PRIM Board Quarterly Update

FIRST QUARTER 2020

Markets Overview and PRIT Fund Performance Summary

PRIM Executive Director and Chief Investor Officer Michael G. Trotsky, CFA provided the following information to the PRIM Board at its May 21, 2020, meeting:

Executive Director and Chief Investment Officer Report

My thoughts and prayers are with you and your families as we navigate this very difficult time. I hope we will soon turn corners, and both our personal and professional lives will return safely back to normal or as close to normal as can be. I want to thank our Chair, Treasurer Goldberg, for her sustained involvement and attention to detail during this crisis. My gratitude also extends to the Governor and his staff and to the Legislature, who have been keeping close tabs on PRIM and on the safety of our entire Commonwealth. I am extremely appreciative of the support and dedication of our Board and committee members who have enabled PRIM to function uninterrupted and without delay during this Board cycle. The four committee meetings held in advance of this Board meeting set attendance records, even though they were conducted remotely. And most importantly, I want to thank the staff at PRIM who are working remotely without difficulty and in most cases also caring for their family members. There is no better team to go through a crisis with, and I am incredibly proud of how the entire PRIM team has responded.

PRIM is 100 percent fully functional, all employees are able to work remotely, and all functions are fully operating. I am pleased that at this Board meeting, the staff is presenting for your approval more than \$1.3 billion in new opportunities - proof that the PRIM staff and our Committees are as productive as ever. Market dislocations happen and they are painful, but these dislocations also create opportunities. For example, today we are excited to seek Board approval for an investment opportunity that will enable PRIM to be among the first participants in the newly created TALF program in which we are able to utilize favorable government funding vehicles to help ensure credit is flowing to the highest quality AAA-rated companies. The entire team is hard at work during this crisis, continuing to identify and vet new investment opportunities every day – that's a very basic requirement of maintaining a strong, resilient portfolio.

The PRIT Fund is a carefully constructed, broadly diversified portfolio that we expect will perform well over the long-term. It has consistently performed strongly in both up, and perhaps more importantly, down markets, and the March quarter, although it was challenging, was not an exception. The Fund fared better than its benchmark and better than the financial markets. We believe the performance is due to several timely asset allocation decisions implemented over the past several years designed to reduce the overall risk of the portfolio and maximize its risk adjusted return, while still delivering on our long-term return goal. For example, PRIM reduced its Global Equity exposure from a midpoint of 50% five years ago to a midpoint of 39% today, and we also added several risk mitigation strategies throughout the last few years.

Markets and PRIT Fund Performance Summary

At the committee meetings we spoke of the challenges in the economy and our lives, and we recognize that we will face more challenges in the months and perhaps in the years ahead. The market correction of March 2020 was the fastest on record going back to the Great Depression in the '30's. In just 20 days, equities fell 34%. It may have been the quickest drop in history, but it was not the deepest. That record



still belongs to the fall during the Great Depression when stocks fell 86% over 34 months. Since the lows on March 23^{rd} , the market's recovery has also been one of the fastest and steepest – up 30% from the March lows.

We believe this bear market is probably not over. We have examined 14 major market sell-offs since the Great Depression and on average, major sell-offs last 20 months, not 20 days, like the March 2020 sell-off. The economic damage is severe and the challenges this economy faces in restarting from very low levels are enormous, and it will likely take a long time.

The markets have reflected some of the economic challenges. For the calendar year through May 11, 2020, the S&P is down 9%, developed international markets and emerging markets are down approximately 18%. Diversified bonds are up 4% for the year, while long bonds are up 27% for the calendar year as yields have plummeted. The 10-year Treasury is currently yielding approximately 0.7% - a year ago it was at 2.5%.

Some believe that the S&P's 9% decline this year doesn't fully capture the economic damage that we are experiencing. This may be due to the unprecedented large size and scope of the federal stimulus package. The size and scope of the government stimulus is impressive, and the hope is that the stimulus will be enough to heal the economy quickly. We want the economy to rebound, and while we hope for a swift recovery, hope isn't an investment strategy. We believe we can expect some continued volatility until the economic outlook comes into focus. The stay-at-home-advisories and the business/workplace shutdowns have caused an abrupt decline in economic activity, and the data are perhaps just beginning to reflect it. Most of the March and April data that has been reported so far is expected to worsen in the coming months. For example, it was reported last week that the nation's unemployment rate hit a record 14.7% as approximately 30 million people have lost their jobs since the beginning of the shutdowns. Here in Massachusetts, it was recently reported that the unemployment rate could reach 24% as 893,000 people have filed jobless claims. During this historic time, we continue to adhere to our disciplined, long-term investment focus and look for opportunities caused by market dislocations. We believe we have worked hard to position the PRIT Fund appropriately for what lies ahead.

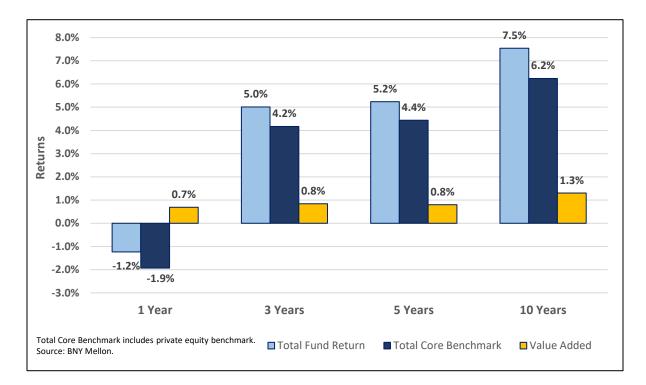
As of March 31, 2020, the PRIT Fund net asset value stood at \$70.7 billion. For the one-year ended March 31, 2020, the PRIT Fund was down -1.2%, (-1.7% net), outperforming the total core benchmark of -1.9% by 69 basis points (27 bps net).

- This performance equates to an investment loss of \$1.2 billion, net of fees.
- This outperformance equates to \$197 million of value above the benchmark return, net of fees.
- Net total outflows to pay benefits for the one-year ended March 31, 2020, were approximately \$1.2 billion.



Total PRIT Fund Returns (Gross of Fees)

Annualized Returns as of March 31, 2020



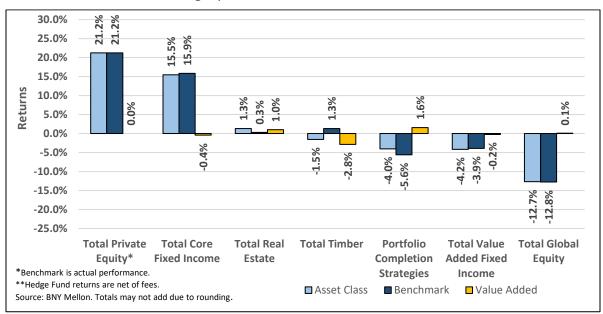
PRIT Core Fund Performance Summary Gross of Fees Performance Trailing 1-Year Performance as of March 31, 2020

Trailing 1-Year Performance: March 31, 2020	Return	Benchmark Return	Over/(Under) Benchmark (bps)	\$Value (millions)	% of PRIT Fund
Total PRIT Fund	-1.2%	-1.9%	69	70,694	100%
Total Global Equity	-12.7%	-12.8%	8	26,062	36.9%
Domestic Equity	-10.3%	-9.2%	(107)	13,426	19.0%
International Developed	-13.9%	-15.2%	134	8,901	12.6%
Emerging Markets	-18.0%	-18.7%	72	3,734	5.3%
Private Equity	21.2%	21.2%	0	9,201	13.0%
Real Estate	1.3%	0.3%	102	6,943	9.8%
Total Timberland	-1.5%	1.3%	(284)	2,737	3.9%
PCS	-4.0%	-5.6%	156	6,748	9.6%
Value Added Fixed Income	-4.2%	-3.9%	(23)	5,167	7.3%
Core Fixed Income	15.5%	15.9%	(41)	13,226	18.7%



PRIT Asset Class Performance (Gross of Fees)

Trailing 1-year Performance as of March 31, 2020



Periodic Table of Returns by Asset Class (Gross of Fees)

1 Year	3 Year	5 Year	10 Year
PRIVATE EQUITY	PRIVATE EQUITY	PRIVATE EQUITY	PRIVATE EQUITY
21.2%	20.5%	18.8%	18.2%
CORE FIXED INCOME	CORE FIXED INCOME	REAL ESTATE	REAL ESTATE
15.5%	7.4%	7.4%	10.3%
REAL ESTATE	REAL ESTATE	CORE FIXED INCOME	GLOBAL EQUITY
1.3%	6.2%	4.3%	6.3%
TIMBER	TIMBER	TIMBER	CORE FIXED INCOME
(1.5%)	3.0%	3.4%	5.7%
TOTAL PCS (4.0%)	VALUE-ADDED FIXED INCOME 1.8%	VALUE-ADDED FIXED INCOME 3.0%	VALUE-ADDED FIXED INCOME 5.1%
VALUE-ADDED FIXED INCOME (4.2%)	GLOBAL EQUITY 1.1%	GLOBAL EQUITY 2.8%	TIMBER 4.9%
GLOBAL EQUITY	TOTAL PCS	TOTAL PCS	TOTAL PCS
(12.7%)	1.0%	0.9%	3.5%

Annualized Returns as of March 31, 2020



Organizational Update

In mid-March, a PRIM employee was diagnosed with COVID-19, but we are pleased to report that the employee has recovered and is back at work. We are very thankful for this wonderful outcome and wish this employee strength and continued improving health.

New Hires

We are pleased to announce that PRIM has hired four new employees who were in the pipeline before we moved to the remote work environment and their onboarding was successfully completed, even in this remote work environment. We are very excited to welcome them all to PRIM.

Beth Herlihy joins PRIM as Director of Communications reporting to Michael G. Trotsky, CFA, Executive Director and Chief Investment Officer. Beth brings extensive communications experience, having served as Head of Marketing Communications at AEW Capital Management for 12 years. Since leaving AEW in 2016 to attend graduate school full time, Beth has worked as a marketing communications consultant. Her most recent assignment was with Advent International. Beth has more than 20 years of experience in strategic marketing, public relations, branding, investor communications, and business development. Beth holds a bachelor's degree in Political Science from the University of Vermont and a Masters of Fine Arts in Creative Writing from Emerson College.

Silas Owoyemi joins PRIM as a Helpdesk and Operational Support Specialist reporting to David Griswold. Silas will be working to help IT support PRIM staff and systems and keep us moving forward as we roll out new technologies. Silas previously worked as a Network Engineer at Ocean Spray, where he was responsible for planning and maintaining their data network and associated infrastructure. Prior to that he was a Senior Support Specialist at Alkermes Biopharmaceutical Company. Silas holds a Bachelor of Science in Mathematics from the University of Ilorin, Nigeria.

Joy Seth joins PRIM as Investment Officer on the Portfolio Completion Strategies team reporting to Bill Li. He will be working on systematic investment strategies. Joy previously worked as Senior Investment Analyst at Employees Retirement System of Texas, where he built machine learning models and developed backtest engine for option-based strategies. Prior to that he was an engineer at Microsoft Corporation. He graduated from the University of Washington, Seattle with an M.Sc. in Computational Finance, and also holds a B.Sc. in Electrical and Computer Engineering from the University of Texas, Austin.

Michelle Witkes joins PRIM as Director of Human Resources reporting to Anthony Falzone. Michelle brings extensive and varied Human Resources experiences. Michelle previously worked at Beacon Health Options (Anthem, Inc.) as their Vice President, Human Resources, and at Enterprise Associates LLC, as their Director of Human Resources. Michelle has been responsible for all HR related functions from strategic HR leadership to tactical employee support. Michelle holds a Bachelor's degree in Human Services and Psychology from the University of Massachusetts, Amherst.

PRIM Board Elections Results

In accordance with the provisions of G.L. c. 32, s.23 (2A)(a), the Pension Reserves Investment Management Board is responsible for the administration of the election of an employee or retiree who is



a member of the State Employees' Retirement System and the Massachusetts Teachers' Retirement System to serve on the Pension Reserves Investment Management Board.

The PRIM Chief Elections Officer has declared Paul E. Shanley, Esq. to be the elected State Employees' Retirement System representative to the Pension Reserves Investment Management Board by reason of his first-place finish, and Robert L. Brousseau to be the elected Massachusetts Teachers' Retirement System representative to the Pension Reserves Investment Management Board by reason of his being unopposed. Their new three-year terms commence on July 20, 2020.

PRIM BOARD ACTIONS – May 21, 2020

Public Markets

Core Fixed Income

At its May 21, 2020 meeting the PRIM Board approved the following recommendation of the Investment Committee and PRIM Staff:

PRIM staff and the Investment Committee recommend (unanimously) to the PRIM Board that the Board allocate up to \$250 million to Longfellow Investment Management Co., LLC (Longfellow); up to \$250 million to Pugh Capital Management, Inc. (Pugh); and up to \$100 million to New Century Advisors, LLC (New Century).

Background

On December 16, 2019, PRIM was notified that Progress Investment Management Company (Progress) intends to wind-down and dissolve its business by May 31, 2020. Progress managed approximately \$335 million (0.5% of the PRIT Fund as of March 31, 2020) in a Core Fixed Income portfolio for PRIM, utilizing five underlying minority- or women-owned investment managers. PRIM staff, along with our advisors (Callan and Albourne), conducted due diligence (investment and operational) on each of these five managers to determine which, if any, manager(s) should graduate and manage assets directly for PRIM. PRIM staff recommends graduating Longfellow, Pugh and New Century to manage assets directly for PRIM.

Other Credit Opportunity

At its May 21, 2020 meeting the PRIM Board approved the following recommendation of the Investment Committee and PRIM Staff:

PRIM staff and the Investment Committee recommend (unanimously) to the PRIM Board that the Board approve a commitment of up to \$250 million to the Loomis Sayles TALF Separately Managed Account (SMA), subject to satisfactory ongoing contract negotiations.

Background

On March 23, the Fed announced the launch of the Term Asset-Backed Securities Loan Facility or TALF 2.0 to help meet the credit needs of consumers and small businesses by supporting the issuance of assetbacked securities ("ABS"). The program was modeled after TALF 1.0 which began in March 2009 during the Global Financial Crisis. The program was designed to support the market for securitized credit and was considered a success in terms of achieving its goals. The TALF 2.0 program will initially make up to \$100



billion of non-recourse, 3-year term loans available to borrowers, secured by eligible AAA, ABS securities. The TALF 2.0 program will expire on September 30, 2020.

Private Equity

At its May 21, 2020 meeting the PRIM Board approved the following recommendation of the Investment Committee and PRIM Staff:

PRIM staff and the Investment Committee recommend (unanimously) to the PRIM Board that the Board approve a commitment of up to €275 million to CVC Capital Partners VIII, L.P. ("Fund VIII"). PRIM has invested in seven prior CVC Capital Partners ("CVC") Funds over 24 years. Each of the CVC funds in which PRIM invested are in the first or second quartiles in industry peer performance rankings. CVC is a large, global asset management firm, and Fund VIII will target control-oriented buyout investments in Europe and North America. The CVC investment team for Fund VIII consists of 109 investment professionals located across fifteen offices, organized in eleven geographical teams and three sector teams.

PRIM staff and the Investment Committee recommend (unanimously) to the PRIM Board that the Board approve a commitment of up to €175 million to Nordic Capital Fund X, L.P. ("Fund X"). PRIM has invested in five prior Nordic Capital ("Nordic") funds over 17 years. Nordic Capital is an established Northern European private equity firm with 62 investment professionals located across seven offices. The firm's senior leaders have an average of 24 years of industry experience. Nordic continues to refine its successful approach to investing, targeting companies based in the Nordic region operating across the Healthcare, Technology & Payments, and Financial Services sectors. Nordic has demonstrated strong realized performance across its core investment sectors.

PRIM staff and the Investment Committee recommend (unanimously) to the PRIM Board that the Board approve a commitment of up to £60 million to Elysian Capital III LP ("Fund III" or "Elysian III"). Elysian III is managed by Elysian Capital ("Elysian"), a London-based private equity firm. Elysian was founded in 2007 and has an experienced team of nine investment professionals with an average tenure of nine years at the firm. Elysian has demonstrated strong and consistent performance relative to industry peer performance rankings. Elysian III will target majority-stake investments in UK lower middle market companies. PRIM has not invested in Elysian Capital's prior funds.

PRIM staff and the Investment Committee recommend (unanimously) to the PRIM Board that the Board approve Elysian Capital for co-investment because Elysian Capital meets PRIM's co-investment criteria. Those criteria include: a superior track record; a strong co-investment history; and a willingness to partner with PRIM.

Finance & Administration Report

Approval of PRIM Board Fiscal Year 2021 Budget.

The Pension Reserves Investment Management (PRIM) Board's fiscal year (FY) 2021 Operating Budget reflects the investment management, advisory, and operational costs necessary to implement, measure, and monitor the approximated \$78.5 billion in investments of the Pension Reserves Investment Trust (PRIT) Fund.

The projected FY 2021 budget of \$431.5 million is 55 basis points (bps) of projected average PRIT Fund assets (\$78.5 billion), a \$6.7 million, or 1.6%, budget increase from the prior year. As is our custom, budgeted expenses for FY 2021 are conservative and foresee continued asset growth. Actual expenses



incurred may vary because most expenses are a function of asset levels and investment performance is not predictable.

Investment Management Fees and Third-Party Service Providers comprise \$412.6 million, or 95.6%, of the projected total budget. Investment Management Fees increased by \$4.5 million, or 1.2%, due primarily to a projected growth in assets. Projected costs for Third-Party Service Providers increase by \$1.1 million, or 6.0%, mainly due to support of new initiatives.

Operations comprise \$18.9 million, or 4.4%, of the total budget. Operations increases by \$1.2 million, or 6.5%, due primarily to a projected increase in staff size.

Client Services Update

There are currently 98 entities that invest in the PRIT Fund. In addition to Chapter 32 public employee retirement systems, other government entities that are legally allowed to invest in the PRIT Fund are: the State Retiree Benefits Trust Fund (SRBTF – the Commonwealth's Other Post-Employment Benefits (OPEB) liability fund), the Massachusetts State College Building Authority (MSCBA), and the MBTA Retirement Fund

The Client Services team has developed a tracking spreadsheet to monitor all types of client communications and activity, such as: cash transactions, normal course of business tasks, check-in calls, inquiries about market volatility and PRIT performance, and client meetings. We plan to update the Administration and Audit Committee and PRIM Board on a periodic basis regarding such activity.

We are pleased to report that all client cash requests have gone smoothly and seamlessly, especially the numerous cash transactions that occurred on the first Business Day of April, which was the first time this was done while working remotely, and, most recently, on the FBD of May.

All PRIT and SRBTF participants and the investment consultants that advise most of our Segmented Systems were invited to call into the Interim Investment Committee meeting held on April 22, 2020, and the regular Investment Committee meeting held on May 5, 2020.

Client meetings scheduled for March, April, and May have either been postponed or conducted via conference call, GoToMeeting, or Zoom. We conducted six such meetings during the month of April, and three thus far in May.

We are also pleased to announce that during the first quarter of 2020, the Town of Adams Retirement Board followed through with the decision it made in December 2019 to transfer all its asset to the PRIT Fund as a full Purchasing System. We thank the Adams Retirement Board for its commitment and confidence in PRIM.

The Client Services team -- Paul Todisco, Francesco Daniele, and Emily Green – will continue to meet with the retirement boards of PRIM's member retirement systems throughout the year. To schedule a visit, please contact Paul at ptodisco@mapension.com, Francesco at fdaniele@mapension.com, Emily at egreen@mapension.com, or call 617-946-8401. We look forward to seeing you soon.

