



STATE RETIREE BENEFITS TRUST FUND BOARD

PRESENTED BY
Francesco Daniele, Director of Client Services

DECEMBER 8, 2022

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

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A blue-tinted photograph of a city skyline, likely Boston, viewed from a waterfront promenade. The image shows various skyscrapers and buildings across a body of water, with a paved walkway and some greenery in the foreground.

PRIM BOARD & PRIT FUND OVERVIEW



AS OF SEPTEMBER 30, 2022

PRIT Fund Snapshot

As of September 30, 2022

PRIT FUND FACTS

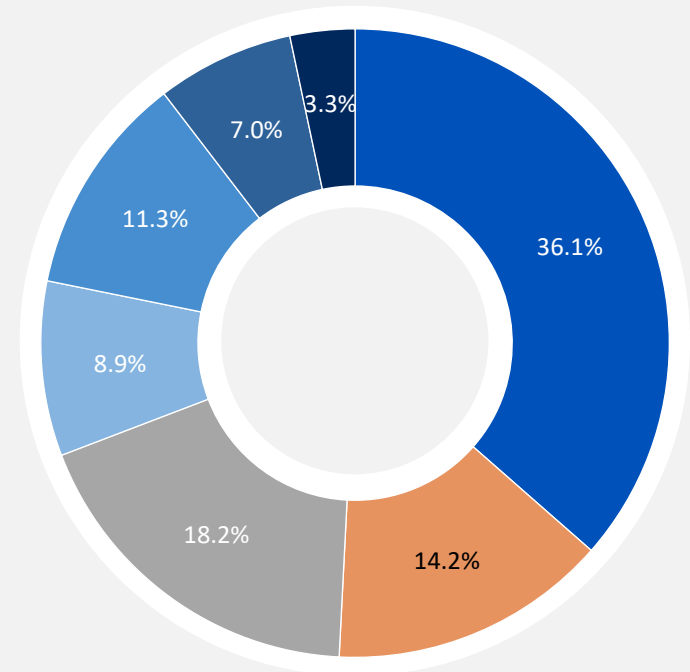
- \$88.6 billion AUM
- 59 public markets portfolios
- 16 real estate, timber and REIT portfolios
- 90+ private equity managers;
350+ partnerships
- 36 portfolio completion strategies managers

OVERSIGHT AND STAFFING

- 9 appointed and elected trustees
- 4 advisory committees, consisting of 35 industry professionals and Board members
- Staff of over 50 professionals
 - 1 PhD
 - 26 Masters
 - 15 CFAs
 - 6 CPAs
 - 3 CAIAs
 - 1 FRM
 - 1 CRE
 - 9 CFA Investment Foundations Program Certificate Holders

ASSET ALLOCATION

(as of 9/30/22)



TARGET RANGES

(approved 2/17/22)

- Global Equities 33% - 43%
- Core Fixed Income 12% - 18%
- Private Equity 12% - 18%
- Portfolio Completion Strategies 7% - 13%
- Real Estate 7% - 13%
- Value-Added Fixed Income 5% - 11%
- Timberland 1% - 7%

About PRIM



\$88.6 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)



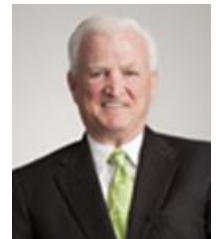
**Dennis J.
Naughton**

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. Perelmutter**, 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

Recent Recognition

Northeast Women in Public Finance Freda Johnson Lifetime Achievement Award

Treasurer Deborah B. Goldberg received the Northeast Women in Public Finance Freda Johnson Lifetime Achievement Award. “The award recognizes a woman serving or who has served in a position for a public or non-profit issuer who exemplifies the qualities that Freda Johnson brought to our industry as a trailblazer, leader, innovator, and mentor.” (December 2022)

PRIM’s Private Equity Portfolio Ranked #3 by the American Investment Council

PRIM’s Private Equity Portfolio was ranked #3 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. (June 2022)

Institutional Investor’s Partnership of the Year Award

PRIM’s role with the Aggregate Confusion Project was awarded “Partnership of the Year” at the fifth annual Allocators’ Choice Awards. PRIM is a founding partner with MIT Sloan School of Management in this project to “reduce the level of noise in ESG management” by improving data available to managers and allocators. Other participants include Qontigo, MFS Investment Management, AQR Capital Management, and Asset Management One. (September 2022)

Institutional Investor’s Public Plan of the Year Award Finalist

PRIM’s Portfolio Completions Strategies team was one of six finalists for “Public Plan of the Year” at their Hedge Funds Industry Awards for the 6th straight year. PRIM won the award in 2016 in recognition of our groundbreaking work in separately managed accounts, which is now becoming the industry standard. (April 2022)

Founding Signatory – CFA Institute’s Diversity, Equity, and Inclusion Code

PRIM became a founding signatory to the CFA Institute’s first-ever Diversity, Equity, and Inclusion Code for the Investment Profession. DEI Code signatories commit to six metrics-based Principles and to accelerate and amplify the impact of their commitment by making the economic, business, and moral case for diversity, equity, and inclusion. (March 2022)

PRIM Ranked #7 For Assets Managed by Diverse Managers by Pensions & Investments

PRIM was ranked seventh among the largest 200 funds in the U.S. for assets managed by diverse managers. This is an indication that PRIM’s ongoing efforts over the years, combined with the new FUTURE initiative are putting PRIM at the top of the rankings in terms of progress. (February 2022)

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 17th consecutive year. (June 2022)

GIPS Compliance

For the 5th 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. Additionally, Matt Liposky, PRIM’s Chief Investment Operations Officer, was selected to the CFA Institute’s GIPS Standards Asset Owner Subcommittee. (August 2022)



PRIM'S FUTURE INITIATIVE



PRIM's FUTURE Initiative

PRIM believes that diversity of thought and investment equity is critical to the FUTURE success of PRIM and the asset management industry. To successfully implement and accomplish these goals, PRIM must plan for the FUTURE:

F U T U R E

Firmwide Commitment

Continuation of PRIM's firmwide commitment to diversity and inclusion and diversity of thought.

Unbiased

PRIM will remain unbiased when evaluating and selecting investment managers or other vendors.

Transparent

PRIM will be fully transparent as to the progress toward our goals, as well as our successes and challenges.

Utilize Technology

PRIM will utilize technology to successfully track and manage the amount of data this initiative requires.

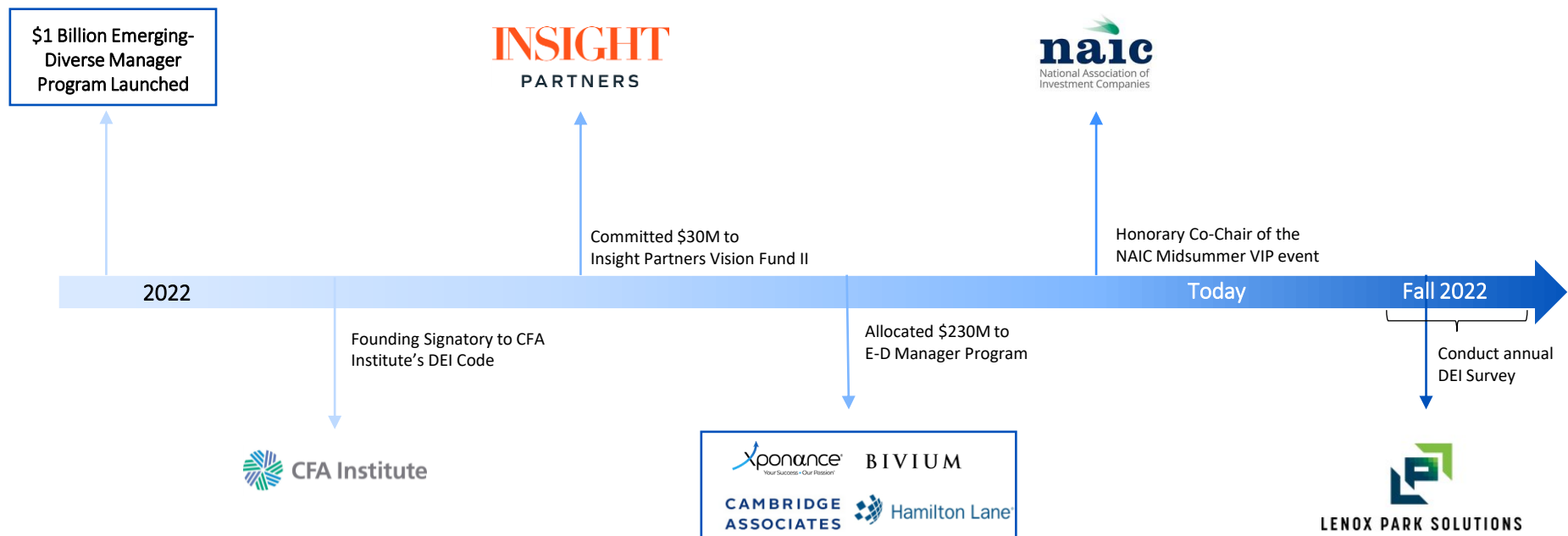
Resources

PRIM will employ additional internal and external resources as required to accomplish our goals.

Expand

PRIM will expand the conversation about diversity and inclusion in the asset management industry by being at the forefront of meaningful change.

FUTURE Initiative Update



PRIM continues to make progress on the keys to FUTURE Initiative:

- Reduce Barriers
- Enhance Diversity, Equity & Inclusion (DEI) Reporting
- Improve Sourcing
- Continue to Allocate Capital to Diverse Managers

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 with benches and some greenery on the left. The city skyline features several tall buildings, some with lights on. The water reflects the city lights.

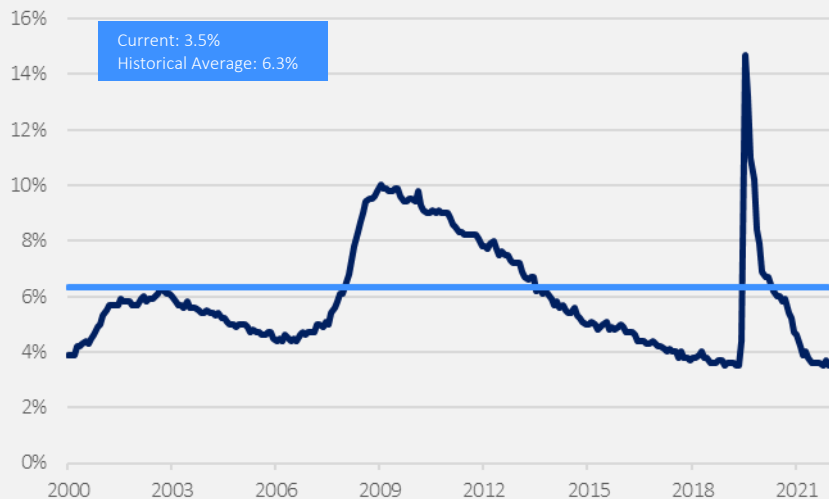
ECONOMIC BACKDROP

**Mass
PRIM**

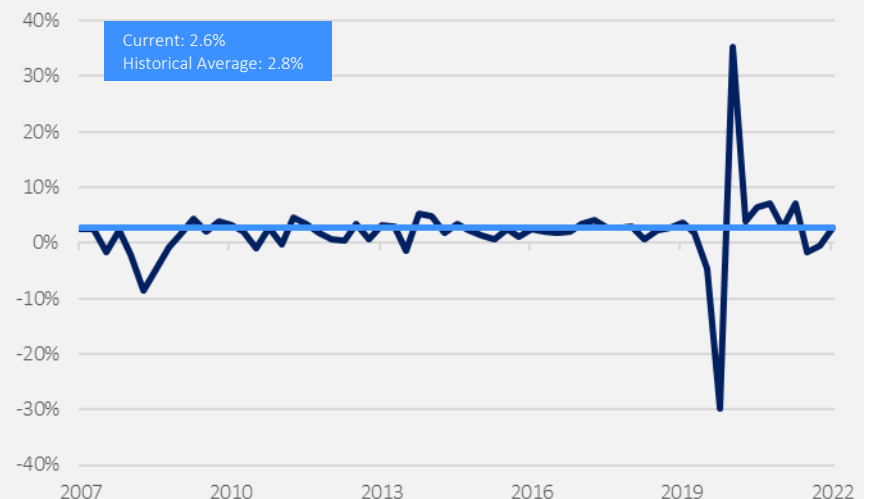
AS OF SEPTEMBER 30, 2022

U.S. Economic Data

UNEMPLOYMENT RATE



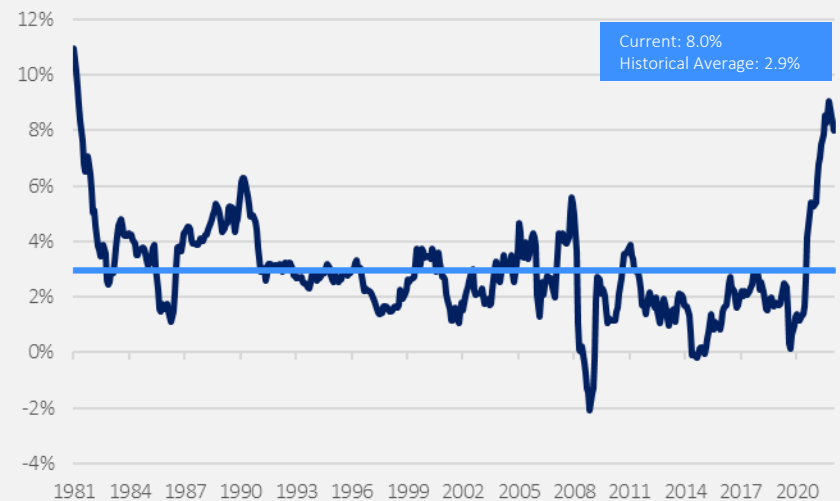
GDP GROWTH RATE



MANUFACTURING PMI

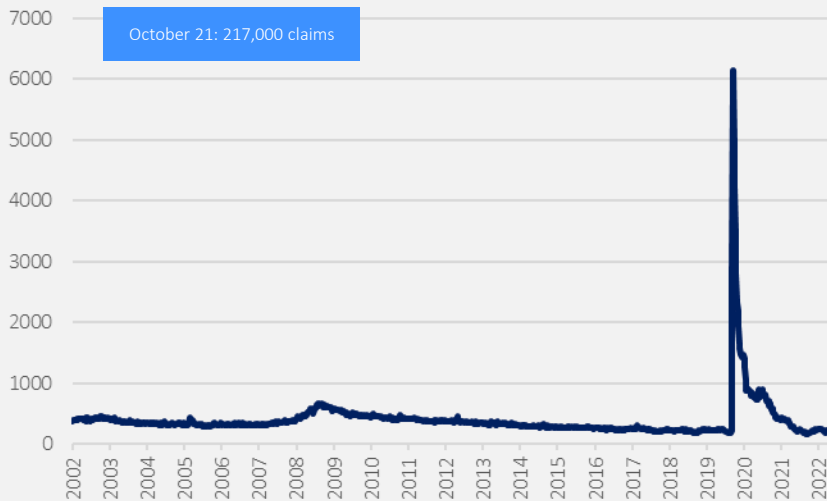


CONSUMER PRICE INDEX



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 tall 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 text, the "Mass PRIM" logo is visible, consisting of the word "Mass" in a smaller font above the word "PRIM" in a larger, bold font, with a stylized graphic of three vertical bars to the left.

PRIT FUND ASSET ALLOCATION TARGETS

Mass
PRIM

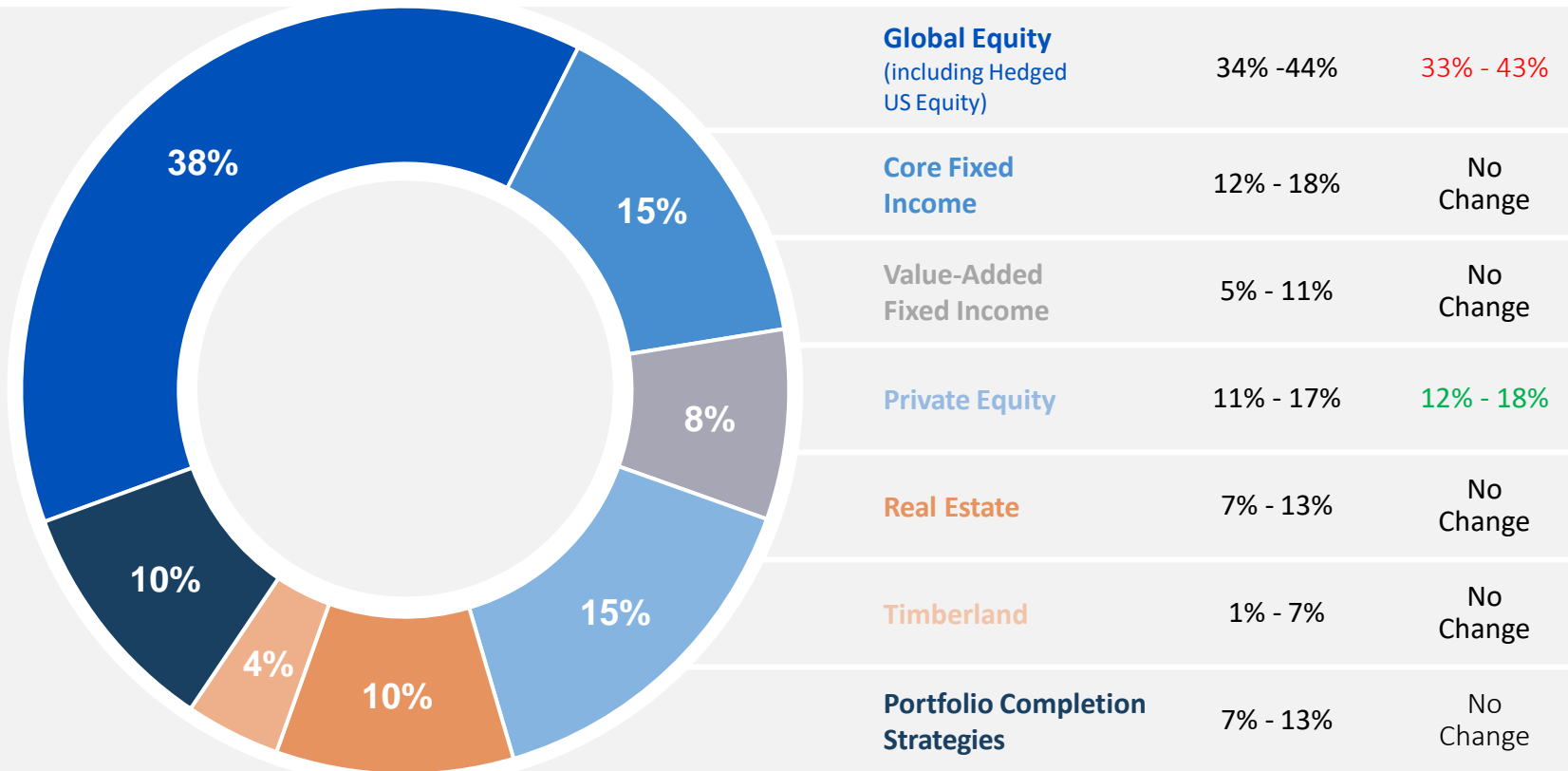
Changes to Target Ranges – PRIT Fund Asset Allocation

Approved February 17, 2022

Increase in Allocation Range	Same Allocation Range	Decrease in Allocation Range
Private Equity: Target Band moves up 1%	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 stays the same	Global Equity: Target Band moves down 1%

PRIT Asset Allocation

Approved February 17, 2022



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 2022 Asset Allocation Recommendations

NEPC Capital Market Assumptions with PE and Global Equity Changes

		12/31/21 Asset Class Assumptions	
Asset Classes	Target Range	10 Yr. Expected Return	30 Yr. Expected Return
US Equity ¹		4.6%	6.3%
International Equities ²		5.4%	6.4%
Emerging International Equities ³		8.3%	8.7%
Hedged Equity ⁴		4.2%	5.7%
Global Equity	33% - 43%		
Core Bonds		2.0%	3.1%
Short-Term Fixed Income ⁵		1.4%	2.4%
20+ Yr. Treasury STRIPS		1.0%	2.1%
TIPS/ILBs		1.2%	2.3%
Core Fixed Income	12% - 18%		
Value-Added Fixed Income ⁶	5% - 11%	5.2%	6.4%
Private Equity	12% - 18%	9.1%	10.1%
Real Estate ⁷	7% - 13%	5.0%	6.0%
Timberland ⁸	1% - 7%	5.3%	6.6%
Portfolio Completion (PCS) ⁹	7% - 13%	4.2%	5.4%
Total Fund Expected Return¹⁰		5.7%	6.9%

1. Blended allocation to large-cap equity, small-cap equity, micro-cap equity

2. Blended allocation to large-cap equity and small-cap equity

3. Blended allocation to large-cap equity and small-cap equity

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

5. Modeled as Short-Term Treasury

6. Blended allocation to high yield, bank loans, EMD, private debt

7. Blended allocation to Private Real Estate and REITs

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

9. Modeled as equal weighted blend of Hedge Fund Equity, Credit, and Macro

10. Asset classes modeled at the midpoint of the asset allocation range



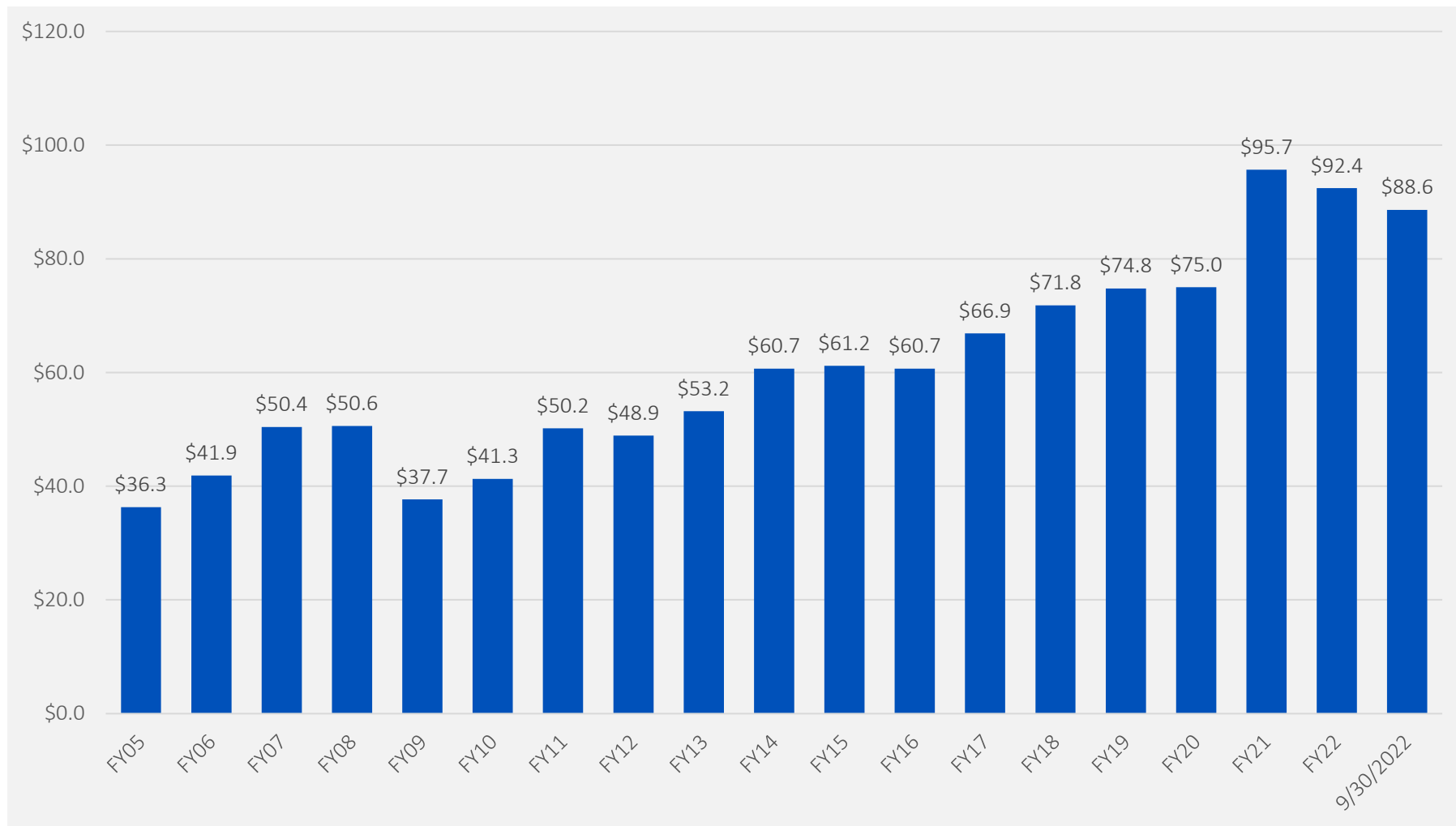
PRIT FUND PERFORMANCE



AS OF SEPTEMBER 30, 2022

Total PRIT Fund Fiscal Year Market Value

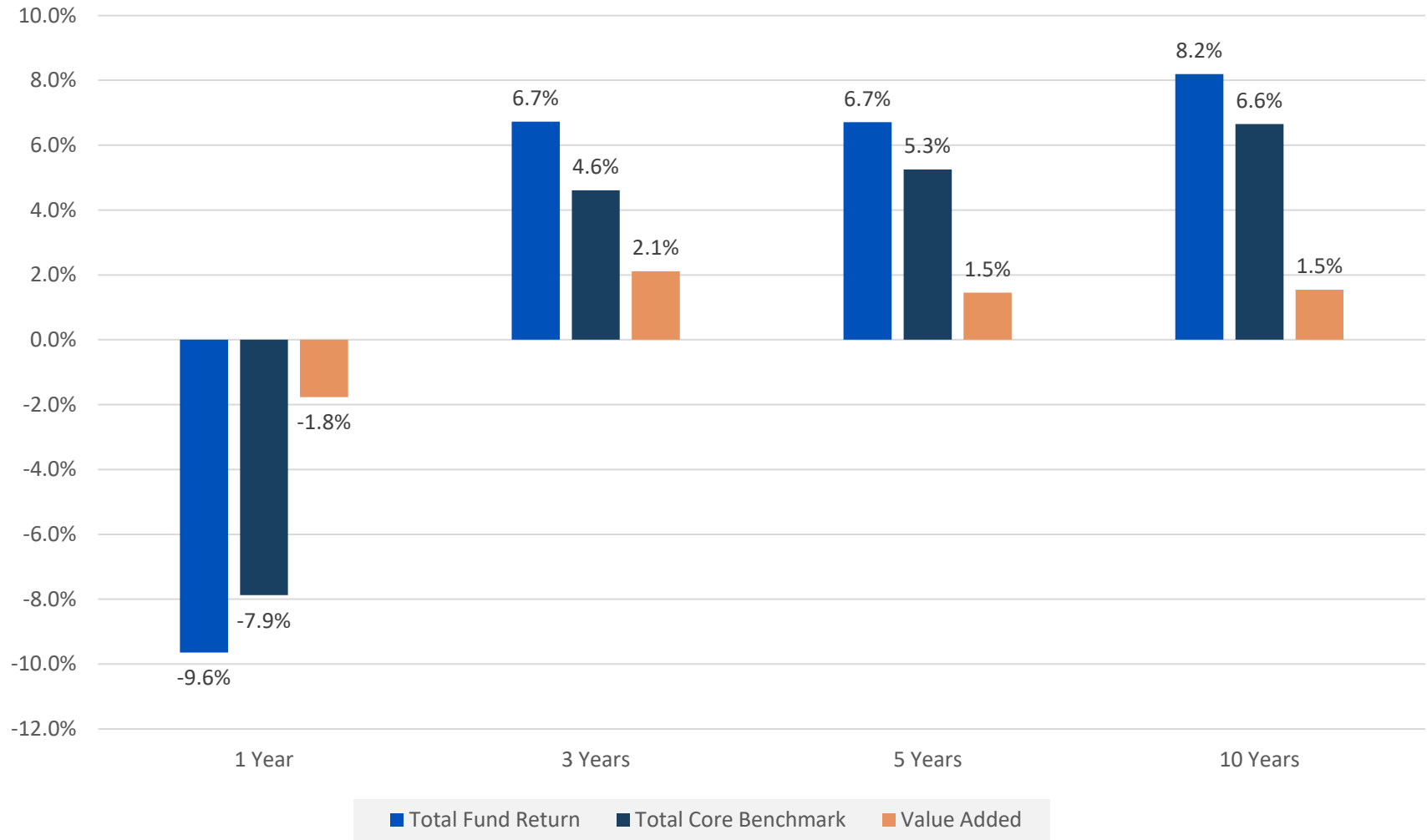
Value (\$Billions)



Source: BNY Mellon. As of September 30, 2022.

PRIT Fund Total Returns

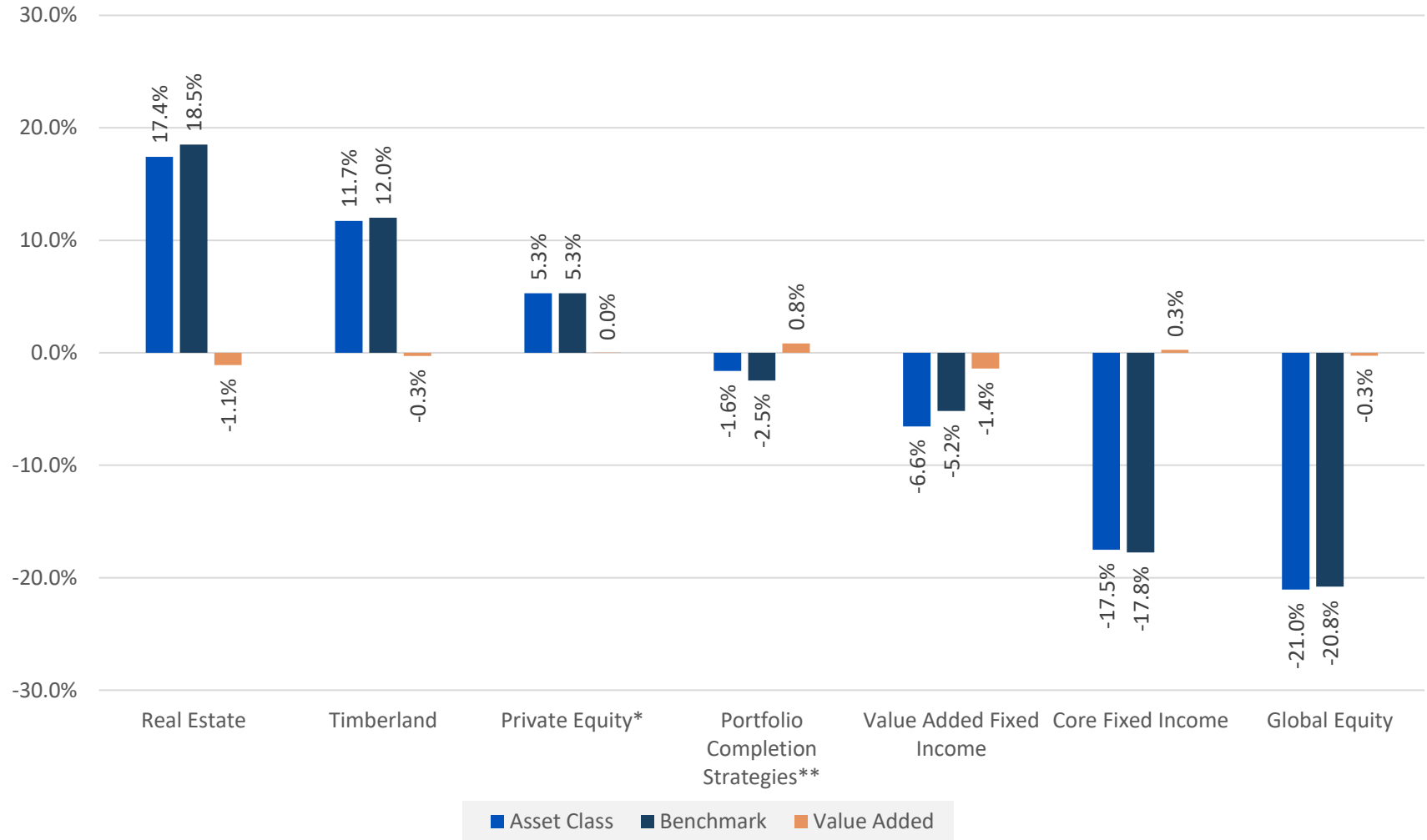
Annualized Returns as of September 30, 2022 (Gross of Fees)



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

PRIT Asset Class Performance Summary

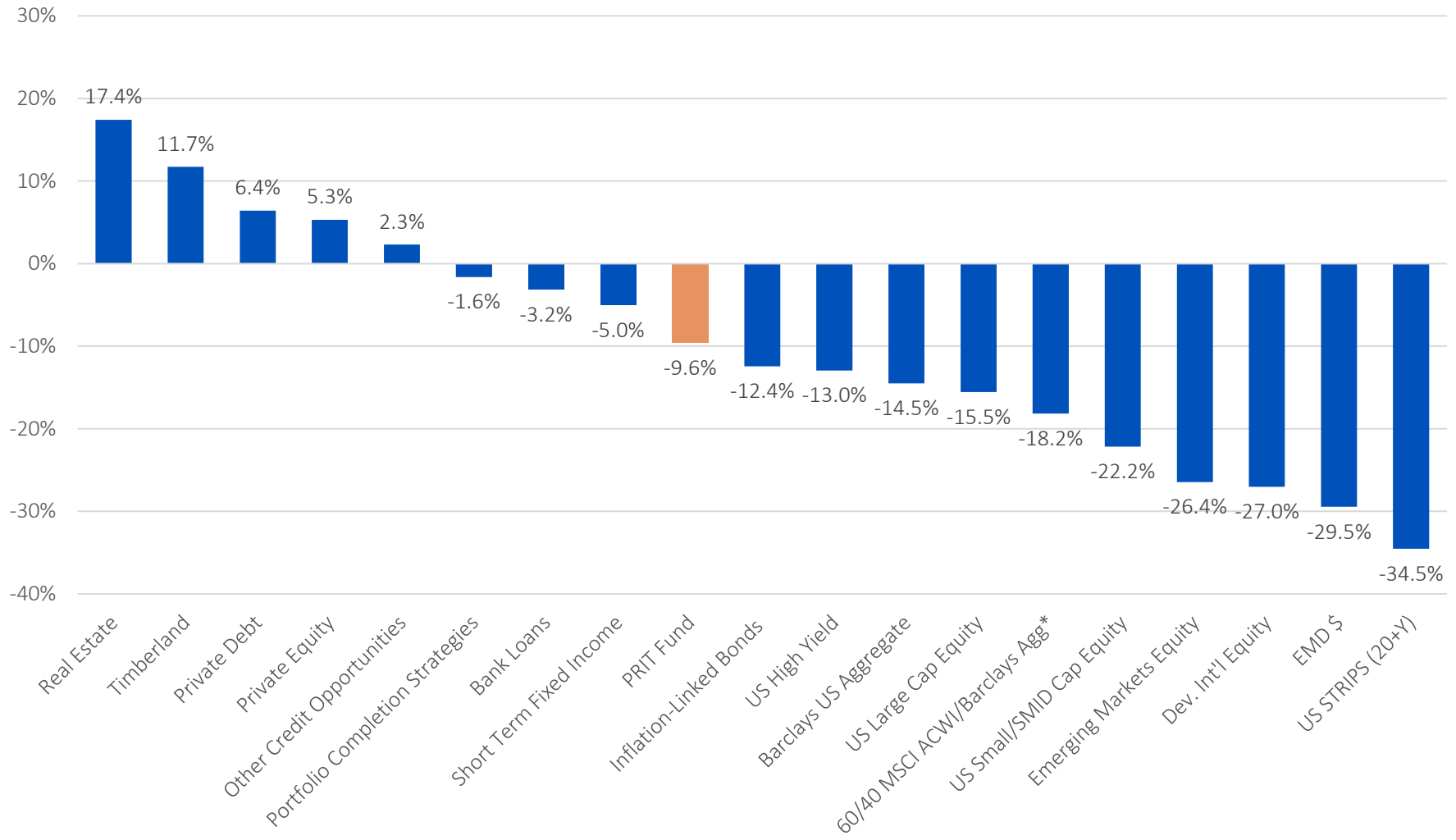
One-Year Ended September 30, 2022 (Gross of Fees)



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

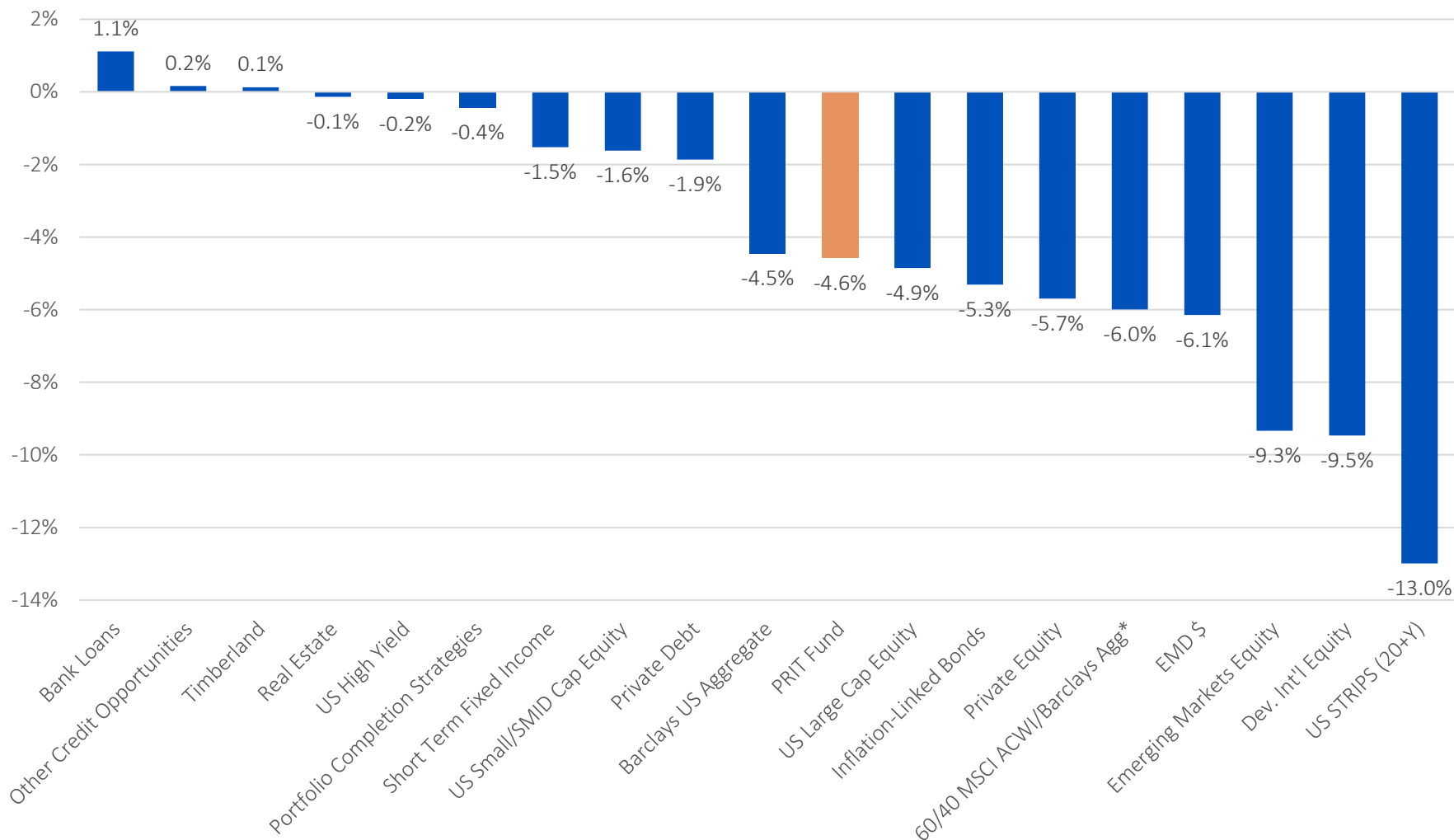
One-Year Ended September 30, 2022 (Gross of Fees)



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 2022

Quarter Ended September 30, 2022 (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, 2022 (Gross of Fees)

1 Year	3 Year	5 Year	10 Year
REAL ESTATE 17.4%	PRIVATE EQUITY 27.4%	PRIVATE EQUITY 24.1%	PRIVATE EQUITY 21.5%
TIMBER 11.7%	REAL ESTATE 13.0%	REAL ESTATE 11.1%	REAL ESTATE 11.1%
PRIVATE EQUITY 5.3%	TIMBER 5.7%	TIMBER 5.1%	GLOBAL EQUITY 7.6%
PORTFOLIO COMPLETION STRATEGIES (1.6%)	GLOBAL EQUITY 4.0%	GLOBAL EQUITY 4.3%	TIMBER 6.3%
VALUE-ADDED FIXED INCOME (6.6%)	VALUE-ADDED FIXED INCOME 3.0%	VALUE-ADDED FIXED INCOME 3.6%	PORTFOLIO COMPLETION STRATEGIES 4.3%
CORE FIXED INCOME (17.5%)	PORTFOLIO COMPLETION STRATEGIES 2.6%	PORTFOLIO COMPLETION STRATEGIES 2.9%	VALUE-ADDED FIXED INCOME 4.2%
GLOBAL EQUITY (21.0%)	CORE FIXED INCOME (3.4%)	CORE FIXED INCOME 0.5%	CORE FIXED INCOME 2.0%

Source: BNY Mellon.



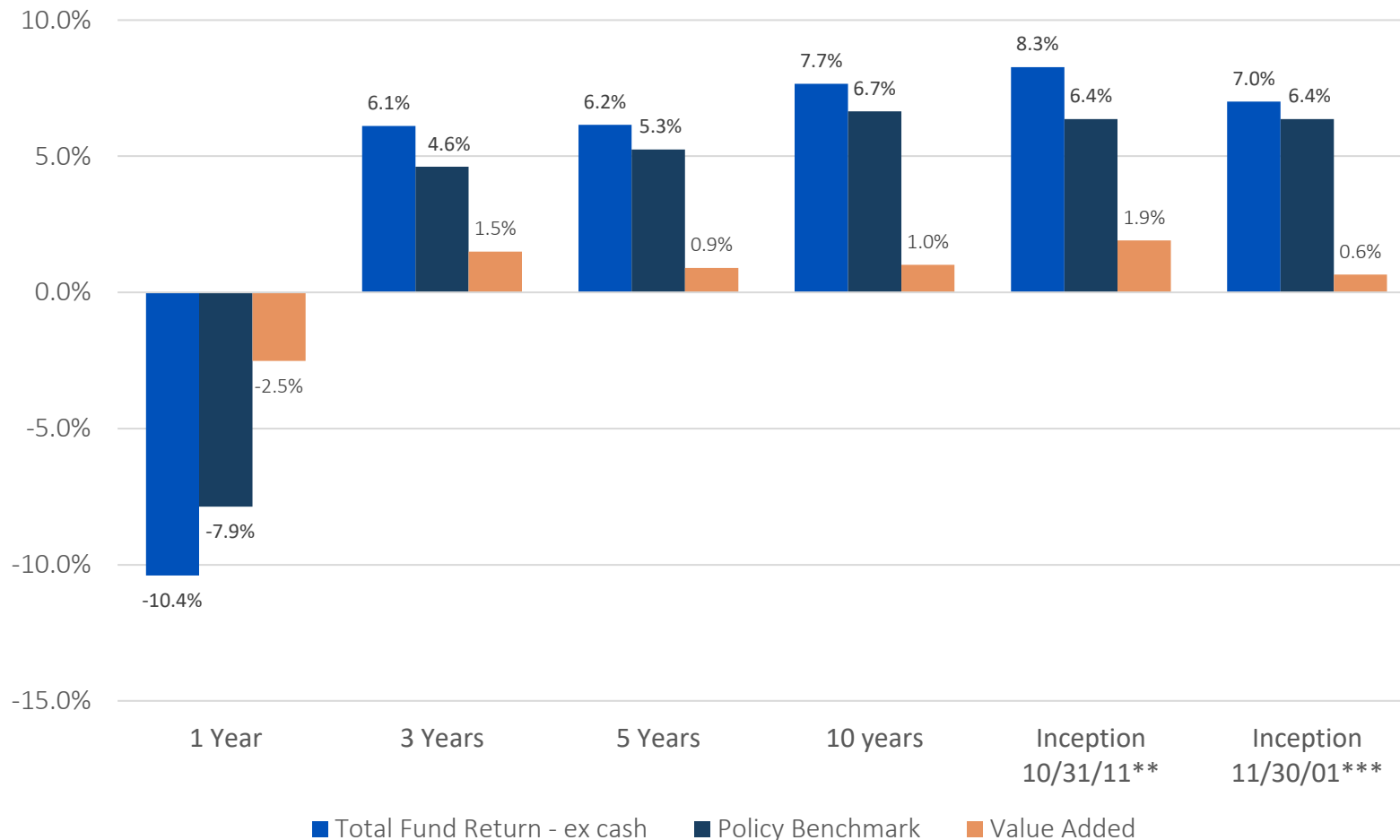
SRBT FUND PERFORMANCE



AS OF SEPTEMBER 30, 2022

Total SRBT Fund Returns

\$2.7 Billion* One Year Ended September 30, 2022 (Net of Fees)



*Participant assets, excluding Mass State Retirees, were \$862.5 million as of September 30, 2022

** 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 8.3% 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, 2022



Municipal Outreach

1. Acton-Boxborough Regional School District
2. Andover
3. Amherst-Pelham Regional School District
4. Andover
5. **Arlington**
6. Ayer Shirley Regional School District
7. Belmont
8. Bernardston
9. Bridgewater
10. Cape Cod Regional Transit Authority
11. Cape Cod Light Compact (JPE)
12. **Central Collaborative**
13. Chelmsford Water District
14. Clinton
15. CMWRRDD
16. Concord
17. Dartmouth
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. Lynn
31. Massachusetts Association of Regional Planning Agencies (MARPA)
32. Massachusetts Housing Finance Authority
33. Medway
34. Melrose
35. Middlesex County Retirement System
36. Mohawk/Hawlemont Regional School District (Buckland)
37. Nauset Regional High School
38. Newbury
39. Pepperell
40. Prospect Hill Academy Charter School
41. Saugus
42. Somerville
43. Springfield
44. Stoneham
45. Sudbury
46. Taunton
47. Tri-County Educational Collaborative (Franklin, MA)
48. Truro
49. Waltham
50. Watertown*
51. Webster*
52. West Boylston Municipal Light Department
53. Westford
54. West Newbury
55. Weston
56. Weymouth
57. Winthrop
58. **Woburn**

*Active

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. Dracut Water Supply District
23. Town of Dedham
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. Hamilton Wenham Regional School District
30. Town of Harvard
31. Town of Hingham
32. Town of Holliston
33. Town of Ipswich
34. Town of Lancaster
35. Lawrence Housing Authority
36. Town of Lenox
37. City of Leominster
38. Town of Lincoln
39. Lincoln-Sudbury Regional School District
40. Town of Longmeadow
41. Lowell Regional Transit Authority (LRTA)
42. Lower Pioneer Valley Educational Collaborative
43. Town of Manchester-By-The-Sea
44. Manchester Essex Regional School District
45. Town of Marblehead
46. Marblehead Municipal Light Department
47. Massachusetts School Building Authority
48. Massachusetts State College Building Authority
49. Mass State Retirees (SRBTF)
50. Mass Water Resources Authority
51. Town of Medfield
52. Town of Middleton
53. Town of Milton
54. Town of Montague
55. Nashoba Regional School District
56. Town of Needham
57. City of New Bedford
58. City of Newburyport
59. City of Newton
60. Town of North Andover
61. Town of Northborough
62. Town of Northfield
63. Old Rochester Regional School District
64. Town of Orleans
65. Pilgrim Area Collaborative (PAC), Pembroke, MA
66. Town of Provincetown
67. Quabbin Health District
68. Town of Reading
69. Reading Municipal Light Department
70. Shawsheen Valley Technical High School, Billerica, MA
71. Town of Sherborn
72. Somerset Berkley Regional School District
73. South Essex Sewerage District
74. South Hadley Fire District
75. Town of Stockbridge
76. Town of Tewksbury
77. Town of Wakefield
78. Wakefield Municipal Gas & Light Department
79. Town of Wayland
80. Town of Wellesley
81. Town of Westwood
82. Town of Wilmington
83. City of Worcester



Massachusetts Pension Reserves
Investment Management Board
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THANK YOU

CONTACTS

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