

CSMFO Annual Conference



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The Top 10 Common Mistakes of Municipal Investment Programs

February 8, 2017

Common Investment Objectives

For operating, operating reserves, and bond proceeds:

- **Protect principal**



- **To meet ongoing and uncertain needs**

- **Maximize earnings**
- **While simultaneously providing safety and liquidity**

Common Mistakes

1. Lack of Cash Flow Analysis
2. Too Much Liquidity
3. Having Too Low of WAM/Duration
4. Benchmarking Incorrectly
5. Thinking One Can Time The Market
6. Not Amortizing
7. Lack of Diversification
8. Not Having the Right Number/Mix of Brokers
9. Having Too Many Investment Positions
10. Not Providing Transparent Reporting

1 – Lack of Cash Flow Analysis

Addressing Liquidity

“Treasury is responsible for investing, but we don’t have any information on spending”

“Who knows when a payment request will come through”

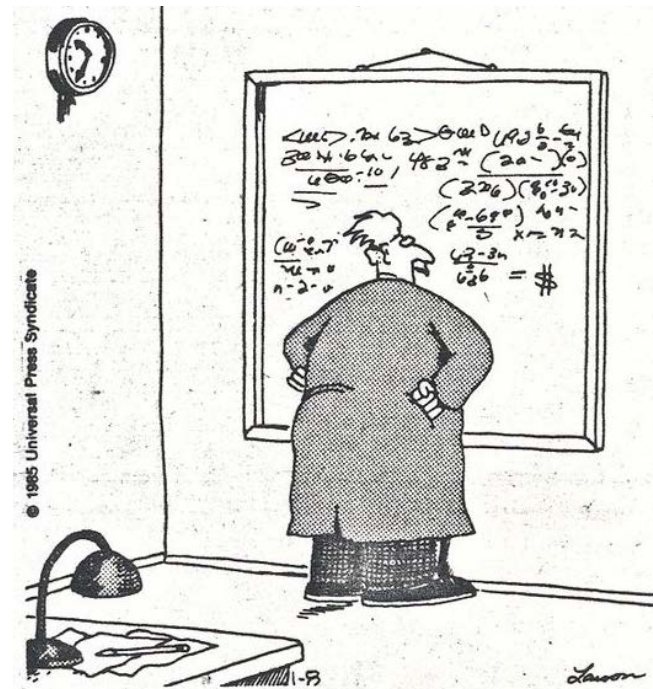
“No one tells us anything”

“Last month, Public Works walked in at 10AM with an invoice for \$4 million ... and wanted it paid immediately”

Cash Flow Analysis is Key

Quick, useful, painless exercise

- Identify cash flow components
 - Which accounts
- Determine degree of predictability
 - Is the data good, any anomalies
- Develop cash flow forecast
 - Timing ...
 - Of revenues
 - Of expenditures, especially big ones
- Net change in balance during time period
 - Trajectory: up, down, sideways



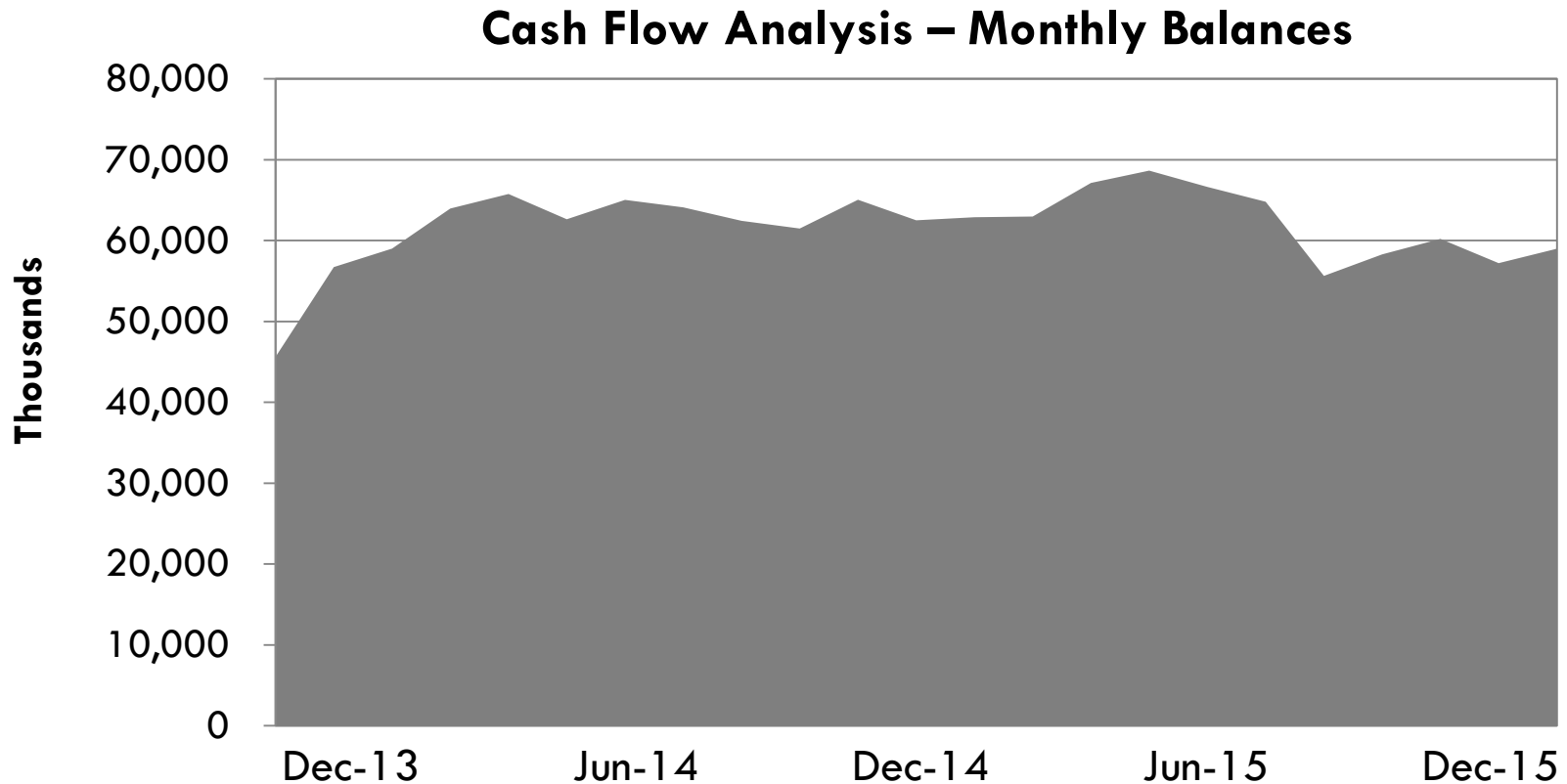
**Einstein discovers that
time, actually, is money**

Cash Flow Analysis: Macro Approach

- Identify an optimal allocation of funds
 - Some funds need to remain liquid to meet upcoming liabilities
 - Some funds can be invested longer-term
 - **Core** balances
- Management of short-term funds based on micro-level cash flow analysis
- Management of longer-term funds based on market conditions and risk aversion

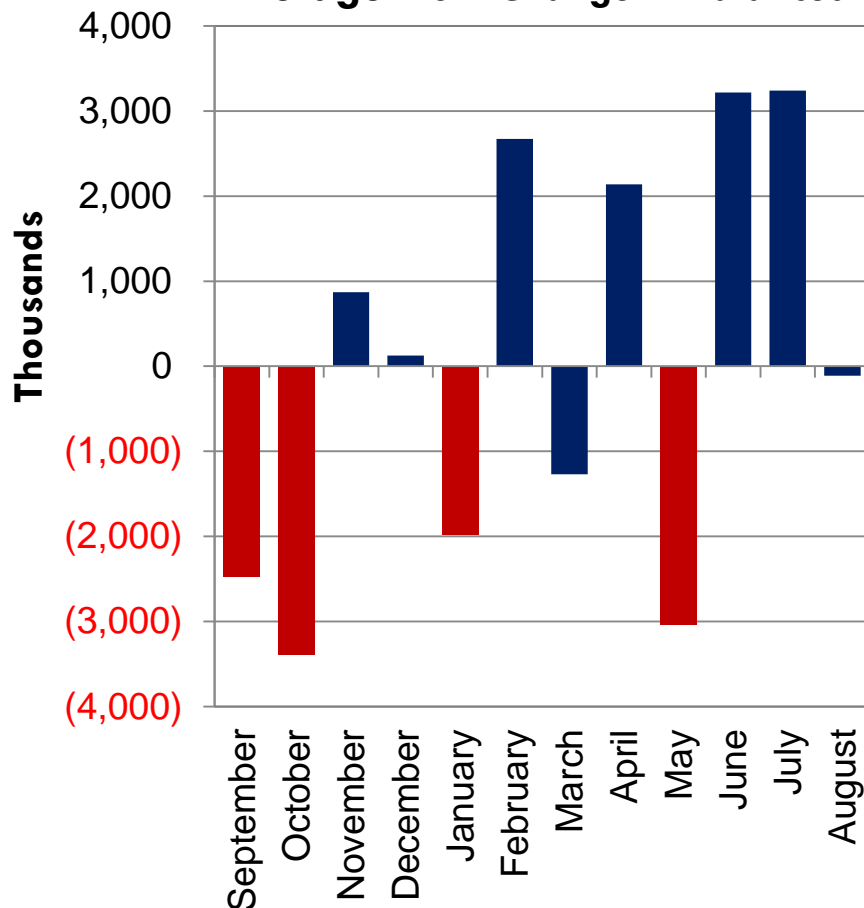
Shaping the Modeling Clay

- Step 1: pull together our balances and map them out



Cash Flow Seasonality Adds a Layer

Average MoM Change in Balances

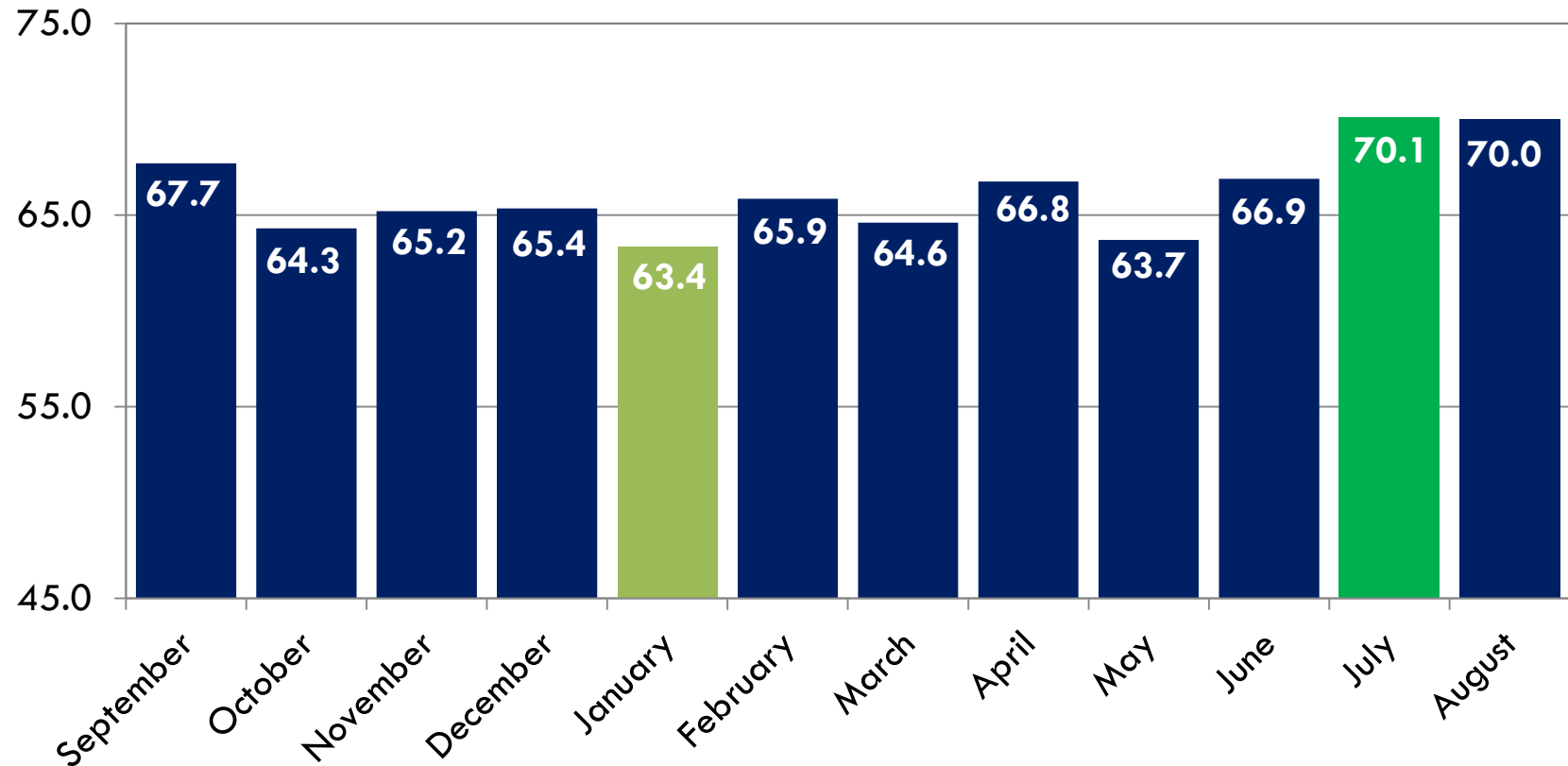


Cash Flow Analysis

Month	Average MoM Change	# Negative Cash Flow Months	# Positive Cash Flow Months
September	(2,300,000)	3	0
October	(3,400,000)	3	0
November	900,000	0	3
December	150,000	1	2
January	(2,000,000)	3	0
February	2,500,000	1	2
March	(1,250,000)	2	1
April	2,150,000	1	2
May	(3,050,000)	3	0
June	3,200,000	0	3
July	3,200,000	0	3
August	(100,000)	2	1

Seasonality Provides the High and Low

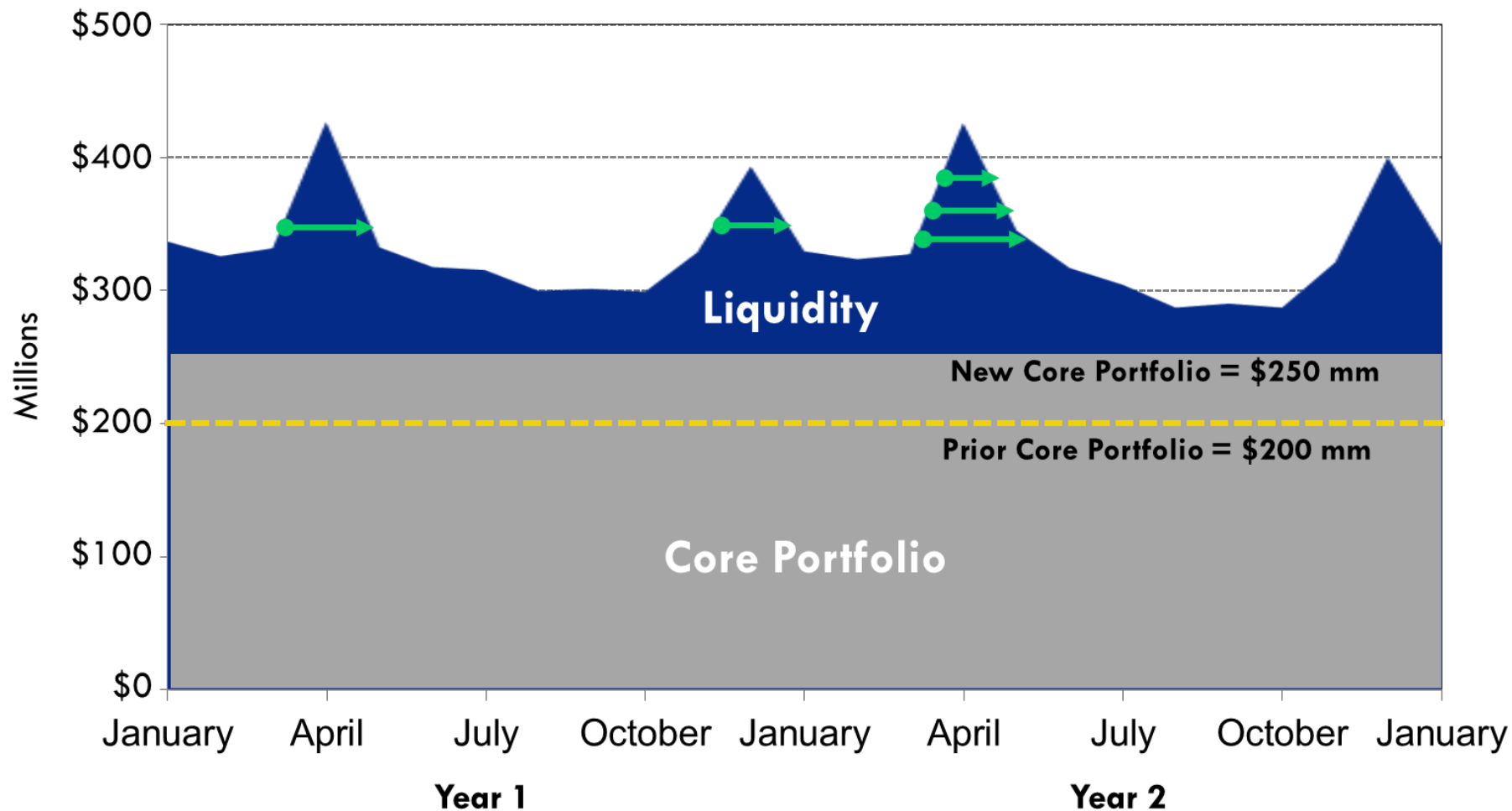
Cash Flow Seasonality – Average Fund Balances
(\$ Millions)



2 – Too Much Liquidity

Cash Flow Analysis Informs Liquidity Management

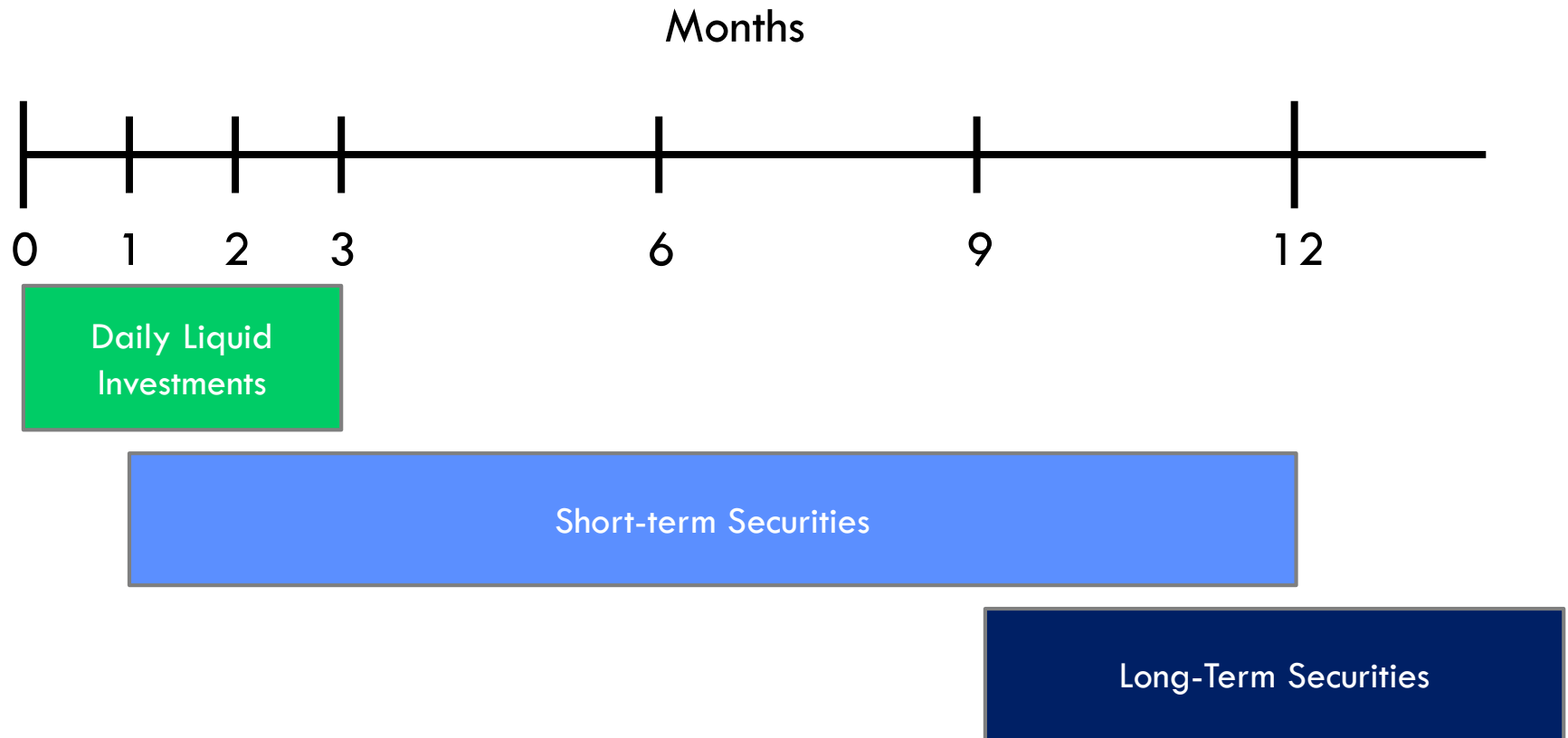
Historical Cash Balances



Liquidity Cushion Provides Comfort Level

Cash Flow Analysis – Review of Liquidity Cushions (\$ Millions)	
Targeted Liquidity Cushion	Minimum Cash At Month-End, Historically
15%	\$11.2
20%	\$14.9
25%	\$18.7
30%	\$22.4
35%	\$26.2
40%	\$29.9
45%	\$33.7
50%	\$37.4
Current (100%)	\$41.0

Not All Needs for Cash Require Daily Liquidity



Portfolio Components

□ Short-Term Portfolio

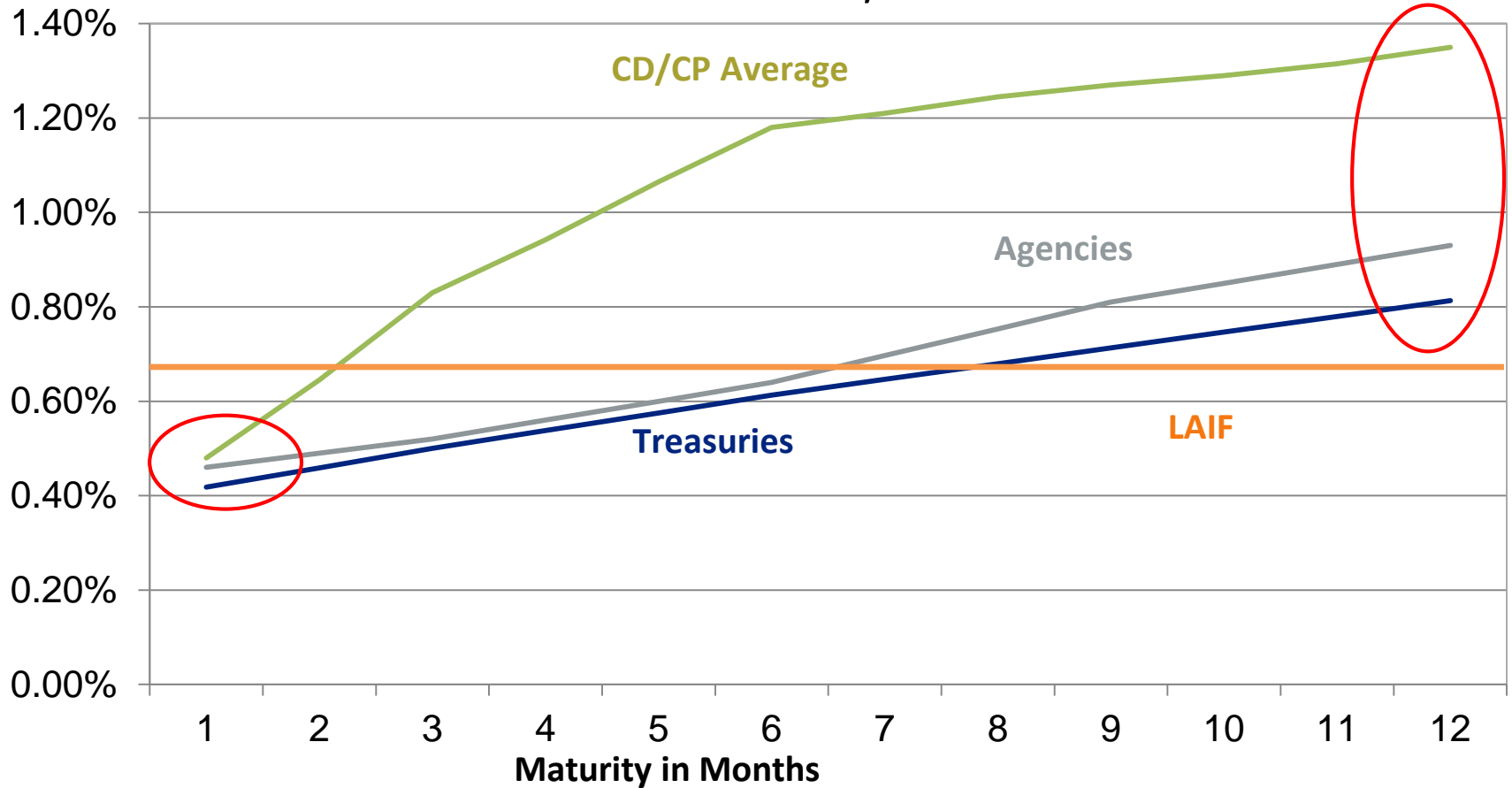
- Provide liquidity for short-term cash needs
- Money market funds and short-term investments
 - State Pool/LGIP/money market fund
 - T-bills, discount notes, CDs, Commercial Paper

□ Core Portfolio or Reserve

- Funds not expected to be spent
- Can be invested in longer-term securities

Cost of Too Much Liquidity

Money Market Yield Curves December 31, 2016



Source: California State Treasurer's Office, Bloomberg.

Cost of Too Much Liquidity

**That's 93,975
Starbucks Grande
Café Mochas!**



- Historic returns (12/31/06 to 12/31/16)
 - ML 1-5 Year U.S. Treasury Index 2.77%
 - LAIF 1.21%
 - Difference 1.56%
- A portfolio extension can improve returns*
- 1.56% (156 basis points) of yield generates **\$390,000** of additional income each year on a \$25 million portfolio

Source: California State Treasurer's Office, Bloomberg.

Cost of Too Much Liquidity

Risk/Return of Various Investment Strategies 10 Years Ended December 31, 2016

Treasury Index	Duration (years)	Annualized Total Return	Cumulative Value of \$10 Million	Additional \$ Growth
3M T Bill	0.24	0.80%	\$10,827,685	-
0-1 Treasury	0.50	1.10%	\$11,162,504	\$334,819
1-3 Treasury	1.89	2.11%	\$12,328,520	\$1,500,835
1-5 Treasury	2.71	2.76%	\$13,138,592	\$2,310,907

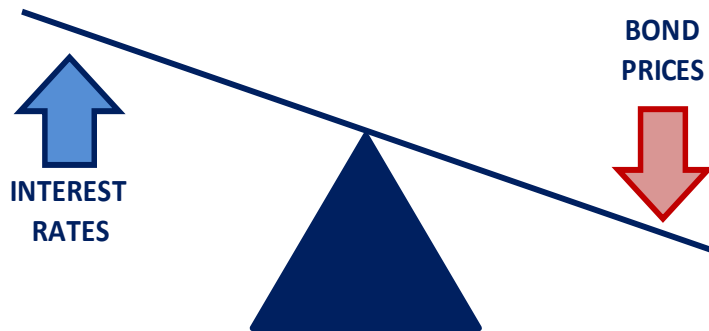
Source: Bank of America Merrill Lynch Indices, Bloomberg.

#3 - Too Low WAM/Duration

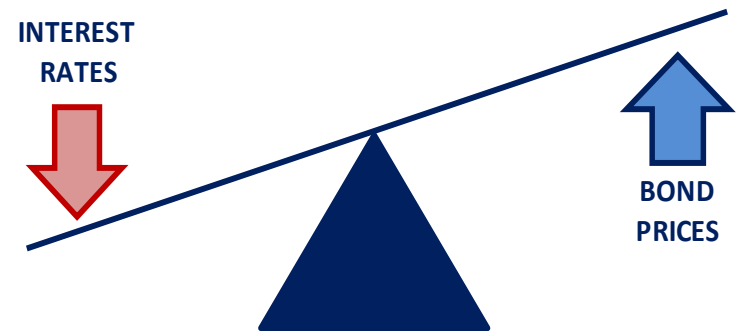
Having Too Low of WAM/Duration

Two Main Portfolio Risks/Decisions:

Interest Rate Risk



Credit Risk



Portfolio Structure: Rule of Thumb

Primary Liquidity: 0-3 Months

10%-15%

Secondary Liquidity: 3-12 Months

10%-15%

Core Investments: 1-5 Years

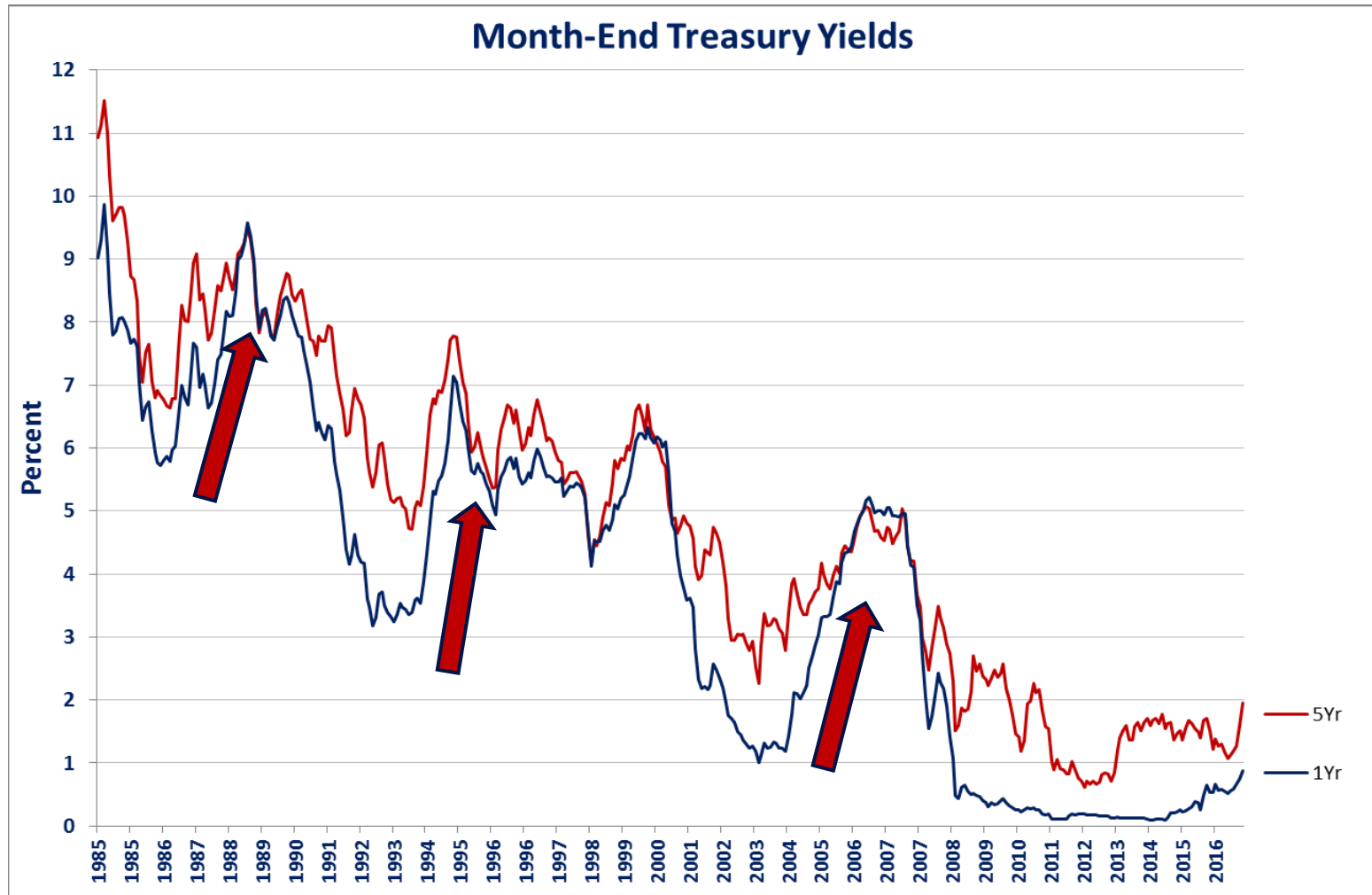
70%-80%

Total Portfolio

100%

Please refer to the accompanying Important Disclosures.

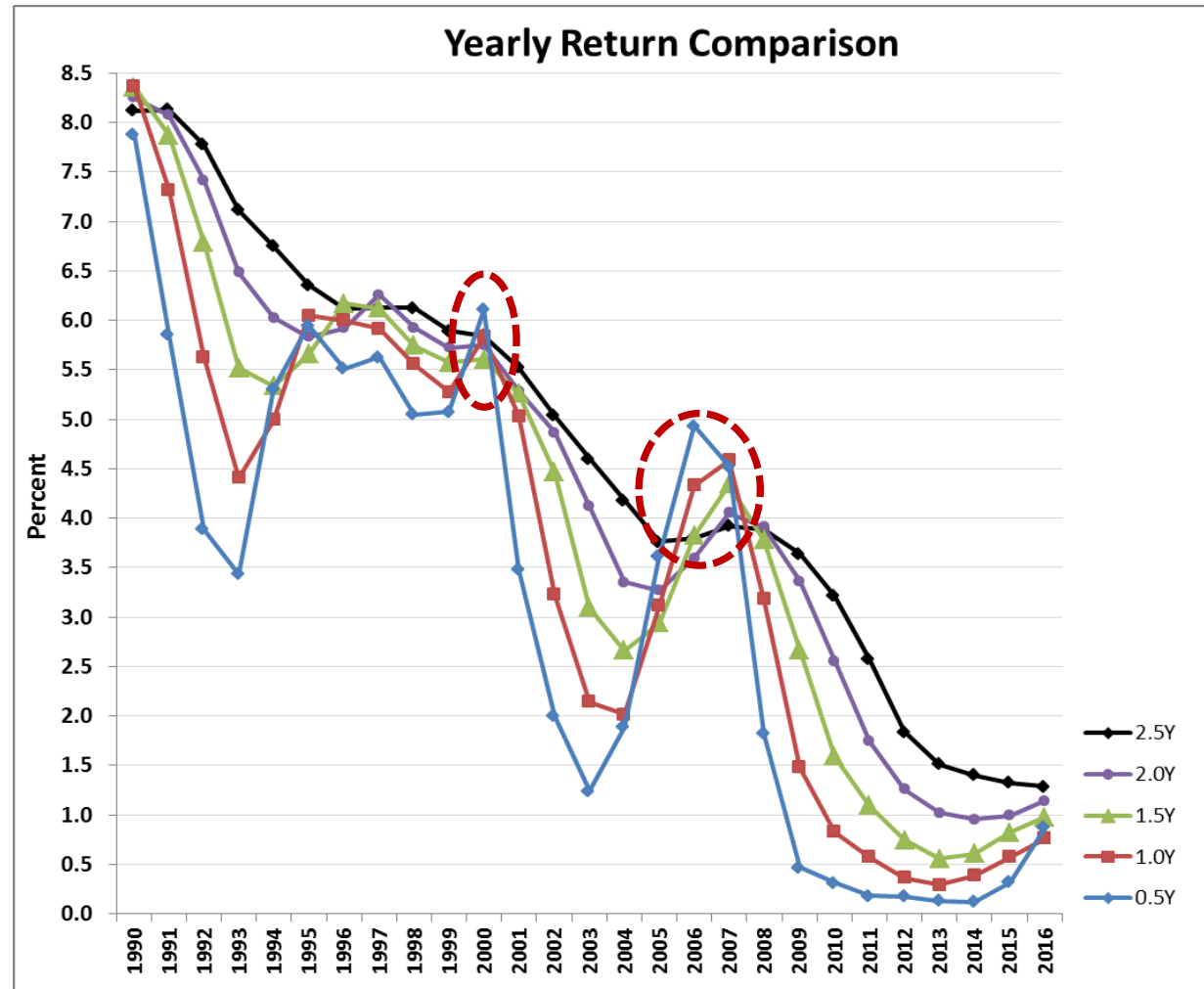
Yield History – Optimal WAM/Duration



Source: Bloomberg

WAM: Sweet Spot Analysis

WAM	0.5Y	1.0Y	1.5Y	2.0Y	2.5Y
Treasury	1Y	2Y	3Y	4Y	5Y
1990	7.88	8.37	8.36	8.25	8.12
1991	5.86	7.32	7.87	8.07	8.13
1992	3.89	5.63	6.79	7.42	7.78
1993	3.43	4.41	5.52	6.49	7.12
1994	5.31	4.99	5.34	6.03	6.75
1995	5.95	6.05	5.66	5.84	6.36
1996	5.51	6.00	6.17	5.92	6.12
1997	5.63	5.91	6.12	6.26	6.12
1998	5.05	5.56	5.74	5.93	6.12
1999	5.08	5.28	5.57	5.73	5.90
2000	6.11	5.83	5.61	5.75	5.85
2001	3.48	5.03	5.26	5.29	5.52
2002	2.00	3.23	4.46	4.87	5.04
2003	1.24	2.15	3.10	4.12	4.60
2004	1.89	2.02	2.66	3.35	4.18
2005	3.62	3.12	2.94	3.27	3.76
2006	4.93	4.33	3.82	3.60	3.80
2007	4.52	4.59	4.34	4.06	3.92
2008	1.82	3.18	3.78	3.91	3.89
2009	0.47	1.48	2.67	3.37	3.64
2010	0.32	0.83	1.59	2.56	3.22
2011	0.18	0.58	1.09	1.74	2.57
2012	0.17	0.36	0.75	1.26	1.84
2013	0.13	0.29	0.56	1.02	1.51
2014	0.12	0.39	0.61	0.96	1.40
2015	0.32	0.57	0.82	0.99	1.33
2016	0.87	0.76	0.98	1.14	1.29
Avg Yield	3.18	3.64	4.01	4.34	4.66
3MTsy Avg	2.90	2.90	2.90	2.90	2.90
Excess Return	0.28	0.74	1.11	1.44	1.76
WAM	0.50	1.00	1.50	2.00	2.50
Mod Sharp	0.555	0.739	0.738	0.720	0.705



Source: Bloomberg, FTN Main Street.



WAM: Sweet Spot Analysis

Benchmark Treasury Modified Sharp Ratio Analysis

1/31/1990 to 12/31/2016

	Maturity	Avg Yield	Avg Duration	Modified Sharp Ratio	% Return of 30Yr / % 30Yr Risk
	3 Mon T-Bill	2.90	0.24		55% / 2%
	6 Mon T-Bill	3.03	0.48	0.284	58% / 3%
	1 Yr T-Bill	3.17	0.97	0.280	60% / 6%
Sweet Spot	2 Yr T-Note	3.50	1.90	0.315	67% / 12%
	3 Yr T-Note	3.73	2.85	0.292	71% / 19%
	5 Yr T-Note	4.16	4.45	0.283	79% / 29%
	10 Yr T-Note	4.74	7.96	0.231	90% / 52%
	30 Yr T-Bond	5.25	15.35	0.154	100% / 100%

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

$$(3.50 \text{ 2y} - 2.90 \text{ 3m}) / 1.90 \text{ 2y} = .315$$

Source: Bloomberg, FTN Main Street.

#4 - Benchmarking Incorrectly

Why Do We Benchmark Performance

Safety: Safety of principal is the foremost objective of the investment program. Investments shall be undertaken in a manner that seeks to ensure the preservation of capital in the overall portfolio. The objective will be to mitigate credit risk and interest rate risk.

Liquidity: The investment portfolio shall remain sufficiently liquid to meet all operating requirements that may be reasonably anticipated. This is accomplished by structuring the portfolio so that securities mature concurrent with cash needs to meet anticipated demands (static liquidity). Furthermore, since all possible cash demands cannot be anticipated, the portfolio should consist largely of securities with active secondary or resale markets (dynamic liquidity). A portion of the portfolio may be placed in money market mutual funds or local government investment pools, which offer sameday liquidity for short-term funds.

***Yield:** The investment portfolio shall be designed with the objective of attaining a market rate of return throughout budgetary and economic cycles, taking into account the investment risk constraints and liquidity needs. Return on investment is of secondary importance compared to the safety and liquidity objectives described above. The core of investments are limited to relatively low risk securities in anticipation of earning a fair return, relative to the risk being assumed. Securities shall generally be held until maturity, with the following exceptions:

- A security with declining credit may be sold early to minimize loss of principal.
- Liquidity needs of the portfolio require that the security be sold.
- Liquidity a security swap would improve the quality, yield, or target duration in the portfolio.

Source: GFOA Website.

Primary Benchmarking Factors to Consider

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**

Relevant General Characteristics

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

- Sector Allocations
- Duration/Maturity
- Turnover

Three Types of Benchmarking

Keeping Score of Your Portfolio



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

Yield Return-Calculation Assumptions

Portfolio's Average Weighted Book Yield and Holding Period*

Security	Maturity	Maturity in Years	Par Weighted Maturity	Par Value	% of Portfolio	Book Yield	Weighted Yield	Purchase Date	Holding Period in Years	Weighted Holding Period In Years
MMF	3/1/16	0.0	0.00	40,000,000	30.8%	0.25%	0.08%	3/1/16	0.00	0.00
Agency	9/30/16	0.6	0.04	10,000,000	7.7%	0.40%	0.03%	9/30/15	0.42	0.03
Treasury	3/31/17	1.1	0.08	10,000,000	7.7%	0.50%	0.04%	6/30/15	0.67	0.05
Agency	9/30/17	1.6	0.12	10,000,000	7.7%	0.70%	0.05%	12/31/14	1.17	0.09
Treasury	3/31/18	2.1	0.16	10,000,000	7.7%	0.80%	0.06%	3/31/14	1.92	0.15
Agency	9/30/18	2.6	0.20	10,000,000	7.7%	0.95%	0.07%	9/30/13	2.42	0.19
Treasury	3/31/19	3.1	0.24	10,000,000	7.7%	1.10%	0.08%	12/31/13	2.17	0.17
Agency	9/30/19	3.6	0.28	10,000,000	7.7%	1.25%	0.10%	12/31/12	3.17	0.24
Treasury	3/31/20	4.1	0.31	10,000,000	7.7%	1.35%	0.10%	3/31/14	1.92	0.15
Agency	9/30/20	4.6	0.35	10,000,000	7.7%	1.50%	0.12%	12/31/14	1.17	0.09
Total/Average			1.79	130,000,000	100.0%		0.73%			1.16

Sector Allocations:

MMF	30.8%
Agency	38.5%
Treasury	30.7%
Total	100.0%

Weighted Average Maturity:

1.79 Years

Weighted Holding Period:

1.16 Years

Yield Return-Pros and Cons

Pros:

- Ease of Calculation
- Ease of Understanding (presenting to governing boards)
- Helpful for Budgeting Interest Income

Cons:

- Does Not Account for Realized Capital Gains or Losses
- Does Not Accurately Account for Accrued Interest
- Subject to Yield To Maturity Assumptions
- May not Account for All Risks

Book Rate of Return-Calculation Assumptions

$$\text{Book Return} = \frac{\begin{aligned} &+ \text{ Accrued/Received Interest} \\ &+/- \text{ Amortization/Accretion of Premiums/Discounts} \\ &+/- \text{ Realized Gains/Losses} \end{aligned}}{\text{Average Daily Book Balance for the Period}}$$

Amortization: The accumulation of value until maturity (premiums)

Accretion: The accumulation of value until maturity (discounts)

Realized Gains/Losses: Liquidation Principal minus Book Value Principal

Book Rate of Return-Pros and Cons

Pros:

- Matches Budgeting Process
- Closely Matches Actual Cash Flows

Cons:

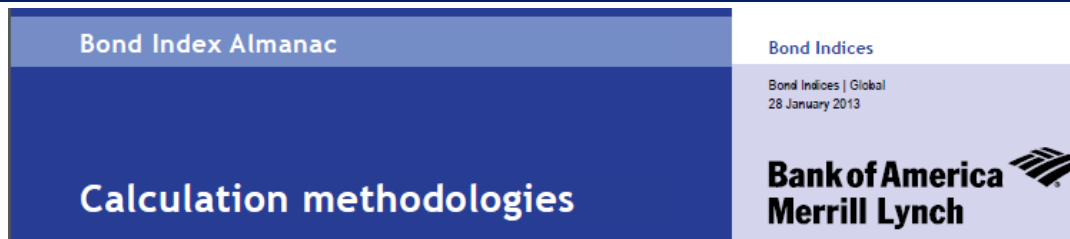
- Subject to Manipulation of Realized Gains/Losses
- May Not Reflect Portfolio's Market Volatility Changes
- Calculation is More Complex

Total Rate of Return -- GIPS Methodology

$$\text{Total Return} = \frac{\begin{aligned} &+ \text{Accrued/Received Interest} \\ &+/- \text{Realized Gains/Losses} \\ &+/- \text{Unrealized Gains/Losses} \end{aligned}}{\text{Time Weighted Invested Market Value for the Period}}$$



Total Rate of Return Complexities



Total return calculations

Calculating index values

The daily closing Index value is a function of the prior month-end index value and the current month-to-date return:

$$IV_n = IV_0 \times (1 + TRR_n)$$

where:

IV_n = closing index value on day n

IV_0 = closing index value on prior month-end

TRR_n = month-to-date index total return on day n

The month-to-date return of an index (TRR_n) is equal to the sum of the individual constituent returns times their respective beginning of month weights:

$$TRR_n = \sum_{i=1}^k B_i TRR_{n,i} \times B_i Wgt_0$$

where:

TRR_n = Index month-to-date total return on day n

$B_i TRR_{n,i}$ = month-to-date total return on day n of bond i

$B_i Wgt_0$ = beginning of month weight of bond i

Periodic returns between any two dates can be derived from the beginning and end of period index values. Since index values represent closing levels, period returns will include market movement on the end of period date but exclude market movement on the beginning of period date. Therefore, to capture returns for the month of June, divide the June 30 Index value by the May 31 Index value:

$$TRR = \frac{IV_n}{IV_0} - 1$$

where:

TRR = periodic total return

IV_n = closing index value on the end of period date

IV_0 = closing index value on the beginning of period date

Annualized returns are derived from period total returns:

$$AnnTRR_n = (1 + TRR_n)^{365/d} - 1$$

where:

$AnnTRR_n$ = annualized total return for period n

TRR_n = periodic total return for period n

d = number of actual days in period n

Total Return Index Parameters/Rules

Bank of America/Merrill Lynch 1-3 Year Treasury and Agency Index (Ticker: G1A0 – Fixed Coupon)

- Issue Size: \$250 Million and Up (Agency), \$1 Billion and Up (Treasury)
- Monthly Rebalanced
- Index “Buys” all Treasuries and Agency (non-subordinated) Fixed Rate Securities Between 1-3 Yrs
- Index “Sells” all Treasury and Agency Fixed Rate Securities Less Than 1 Yr
- “Buys” Newly Added Securities at the Bid

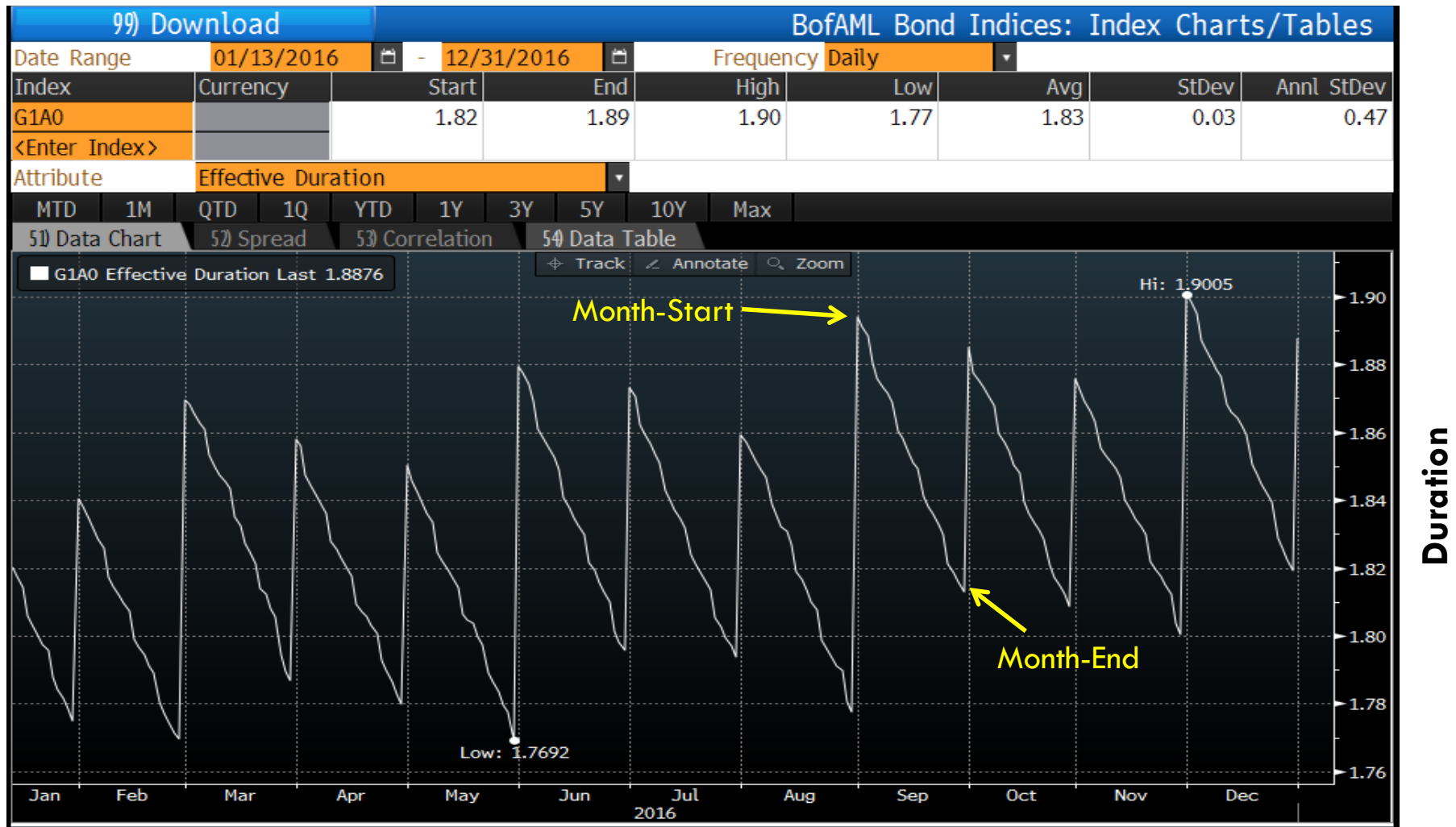
Source: Bloomberg, BAML.

BAML 1-3 Year Treasury & Agency Index

G1A0		99) Download		BofAML Bond Indices: Index Characteristics			
The BofA Merrill Lynch 1-3 Year US Treasury & Agency Index				Inception Date		09/30/1982	
12/31/2016		Currency	USD	Calculation		Conventional	
		12/31 Rebalancing			Dec Market Change		
		Jan Index 12/31/2016	Dec Index 12/31/2016	Rebal Chg 12/31/2016	Dec Index 11/30/2016	MTD Chg 12/31/2016	
Returns							
		Total Return Value	654.019			653.806	
Valuations (Scale MM)							
		# of Issues	370	383	-13	383	0
		Face Value	3,237,675	3,272,932	-35,256	3,272,932	0
		Accrued Interest	12,719	12,749	-30	11,388	1,361
		Cash	0	3,340	-3,340	0	3,340
		Full Market Value	3,281,284	3,320,694	-39,410	3,319,613	1,082
		% of GOAO	33.94	34.13	-0.19	34.08	0.05
Yield							
		Effective Yield	1.19	1.17	0.02	1.14	0.03
		Yield to Worst	1.19	1.17	0.02	1.14	0.03
		Yield to Maturity	1.19	1.17	0.02	1.14	0.03
Spread (in Semi-Annual Terms)							
		To Worst (vs Govt)	1	1	0	1	0
		OAS (vs Govt)	2	2	0	1	1
		Libor OAS	-25	-25	0	-17	-8
		Asset Swap	-24	-24	0	-17	-7
Duration							
		Effective Duration	1.89	1.82	0.07	1.90	-0.08
		Spread Duration	1.88	1.81	0.07	1.90	-0.08

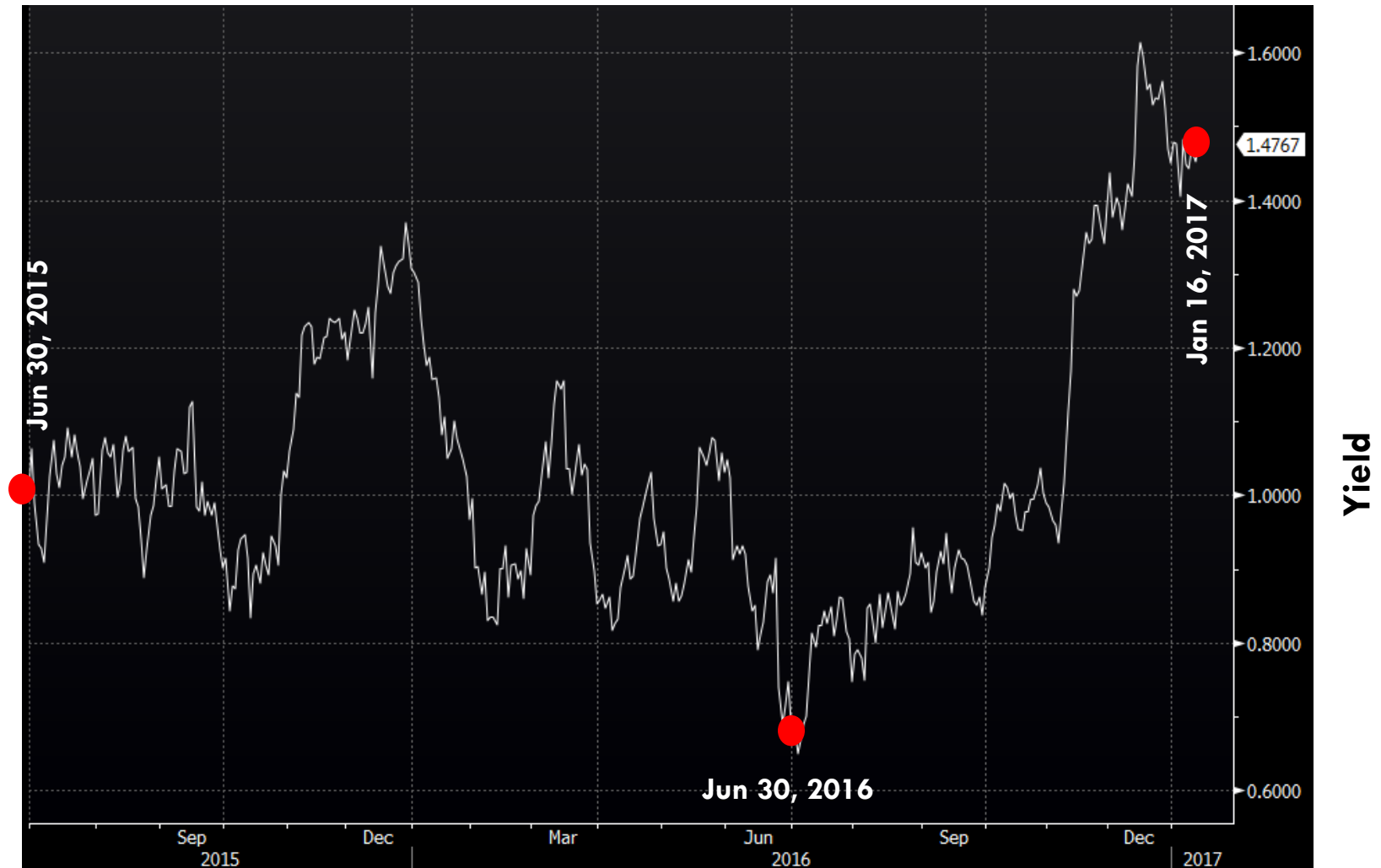
Source: Bloomberg

BAML 1-3 Year Treasury & Agency Index



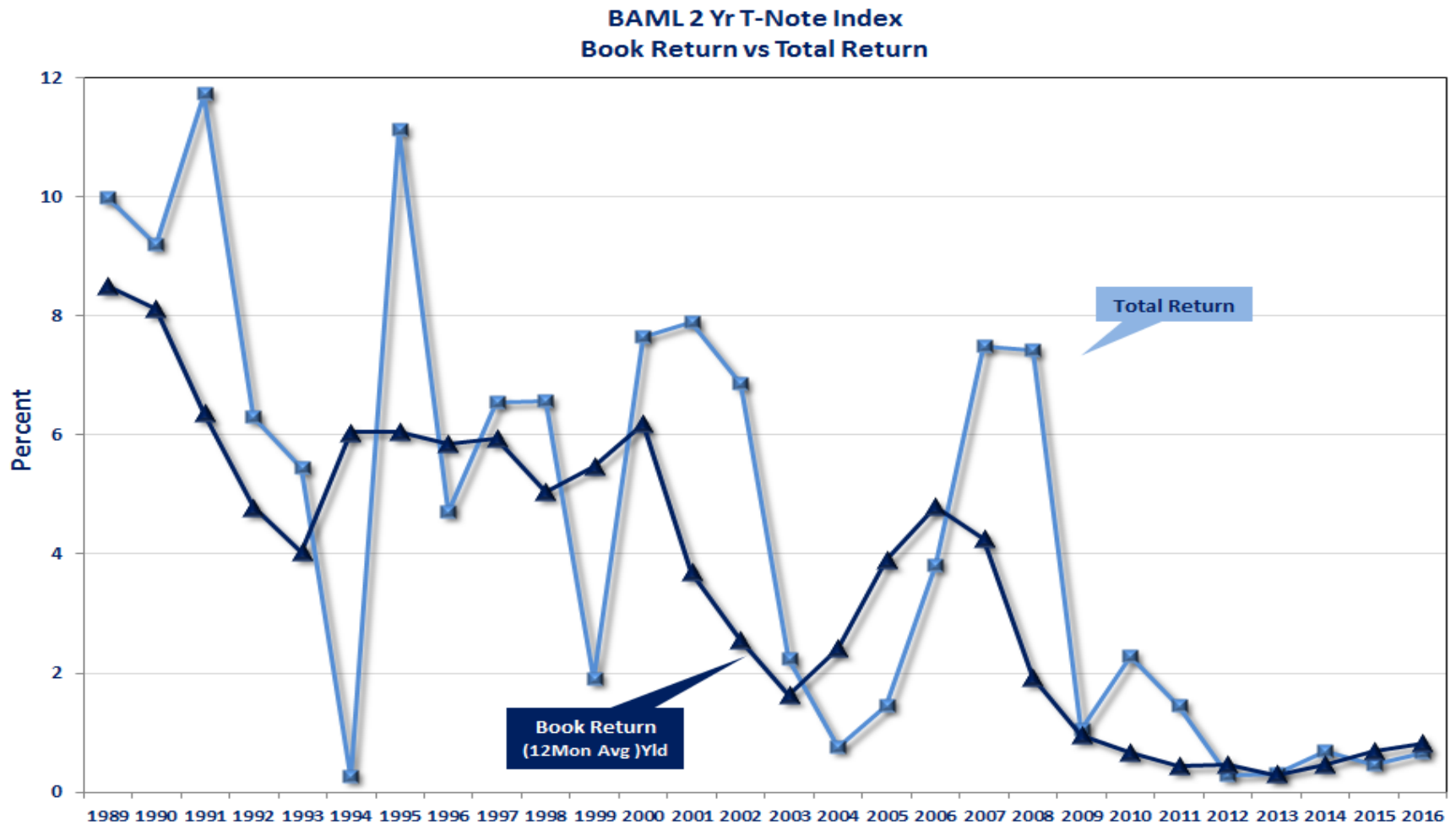
Source: Bloomberg

3 Yr T-Note Yield



Source: Bloomberg

Book Return vs. Total Return



Source: Bloomberg, FTN Main Street.

Total Rate of Return-Pros and Cons

Pros:

- Provides a GASB 31 Type of Risk Assessment
- Reflects Portfolio's Market Volatility Changes
- Provides a standardized approach of returns (GIPS)

Cons:

- May not match investment objective
- May not match interest income budget objectives
- Calculation is more complex

Benchmarking



GFOA Best Practice

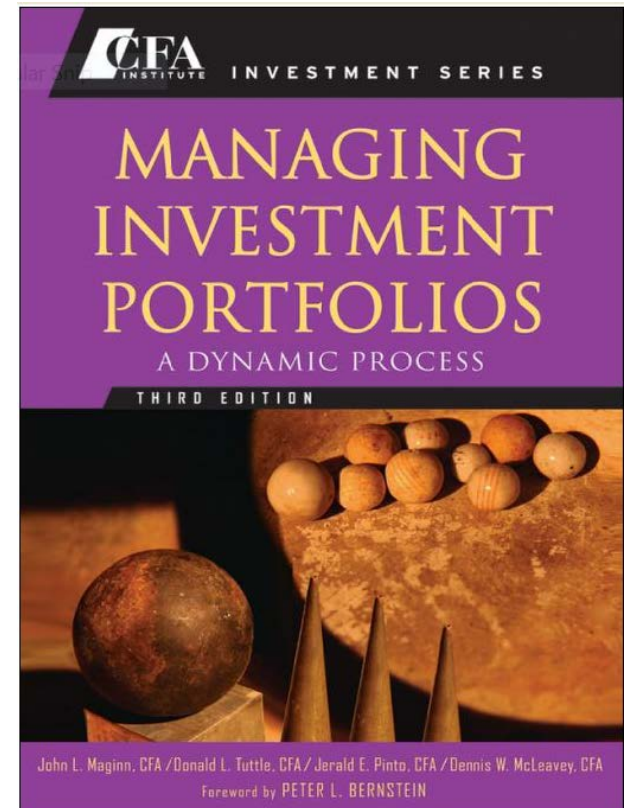
Using Benchmarks to Assess Portfolio Risk and Return

Background. Measuring portfolio risk and return results against appropriate market benchmarks¹ is a technique to verify that all the investment objectives are being met and that portfolio investment returns are appropriate for the risk incurred. Comparing total return to a proper benchmark or index is the preferred means for assessing performance relative to risk and investment objectives.

Investment yield alone is not sufficient for assessing risk and performance. Investment yield measures the percentage increase or decrease that a portfolio generates during a given period and is useful for budgeting purposes but overall, is unreliable for decision making and assessing the risk and return characteristics of the portfolio.

Total Return Implications

“Total rate of return measures the increase in the investor’s wealth due to both investment income (for example, dividends and interest) and capital gains (both realized and unrealized). The total rate of return implies that a dollar of wealth is equally meaningful to the investor whether that wealth is generated by the secure income from a 90-day Treasury bill or by the unrealized appreciation in the price of a share of common stock.” (emphasis added)




Does your benchmarking methodology represent “the persistent and prominent investment characteristics” of your investment process and your investment objectives?

5 – Thinking One Can Time the Market

Market Reflects Investor Sentiment

- Don't try to "guess" where rates are going
- The yield curve reflects the market's collective thinking.

 When investors believe rates are moving higher, they require higher interest rates to entice them to buy longer-term securities and the yield curve steepens.

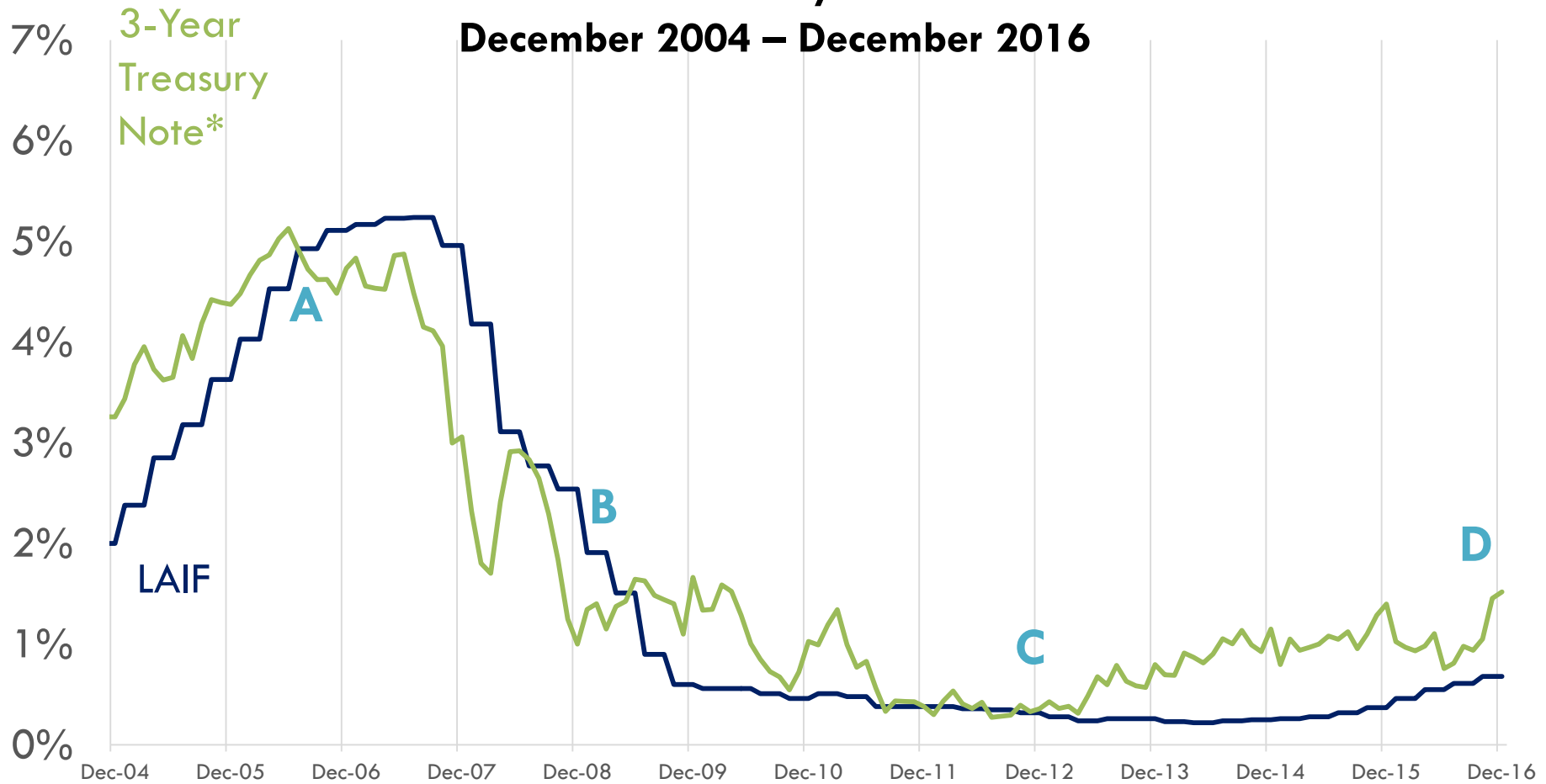
 When investors believe rates are moving lower, they are willing to accept a slightly lower rate in order to "lock in" a return. This causes the yield curve to invert.



"Things went from bad to worse, but we're hopeful now that things are going badly again."

Timing the Market

3-Year U.S. Treasury Note vs. LAIF December 2004 – December 2016



Source: California State Treasurer's Office, Bloomberg.

When Does a Security Get Called?

- The issuer will always act in **their own** best interest – which will be to the **investor's detriment**.

Possible Outcome	Why?	Impact on Investor
Agency gets called	Rates are lower	Investor is forced to reinvest at lower yields
Agency does not get called	Rates are higher	Investor retains ownership, but in a market environment where rates are higher

Investor
loses either
way

Short-Term Gains vs. Long-term Costs

3-Year Federal Agency
April 2001 – April 2011



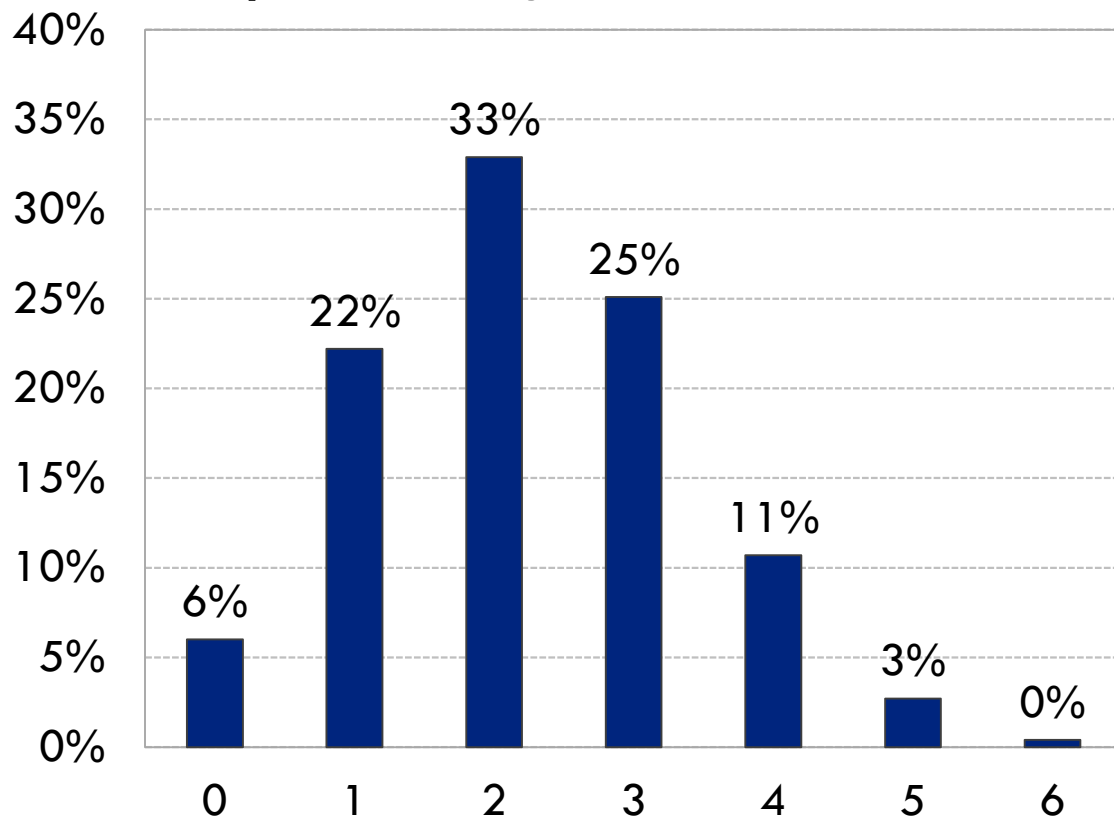
Source: Bloomberg

Probability of Future Fed Rate Hikes

Probability of At Least One Rate Hike

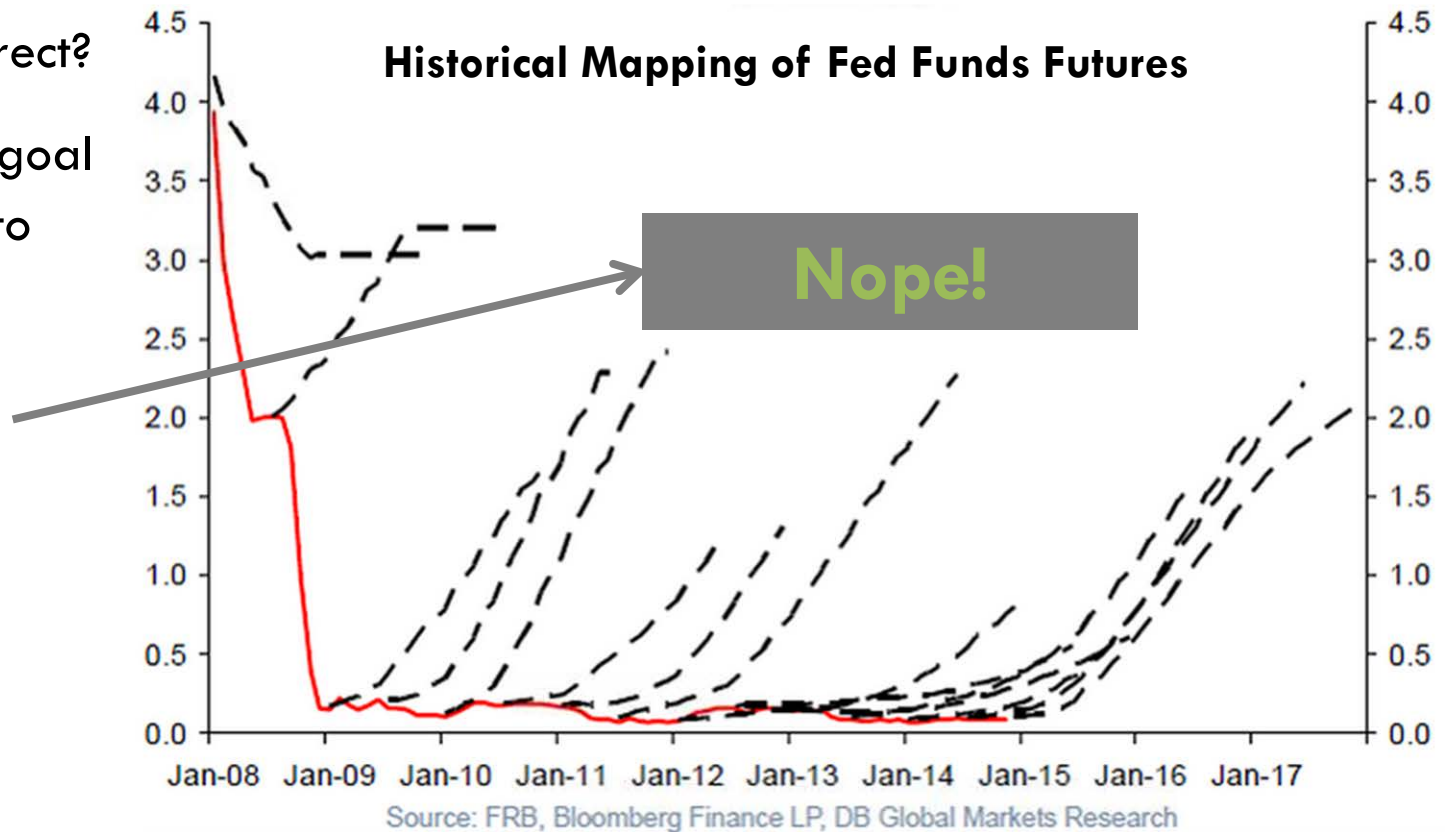
Meeting	12/30/16
2/1/17	12.4%
3/15/17	31.3%
5/3/17	42.0%
6/14/17	70.8%
7/27/17	74.5%
9/20/17	85.2%
11/1/17	87.7%
12/13/17	94.0%

Number of Rate Hikes Expected through December 2017



Hindsight is 20/20

- Is the market always correct?
- Buy with a goal of holding to maturity



#6 - Not Amortizing

The Importance of Amortizing

United States

1) Actions

3) Settings

Fixed Income Trading

13:11

* Market Closed *

4) Actives

5) Bills

6) Notes

7) TIPS

8) Strips

9) Sprds

10) Curves

11) FRN

21) T/O-1

22) T/1-2

23) T/2-4

24) T/4-7

25) T/7-10

26) T/10-30

31) 1 ³ / ₈ 820	98-31+ / 99-00	1.661	- 03	55) 2 ¹ / ₈ 621	101-05+ / 101-06+	1.842	- 04
32) 2 920	101-04 / 101-05	1.676	- 03+	56) 1 ¹ / ₈ 621	96-29+ / 96-30	1.844	- 04
33) 1 ³ / ₈ 920	98-27+ / 98-28+	1.685	- 03+	57) 2 ¹ / ₄ 721	101-21 / 101-22	1.860	- 04+
34) 1 ³ / ₄ 020	100-06+ / 100-07	1.690	- 03+	58) 1 ¹ / ₈ 721	96-25 / 96-25+	1.864	- 04
35) 1 ³ / ₈ 020	98-24+ / 98-25+	1.704	- 03	59) 8 ¹ / ₈ 821	127-12 / 127-14+	1.844	- 07
36) 2 ⁵ / ₈ N20	103-12+ / 103-13+	1.697	- 04	60) 2 ¹ / ₈ 821	101-03 / 101-04	1.867	- 03+
37) 2 N20	101-01 / 101-01+	1.719	- 04	61) 1 ¹ / ₈ 821	96-23+ / 96-24	1.863	- 04
38) 1 ⁵ / ₈ N20	99-20 / 99-20+	1.721	- 03	62) 2 821	100-16 / 100-16+	1.883	- 04+
39) 2 ³ / ₈ D20	102-13+ / 102-14+	1.730	- 04	63) 2 ¹ / ₈ 921	101-00+ / 101-01	1.894	- 04+
40) 1 ³ / ₄ D20	100-00 / 100-01	1.742	- 04	64) 1 ¹ / ₈ 921	96-18+ / 96-19	1.886	- 04
41) 2 ¹ / ₈ 121	101-12 / 101-13	1.763	- 04	65) 2 021	100-13 / 100-14	1.904	- 04
42) 1 ³ / ₈ 121	98-15+ / 98-16	1.761	- 03	66) 1 ¹ / ₄ 021	97-02 / 97-02+	1.891	- 04+
43) 3 ⁵ / ₈ 221	107-11 / 107-12+	1.740	- 04+	67) 8 N21	128-02+ / 128-04+	1.873	- 07+
44) 7 ⁷ / ₈ 221	123-29+ / 123-31+	1.755	- 06	68) 2 N21	100-13 / 100-14	1.904	- 04+

Source: Bloomberg



The Importance of Amortizing



Source: Bloomberg

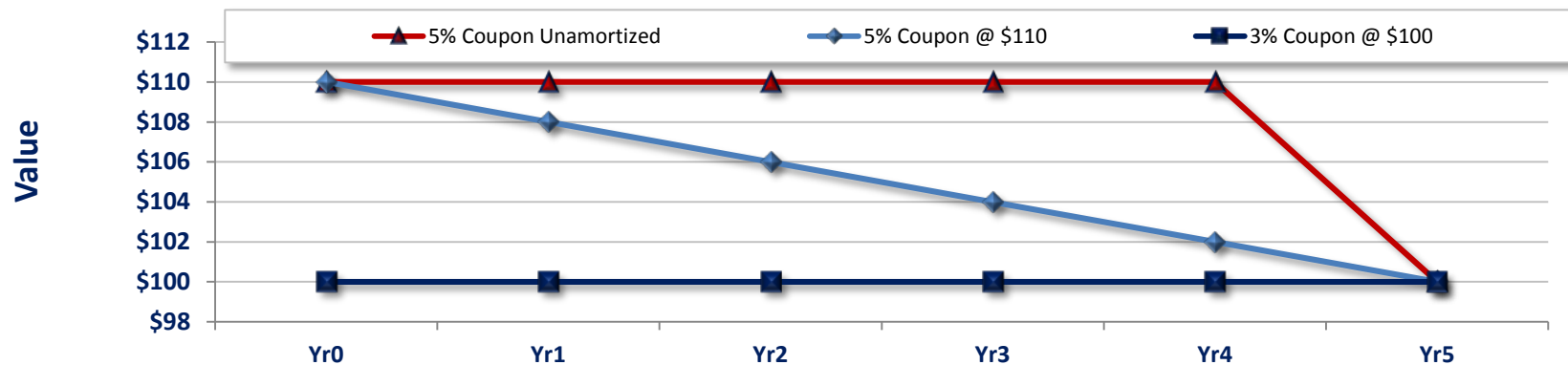


The Importance of Amortizing

Maturity	Price	Coupon	Interest Payments					Total
			Yr1	Yr2	Yr3	Yr4	Yr5	
5Yr	\$100	3%	\$3	\$3	\$3	\$3	\$3	\$15
5Yr (Old 7yr)	\$110	5%	\$5	\$5	\$5	\$5	\$5	\$25
(Amortization)			-\$2	-\$2	-\$2	-\$2	-\$2	-\$10
(Net Earnings)			\$3	\$3	\$3	\$3	\$3	\$15

	End of Year Amortized Value					
	Yr0	Yr1	Yr2	Yr3	Yr4	Yr5
5Yr (Old 7yr)	\$110	\$108	\$106	\$104	\$102	\$100
5Yr	\$100	\$100	\$100	\$100	\$100	\$100
5Yr (Old 7yr-Unamortized)	\$110	\$110	\$110	\$110	\$110	\$100

End of Year Amortized Value



#7 - Lack of Diversification

Benefits of Diversification

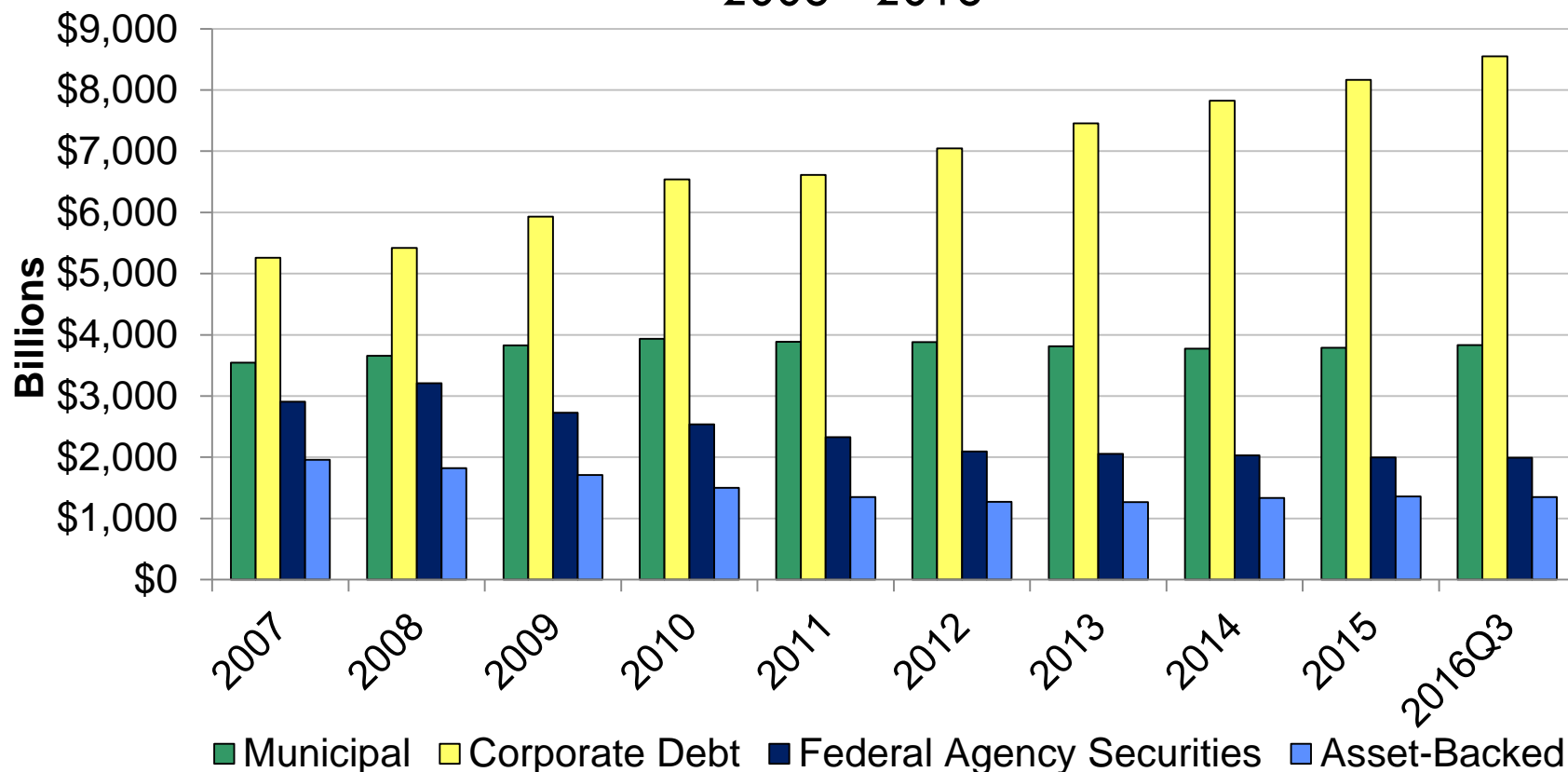
Index / Ending Duration	2012	2013	2014	2015	2016
U.S. Treasury / 2.65 Years	7.99%	2.30%	3.90%	1.54%	4.22%
Bullet Agencies / 2.28 Years	6.46%	1.29%	2.19%	1.51%	2.29%
Callable Agencies / 1.93 Years	4.33%	1.24%	2.18%	1.45%	1.93%
Corp AAA / 2.85 Years	2.81%	0.70%	2.06%	1.28%	1.32%
Corp AA / 2.62 Years	2.50%	0.41%	1.92%	1.22%	1.26%
Corp A / 2.65 Years	1.63%	0.03%	1.38%	1.20%	1.19%
Corp BBB / 2.73 Years	1.52%	0.00%	1.30%	0.98%	1.08%
MBS 0 - 5 / 3.36 Years	0.91%	-0.01%	1.29%	0.90%	0.81%
Municipals / 2.36 Years	0.85%	-0.19%	1.24%	0.55%	0.16%

Source: BofA Merrill Lynch 1-5 Year Bond Indices.



Changing Fixed-Income Debt Market

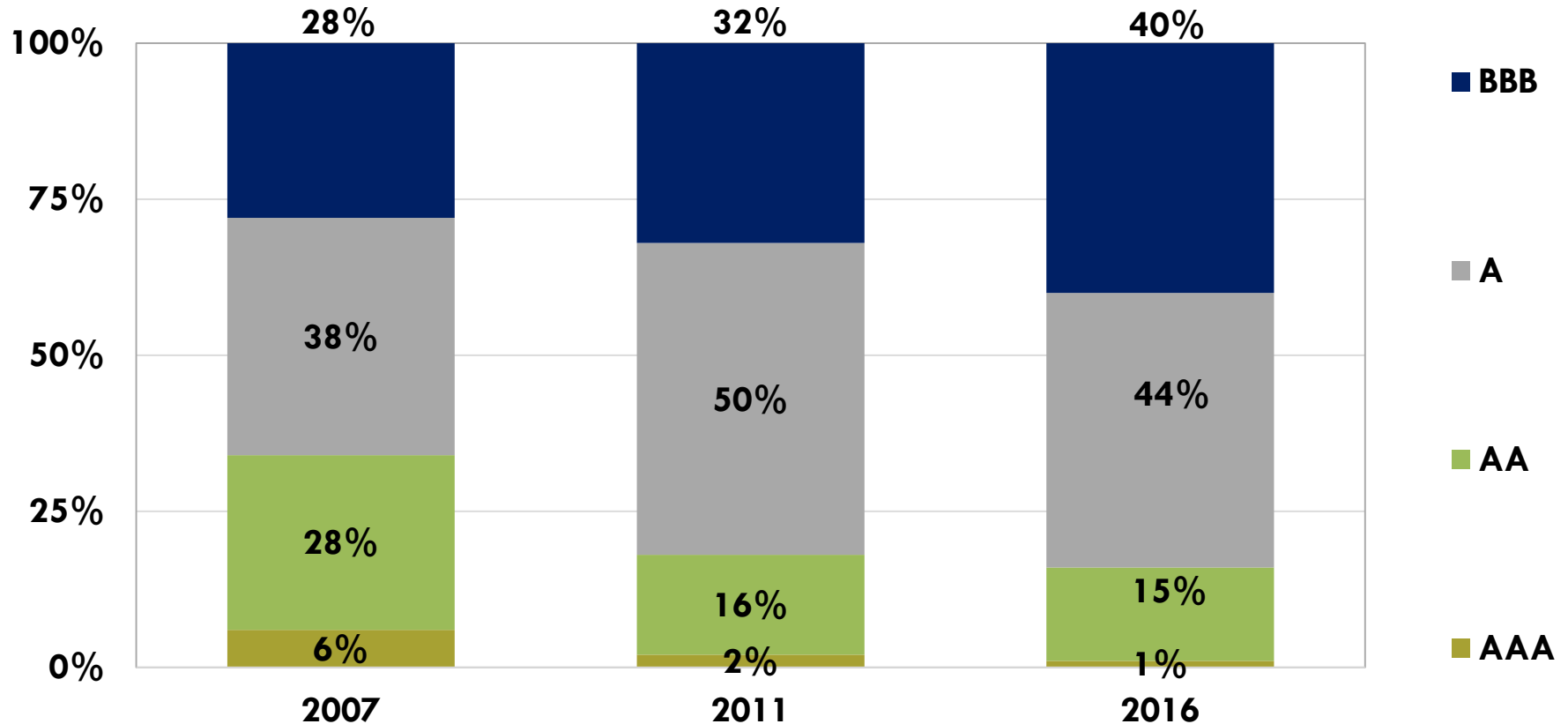
U.S. Bond Market Debt Outstanding
2006 - 2016



Source: <http://www.sifma.org/research/statistics.aspx>. Excludes Treasury, Money Markets, and Mortgage Related Debt.

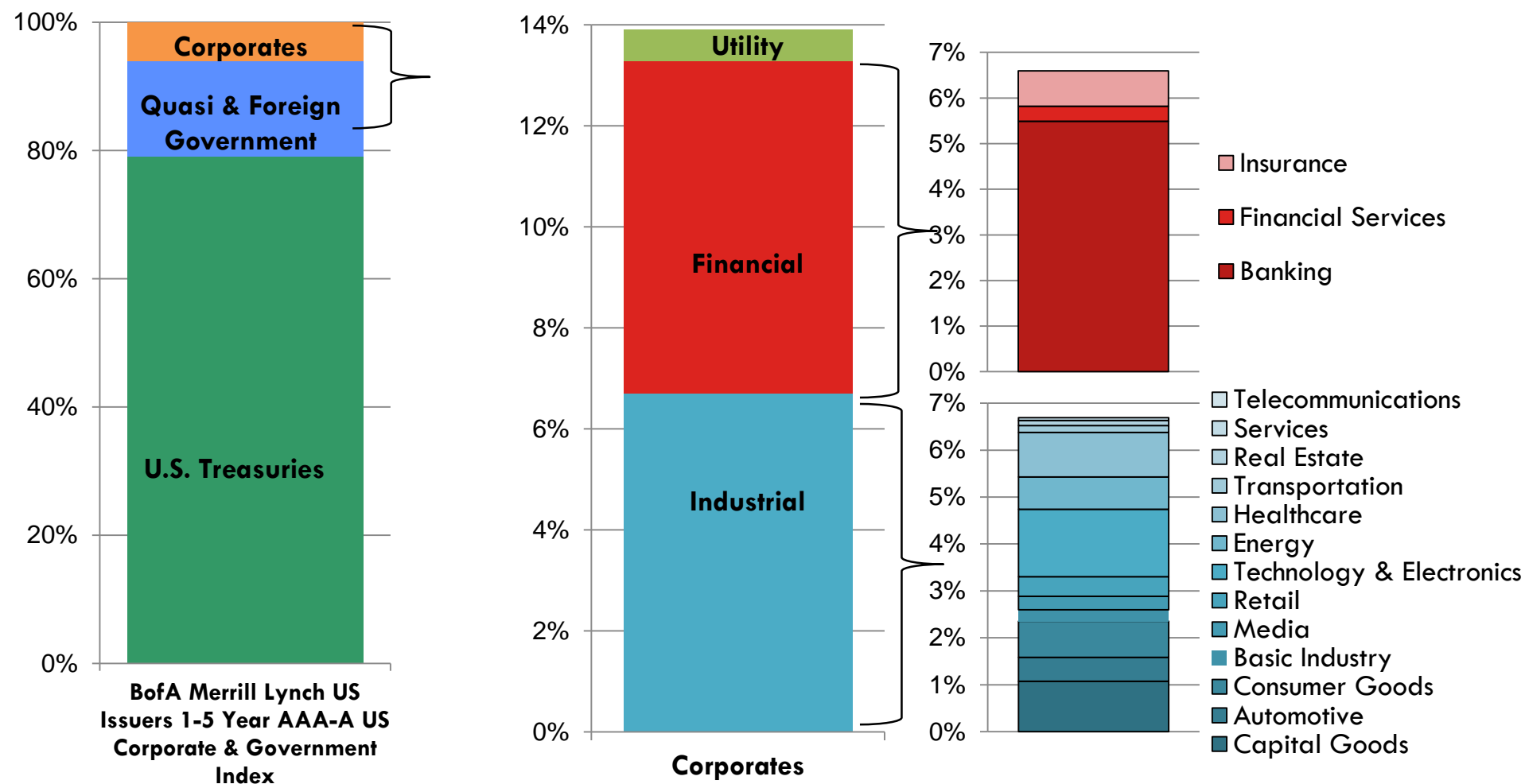
Changes to Corporate Ratings Landscape

**Composition of Bank of America Merrill Lynch
1-5 Year Corporate Index By Face Value**



Source: BofA Merrill Lynch Indices composite ratings. Data as of 12/31/16.

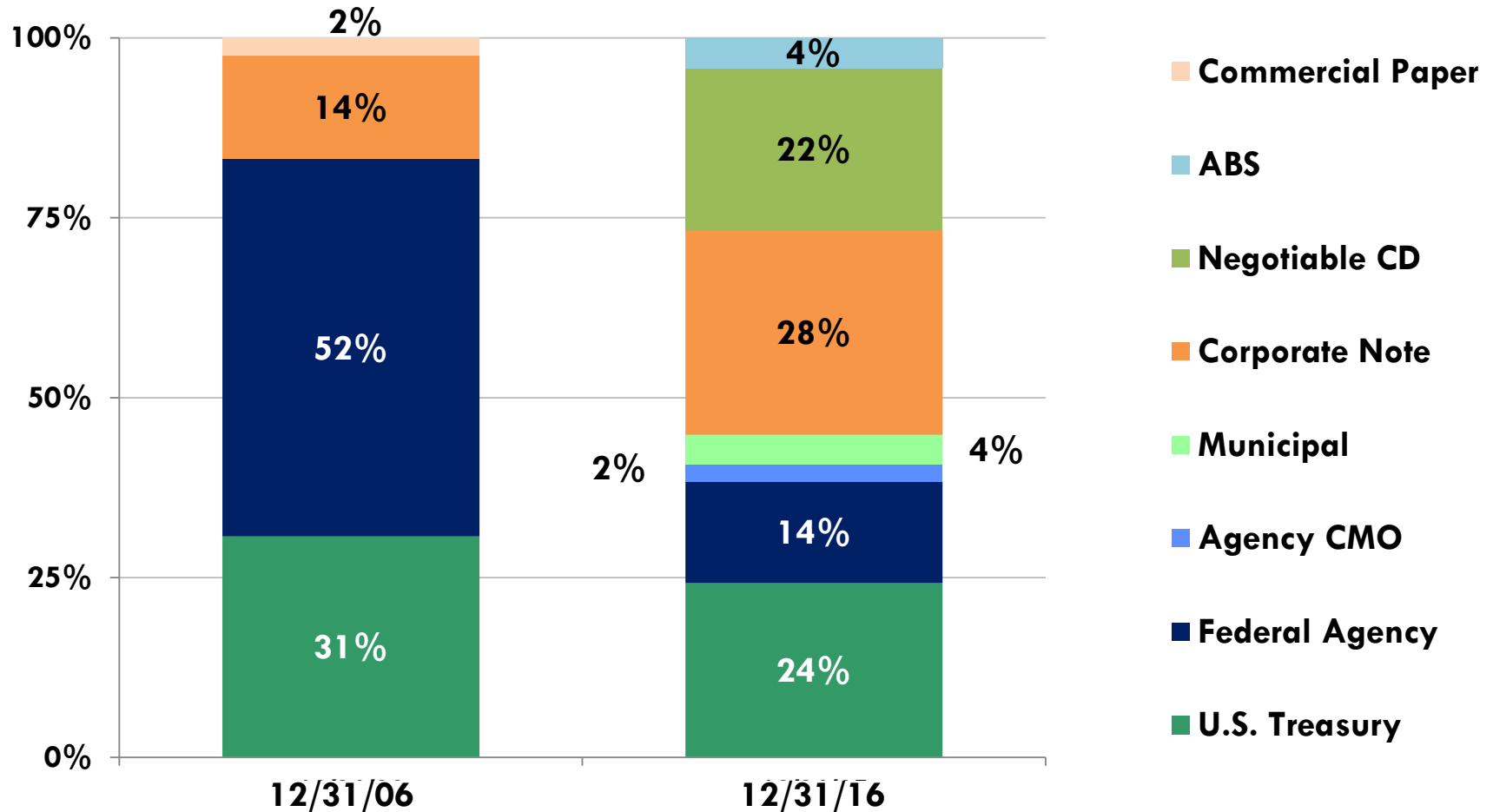
Corporate Notes in Fixed-Income Space



Source: Bloomberg, BofA Merrill Lynch indices. As of 12/31/16.

Example Portfolio - Post-Financial Crisis

Example Local Government Portfolio



Note: This graphic is for illustrative purposes only. It is not a and is not intended to provide specific advice or a specific recommendation.

Credit Risk

<u>S&P</u>	<u>Moody's</u>	<u>Explanation of Rating</u>
AAA	Aaa	High quality. Smallest degree of investment risk
AA	Aa	High quality. Differs only slightly from highest-rated issues.
A	A	Adequate capacity to pay interest and repay principal.
BBB	Baa	More susceptible to adverse effects of changes in economic conditions.
BB	Ba	Has speculative elements; future not considered to be well-assured.
B	B	Generally lack characteristics of desirable investment.
CCC	Caa	Poor standing. Vulnerability to default.
C	C	Extremely poor prospects.
D	D	In default

Don't Expect Others to Do Your Homework

**STANDARD
& POOR'S**



**Moody's Investors
Service**

FitchRatings
KNOW YOUR RISK

Credit Rating of Lehman Brothers Before Announcing Bankruptcy

Date	S&P	Moody's	Fitch
7/17/08	A	A2	A+
9/9/08	A* ₋		A+* ₋
9/10/08		A2*	
9/12/08	A*		
9/15/08	SD	B3	D

* Watch List

*₋ Negative Watch List

Pop Quiz!

- Which of the current issuers hold AAA long-term ratings by S&P?

3M

Goldman Sachs

Nestle

Walt Disney

Coca-Cola

Bank of America

Chevron

Pepsi

Exxon
Mobil

Johnson & Johnson

Walmart

As of January 6, 2017

#8 – Not Having the Right Number/Mix of Brokers

Be Wary of Free Advice

“I’ve got an October 2018 FNMA for you. It has a Yield-to-Maturity of 4.24% and a Yield-to-Call of 2.40%. This will go fast.”



Broker / Dealers

Brokers	Dealers
<ul style="list-style-type: none">• Buys securities from a seller, sells securities to a buyers• Owns no securities• The difference between the buy price and the sell price is the broker's pay; can also earn a commission	<ul style="list-style-type: none">• Takes a position in the market• Owns securities• Buys for and sells from "house" inventory• The difference between the buy price and the sell price is the broker's pay; can also earn a commission• Trades from own account to produce income

Competitive Shopping

Actual Trade Details:

- Action: Sell
- Security: FHLB Notes
- Coupon: 3.5%
- Maturity: 12/09/16
- PAR: \$26,710,000

Dealer	Yield	Price	Principal
RBC	2.561%	105.491	\$28,176,646
WFS	2.580%	105.376	28,146,014
CS	2.587%	105.334	28,134,752
MS	2.591%	105.310	28,128,319
JPM	2.616%	105.160	28,088,150
CS	2.617%	105.154	28,086,545
DB	2.627%	105.095	28,070,817
BAML	2.627%	105.094	28,070,496
JEFF	2.647%	104.974	28,038,432
HSBC	2.667%	104.854	28,006,409
UBS	2.677%	104.794	27,990,413
GS	2.682%	104.764	27,982,419

Benefit Over Minimum Bid:
\$194,227

Please refer to the accompanying Important Disclosures.



Need For Broad Market Access

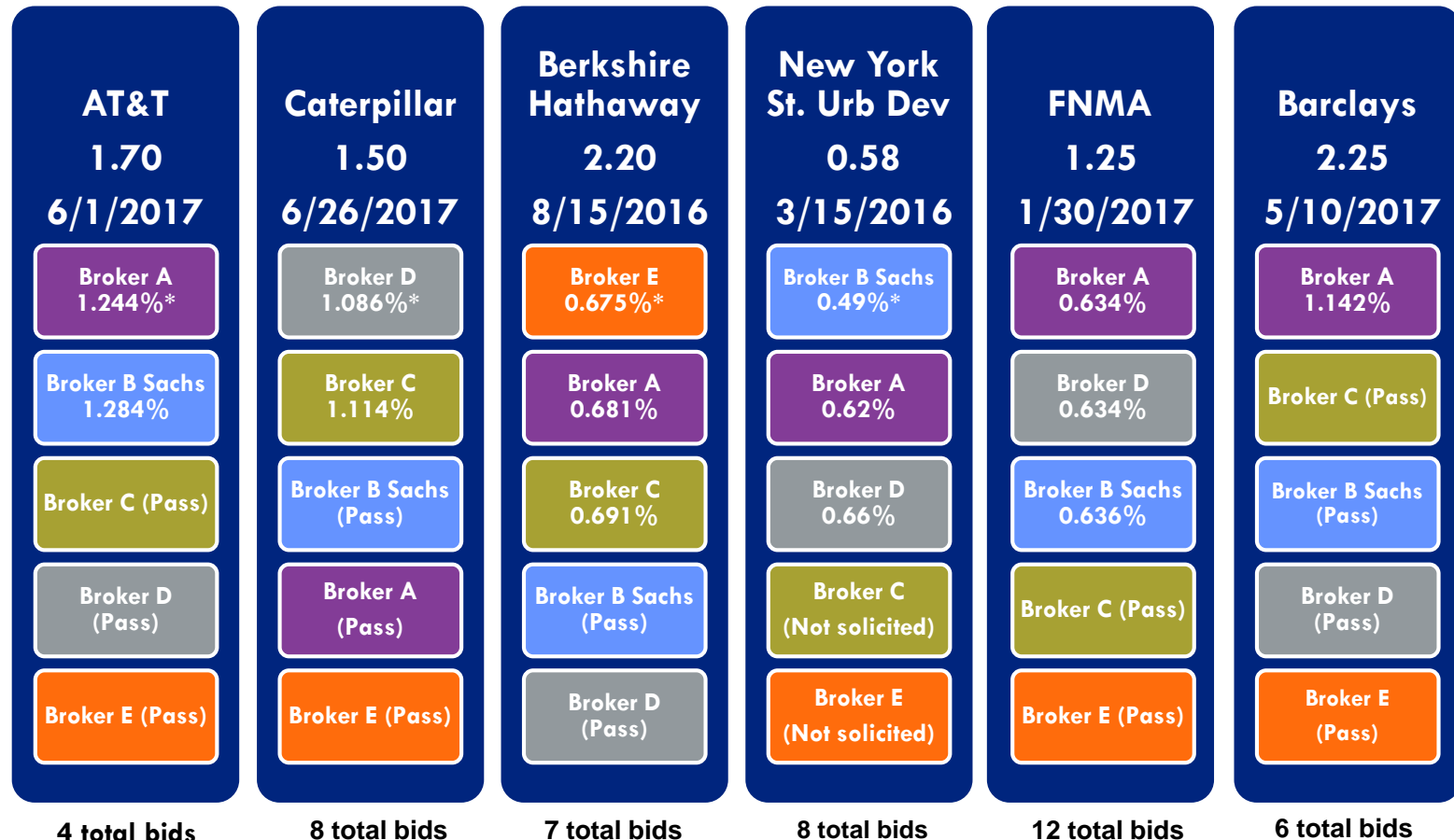
		Security Type						
		Broker	Treasuries	Agencies	CP/CDs	Corporates	MBS	Municipals
PRIMARY DEALERS	1							
	2							
	3							
	4							
	5							
	6							
	7							
	8							
	9							
	10							
	11							
	12							
	13							
	14							
	15							
	16							
	17							
	18							
REGIONAL BROKER/DEALER	19							
	20							
	21							
	22							
	23							
	24							
	25							
	26							
	27							
	28							
	29							
	30							

Ranking	
0=No inventory/do not trade	
1=Low inventory/availability	
2=Medium inventory/availability	
3=High inventory/availability	

Ranking
0=No inventory/do not trade
1=Low inventory/availability
2=Medium inventory/availability
3=High inventory/availability

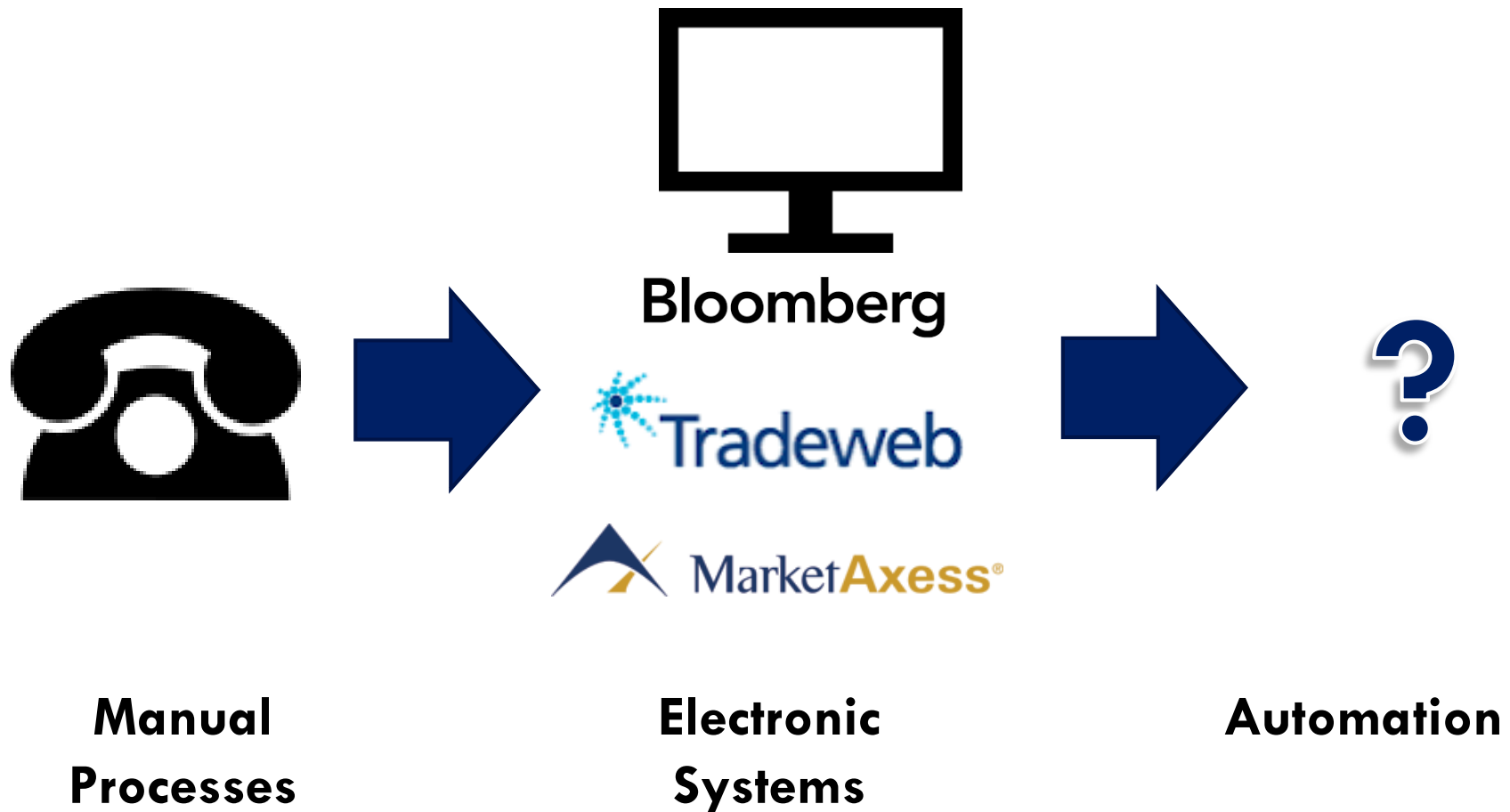
Note: This graphic is for illustrative purposes only. It may not reflect the actual inventory levels or bidding activity of broker/dealers.

Robust Broker/Dealer List Adds Value



- Winning bidder.
- Sample trade from 2014

Evolving Dynamics of Market Interactions



#9 - Having Too Many Investment Positions

Having Too Many Investment Positions

Diversification is great...but

What do you have to do for each investment:

- **Analyze It**
- **Check Compliance for It**
- **Buy It**
- **Deliver It**
- **Price It**
- **Reconcile It**
- **Post Interest for It**
- **Mature, Call, Sell It**
- **Report It**

#10 - Not Providing Transparent Reporting

Providing Transparent Reporting

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



Required Reporting

California Code 53607: The authority of the legislative body to invest or to reinvest funds of a local agency, or to sell or exchange securities so purchased, may be delegated for a one-year period by the legislative body to the treasurer of the local agency, who shall thereafter assume full responsibility for those transactions until the delegation of authority is revoked or expires, and **shall make a monthly report of those transactions to the legislative body.** Subject to review, the legislative body may renew the delegation of authority pursuant to this section each year.

Sample Excel Transaction Report

Trade Dt	SetDt	Side	Security	Cusip	Issuer	Price	Quantity	Coupon	Principal	Acc Int	YTM
3/8/13	3/14/13	Buy	FNMA 0 3/4 03/14/17	3135G0VM2	FNMA	99.87500000	25,000,000.00	0.750	24,968,750.00	0.00	0.778
3/14/13	3/14/13	Sell	CSCO 1.625 03/14/14	17275RAJ1	Cisco	101.23800000	(20,000,000.00)	1.625	(20,247,600.00)	0.00	1.374
3/19/13	3/26/13	Buy	MDT 1 3/8 04/01/18	585055BA3	Metronic	99.85000000	5,000,000.00	1.375	4,992,500.00	0.00	1.421
3/20/13	3/26/13	Buy	SYK 1.3 04/01/18	863667AD3	Stryker	99.56500000	20,000,000.00	1.300	19,913,000.00	722.22	1.357
3/20/13	3/21/13	Sell	T 2 04/30/16	912828QF0	US Treasury	104.91796875	(20,000,000.00)	2.000	(20,983,593.75)	155,801.10	0.385
3/28/13	4/1/13	Sell	T 1 3/4 03/31/14	912828KJ8	US Treasury	101.57031250	(60,000,000.00)	1.750	(60,942,187.50)	2,868.85	0.194
3/28/13	4/1/13	Buy	FNMA 0 1/2 09/28/15	3135G0NV1	FNMA	100.34780000	20,000,000.00	0.500	20,069,560.00	833.33	0.331
3/28/13	4/1/13	Buy	T 2 1/4 01/31/15	912828MH0	US Treasury	103.69921876	25,000,000.00	2.250	25,924,804.69	93,232.04	0.241

Please refer to the accompanying Important Disclosures.



Optional Reporting...Best Practices

53646 (b) (1): The treasurer or chief fiscal officer **may** render a quarterly report to the chief executive officer, the internal auditor, and the legislative body of the local agency.

If you do provide a quarterly report (which you should!), it must:

- Be Submitted within 30 days After the Quarter End
- Include: Investment Type, Issuer, Maturity Date, Par Amount, Dollar Amount Invested, Description of Funds Managed by an Outside Party (including Securities Lending), the Market Value and Source for Any Security Managed by an Outside Party that is Not a Local Agency or in LAIF
- State that the Portfolio is in Compliance with the Policy or Manner in which it is Out of Compliance
- State the Ability of the Entity to meet its Expenditure Requirements for the Next 6 Months or Explain Why it Cannot

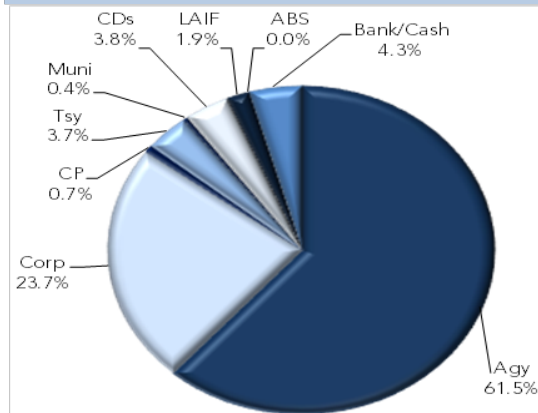
Sample Report

Inv. Type			Issuer		Par Value	Maturity Date	Market Value	Dollar Amt Inv	Price Source		
CUSIP	Investment #	Fund	Investment Class	Par Value	YTM	Maturity Date	Market Price	Market Date	Market Value	Book Value	Pricing Source
Time Certificates of Deposit											
SYSG130151	G130151	1000	Bank of the West	Fair	100,000.00	0.120	08/31/2013	100.000	02/28/2013	100,000.00	Bank of the West
SYSG130531	G130531	1000	Heritage Bank	Fair	100,000.00	0.400	02/22/2014	100.000	02/28/2013	100,000.00	Heritage Bank
Subtotal					200,000.00	0.260			200,000.00	200,000.00	
Negotiable Certificates of Deposit											
78009NKZ8	G130494	1000	Royal Bank of Canada	Fair	25,000,000.00	0.100	05/01/2013	100.005	02/28/2013	24,999,250.00	IDC
89112WPK9	G130422	1000	Toronto Dominion Bank	Amort	20,000,000.00	0.200	05/10/2013	100.004	02/28/2013	20,000,800.00	IDC
89112WRN9	G130438	1000	Toronto Dominion Bank	Fair	10,000,000.00	0.170	03/15/2013	100.000	02/28/2013	10,000,000.00	IDC
Subtotal					55,000,000.00	0.149			55,000,050.00	55,000,000.00	
Commercial Paper Disc. -Amortizing											
06416JQ14	G130536	1000	Bank of Nova Scotia	Fair	10,000,000.00	0.099	03/01/2013	100.000	02/28/2013	10,000,000.00	IDC
06416JQ14	G130544	1000	Bank of Nova Scotia	Fair	20,000,000.00	0.079	03/01/2013	100.000	02/28/2013	20,000,000.00	IDC
19121ARN3	G130508	1000	Coca Cola Co	Fair	20,000,000.00	0.100	04/22/2013	99.973	02/28/2013	19,994,600.00	IDC
19416EQC4	G130539	1000	COLGATE-PALMOLIVE CO	Fair	10,000,000.00	0.080	03/12/2013	99.995	02/28/2013	9,999,500.00	IDC
36960LQ16	G130526	1000	General Electric Co	Fair	10,000,000.00	0.100	03/01/2013	100.000	02/28/2013	10,000,000.00	IDC
36959HQ42	G130545	1000	General Electric Cap Corp	Fair	25,000,000.00	0.050	03/04/2013	99.999	02/28/2013	24,999,750.00	IDC
43851TQU3	G130533	1000	HONEYWELL INTERNATIONAL	Fair	20,000,000.00	0.100	03/28/2013	99.988	02/28/2013	19,997,600.00	IDC
Subtotal					115,000,000.00	0.083			114,991,450.00	114,995,262.50	
U.S. Agency Coupon Securities											
313380RJ8	G130384	1000	Federal Home Loan Bank	Fair	13,080,000.00	0.130	03/18/2013	100.000	02/28/2013	13,080,000.00	IDC
313372RK2	G130411	1000	Federal Home Loan Bank	Fair	20,000,000.00	0.101	03/27/2013	100.061	02/28/2013	20,012,200.00	IDC
313372RK2	G130416	1000	Federal Home Loan Bank	Fair	5,000,000.00	0.079	03/27/2013	100.061	02/28/2013	5,003,050.00	IDC
313372RK2	G130421	1000	Federal Home Loan Bank	Fair	20,135,000.00	0.079	03/27/2013	100.061	02/28/2013	20,147,282.35	IDC
313372RK2	G130426	1000	Federal Home Loan Bank	Fair	20,000,000.00	0.090	03/27/2013	100.061	02/28/2013	20,012,200.00	IDC
313379WT2	G130537	1000	Federal Home Loan Bank	Fair	13,000,000.00	0.108	03/25/2013	100.003	02/28/2013	13,000,390.00	IDC
3133KES91	GCP0086	1100	Federal Home Loan Bank	Fair	5,000,000.00	0.223	03/08/2013	100.094	02/28/2013	5,004,700.00	IDC
313372RK2	GCP0103	1100	Federal Home Loan Bank	Fair	5,000,000.00	0.253	03/27/2013	100.061	02/28/2013	5,003,050.00	IDC
313378S28	GCP0104	1100	Federal Home Loan Bank	Fair	5,000,000.00	0.248	03/21/2013	100.001	02/28/2013	4,999,950.00	IDC
Subtotal					106,215,000.00	0.118			106,262,822.35	106,265,644.80	

Market values of all securities are provided by the public agency's custodian

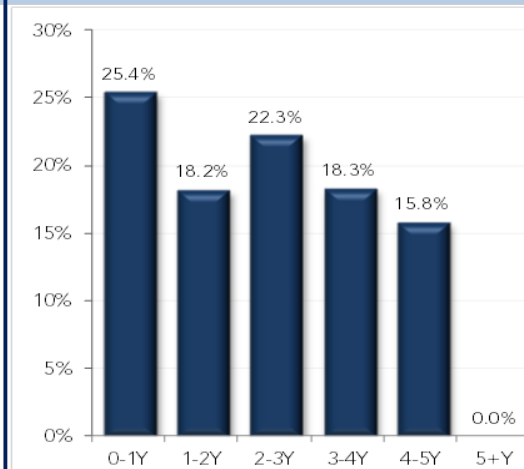
Additional Reports - Summary

SECTOR ALLOCATION



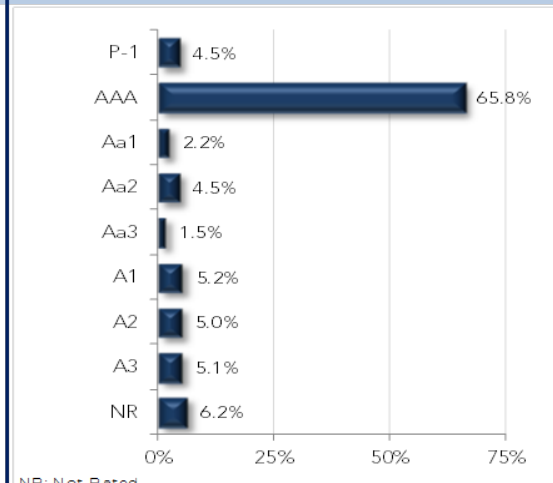
Per Book Value

MATURITY DISTRIBUTION



Per Book Value

CREDIT QUALITY (MOODY'S)



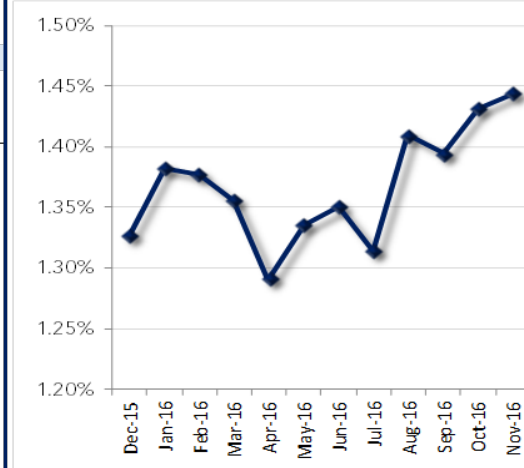
NR: Not Rated

ACCOUNT SUMMARY

	11/30/16	9/30/16
Market Value	\$2,662,271,594	\$2,618,983,563
Book Value*	\$2,663,610,728	\$2,599,324,163
Unrealized G/L	-\$1,339,135	\$19,659,400
Par Value	\$2,653,391,638	\$2,588,050,261
Net Asset Value	\$99.950	\$100.756
Book Yield	1.44%	1.43%
Years to Maturity	2.24	2.23
Effective Duration	2.14	2.14

*Book Value is Amortized

PORTFOLIO BOOK YIELD HISTORY



TOP ISSUERS

Issuer	% Portfolio
FNMA	25.2%
FHLB	18.5%
FHLMC	14.3%
BNP PARIBAS NY BRANCH	3.8%
US TREASURY NOTE	3.7%
FFCB	3.5%
BANK OF NEW YORK	3.3%
WELLS FARGO	3.1%
JP MORGAN	3.0%
CHEVRON CORP	2.4%
BANK OF THE WEST BANK ACCT	2.4%
APPLE INC	2.2%
BERKSHIRE HATHAWAY	2.2%
CATERPILLAR	2.1%
TOYOTA MOTOR CREDIT	1.9%

Per Book Value

Additional Reports - Compliance

Item / Sector	Parameters	In Compliance	
Weighted Average Maturity	Weighted Average Maturity (WAM) must be between 1.5 years and 2.5 years	Yes:	1.95 Yrs
Liquidity: Less than 1 Year	At least 25% of the portfolio must have maturities of 1 year or less	Yes:	28.7%
Liquidity: Less than 3 Years	At least 50% of the portfolio must have maturities of 3 years or less	Yes:	91.5%
U.S. Treasuries	No limit, maximum maturity 5 years	Yes:	6.8%
U.S. Federal Agencies	No limit, 50% issuer limit, maximum maturity 5 years	Yes:	51.1%
Bankers' Acceptances	Sector limit 40%, issuer limit 5%, maximum maturity 180 days, A-1/P-1 by two	Yes:	0.0%
Time Deposits	No sector limit, collateralized according to State Code	Yes:	0.0%
Negotiable Certificates of Deposit	Sector limit 30%, issuer limit no greater than FDIC insured limit (currently \$250,000), max maturity 5 years, Issued by national/state charter banks or savings and loan associations	Yes:	5.1%
Commercial Paper	25% limit, 5% per issuer, maximum maturity 270 days, A-1 (S&P)/P-1 (Moody's), issued by a domestic corporation w/ at least \$500 million of assets and A- (S&P)/A3 (Moody's) long term debt	Yes:	0.0%
Local Agency Investment Fund	No more than \$50 million	Yes:	11.4%
Corporate Medium Term Notes	Sector limit 30%, Issuer limit 5%, Max maturity 5 years, AA- (S&P)/Aa3 (Moody's), issued by domestic corporation/depositories	Yes:	18.2%
Money Market Funds	Sector limit 15%, Issuer limit 10%, AAA by two of the three rating services	Yes:	0.0%
Guaranteed Investment Contract	No sector limit, AA- (S&P)/Aa3 (Moody's), not to exceed \$5 mil annually	Yes:	0.0%
CD Placement Service	Sector limit 30% (combined w/ negotiable CDs)	Yes:	0.0%
Collateralized Bank Deposits	No sector limit, collateralized according to State Code	Yes:	7.4%
Supranationals	Sector limit 15%, Issuer limit 5%, Max maturity 5 years, AA or better by at least 1 of 3 rating agencies	Yes:	0.0%

Additional Reports – Quarterly Comparison

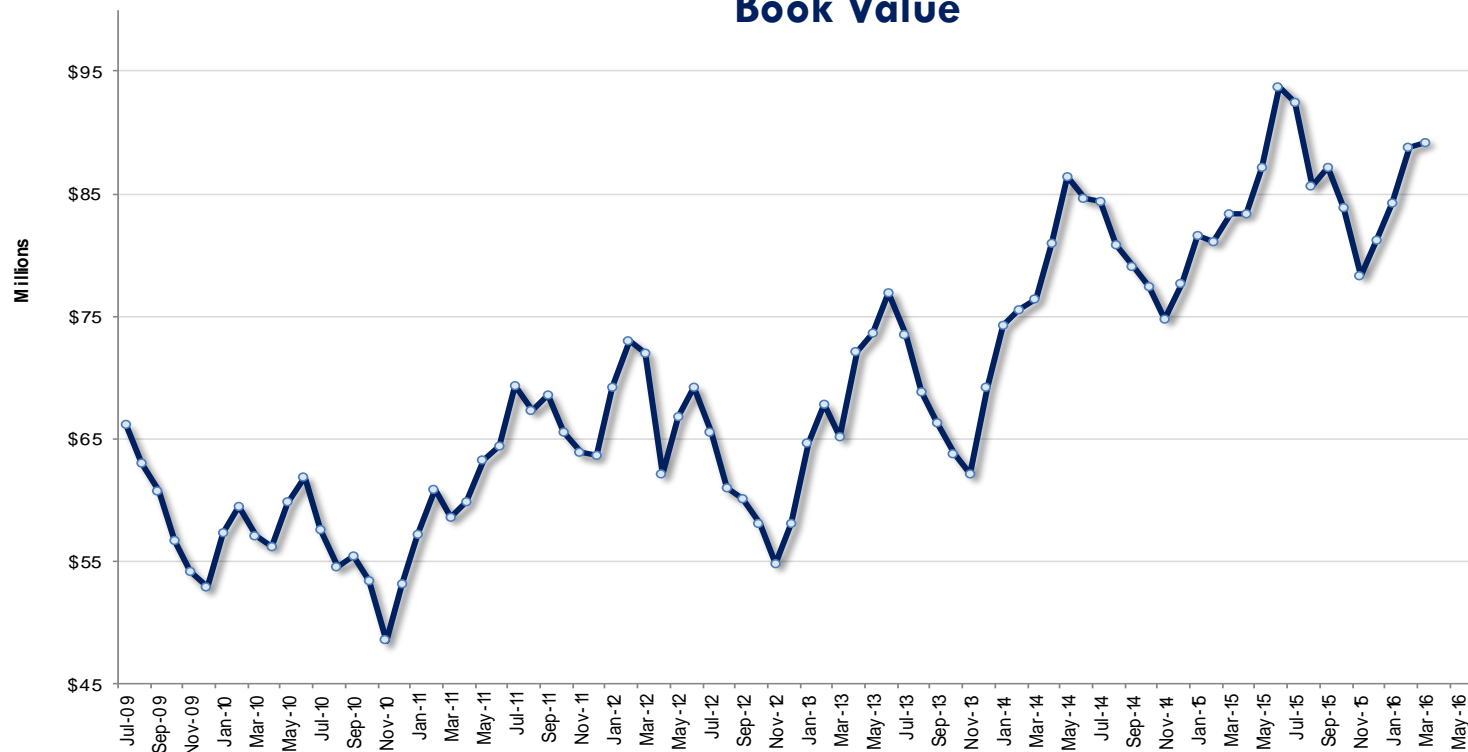
Portfolio Metrics	3/31/2016	12/31/2015	Change
Market Value	\$88,184,282	\$85,510,754	\$2,673,528
Book Value	\$87,997,453	\$85,676,062	\$2,321,391
Par Value	\$87,968,183	\$85,646,661	\$2,321,522
Net Asset Value	\$1.002	\$0.998	\$0.004
Yield to Maturity	1.019%	0.861%	0.158%
2Yr Treasury Note Yield	0.723%	1.050%	-0.327%
LAIF Yield (monthly avg)*	0.450%	0.372%	0.078%
Average Years to Maturity	1.95	1.33	0.62
Effective Duration	1.21	0.98	0.23

*LAIF rate is estimated for current month/quarter end

Sectors (Book Value)	3/31/2016	12/31/2015	Change
Federal Agency	\$45,009,294	\$35,005,960	\$10,003,334
LAIF	\$10,000,000	\$13,500,000	-\$3,500,000
Corporate	\$16,037,175	\$17,046,506	-\$1,009,330
Certificates of Deposit	\$4,471,847	\$4,971,816	-\$499,970
U.S. Treasury	\$5,982,954	\$3,977,119	\$2,005,836
Checking	\$6,496,183	\$11,174,661	-\$4,678,478
Total	\$87,997,453	\$85,676,062	\$2,321,391

Additional Reports - History

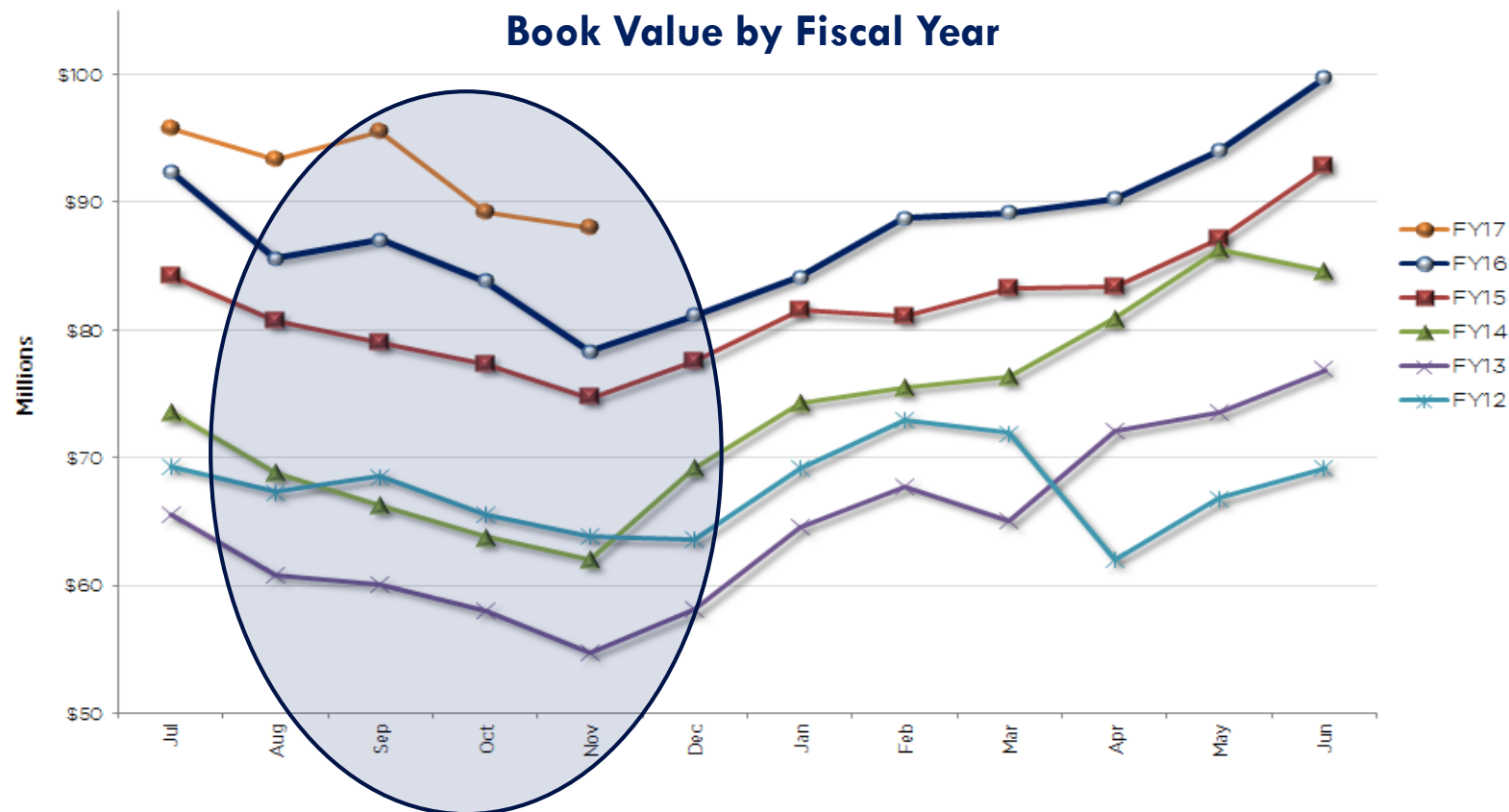
Book Value



	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
Fiscal Year 2010	\$66.1	\$63.0	\$60.7	\$56.6	\$54.2	\$52.9	\$57.2	\$59.5	\$57.0	\$56.2	\$59.8	\$61.9
Fiscal Year 2011	\$57.5	\$54.6	\$55.4	\$53.3	\$48.5	\$53.1	\$57.1	\$60.9	\$58.6	\$59.8	\$63.2	\$64.3
Fiscal Year 2012	\$69.3	\$67.3	\$68.5	\$65.5	\$63.8	\$63.6	\$69.2	\$73.0	\$71.9	\$62.1	\$66.8	\$69.2
Fiscal Year 2013	\$65.5	\$60.9	\$60.1	\$58.0	\$54.8	\$58.1	\$64.6	\$67.8	\$65.1	\$72.1	\$73.6	\$76.9
Fiscal Year 2014	\$73.5	\$68.8	\$66.3	\$63.8	\$62.1	\$69.2	\$74.2	\$75.5	\$76.3	\$80.9	\$86.3	\$84.6
Fiscal Year 2015	\$84.3	\$80.8	\$79.1	\$77.4	\$74.8	\$77.6	\$81.5	\$81.0	\$83.3	\$83.3	\$87.1	\$92.9
Fiscal Year 2016	\$92.4	\$85.6	\$87.1	\$83.8	\$78.3	\$81.2	\$84.2	\$88.7	\$89.2			

Figures in Millions, Average Daily Balance

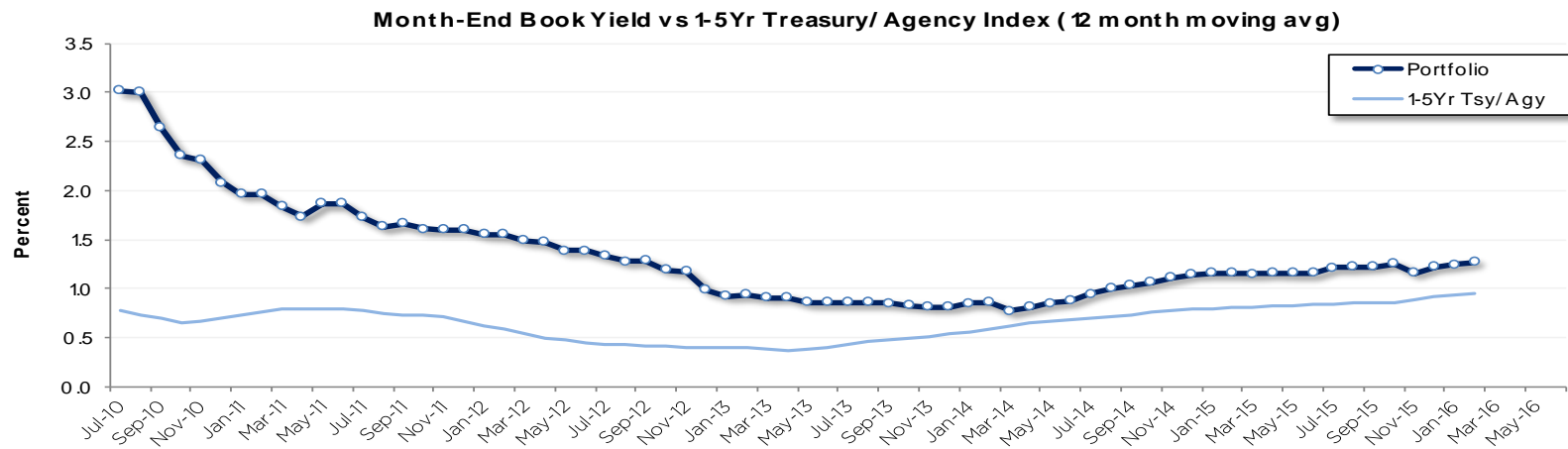
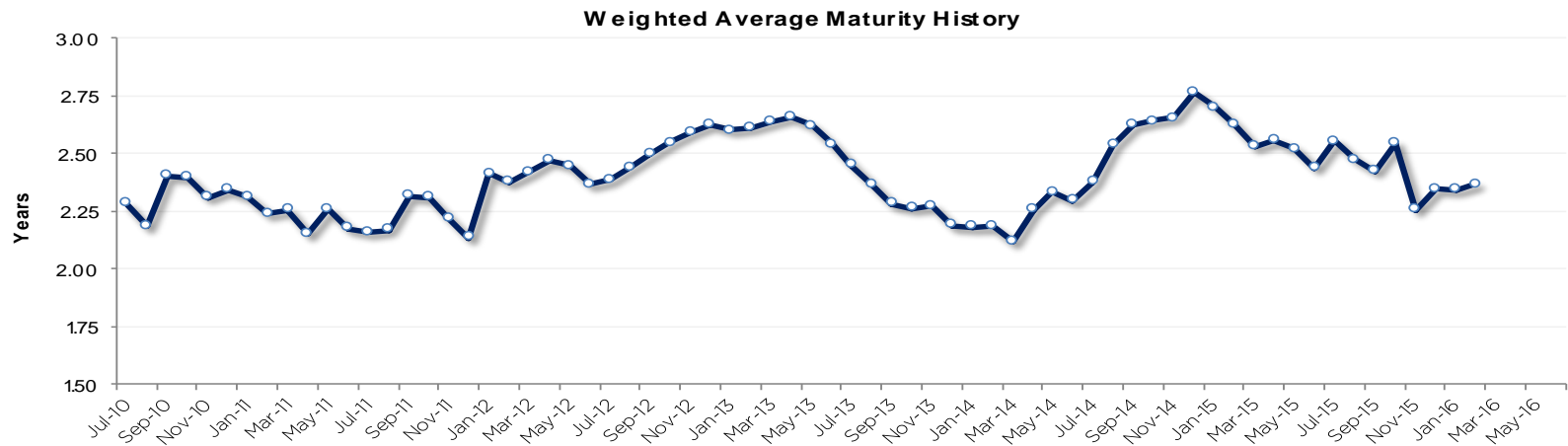
Additional Reports - History



	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
Fiscal Year 2012	\$69.3	\$67.3	\$68.5	\$65.5	\$63.8	\$63.6	\$69.2	\$73.0	\$71.9	\$62.1	\$66.8	\$69.2
Fiscal Year 2013	\$65.5	\$60.9	\$60.1	\$58.0	\$54.8	\$58.1	\$64.6	\$67.8	\$65.1	\$72.1	\$73.6	\$76.9
Fiscal Year 2014	\$73.5	\$68.8	\$66.3	\$63.8	\$62.1	\$69.2	\$74.2	\$75.5	\$76.3	\$80.9	\$86.3	\$84.6
Fiscal Year 2015	\$84.3	\$80.8	\$79.1	\$77.4	\$74.8	\$77.6	\$81.5	\$81.0	\$83.3	\$83.3	\$87.1	\$92.9
Fiscal Year 2016	\$92.4	\$85.6	\$87.1	\$83.8	\$78.3	\$81.2	\$84.2	\$88.7	\$89.2	\$90.2	\$94.0	\$99.7
Fiscal Year 2017	\$95.7	\$93.4	\$95.5	\$89.2	\$87.9							

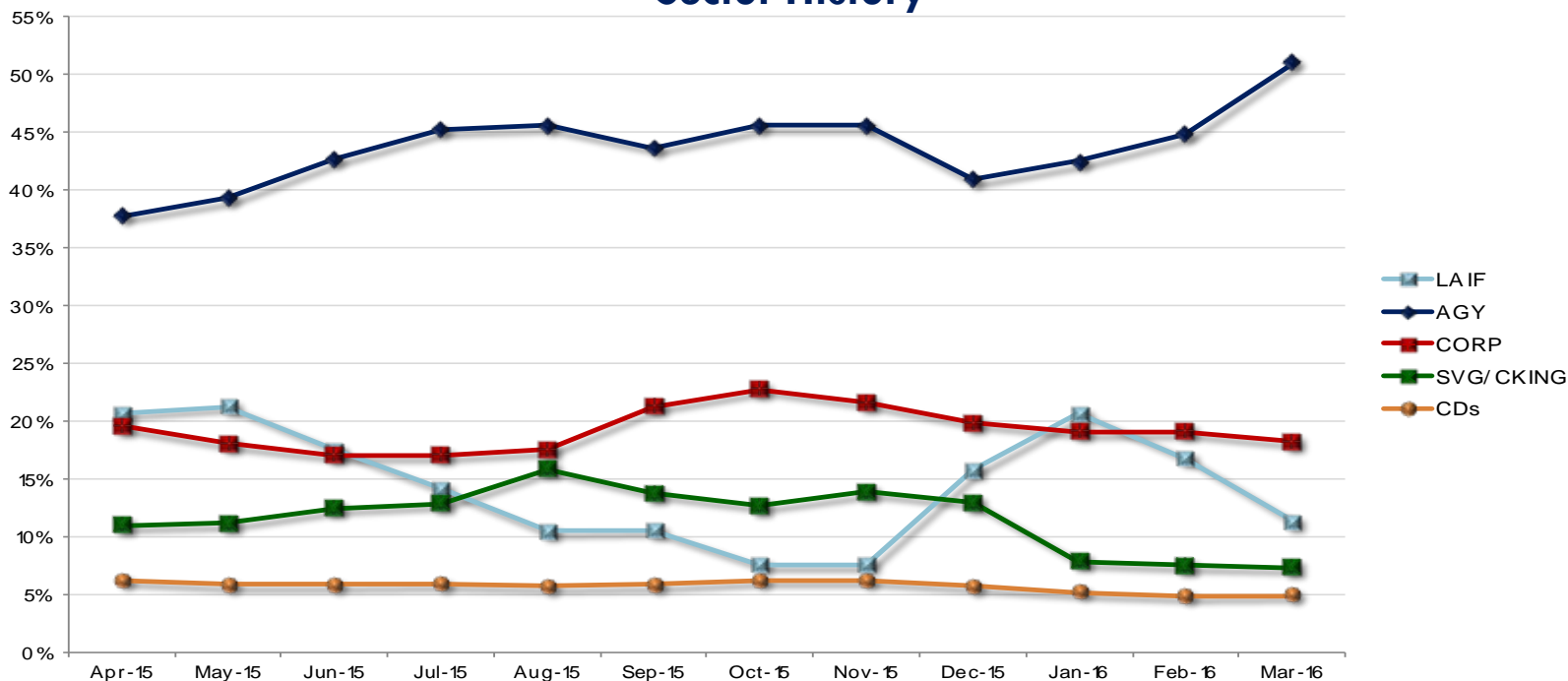
Figures in Millions, Average Daily Balance

Additional Reports - History



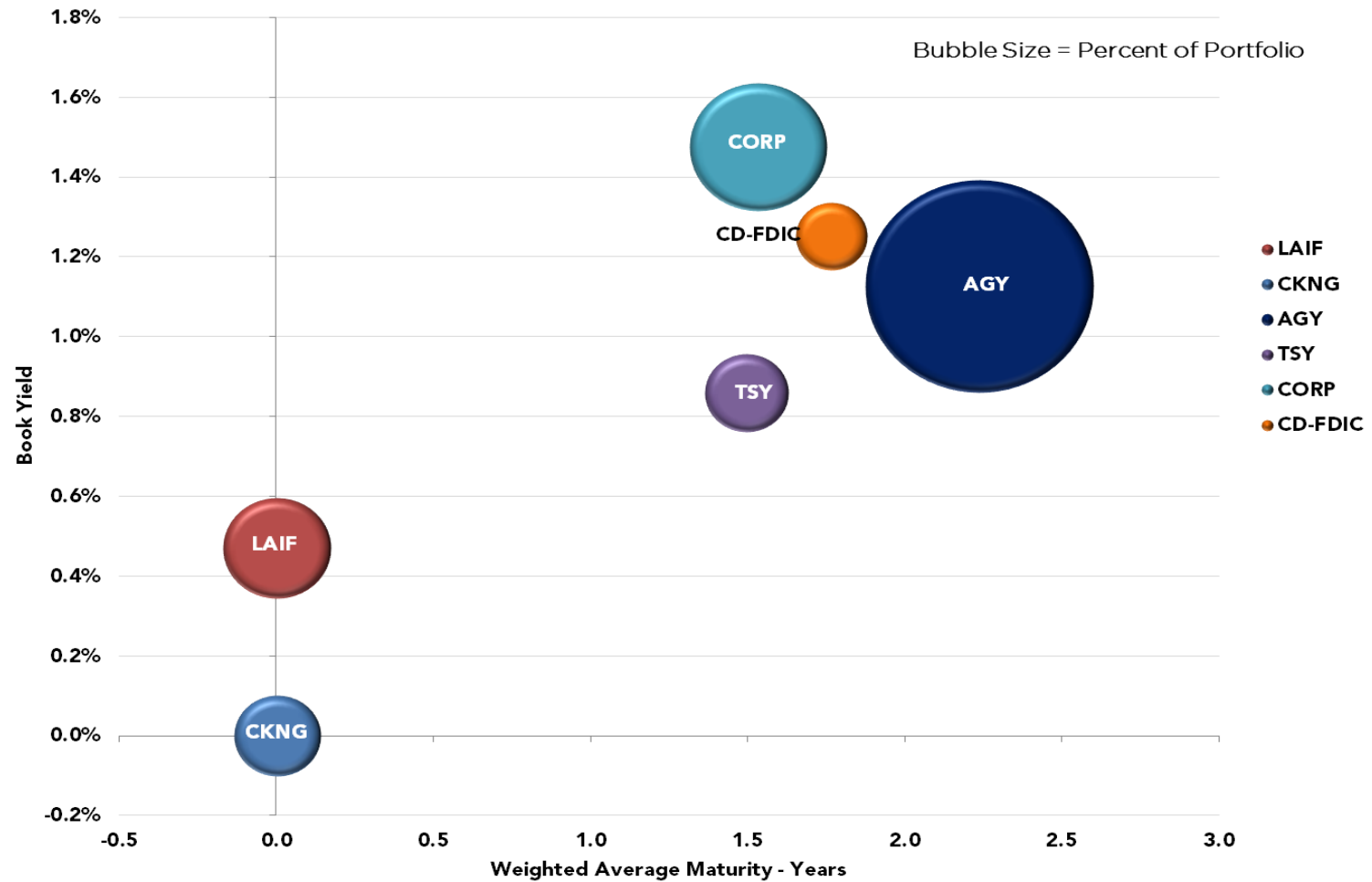
Additional Reports - History

Sector History



Sector	Apr-15	May-15	Jun-15	Jul-15	Aug-15	Sep-15	Oct-15	Nov-15	Dec-15	Jan-16	Feb-16	Mar-16
Agency	37.8%	39.3%	42.7%	45.3%	45.6%	43.7%	45.6%	45.6%	40.9%	42.5%	44.8%	51.1%
Corporate	19.6%	18.1%	17.1%	17.1%	17.6%	21.3%	22.8%	21.6%	19.9%	19.1%	19.1%	18.2%
Treasury	4.6%	4.2%	4.2%	4.5%	4.6%	4.7%	5.0%	5.0%	4.6%	4.5%	6.7%	6.8%
Certificates of Deposit	6.3%	5.9%	5.9%	6.0%	5.8%	5.9%	6.3%	6.3%	5.8%	5.3%	5.0%	5.1%
Savings/Checking	11.0%	11.2%	12.5%	12.9%	15.9%	13.8%	12.7%	13.9%	13.0%	7.9%	7.6%	7.4%
LAIF	20.7%	21.3%	17.6%	14.2%	10.5%	10.6%	7.6%	7.6%	15.8%	20.7%	16.8%	11.4%
Total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Additional Reports - Analysis

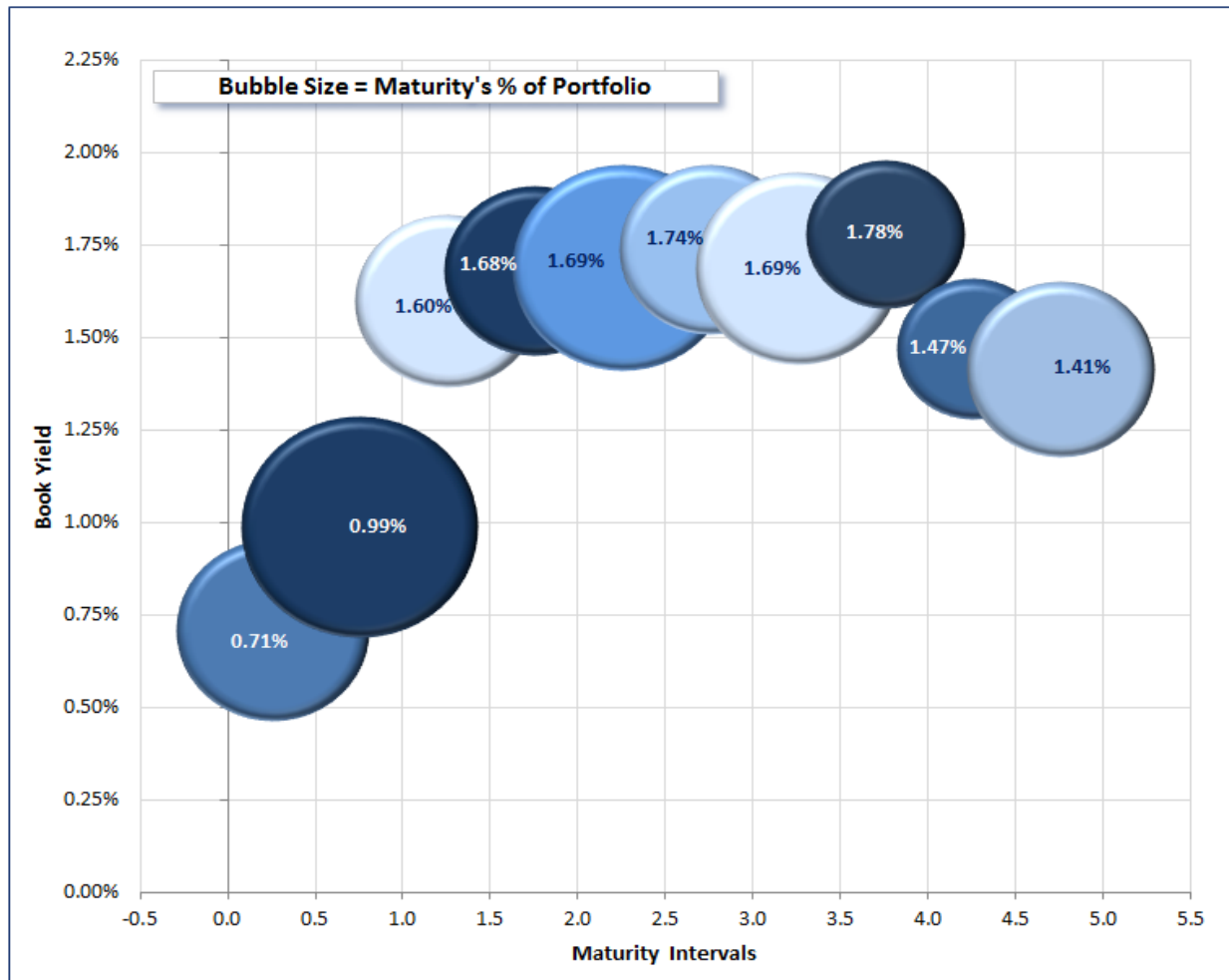


Additional Reports - Analysis

Purchase YTM Per 6-Month Maturity Intervals

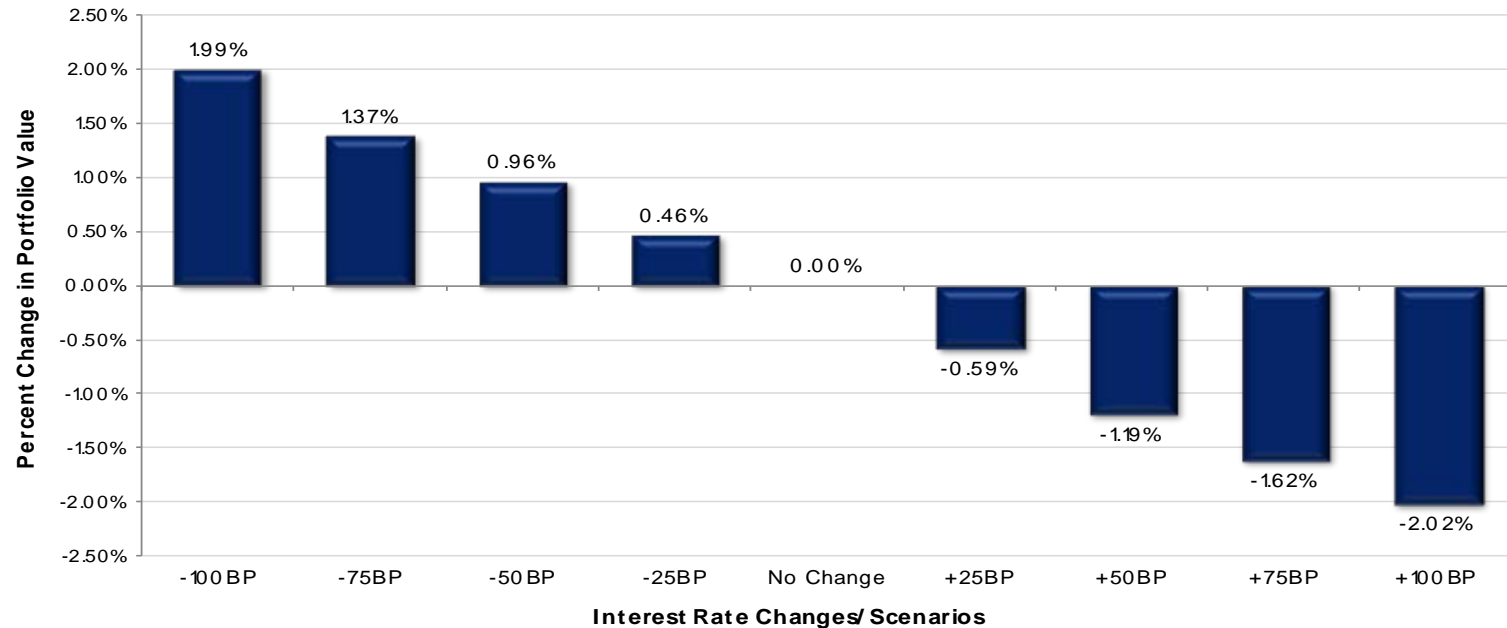
Years	Book Yield	% of Portfolio*
0 to .5	0.71%	10.14%
.5 to 1.0	0.99%	15.30%
1.0 to 1.5	1.60%	9.29%
1.5 to 2.0	1.68%	8.90%
2.0 to 2.5	1.69%	13.23%
2.5 to 3.0	1.74%	9.02%
3.0 to 3.5	1.69%	11.38%
3.5 to 4.0	1.78%	6.91%
4.0 to 4.5	1.47%	6.23%
4.5 to 5.0+	1.41%	9.58%

*Based on Book Value



Additional Reports - Analysis

Instantaneous Interest Rate Changes and Approximate Change in Portfolio's Market Value



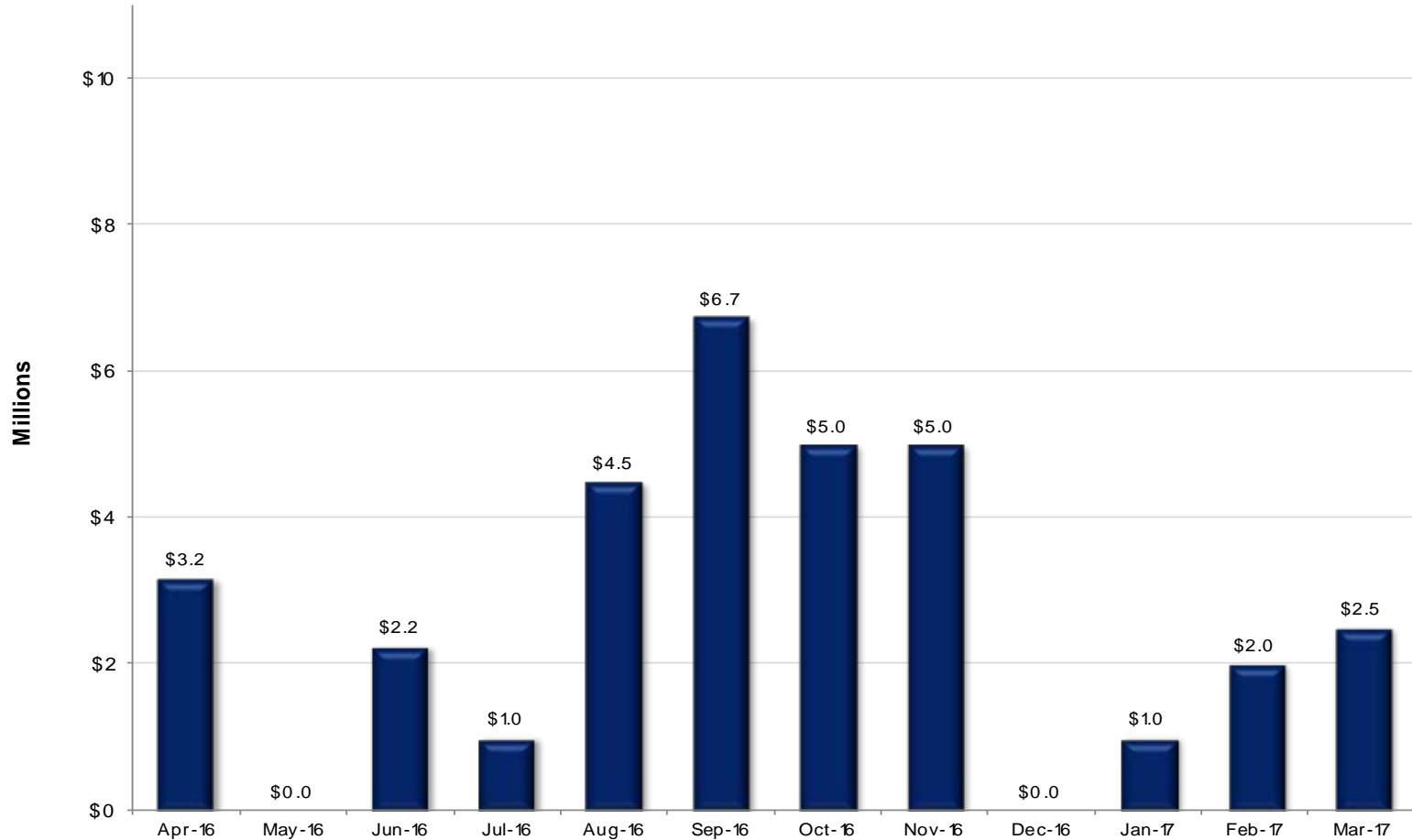
Interest Rate Change	Portfolio Value	Value Change	Percent Change
-100 Basis Points	\$101,990,000	\$1,990,000	1.99%
-75 Basis Points	\$101,373,100	\$1,373,100	1.37%
-50 Basis Points	\$100,955,200	\$955,200	0.96%
-25 Basis Points	\$100,457,700	\$457,700	0.46%
No Change	\$100,000,000	\$0	0.00%
+25 Basis Points	\$99,414,200	-\$585,800	-0.59%
+50 Basis Points	\$98,808,200	-\$1,191,800	-1.19%
+75 Basis Points	\$98,384,000	-\$1,616,000	-1.62%
+100 Basis Points	\$97,980,000	-\$2,020,000	-2.02%

?

What's the approximate duration of this portfolio?

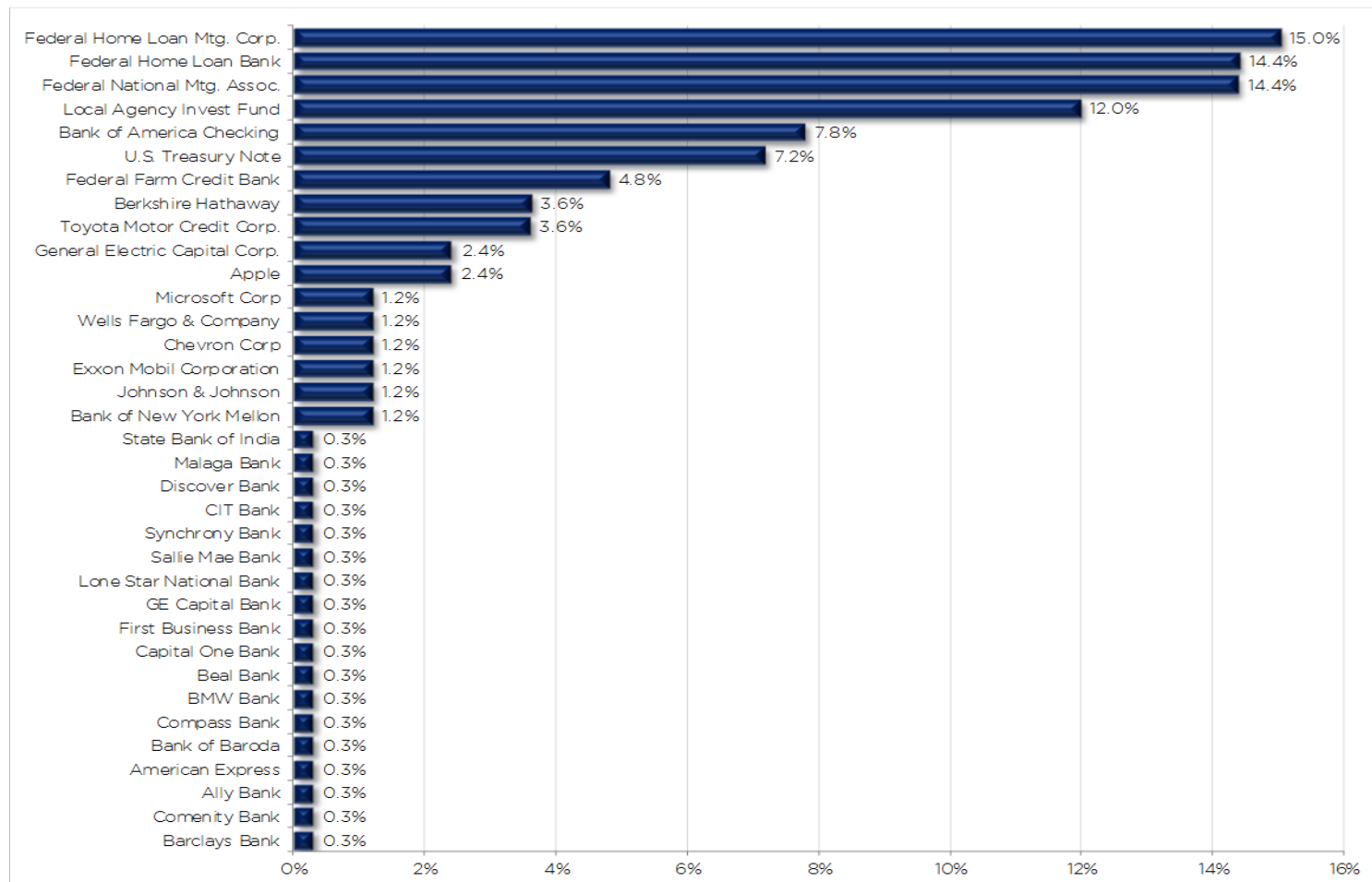
Additional Reports - Analysis

Next Twelve Month Maturities

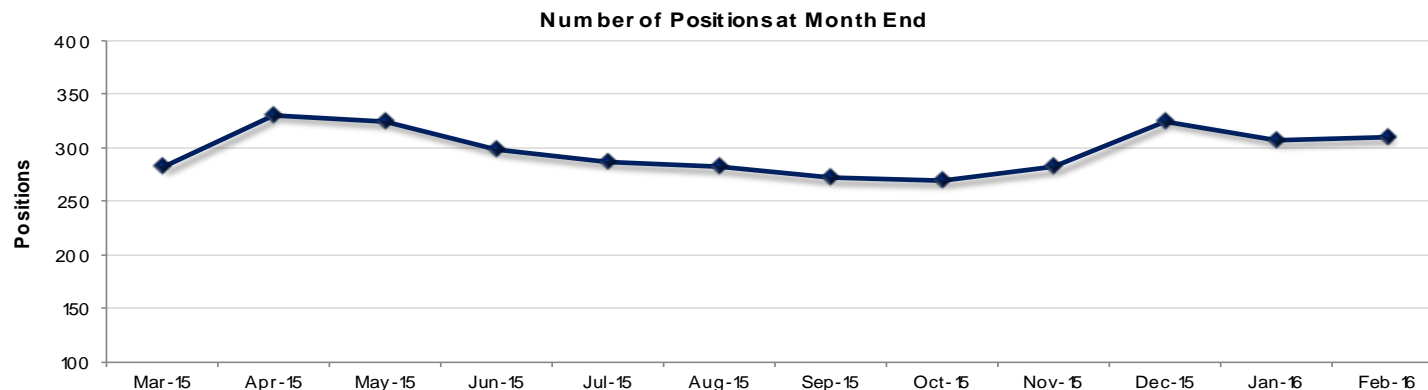


Additional Reports - Analysis

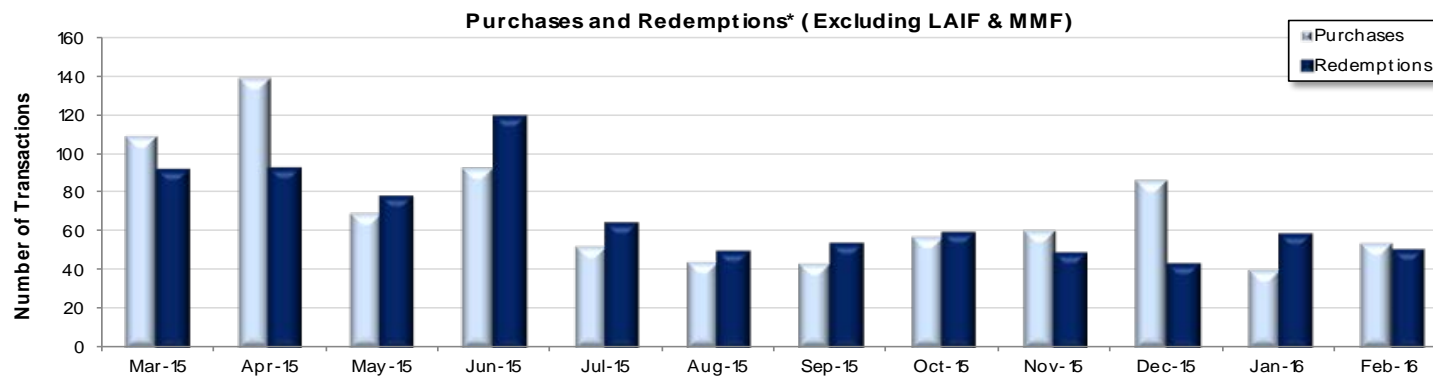
Holdings by Issuer



Additional Reports - Activity



	Mar-15	Apr-15	May-15	Jun-15	Jul-15	Aug-15	Sep-15	Oct-15	Nov-15	Dec-15	Jan-16	Feb-16
Number of Positions	283	332	325	299	288	283	273	271	283	326	308	311



*Redemptions include maturities, calls, and sells (excluding paydowns)

	Mar-15	Apr-15	May-15	Jun-15	Jul-15	Aug-15	Sep-15	Oct-15	Nov-15	Dec-15	Jan-16	Feb-16
Number of Purchases	109	139	70	93	53	45	44	58	61	87	41	55
Number of Redemptions	92	78	119	65	45	54	61	49	44	59	51	106
Total Transactions	201	232	148	212	118	95	98	118	110	131	100	106

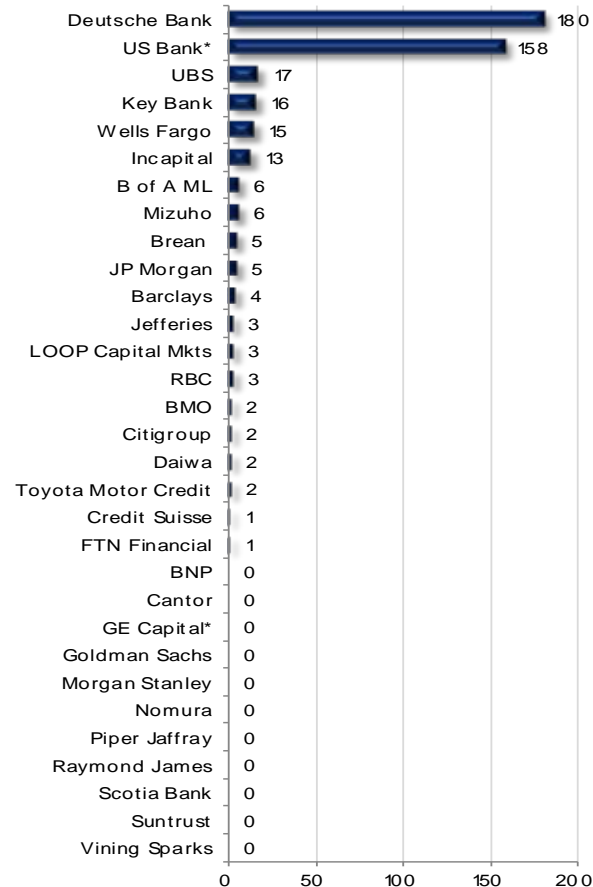
Additional Reports - Activity

Transactions by Dealer

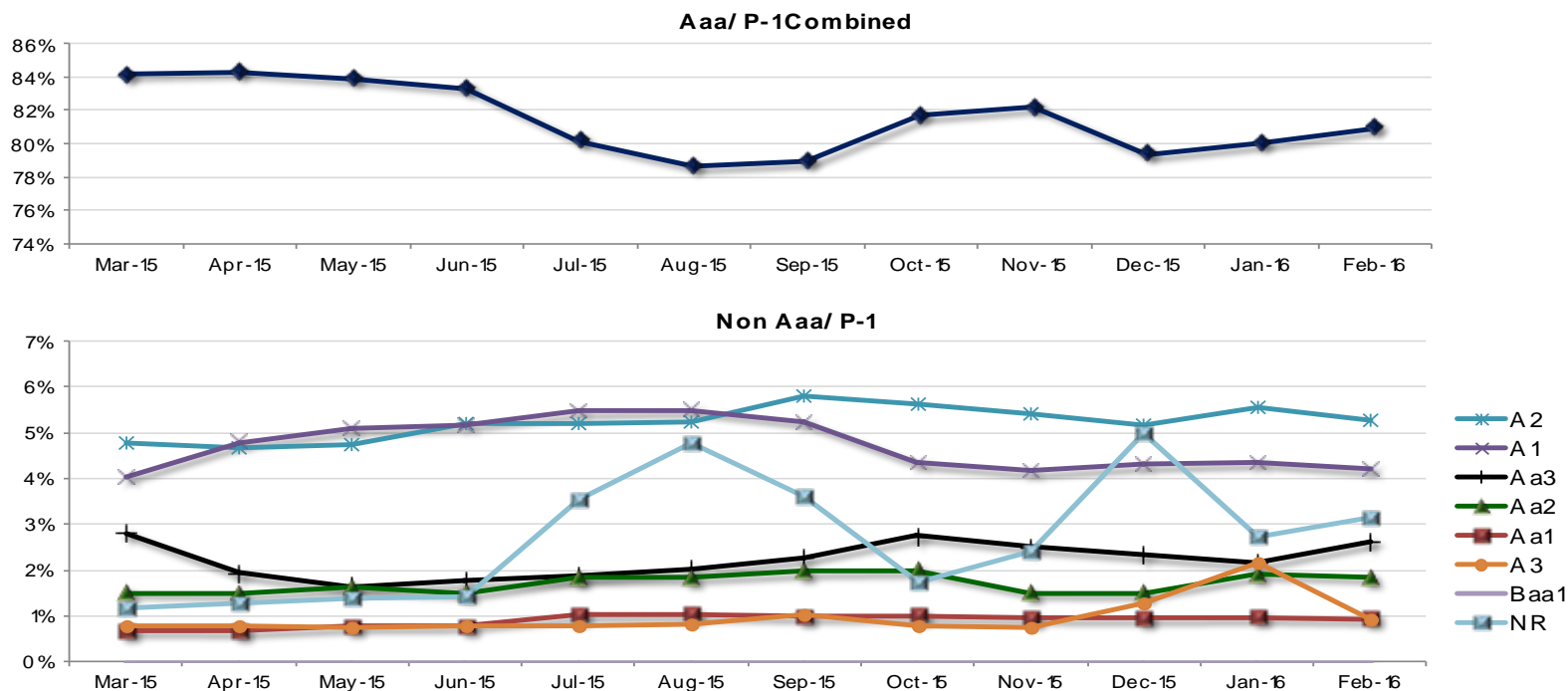
Dealer	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Total
Deutsche Bank	22	23	20	23	23	28	20	21					180
US Bank*	22	18	21	19	19	21	18	20					158
UBS	2			1	1	13							17
Key Bank	1		1	6	5	1		2					16
Wells Fargo	2	1		2	3	5		2					15
Incapital	2			1	1	5		4					13
B of A ML			1	1		2		2					6
Mizuho		1			1	3	1						6
Brean	1	1				2	1						5
JP Morgan				1	2			2					5
Barclays	1			1	2								4
Jefferies	1	1					1						3
LOOP Capital Mkts						3							3
RBC	1		1			1							3
BMO					1	1							2
Citigroup					1			1					2
Daiwa				1		1							2
Toyota Motor Credit					2								2
Credit Suisse				1									1
FTN Financial								1					1
BNP													0
Cantor													0
GE Capital*													0
Goldman Sachs													0
Morgan Stanley													0
Nomura													0
Piper Jaffray													0
Raymond James													0
Scotia Bank													0
Suntrust													0
Vining Sparks													0
Total	55	45	44	57	61	86	41	55	0	0	0	0	444

*Direct Issuers

Fiscal Year-to-Date Transactions



Additional Reports - Ratings



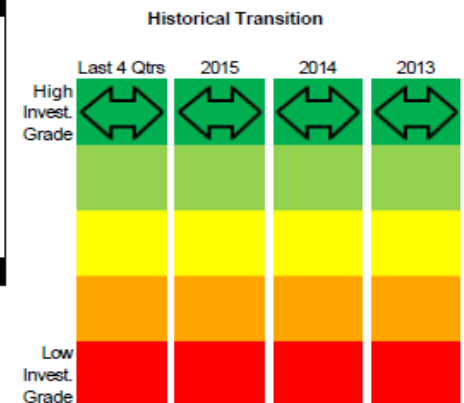
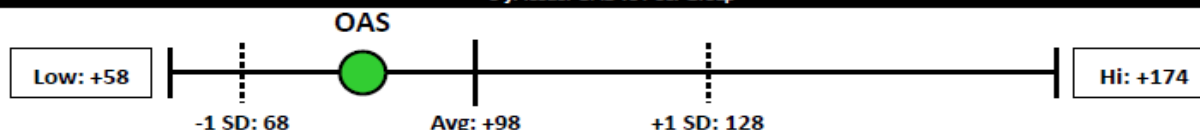
Types	Mar-15	Apr-15	May-15	Jun-15	Jul-15	Aug-15	Sep-15	Oct-15	Nov-15	Dec-15	Jan-16	Feb-16
Aaa/ P-1	84.2%	84.4%	83.9%	83.4%	80.3%	78.8%	79.1%	81.7%	82.3%	79.5%	80.1%	81.0%
Aa1	0.7%	0.7%	0.8%	0.8%	1.0%	1.1%	1.0%	1.0%	1.0%	1.0%	1.0%	0.9%
Aa2	1.5%	1.5%	1.6%	1.5%	1.8%	1.9%	2.0%	2.0%	1.5%	1.5%	1.9%	1.9%
Aa3	2.8%	1.9%	1.6%	1.8%	1.9%	2.0%	2.3%	2.7%	2.5%	2.3%	2.2%	2.6%
A1	4.0%	4.8%	5.1%	5.2%	5.5%	5.5%	5.2%	4.3%	4.2%	4.3%	4.4%	4.2%
A2	4.8%	4.7%	4.8%	5.2%	5.2%	5.2%	5.8%	5.6%	5.4%	5.2%	5.5%	5.3%
A3	0.8%	0.8%	0.8%	0.8%	0.8%	0.8%	1.0%	0.8%	0.7%	1.3%	2.2%	0.9%
NR-Not Rated	1.2%	1.3%	1.4%	1.4%	3.5%	4.8%	3.6%	1.7%	2.4%	5.0%	2.7%	3.2%
Baa1	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Additional Reports – Credit Analysis

Descriptive Information		Last 4 Qtrs	2015	2014	2013	2012	Relative Credit Performance - Most Recent Period	
CUSIP 949748FG0		Key Credit Metrics					Pct Ranking vs Peer Group	
Issuer Wells Fargo & Co		3-Yr Average Pre-Provision Net Revenue/ RWA (%)	2.80	2.83	3.03	3.11	3.29	90% 1
Ticker WFC		Tier 1 CET Common Ratio (%)	10.82	11.07	11.04	10.72	10.03	50% 3
Sector Financial		NPA+ Loans 90PD/ Tang Common Equity + LLR (%)	16.14	28.88	35.51	45.46	52.93	20% 4
Subgroup Bank - Domestic		Reliance on Wholesale Funding (3-yr Avg)	26.38	24.06	22.08	21.35	20.44	20% 4
Peer Group Bank - Domestic		Efficiency Ratio (%)	57.10	56.95	57.01	56.35	56.35	80% 1
Maturity 01/16/2018		Liquidity Ratio (%)	39.07	37.76	37.78	35.26	28.54	80% 1
Issue Date 12/26/2012		Earnings Stability Ratio (3-yr Avg) (%)	97.72	96.72	95.71	95.28	95.24	60% 2
Coupon 1.500		ROAE (%)	11.47	12.02	12.83	13.36	12.60	90% 1
Currency USD		Total Assets (\$000)	1,889,235,000	1,787,632,000	1,687,155,000	1,527,015,000	1,422,968,000	100% 1
Amt Outstanding \$2,100,000,000		Tier 1 Common Capital (\$000)	169,287,000	164,584,000	154,666,000	140,735,000	126,607,000	90% 1
<div>All Pricing as of: 11/14/2016</div> <div>All Financials as of: 09/27/2016</div>		Financials(\$000)					Rank vs Peers	
		Total Loans & Leases	974,706,000	931,918,000	877,996,000	839,988,000	841,894,000	90% 1
		Total Deposits	1,245,866,000	1,223,559,000	1,168,708,000	1,079,531,000	1,003,205,000	100% 1
		Risk-Weighted Assets	1,354,621,610	1,303,142,460	1,242,544,700	1,141,514,100	1,077,149,700	90% 1
		Total Liquid Assets	675,776,000	641,154,000	595,738,000	500,772,000	399,311,000	
		Loans/Deposits (%)	78.24	76.16	75.13	77.81	83.92	
		NPAs/Total Loans (%)	2.71	2.84	3.44	4.10	4.62	
		Net Interest Margin (NIM) (%)	2.85	2.84	2.99	3.26	3.61	
		Yield/ Cost Spread (%)	2.74	2.73	2.88	3.12	3.43	
		Net NonCore Funding Dependence (%)	11.66	8.51	7.70	6.37	8.71	

Market Monitor - Debt Performance					Market Monitor - Equity Performance				
Issuer 5-yr OAS	OAS(bps)	Diff(bps)	SD	SDs +/-	Equity	1Yr(%)	Diff.	Sharpe	Diff.
Peer Group Avg	83	-15	30.5	-0.48	Issuer Eqy	0.31	0.01		
Issuer Rank Avg	98	14	32.5	0.42	Peer Group Avg	19.70	-19.39	0.69	-0.68
IG Index Avg	70	-39	135.8	-0.29	Issuer Rank Avg	43.87	-43.56	1.55	-1.54
	122				IG Index Avg	13.40	-13.09	0.49	-0.48
5-yr CDS	CDS(bps)	Diff(bps)	SD	SDs +/-	S&P Index	9.23	-8.92	0.58	-0.57
Peer Group Avg	52	-10	18.2	-0.55					
Issuer Rank Avg	62	-38	86.2	-0.46					
IG Index Avg	90	-40							
	92								

5-yr Issuer OAS vs Peer Group



Source: FTN Credit Analytics. Not a recommendation to buy or sell an investment.

Additional Reports – GASB 31

INVESTMENT POOL
MARK-TO-MARKET
FISCAL YEAR 2016 Y-T-D

DESCRIPTION	AMOUNT
Invested Value at December 31, 2015	333,092,674
Add: Proceeds of Investments Matured/Sold in FY16	172,338,733
Less: Cost of Investments Purchased in FY16	(159,417,821)
Add: Amortization Adjustment	0
Less: Invested Value at June 30, 2015	(346,590,397)
Change in Market Value of Investments	(576,810)

Additional Reports – GASB 72 and 79

NO. 347 | FEBRUARY 2015

Governmental Accounting Standards Series

Statement No. 72 of the
Governmental Accounting
Standards Board

Fair Value Measurement
and Application

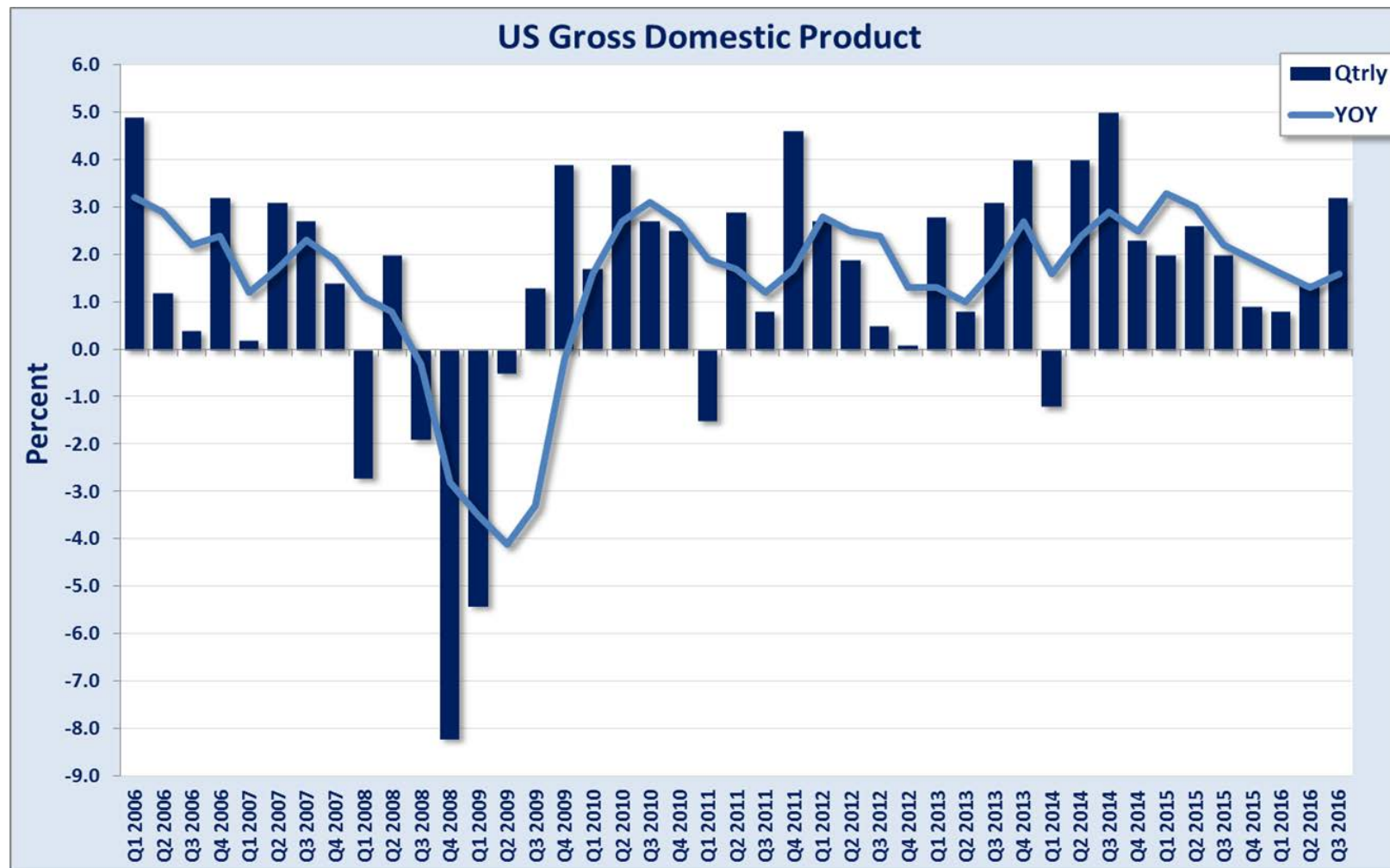
NO. 355 | DECEMBER 2015

Governmental Accounting Standards Series

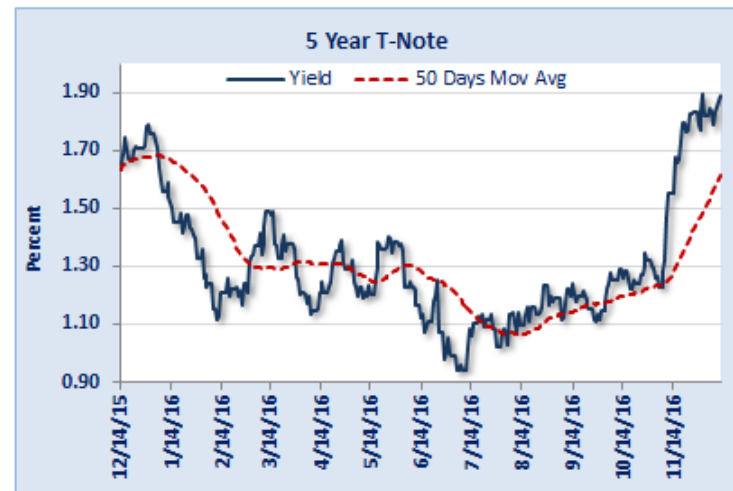
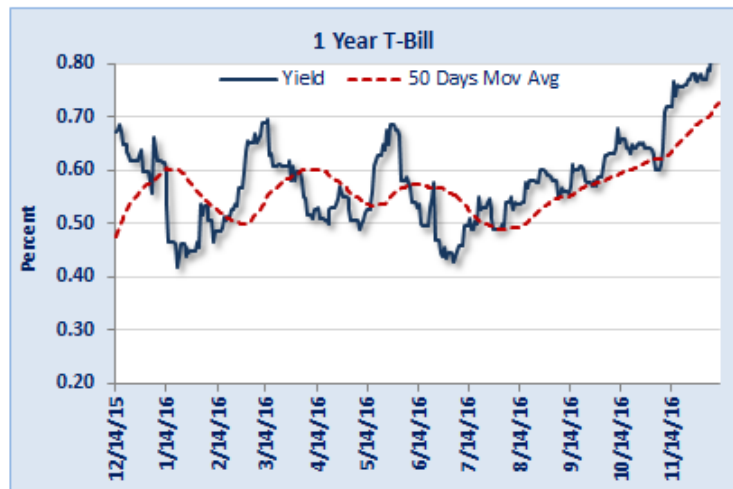
Statement No. 79 of the
Governmental Accounting
Standards Board

Certain External Investment Pools
and Pool Participants

Additional Reports – Economic/Market



Additional Reports – Economic/Market



Reporting Resources



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Reporting Takeaways

- **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**

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