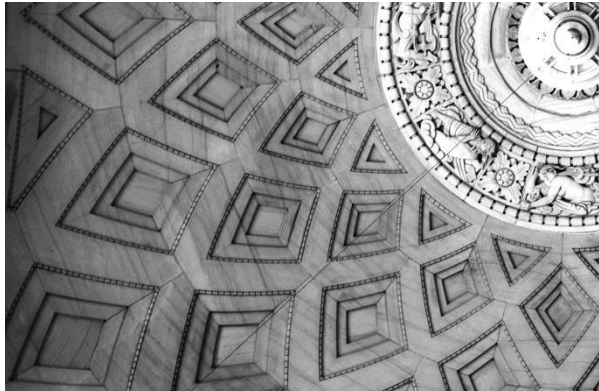




ARCHITECTS OF INVESTMENT SOLUTIONS



State of North Carolina

FEBRUARY 27, 2020

STATE OF NORTH CAROLINA

TABLE OF CONTENTS

SECTION I:	Galliard Capital Management Firm Update
SECTION II:	State of North Carolina Stable Value Portfolio Review
SECTION III:	Investment Manager Performance & Positioning

GALLIARD CAPITAL MANAGEMENT

WHO WE ARE

\$90.7 B

TOTAL AUM

\$76.3 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**

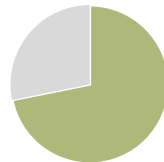
Contract management & negotiation team – **26**

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

230+

INSTITUTIONAL CLIENTS

CLIENT RELATIONSHIP TENURE



~80% of our clients have worked with Galliard for greater than **5 years**

37 of those relationships exceeded **15 years** with Galliard

CLIENT TYPES

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

FORTUNE 100 / 500

24 Fortune 100 clients; **62** Fortune 500 clients

GALLIARD

HIGHLIGHTS

Galliard is the **largest** stable value separate account manager¹ and advises the **largest** stable value collective fund² in the nation

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

²As 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
BOOKED & VERBAL COMMITMENTS

9 new clients; **\$995 M** new assets

STABLE VALUE PORTFOLIO REVIEW

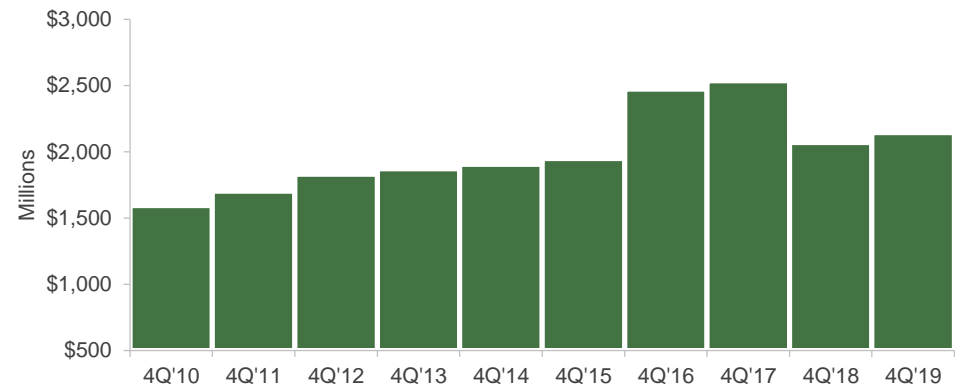
PORTFOLIO CHARACTERISTICS

STATE OF NORTH CAROLINA STABLE VALUE FUND

ACCOUNT SUMMARY

Benchmark	ICE BofAML US 3-Month Tsy Bill Index+150 bps, 3 Year Constant Maturity Treasury
Galliard Inception Date	December 1, 2010
Net Asset Value	\$2,143,449,884

HISTORICAL FUND ASSETS



PORTFOLIO CHARACTERISTICS

	Portfolio 9/30/19	Portfolio 12/31/19
Average Quality - Book Value¹	A+	A+
Average Quality - Market Value²	AA	AA
Number of Contract Issuers	5	5
Blended Yield (after all fees)³	2.63%	2.64%
Yield to Maturity	2.15%	2.13%
Effective Duration	2.94 years	3.05 years
Market/Book Value Ratio	102.23%	102.00%

PORTFOLIO DISTRIBUTION

	% Portfolio 9/30/19	% Portfolio 12/31/19
Liquidity Buffer: Cash & Equivalents⁴	2.3	2.4
Short Portfolio	32.3	32.3
Intermediate Portfolio	65.4	65.3
Total	100.0%⁵	100.0%⁵

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: Blended Yield 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.

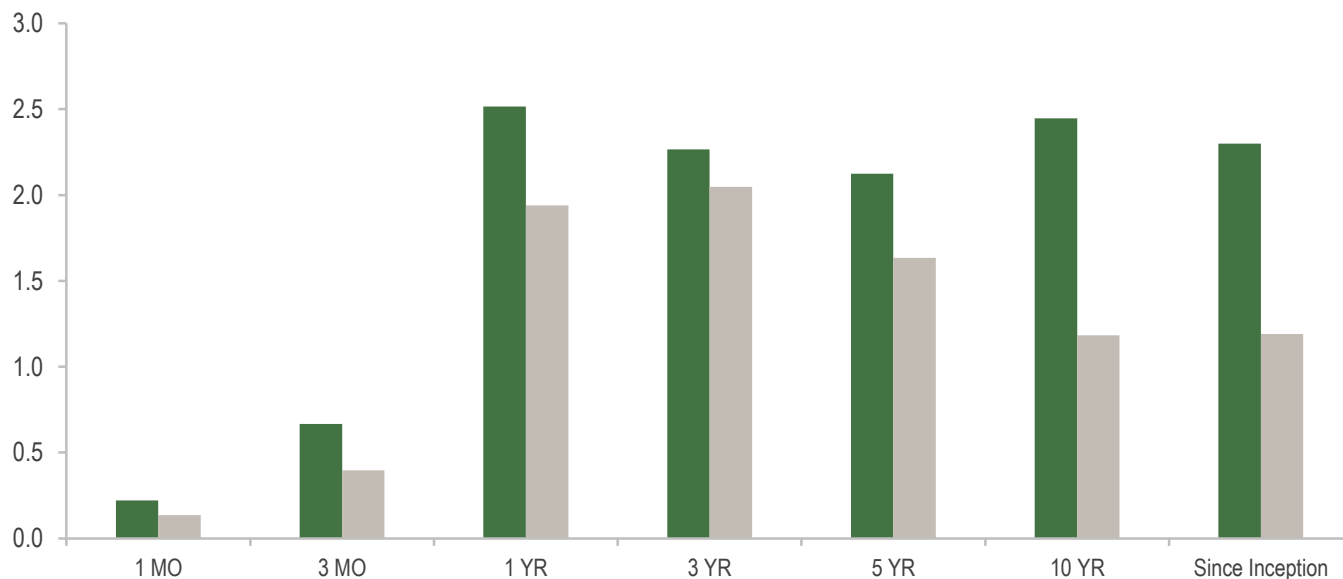
4: Includes Receivables and Payables.

5: Total % of portfolio may not add to 100% due to rounding.

STABLE VALUE PORTFOLIO REVIEW

ANNUALIZED INVESTMENT PERFORMANCE

ANNUALIZED INVESTMENT PERFORMANCE AS OF 12/31/19¹



	1 Mo.	3 Mo.	1 Yr.	3 Yr.	5 Yr.	10 Yr.	Since Inception
■ Portfolio (net of all fees - NAV level) ^{2,3}	0.22	0.67	2.52	2.27	2.12	2.45	2.30
■ 3 Year Constant Maturity Treasury	0.14	0.40	1.94	2.05	1.63	1.18	1.19
Benchmark ⁴	0.27	0.84	3.82	3.20	2.60	2.10	2.15
Value Added (net of all fees - NAV level)⁵	0.09	0.27	0.58	0.22	0.49	1.26	1.11

1: Returns for periods of less than one year are not annualized.

2: Returns are 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.

3: Galliard assumed management of this portfolio on December 1, 2010. Performance for periods referenced prior to this date include historical performance of another investment advisor.

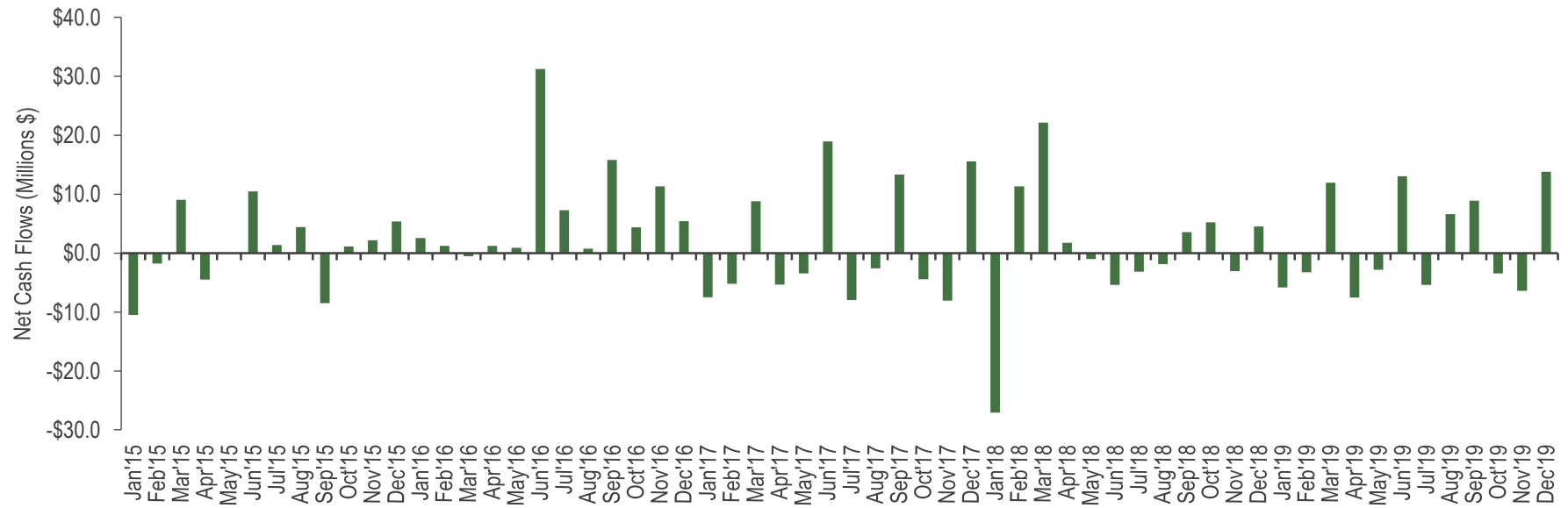
4: ICE BofAML US 3-Month Tsy Bill Index+150 bps

5: May not add due to rounding.

STABLE VALUE PORTFOLIO REVIEW

HISTORICAL CASHFLOWS

HISTORICAL CASHFLOWS



	2015	2016	2017	2018	1Q'19	2Q'19	3Q'19	4Q'19	2019 YTD
Beginning Assets	\$1,904.2	\$1,948.6	\$2,472.8	\$2,535.1	\$2,069.8	\$2,085.3	\$2,101.4	\$2,125.3	\$2,069.8
Net Cash Flow (\$)¹	\$8.8	\$81.5⁴	\$12.2	\$6.9³	\$2.9	\$2.7	\$10.1	\$4.0	\$19.8
Net Cash Flow (%)	0.46%	4.18%	0.49%	0.27%	0.14%	0.13%	0.49%	0.19%	0.95%
Estimated Investment Earnings	\$35.7	\$46.9	\$50.1	\$51.6	\$12.6	\$13.3	\$13.8	\$14.1	\$53.9
Ending Assets²	\$1,948.6	\$2,472.8	\$2,535.1	\$2,069.8	\$2,085.3	\$2,101.4	\$2,125.3	\$2,143.4	\$2,143.4

1: Contributions, Withdrawals and Investment Transfers

2: Cashflows may not net to final assets due to rounding.

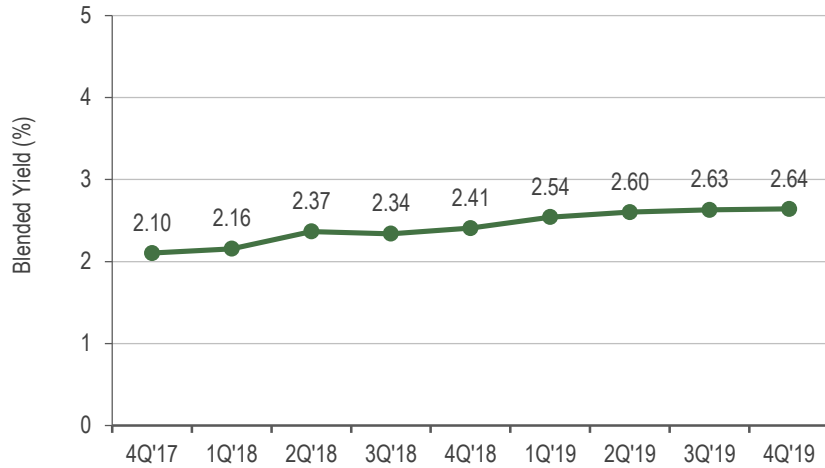
3: Excludes Prudential GoalMaker withdrawal of approximately \$523.8 M on 6/8/18 for illustrative purposes.

4: Approximately \$395.8 M of new inflow and transfer activity related to the 1/4/16 merger of North Carolina 457 plan assets have been removed for illustrative purposes.

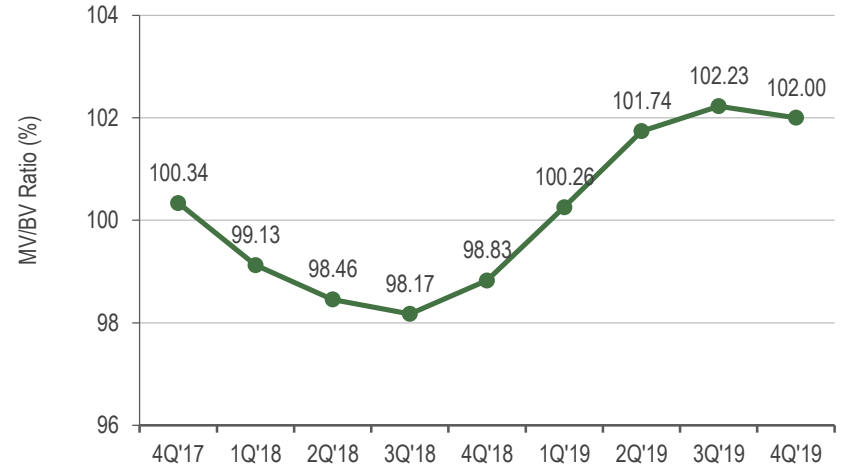
STABLE VALUE PORTFOLIO REVIEW

HISTORICAL STATS

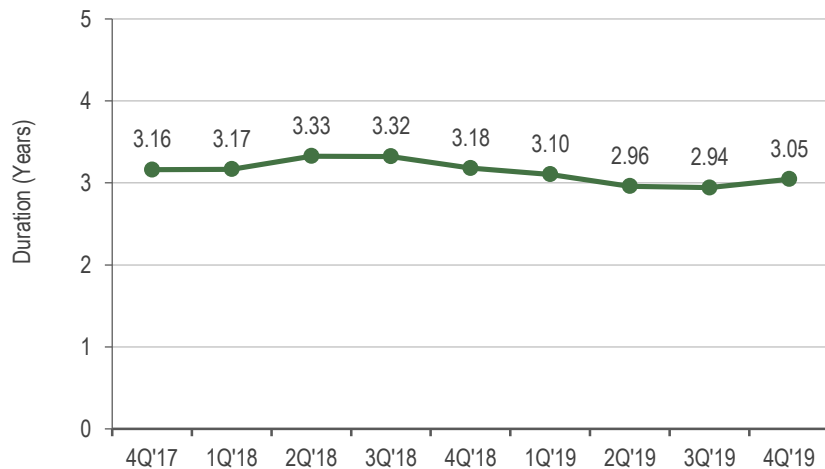
HISTORICAL BLENDED YIELD¹



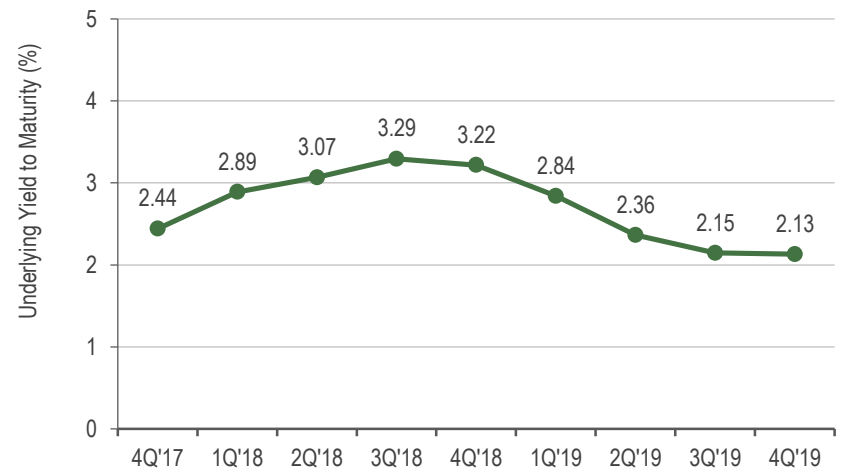
HISTORICAL MARKET VALUE TO BOOK VALUE RATIO



HISTORICAL DURATION



HISTORICAL UNDERLYING YIELD TO MATURITY



1: Blended Yield 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.

STABLE VALUE PORTFOLIO REVIEW

CONTRACT ISSUERS

CONTRACT ISSUER DISTRIBUTION & RATING SUMMARY¹

	% Portfolio 9/30/19	% Portfolio 12/31/19	Rating 9/30/19	Rating 12/31/19	Wrap fees (bps) 12/31/19
American General Life Ins. Co.	20.0	20.0	A+	A+	17
Metropolitan Life Ins. Co.	10.5	10.5	AA-	AA-	18
Nationwide Life Ins. Co.	17.8	17.8	A+	A+	17
Prudential Ins. Co. of America	25.2	25.2	AA-	AA-	17
Transamerica Premier Life Ins. Co.	24.2	24.2	A+	A+	16

¹: The quality rating shown represents the individual holdings' Composite Ratings, as rated by S&P, Moody's and Fitch. Ratings shown as NR/NA are not rated or not available security ratings.

STABLE VALUE PORTFOLIO REVIEW HOLDINGS

Asset ID	Security Description	Contract ¹ Type	Manager	Book Value (\$)	Market Value (\$)	Market/Book Value Ratio (%)	% of Portfolio	Crediting Rate (%) ²	UCA Yield (%)	Effective Duration (yrs)	Galliard Composite Rating	Wrap Fees (bps)
LIQUIDITY BUFFER												
	Cash Receivable / (Payable)			-1,454,263	-1,454,263	100.0	-0.1	1.81	1.81	0.10	AAA	
9983008\$P	WF/BlackRock Short Term Investment Fund S			53,579,479	53,579,479	100.0	2.5	1.81	1.81	0.10	AAA	
TOTAL LIQUIDITY BUFFER				52,125,216	52,125,216	100.0	2.4	1.81	1.81	0.10	AAA	
SHORT PORTFOLIO												
946996EE1	American General Life Ins. Co.	SBIC	Galliard	208,412,304	212,024,256	101.7	9.7	2.83	1.94	1.83	A+	17.0
896994GW4	Nationwide Life Ins. Co.	SBIC	Galliard	178,428,144	181,841,060	101.9	8.3	2.86	1.94	1.83	A+	17.0
744999CV3	Prudential Ins. Co. of America	SBIC	Galliard	105,756,385	108,877,420	103.0	4.9	2.96	1.94	1.83	AA-	17.0
600996QF2	Transamerica Premier Life Ins. Co.	SBIC	Galliard	198,742,211	201,311,178	101.3	9.3	2.41	1.94	1.83	A+	16.0
TOTAL SHORT PORTFOLIO				691,339,044	704,053,914	101.8	32.3	2.74	1.94	1.83	A+	
INTERMEDIATE PORTFOLIO												
590994VM8	Metropolitan Life Ins. Co.	SAGIC	Dodge & Cox	225,465,638	231,096,505	102.5	10.5	3.04	2.43	3.29	AA-	18.0
946996EE1	American General Life Ins. Co.	SBIC	Payden & Rygel	219,357,791	223,159,438	101.7	10.2	2.83	2.26	3.85	A+	17.0
896994GW4	Nationwide Life Ins. Co.	SBIC	Galliard	202,432,822	206,304,891	101.9	9.4	2.86	2.29	3.66	A+	17.0
744999CV3	Prudential Ins. Co. of America	SBIC	Jennison Assoc.	215,791,339	222,159,676	103.0	10.1	2.96	1.96	3.91	AA-	17.0
744999CV3	Prudential Ins. Co. of America	SBIC	Prudential	217,540,586	223,960,546	103.0	10.1	2.96	2.39	3.85	AA-	17.0
600996QF2	Transamerica Premier Life Ins. Co.	SBIC	Galliard	101,079,587	102,386,155	101.3	4.7	2.41	2.29	3.66	A+	16.0
600996QF2	Transamerica Premier Life Ins. Co.	SBIC	TCW	218,317,861	221,139,865	101.3	10.2	2.41	2.05	4.02	A+	16.0
TOTAL INTERMEDIATE PORTFOLIO				1,399,985,624	1,430,207,076	102.2	65.3	2.81	2.24	3.75	A+	
TOTAL PORTFOLIO				2,143,449,884	2,186,386,207	102.0	100.0	2.76	2.13	3.05	A+	

1: SAGIC = Separate Account GIC. SBIC = Security Backed Investment Contract.
2: Crediting rates are net of wrap fees and any other fees being netted out of the rates.

STABLE VALUE PORTFOLIO REVIEW

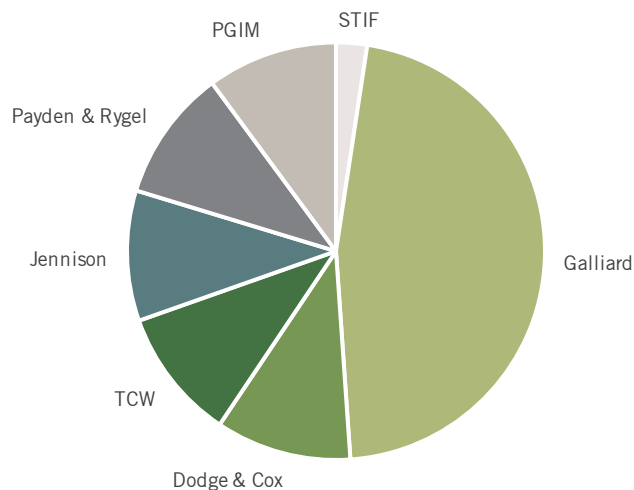
EXPENSES

STATE OF NORTH CAROLINA STABLE VALUE FUND MANAGER STYLES

	Investment Approach	Sector Rotation	Active Duration/ Yield Curve Mgmt.	Issue Selection	SECTOR EMPHASIS
GALLIARD	 Bottom Up Top Down	 Low High	 Low High	 Less More Important	Diversified high quality spread sector emphasis, multi-sector relative value
DODGE & COX	 Bottom Up Top Down	 Low High	 Low High	 Less More Important	Corporate credit, Agency MBS
TCW	 Bottom Up Top Down	 Low High	 Low High	 Less More Important	Duration, structured credit, multi-sector relative value
JENNISON	 Bottom Up Top Down	 Low High	 Low High	 Less More Important	Credit, yield-curve positioning
PAYDEN & RYGEL	 Bottom Up Top Down	 Low High	 Low High	 Less More Important	Corporate credit, structured credit, multi-sector relative value
PGIM	 Bottom Up Top Down	 Low High	 Low High	 Less More Important	Multi-sector relative value, Agency MBS, global focus

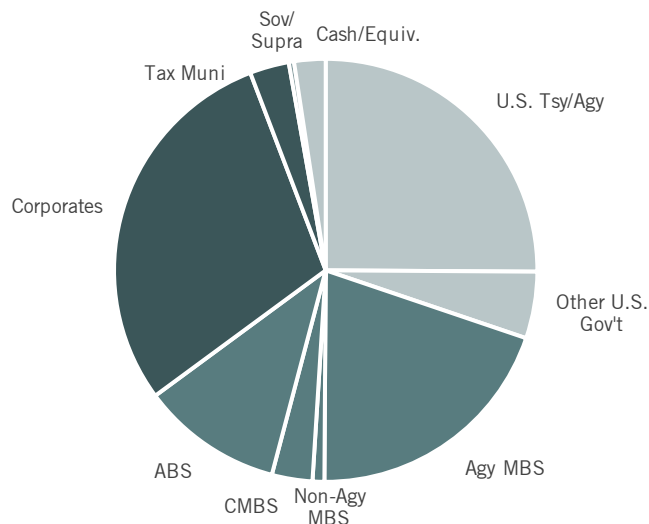
STATE OF NORTH CAROLINA STABLE VALUE FUND PORTFOLIO AS OF 12/31/19

MANAGER ALLOCATION



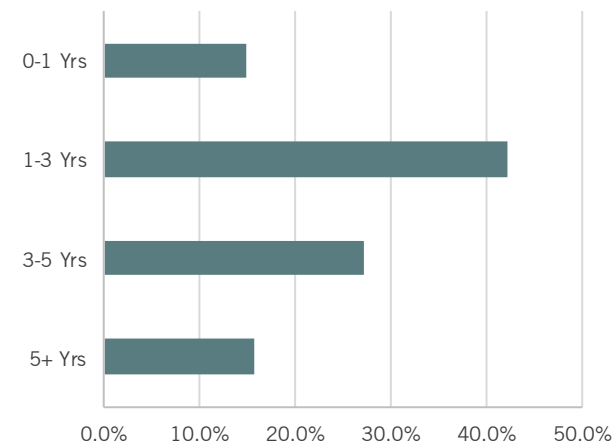
STIF	2.4%
Galliard	46.5%
Dodge & Cox	10.5%
TCW	10.2%
Jennison	10.1%
Payden & Rygel	10.2%
PGIM	10.1%
TOTAL EXT. MANAGER	51.1%
TOTAL PORTFOLIO	100%

UNDERLYING FIXED INCOME SECTOR ALLOCATION



U.S. Tsy/Agy	25.1%
Other U.S. Gov't	5.1%
Agy MBS	19.9%
Non-Agy MBS	0.9%
CMBS	3.1%
ABS	10.8%
Corporates	29.3%
Tax Muni	3.0%
Sov/ Supra	0.4%
Cash/Equiv.	2.4%

UNDERLYING DURATION DISTRIBUTION



0-1 Yrs	14.8%
1-3 Yrs	42.3%
3-5 Yrs	27.1%
5+ Yrs	15.8%

STATE OF NORTH CAROLINA STABLE VALUE FUND
MARKET VALUE PERFORMANCE SUMMARY AS OF 12/31/19¹

	1 Month	3 Month	1 Year	3 Year	5 Year	Since Inception	Inception Date
SHORT DURATION							
Galliard (before fees)	0.21	0.58	4.61	-	-	3.95	6/1/2018
Bloomberg Barclays U.S. 1-3 Yr. Government/Credit	0.24	0.59	4.03	-	-	3.51	
Value Added²	-0.03	-0.01	0.58	-	-	0.44	
INTERMEDIATE DURATION							
Dodge & Cox (before fees)	0.27	0.68	7.77	3.75	-	2.89	3/1/2015
Bloomberg Barclays U.S. Intermediate Aggregate	0.17	0.47	6.67	3.26	-	2.50	
Value Added²	0.10	0.21	1.10	0.49	-	0.39	
Galliard (before fees)	0.13	0.48	7.29	-	-	5.79	6/1/2018
Bloomberg Barclays U.S. Intermediate Aggregate	0.17	0.47	6.67	-	-	5.39	
Value Added²	-0.03	0.01	0.62	-	-	0.39	
Jennison (before fees) ³	0.08	0.32	6.65	3.45	2.76	5.52	5/1/2018
Bloomberg Barclays U.S. Intermediate Govt/Credit	0.13	0.37	6.80	3.24	2.57	5.53	
Value Added²	-0.04	-0.05	-0.15	0.21	0.19	0.00	
Payden & Rygel (before fees)	0.20	0.45	6.77	3.32	2.43	2.39	7/1/2009
Bloomberg Barclays U.S. Intermediate Aggregate ⁴	0.17	0.47	6.67	3.12	2.26	1.92	
Value Added²	0.03	-0.02	0.10	0.19	0.18	0.47	
PGIM (before fees)	0.18	0.61	7.46	3.73	-	3.31	2/1/2016
Bloomberg Barclays U.S. Intermediate Aggregate	0.17	0.47	6.67	3.26	-	2.67	
Value Added²	0.01	0.14	0.78	0.47	-	0.64	
TCW (before fees)	0.08	0.33	6.82	-	-	5.71	6/1/2018
Bloomberg Barclays U.S. Intermediate Govt/Credit	0.13	0.37	6.80	-	-	5.43	
Value Added²	-0.04	-0.05	0.02	-	-	0.29	

1: Returns for periods of less than one year are not annualized.

2: May not add due to rounding.

3: Performance inception: May 1, 2018. Prior to May 1, 2018 returns are linked to Wells Fargo Fixed Income Fund N (Jennison)

4: Linked Benchmark: Bloomberg Barclays U.S. Intermediate Aggregate Bond Index. Prior to Jun 1, 2018 benchmark was Bloomberg Barclays U.S. 1-3 Year Government/Credit Bond Index.

STATE OF NORTH CAROLINA STABLE VALUE FUND

PERFORMANCE COMMENTARY – EXCESS RETURN

GALLIARD SHORT -1 Q4 2019

- Overweight to the belly of the curve detracted, as intermediate maturities underperformed shorter issues
- Allocation to Agency multi-family MBS and non-agency ABS detracted
- Overweight allocation to corporate bonds, along with security selection in that sector, added positively to performance
- An allocation to TIPS was also beneficial, as inflationary pressures remained subdued

GALLIARD INTERMEDIATE +1 Q4 2019

- Overweight allocations to corporate bonds and taxable municipals helped
- Issue selection in corporates was a modest drag on returns, as an underweight to longer, lower quality issues hurt overall performance
- Overweight to Agency multi-family MBS detracted modestly

DODGE & COX +21 Q4 2019

- An overweight to Corporates was positive
- The overweight in ABS detracted
- Shorter duration was positive

JENNISON -5 Q4 2019

- Longer duration positioning and yield curve positioning detracted from performance
- An underweight to Credit and a bias to higher quality Corporates detracted

PAYDEN & RYGEL -2 Q4 2019

- Duration positioning detracted
- An overweight to Corporates was positive
- Security selection in Corporates detracted

PGIM +14 Q4 2019

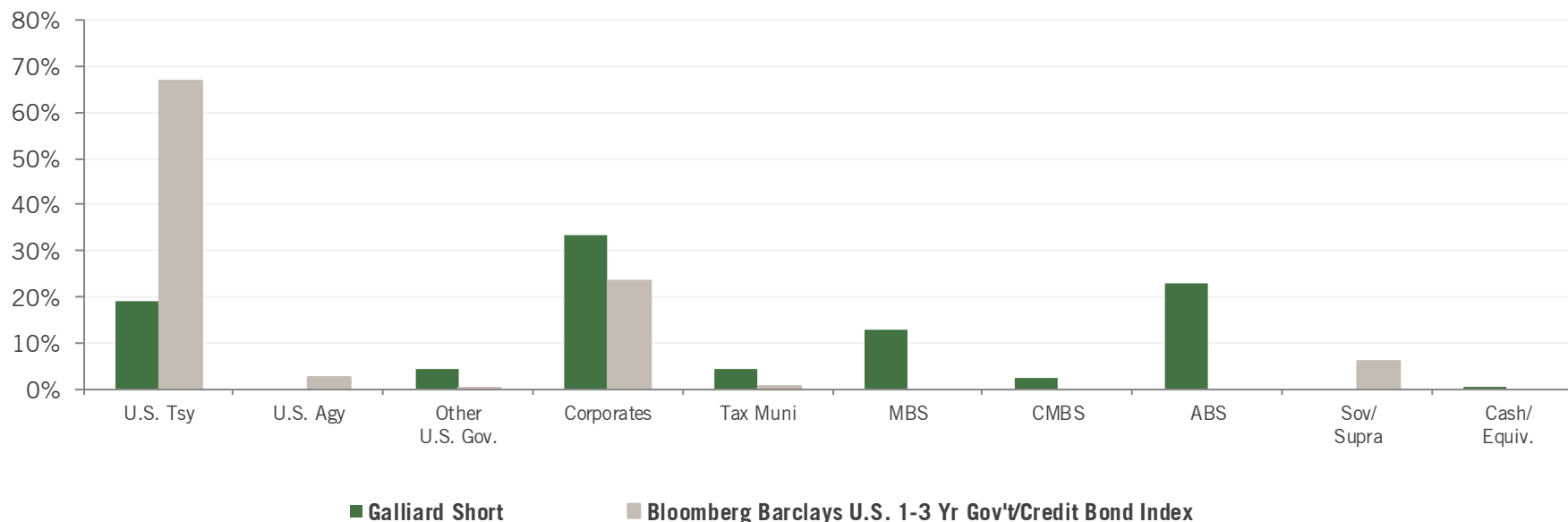
- An overweight to Corporates and security selection within the sector was positive
- An allocation to securitized assets and yield curve positioning detracted from performance

TCW -5 Q4 2019

- An underweight to Corporates and a higher quality bias in the sector detracted
- An allocation to Agency MBS was modestly positive and an allocation to ABS detracted

STATE OF NORTH CAROLINA STABLE VALUE FUND SHORT DURATION PORTFOLIO AS OF 12/31/19

BLOOMBERG BARCLAYS U.S. 1-3 YEAR GOVERNMENT/CREDIT BOND INDEX

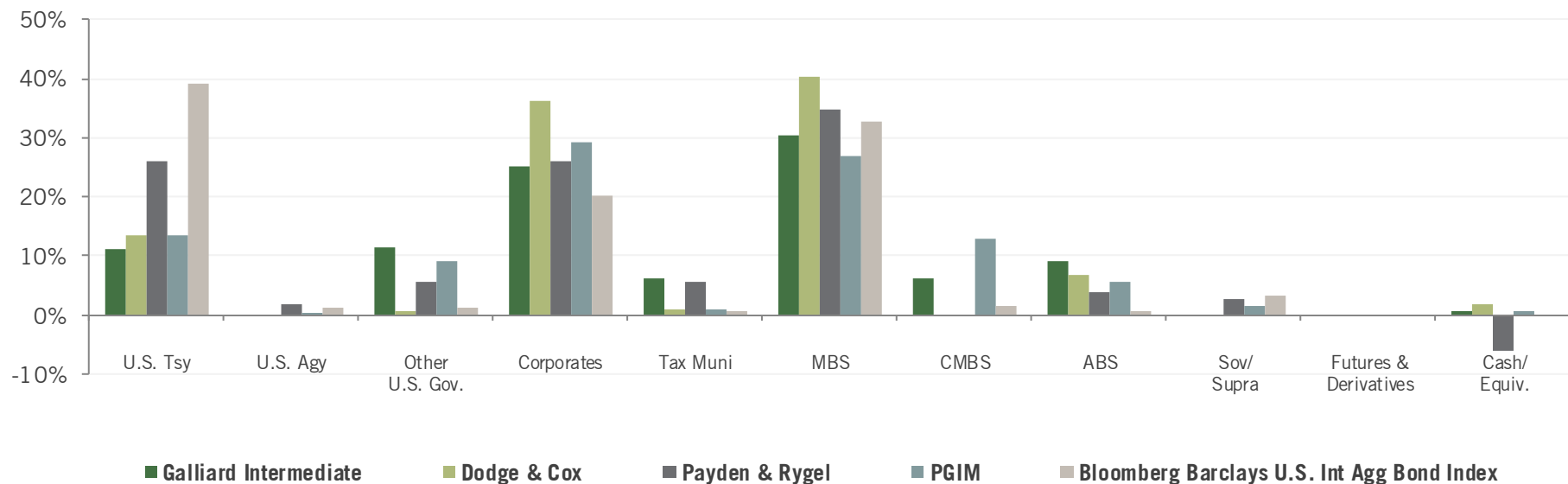


Characteristic	Galliard Short	Bloomberg Barclays U.S. 1-3 Yr Gov't/ Credit Bond Index
Weighted Average Quality ¹	AA	AA+
Effective Duration	1.83 Yrs	1.81 Yrs
Yield to Maturity	1.94%	1.72%

1: 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.

STATE OF NORTH CAROLINA STABLE VALUE FUND INTERMEDIATE DURATION PORTFOLIOS AS OF 12/31/19

BLOOMBERG BARCLAYS U.S. INTERMEDIATE AGGREGATE BOND INDEX



Characteristic	Galliard Intermediate	Dodge & Cox	Payden & Rygel	PGIM	Bloomberg Barclays U.S. Int Agg Bond Index
Weighted Average Quality ¹	AA	AA-	AA	AA-	AA+
Effective Duration	3.66 Yrs	3.29 Yrs	3.85 Yrs	3.85 Yrs	3.67 Yrs
Yield to Maturity	2.29%	2.43%	2.26%	2.39%	2.15%

1: 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.

STATE OF NORTH CAROLINA STABLE VALUE FUND INTERMEDIATE DURATION PORTFOLIOS AS OF 12/31/19

BLOOMBERG BARCLAYS U.S. INTERMEDIATE GOVERNMENT/CREDIT BOND INDEX



Characteristic	Jennison	TCW	Bloomberg Barclays U.S. Int Gov't/Credit Bond Index
Weighted Average Quality ¹	AA+	AA+	AA
Effective Duration	3.91 Yrs	4.02 Yrs	3.87 Yrs
Yield to Maturity	1.96%	2.05%	1.94%

1: 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.