



PENSION RESERVES
INVESTMENT
MANAGEMENT BOARD

Presentation to the State Retiree Benefits Trust Fund Board

***PRIM Board Organizational Update
PRIT Fund and SRBT Fund Performance Review
Municipal Outreach Update***

Thursday, February 6, 2020

By

Francesco Daniele, Senior Client Services Officer, PRIM Board

***Deborah B. Goldberg, Treasurer and Receiver General, Chair
Michael G. Trotsky, CFA, Executive Director and Chief Investment Officer***



Mission

- ❑ **PRIM is a \$79 billion investment fund that invests public employee pension benefits.**
 - PRIM does not administer benefits.
 - PRIM has a highly talented, experienced and focused investment staff.
- ❑ **PRIM's Mission is to relieve the pension funding burden on the taxpayer.**
 - PRIM is a self-funded agency which generates asset returns for Massachusetts.
 - In the past five years, PRIM's returns have contributed over \$19.9 billion to pension funding (\$3.6 billion over benchmark).
 - The Project SAVE initiative realized over \$150 million in value for the fund annually.
- ❑ **PRIM is independent and governed by a nine-member Board of Trustees.**
 - The Massachusetts State Treasurer is the Chair of the PRIM Board.
 - A robust committee structure lends advice regarding investments and operations.



PRIT Fund Overview

❑ Oversight and staffing:

- 9 appointed and elected trustees
- 4 advisory committees, consisting of 37 industry professionals and Board members
- Staff of 45 professionals
 - 2 Ph.D's
 - 9 CFA's
 - 6 CPA's
 - 2 CAIA's
 - 20 CFA Investment Foundations Program Certificate Holders

❑ Core Fund Facts

- \$79.1 billion AUM as of 12/31/2019
- 46 public markets portfolios
- 14 real estate, timber and REIT managers
- 100+ private equity managers; 200+ partnerships
- 39 portfolio completion strategies managers



Top 10 Accomplishments

1. Stable organization: Exceptional staff with low turnover supported by a strong, stable Board and Committee structure.
2. National recognition for PRIM and its staff
3. Strong relative and absolute investment performance
4. Sophisticated risk management platform and framework
5. Timely asset allocation decisions
6. Project SAVE
7. Re-engineered Hedge Fund program – Portfolio Completion Strategies
 - a. Direct hedge funds
 - b. Hedge fund replication
 - c. Alternative risk premia harvesting strategies
 - d. Equity risk mitigation
8. Enhanced manager search and selection process
9. Private Equity co-investment
10. Direct Real Estate

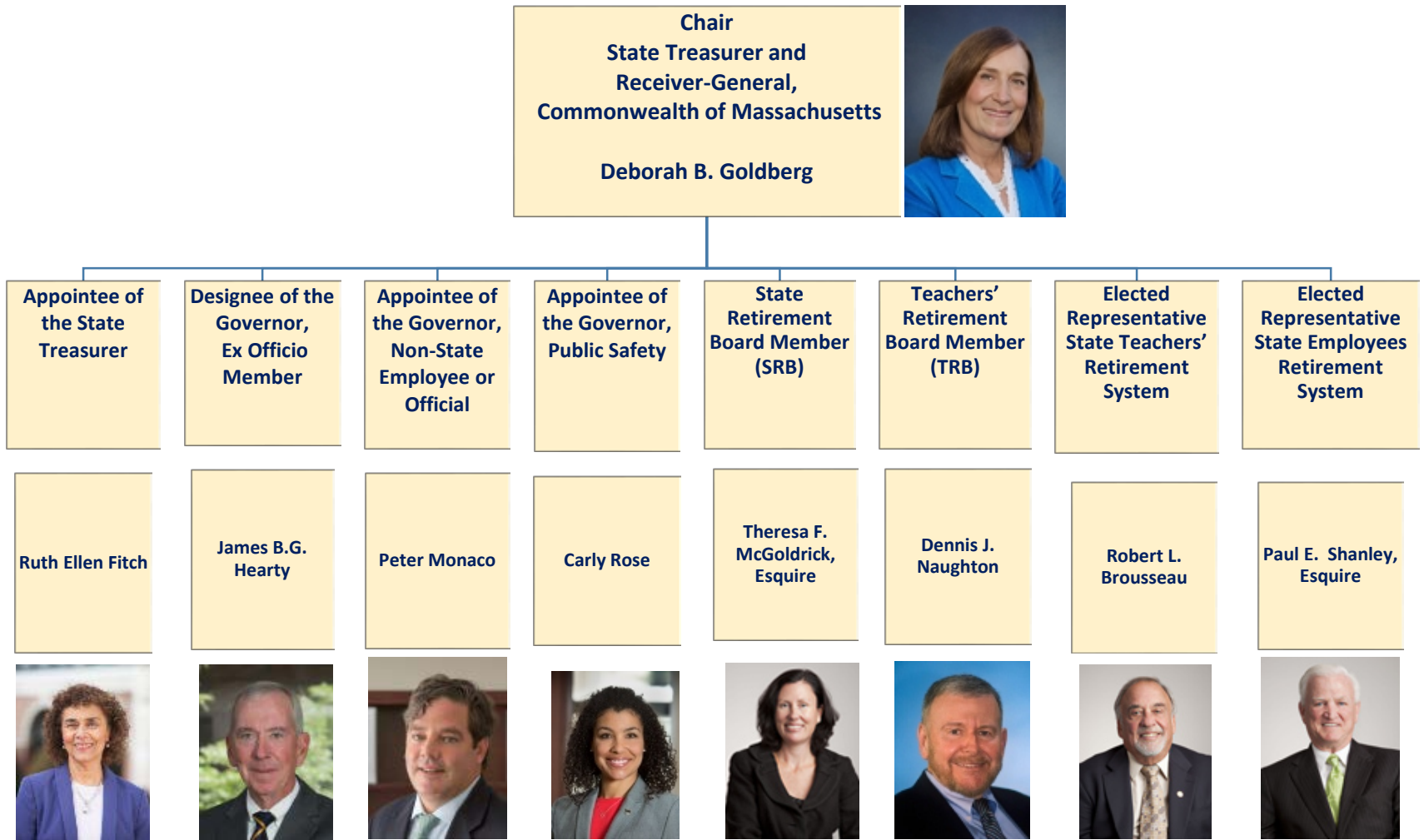




PRIM Board Organizational Update



PRIM Board Membership



PRIM Advisory Committees Membership

Investment Committee (12 Members)

The Committee advises the Board with respect to the asset allocation policy of PRIM and related investment policies, and assist the Board in overseeing the investment program. The mandate of the Investment Committee does not include real estate and timber.

1. Deborah B. Goldberg, Chair, Ex Officio Board Member
2. Paul E. Shanley, Board Member
3. Ruth Ellen Fitch, Board Member
4. Joseph C. Bonfiglio, Massachusetts & Northern New England Laborers' District Council
5. C. LaRoy Brantley, Investment Consultant
6. Michael Even, CFA, Retired President and CEO, Numeric Investors
7. Constance M. Everson, CFA, Managing Director, Capital Markets Outlook Group
8. James B. G. Hearty, Retired Investment Professional
9. Peter Monaco, Managing Director, Raptor Group
10. Philip Rotner, Chief Investment Officer, Boston Children's Hospital
11. Glenn P. Strehle, CFA, Treasurer Emeritus, MIT
12. Timothy L. Vaill, Special Advisor

Real Estate Committee (10 Members)

The Committee advises the Board in setting investment policy within the real estate and timber portfolios and assist the Board in overseeing these portfolios.

1. Deborah B. Goldberg, Ex Officio Board Member
2. Lydia Chesnick, Esq., Partner, Bernkopf Goodman LLP
3. Robert Gifford, Robert Gifford Advisory
4. Jill S. Hatton, Chair, CRE, Real Estate Investment Professional
5. Anthony E. Hubbard, Esq., CVS Corporation
6. Jack Lutz, PhD., Forest Research Group
7. William F. (Bill) McCall, Jr., CRE, McCall & Almy, Inc.
8. Garlan Morse, Jr., CRE, Morris and Morse Company, Inc.
9. Peter F. O'Connell, Marina Bay Company
10. Carly Rose, Public Safety Union Member



PRIM Advisory Committees Membership

Administration and Audit Committee

(10 Members)

The Committee assists the Board in overseeing all issues related to the governance, administration, and audit functions of PRIM, and to provide recommendations for the Board's consideration.

1. Deborah B. Goldberg, Ex Officio Board Member
2. Robert L. Brousseau, Chair, Board Member
3. Theresa F. McGoldrick, Esq., Board Member
4. Patrick E. Brock, Chairman of the Hampshire County Retirement Board
5. Joseph A. Connolly, Senior Managing Director, Strategic Development, TerraCap
6. Karen E. Gershman, CPA, Retired Chief Operating Officer, Health Advances
7. Eileen Glovsky, Treasurer Appointee
8. James B. G. Hearty, Retired Investment Professional
9. Dennis J. Naughton, Board Member
10. Michele A. Whitham, Esq., Founder & Principal, Whitham Law LLC

Compensation Committee

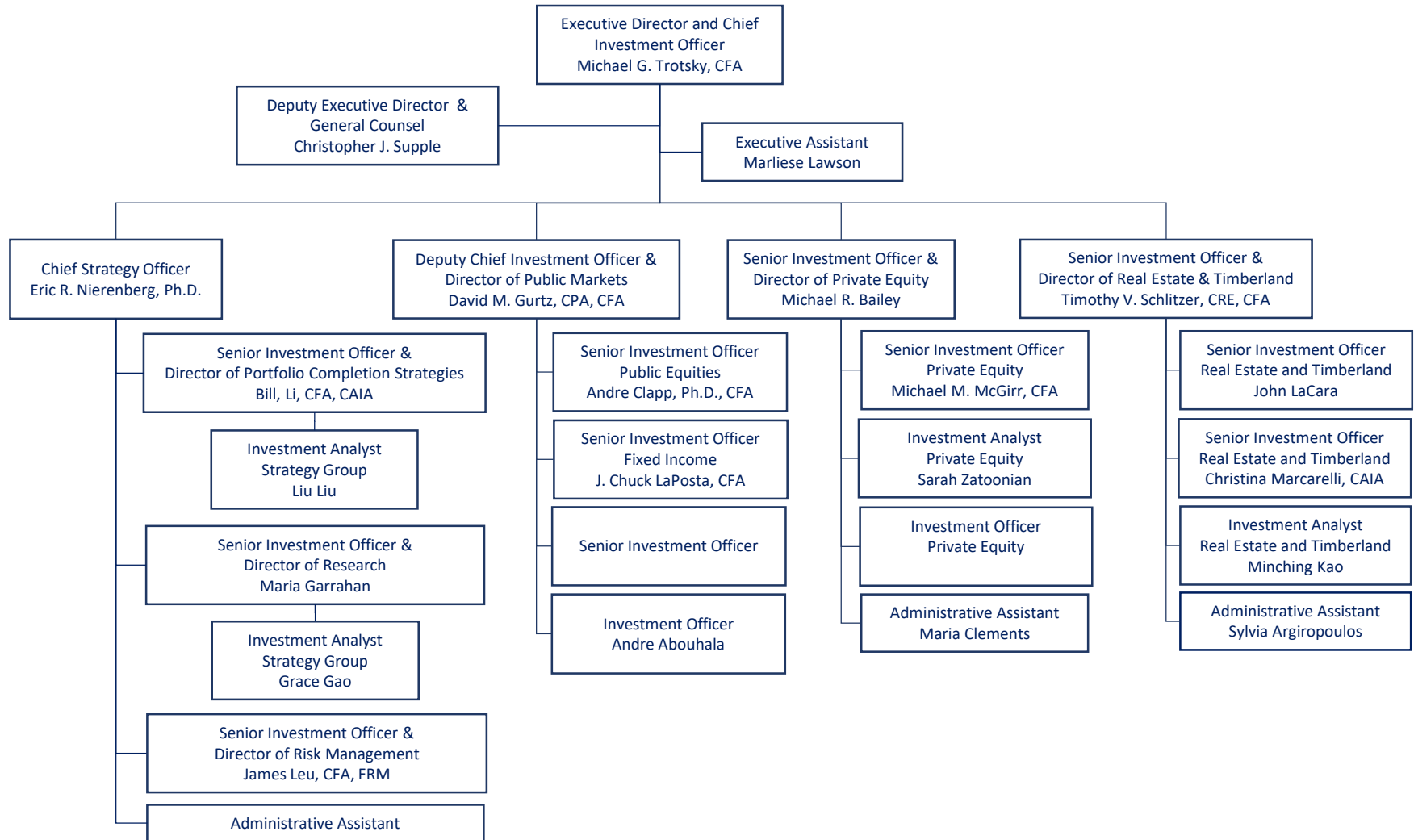
(5 Members)

The Committee assists the Board in overseeing staff compensation and benefit policies. The Administration and Audit Committee is responsible for assisting the Board on other human resource matters.

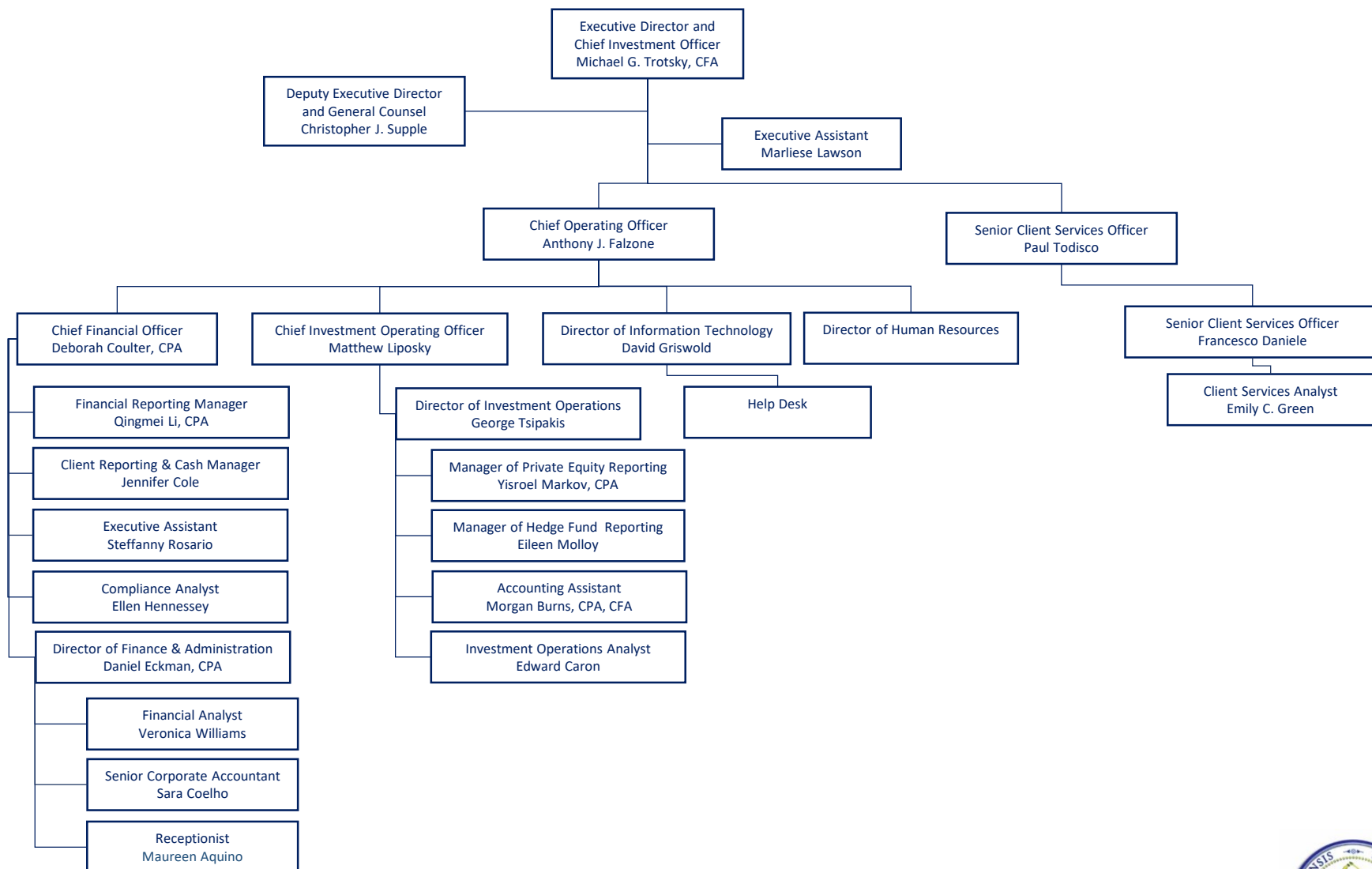
1. Deborah B. Goldberg, Ex Officio Board Member
2. Robert L. Brousseau, Board Member
3. Patrick E. Brock, Chairman, Hampshire County Retirement Board
4. Joseph A. Connolly, Senior Managing Director, Strategic Development, TerraCap
5. Michele A. Whitham, Esq., Founder & Principal, Whitham Law LLC



PRIM Investment Team Organizational Chart



PRIM Finance and Operations Team Organizational Chart



External Advisors

Fund Advisors:

- **NEPC** - Asset Allocation
- **Callan Associates** - Public Markets
- **Aberdeen/Arden** - Hedge Fund Investments
- **Hamilton Lane** - Private Equity
- **The Townsend Group**- Real Estate & Timber
- **The International Woodland Company** - Timber

Independent Auditors:

- **KPMG, LLP** - PRIM Board and PRIT Fund, Real Estate, Timber, and SASE 16 Reviews
- **Deloitte & Touche, LLP** – PRIM Board tax Consultant

Custodian:

- **BNY Mellon Corporation**



Summary of Recent National Recognition

- ❑ Michael Trotsky, CFA, the Executive Director and Chief Investment Officer of the Massachusetts Pension Reserves Investment Management Board, was honored with Institutional Investor's Lifetime Achievement Award at the third annual Allocators' Choice Awards on December 3 in New York. (December 2019)
- ❑ Michael M. McGirr, CFA, was selected to be a member of the ILPA's content committee. The content committee is charged with creating and curating content that will be beneficial for the ILPA's membership. (October 2019)
- ❑ Qingmei Li, CPA, received the *Commonwealth's Citation for Outstanding Performance* at a State House ceremony with Treasurer Deborah Goldberg, Chair of the PRIM Board. (October 2019)
- ❑ PRIM has adopted the CFA Institute's Global Investment Performance Standards of integrity and transparency, effective January 1st 2019. The GIPS standards are an important part of our commitment to maintain the highest level of integrity and transparency possible. (August 2019)
- ❑ For the second consecutive year, PRIM's Private Equity Portfolio has been ranked #1 among 163 U.S. public pension funds based on 10 year performance by the American Investment Council's Public Pension Study. PRIM is the only fund that has been in the Top 5 of all private equity portfolios in every year the study has been conducted. (July 2019)
- ❑ CFA Society Boston has elected Michael Trotsky, CFA, Executive Director and Chief Investment Officer to serve as Chair of the Board of Directors. The CFA Society Boston serves 6,000 professionals representing 650 companies and is part of the CFA Institute with nearly 200,000 members. (June 2019)
- ❑ For the second year in a row, Eric Nierenberg has been listed on Institutional Investor's "Most Wanted Allocators" list. For the past two years, Institutional Investor has published a global "Top 50" list of allocators they deem as most coveted for potential future chief investment officer roles. (June 2019)
- ❑ PRIM was awarded the Government Finance Officer Association's Certificate of Achievement for Excellence in Financial Reporting for the 14th consecutive year. (May 2019)
- ❑ For an unprecedented fourth year in a row, PRIM has been nominated for "Public Plan of the Year" at the Institutional Investor Hedge Fund Industry Awards, to be held in New York on June 27, 2019. PRIM won this award in 2016. The other nominees this year are Ontario Municipal, New Mexico, Wisconsin, Texas Teachers and Illinois Teachers. (May 2019)
- ❑ Portfolio Completion Strategies (PCS) Director Bill Li, CFA, CAIA was inducted into the EQDerivatives Investing Hall of Fame's 2019 Class, which "recognizes those individuals that have led the line in volatility and alternative risk premia thought leadership. (May 2019)



PRIM Key Investment Beliefs

- ***Nobody can predict the future, so we don't try.***
- ***Nobody can predict the stock market, so we don't try.***
- ***We believe that any investment must be evaluated on three equally important parameters: risk, return, and cost.***
- ***We value a basis point of cost reduction more than a basis point of return.***
- ***We are guided by our mandated rate of return, the actuarial rate of return, which in Massachusetts is now 7.25%.***
- ***Every strategic decision we make on asset allocation complies with our “do no harm” rule. We try to find assets or strategies that improve the risk/return profile of the entire fund.***
- ***We stay focused on the long term.***

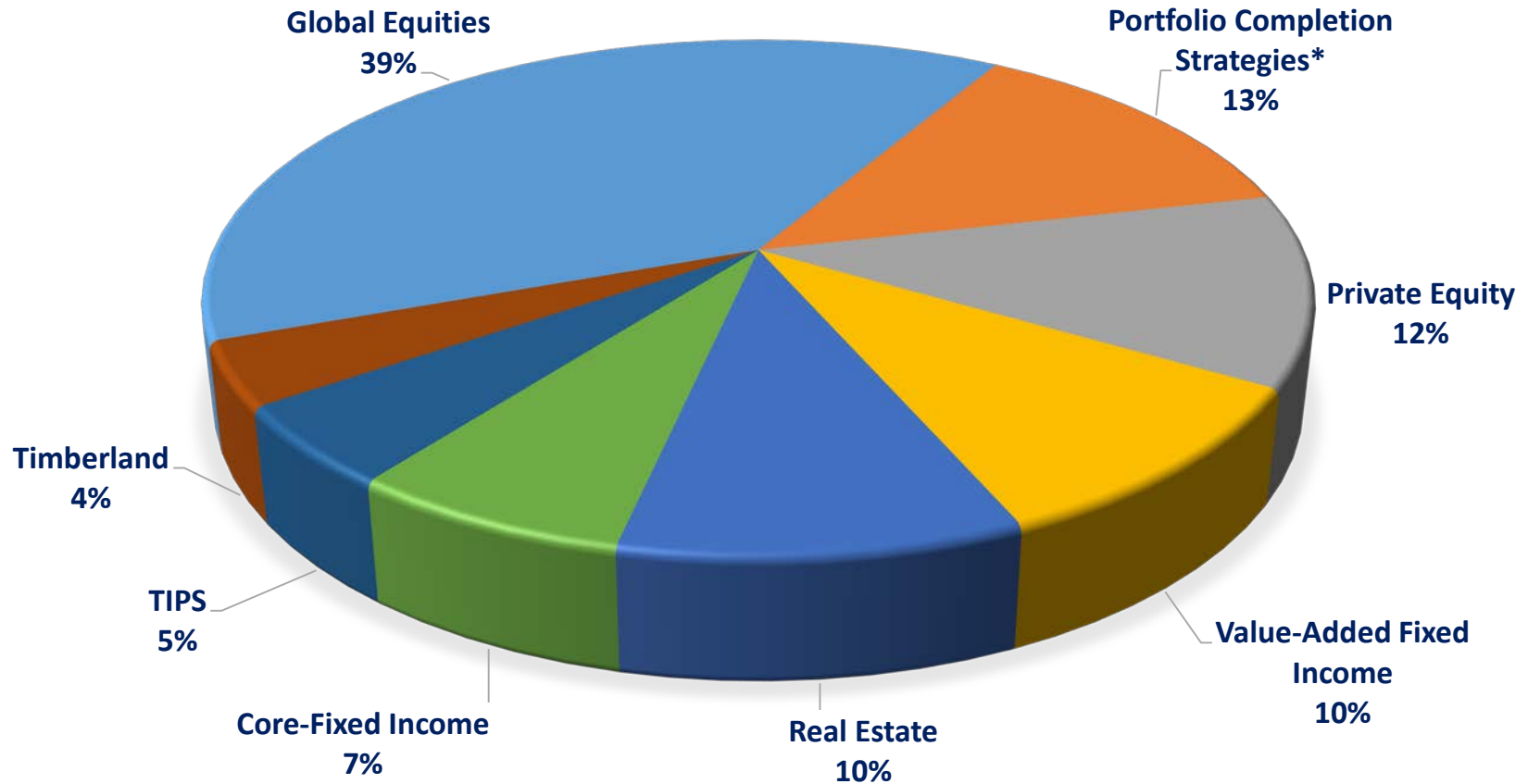




Asset Allocation Review



PRIT Fund Overview – Current Asset Allocation Targets



*PCS Includes 9% allocation to Hedge Funds.



PRIM Asset Allocation Mid-Point Target

Asset Class Allocations	Current AA Target Range	2019 AA Target Range	2019 AA Target Mid-Point	Mid-Point AA Change From 2018
Global Equity	37% - 47%	34% - 44%	39%	<u>-3.0%</u>
US Equity			13%	-4.5%
Int'l Developed Equities			13%	-2.5%
Emerging Int'l Equities			5%	-1.0%
Hedged Equity			8%	5.0%
Core Fixed Income	9% - 15%	12% - 18%	15%	<u>3.0%</u>
Core Bonds			6%	1.0%
Short-Term Fixed Income			2%	2.0%
Long Duration Treasury			3%	1.0%
Inflation-Linked Bonds			4%	-1.0%
Value-Add Fixed Income	7% - 13%	5% - 11%	8%	<u>-2.0%</u>
Private Equity	9% - 15%	10% - 16%	13%	<u>1.0%</u>
Real Estate	7% - 13%	7% - 13%	10%	-
Private Real Estate			9%	1.0%
Public REITs			1%	-1.0%
Timberland	1% - 7%	1% - 7%	4%	-
PCS	7% - 13%	8% - 14%	11%	<u>1.0%</u>



PRIM Asset Allocation

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Timberland	1% - 7%	1% - 7%	4%	-
PCS	7% - 13%	8% - 14%	11%	<u>1.0%</u>

Capital Market Assumptions ¹	2018 Assumptions Current Target Range	2019 Assumptions 2019 Target Range
5-7 Yr. Returns	6.6%	6.8%
30 Yr. Returns	7.7%	7.9%
Volatility	12.6%	12.1%
Sharpe Ratio 30 Yr.	0.39	0.41

1. Asset classes modeled at the midpoint of the target range

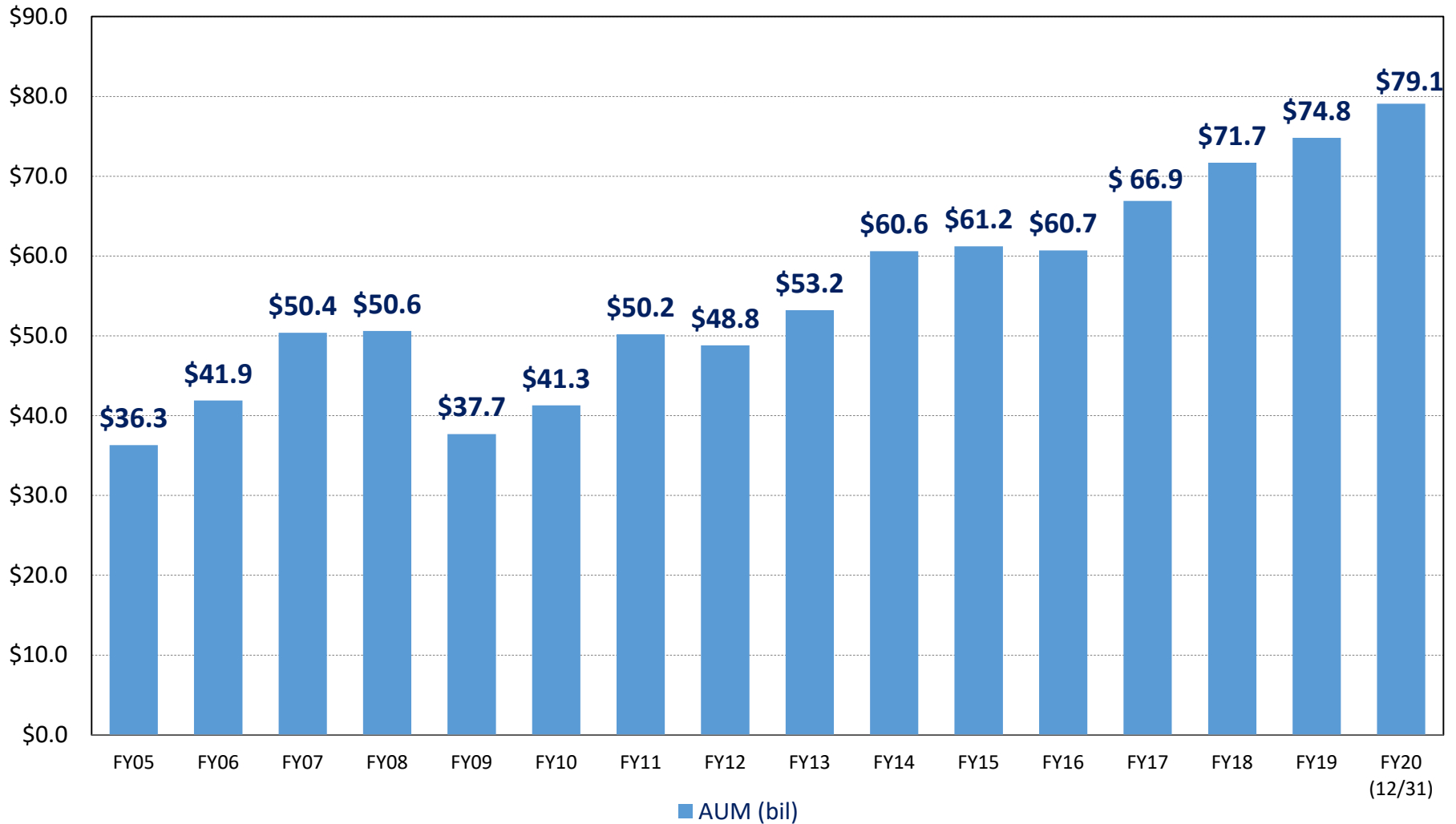




PRIT Fund Performance As of December 31, 2019

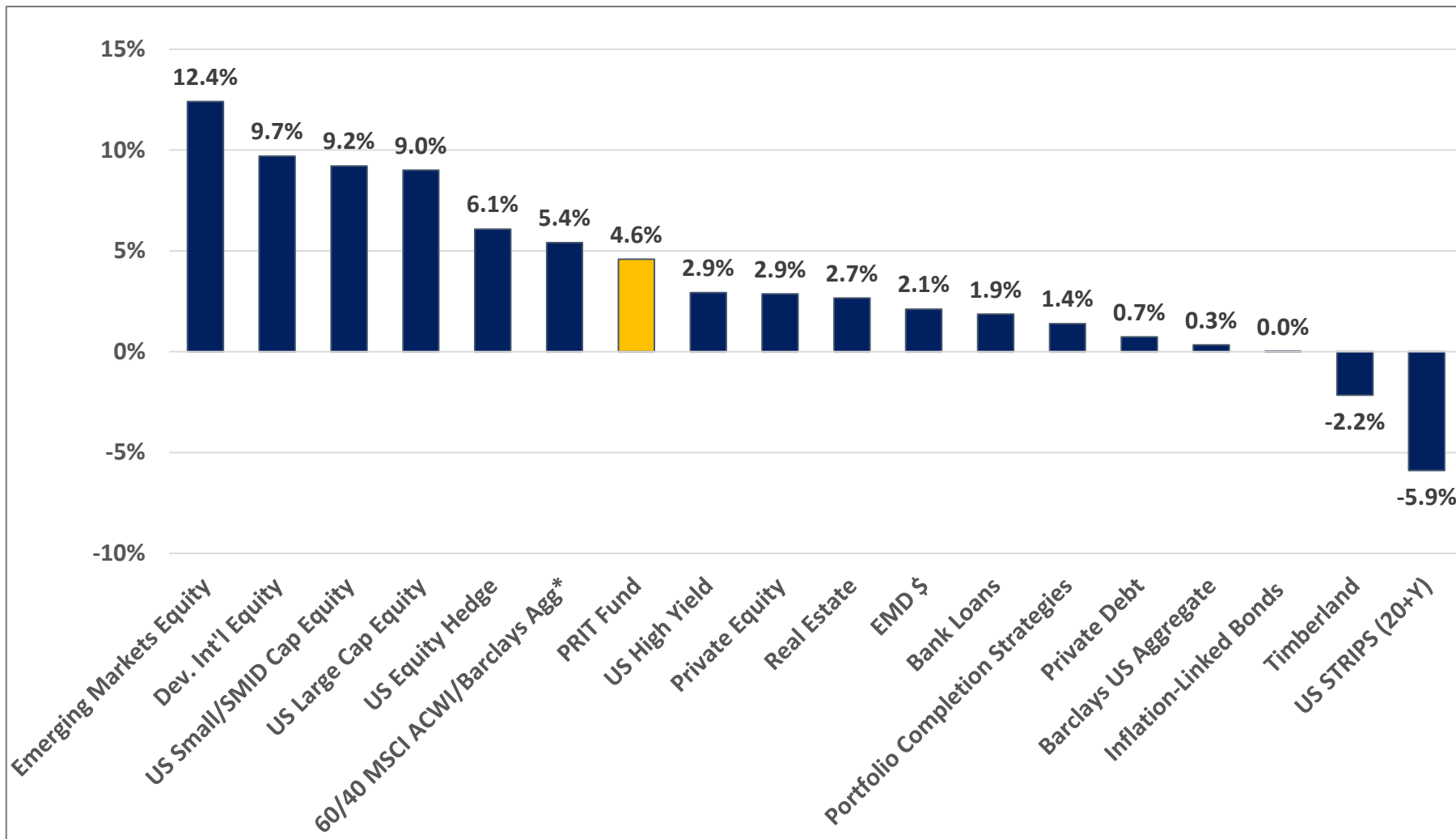


Total PRIT Fund Fiscal Year Market Value (\$Billions)



Asset Class Performance Summary

One Quarter Ended December 31, 2019 (Gross of Fees)



Source: BNY Mellon, FactSet.

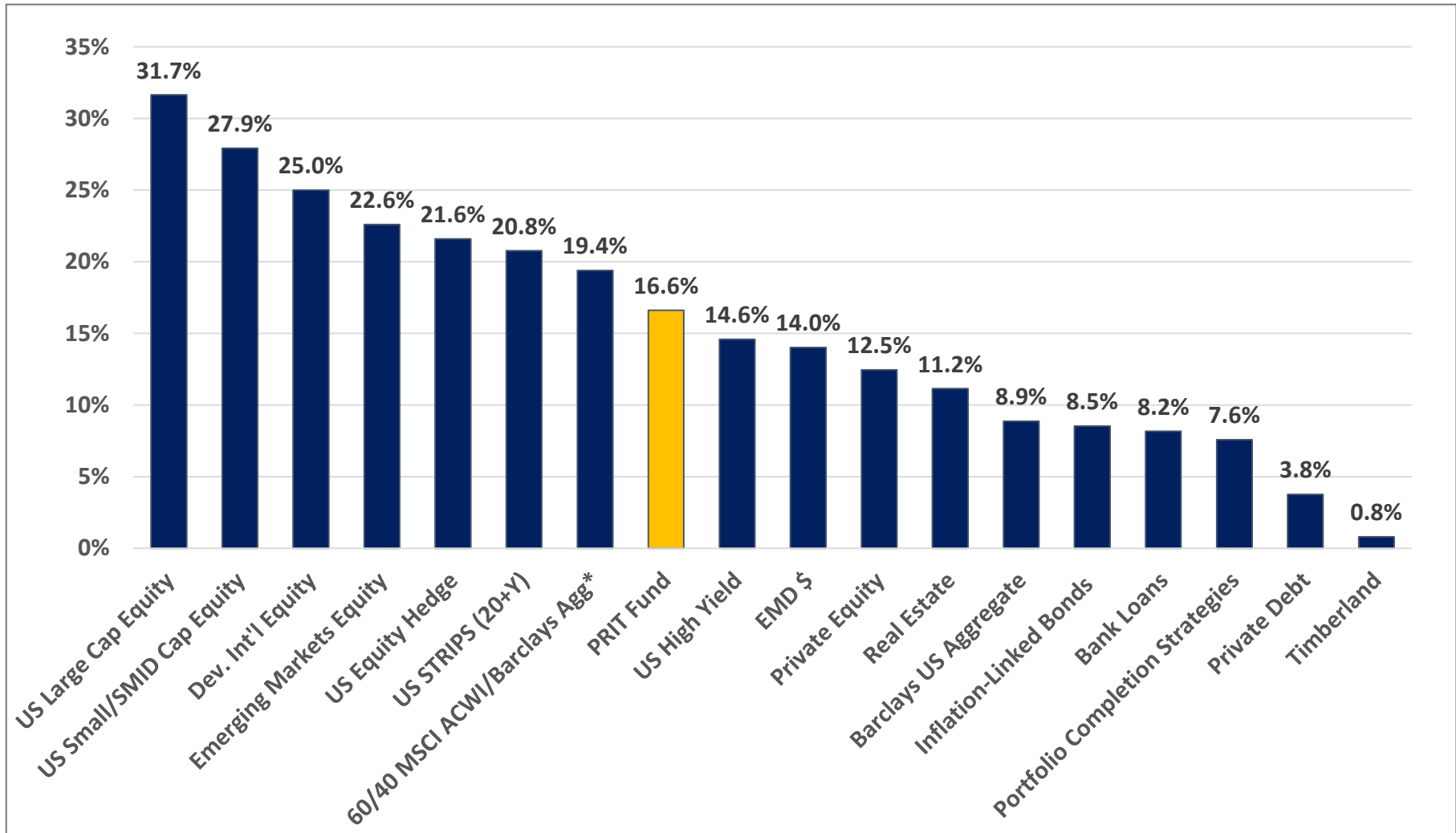
All performance figures reflected are PRIT Fund Asset Class returns.

*MSCI ACWI/Barclays Aggregate is derived from a 60/40 combination of index returns.



Asset Class Performance Summary

One Year Ended December 31, 2019 (Gross of Fees)



Source: BNY Mellon, FactSet.

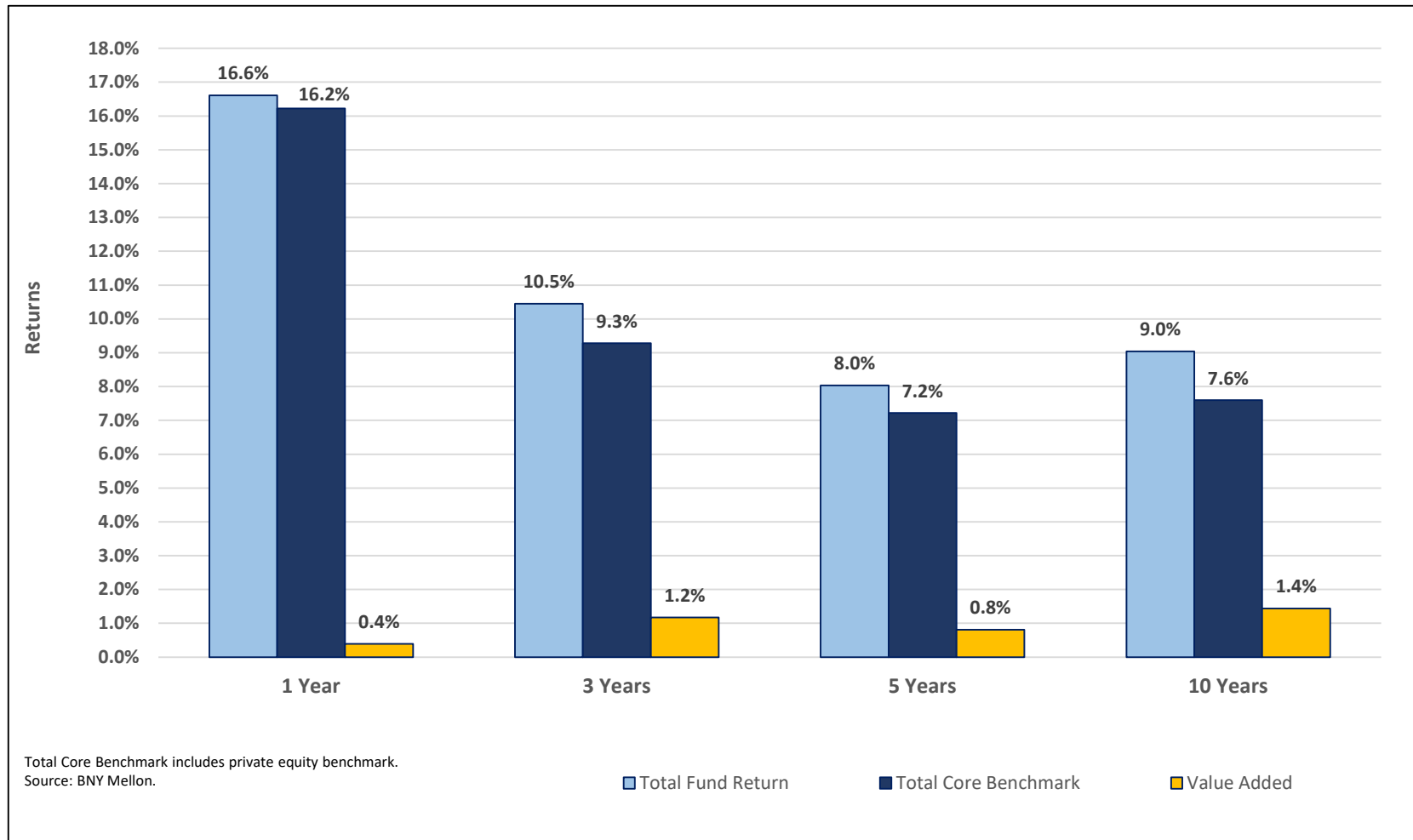
All performance figures reflected are PRIT Fund Asset Class returns.

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Total PRIT Fund Returns

Annualized Returns as of December 31, 2019 (Gross of Fees)



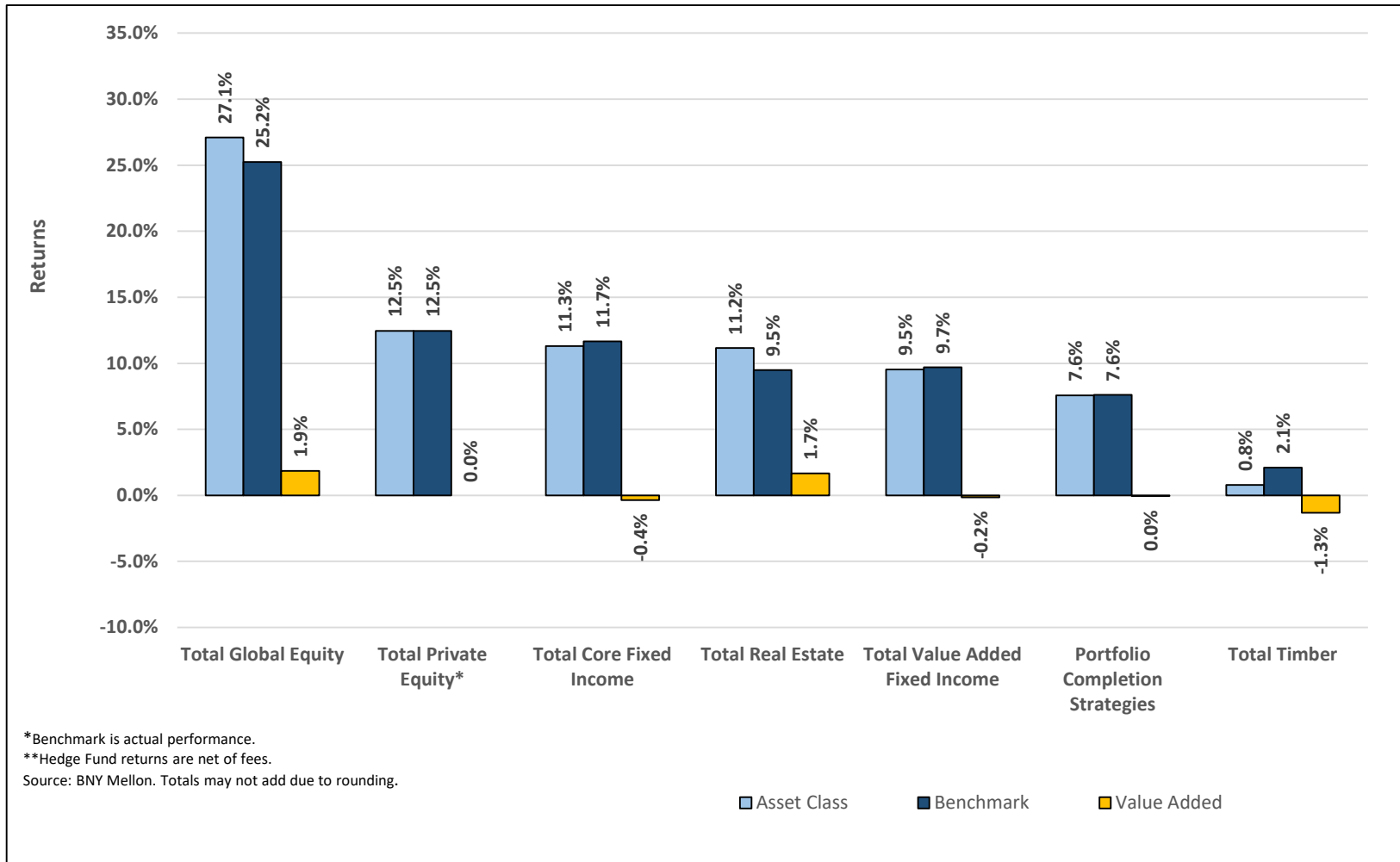
Source: BNY Mellon.

Total Core Benchmark includes private equity benchmark.



PRIT Asset Class Performance Summary

One Year Ended December 31, 2019 (Gross of Fees)



Source: BNY Mellon.
 Totals may not add due to rounding.
 *Benchmark is actual performance.



Global Equity Performance

One Year Ended December 31, 2019 (Gross of Fees)

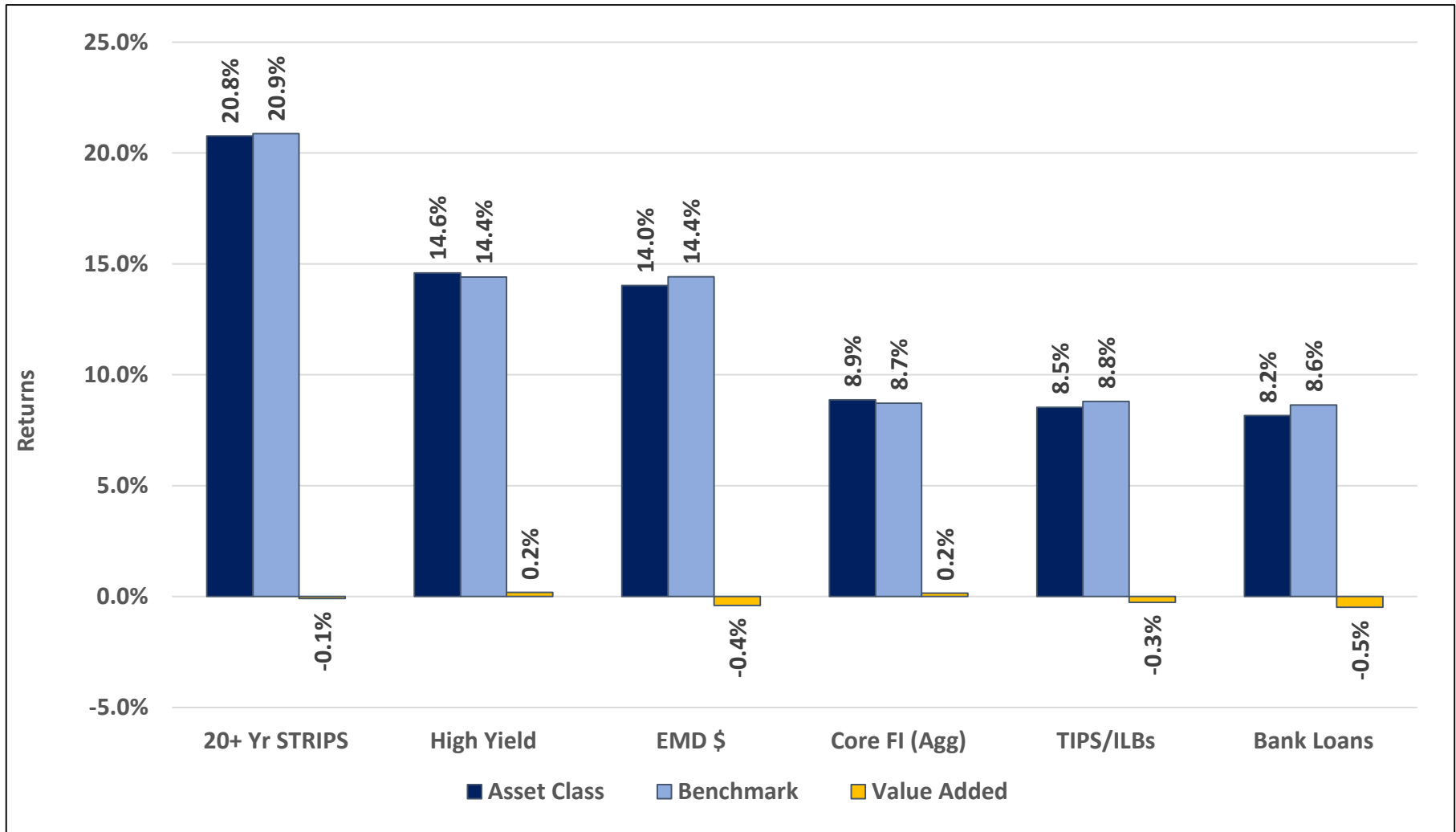


Source: BNY Mellon.
Totals may not add due to rounding.



Public Fixed Income Performance

One Year Ended December 31, 2019 (Gross of Fees)



Source: BNY Mellon.
Totals may not add due to rounding.



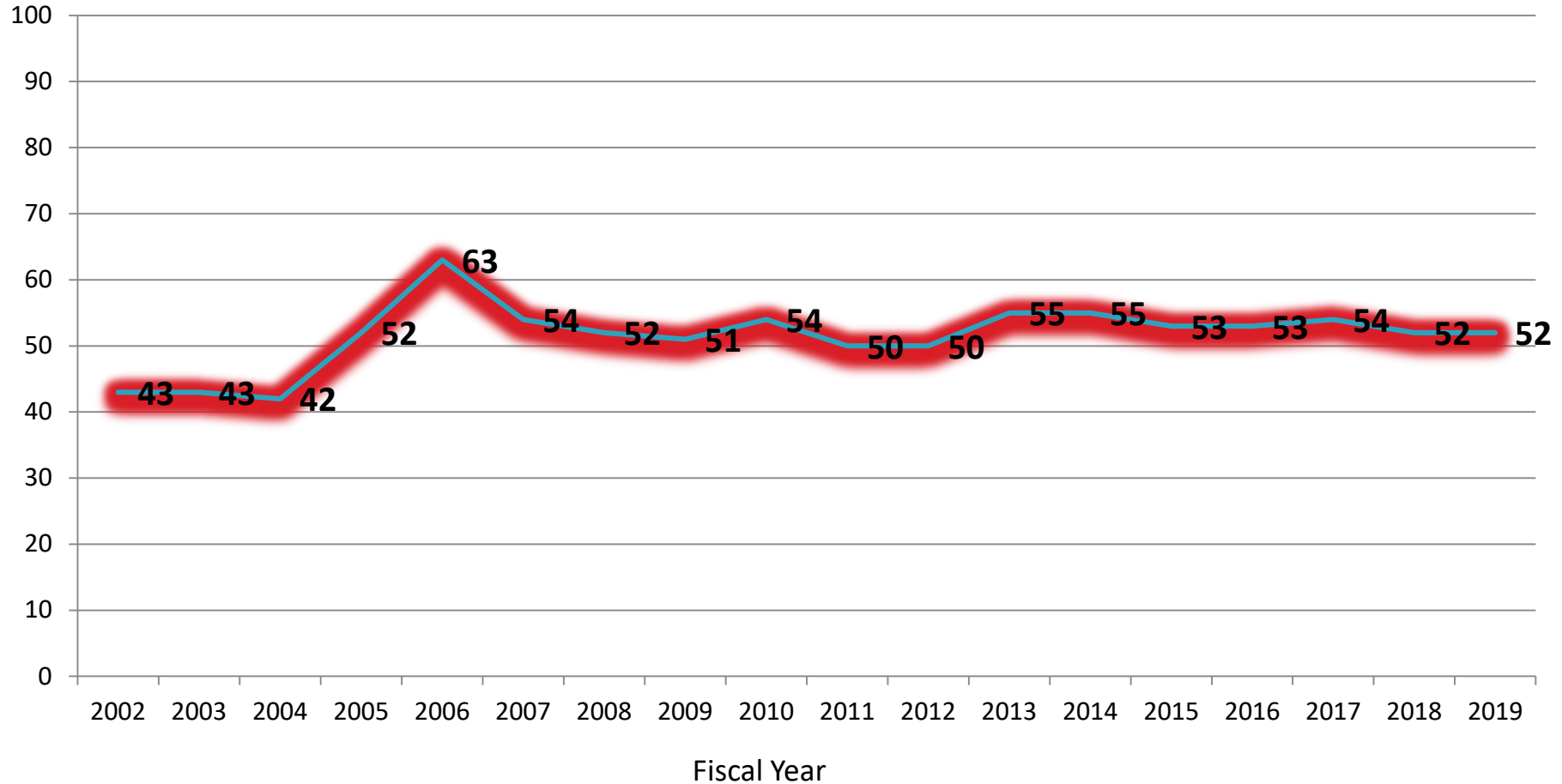
PRIT Asset Class Performance

Annualized Returns as of December 31, 2019 (Gross of Fees)

1 Year	3 Year	5 Year	10 Year
GLOBAL EQUITY 27.1%	PRIVATE EQUITY 20.3%	PRIVATE EQUITY 18.2%	PRIVATE EQUITY 18.2%
PRIVATE EQUITY 12.5%	GLOBAL EQUITY 12.9%	REAL ESTATE 9.0%	REAL ESTATE 11.0%
CORE FIXED INCOME 11.3%	REAL ESTATE 8.5%	GLOBAL EQUITY 8.9%	GLOBAL EQUITY 9.5%
REAL ESTATE 11.2%	VALUE-ADDED FIXED INCOME 6.7%	VALUE-ADDED FIXED INCOME 5.1%	VALUE-ADDED FIXED INCOME 6.8%
VALUE-ADDED FIXED INCOME 9.5%	CORE FIXED INCOME 5.2%	TIMBERLAND 3.7%	CORE FIXED INCOME 5.1%
PORTFOLIO COMPLETION STRATEGIES 7.6%	PORTFOLIO COMPLETION STRATEGIES 4.5%	CORE FIXED INCOME 3.5%	TIMBERLAND 5.1%
TIMBERLAND 0.8%	TIMBERLAND 3.9%	PORTFOLIO COMPLETION STRATEGIES 3.1%	PORTFOLIO COMPLETION STRATEGIES 4.5%



PRIT Fund Ratio of Expenses in Basis Points





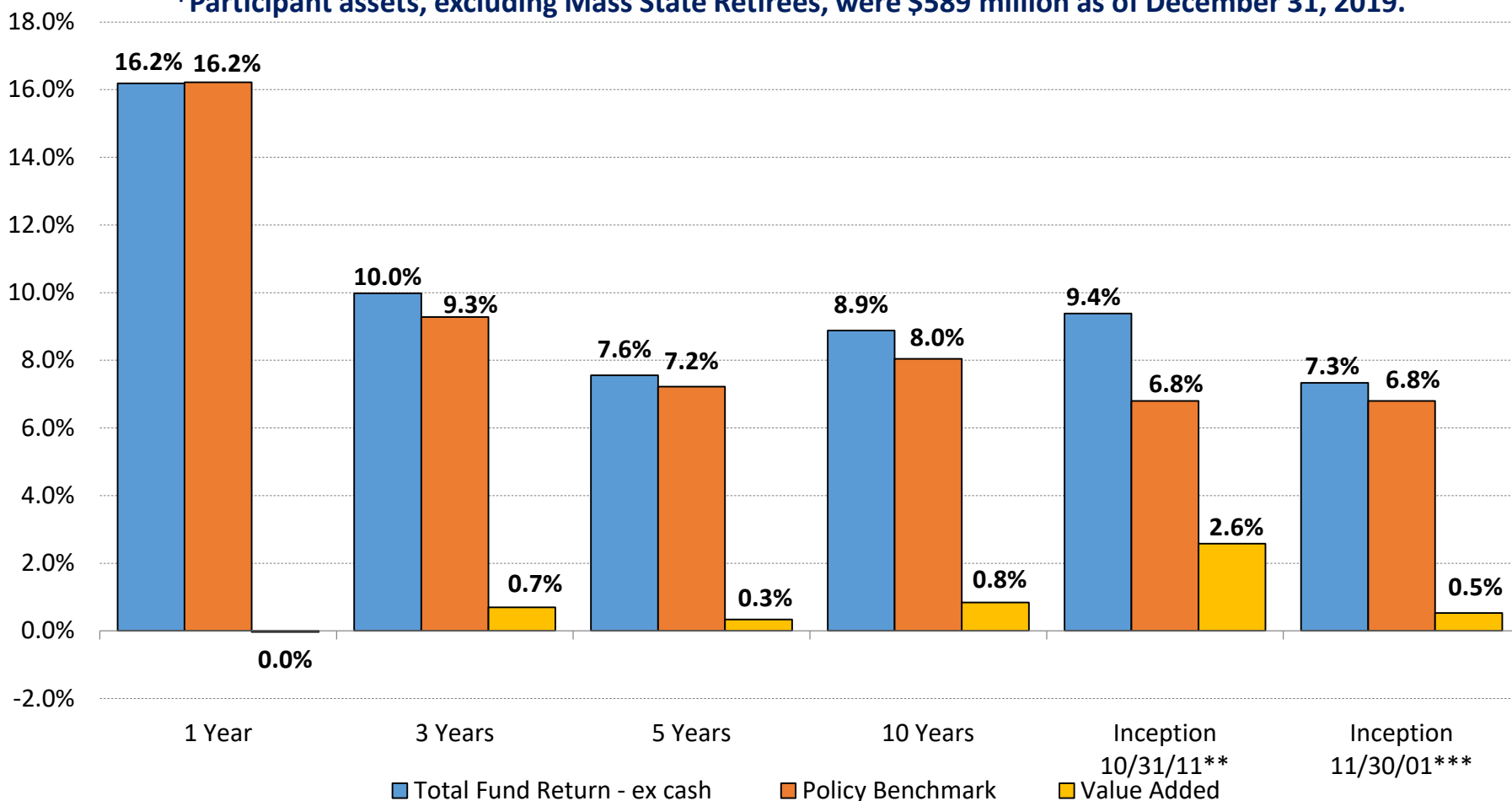
SRBT Fund Performance ***As of December 31, 2019***



Total SRBT Fund Returns (Net of Fees) - \$2.03 Billion*

Annualized Returns as of December 31, 2019

*Participant assets, excluding Mass State Retirees, were \$589 million as of December 31, 2019.



The inception date for the SRBTF's investment in the PRIT Fund General Allocation Account (PRIT GA) was 10/31/2011, when 82% of the fund was transitioned from separate accounts to PRIT GA. The remaining 18% of separate account assets were transitioned over the following 14 months with 100% of assets invested in PRIT GA by 12/31/2012. **The ITD return of 10.1% reflects the inception-to-date return for PRIT GA assets only.

*** The inception date for the TOTAL FUND was 11/30/2001. This ITD value reflects the true inception-to-date return for all SRBTF assets including legacy separate account investments as well as the PRIT GA investments.





Municipal Outreach



Municipal Outreach

1. Acton-Boxborough Regional School District
2. Amherst-Pelham Regional School District
3. Andover
4. Ayer Shirley Regional School District
5. Bellingham*
6. Belmont
7. Bernardston
8. Bridgewater
9. Byfield Water District
10. Cape Cod Regional Transit Authority
11. Chelmsford Water District
12. Dartmouth
13. Dracut
14. Freetown
15. Foxboro
16. Greater Lawrence Sanitary District
17. Greenfield
18. Groton
19. Halifax
20. Haverhill
21. Hull
22. Lawrence
23. Longmeadow
24. Lynn
25. Massachusetts Association of Regional Planning Agencies (MARPA)
26. Massachusetts Housing Finance Authority
27. Medway
28. Melrose
29. Mohawk/Hawlemont Regional School District (Buckland)
30. Nauset Regional High School
31. Newbury
32. Pepperell
33. Prospect Hill Academy Charter School
34. Quabbin Water District*
35. Somerset
36. South Hadley Fire District
37. Springfield
38. Stoneham

39. Sudbury
40. Tri-County Educational Collaborative (Franklin, MA)
41. Truro
42. Waltham
43. Watertown
44. West Boylston Municipal Light Department
45. Westford
46. West Newbury
47. Weston
48. Winthrop
49. Woburn

*New Listing



Governmental Entities Participating in the SRBTF

- | | |
|---|---|
| 1. Town of Acton | 40. Manchester Essex Regional School District |
| 2. Town of Amherst | 41. Town of Marblehead |
| 3. Town of Ayer | 42. Marblehead Municipal Light Department |
| 4. Town of Bedford | 43. Massachusetts School Building Authority |
| 5. City of Beverly | 44. Mass State Retirees (SRBTF) |
| 6. BiCounty Educational Collaborative, Franklin, MA | 45. Mass Water Resources Authority |
| 7. Town of Blackstone | 46. Town of Medfield |
| 8. Boston Redevelopment Authority | 47. Town of Middleton |
| 9. Town of Boxford | 48. Town of Milton |
| 10. Town of Braintree | 49. Town of Montague |
| 11. Town of Brewster | 50. Nashoba Regional School District |
| 12. Town of Brookline | 51. Town of Needham |
| 13. Town of Burlington | 52. City of New Bedford |
| 14. Byfield Water District | 53. City of Newburyport |
| 15. Town of Chelmsford | 54. City of Newton |
| 16. Concord Area Special Education (CASE) Collaborative | 55. Town of North Andover |
| 17. Town of Cohasset | 56. Town of Northborough |
| 18. Town of Dalton | 57. Town of Northfield |
| 19. Town of Dracut | 58. Old Rochester Regional School District |
| 20. Town of Dedham | 59. Town of Orleans |
| 21. Fall River Housing Authority | 60. Pilgrim Area Collaborative (PAC), Pembroke, MA |
| 22. City of Fitchburg | 61. Town of Provincetown |
| 23. Town of Franklin | 62. Shawsheen Valley Technical High School, Billerica, MA |
| 24. Franklin Regional Council of Governments | 63. Town of Sherborn |
| 25. Greater Lowell Regional Technical School | 64. Town of Stockbridge |
| 26. Town of Harvard | 65. Town of Tewksbury |
| 27. Town of Hingham | 66. Town of Wakefield |
| 28. Town of Holliston | 67. Wakefield Municipal Gas & Light Department |
| 29. Town of Ipswich | 68. Town of Wayland |
| 30. Town of Lancaster | 69. Town of Wellesley |
| 31. Lawrence Housing Authority | 70. Town of Westwood |
| 32. Town of Lenox | 71. Town of Wilmington |
| 33. City of Leominster | |
| 34. Town of Lincoln | |
| 35. Lincoln-Sudbury Regional School District | |
| 36. Town of Longmeadow | |
| 37. Lowell Regional Transit Authority (LRTA) | |
| 38. Lower Pioneer Valley Educational Collaborative | |
| 39. Town of Manchester-By-The-Sea | |



Contacts

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