RETIREMENT BOARD CALENDAR SHEET
Retirement Board Meeting of May 8, 2019

To: Retirement Board

Through: Jay Huish JH
Executive Director

From: Diane Chui Justen DCJ
Deferred Compensation Plan Manager

Date: May 8, 2019

Agenda Item: Report on Stable Value

Background:

Stable Value is tenured investment offering in the Defined Contribution world, available as a conservative investment option since the late 1970's. Designed to provide principal protection, Stable Value (the "Fund") served as a primary default option before Target Date Funds gained popularity as a result of the Pension Protection Act in 2006.

Like money market funds, Stable Value is focused on capital preservation, which means investors should expect to maintain 100% of their initial investment. Stable Value, however, is unique in its ability to provide a guaranteed quarterly crediting rate, regardless of the market's performance. To provide this guarantee, the Fund is "wrapped" with multiple investment contracts issued by large insurance providers. The Fund invests in short to intermediate term bonds and uses the "wrap" contracts to amortize gains/losses from the underlying fixed income portfolio over time, providing a steady stream of income.

Due to the nature of its complexity, Stable Value is only available through institutional defined contribution channels, such as the San Francisco Deferred Compensation Plan (SFDCP). The SFDCP Stable Value Fund (SVF) currently holds over $1 Billion in participant assets as of March 31, 2019, accounting for nearly one-third of Plan assets.

The SFDCP has contracted with Galliard for investment management of the SFDCP Stable Value Fund (SVF). The term of this agreement commenced on June 18, 2014 with a termination date of June 30, 2019 and is in the process of being extended until June 30, 2020. Galliard also serves as a fiduciary with respect to its management of the SFDCP Stable Value Fund (SVF) and has increased SVF's crediting rate from 1.15% in Q3'14 to 2.54% for Q2'19.

Details on the mechanics of Stable Value and its comparison to similar vehicles like money market funds can be found in the accompanying Callan presentation. The Galliard presentation covers the history of SVF under Galliard's management since 2014, the composition of SVF, and performance expectations going forward. Both Callan and Galliard will be available to walk through the presentations and answer any questions.

Recommendation: This is a discussion only item.

Attachments:

- Callan Presentation on Stable Value
- Galliard Presentation on SFDCP Stable Value Fund

Callan

May 8, 2019

SFDCP Retirement Board
Stable Value Overview

Demystifying the Principal Preservation Option

Greg Ungerman, CFA
Senior Vice President

Ben Taylor
Senior Vice President

Agenda

- Overview of Stable Value
- Stable Value comparison to Money Market Funds
- Prevalence
- Industry Historical Performance
- SFDCP Current Metrics relative to Industry Averages

What is Stable Value?

Demystifying the Principal Preservation Option

- A stable value option offers defined contribution participants and other qualified investors an investment vehicle that combines principal preservation and stable return generation
- Certain defined contribution plans are the only place stable value funds can be offered by regulation
- Stable value strategies invest in a high quality, diversified intermediate-term fixed income portfolio
- Market value fluctuation and interest rate volatility are minimized through the use of wrap contracts issued by banks and insurance companies
- Traditionally has offered a return premium over money market funds, as underlying assets can invest further out on the yield curve (3-5 years)
- Serves as a complement to more volatile or risky asset classes
- Is viewed as a competing option to a money market fund or a low duration bond fund or even a brokerage window given the sensitivity of participants trying to market time interest rate moves

How Stable Value Works

Architecture

- Stable value managers invest in a diversified portfolio of high-quality, intermediate duration fixed income securities. These securities may include:
  - Treasuries, U.S. agencies, agency mortgage-backed securities, corporate bonds, asset-backed securities, commercial mortgage-backed securities
- Wrap contracts, issued by insurance companies and banks, allow for book value accounting
  - Preserves Principal
  - Daily participant cash flows to "non-competing" options.
- Wrap contracts generally have strict guidelines
  - Sector
  - Quality
  - Duration
- Quarterly Crediting Rate
  - A periodically adjusted rate of return
  - Market value gains or losses are amortized over time
  - Calculated based on the market value, book value, yield-to-maturity and duration of the underlying assets.
- Assets not covered by a wrap contract are usually held in short-term money market instruments.

Common Structure

Benchmark Duration Range

2.0 to 4.0 years depending on vehicle type and investment guidelines

Role of a Principal Preservation in a Retirement Plan

Comparison of Stable Value versus Money Market Funds

The Role of a Principal Preservation option in a Deferred Comp Plan:

1. Preserve Capital – Both money market and stable value funds utilize book value accounting plus interest to achieve principal preservation. Stable value funds do have more credit risk and counterparty risk with insurance wrappers.
2. Liquidity – Both money market and stable value funds allow participants to transact daily. The stable value fund does require an equity wash provision when a money market fund or equivalent is offered.
3. Preserve Purchasing Power – Stable Value has done a better job than money market funds keeping up with inflation.

<u>Considerations of offering both in the plan:</u>

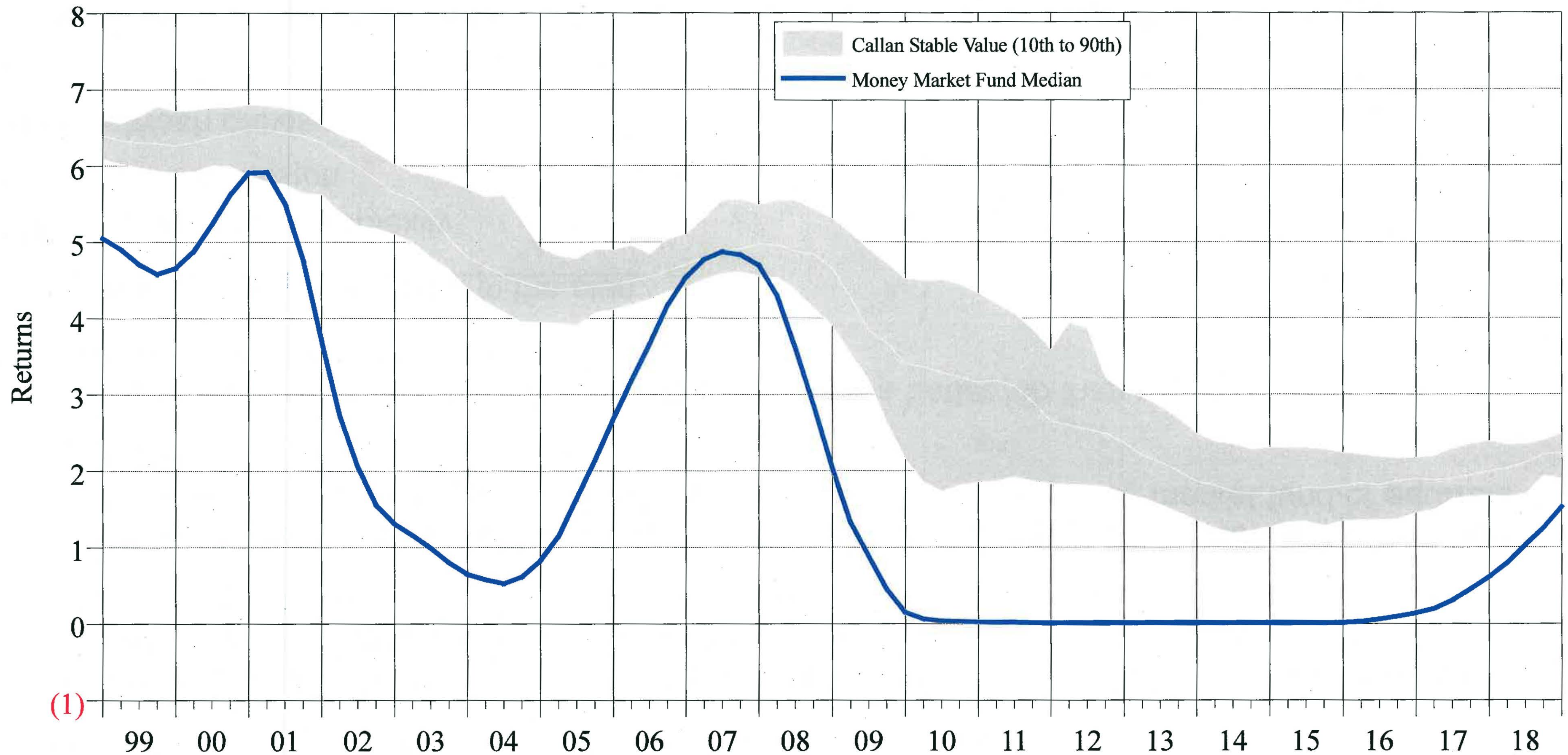
Offering both adds complexity

- Participant confusion
- Equity Wash provision

There is no equity wash within the SFDCP until the Brokerage Window is 5% of Plan assets. Currently the brokerage option is only 0.4% of Plan assets.

Return Differential

Rolling 4 Quarter Returns
for 20 Years Ended December 31, 2018

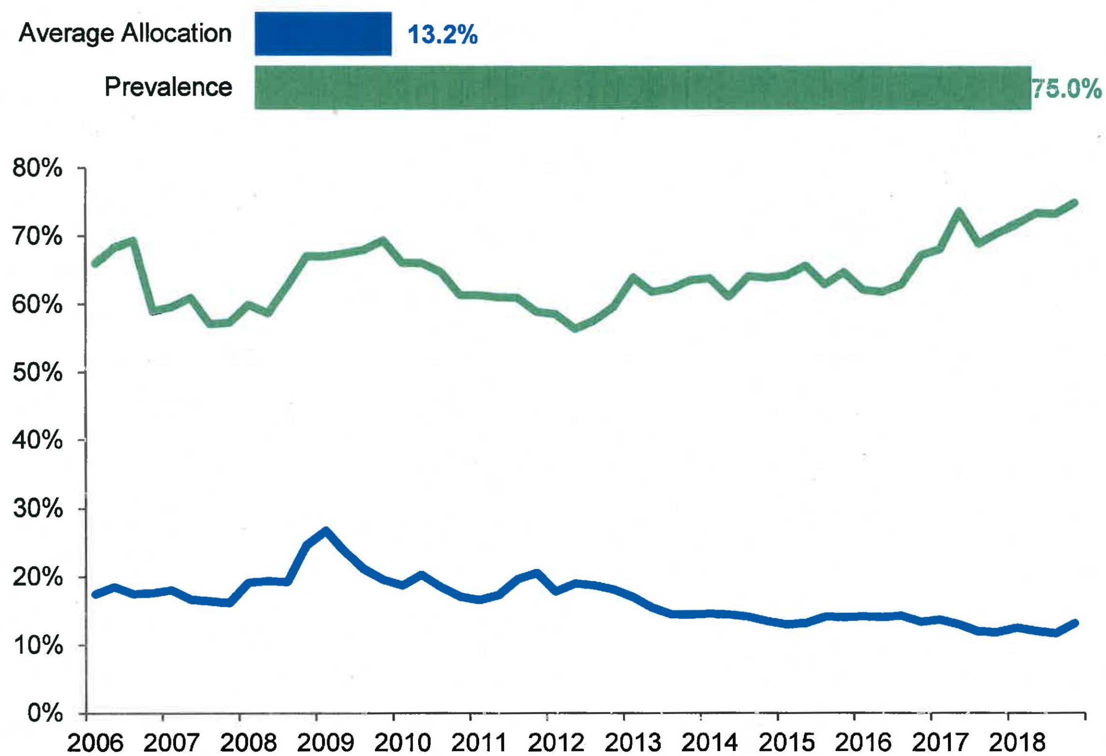


- While the premium varies over time, stable value funds have historically taken more credit and duration risk than money market funds, yielding a persistent return advantage.
- The Stable Value Database shown gross of investment fees but net of wrap fees.

Stable Value Fund Popularity

- Stable value funds are popular with DC plans, with 75% offering the option.
- Stable value funds are popular with participants, with 13% of assets being allocated when offered.
- According to NAGDCA, 87.9% of government plans offer a Stable Value option and the median allocation is 18.7% of plan assets when offered.
- Over $700 billion was invested in stable value strategies as of December 31, 2017 according to the Stable Value Investment Association (SVIA.org)
- The San Francisco DCP has just over $1 billion invested in the Stable Value fund, which is 28.7% of Plan assets making it the largest fund in the plan as of February 28, 2019.

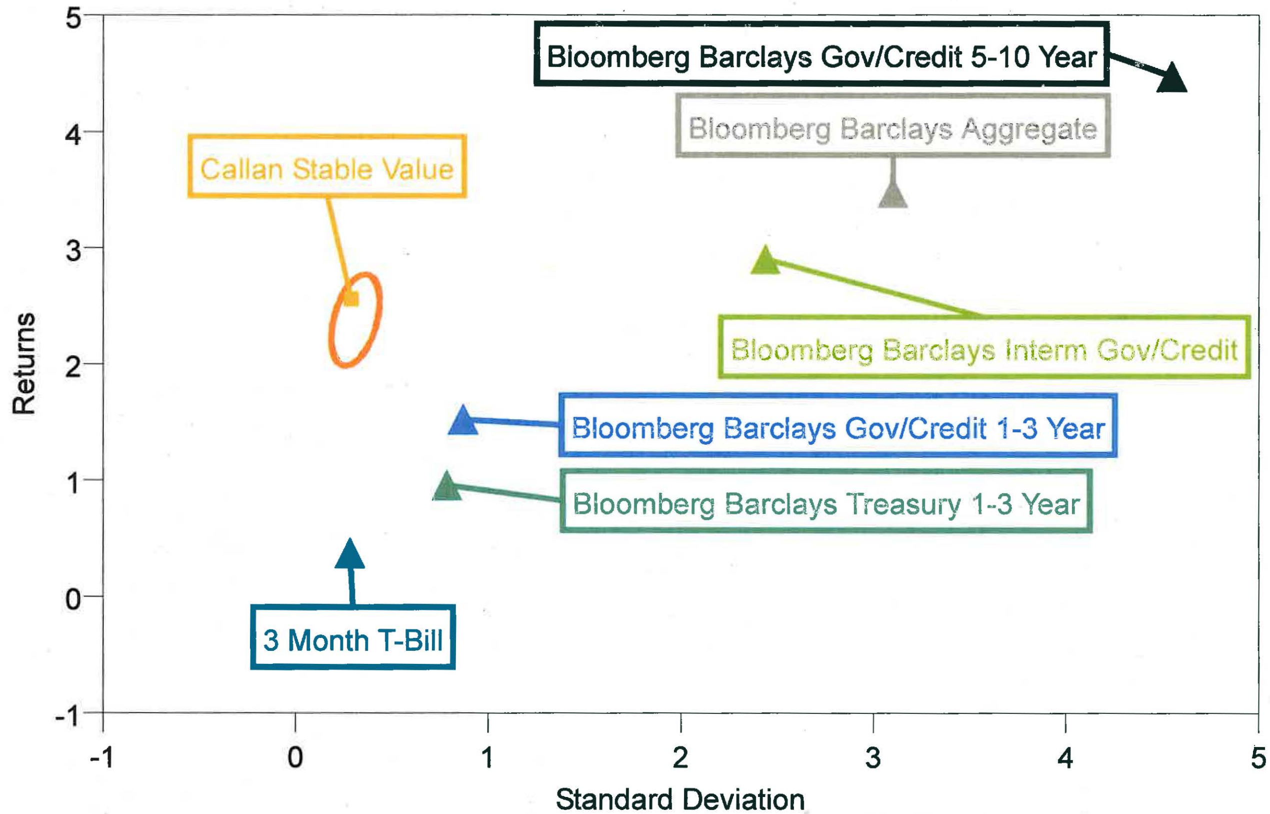
Prevalence of Stable Value as of December 31, 2018



Source: Callan's DC Index, Stable Value Investment Association

Return Versus Risk Characteristics

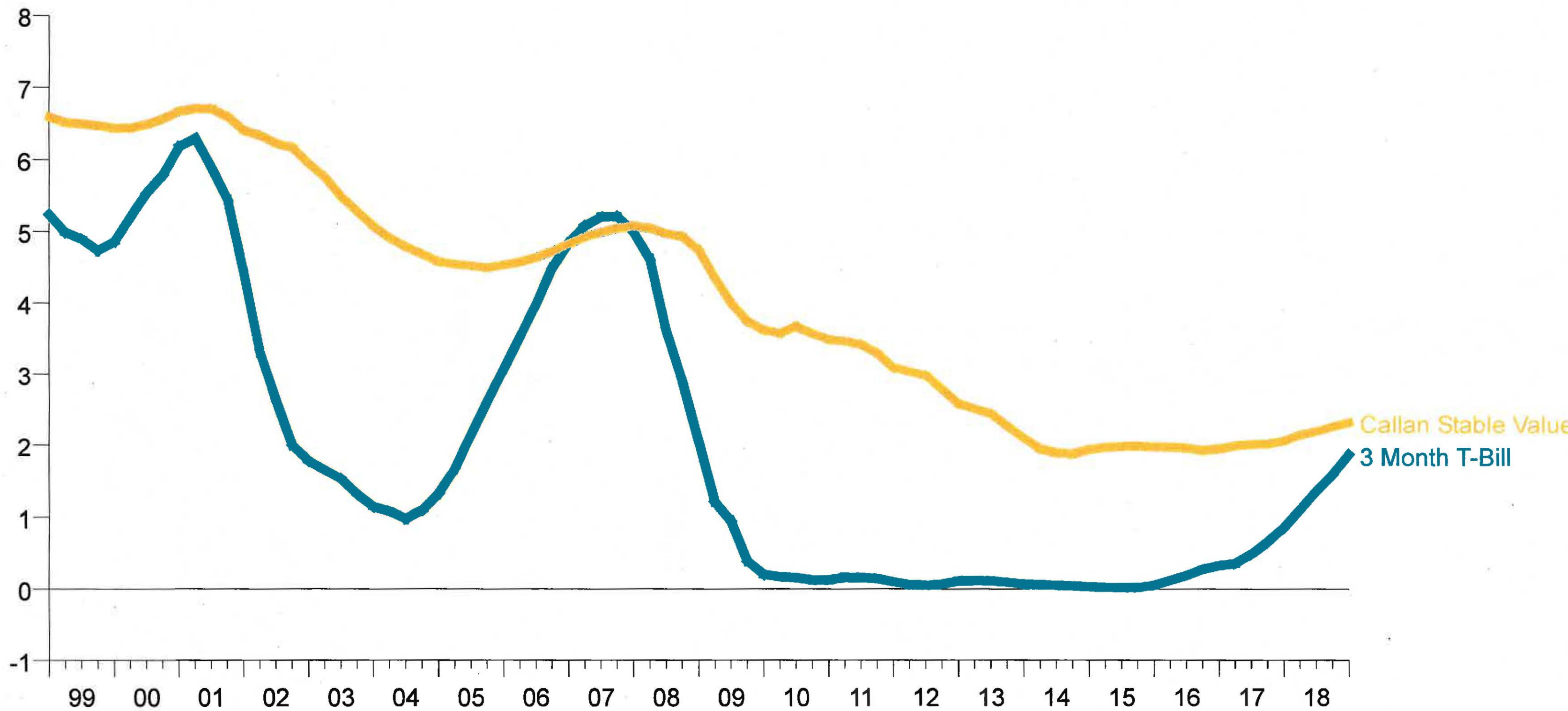
Risk vs. Return for 10 Years ended December 31, 2018



- Stable value funds have exhibited returns similar to the Bloomberg Barclays Intermediate Government/Credit Index and risk similar to cash

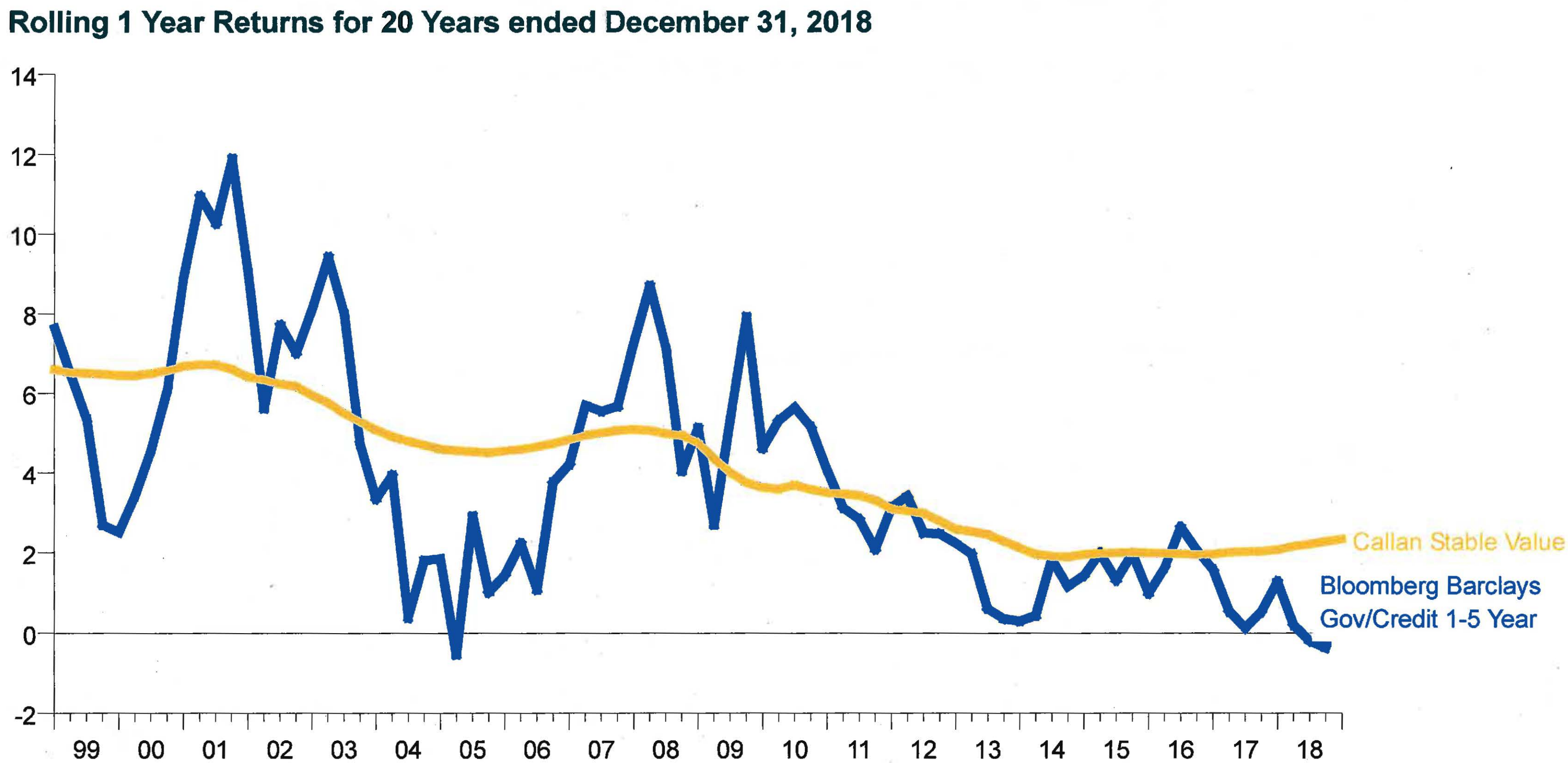
Impact of Wrap Contracts on Return Consistency

Rolling 1 Year Returns for 20 Years ended December 31, 2018



- Wrap contracts provide greater return consistency versus money market funds
- Money market funds have outperformed in periods when rates rise quickly
- The Callan Stable Value line represents the median return for the peer group.

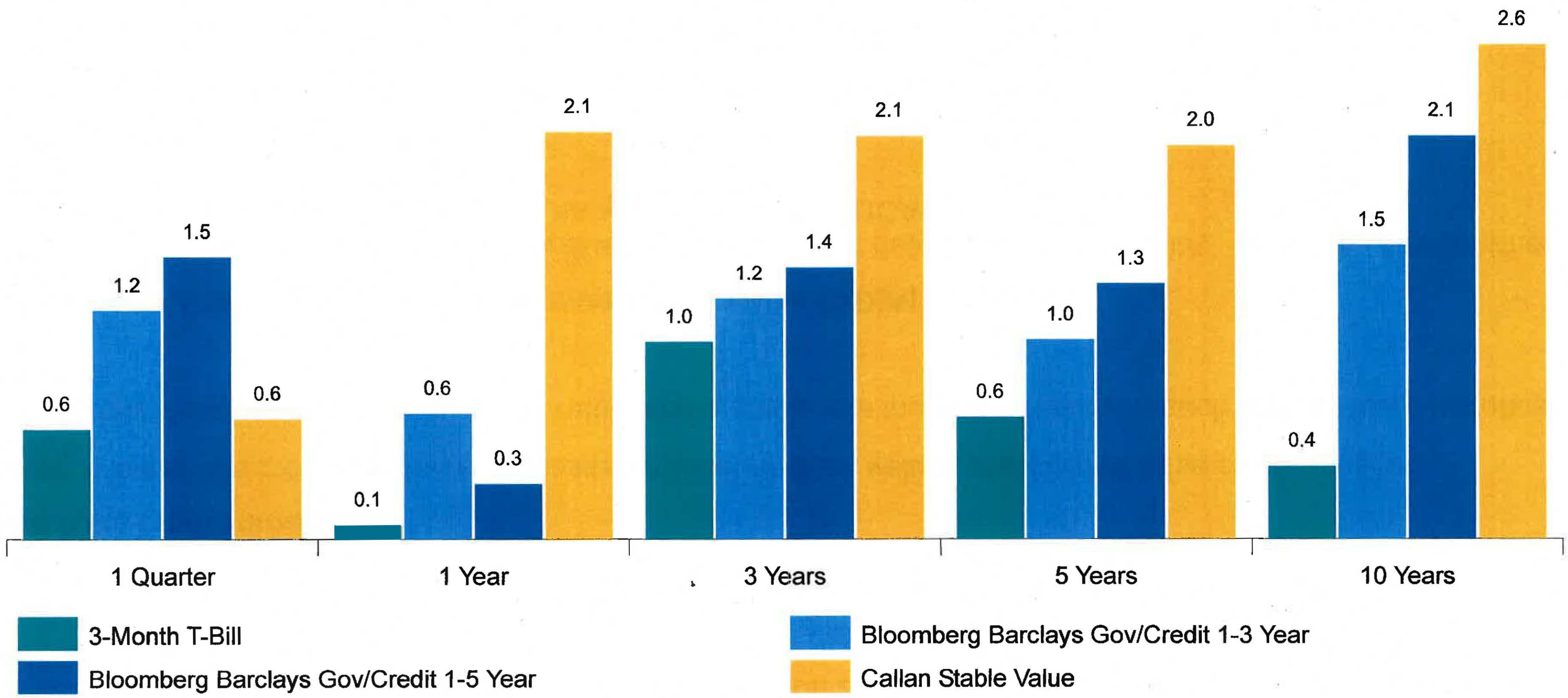
Impact of Wrap Contracts on Return Consistency



- Less return volatility versus a fixed income benchmark with a similar duration
- Crediting rate will lag changes from volatile fixed income markets

Trailing Performance History

Returns for Periods ending December 31, 2018



- Trailing performance versus both cash and limited duration benchmarks shows that stable value has performed similarly to limited duration strategies over time

Factors Impacting Stable Value Environment

Post-2008 Credit Crisis and Wrap Capacity

- Investment guidelines tightened after the financial crisis, limiting interest rate risk and investable securities.
- More recently, wrap fees have declined to 18-19 bps from the 25-30 bps range immediately after the Global Financial Crisis ("GFC").
- Investment guideline negotiating leverage has shifted back in favor of investment managers.

Current Rate Environment

- Gradual interest rate increases have decreased market-to-book values and helped raise crediting rates.
- Money market funds may out-yield stable value with a sharp rate increase; however, such periods have historically been short.

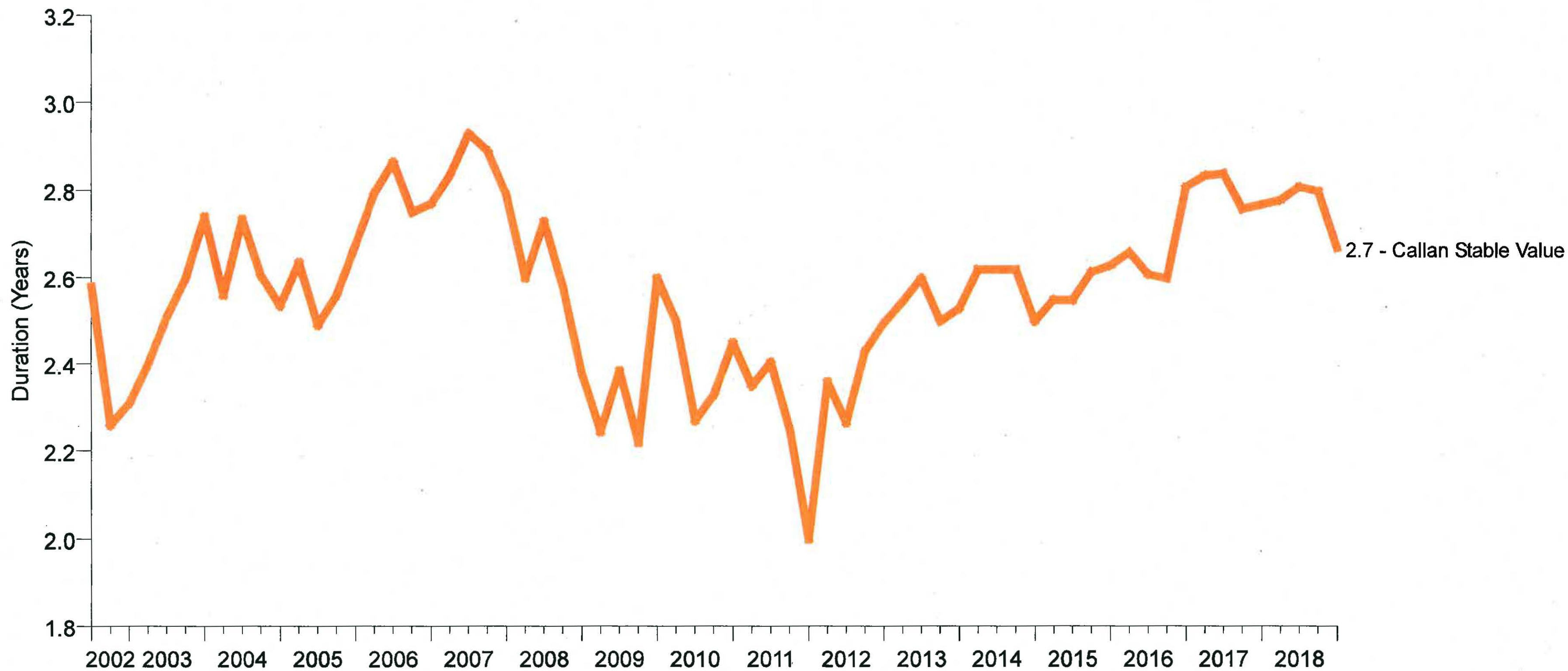
Stable Value as a Qualified Default Investment Alternative (QDIA)

- DC plans have gradually replaced stable value funds with target date funds as the QDIA. Only 3% of government plans use the Stable Value fund as the QDIA according to NAGDCA.

Increased Litigation

- Lawsuits alleging either improper management or excessive fees have surfaced in recent years.
- Recent lawsuit alleged that a plan sponsor failed to provide a stable value fund as the plan's capital preservation option.

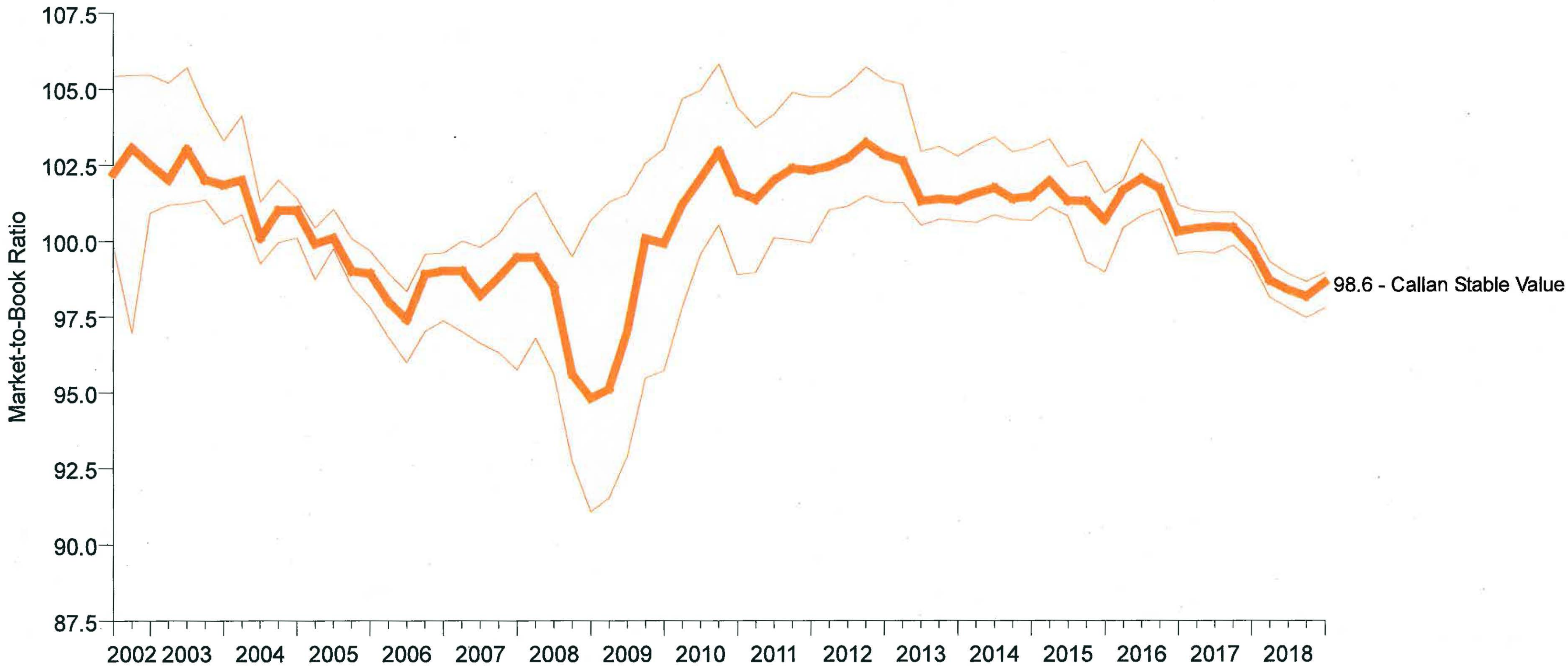
Duration has Increased



<u>Wrap issuers keep a close a eye on interest rate risk</u>

- After stable value funds experienced volatility in 2008, wrap providers pushed for tighter guidelines.
- More recently, wrap providers have allowed more leeway on duration.
- The Duration for the SFDCP Stable Value Fund is 3.0 years.

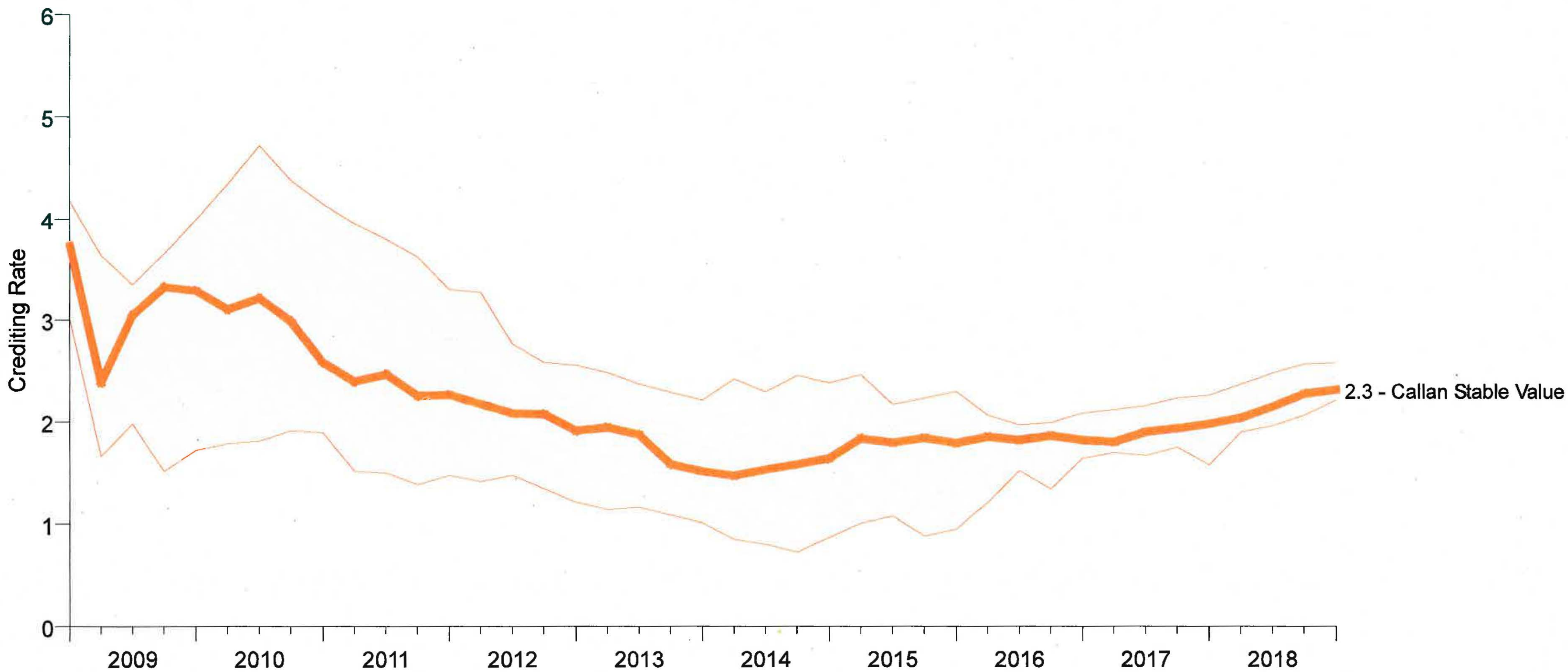
Market-to-Book Ratios Have Fallen



Market-to-book value ratio is a measure of the overall health of a stable value fund

- Market-to-book may dip below par (100) during a rising rate environment.
- Gradual increases in interest rates are manageable.
- The market-to-book value ratio for SFDCP is currently 98.6%.

Crediting Rates are coming off of their Historic Lows



<u>Post-GFC, crediting rates were impacted by strict investment guidelines and declining rates</u>

- Rising interest rates and increased allocations to spread product have helped increase crediting rates.
- Investment managers have negotiated looser guidelines.
- The SFDCP Stable Value fund has declared a 2.54% crediting rate for second quarter of 2019.

Summary of Why Stable Value?

- Principal preservation and stable return generation
- Historically offered a premium over money market funds
- Multiple approaches ranging from simple to complex structures
- Investors enjoy a smoothing ride with help of wrap contracts
- Peace of mind during a rising rate environment
- Offers a uniquely conservative investment profile versus all of the other plan options

Callan

Appendix

Stable Value Glossary of Terms

Book Value: The value of initially deposited principal, plus accumulated interest, plus additional deposits, minus withdrawals and expenses.

Commingled Fund: A fund that combines the assets of unaffiliated plans in to one large group. Also known as pooled funds, collective funds, collective trusts, commingled investment trusts (CITs), or group trusts.

Competing Option: Another investment option offered by a defined contribution plan that has principal preservation as a primary objective or other characteristics similar to stable value. Self-directed brokerage or mutual fund windows often also qualify. Competing options may require an equity wash provision to restrict participant transfers between the stable value option and competing options.

Corporate-Initiated Events: Employer-driven events, such as layoffs, bankruptcy, or a new early retirement program, may result in the loss of book value accounting due to wrap contract language.

Crediting Rate: The interest rate applied to the book value of a stable value fund.

Equity Wash: A provision in a stable value fund that requires participants that transfer assets out of the fund to not invest these assets into a competing option for a period of time (often 90 days).

Fees: Stable value funds pay both management fees and wrap fees. Returns are generally quoted net of wrap fees, but gross of management fees. However, both fees must be disclosed to investors.

Market Value: The value at which an investment would sell on the open market.

Market-to-Book Ratio: The ratio of market value to book value, used to measure the overall "health" of a stable value option, and the degree to which a stable value option has a market value shortfall.

Put Provision: For stable value options, a plan may elect to fully exit a fund or pool provided the investor gives proper notice. The "put provision" term refers to the length of time the investor may have to wait for a full contract value liquidation..

Wrap Contract: An agreement between a stable value fund and a counterparty, usually an insurance company or bank, that allows the stable value fund to maintain book value accounting practices with full participant liquidity.

Crediting Rate Calculation

An Example

General crediting rate (CR) formula:

YTM = Yield to Maturity

MV = Market Value

BV = Book Value

D = Duration

CR = (((1+YTM) * ((MV/BV) ^ (1/D))) - 1

Crediting rate example:

YTM = 2.80%

MV = 12,000,000

BV = 11,850,000

D = 3.2 Years

CR = (((1+0.028) * ((12/11.85) ^ (1/3.2))) - 1

CR = 3.20%

- This sample formula is used to smooth market value gains and losses over the duration of the underlying investment portfolio. Changes in yield to maturity are balanced against changes to market-to-book ratio.
- Assuming the underlying portfolio performs in-line with its duration level, the crediting rate will be similar to prevailing interest rate levels.

Vehicle Options

Key Considerations: Separate Accounts vs Commingled Funds

Separate Accounts

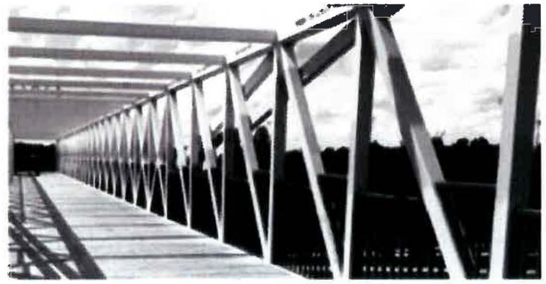
Pros	Cons
Customization (investment guidelines, subadviser, wrap providers)	Less wrap diversification
No put provision	Potential administrative burden (coordination, custody costs)
Potential for lower wrap and management fees	High investment minimum
Potential for longer duration and higher returns	Takes time to ramp-up account

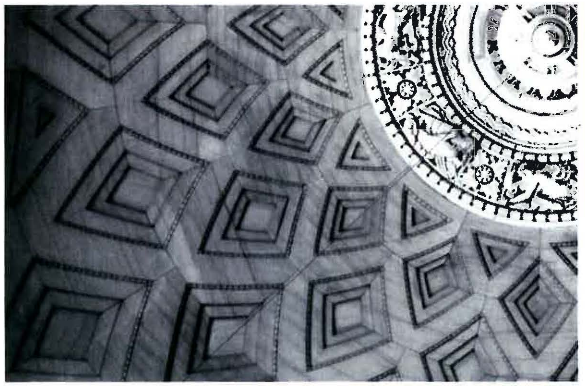
Commingled Funds

Pros	Cons
Greater wrap diversification	Potential for shorter duration and lower returns
Fully invested on day one	Lack of customization
"Off-the-shelf" solution requires less sponsor involvement	Put provision
Large number of underlying plans may diversify cash flows	Potential negative impact by other investors in the pool
	Difficult underwriting in periods of limited wrap capacity

GALLIARD
Capital Management, Inc.

ARCHITECTS OF INVESTMENT SOLUTIONS





City and County of San Francisco

MAY 8, 2019

CITY AND COUNTY OF SAN FRANCISCO
TABLE OF CONTENTS

SECTION I

GALLIARD CAPITAL MANAGEMENT FIRM OVERVIEW

GALLIARD CAPITAL MANAGEMENT
WHO WE ARE

$92.0 B
TOTAL AUM

$78.8 B
TOTAL STABLE VALUE AUM

95+
STABLE VALUE SEPARATE ACCOUNTS

104
EMPLOYEES ON STAFF

SENIOR PROFESSIONALS AVERAGE YEARS OF EXPERIENCE:

Stable value portfolio management team – **25**

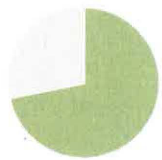
Fixed income team – **21**

Contract management & negotiation team – **25**

Offer **separate account** and **collective fund** solutions for clients

230+
INSTITUTIONAL CLIENTS

CLIENT RELATIONSHIP TENURE



~75% of our clients have worked with Galliard for greater than **5 years**

29 of those relationships exceed **15 years** with Galliard

CLIENT TYPES

- Corporate
- Public Entities
- Taft-Hartley
- Operating Funds
- Healthcare
- Insurance Reserves
- Foundations/ Endowments

PUBLIC

52 Public clients; $19.0 B in assets

FORTUNE 100 / 500

24 Fortune 100 clients; 62 Fortune 500 clients

GALLIARD
HIGHLIGHTS

Galliard is the largest stable value separate account manager[1] and advises the largest stable value collective fund[2] in the nation

[1] *eVestment, Stable Value Fixed Income universe, as of December 31, 2018, Galliard ranked highest separate/segregated assets under management*

[2] *As ranked by the Hueler Analytics, Inc. © stable value universe; January 2018 monthly fund data*

Galliard has been a signatory to the United Nations-supported Principles for Responsible Investment since 2017

2019 NEW BUSINESS

3 new clients; $534 M new assets

Data as of 3/31/19

GALLIARD'S COMPREHENSIVE STABLE VALUE SERVICES

- ✓ **Stable value structure management**
- ✓ **Galliard fixed income management**
- ✓ **Contract management, negotiation, and administration**
- ✓ **External manager oversight**
- ✓ **Compliance oversight (at contract value and market value)**
- ✓ **Communications and reporting support**
- ✓ **Operations and audit support, including daily valuation services**

SECTION II

HISTORY, OBJECTIVES & ACCOMPLISHMENTS

CITY & COUNTY OF SAN FRANCISCO
GALLIARD ACCOMPLISHMENTS

GALLIARD HIRED AS SFDCP STABLE VALUE FUND MANAGER IN JULY OF 2014

Great West SFDCP fund characteristics:

- Wrap Providers: 1 - Great-West Life & Annuity Insurance Company
- Investment Managers: 1 - Great-West Capital Management
- Crediting Rate (declared): 1.20% (2Q 2014)
- Market-to-Book Value Ratio: 98.9% (06/30/2014)

Galliard objectives to accomplish:

- Competitive principal preservation and returns commensurate with short and intermediate bonds over long term
- Diversification by contract 'wrap' provider
- Diversification by fixed income manager
- Improve the health of the portfolio

CITY & COUNTY OF SAN FRANCISCO
GALLIARD ACCOMPLISHMENTS

SHORT TERM (2017-PRESENT) ACCOMPLISHMENTS:

- **Contract "Wrap" Issuers**
    - Reduced fees across all five wrap providers
- **Underlying Fixed Income**
    - Transitioned New York Life strategy to Payden & Rygel
    - Transitioned Barings strategy to Income Research + Management (IR+M)
    - Managed Income Fund reallocated to Galliard-managed separate accounts
        - Created a Galliard-managed short strategy separate account
        - Created a Galliard-managed intermediate strategy separate account

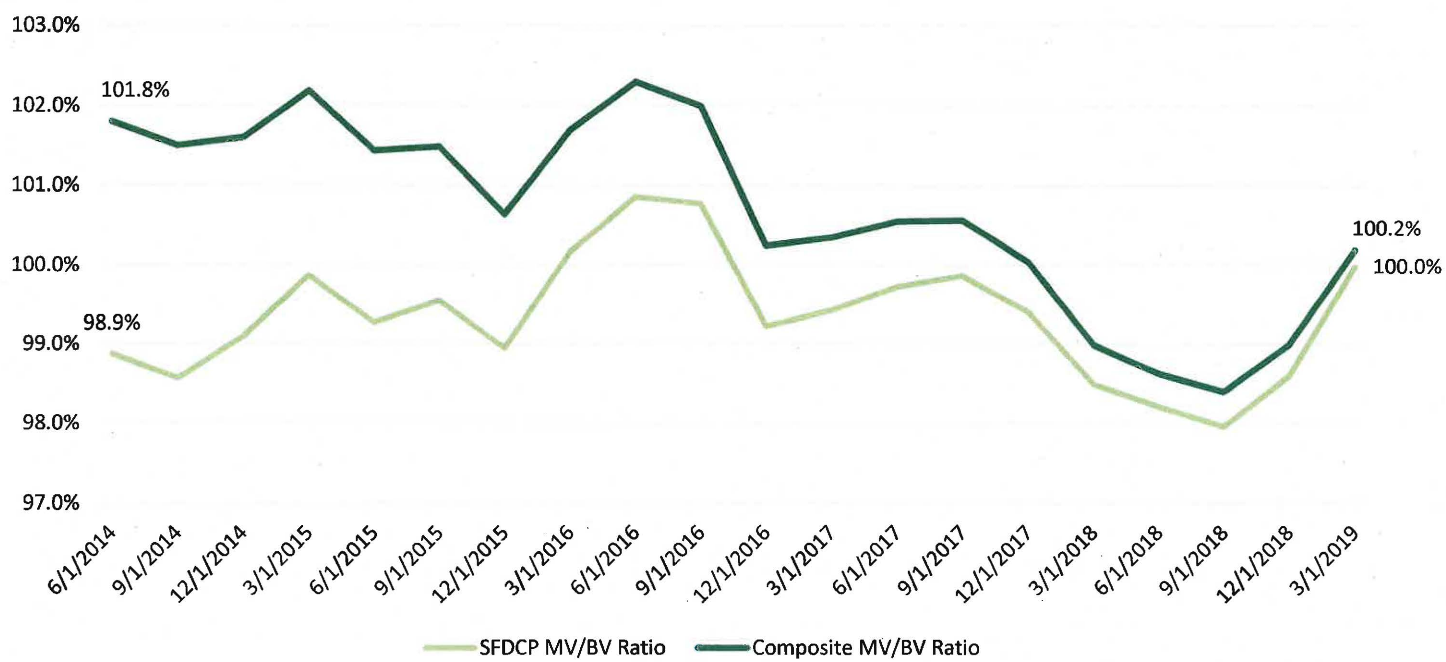
Outcome: Total fee savings from 12/31/16-3/31/19: 6.1 bps (over $600k in annual savings)

LONG TERM ACCOMPLISHMENTS:

- **Increased crediting rate** to participants from 1.20% (Q2 2014) to 2.54% (Q2 2019)
- **Converged Market to Book ratio** closer to Galliard average
- **Reduced expenses** from 45 bps to < 30 bps resulting in participant savings of ~$1.5 million annually
- **Increased diversification**
    - One wrap provider to five
    - One fixed income manager to five
- **Reduced interest rate risk**: decreased duration by 0.8 years

CITY & COUNTY OF SAN FRANCISCO
CONVERGED MARKET TO BOOK RATIO

SFDCP Market to Book Ratio Comparison vs. Galliard Composite Separate Account

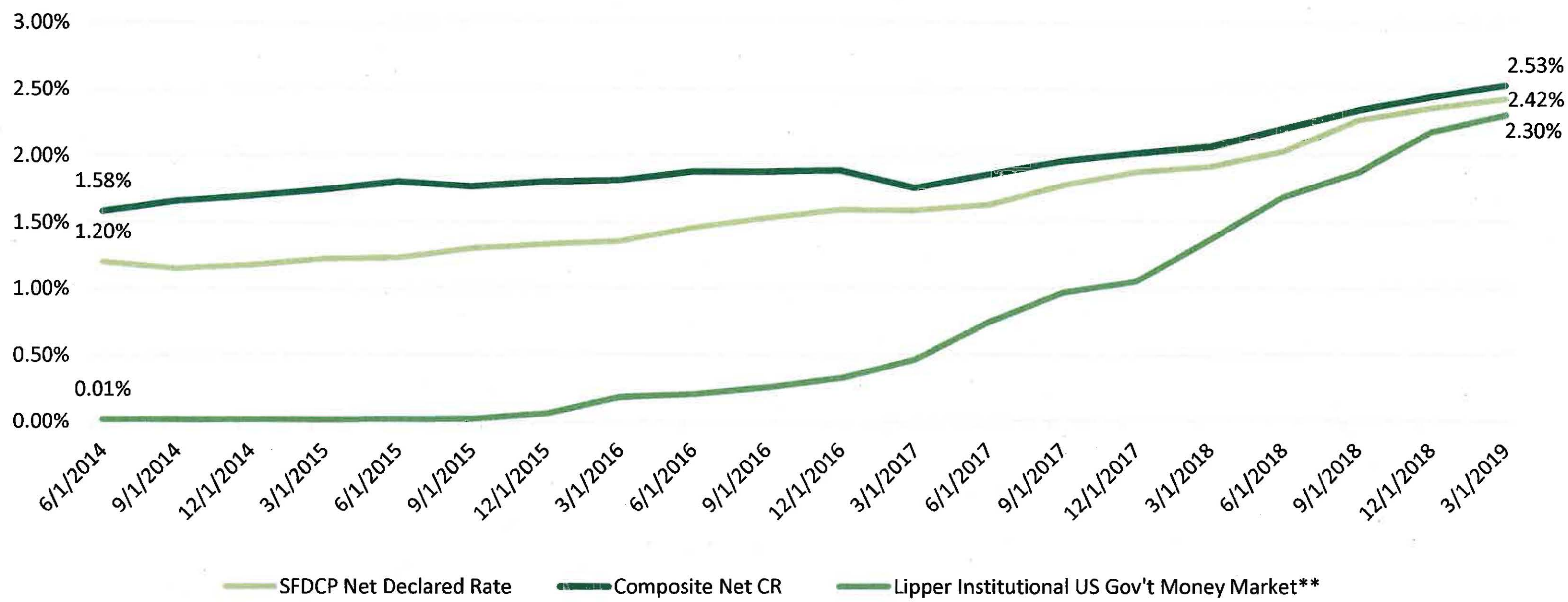


Observations

- Market to book ratio converged closer to Galliard composite average: from difference of 2.9% (Q2 2014) to 0.2% (Q1 2019)
- The Galliard Stable Value Composite consists of 83 separately-managed stable value portfolios as of 3/31/19

CITY & COUNTY OF SAN FRANCISCO
INCREASED CREDITING RATE

SFDCP Crediting Rate Comparison vs. Galliard Separate Account Composite* and Money Market Funds**



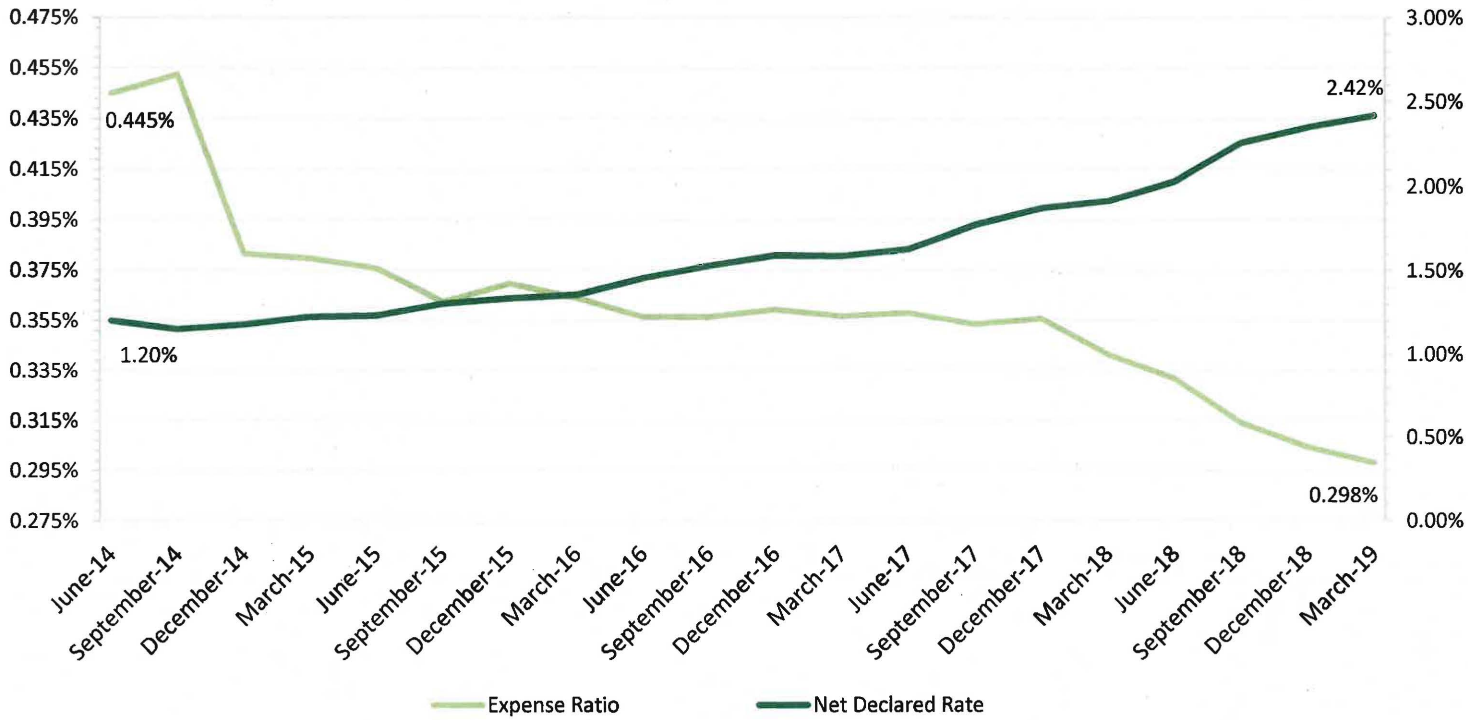
Observations

- Increased crediting rate to participants from 1.20% to 2.42% (2.54% as of 4/1/2019)
- Crediting rate converging closer to Galliard composite average

*SFDCP net of all fees. For comparison purposes, Galliard Separate Account Composite is net of SFDCP Galliard management fee
**The Lipper US Index – Inst U.S. Gov't Money Mkt is an average of funds that invest principally in financial instruments issued or guaranteed by the United States government, its agencies, or its instrumentalities, with dollar weighted average maturities of less than 90 days. These funds are eligible to keep a constant net asset value. The total return of this Lipper Index does not include the effect of sales charges. You cannot invest directly in the Lipper Index.

CITY & COUNTY OF SAN FRANCISCO
LOWER FEES AND HIGHER CREDITING RATE TO PARTICIPANTS

SFDCP Historical Expense Ratio and Crediting Rate



Total Expense Ratio Breakdown 6/30/14

Galliard Investment Management Fees	0.084%
Subadvisor Management Fees	0.060%
Investment Contract Fees	0.255%
Other Expenses*	0.046%
Total	**0.445%**

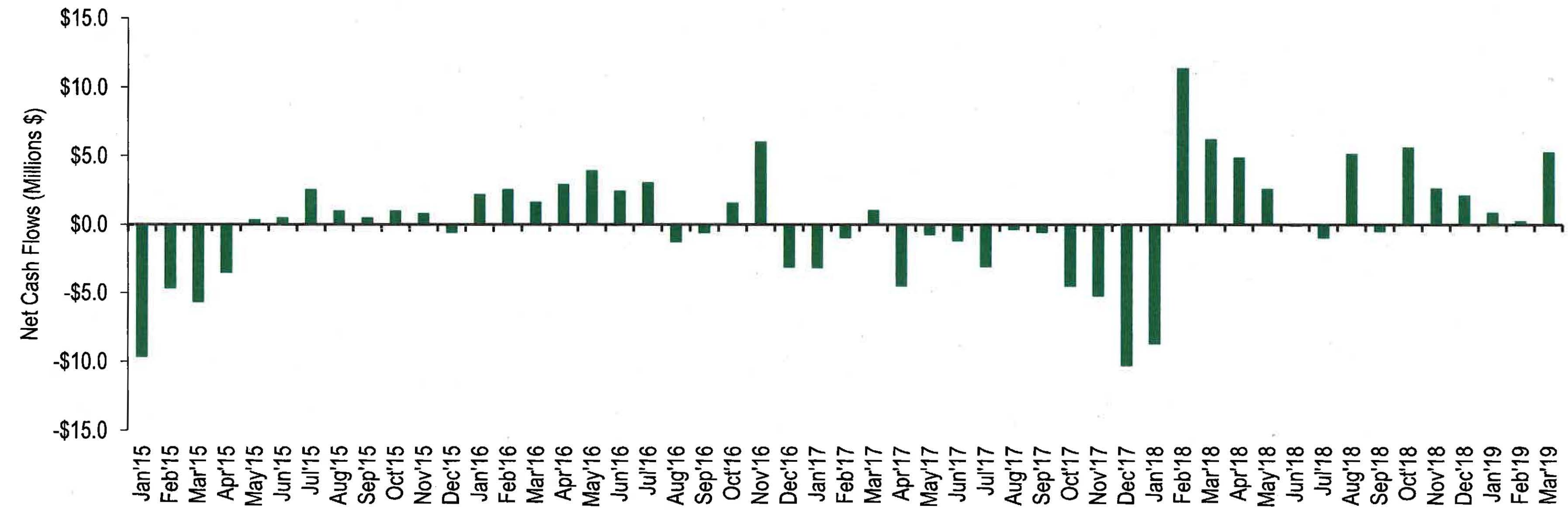
Total Expense Ratio Breakdown 3/31/19

Galliard Investment Management Fees	0.075%
Subadvisor Management Fees	0.033%
Investment Contract Fees	0.177%
Other Expenses**	0.013%
Total	**0.298%**

*Includes Managed Income Fund expenses and STIF management fee
**Includes collective fund administrative/trustee fees and STIF management fee

CITY & COUNTY OF SAN FRANCISCO
HISTORICAL CASH FLOWS – AS OF 3/31/19

HISTORICAL CASH FLOWS



	2015	2016	2017	2018	1Q'19
Beginning Assets	$935.5	$929.9	$965.2	$947.6	$998.4
Net Cash Flow ($)*	-$17.5	$21.3	-$33.9	$30.2	$6.4
Net Cash Flow (%)	-1.87%	2.29%	-3.52%	3.19%	0.64%
Estimated Investment Earnings	$11.9	$14.0	$16.3	$20.6	$5.9
Ending Assets**	$929.9	$965.2	$947.6	$998.4	$1,010.7

*Contributions, Withdrawals and Investment Transfers
**Cash flows may not net to final assets due to rounding.

SECTION III

1Q'19 PORTFOLIO REVIEW

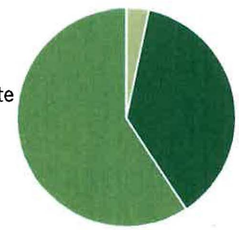
CITY & COUNTY OF SAN FRANCISCO
PORTFOLIO SUMMARY AS OF 3/31/19

CITY AND COUNTY OF SAN FRANCISCO STABLE VALUE FUND

ACCOUNT SUMMARY

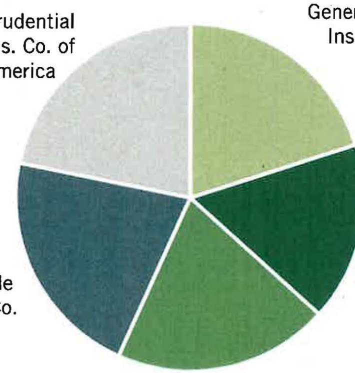
	Portfolio 3/31/19
Net Asset Value	$1,010,707,175
Average Quality - Book Value[1]	AA-
Average Quality - Market Value[2]	AA
Number of Contract Issuers	5
Declared Rate[3]	2.42%
Yield to Maturity	2.83%
Effective Duration	2.95 years
Market/Book Value Ratio	99.98%

PORTFOLIO DISTRIBUTION



	% Portfolio 3/31/19
Liquidity Buffer: Cash & Equivalents[4]	2.6
Short Portfolio	37.2
Intermediate Portfolio	60.1
Total	**100.0%**[5]

WRAP PROVIDER ALLOCATION

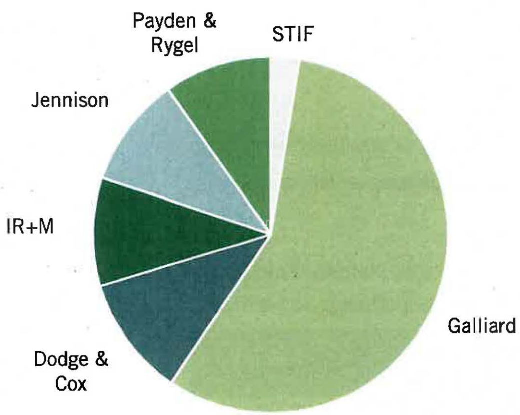


Prudential Ins. Co. of America	21.2%	AA-
Nationwide Life Ins. Co.	20.9%	A+
American General Life Ins. Co.	19.5%	A+
Metropolitan Life Ins. Co.	19.5%	AA-
Massachusetts Mutual Life Ins. Co.	16.2%	AA+

1, 2, 3, 4, 5 footnotes are located on page 20 in the appendix of the presentation.

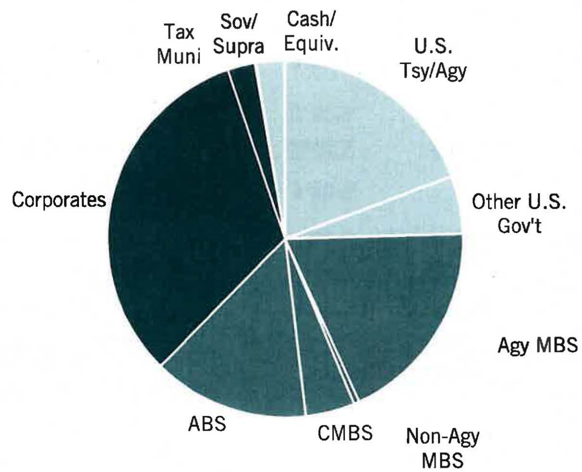
CITY & COUNTY OF SAN FRANCISCO
UNDERLYING FIXED INCOME PORTFOLIO AS OF 3/31/19

MANAGER ALLOCATION



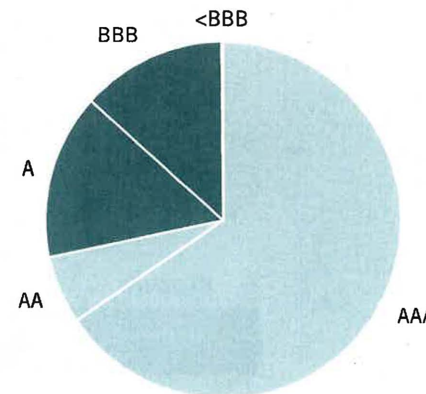
Galliard	56.9%
Dodge & Cox	10.9%
Jennison	10.0%
IR+M	9.8%
Payden & Rygel	9.8%
STIF	2.6%
TOTAL EXT. MANAGER	**40.5%**
TOTAL PORTFOLIO	**100%**

UNDERLYING FIXED INCOME SECTOR ALLOCATION



Corporates	32.4%
U.S. Tsy/Agy	19.4%
Agy MBS	18.6%
ABS	14.2%
Other U.S. Gov't	5.3%
CMBS	4.5%
Cash/Equiv.	2.6%
Tax Muni/Not-for-Profit	2.5%
Non-Agy MBS	0.5%
Sov/Supra	0.1%

UNDERLYING FIXED INCOME QUALITY



AAA	65.5%
AA	6.2%
A	15.0%
BBB	13.2%
<BBB	0.1%

CITY & COUNTY OF SAN FRANCISCO
MARKET VALUE PERFORMANCE SUMMARY AS OF 3/31/19

Composite	3 Months	1 Year	3 Years	Since Inception	Inception
SFDCP Composite	**2.08%**	**4.08%**	**2.10%**	**2.20%**	**7/1/2014**
SFDCP Composite Benchmark	1.85%	3.82%	1.53%	1.75%	
	0.23%	0.26%	0.57%	0.46%	

SHORT DURATION

Manager	3 Months	1 Year	3 Years	Since Inception	Inception
Galliard - Metlife Insurance Separate Account	**1.44%**	**3.38%**	**1.69%**	**1.63%**	**6/1/2015**
Bloomberg Barclays U.S. 1-3 Yr Gov't/Credit	1.21%	3.03%	1.32%	1.26%	
	0.23%	0.35%	0.37%	0.37%	
Galliard - Separate Account	**1.50%**	-	-	**3.19%**	**7/1/2018**
Bloomberg Barclays U.S. 1-3 Yr Gov't/Credit[6]	1.21%	3.03%	1.32%	2.74%	
	0.29%	-	-	0.45%	

INTERMEDIATE DURATION

Manager	3 Months	1 Year	3 Years	Since Inception	Inception
Dodge & Cox - MetLife Insurance Separate Account	**2.93%**	**4.47%**	**2.36%**	**2.45%**	**6/1/2015**
Bloomberg Barclays U.S. Intermediate Aggregate	2.28%	4.33%	1.71%	1.92%	
	0.65%	0.14%	0.65%	0.53%	
Galliard - Separate Account	**2.60%**	-	-	**4.35%**	**7/1/2018**
Bloomberg Barclays U.S. Intermediate Aggregate	2.28%	4.33%	1.71%	4.24%	
	0.32%	-	-	0.11%	
Payden & Rygel - Collective Fund[7]	**2.35%**	**4.57%**	**1.94%**	**1.94%**	**6/1/2015**
Bloomberg Barclays U.S. Intermediate Aggregate[8]	2.28%	4.48%	1.70%	1.88%	
	0.07%	0.09%	0.24%	0.06%	
Jennison - Collective Fund	**2.11%**	**3.88%**	**1.82%**	**2.01%**	**6/1/2015**
Bloomberg Barclays U.S. Intermediate Gov't/Credit	2.32%	4.24%	1.66%	1.84%	
	-0.21%	-0.36%	0.16%	0.18%	
Income Research + Management - Collective Fund	**2.48%**	-	-	**4.26%**	**10/1/2018**
Bloomberg Barclays U.S. Intermediate Gov't/Credit[9]	2.32%	4.37%	1.67%	4.01%	
	0.16%	-	-	0.26%	

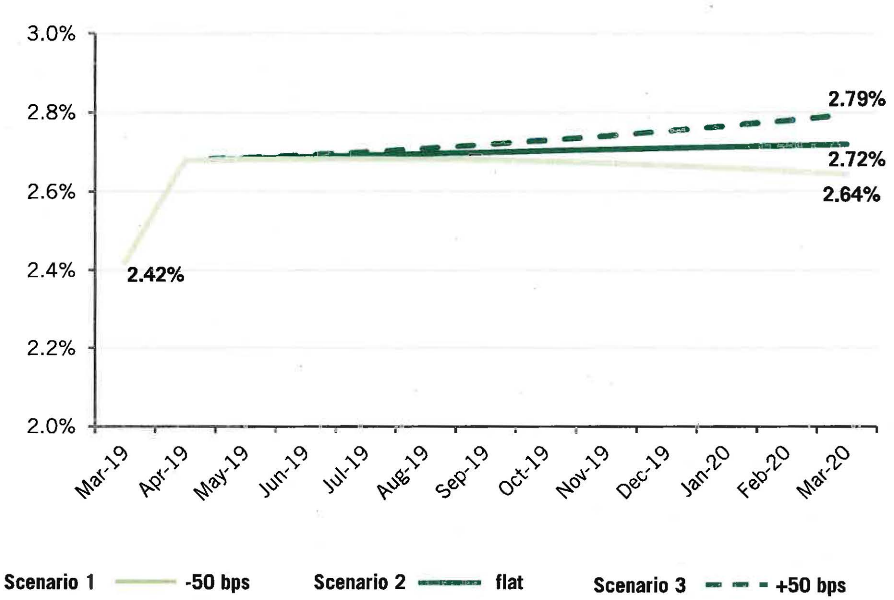
6, 7, 8, 9 footnotes are located on page 20 in the appendix of the presentation.

SECTION V

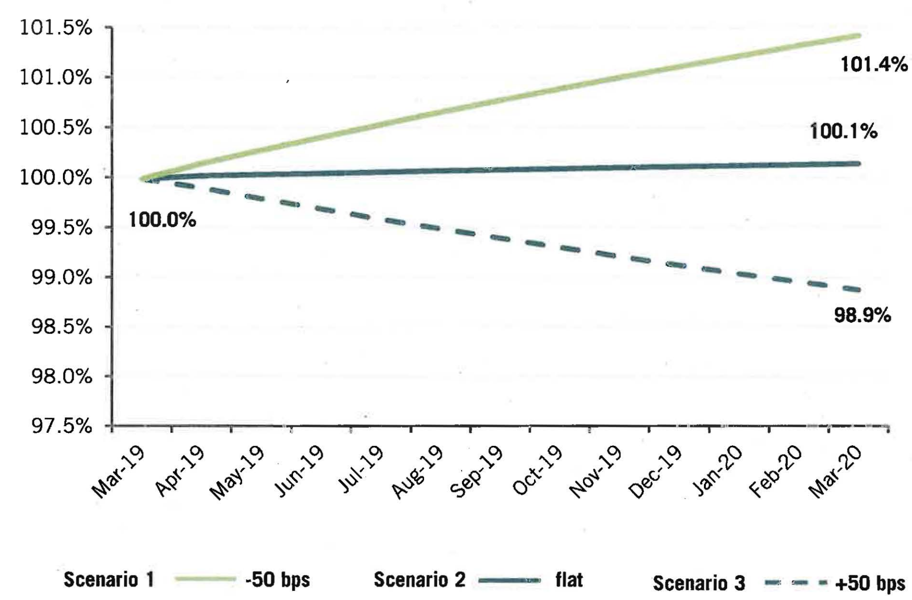
SCENARIO ANALYSIS

CITY & COUNTY OF SAN FRANCISCO
SCENARIO ANALYSIS – AS OF 3/31/19

Crediting Rate*



Market-to-Book Value Ratio



- Our base scenarios assume rates decrease by 50 bps, remain flat, or rise by 50 bps gradually over the next 12 months.
- Crediting rate to participants expected to increase in range bound (+/- 50 bp) interest rate environment

*Net of fees.
This analysis presents a range of potential impacts to the stable value fund's crediting rate and market-to-book ratio based on variations in participant cash flows and movements in the U.S. Treasury yield curve. Analysis is based on the stable value fund's actual crediting rate, market-to-book ratio, and underlying portfolio of fixed income securities as of 3/31/19. Analysis assumes the following: interest rate changes and participant flows occur evenly throughout the year, the impact of interest rate changes results in a parallel shift to the U.S. Treasury yield curve (i.e. the relationship between shorter and longer term rates remains constant), the duration and sector exposures of the underlying portfolio(s) of fixed income securities remain unchanged, and crediting rates reset quarterly. This analysis is presented based on information available as of 3/31/19 and is not a guarantee of future outcomes or stable value fund performance.

CITY & COUNTY OF SAN FRANCISCO
SCENARIO ANALYSIS – AS OF 3/31/19

- For purposes of additional stress, we run the same exercise over a wider array of interest rates and cash flows

Crediting Rate* – 12 Months Forward

Gradual Interest Rate Trajectory

Participant Cash Flow	-100 bps	-50 bps	+0 bps	+50 bps	+100 bps	+150 bps
5%	2.55%	2.63%	2.72%	2.80%	2.88%	2.96%
0%	2.56%	2.64%	2.72%	2.79%	2.87%	2.94%
-5%	2.58%	2.65%	2.72%	2.79%	2.85%	2.91%
-10%	2.60%	2.66%	2.72%	2.78%	2.83%	2.88%
-15%	2.62%	2.67%	2.72%	2.77%	2.81%	2.85%

Market-to-Book Value Ratio – 12 Months Forward

Gradual Interest Rate Trajectory

Participant Cash Flow	-100 bps	-50 bps	+0 bps	+50 bps	+100 bps	+150 bps
5%	102.6%	101.4%	100.1%	98.9%	97.7%	96.5%
0%	102.7%	101.4%	100.1%	98.9%	97.6%	96.4%
-5%	102.8%	101.5%	100.1%	98.8%	97.6%	96.3%
-10%	102.9%	101.5%	100.1%	98.8%	97.5%	96.2%
-15%	102.9%	101.5%	100.1%	98.8%	97.4%	96.1%

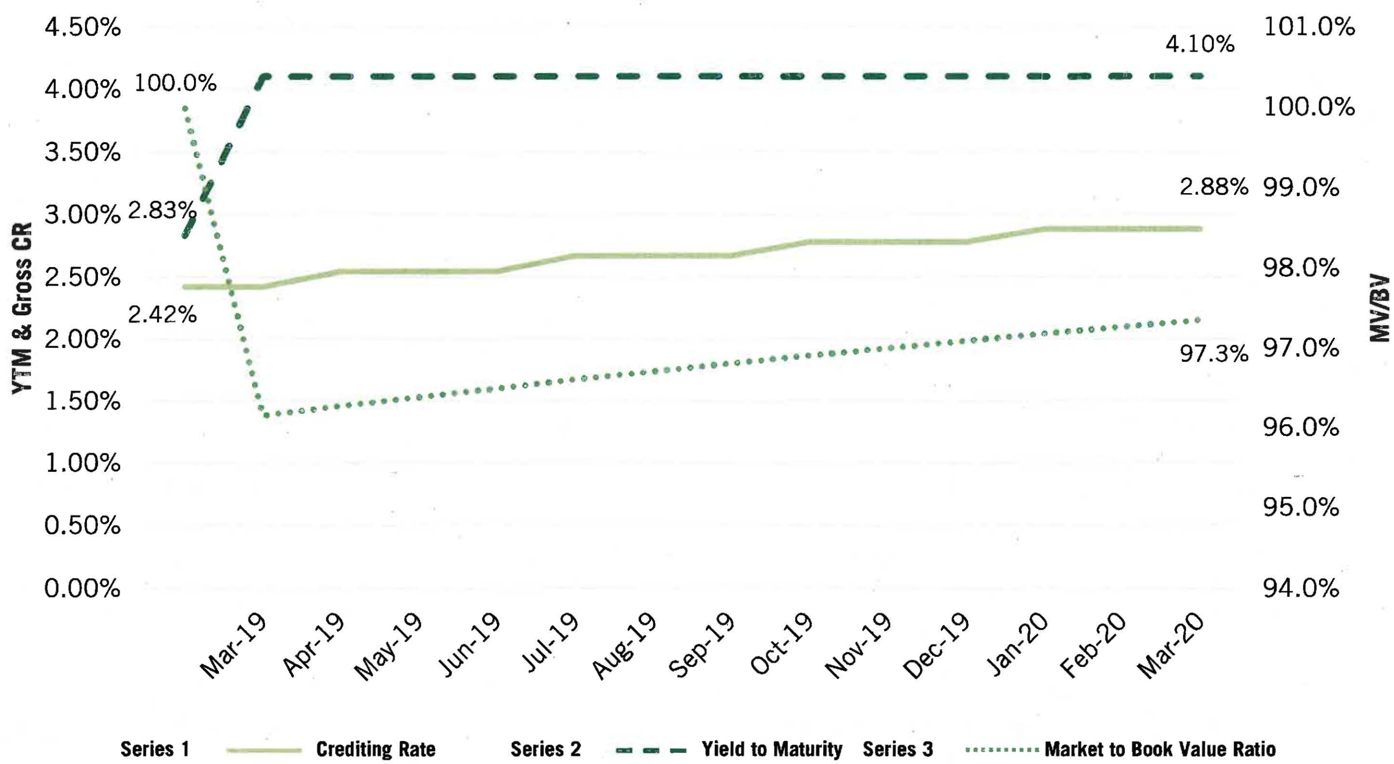
*Net of investment management fees

This analysis presents a range of potential impacts to the stable value fund's crediting rate and market-to-book ratio based on variations in participant cash flows and movements in the U.S. Treasury yield curve. Analysis is based on the stable value fund's actual crediting rate, market-to-book ratio, and underlying portfolio of fixed income securities as of 3/31/19. Analysis assumes the following: interest rate changes and participant flows occur evenly throughout the year, the impact of interest rate changes results in a parallel shift to the U.S. Treasury yield curve (i.e. the relationship between shorter and longer term rates remains constant), the duration and sector exposures of the underlying portfolio(s) of fixed income securities remain unchanged, and crediting rates reset quarterly. This analysis is presented based on information available as of 3/31/19 and is not a guarantee of future outcomes or stable value fund performance.

CITY & COUNTY OF SAN FRANCISCO

SCENARIO ANALYSIS – CRISIS-LIKE RATE AND SPREAD MOVEMENT

RISK-FREE RATE -50BPS, SPREADS +200BPS, FLAT PARTICIPANT CASH FLOWS



ASSUMPTIONS

- Even under 2008/2009 crisis-like scenario, SFDCP Stable Value fund expected to provide principal preservation and increased crediting rate to participants

This analysis presents potential impacts to the stable value fund's crediting rate and market-to-book ratio based on flat participant cash flows, spread movement of +200 basis points (based on historical spread change from the 2008/2009 financial crisis), and U.S. Treasury yield curve movement of -50 basis points. Analysis is based on the stable value fund's actual crediting rate, market-to-book ratio, and underlying portfolio of fixed income securities as of 3/31/2019. Analysis assumes the following: interest rate and spread changes occur immediately, the impact of interest rate changes results in a parallel shift to the U.S. Treasury yield curve (i.e. the relationship between shorter and longer term rates remains constant), the duration and sector exposures of the underlying portfolio(s) of fixed income securities remain unchanged, and crediting rates reset quarterly. This analysis is presented based on information available as of 3/31/2019 and is not a guarantee of future outcomes or stable value fund performance.

APPENDIX I

INVESTMENT OUTLOOK
MARKET REVIEW
STABLE VALUE MARKET UPDATE
SCENARIO ANALYSIS

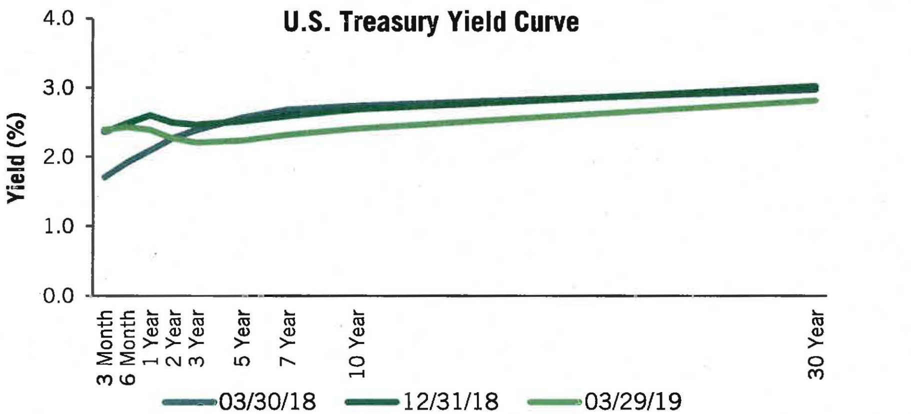
PORTFOLIO STRATEGY AND POSITIONING

INVESTMENT OUTLOOK – APRIL 2019

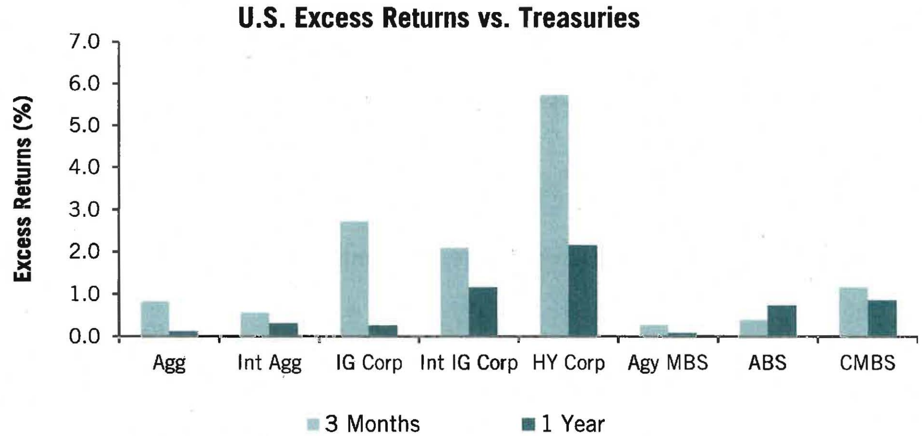
OUTLOOK	GALLIARD VIEW	GALLIARD POSITIONING
Economic Growth, Inflation, & the Fed	• **4Q GDP was revised down to 2.2% q/q annualized, reflecting downward adjustments to consumer expenditures**; expectations for 1Q19 GDP are firmly in the 1.3-1.7% range with weather related issues, the prolonged Government shutdown, lingering trade disputes and lower than expected tax refunds cited as potential drags on spending and investment • The Federal Reserve tone has shifted considerably since the end of last year; **whereas the policy pivot that happened a few months ago provided the market with confidence, the recent policy message has been perceived as extremely dovish, and triggered renewed uncertainty about the pace of economic growth**	• Maintain neutral-to-slightly-short duration positioning • Own long Treasuries as an insurance policy to protect against a spike in volatility or market turn
Market Liquidity & Risk Appetite	• **Risk assets have performed well year-to-date and valuations are fair-to-marginally tight; while spreads have stabilized and volatility is reduced, it remains prudent to be cautious and selective** as the economic cycle is in the late stages of expansion and slower growth is still anticipated • The Fed's balance sheet unwind will officially end this fall, but the process will start in May as the monthly reduction in Treasuries is cut to $15 billion; the Fed will return to the Treasury market in October as it buys to replace MBS roll-off	• Continue to add front-end assets (2-4 years) • Continue to stress high quality, diversification, and liquidity within portfolios as "cheap insurance"
Credit *Corporate & Taxable Municipal, Non-Corporate Credit*	• **Corporate spreads have performed well year-to-date but remain fair-to-attractive** with value to be found in select opportunities • However, with supply constraints, slowing growth and a dovish Fed, **risk/reward in corporates has shifted and a more balanced approach – selling into strength and buying opportunistically on weakness – is prudent** • **Our allocation to Taxable Municipals remains near a cyclical low across strategies**, constrained by limited new issue supply and tight valuations relative to other high quality spread assets	• Remain overweight market value in Corporates, focus on short/intermediate maturities (3-7 years) • Maintain allocation to Muni and Non-Corporate credit sectors • Continue to emphasize diversification and best-of-breed issuers
Structured Assets *MBS, Structured Government, CMBS/ABS*	• **Agency MBS valuations are now fair amid a backdrop of changing collateral qualities (higher gross WAC) and, with the recent rally in interest rates, specified pools are more fully valued;** meanwhile, market participants continue to prepare for the roll-out of the UMBS single security program in June • **The rally in swap spreads and credit spread tightening have rendered ABS and CMBS valuations somewhat less attractive than at the beginning of the year**	• Continue to hold Agency MBS pass-throughs for liquidity • Maintain diversification across other Agency MBS structures • Maintain high quality consumer ABS and seasoned CMBS positioning

MARKET REVIEW
FIRST QUARTER 2019

INTEREST RATES FALL WHILE NON-TREASURY SECTORS OUTPERFORM AS SPREADS RECOVER



Source: Bloomberg



Source: Bloomberg Barclays

- The Fed remained on hold during the first quarter as expected. The Fed's tone has shifted considerably since the end of last year; whereas the policy pivot that happened a few months ago provided the market with confidence, the recent policy message has been perceived as extremely dovish.
- Interest rates declined meaningfully across maturities after the Fed meeting in March, with the exception of the very short end of the curve which is anchored by the Fed Funds rate. Intermediate maturities (5-10 years) fell the most.
- Spread sectors generally outperformed Treasuries over the quarter, led by High Yield and Investment Grade Corporate Bonds. Long bonds performed better than intermediate maturities, generating 412 bps excess return versus 210 bps. BBBs and crossovers outperformed AA/A rated bonds.
- Agency MBS posted 28 bps of excess return vs. Treasuries during the quarter and 9 bps of excess return for the year ending March 31, 2019. Continued run-off of the Fed's Agency MBS portfolio effectively creates supply that needs to be absorbed by the market.
- ABS generated 40 bps of excess return for the quarter and 74 bps for the last twelve months. Over the last year, ABS excess returns have benefitted from a sizable rally in swap spreads: 2-year swap spreads have narrowed from 31 bps in March 2018 to 12 bps in March 2019.
- CMBS excess return was 118 bps for the first quarter, which more than offset the sector's underperformance in the fourth quarter, and 87 bps for the last 1-year period. Once again, non-Agency CMBS sector performance was highly correlated with intermediate Investment Grade Corporates; however, similar to ABS, sector performance has also benefitted from swap spread tightening.

STABLE VALUE MARKET UPDATE
STABLE VALUE MARKET VIEW

CONTRACT ISSUERS

MARKET VIEW

- 19 providers in the market currently issuing contracts (3 banks, 16 insurance companies)
- Bank of Tokyo has completed an orderly exit from the market
- Contract supply/demand dynamics continue to favor stable value investors
- Issuers remain flexible with respect to underlying managers, strategies, and guidelines
- More favorable/balanced approach to contract provisions
- Contract fees have been consolidating

GALLIARD POSITIONING

- Maintaining strong relationships with established market participants
- Held no Bank of Tokyo contracts
- Continue to be a preferred manager among issuers
- Negotiated broader investment guidelines that are consistent across all issuers
- Standardized more advantageous contract provisions
- Have negotiated significant reductions of contract fees

PORTFOLIO

MARKET VIEW

- Concerns about global growth, continued tightening of monetary policy, trade policy, and growing budget deficits have weighed heavily on market expectations
- Recent market volatility and spread widening reflect a broad repricing of risk across asset classes
- This market volatility has resulted in positive cash flows for stable value portfolios on average

GALLIARD POSITIONING

- Maintaining neutral-to-slightly short duration positioning
- Continue to stress quality, liquidity, and diversification as "cheap insurance"
- Seeking opportunities to add attractive spread assets

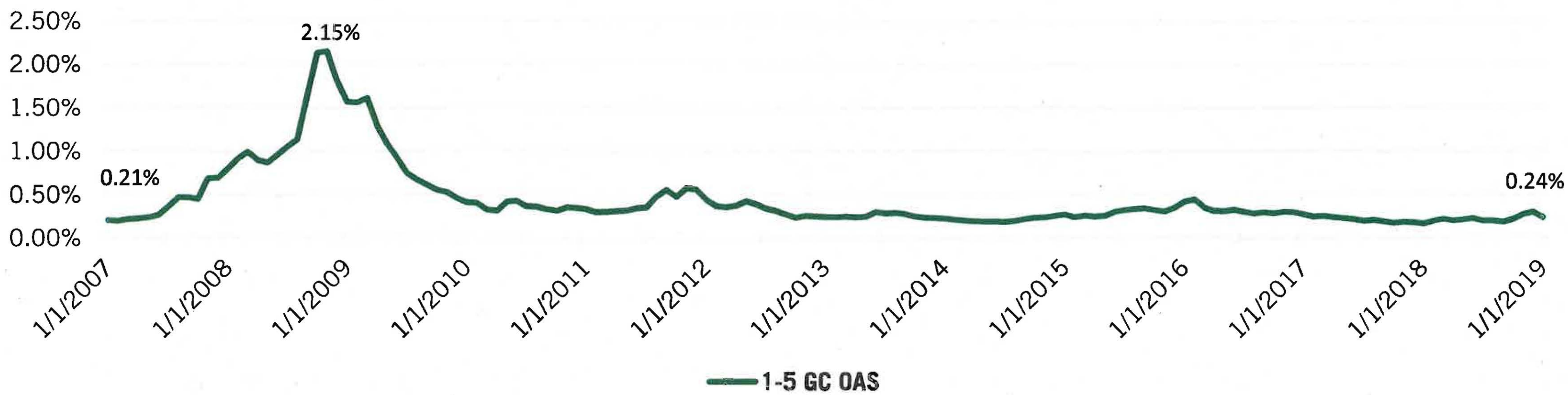
Updated as of 3/31/19

CITY & COUNTY OF SAN FRANCISCO

SCENARIO ANALYSIS – CRISIS-LIKE RATE AND SPREAD MOVEMENT*

3Y Treasury Rate – 2007-Present

1-5 Government/Credit OAS – 2007-Present



*Source: Bloomberg

APPENDIX II

PROFESSIONAL BIOGRAPHIES
ADDITIONAL INFORMATION

GALLIARD CAPITAL MANAGEMENT
PROFESSIONALS

Michael D. Norman
Chief Administrative Officer
Partner

Responsibilities
As Chief Administrative Officer, Mike oversees firm operations. In this role, he helps to assure consistency of service delivery across all investment products at Galliard. Mike oversees the coordination and execution of all middle- and back-office functions. He also oversees major initiatives within the client facing teams, including new product development. Mike also coordinates service for certain key clients.

Oversight Committees
Executive Operating Committee, Compliance Committee, New Business & Fees Committee (Chair), Stable Value Strategy Committee, Investment Contract Review Sub-Committee, Client Contract Working Group, External Manager Oversight Working Group, System Governance Working Group

Experience
- Joined Galliard in 1996
- Previously a Securities Lending Trader and Trust Officer with Norwest Bank

Education
B.A., Economics, University of Notre Dame
MBA, Carlson School of Management at the University of Minnesota

Memberships
Formerly on the Board of Directors of the Stable Value Investment Association (SVIA)
American Society of Pension Professionals & Actuaries (ASPPA)
Association of Governmental Risk Pools (AGRIP)
National Association of Government Defined Contribution Administrators (NAGDCA)
National Association of Plan Advisors (NAPA)
The Society of Professional Asset-Managers and Record Keepers (SPARK)

Matt Kline
Principal

Responsibilities
As a member of the Client Portfolio Specialist Team, Matt is responsible for stable value client relationship management and assisting in the formulation of customized stable value solutions for separate account clients. This includes determining the optimal portfolio structure and working directly with clients in order to meet their unique needs. Matt also supports Galliard's Fund Direct business, working with advisors and trading partners to serve investors in the Wells Fargo Stable Return Fund and the Galliard Managed Income Fund.

Experience
- Joined Galliard in 2014
- Previously an investment finance manager at General Mills covering 401(k), pension, and VEBA plans

Education
B.S., Finance, Carlson School of Management at the University of Minnesota
B.A., History, University of Minnesota

Memberships
Stable Value Investment Association (SVIA) - Communications and Education Committee Member
National Association of Government Defined Contribution Administrators (NAGDCA)
Defined Contribution Institutional Investment Association (DCIIA)

CITY & COUNTY OF SAN FRANCISCO
ADDITIONAL INFORMATION

1. Average holdings quality of the contracts and other book value assets in the portfolio. The Weighted Average Quality of the portfolio has NOT been assessed by a nationally recognized statistical rating organization. The Weighted Average Quality shown represents an average quality of the individual holdings' Composite Ratings, as rated by S&P, Moody's and Fitch.
2. Average holdings quality of the underlying assets of the portfolio. The Weighted Average Quality of the portfolio has NOT been assessed by a nationally recognized statistical rating organization. The Weighted Average Quality shown represents an average quality of the individual holdings' Composite Ratings, as rated by S&P, Moody's and Fitch.
3. Declared rate is net of all fees, including book value contract fees, Galliard investment management fees, and, if applicable, external manager fees, Wells Fargo collective fund administrative fees, and plan administrative reimbursement.
4. Includes Receivables and Payables.
5. Total % of portfolio may not add to 100% due to rounding.
6. Linked Benchmark: Bloomberg Barclays U.S. 1-3 Year Gov't/Credit Bond Index. Prior to 1/1/2019, the account was managed to a target duration of 2.0 years rather than an active fixed income benchmark. Benchmark performance for this period is shown for comparative purposes only.
7. Linked Performance: Prior to 10/1/18, performance shown from short/intermediate collective fund managed by New York Life.
8. Linked Benchmark: Bloomberg Barclays Intermediate Government/Credit Bond Index. Prior to 10/1/2018 was the Bloomberg Barclays 3 Year U.S. Treasury Bellwethers Bond Index + 0.75%.
9. Linked Benchmark: Bloomberg Barclays Intermediate Government/Credit Bond Index. Prior to 10/1/2018 was the Bloomberg Barclays 3 year U.S. Treasury Bellwethers Bond Index + 0.75%.