



PRESENTATION TO THE **STATE RETIREE BENEFITS RETIREMENT BOARD**

PRESENTED BY

Francesco Daniele, Director of Client Services

Laura Strickland, Senior Client Services Officer

DECEMBER 3, 2021

Deborah B. Goldberg, Treasurer and Receiver General, Chair

Michael G. Trotsky, CFA, Executive Director and Chief Investment Officer

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PRIM BOARD & PRIT FUND OVERVIEW



AS OF SEPTEMBER 30, 2021

PRIT Fund Snapshot

As of September 30, 2021

PRIT FUND FACTS

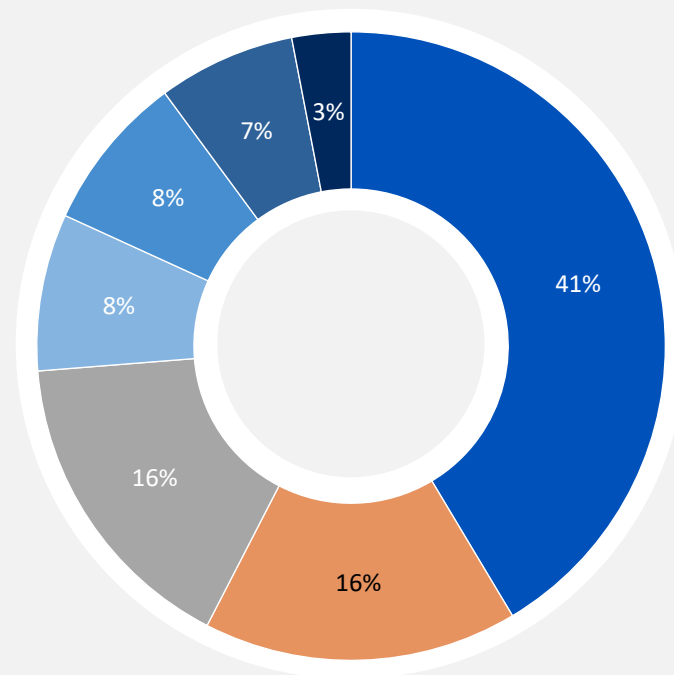
- \$98.5 billion AUM
- 53 public markets portfolios
- 16 real estate, timber and REIT portfolios
- 100+ private equity managers;
200+ partnerships
- 33 portfolio completion strategies managers

OVERSIGHT AND STAFFING

- 9 appointed and elected trustees
- 4 advisory committees, consisting of 35 industry professionals and Board members
- Staff of 52 professionals
 - 2 PhDs
 - 25 Masters
 - 14 CFAs
 - 6 CPAs
 - 2 CAIAs
 - 1 FRM
 - 1 CRE
 - 19 CFA Investment Foundations Program Certificate Holders

ASSET ALLOCATION

(as of 9/30/21)



TARGET RANGES

(approved 2/24/21)

- Global Equities 34% - 44%
- Core Fixed Income 12% - 18%
- Private Equity 11% - 17%
- Portfolio Completion Strategies 7% - 13%
- Real Estate 7% - 13%
- Value-Added Fixed Income 5% - 11%
- Timberland 1% - 7%

About PRIM



\$98.5 billion investment fund that invests public employee pension benefits

- PRIM has a professional, experienced and focused investment staff.
- PRIM does not administer benefits.

PRIM's mission is to relieve the pension funding burden on the taxpayer

- Self-funded agency which generates asset returns for the Massachusetts pension system.
- PRIM's Project SAVE initiative is achieving over \$250 million annualized value enhancing activities for the fund annually.

PRIM is independent and governed by a nine-member Board of Trustees

- Massachusetts State Treasurer is the Chair of the PRIM Board.
- A robust committee structure lends investment and operational expertise to the decision-making process.



PRIM Core Beliefs

We believe that any investment must be evaluated on three equally important parameters: return, risk and cost.

We don't make tactical asset allocation decisions or investment decisions based on market or economic predictions. Instead, we engineer a strategic, long-term asset allocation strategy that we hope will stand the test of a long-time horizon.

We value a basis point of cost reduction more than a basis point of return. Because we can count on cost savings every year, but nobody ever really knows what the markets will deliver.

PRIM 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

Methodical asset allocation decisions

6

Project SAVE

7

Re-engineered Hedge Fund program – Portfolio Completion Strategies

- Direct hedge funds
- Hedge fund replication
- Emerging manager direct hedge fund
- Hedge fund and other credit fund co-investment

8

Enhanced manager search and selection process

9

Private Equity co-investment

10

Direct Real Estate Program

PRIM Board



Chair
DEBORAH B. GOLDBERG
State Treasurer and
Receiver General,
Commonwealth of Massachusetts



**Ruth Ellen
Fitch**

Appointee of
the State
Treasurer



**James B.G.
Hearty**

Designee
of the
Governor,
Ex Officio
Member



**Peter
Monaco**

Appointee
of the
Governor,
Non-State
Employee or
Official



Carly Rose

Appointee
of the
Governor,
Public Safety



**Theresa F.
McGoldrick,
Esquire**

State
Retirement
Board
Member
(SRB)



**Dennis J.
Naughton**

Teachers'
Retirement
Board
Member
(TRB)



**Robert L.
Brousseau**

Elected
Representative
State Teachers'
Retirement
System



**Paul E.
Shanley,
Esquire**

Elected
Representative
State
Employees
Retirement
System



PRIM Advisory Committees

Investment Committee

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. Members include:

1. **Deborah B. Goldberg**, Chair, Treasurer and Receiver General of Massachusetts, PRIM Board Chair (Ex Officio)
2. **Joseph C. Bonfiglio**, Massachusetts & Northern New England Laborers' District Council
3. **C. LaRoy Brantley**, Investment Consultant
4. **Michael Even**, Former President and CEO, Numeric Investors
5. **Constance M. Everson**, CFA, Managing Director, Capital Markets Outlook Group
6. **Ruth Ellen Fitch**, Esq., Board Member, Former President and CEO, the Dimock Center
7. **James B. G. Hearty**, Board Member, Former Partner, Clough Capital (Ex Officio)
8. **Peter Monaco**, Board Member, Managing Director, Raptor Group
9. **Phillip H. Perlmutter**, Former Managing Partner, Wellington Management
10. **Philip Rotner**, Chief Investment Officer, Boston Children's Hospital
11. **Paul E. Shanley**, Esq., Board Member, Director of Professional Liability, Amity Insurance
12. **Glenn P. Strehle**, CFA, Treasurer Emeritus, MIT
13. **Timothy L. Vaill**, Former Chairman and CEO, Boston Private Holdings

Real Estate Committee

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

1. **Jill S. Hatton**, CRE, Chair, Real Estate Investment Professional
2. **Deborah B. Goldberg**, Treasurer and Receiver General of Massachusetts, PRIM Board Chair (Ex Officio)
3. **Lydia Chesnick**, Esq., Partner, Bernkopf Goodman LLP
4. **Robert Gifford**, RGA Corp.
5. **Anthony E. Hubbard**, Esq., CVS Health
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**, Board Member, Public Safety Union Member



PRIM Advisory Committees

Administration and Audit Committee

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. Members include:

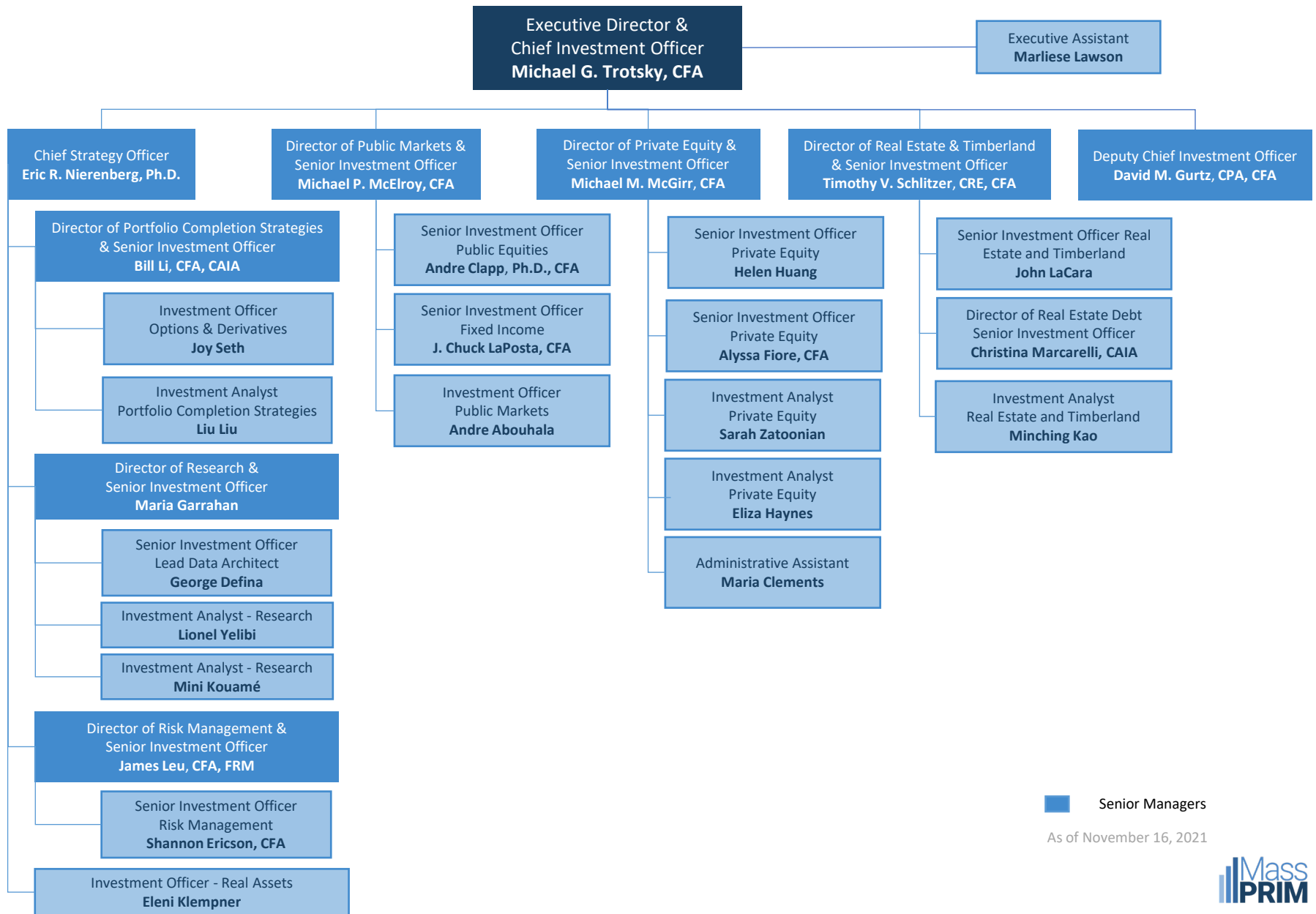
1. **Robert L. Brousseau**, Chair, Board Member, Retired Teacher, Town of Wareham School System
2. **Deborah B. Goldberg**, Treasurer and Receiver General of Massachusetts, PRIM Board Chair (Ex Officio)
3. **Patrick E. Brock**, Chairman, Hampshire County Retirement Board
4. **Karen E. Gershman**, CPA, Former Partner and Chief Operating Officer, Health Advances
5. **James B. G. Hearty**, Board Member, Former Partner, Clough Capital (Ex Officio)
6. **Theresa F. McGoldrick**, Esq., Board Member, National Executive Vice President, National Association of Government Employees (NAGE)
7. **Dennis J. Naughton**, Board Member, Retired Educator, Millis Public Schools
8. **Michele A. Whitham**, Esq., Founder & Principal, Whitham Law LLC

Compensation Committee

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. Members include:

1. **Michele A. Whitham**, Esq., Chair, Founder & Principal, Whitham Law LLC
2. **Deborah B. Goldberg**, Treasurer and Receiver General of Massachusetts, PRIM Board Chair (Ex Officio)
3. **Robert L. Brousseau**, Board Member, Retired Teacher, Town of Wareham School System
4. **Patrick E. Brock**, Chairman, Hampshire County Retirement Board

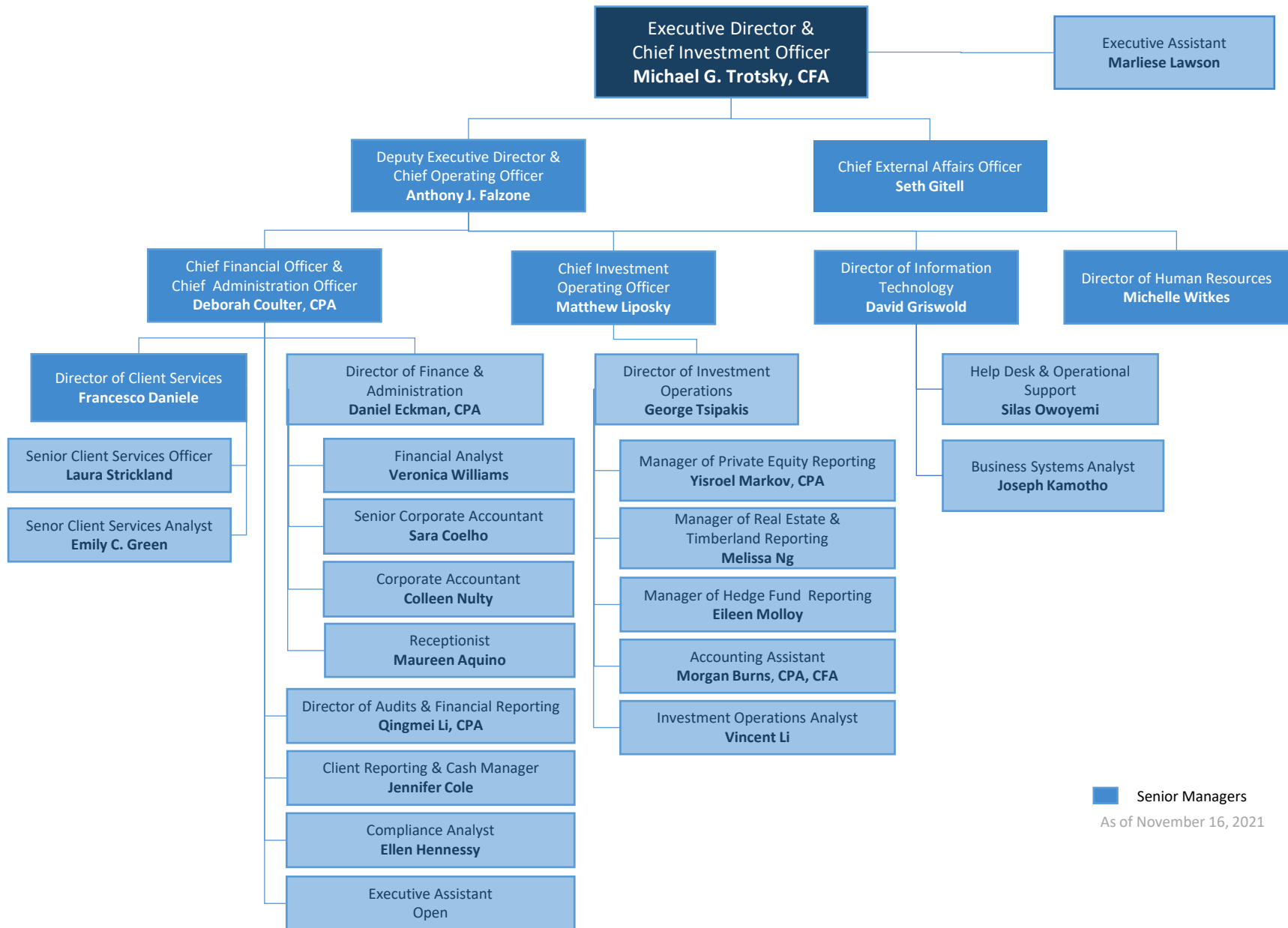
PRIM Investment Team



Senior Managers

As of November 16, 2021

PRIM Finance and Operations Team



■ Senior Managers

As of November 16, 2021

Recent Recognition

PRIM's Private Equity Portfolio ranked #4 by the American Investment Council

PRIM's Private Equity Portfolio has been ranked #4 among 176 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 five every year the study has been conducted, including #1 rankings in 2019, 2018, 2015, and 2013. (July 2021)

Institutional Investor's Partnership of the Year Award Finalist

PRIM's Portfolio Completions Strategies team was one of four finalists for "Partnership of the Year" at their Allocators' Choice Awards. This is the sixth time PRIM has been recognized for outstanding innovation by *Institutional Investor*, as nominated by industry peers and colleagues, including "Plan of the Year" – winner, 2016, "Plan of the Year" – nominee 2017, 2018, 2019, and Michael Trotsky, CFA, Executive Director and Chief Investment Officer of MassPRIM "Lifetime Achievement Award" in 2019. (June 2021)

GIPS Compliance

For the 4th consecutive year, PRIM has completed the CFA Institute's Global Investment Performance Standards of Integrity and transparency. PRIM is one of only a handful of large public pension plans to comply with the GIPS standards. (August 2021)

Certificate of Achievement for Excellence in Financial Reporting – Government Finance Officer Association

PRIM was awarded the Government Finance Officer Association's Certificate of Achievement for Excellence in Financial Reporting for the 16th consecutive year. (June 2021)

MIT Sloan/PRIM Collaboration on Environmental, Social, and Governance Ratings Research

PRIM has joined with the MIT Sloan Sustainability Initiative as the founding member of the Aggregate Confusion Project. The groundbreaking collaboration seeks to create more reliable and transparent ESG data and benchmarks for Investors. (September 2020)

PRIM FUTURE Initiative on Diversity & Inclusion

PRIM launched the FUTURE initiative, which is designed to implement the newly created Investment Equity law, the law created and championed by Treasurer Goldberg and signed into law in January 2021. The new law will help PRIM create an enhanced pathway for diverse investment managers and vendors to compete successfully for contracts. (May 2021)

Treasurer Deborah B. Goldberg Honored by National Association of State Treasurers

Treasurer Goldberg was honored by the National Association of State Treasurers with the Jesse H. Unruh Award, which is awarded to an active Treasurer in recognition of outstanding service to the Association, the profession, and his or her state. Treasurer Goldberg currently serves as the President of the Association (September 2020)

External Advisors

Fund Advisors

- **Aberdeen Asset Management** – Portfolio Completion Strategies
- **Albourne** – Operational Due Diligence
- **Callan Associates** – Public Markets
- **Hamilton Lane** – Private Equity
- **International Woodland Company** – Timberland
- **NEPC, LLC** – Asset Allocation
- **NewAlpha Asset Management** – Portfolio Completion Strategies

Independent Auditors

- **KPMG, LLP** – PRIM Board and PRIT Fund, Real Estate, Timber, and SASE 16 Reviews

Other

- **Seven Letter** – Communications
- **Edgewater Technology** – IT support

Custodian

- **BNY Mellon Corporation**

A blue-tinted photograph of a city skyline at dusk or dawn, viewed from across a body of water. In the foreground, there is a paved walkway and some greenery on the left. The skyline features several prominent skyscrapers, including the Two World Trade Center towers. The text 'ECONOMIC BACKDROP' is overlaid in white, bold, sans-serif capital letters.

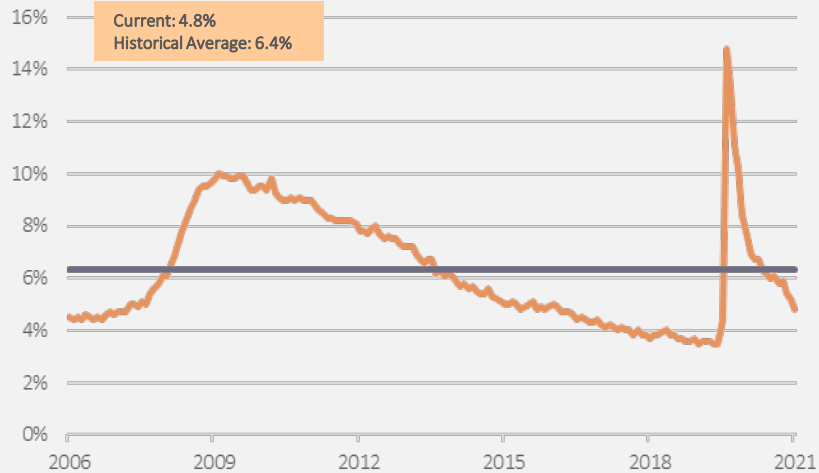
ECONOMIC BACKDROP

The logo for Mass PRIM, featuring the word 'Mass' in a serif font above the word 'PRIM' in a bold, sans-serif font. To the left of the text are three vertical bars of increasing height, resembling a bar chart or a stylized 'M'.

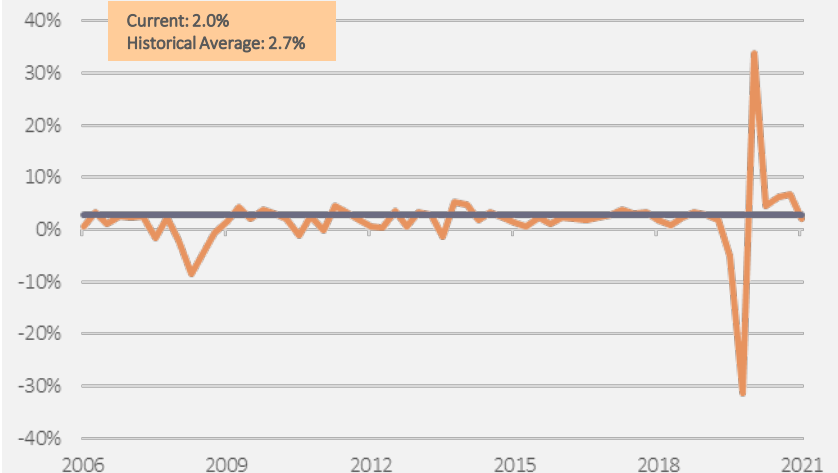
AS OF SEPTEMBER 30, 2021

U.S. Economic Data

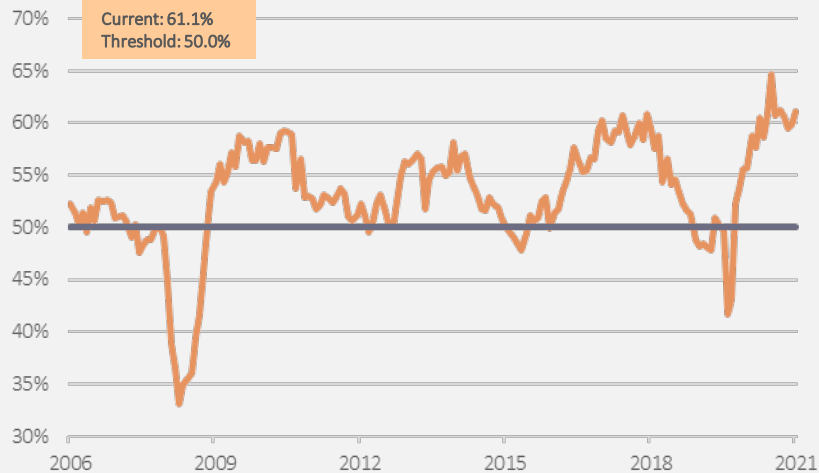
UNEMPLOYMENT RATE



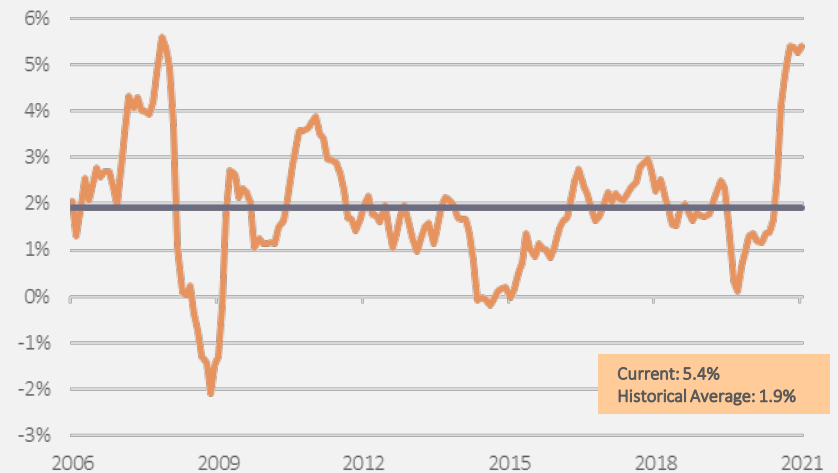
GDP GROWTH RATE



MANUFACTURING PMI

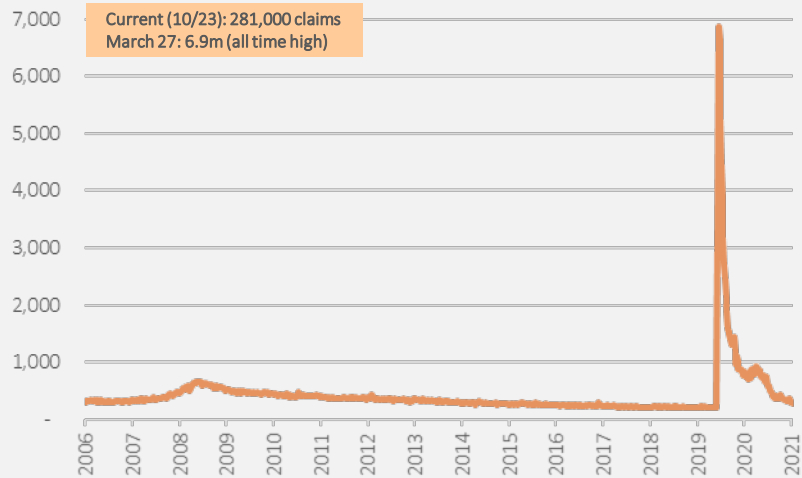


CONSUMER PRICE INDEX

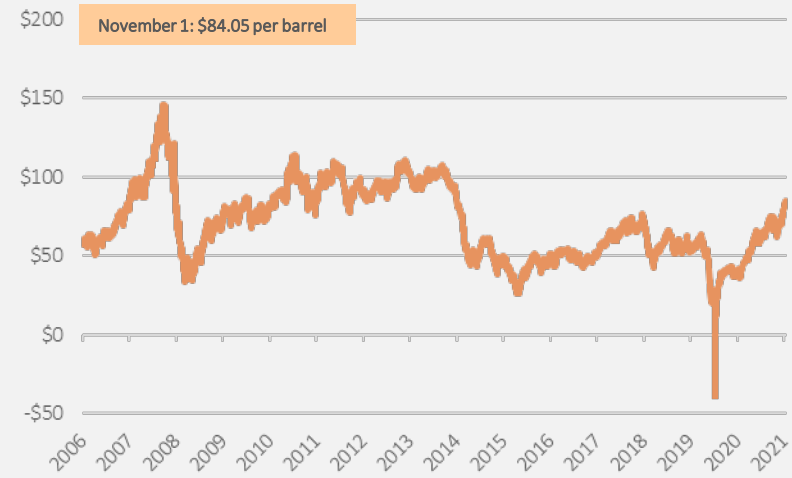


U.S. Economic Data

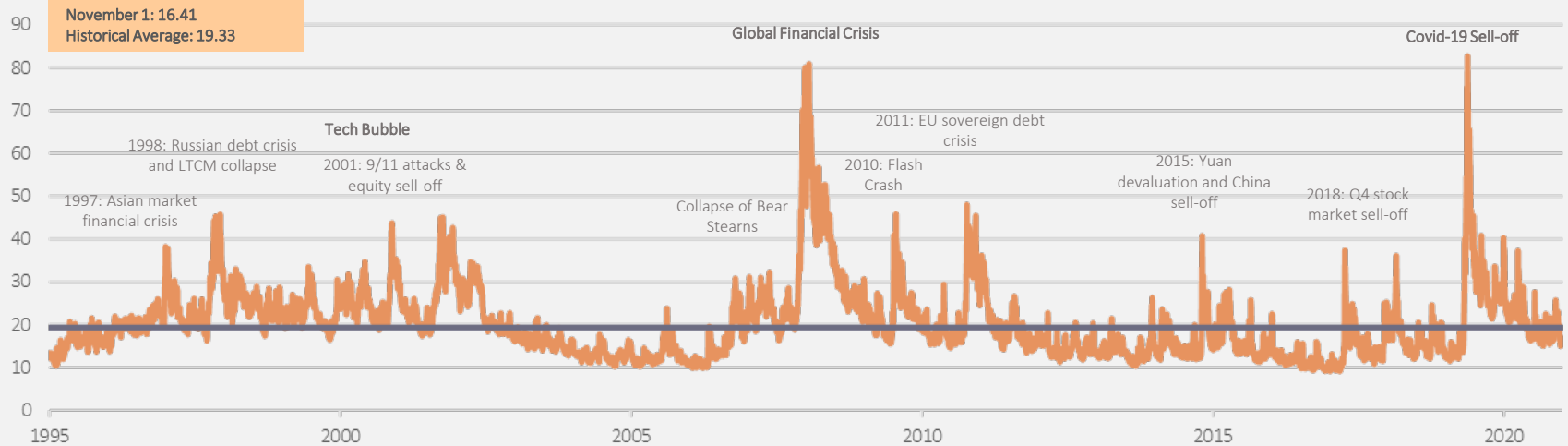
WEEKLY INITIAL JOBLESS CLAIMS (IN MILLIONS)



WTI CRUDE OIL (\$/BBL)



CBOE MARKET VOLATILITY INDEX (VIX)



The background of the slide is a photograph of a city skyline, likely Boston, featuring several skyscrapers and a prominent cable-stayed bridge. The image is overlaid with a semi-transparent blue filter. In the center, the text "PRIT FUND" and "ASSET ALLOCATION TARGETS" is displayed in large, white, sans-serif capital letters. Below this, the "Mass PRIM" logo is visible, consisting of the word "Mass" in a smaller font above "PRIM" in a larger, bold font, with a stylized graphic of three vertical bars to the left.

PRIT FUND ASSET ALLOCATION TARGETS

Mass
PRIM

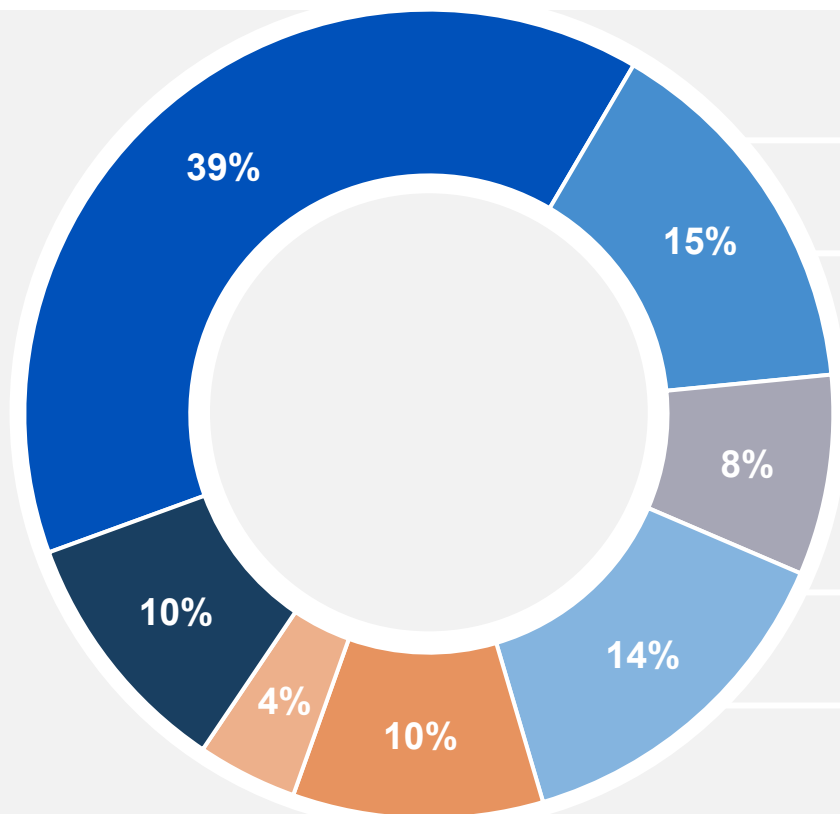
Changes to Target Ranges – PRIT Fund Asset Allocation

Approved February 24, 2021

Increase in Allocation Range	Same Allocation Range	Decrease in Allocation Range
Private Equity: Target Band moves up 1%	Global Equity: Target Band stays the same Core Fixed Income: Target Band stays the same Value-Added Fixed Income: Target Band stays the same Real Estate: Target Band stays the same Timberland: Target Band stays the same	Portfolio Completion Strategies: Target Band moves down 1%

PRIT Asset Allocation

Approved February 24, 2021



	AA 2020 Approved Range	AA 2021 Approved Range	Within Range
Global Equity (including Hedged US Equity)	34% - 44%	No Change	Yes
Core Fixed Income	12% - 18%	No Change	Yes
Value-Added Fixed Income	5% - 11%	No Change	Yes
Private Equity	10% - 16%	11% - 17%	Yes
Real Estate	7% - 13%	No Change	Yes
Timberland	1% - 7%	No Change	Yes
Portfolio Completion Strategies	8% - 14%	7% - 13%	Yes

The ranges in the PRIM asset allocation reflect the long-standing use of bands around a midpoint. Managing the asset allocation to a particular midpoint in the range is not always possible, practical or advisable.

PRIM 2021 Asset Allocation Recommendations

NEPC Capital Market Assumptions with PE and PCS Changes

			12/31/20 Asset Class Assumptions	
Asset Classes	Proposed Asset Allocation Range		10 Yr. Expected Return	30 Yr. Expected Return
US Equity ¹	21.2%		5.5%	6.4%
International Equities ²	11.8%		5.9%	6.6%
Emerging International Equities ²	5.0%		7.6%	8.4%
Hedged Equity ³	1.0%		4.8%	5.7%
Global Equity	34% - 44%			
Core Bonds	7.0%		1.4%	2.7%
Short-Term Fixed Income ⁴	1.0%		1.0%	2.0%
20+ Yr. Treasury STRIPS	3.0%		0.4%	1.7%
TIPS/ILBs	4.0%		1.0%	2.1%
Core Fixed Income	12% - 18%			
Value-Added Fixed Income ⁵		5% - 11%	4.8%	6.2%
Private Equity		11% - 17%	9.6%	10.2%
Real Estate ⁶		7% - 13%	4.8%	6.0%
Timberland ⁷		1% - 7%	5.4%	6.6%
Portfolio Completion (PCS) ⁸		7% - 13%	4.0%	5.2%
Total Fund Expected Return⁹			5.8%	6.8%

1. Blended allocation to large-cap equity (85%) and small-cap equity (15%)

2. Blended allocation to large-cap equity (90%) and small-cap equity (10%)

3. Modeled as US LIBOR, US large-cap equity, and US small-cap equity

4. Modeled as short-term Treasury

5. Modeled as 50% High Yield and 50% Private Debt

6. Real Estate is modelled as 80% Private Real Estate and 20% REITs

7. Timberland is modeled as Private Real Assets Infrastructure/Land

8. Modeled as equal weighed blend of Hedge Fund Equity, Credit and Macro

9. Asset classes modeled as the midpoint of the asset allocation range



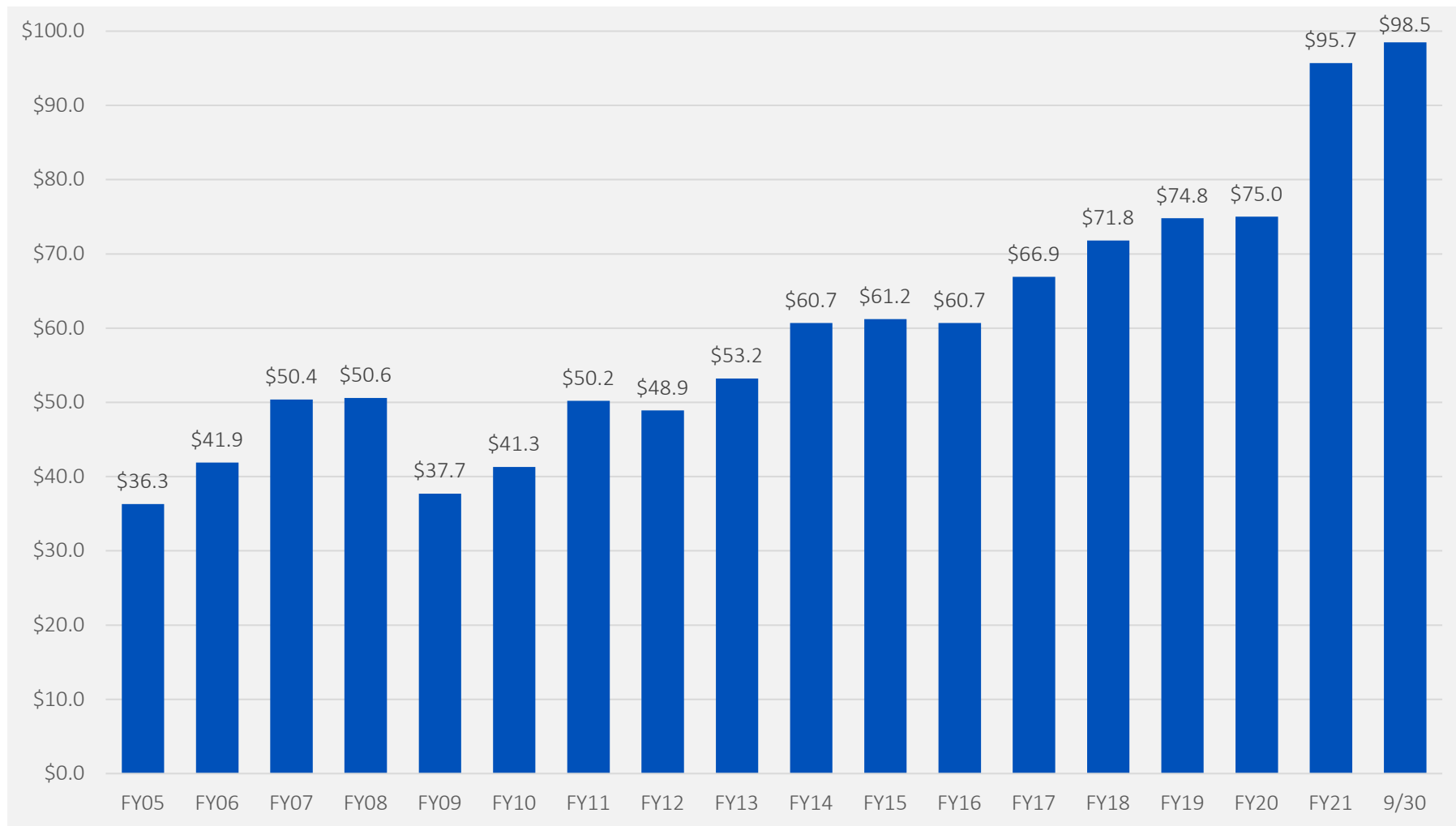
PRIT FUND PERFORMANCE



AS OF SEPTEMBER 30, 2021

Total PRIT Fund Fiscal Year Market Value

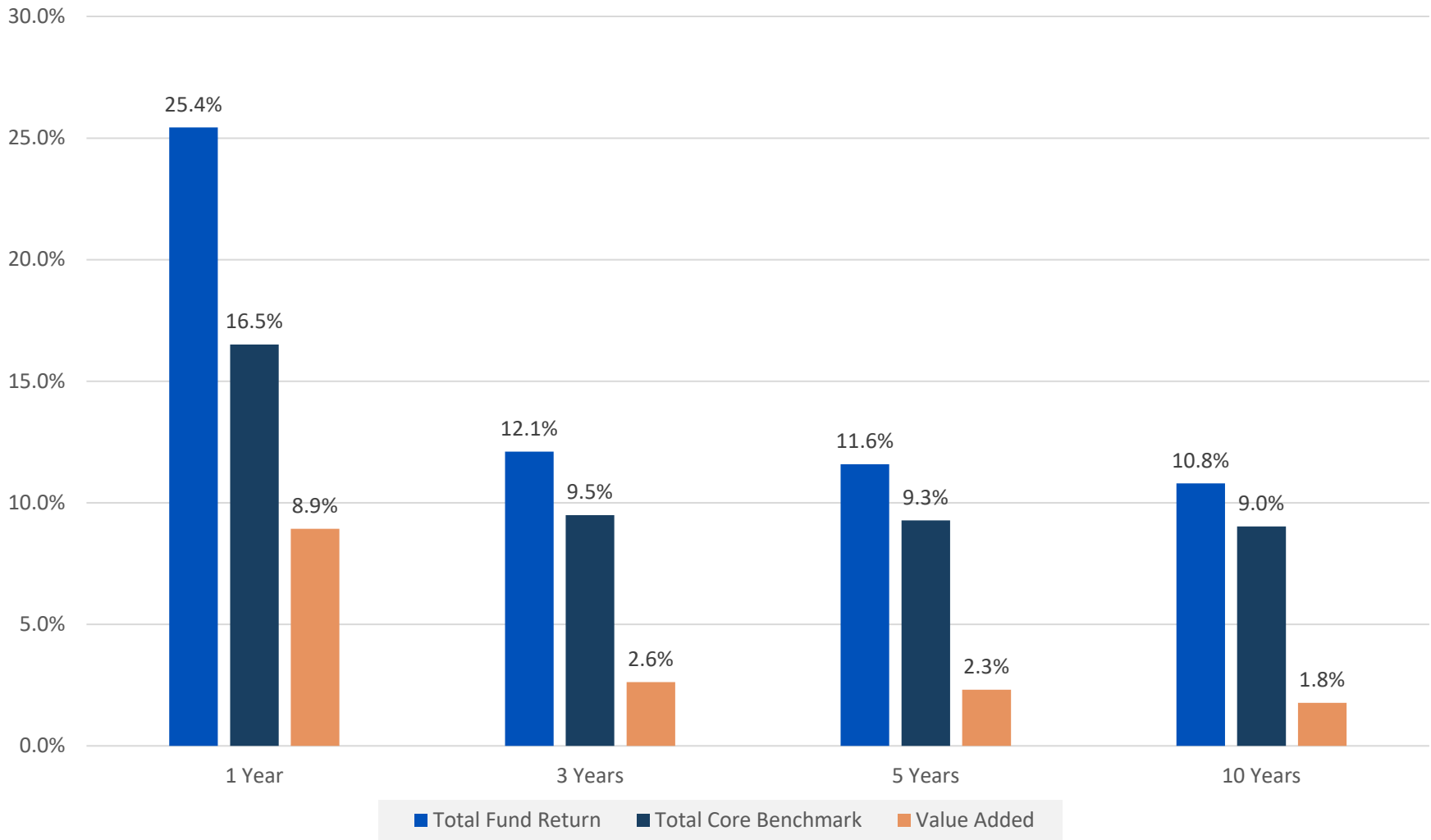
Value (\$Billions)



Source: BNY Mellon. As of September 30, 2021.

PRIT Fund Total Returns

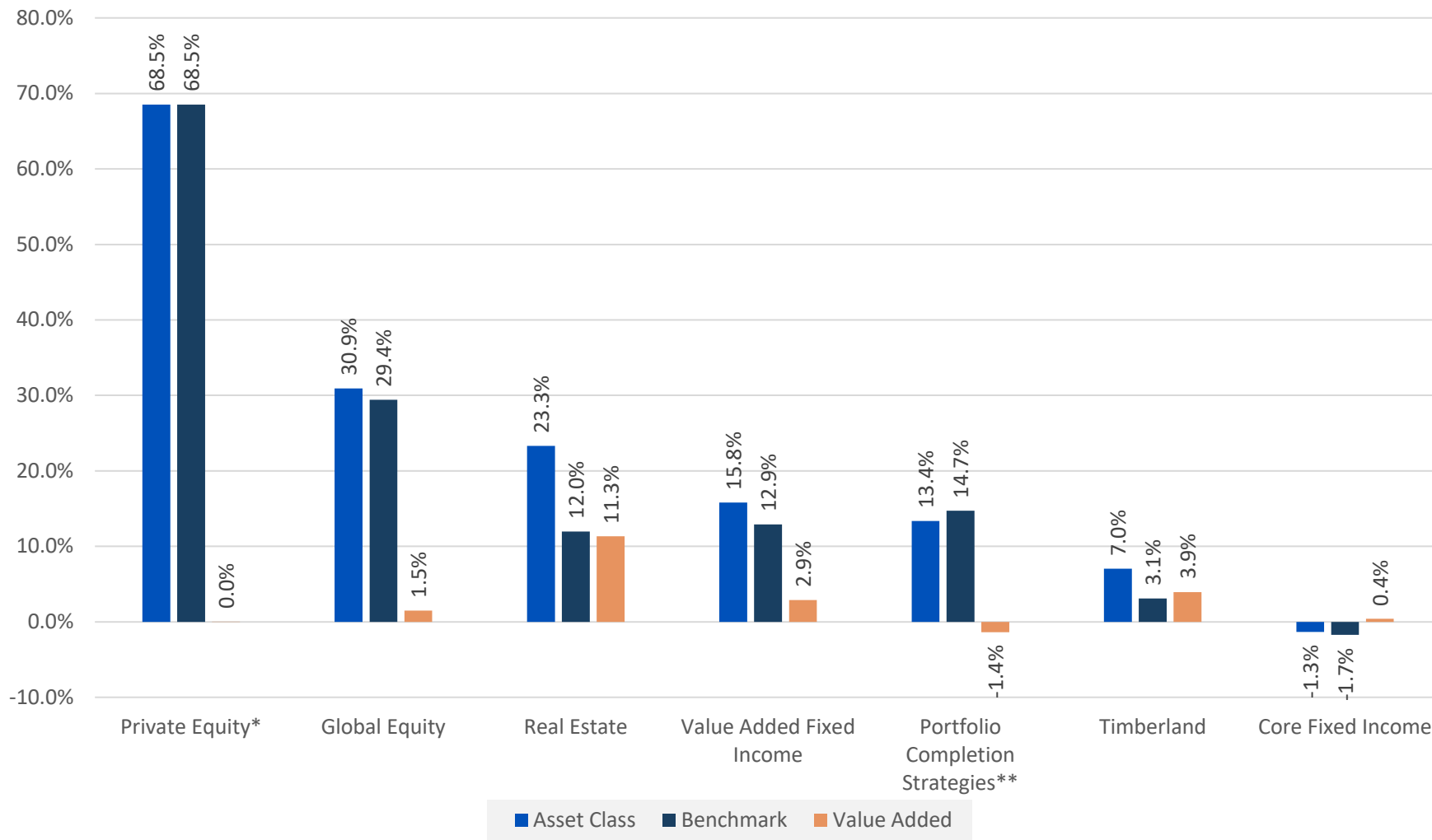
Annualized Returns as of September 30, 2021 (Gross of Fees)



Source: BNY Mellon. Totals may not add due to rounding. Total Core Benchmark includes private equity benchmark.

PRIT Asset Class Performance Summary

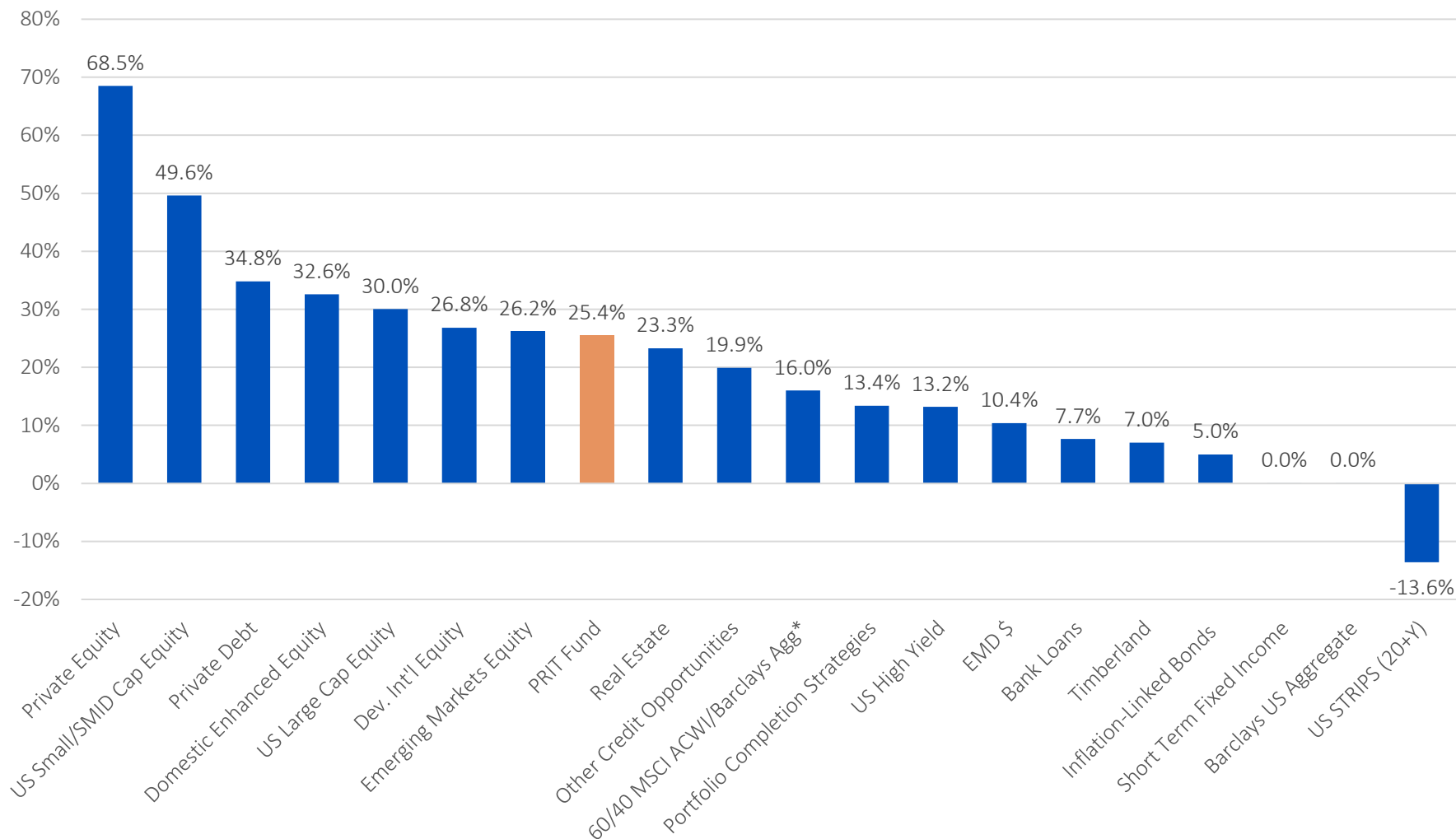
One-Year Ended September 30, 2021 (Gross of Fees)



Source: BNY Mellon. Totals may not add due to rounding. *Benchmark is actual performance. **Hedge Fund returns are net of fees.

PRIT Performance By Strategy – One-Year

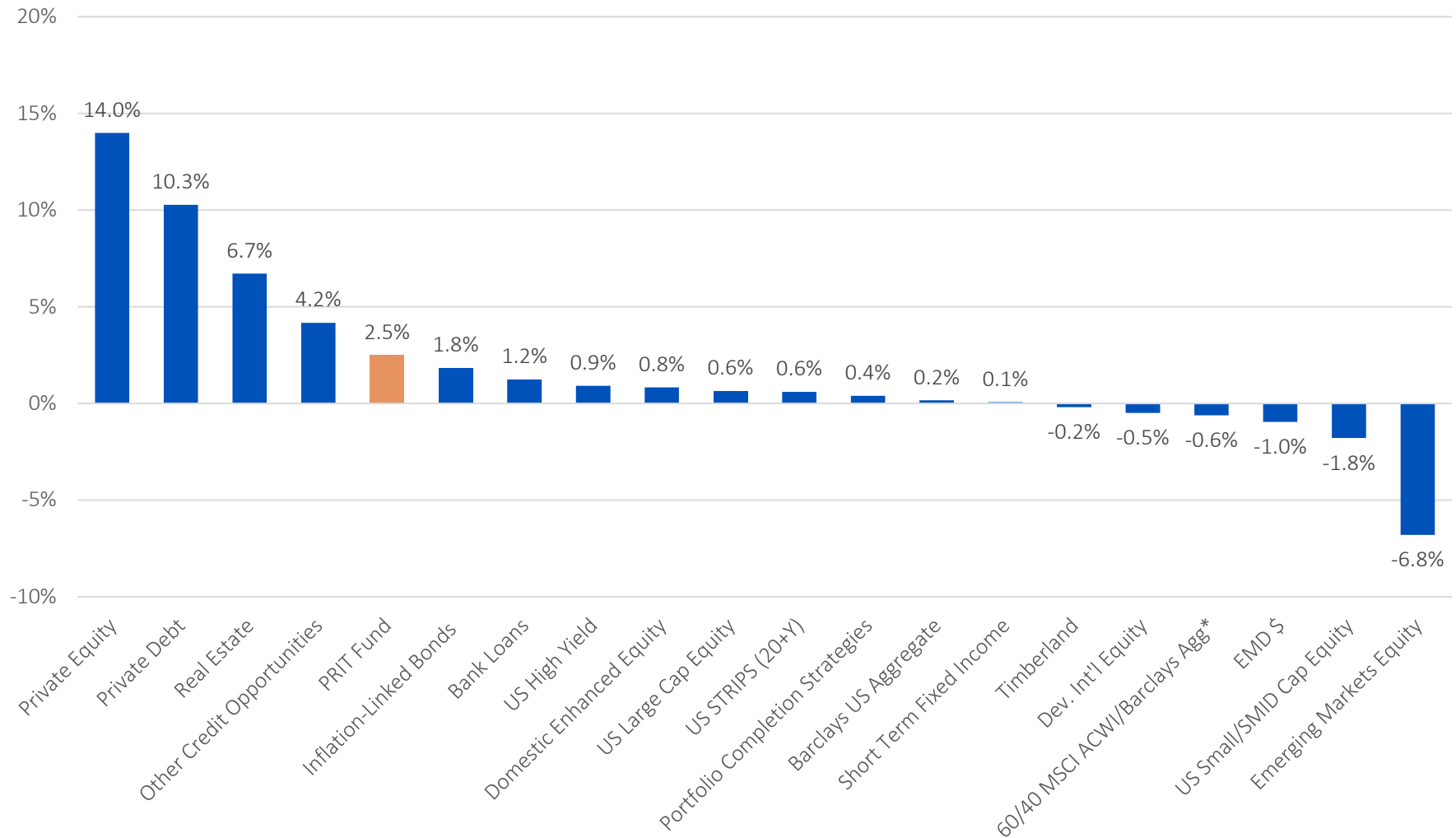
One-Year Ended September 30, 2021 (Gross of Fees)



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.

PRIT Performance By Strategy – Third Quarter 2021

Quarter Ended September 30, 2021 (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.

PRIT Fund Annualized Returns By Asset Class

As of September 30, 2021 (Gross of Fees)

1 Year	3 Year	5 Year	10 Year
PRIVATE EQUITY 68.5%	PRIVATE EQUITY 31.0%	PRIVATE EQUITY 28.1%	PRIVATE EQUITY 21.9%
GLOBAL EQUITY 30.9%	GLOBAL EQUITY 12.7%	GLOBAL EQUITY 13.5%	GLOBAL EQUITY 12.4%
REAL ESTATE 23.3%	REAL ESTATE 9.6%	REAL ESTATE 8.8%	REAL ESTATE 10.9%
VALUE-ADDED FIXED INCOME 15.8%	CORE FIXED INCOME 7.6%	VALUE-ADDED FIXED INCOME 6.8%	VALUE-ADDED FIXED INCOME 6.0%
PORTFOLIO COMPLETION STRATEGIES 13.4%	VALUE-ADDED FIXED INCOME 7.3%	PORTFOLIO COMPLETION STRATEGIES 4.8%	PORTFOLIO COMPLETION STRATEGIES 5.1%
TIMBER 7.0%	PORTFOLIO COMPLETION STRATEGIES 3.1%	TIMBER 4.5%	TIMBER 4.9%
CORE FIXED INCOME (1.3%)	TIMBER 2.4%	CORE FIXED INCOME 3.4%	CORE FIXED INCOME 4.8%

Source: BNY Mellon.

A blue-tinted photograph of a city skyline at dusk or dawn, viewed from across a body of water. In the foreground, there is a paved walkway and some greenery on the left. The skyline features several prominent skyscrapers, including two cylindrical towers. The water reflects the city lights.

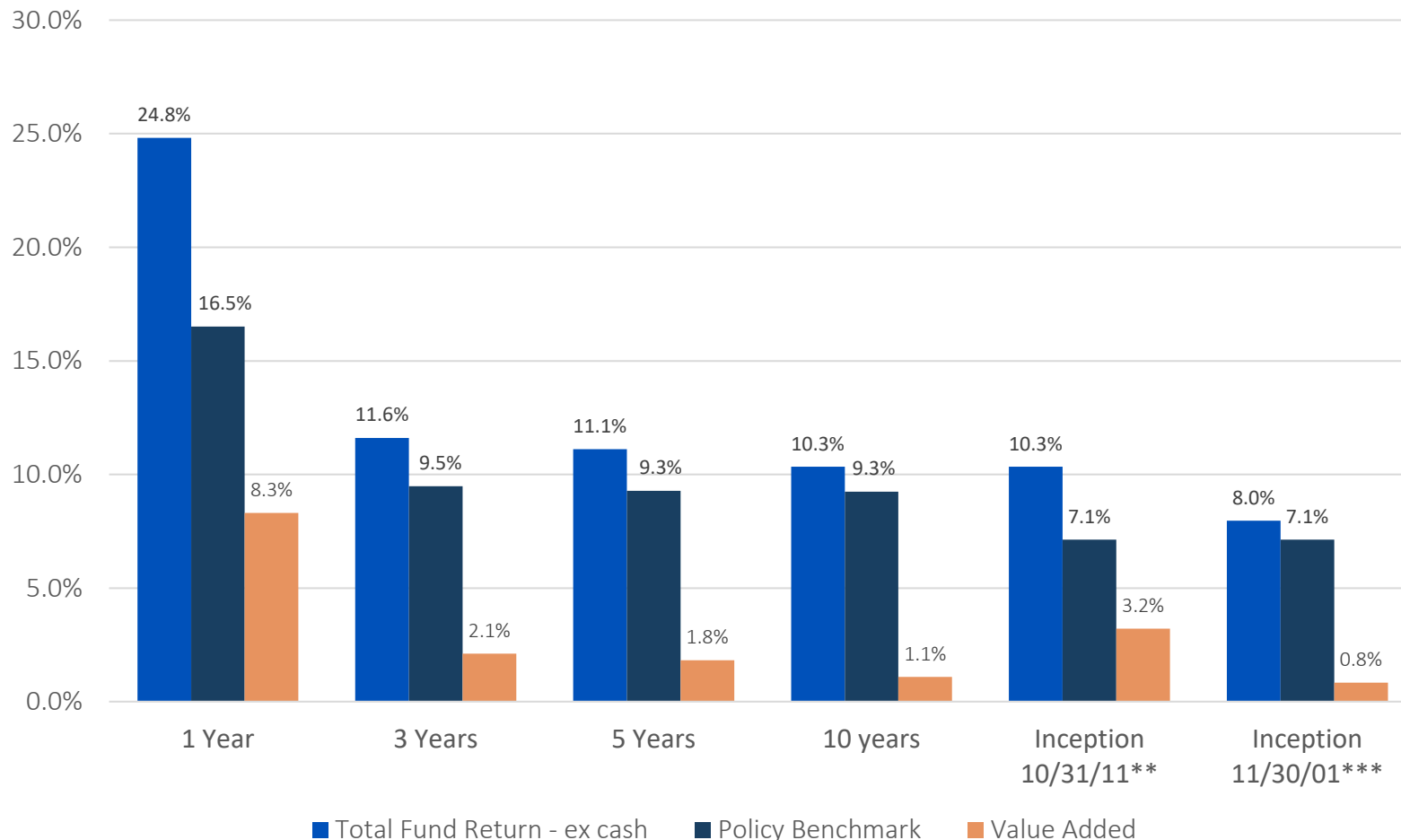
SRBT FUND PERFORMANCE

**Mass
PRIM**

AS OF SEPTEMBER 30, 2021

Total SRBT Fund Returns

\$2.82 Billion* One Year Ended September 30, 2021 (Net of Fees)



*Participant assets, excluding Mass State Retirees, were \$894.2 million as of June 30, 2021

** 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. **This ITD value of 10.4% 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

 Mass
PRIM

AS OF SEPTEMBER 30, 2021



Municipal Outreach

1. Acton-Boxborough Regional School District
2. Andover
3. Amherst-Pelham Regional School District
4. Andover
5. Ayer Shirley Regional School District
6. Belmont
7. Bernardston
8. Bridgewater
9. Byfield Water District
10. Cape Cod Regional Transit Authority
11. Cape Cod Light Compact (JPE)
12. **Central Collaborative***
13. Chelmsford Water District
14. Clinton
15. Concord
16. Dartmouth
17. Dracut
18. Everett
19. Freetown
20. Foxboro
21. Greater Lawrence Sanitary District
22. Greenfield
23. Gloucester
24. Groton
25. Halifax
26. **Hamilton Wenham School District***
27. Haverhill
28. Hull*
29. Lawrence
30. Longmeadow
31. Lynn
32. Massachusetts Association of Regional Planning Agencies (MARPA)
33. Massachusetts Housing Finance Authority
34. **Massachusetts State College Building Authority***
35. Medway
36. Melrose
37. Middlesex County Retirement System
38. Mohawk/Hawlemont Regional School District (Buckland)
39. Nauset Regional High School
40. Newbury
41. Pepperell
42. Prospect Hill Academy Charter School
43. Saugus
44. Somerset
45. Somerville
46. Springfield
47. Stoneham
48. Sudbury
49. Taunton
50. Tri-County Educational Collaborative (Franklin, MA)
51. Truro
52. Waltham
53. **Watertown***
54. West Boylston Municipal Light Department
55. Westford
56. West Newbury
57. Weston
58. **Weymouth***
59. Winthrop
60. **Woburn***

*New Listing

Governmental Entities Participating in the SRBTF

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



Massachusetts Pension Reserves
Investment Management Board
84 State Street, Suite 250
Boston, MA 02109
617-946-8401
www.mapension.com

THANK YOU

CONTACTS

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