



**PENSION RESERVES
INVESTMENT
MANAGEMENT BOARD**

Minutes of the PRIM Investment Committee Meeting
Thursday, February 7, 2019

Committee member attendees:

- Treasurer Goldberg
- C. LaRoy Brantley
- Michael Even, CFA
- Constance M. Everson, CFA
- Ruth Ellen Fitch, Esq.
- James B. G. Hearty
- Peter Monaco
- Philip Rotner (arrived at 9:45 a.m.)
- Paul E. Shanley, Esq.
- Glenn P. Strehle, CFA
- Timothy L. Vaill

Not Present

- Joseph C. Bonfiglio

The PRIM Investment Committee was called to order at 9:34 a.m.

I. Approval of Minutes (Voting Item)

The PRIM Investment Committee unanimously approved the minutes of its November 13, 2018, meeting.

II. Introduction of Mothers Out Front

Representatives from Mothers Out Front addressed the Committee. The mission of Mothers Out Front is “we build our power as mothers to ensure a livable climate for all children.”

III. Executive Director/Chief Investment Officer Comments

Michael G. Trotsky, CFA, Executive Director and Chief Investment Officer, made comments to the Committee, including:

Organizational Update

Mr. Trotsky indicated he was pleased to announce a number of recent staff promotions as follows:

Andre Abouhala on the Public Markets team was promoted to Investment Officer. Andre joined PRIM in 2014 as an Investment Analyst and has become a valuable resource to the team, most recently leading the U.S. micro-cap research and becoming the team's expert in utilizing the eVestment manager database, FactSet portfolio analysis, and the PCS team's proprietary quantitative tools. Andre also earned an MBA from Boston University this past May. Andre will continue to expand his responsibilities in manager monitoring and investment analytics, reporting to David Gurtz, CPA, CFA.

Alyssa Fiore, CFA on the Private Equity team was promoted to Investment Officer. Since joining the Private Equity team in 2016 as an Investment Analyst, Alyssa has made valuable contributions supporting new fund commitments to existing managers, new investment managers and PRIM's expanding co-investment program. Alyssa also supported the team's growth equity research and investment underwriting. Alyssa earned a CFA Charter in November 2017. As an Investment Officer reporting to Mike Bailey, Alyssa will

now also have responsibilities for manager monitoring and relationship management. Additionally, she will have a leading role in Private Equity investment research.

Andrew Gromer, CFA on the Public Markets team was promoted to Investment Officer. Andrew joined PRIM in 2016 as an Investment Analyst supporting fixed income investments. More recently, he has also supported the Private Equity team. Andrew is responsible for PRIM's "State of the Industry" research project, which will help guide PRIM's long-term investment strategy. He has participated in several investment industry conference panels where he has spoken on fixed income topics. Andrew earned a CFA Charter in November 2017 and was recently appointed to Chair the CFA Boston Young Leaders Committee. Andrew reports to David Gurtz, CPA, CFA and will continue to expand his responsibilities in manager monitoring and investment analytics.

Bill Li, CFA, CAIA on the Portfolio Completion Strategies team was promoted to Senior Investment Officer - Director of Portfolio Completion Strategies (PCS). Bill joined the Strategy team in 2016 as an Investment Officer and was promoted to Senior Investment Officer in 2017. Bill has expanded and refined PRIM's distinctive suite of analytical tools, manager sourcing processes, idea generation and portfolio construction across several asset class teams. He combines impressive thought creativity and ingenuity with strong technical skills and conceptual understanding. Bill spearheaded the creation of PRIM's hedge fund emerging manager program negotiating new mandates with several hedge fund managers and researched and deployed PRIM's innovative and successful equity hedge program utilizing a put spread collar package of trades. Bill will continue to report to Eric Nierenberg and have responsibility for the oversight of the entire PCS portfolio.

Christina Marcarelli, CAIA on the Real Estate and Timberland team was promoted to Senior Investment Officer. Christina joined the Real Estate and Timberland team as an Investment Officer in 2016 with expertise in asset management, acquisitions and development projects. Christina has been extremely productive since joining PRIM and this past year she successfully led the private real estate RFP process, which resulted in awarding \$1 billion to three real estate investment managers. She also contributed to the team's direct investing platform and portfolio management research. Christina's collaboration with the PRIM Public Markets and Strategy teams has enabled PRIM to expand investments in the Other Credit Opportunities allocation. Additionally, Christina has earned the CAIA charter. Reporting to Tim Schlitzer, Christina will have increased responsibility for manager and property oversight throughout the entire Real Estate and Timberland portfolio.

George Tsipakis on the Investment Operations team was promoted to Director of Investment Operations. George joined the Investment Operations team in 2016 as Manager of Real Estate and Timberland reporting. He has quickly demonstrated the analytical skills necessary to enable the team to innovate, particularly in the real estate direct investing platform. George also restructured PRIM's investment cash operations and improved the team's investment support capacity. George reports to Matt Liposky and will manage a team of four finance and operations professionals responsible for asset class reporting.

Mr. Trotsky also shared with the Committee that **Morgan Burns, CFA, CPA**, an Accounting Assistant on the Finance team, recently appeared on the television game show *Jeopardy*, and did a fantastic job, placing second of three.

Mr. Trotsky also informed the Committee that PRIM has adopted the Global Investment Performance Standards (GIPS) from CFA Institute and is one of only a handful of large public pension funds to do so. Mr. Trotsky added that adopting these standards demonstrates a commitment to transparency, ethical best practices and strong internal controls, and thanked Matt Liposky, PRIM's Chief Investment Operating Officer, for leading the effort.

PRIT Fund Performance Summary

Mr. Trotsky reported investment performance as follows:

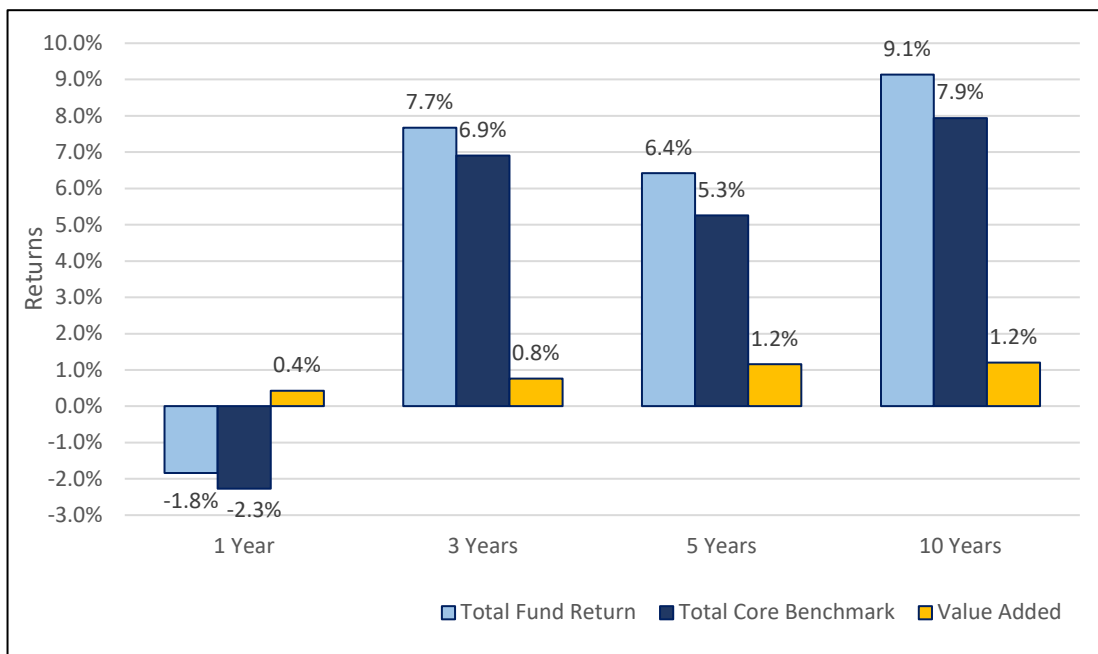
In this environment, the PRIT Fund has performed well:

As of December 31, 2018, the PRIT Fund net asset value stood at \$69.3 billion. For the one-year ended December 31, 2018, the PRIT Fund was down 1.8%, (-2.3% net), outperforming the total core benchmark of -2.3% by 43 basis points (0 bps net).

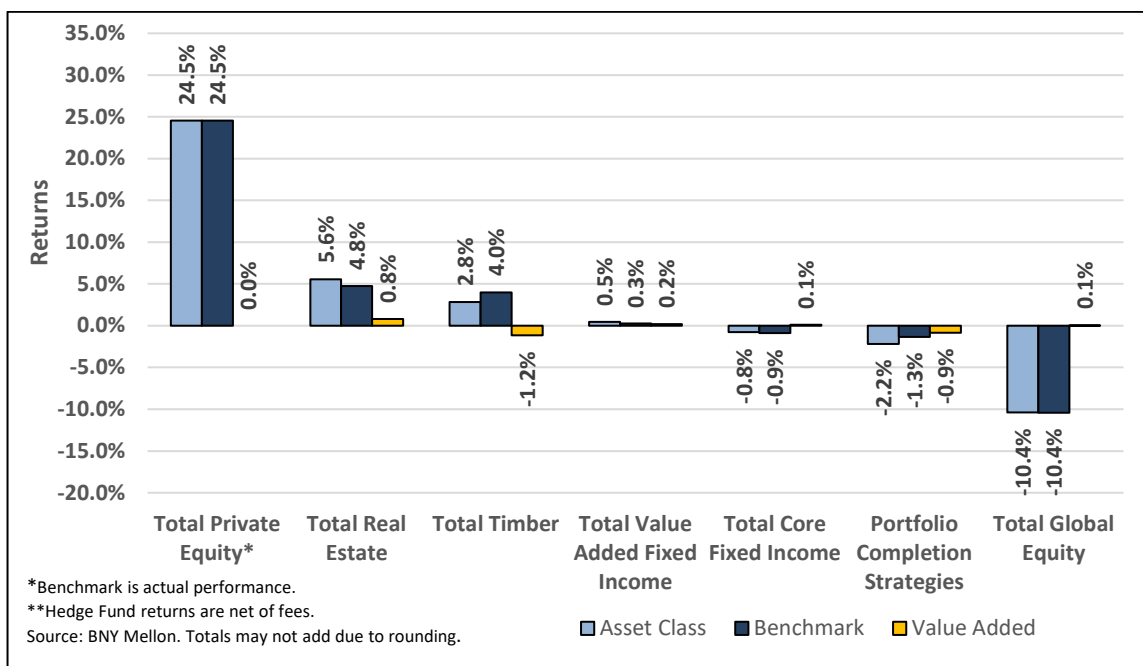
- This performance equates to an investment loss of \$1.6 billion, net of fees.
- Net total outflows to pay benefits for the one-year ended December 31, 2018, were approximately \$1.0 billion.

Mr. Trotsky made reference in his remarks to the following charts:

Total PRIT Fund Returns (Gross of Fees)
Annualized Returns as of December 31, 2018



PRIT Asset Class Performance (Gross of Fees)
Trailing 1-year Performance as of December 31, 2018



PRIT Core Fund Performance Summary

Gross of Fees Performance

Trailing 1-Year Performance as of December 31, 2018

Trailing 1-Year Performance: December 31, 2018	Return	Benchmark Return	Over/(Under) Benchmark (bps)	\$Value (millions)	% of PRIT Fund
Total PRIT Fund	-1.8%	-2.3%	43	69,285	100%
Total Global Equity	-10.4%	-10.4%	5	26,109	37.8%
<i>Domestic Equity</i>	-5.1%	-5.4%	29	11,713	17.0%
<i>International Developed</i>	-14.5%	-14.2%	(28)	10,277	14.9%
<i>Emerging Markets</i>	-15.2%	-15.2%	(3)	4,119	6.0%
Private Equity	24.5%	24.5%	0	8,335	12.1%
Real Estate	5.6%	4.8%	81	6,476	9.4%
Total Timberland	2.8%	4.0%	(117)	2,843	4.1%
PCS	-2.2%	-1.3%	(85)	9,787	14.2%
Value Added Fixed Income	0.5%	0.3%	20	5,749	8.3%
Core Fixed Income	-0.8%	-0.9%	12	8,975	13.0%

PRIT Asset Class Performance (Gross of Fees)

Annualized Returns as of December 31, 2018

1 Year	3 Year	5 Year	10 Year
PRIVATE EQUITY 24.5%	PRIVATE EQUITY 20.8%	PRIVATE EQUITY 19.8%	PRIVATE EQUITY 15.9%
REAL ESTATE 5.6%	REAL ESTATE 7.4%	REAL ESTATE 9.7%	GLOBAL EQUITY 10.2%
TIMBER 2.8%	GLOBAL EQUITY 7.0%	TIMBER 5.6%	VALUE-ADDED FIXED INCOME 9.1%
VALUE-ADDED FIXED INCOME 0.5%	VALUE-ADDED FIXED INCOME 6.8%	GLOBAL EQUITY 4.5%	REAL ESTATE 9.0%
CORE FIXED INCOME (0.8%)	TIMBER 5.9%	CORE FIXED INCOME 4.2%	CORE FIXED INCOME 5.2%
TOTAL PCS (2.2%)	TOTAL PCS 3.3%	VALUE-ADDED FIXED INCOME 3.8%	TOTAL PCS 5.0%
GLOBAL EQUITY (10.4%)	CORE FIXED INCOME 2.9%	TOTAL PCS 2.8%	TIMBER 3.0%

Constance M. Everson, CFA, Investment Committee member discussed markets pricing in a Federal Reserve rate cut and evidence of a global economic slowdown.

Summary of 2019 Annual Plan Highlights

Mr. Trotsky described that each year, each senior staff member and each asset class head prepares an annual plan for 2019. Mr. Trotsky noted that PRIM's Investment Team's Annual Plans are attached as

Appendix D and staff is seeking feedback and comment so that the plans may then be presented to the Board at its February 26th meeting for its feedback and comment.

Public Markets and Project SAVE – Phase II

- *Public Markets*
 - Project SAVE – Phase II: Implement internal investment management strategies
 - Partner with asset management firms for PRIM to “Be The First Call”
 - Continue to identify Other Credit Opportunities investments
 - Conduct routine review and update of the Investment Policy Statement
 - Research sector/country-specific investments utilizing factor decomposition techniques.
 - Research concentrated equity managers
 - Project SAVE – Phase II: Continue researching seeding platform opportunities
 - Research high yield and fallen angel investment strategies
 - Continue to upgrade analytical tools to improve investment research/analysis
 - Hire a senior investment officer and an investment analyst
- *Project SAVE – Phase II*
 - Develop business plan to implement an internally-managed Short-Term Fixed Income portfolio.
 - Research front, middle and back office systems and tools required to implement direct investment strategy.

Strategy and PCS

- *Strategy & Asset Allocation*
 - Internal management projects partnering across teams: Short-Term Fixed Income, Concentrated Portfolio, Alternatives Replication, and Real Estate M&A.
 - Expand scope and size of the equity risk mitigation strategy.
 - Refine asset allocation framework through further research quantifying expert opinions.
 - Continue developing an equity market re-risking rulebook/strategy.
 - Expand pool of lecturers and audience for ‘PRIM University’ seminars.
 - Build out research database infrastructure for quantitative equity research.
 - Research team hiring.
- *Risk Management*
 - Hire Risk Director.
 - Roll out regular reporting of PRIT Fund’s drawdown vulnerability analysis.
 - Review and aggregate risk systems.
- *Portfolio Completion Strategies*
 - Direct HF:
 - Continue reviewing legacy and existing accounts and recommend actionable items.
 - Ramp up the emerging managers direct HF program from \$150mil to \$500mil allocation.
 - Further identify opportunities in emerging markets for potential investment.
 - Fund of Funds: Finish restructuring the Fund of Funds mandate.
 - Real Assets: Design evaluation metrics for real asset investments.
 - Technology: Fully implement Dynamo CRM system into the team’s workflow process.
 - Hiring: Add one staff member to the PCS team.

Private Equity

- Implement PRIT Fund asset allocation changes
 - Increase private equity target allocation to PRIT Fund
 - Commit \$1.4 billion to \$2.0 billion to funds
 - Raise co-investment capacity to 20% of annual fund commitments
- Increase investment activity pacing while improving portfolio quality
 - Source managers new to PRIM in target markets
 - Study investment process improvements that remove bottlenecks
 - Explore creative solutions in partnership with third parties
- Develop the team
 - Hire and train investment professionals
 - Collaborate on analytical tools with other PRIM teams
 - Source ideas for Portfolio Completion Strategies and Other Credit Opportunities
- Further integrate the new CRM infrastructure into work streams
- Research private equity investment strategies, sectors and geographies

Communications Strategy

Mr. Trotsky presented the Communications Strategy mentioning the challenges that exist when trying to communicate PRIM's complexity and sophistication to all the different stakeholders. He also spoke about the transition of the media landscape from traditional to digital media, and the need for PRIM to modernize its communication efforts.

IV. Asset Allocation Recommendation (Voting Item)

Mr. Trotsky described that PRIM is guided by the mandated rate of return which is 7.35%, and as a backdrop for the asset allocation overview, provided the Committee with PRIM's top core investment beliefs as follows:

- We believe that nobody can predict the future, so we don't try.
- We believe nobody can predict the direction of the stock market, so we don't try.
- We don't make tactical asset allocation decisions, or any investment decisions based on market or economic predictions.
- We believe that any investment must be evaluated on three equally important parameters: risk, return and cost. Too often, especially in years like we just had, investors are focused more on return than they are on risk and cost.
- We value a basis point of cost reduction more than a basis point of return. Why? We can count on cost savings every year, but nobody ever really knows what the markets will deliver.

Mr. Trotsky invited Maria Garrahan, Investment Officer, Portfolio Completion Strategies, to present the asset allocation overview.

Ms. Garrahan described that PRIM focuses on achieving a dual objective, 1) seeking to meet the actuarial return of 7.35% and 2) providing adequate downside protection. PRIM defines downside protection as minimizing the probability of a drawdown greater than 20% within the next three years.

Last year, a new asset allocation framework was introduced using principal component analysis (PCA) to explore asset allocation through a different lens. Ms. Garrahan described the analogy of viewing the PRIT fund portfolio as a soup. The ingredients are the asset classes, (equities, bonds, real estate, timberland),

and the underlying components, principal components, are like the nutrients within the soup. PRIM’s goal is to make a soup with a balance of nutrients that increases the probability of achieving the dual objective.

The team developed a systematic framework to determine which nutrients (components) offer the most meaningful additions and reductions to the portfolio. The asset allocation process blends this quantitative analysis with insights from NEPC while addressing feasibility/practicality concerns from PRIM’s asset class heads. Ms. Garrahan referred to the following chart summarizing the proposed asset allocation changes:

	<i>AA 2019 Target Range</i>	<i>AA 2018 Target Range</i>	<i>Changes in Target Range</i>
Global Equity (including Put Spread Collar)	34% -- 44%	37% -- 47%	-3%
Core Fixed Income	12% -- 18%	9% -- 15%	+3%
Value-Added Fixed Income	5% -- 11%	7% -- 13%	-2%
Private Equity	10% -- 16%	9% -- 15%	+1%
Real Estate	7% -- 13%	7% -- 13%	
Timberland	1% -- 7%	1% -- 7%	
Portfolio Completion Strategies	8% -- 14%	7% -- 13%	+1%
Probability of Achieving Dual Objective	60%	55%	

Mr. Phillip Nelson, CFA, Partner, Director of Asset Allocation at NEPC, presented to the Committee a summary of NEPC’s 2019 asset class overview, NEPC’s asset class return assumptions and key market themes.

The Investment Committee (unanimously) voted to recommend to the PRIM Board to approve the 2019 Asset Allocation Recommendations as described in Appendices F and G of the Expanded Agenda, and further to authorize the Executive Director to take all actions necessary to effectuate this vote.

V. Public Markets

a. Performance Summary

David Gurtz, CPA, CFA, Deputy Chief Investment Officer – Director of Public Markets provided the Committee with the Public Markets Performance Summary. Mr. Gurtz updated the Committee on a few of the Public Markets 2019 annual plan including Project SAVE II and partnering with asset management firms for PRIM to “Be the First Call”.

b. U.S. Small-Cap Review and Recommendations (Voting Item)

Mr. Gurtz, Mr. Andre Abouhala, Investment Officer and Dr. Clapp presented the U.S. Small-Cap recommendations. Mr. Gurtz presented the three recommendations, 1) terminate Huber Capital Management 2) allocate \$100 million each to three recommended U.S. Micro-Cap equity managers: Acadian Asset Management, Brandywine Investment Management, and Lord, Abbett & Company and 3) enhance sourcing of managers.

Mr. Gurtz noted that historically, once the RFP was completed, the public markets team stopped looking for the best managers in that space, given that there was no opportunity to make an investment recommendation without issuing a new RFP. Mr. Gurtz explained that PRIM staff will continue to monitor the universe of investment managers to constantly identify skillful, complementary managers and, if appropriate, bring those recommended firms to the Committee and Board for approval.

The Investment Committee (unanimously) voted to recommend to the PRIM Board the approval of the selection of three firms – Acadian, Brandywine, and Lord Abbett, for a combined \$300 million allocation to U.S. Small Cap Equity as described in Appendices H and I of the Expanded Agenda, and further to authorize the Executive Director to take all actions necessary to effectuate this vote.

VI. Portfolio Completion Strategies (PCS) Performance Summary

Eric Nierenberg, Ph.D., Chief Strategy Officer, and Bill Li, CFA, CAIA, Senior Investment Officer for Portfolio Completion Strategies, reviewed PCS performance.

VII. Private Equity Performance Summary

Michael Bailey, Senior Investment Officer – Director of Private Equity, provided an update on private equity performance.

The PRIM Investment Committee meeting adjourned at 11:58 a.m.

List of documents and other exhibits used at the meeting:

- *Minutes of the PRIM Investment Committee Meeting of November 13, 2018*
- *PRIT Fund Performance Report*
- *BNY Mellon Gross of Fees Performance Report*
- *2019 Investment Team Annual Plans*
- *Communications Strategy Executive Summary Presentation*
- *2019 Asset Allocation Presentation*
- *NEPC Asset Allocation Presentation*
- *U.S. Small-Cap Equity Review Presentation*
- *Callan’s Memorandum on PRIM’s U.S. Small/SMID Cap Equity Review and Recommendations*