So Much Money…What Are My Best Investment Options?

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Monterey, California

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Goals of Today's Session

Through an interactive discussion, the panelists will address the changes that have impacted investment alternatives for public funds and review ideas to mitigate the risks associated with these changes.

Outcomes:

- ✓ Review and understand what has changed in regards to investment alternatives for public funds.
- ✓ Think outside the box while staying within policy.
- ✓ Just because it has been done that way doesn't mean it should stay that way.
- ✓ Create strategies to mitigate risks.

Risks Inherent in Today's Markets

- Decreasing Agency Issuance (wind-down of Freddie Mac and Fannie Mae?)

- Interest rate volatility and credit risk associated with global crisis

- Regulatory changes:

  1. Dodd-Frank, derivatives legislation – Issuers
  2. Basel III – Banks capital requirements
  3. SEC 2(a)7 – Money Market Investments
  4. Changes to California State Code

- Interest rate risks associated with fed policy actions

Introduction of Panelists

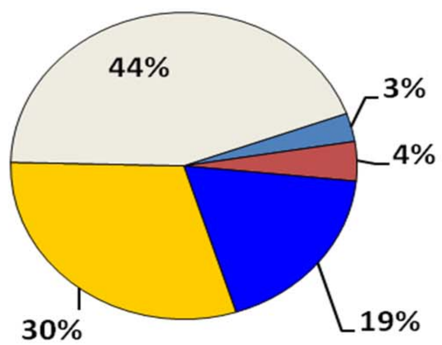
- Represent larger entities and the management of small to medium sized funds
- Benchmarks versus No Benchmarks
- Rated versus Non-Rated
- Agency versus Corporates

San Bernardino County Pool

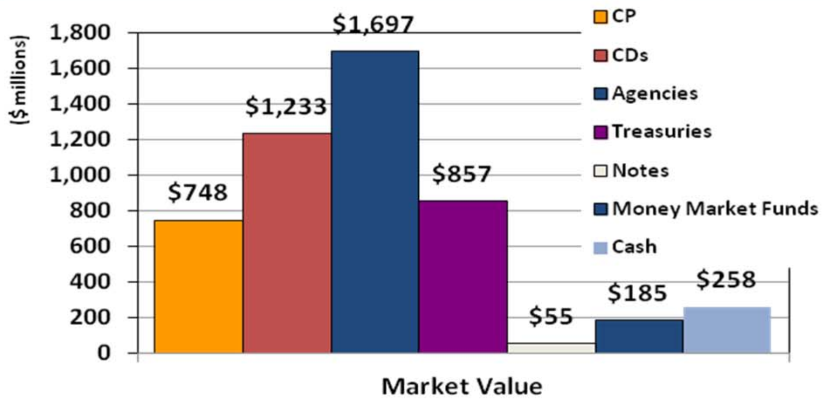
- Portfolio Size: $4-5 Billion
- Managed to Fitch AAA/V1 Rating Standards
- Investment Policy more conservative than California State Investment Code
- 40% of portfolio maturities mandated by IPS under 1 year--On average 50-60%
- 5-10% of portfolio O/N, $100MM per week laddered liquidity
- Robust in-house credit analysis process
- Outside passive investment advisor

San Bernardino County Pool

Composition of the Pool by Member Type



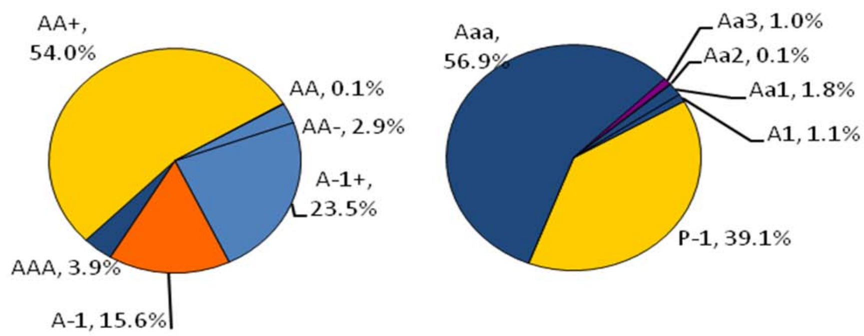
Investment Portfolio by Investment Type



Highly Liquid Maturity Structure

Term to Maturity	Market Value (Includes Cash)	% of Total
Less than one year	$3,054,769,957	60.70%
1 to 2 years	836,608,485	16.62%
2 to 3 years	878,366,325	17.45%
Greater than 3 years	263,342,930	5.23%
Total	**$5,033,087,697**	**100.00%**

Credit Quality (S&P & Moody's)



City and County of San Francisco

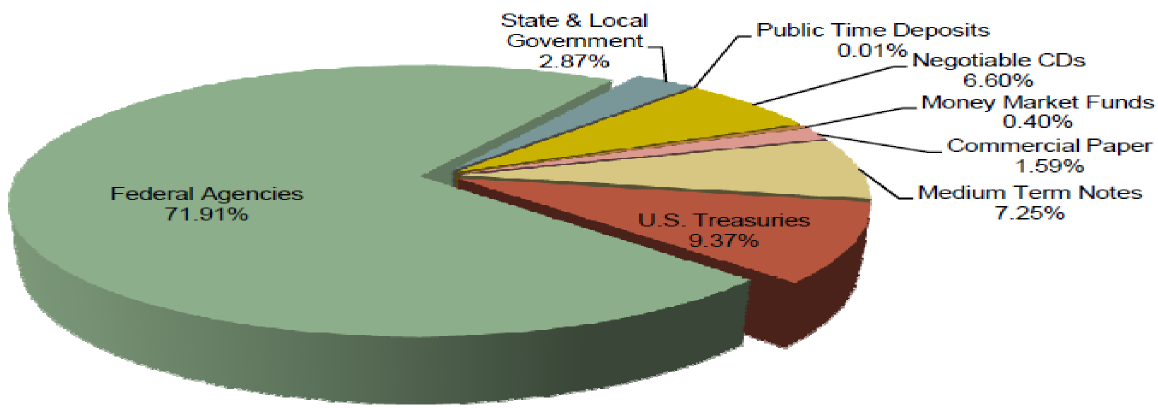
- Portfolio Size: ~$6.5 Billion (as of February 10, 2015)
- Actively managed to Participants' cash flow needs
- Investment Policy more conservative than California State Investment Code
- Must have sufficient liquidity to meet six month's of cash flow needs
- 7-10% of portfolio O/N, roughly 40% invested < 1 year
- Rigorous credit review and assessment process
- Outside passive investment advisor

City and County of San Francisco
Pooled Fund Portfolio Statistics

For the month ended January 31, 2015

Average Daily Balance	$6,392,244,239
Net Earnings	$3,923,887
Earned Income Yield	0.72%
Weighted Average Maturity	716 days

Investment Type	($ million)	Par Value	Book Value	Market Value
U.S. Treasuries	$	585.0	$ 585.1	$ 589.5
Federal Agencies		4,507.9	4,511.9	4,523.9
State & Local Government Agency Obligations		179.1	181.2	180.3
Public Time Deposits		0.5	0.5	0.5
Negotiable CDs		415.5	415.5	415.4
Commercial Paper		100.0	100.0	100.0
Medium Term Notes		455.1	457.7	456.2
Money Market Funds		25.1	25.1	25.1
Total	**$**	**6,268.2**	**$ 6,276.9**	**$ 6,290.8**



Asset Allocation by Market Value

Government Portfolio Advisors, LLC

- Manages $4 Billion in public fund assets and consults on additional $5 Billion
- States involved: Oregon, Washington, Nevada, California, New Mexico, Tennessee, and Idaho
- Manages portfolios to 0-3 year and 0-5 year benchmarks
- Investment policy's typically constrain under 5 years
- Certain states can buy corporate bonds, while others are in treasury and agency securities only
- Portfolio sizes vary from $30MM to $900MM
- Evaluates the portfolio by liquidity and core investment component

Impact #1: Decreasing Supply of Agency Securities

Federal Housing Finance Agency (FHFA) is responsible for taking action as may be necessary to put (Fannie Mae and Freddie Mac) in a sound and solvent condition.

Three goals: Build, Contract, and Maintain

- Build a new infrastructure for the secondary mortgage market.
- Gradually contract the Enterprises dominant presence in the marketplace while simplifying and shrinking their operations.
- Maintain foreclosure prevention activities and credit availability for new and refinanced mortgages.

Bottom line: Decrease in supply is compressing yields.

Issuance Amount

USD Millions

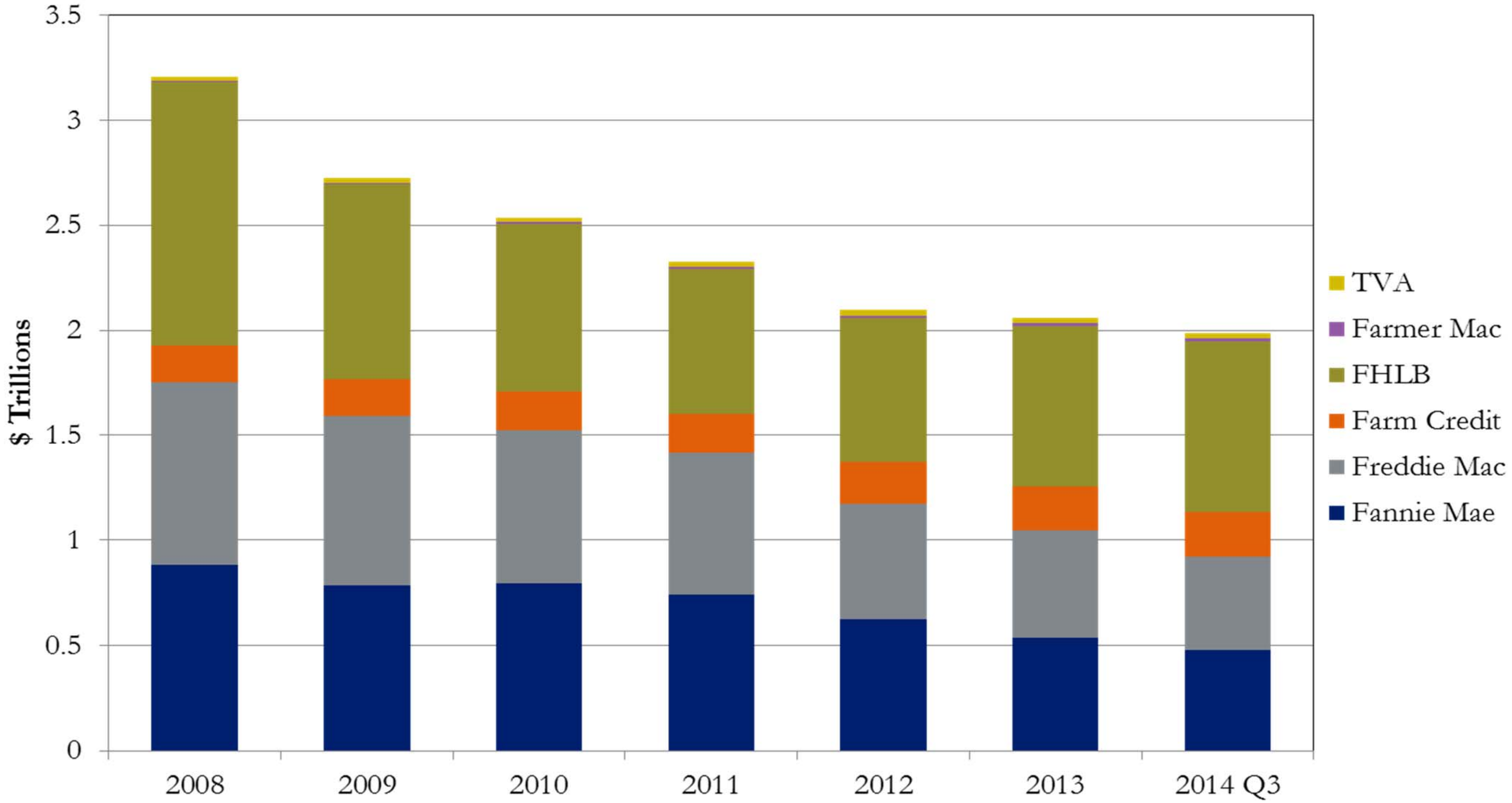
Year	FNMA >1 year	Long Term	FHLMC <1year	Long Term	FFCB <1 Year	Long Term	FHLB <1 Year	Long Term
2007	234,160	562,139	197,601	540,956	19,660	134,404	378,352	811,260
2010	152,013	641,865	197,239	530,978	19,209	168,295	194,478	601,896
2014	64,470	420,822	115,181	343,153	23,509	187,353	257,597	486,343

Source: SIFMA

Yield Spread between US Treasury and Agency Bullets

Year	Current	1 year ago	3 year average	5 year average
1 Year	-1	1	5	7
3 Year	2	8	10	12
5 Year	9	15	20	22

Federal Agency Debt Outstanding



San Bernardino County Pool

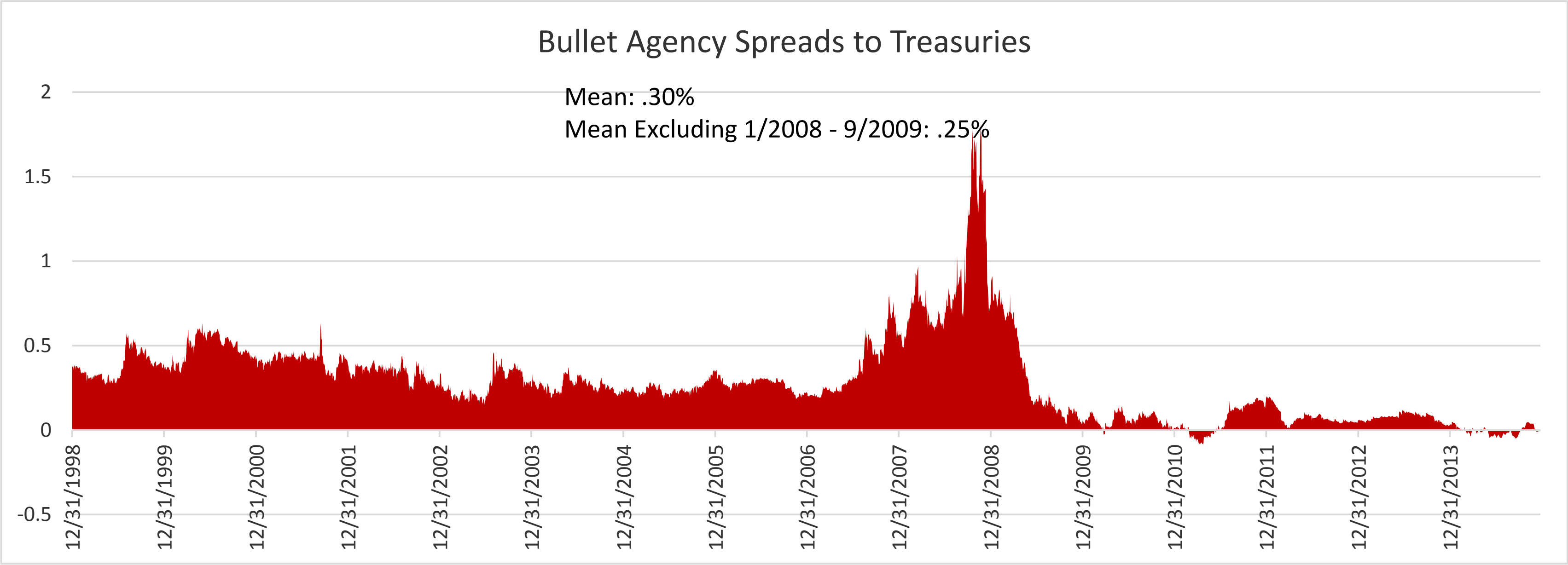
Post Crisis Solutions: Yield Strategy

- Participation in New Issue Agency and Corporate Deals to pick up incremental spread
- Calculate roll-down and yield curve breakeven spreads – take advantage of steep curve
- Manage portfolio convexity
- Manage duration to curve forecast expectations
- Trend channel trade execution
- Spread SWAPS—Agency to Treasury (and vice versa)

City and County of San Francisco

- Agency Fund Limitation: 70% ----> 85% ----> 100%
- Removed issuer limitation (65-70% average)
- Maximum duration, when appropriate
- Adopt specific limits on other permitted investments
- Educate and utilize different security types
  - Step-ups, floaters, premium callables
- Add more resources , when possible
- Reassign and reorganize investment priorities

Ideas to Mitigate Impact



Underweight Agency Bullets: With spreads 25bps below the normalized mean, treasuries are likely to outperform bullet agencies when spreads widen. Treasuries are yielding the same as bullet agencies in many maturity sectors and offer better liquidity and higher credit quality. Also, callable agencies are likely to outperform bullet agencies in a rising interest rate environment.

Impact #2: Interest Rate Volatility Due to Global Crisis

- Started in 1975; Ireland added in 2008
- Systemic risk apparent in EU countries
- Portugal, Italy, Ireland, Greece, and Spain
- Ukraine
- Effects on Treasury Rates
  1. Increased volatility = More opportunities and more risks
  2. Market overreactions = Widespread panic, flight to quality
- Effects on Credit
  1. Wider spreads on bad news
  2. Tighter spreads on good news and resolution

San Bernardino County Pool

Credit Crisis Management Style/Response

- No Private Placements (Rule144A) Purchased (County will not sign "QIB" letter)
- No Asset Backed Programs Purchased
- No Mortgage Backed Securities Purchased
- No External Pools Purchased
- No Municipal Exposure
- Government Only Deliverable Repo Collateral
- Government Only Money Market Funds
- Very Limited Credit Exposure

San Bernardino County Pool

Post Crisis Challenges

- Quarter-end/Month-end O/N Available Inventory
- CP Laddering/Date Targeting Capacity
- Limited Yield Spread on Investment Grade
- Repo and Money Market Spreads are NIL
- Challenging Credit Environment—Rating Agency Downgrades
- Issuers Transitioning CP Programs from 3a3 to 144A
- Limited Inventory Across Investment Spectrum
- Declining Benchmark Size Agency New Issuance

San Bernardino County Pool

Post Crisis Solutions: Investment Policy Revisions

- Eliminated AAA ratings requirement on Federal Agency Debt
- Lowered minimum ratings requirement on Medium-Term Corporate Notes and Negotiable CDs from AA to A (to CA State Code Minimums) and extended tenor to 3 years from 18 months.
- Allow purchases of Joint Powers Authority Pools
- Allow purchases of Federally Insured Cash Accounts
- Allow purchases of Washington Based Supranational Debt

City and County of San Francisco

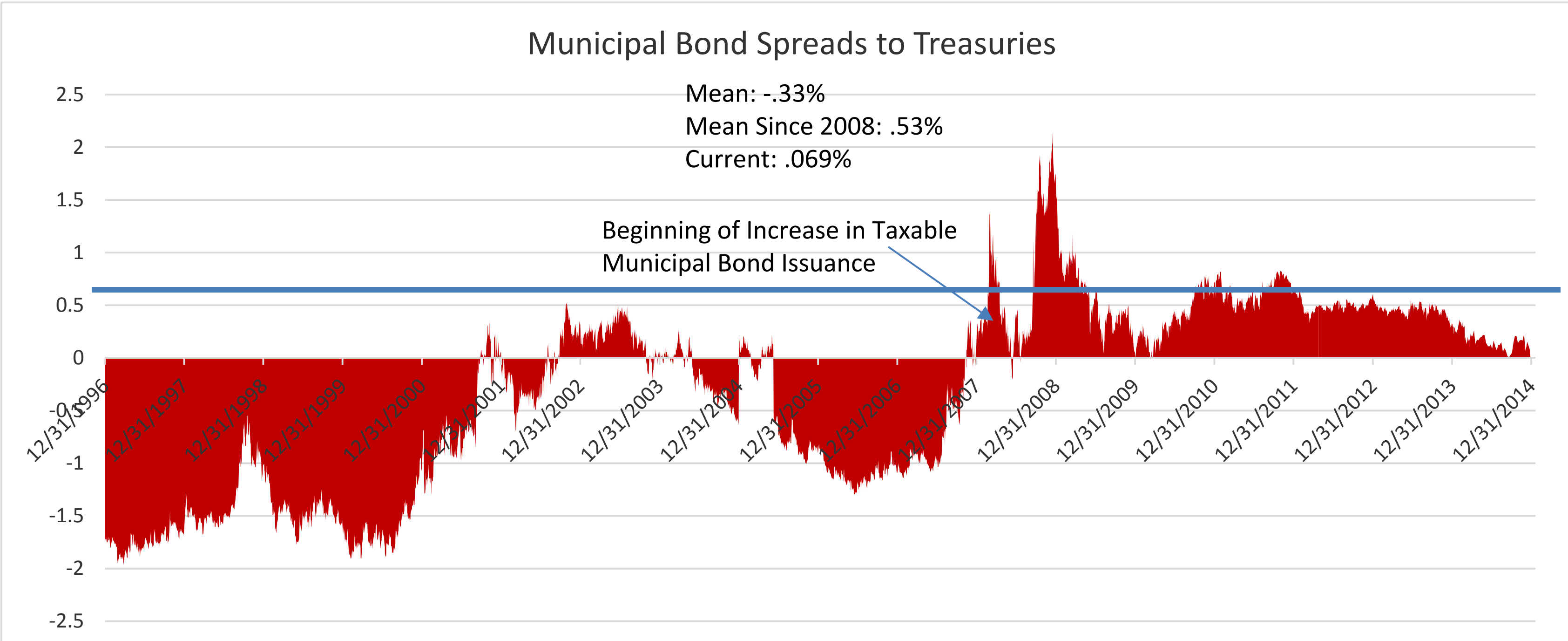
- Limited Credit and Municipal Exposure with internal guidelines
- No exposure to European credits; limited to Canadian and Japanese banks; shorten duration when necessary
- Allowed other security types where Code is vague (i.e. private placements – Rule 144A)
- Considering Multi-Seller, Asset-Backed Programs
- Government-Only Money Market Funds
- Govt. ---> Prime Collateral for Repurchase Agreements
- No Securities Lending
- Increased diligence on collateralized demand deposits

City and County of San Francisco

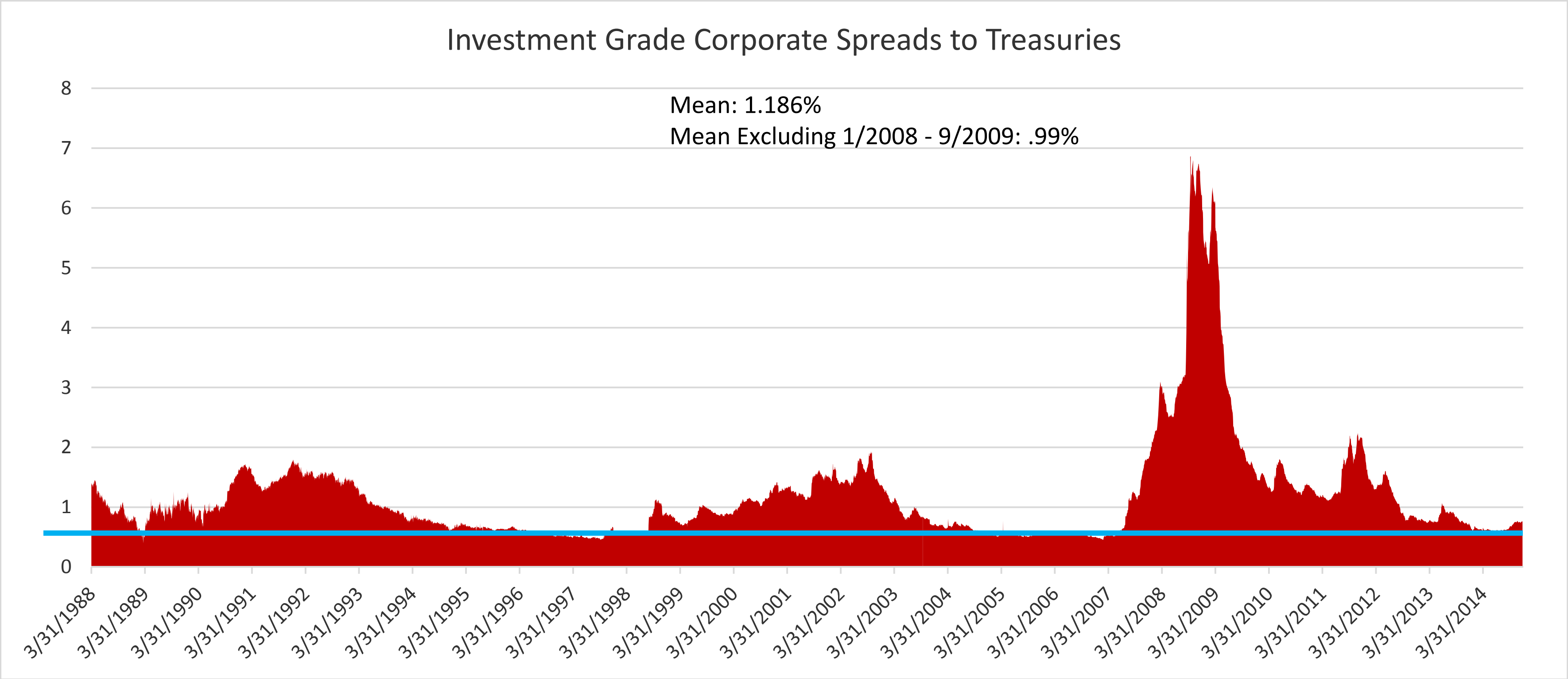
Investment Policy Revisions – Recent

- Increased allocation to Federal Agency Debt and eliminated issuer maximums
- 1 NRSRO for Municipal debt, negotiable CDs, commercial paper, and MTNs
- Extended tenor to 2 years from 13 months for MTNs.
- Extended tenor for repo to 1 year from 30 days.
- Added credit downgrade language
- Structure: Credit <2 years; Government >2 years
- Added Supranationals

Ideas to Mitigate Impact



Underweight Municipals: Municipal bond spreads are 50 basis points below the "taxable" mean (since 2008).



Neutral Allocation to A-AAA Corporates: While investment grade corporate spreads are slightly tighter than the historical mean, these spreads can stay low for extended periods and should remain stable as the economy improves.

Impact #3: Regulatory Changes

- Dodd-Frank, derivatives legislation – 8 major parts:

✓ Financial Stability Oversight Council – Increases reserve requirements

✓ Volcker Rule – bans banks from using or owning hedge funds for own profit

✓ Oversee Credit Rating Agencies – SEC now regulates agencies

✓ Reform the Federal Reserves – allowed to audit during emergency loans

Bottom Line Impact: Less lending, impacts collateral rules

Impact #3: Regulatory Changes

- Basel III – The Office of the Comptroller of the Currency and Board of Governors of the Federal Reserve System (Board) adopted a final rule in July 2013 that revises their risk-based and leverage capital requirements for banking organizations.

Bottom Line Impact: Banks don't want deposits

- SEC 2a7 – Changed rule to 60-day weighted average maturity. Institutional Prime Funds to transition to floating NAV by October of 2016.

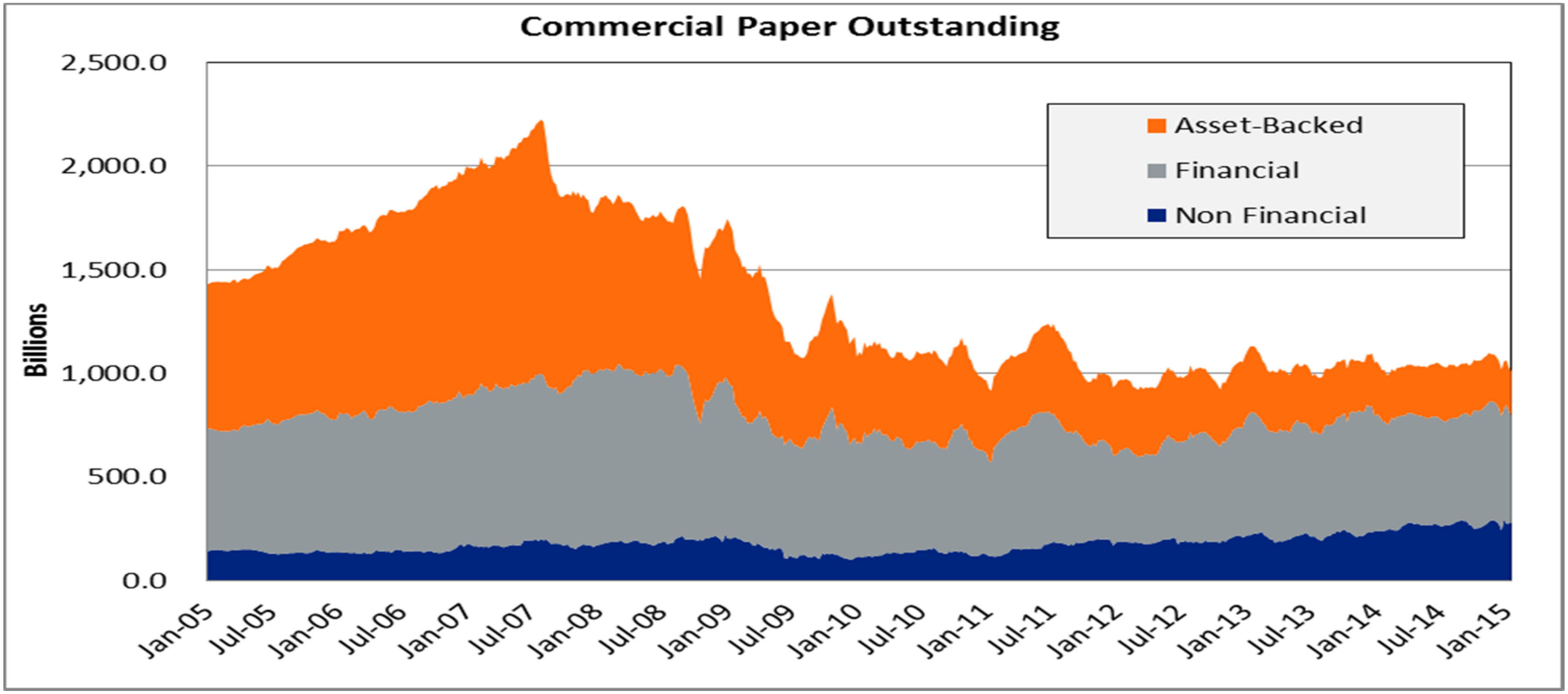
Bottom Line Impact: Lower yields and less market inventory

Impact #3: Regulatory Changes

- California State Code Changes
  - New permitted investment: Supranationals - CA GCS 53601(q)
  - Expanded pooled bank deposits - CA GCS 53601.8 & 53635.8

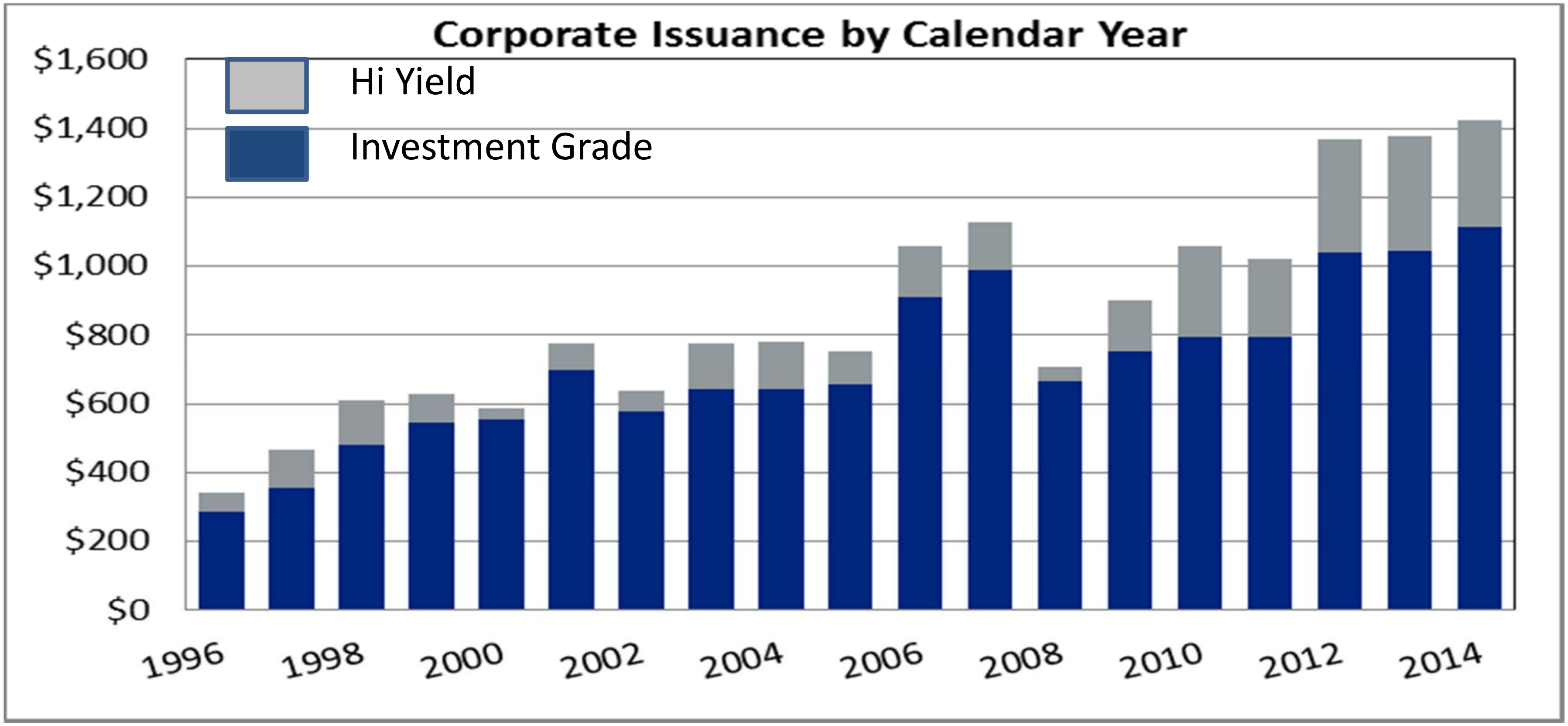
Bottom Line Impact: More investment options, but determine whether or not they are right for your agency

Commercial Paper Outstanding
(in trillions)



- After the credit crisis, corporations sharply reduced reliance on short-term debt to fund liquidity needs
- New regulations for financial institutions have also contributed to reduced issuance of commercial paper
- Concerns during the credit crisis around the collateral associated with some Asset Backed CP programs led to significantly reduced issuance in that sector of the CP market

Corporate Issuance Momentum Continues



- Improving economic conditions, combined with historically low rates, have encouraged corporate issuers to turn to the debt markets and increase long term funding; this increase has been observed in both investment grade and non-investment grade issuance

San Bernardino County Pool

Post Crisis Solutions: Liquidity Strategy

- Collateralized Bank Accounts
- JPA Pools vs. Prime Money Funds
- Federally Insured Cash Accounts
- Adding back Credits/Issuers
- Greater use of US Treasuries
- Longer tenor Cash Flow Targeting and Immunization

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Suggestions for the future?

- Fed Reverse Repo Facility (if ever made available to LGIPs)
- Mortgage Backed Securities
- Asset Backed/144A Securities ("QIB Letter" issue for LGIP's needs addressing at federal legislative level)
- Municipal Debt Securities
- AAA Covered Bonds (bank issuance could increase)

City and County of San Francisco

- Adjust duration when possible to avoid competition with money funds
- Established due diligence process to monitor collateral and holdings
- Increase approved names and ongoing credit monitoring process
- Added resources: Dedicated Settlement and Reporting Analyst; Assistant Portfolio Manager; Credit subscriptions
- Future changes: Dedicated Credit Analyst

City and County of San Francisco

- Added CBI with strict oversight (CAMEL-like review)
- Ongoing education efforts and participation in regulatory initiatives
- Forward-looking:
  - Covered bonds
  - Multi-seller asset-backed securities
  - Alternative money market vehicles

Ideas to Mitigate Impact

- Evaluate all alternatives
- Be patient
- Don’t take on more risk than is appropriate
- Know what you are buying

Treasury Yield Trends

- A deflationary scare in June 2003 took Treasury yields down to the lows of the cycle.
- In the 3 years following, the ML 1-5 UST returned +3.60% (not annualized) as the market sold-off.

Source: Barclays and PFM

Historical Rate Increases
September 1992 – February 1995
Raising 300bp rise in 30 months

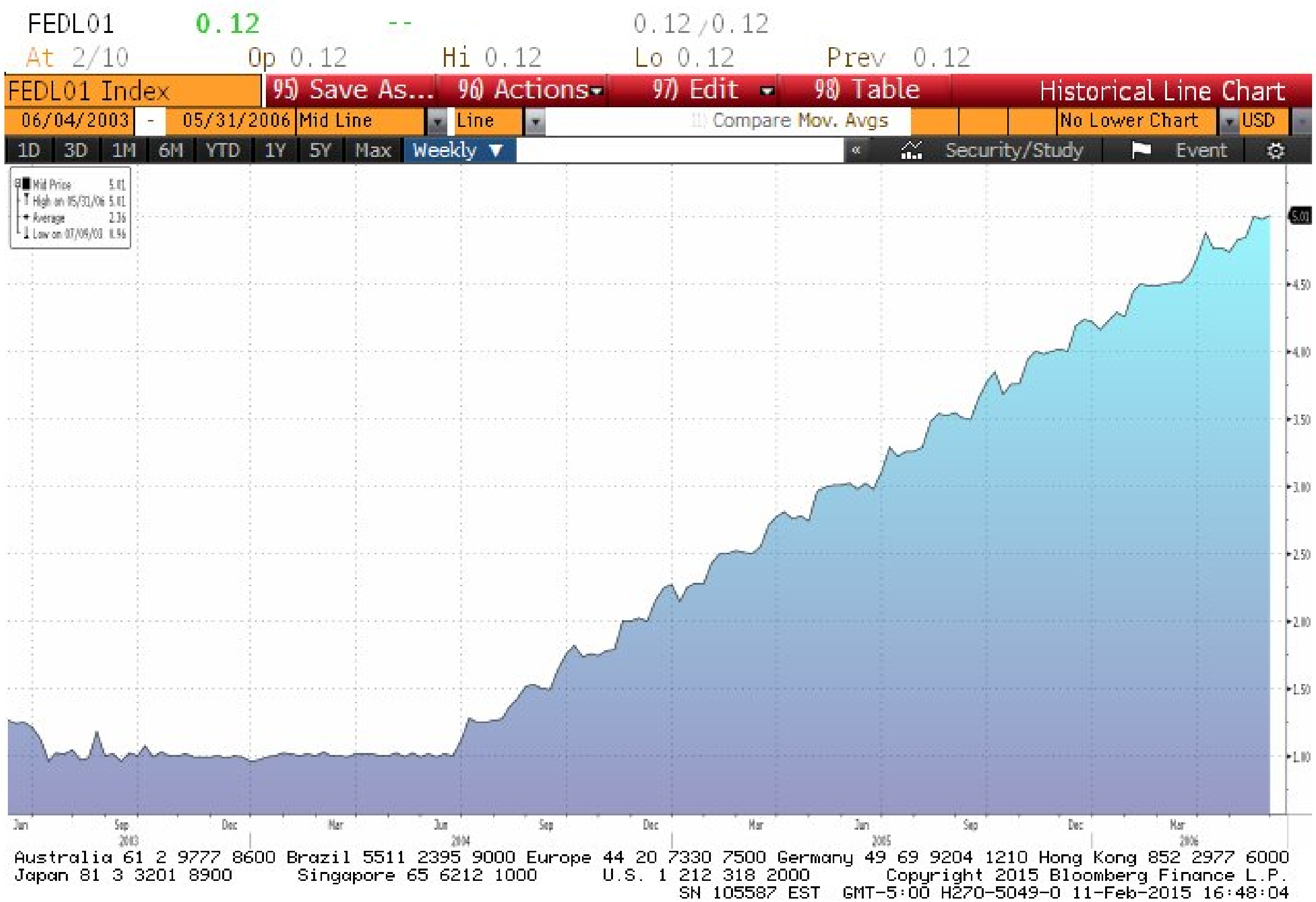
Sept 92 = 3.00
Feb 94 = 3.25 % **(25 BP - 18 months)**
Mar 94 = 3.50 % **(25 BP - 1 month)**
Apr 94 = 3.75 % **(25 BP - 1 month)**
May 94 = 4.25% **(50 BP – 1 month)**
Aug 94 = 4.75% **(50 BP – 3 months)**
Nov 94 = 5.50 % **(75 BP – 3 months)**
Feb 95 = 6.00% **(50 BP – 3 months**

Source: Bloomberg

Historical Rate Increases
June 2003 – June 2006

Raising 425bp rise in 36 months

June 03 = 1.00%
June 04 = 1.25% (25 BP – 12 months)
Aug 04 = 1.50% (25BP – 2 months)
Sep 04 = 1.75% (25BP – 1 month)
Nov 04 = 2.00% (25BP – 2 months)
Dec 04 = 2.25% (25BP – 1 month)
Feb 05 = 2.50% (25BP – 2 months)
Mar 05 = 2.75% (25BP – 1 month)
May 05 = 3.00% (25BP – 2 months)
June 05 = 3.25% (25BP – 1 month)
Aug 05 = 3.50% (25BP – 2 months)
Sep 05 = 3.75% (25BP – 1 month)
Nov 05 = 4.00% (25BP – 2 months)
Dec 05 = 4.25% (25BP – 1 month)
Feb 06 = 4.50% (25BP – 2 months)
Mar 06 = 4.75% (25BP – 1 month)
May 06 = 5.00% (25BP – 2 months)
June 06 = 5.25% (25BP – 1 month)



Source: Bloomberg

Bottom Line: Rates can go up dramatically – are you prepared?

Impact #4: Interest Rate Risk Associated with Fed Policy

- RRP Facility
- Term Repo Facility
- Why this time it will be different…

Impact #4: Interest Rate Risk Associated with Fed Policy

Yield to Maturity – 2 Year Treasury Note 2/10/10 – 2/10/14

Source: Bloomberg

Interest Rate Risk Associated with Fed Policy Longer Term

Yield to Maturity – 2 Year Treasury Note 2/10/05 – 2/10/15

Source: Bloomberg

Strategic Mishaps in Rising Rates

- Liquidity: Didn't plan for liquidity and must sell at a loss
- Safety: Reached for yield and invested out the yield curve and unrealized losses are large
- Return: Invested too long and nothing is maturing to reinvest into higher rates.

Asset Class Returns - Period Ending 12/31/14

Asset Class	Duration	YTM	Annualized Last 10 years	Annualized Last 5 years	3 year Annualized	1 year Annualized
1-5 US Treasuries	2.74	.754%	3.08%	1.77%	.65%	1.23%
1-5 Year Agency Bullets	2.49	.778%	3.35%	1.79%	.94%	1.28%
1-5 Year Agency Callables	1.80	.941%	2.44%	1.03%	.73%	1.37%
1-5 Year Municipals	2.47	1.053%	3.73%	2.79%	2.25%	1.93%
1-5 Year A-AAA Corp	2.84	1.473	3.01%	1.93%	1.38%	1.29%

Ideas to Mitigate Impact

- Adopt appropriate duration
- Actively monitor credit risk
- Manage yield expectations
- Have a strategic plan in place
- Focus on transparency, accountability, and communication