Trail					
DlrFutBrkr	--				
Quantity	10,000,000	Disc Rate	1.0000	Principal	\$ 9,900,000.00
Price	99.0000	Yield	1.0216	Acc Int	0.00
Settle Date	07/01/2018	Spread		Net	9,900,000.00

If you are not amortizing, when will you recognize the \$100,000 gain (income)?

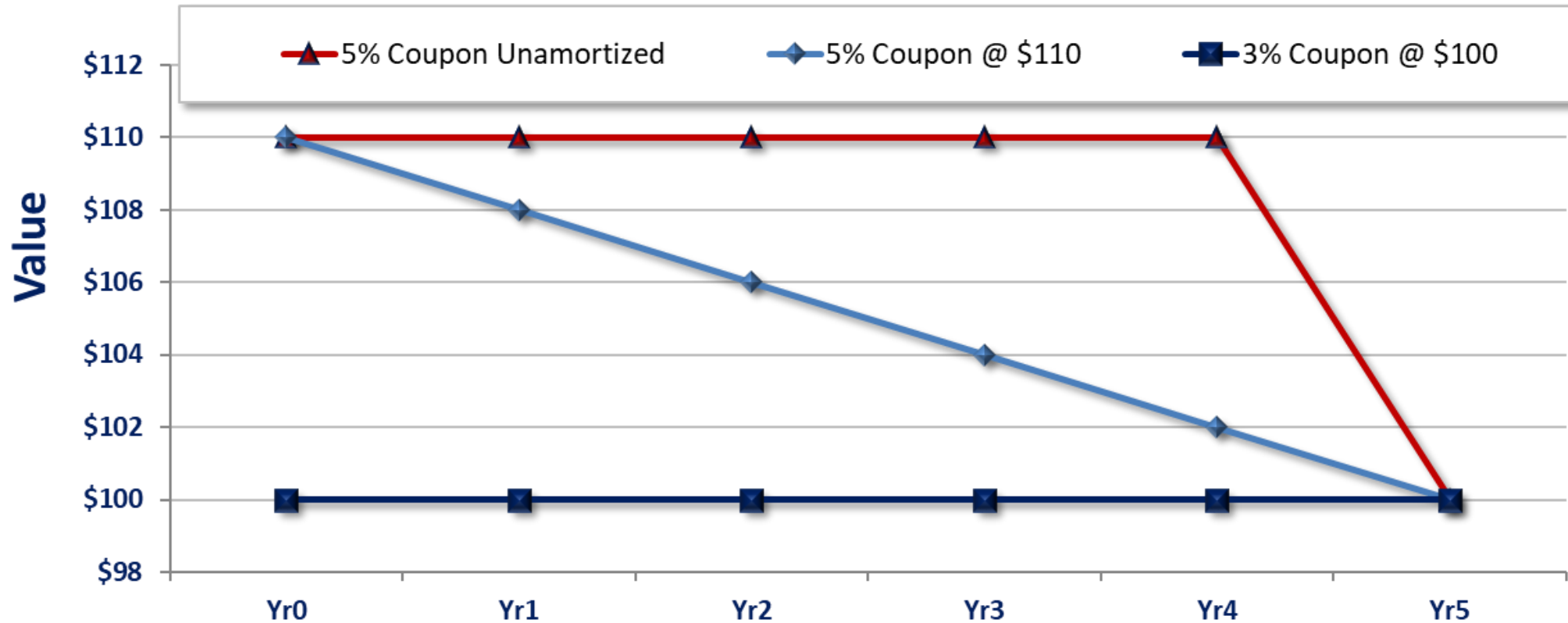


- Involves More Work: Monthly Journal Entries
- Custodians' Amortization Methodology May Not Match Your Investment Accounting System

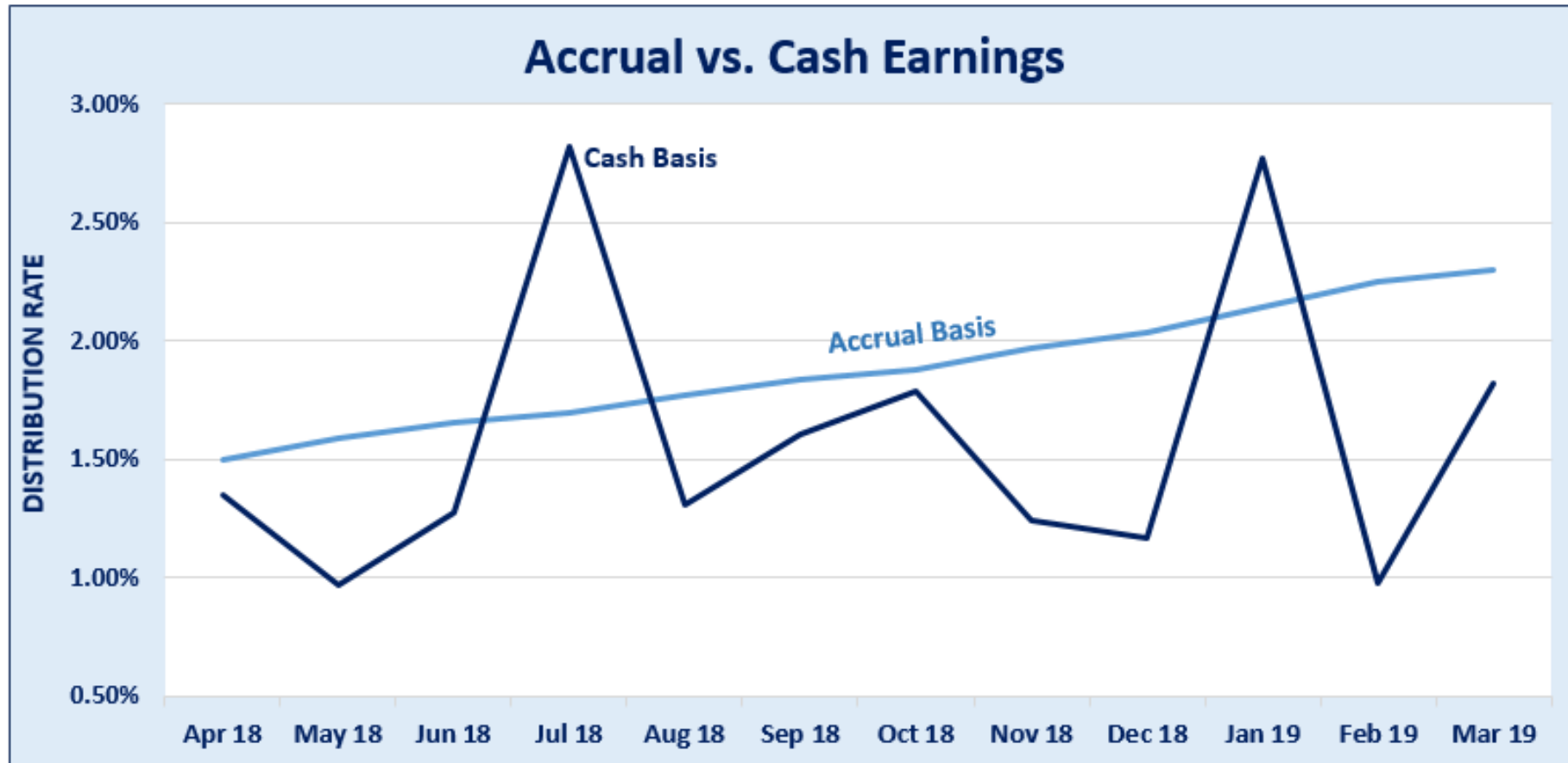
Source: Bloomberg

# Not Amortizing Premiums: Overstating Income

## End of Year Amortized Value



# You Distribute Inv Income on an Accrual Basis...Not a Cash Basis



Month	Apr 18	May 18	Jun 18	Jul 18	Aug 18	Sep 18	Oct 18	Nov 18	Dec 18	Jan 19	Feb 19	Mar 19	Avg
Accrual	1.50%	1.59%	1.66%	1.70%	1.77%	1.84%	1.88%	1.97%	2.04%	2.14%	2.25%	2.30%	1.89%
Cash	1.35%	0.97%	1.28%	2.82%	1.31%	1.61%	1.79%	1.24%	1.17%	2.77%	0.98%	1.82%	1.59%
Variance	0.15%	0.62%	0.38%	(1.12%)	0.46%	0.23%	0.09%	0.73%	0.87%	(0.63%)	1.27%	0.48%	0.29%



# Habit #6

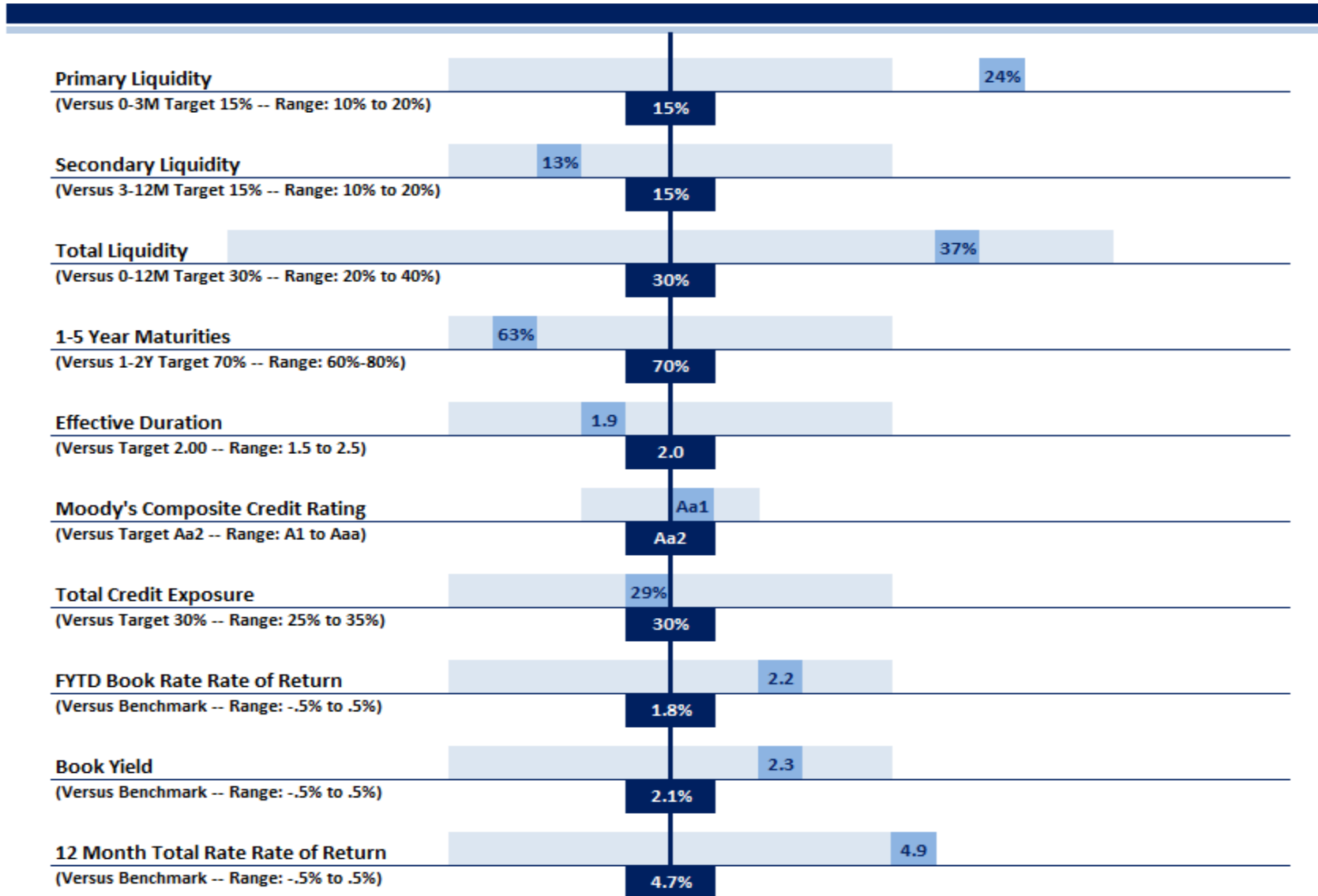
You Benchmark Your  
Investment Program and Portfolio in Multiple Ways

# GIOA Model Investment Policy 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.

Investment Portfolios are the Only Area Which Provide Revenue to Your Entity Without Charging Taxes or Fees to Your Citizens

# Benchmarking Your Investment Plan: Suitable vs. Legal



# CFA Institute: Characteristics of Useful Performance Benchmarks

A benchmark is a collection of securities or risk factors and associated weights that represents the persistent and prominent investment characteristics of a manager's investment process. A benchmark should be:

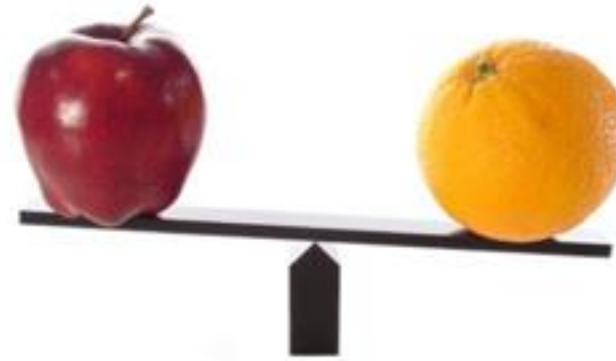
- **Unambiguous**: The identities and weights of securities constituting the benchmark are clearly defined.
- **Investable**: It is possible to forgo active management and simply hold the benchmark.
- **Measurable**: The benchmark's return is readily calculable on a reasonably frequent basis.
- **Appropriate**: The benchmark is consistent with the manager's investment style and sectors.
- **Specified in Advance**: The benchmark is specified prior to the start of an evaluation period and known to all interested parties.

“The failure of a benchmark to possess these properties compromises its utility as an effective investment management tool. The properties listed merely formalize intuitive notions of what constitutes a fair and relevant performance comparison. It is interesting to observe that a number of commonly used benchmarks fail to satisfy these properties.” CFA Institute

# Important Benchmark Characteristics

## To Be Relevant, Benchmarks Should Reflect the General Characteristics of a Portfolio's:

- Sector Allocations
- Duration/Maturity
- Turnover



## Three Types of Benchmarking:

- Weighted Yield
- Book Rate of Return
- Total Rate of Return

# Performance Benchmarking

**Book Return=** + Accrued/Received Interest  
+/- Amortization/Accretion or Premiums/Discounts  
+/- Realized Gains/Losses  

---

Average Daily Book Balance for the Period

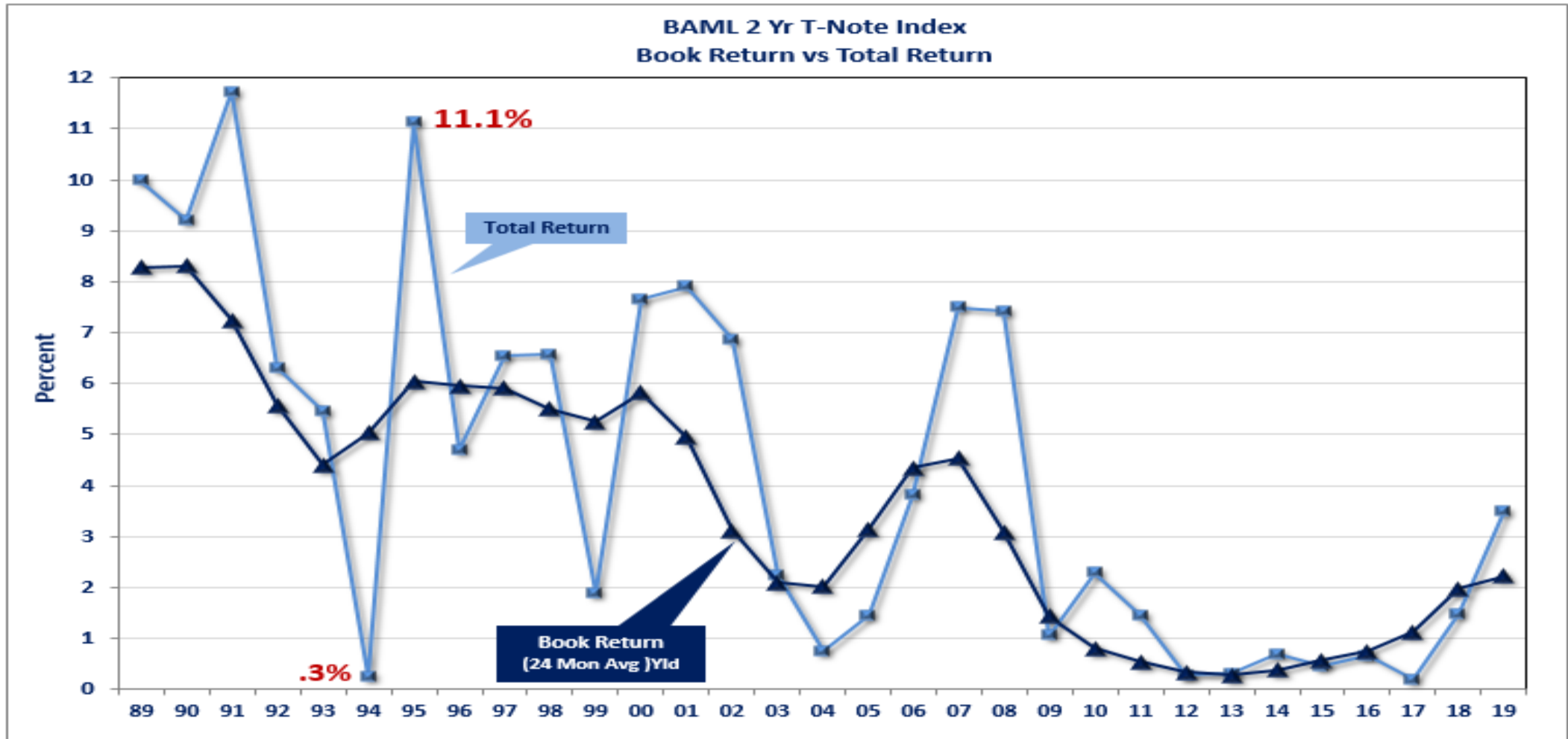
**Total Return=** + Accrued/Received Interest  
+/- Realized Gains/Losses  
**+/- Unrealized Gains/Losses**  

---

Time Weighted Invested Market Value for the Period

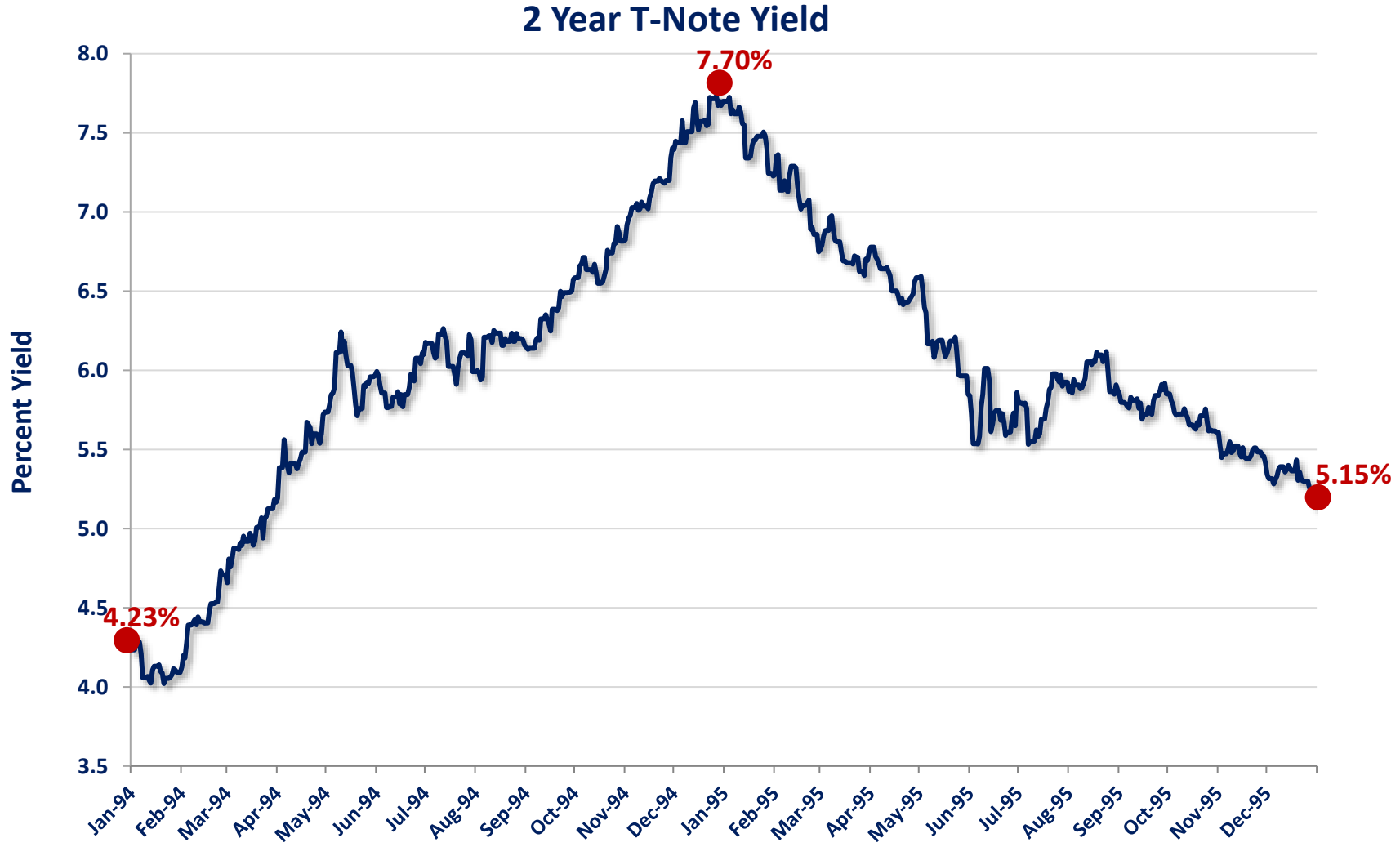


# Book Return vs. Total Return



Source: Bloomberg

# Book Return vs. Total Return



Source: Bloomberg



# Long Run: Total Return and Book Return...Basically Equal

GVQ0		99) Download		ICE Bond Indices: Flexible Returns		
ICE BofAML 1-5 Year US Treasury Index				Inception Date		01/31/1978
02/26/1988	-	12/12/2019	Currency	LOC	0	% Hedged
			Periodic Return	Annualized Return		
Total Return Factors			% of Total Return			
Price Return (Local)			1.139	0.036	0.8%	
Income Return (Local)			330.194	4.667	99.2%	
Total Return (Local)			331.332	4.702	100.0%	
Total Return Index Values						
Beginning Index Value			282.006			
Ending Index Value			1,216.383			
Price Return Index Values						
Beginning Index Value			107.820			
Ending Index Value			109.048			

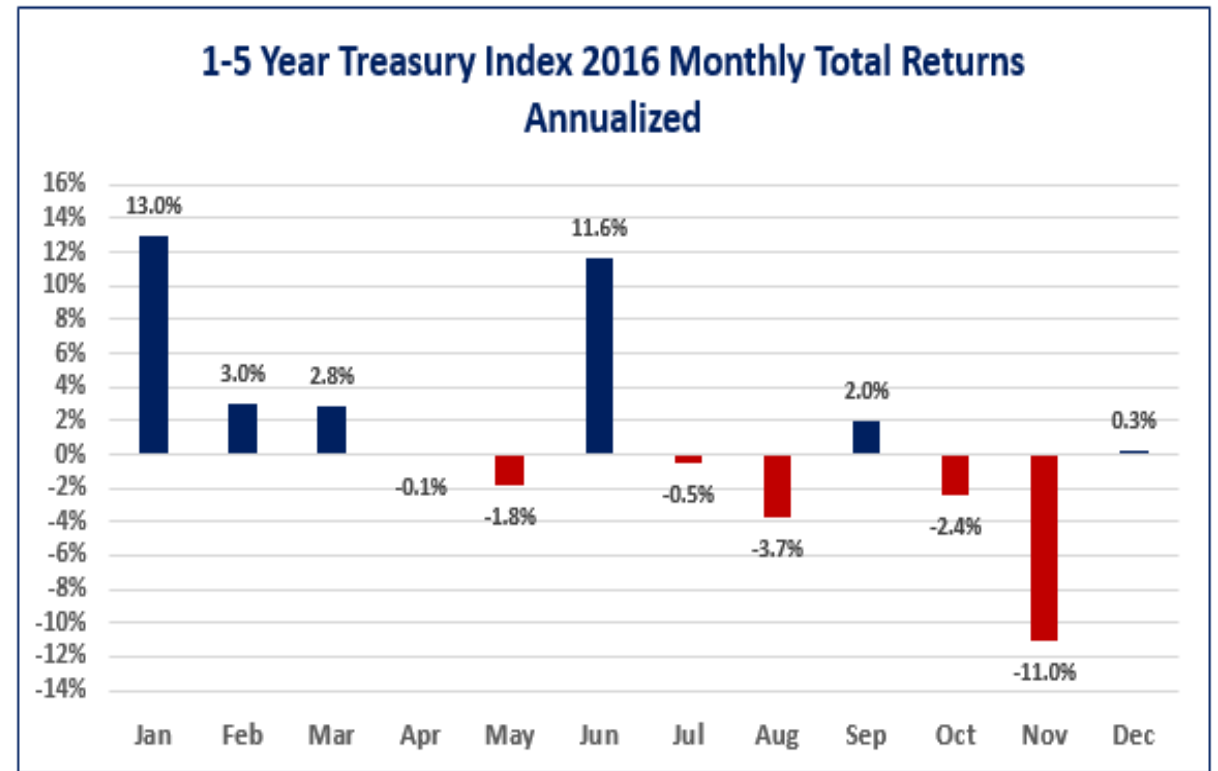
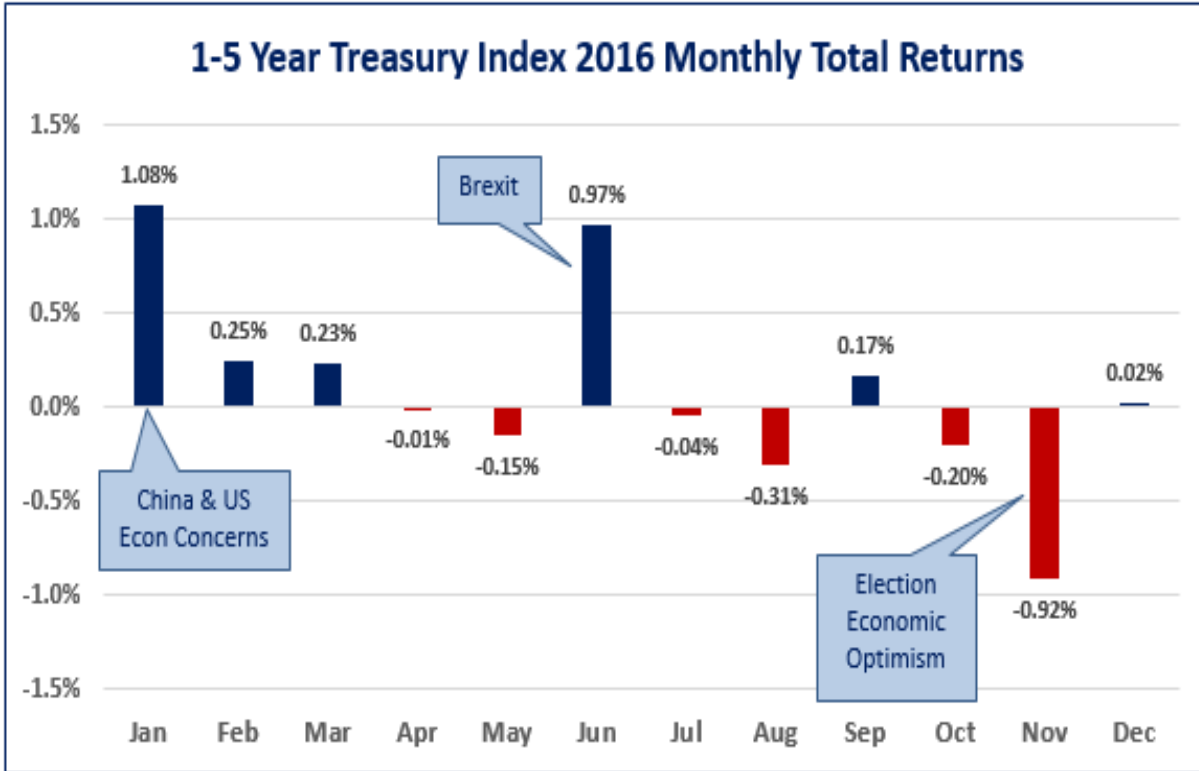
Source: Bloomberg

# 1-5 Year Tsy/Agy Index Yield History



Source: Bloomberg

# 2016: A Volatile Total Return Year

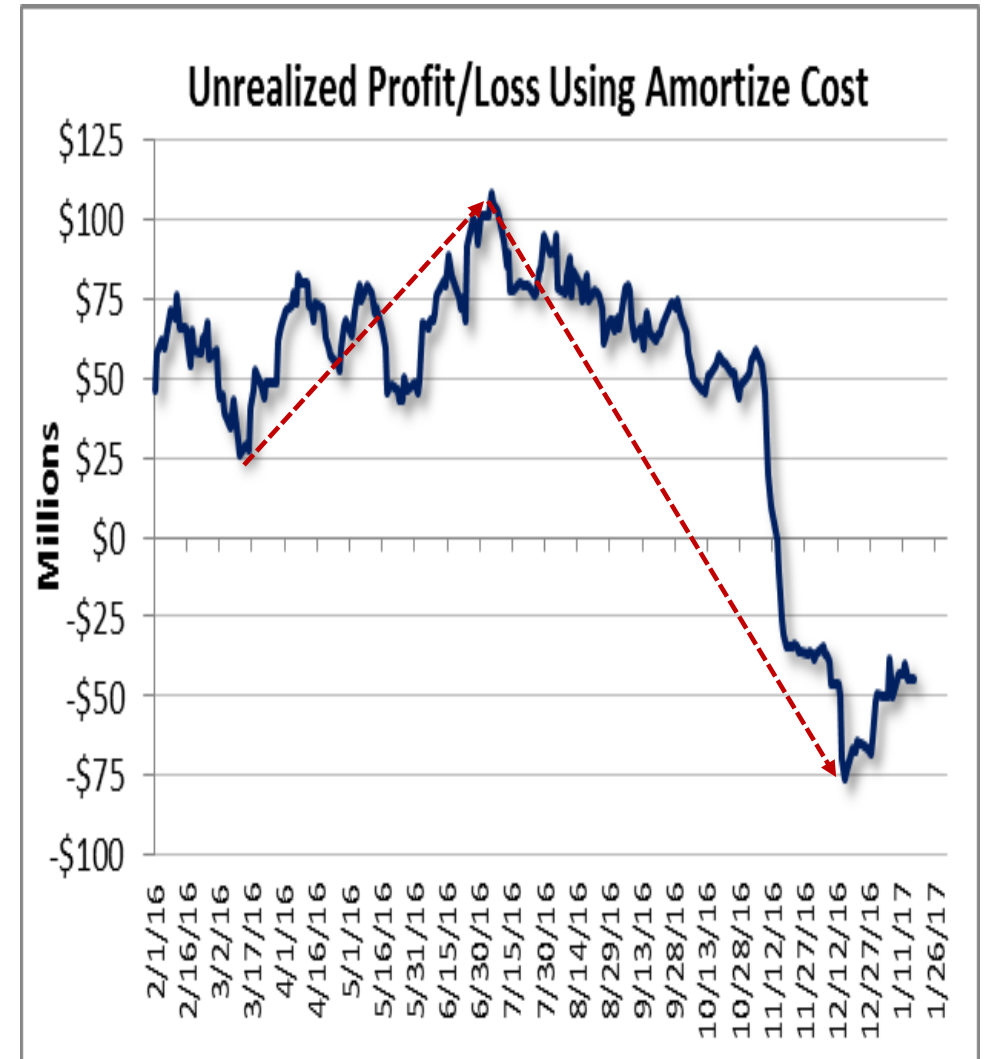
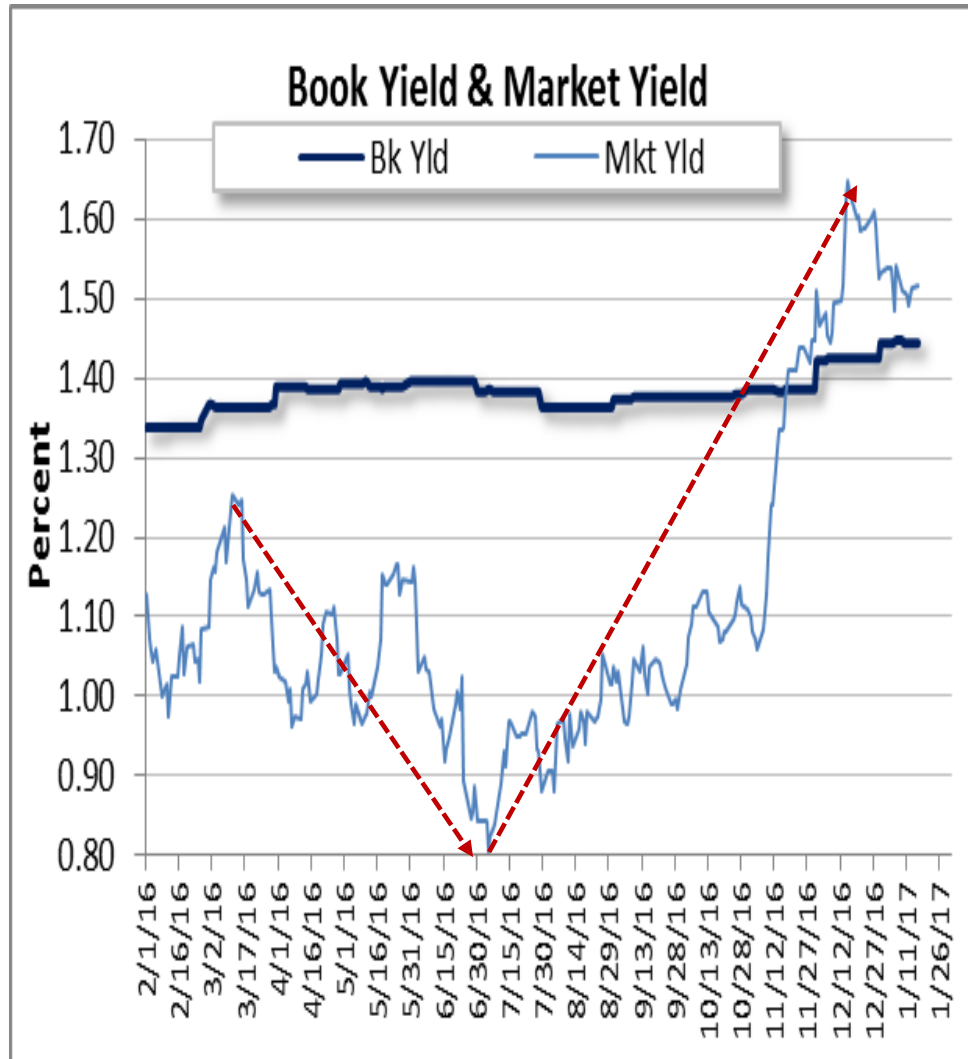


GVQO		99) Download		ICE BofAML 1-5 Year US Treasury Index	
12/31/2015	12/31/2016	Currency	LOC	0	% Hedged
		Periodic Return	Annualized Return		
Total Return Factors					
Price Return (Local)		-0.739	-0.739		
Income Return (Local)		1.827	1.827		
Total Return (Local)		1.088	1.088		

Source: Bloomberg



# A Real World Example





# Habit #7

**You Provide Quality, Timely, Transparent Reporting**

# Clearly Communicating Information to Your Audiences

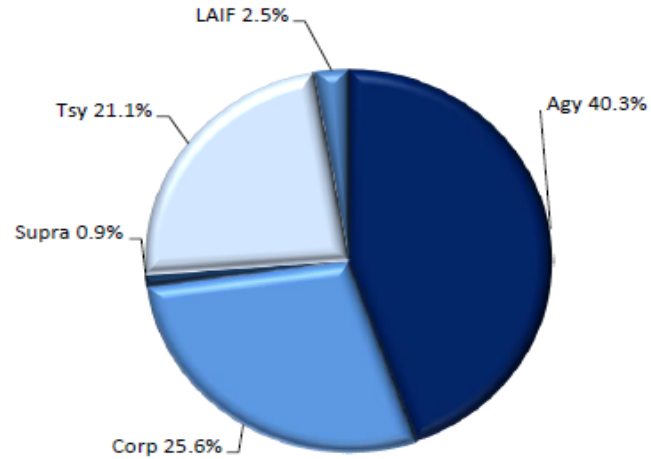
- **Know Your Audiences:**
  - Governing Body
  - Management
  - Auditors
  - Rating Agencies
  - GFOA (CAFR)
  - Peers
  - Taxpayers
- **Be Completely Transparent**
- **Keep it Simple – Charts/Graphs/Tables**
- **Provide Details to the Appropriate Audiences**
- **Demonstrate How the Investment Portfolio is Meeting Objectives**

"When performance is measured, performance improves. When performance is measured and reported, the rate of improvement accelerates." Thomas S. Monson



Your Investment Report Should Be on Your Website

### SECTOR ALLOCATION



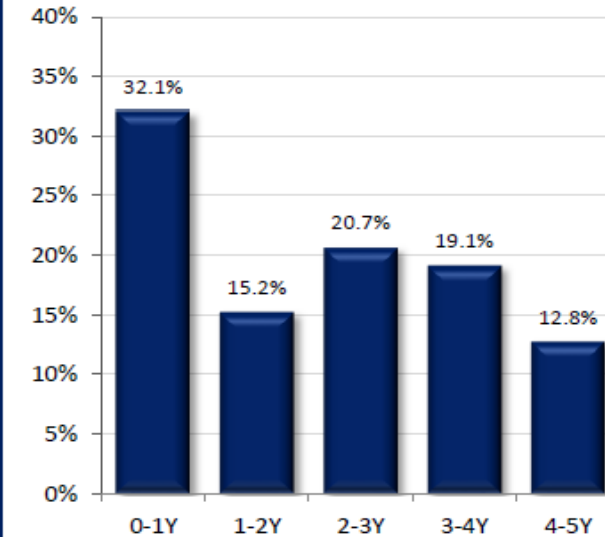
Per Book Value

### ACCOUNT SUMMARY

	11/30/19	10/31/19
<b>Market Value</b>	\$573,684,042	\$566,339,090
<b>Book Value</b>	\$563,843,802	\$555,166,081
<b>Variance</b>	\$9,840,241	\$11,173,009
<b>Par Value</b>	\$564,014,840	\$555,809,862
<b>Net Asset Value</b>	\$101.745	\$102.013
<b>Book Yield</b>	2.32%	2.35%
<b>Years to Maturity</b>	2.17	2.21
<b>Effective Duration</b>	2.11	2.14

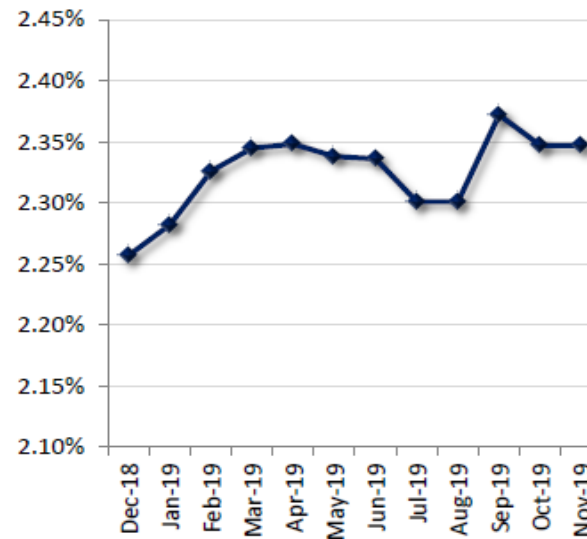
Book Value is Amortized

### MATURITY DISTRIBUTION

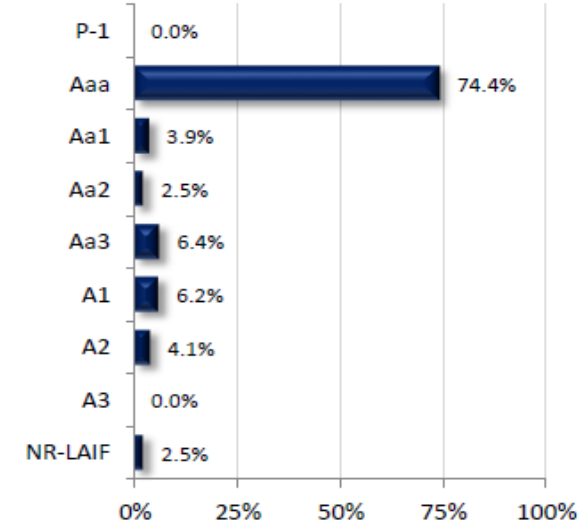


Per Book Value

### MONTH-END PORTFOLIO BOOK YIELD



### CREDIT QUALITY (MOODY'S)



NR: Not Rated

### TOP ISSUERS

Issuer	% Portfolio
U.S.Treasury	21.1%
FFCB	20.7%
FHLB	10.7%
Wells Fargo Govt Inst MMF	8.5%
FHLMC	5.3%
Apple	3.9%
FNMA	3.5%
Met Life	3.2%
LAIF	2.5%
Citibank	1.9%
Honda	1.8%
US Bank	1.8%
Cisco	1.8%
Wells Fargo Bank	1.6%
Microsoft	1.6%

Per Book Value

# You Have a Repeatable, Structured Process Based Upon:

## 2 Things We Know Well and 1 We Don't:

- ✓ Longer Duration Provides Higher Returns Over the Long Run
- ✓ Your Cash Flows Don't Always Repeat, But They Usually Really Rhyme
- ✓ You Can't Time the Market

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