



**PENSION RESERVES
INVESTMENT
MANAGEMENT BOARD**

Minutes of the PRIM Investment Committee Meeting
Tuesday, January 30, 2018

Committee member attendees:

- Treasurer Deborah B. Goldberg, Chair (via telephone)
- Sue Perez, Esq., Treasurer's Designee
- Joseph C. Bonfiglio
- C. LaRoy Brantley
- Michael Even, CFA (left at 12:15p.m.)
- Constance M. Everson, CFA
- Ruth Ellen Fitch, Esq.
- James B. G. Hearty
- Peter Monaco
- Paul E. Shanley, Esq.
- Glenn P. Strehle, CFA (arrived at 9:45 a.m.)

Committee members not present:

- Philip Rotner

Assistant Treasurer Sue Perez chaired the meeting with Treasurer Goldberg participating via telephone.

The PRIM Investment Committee was called to order at 9:33 a.m.

I. Approval of Minutes (Voting Item)

The PRIM Investment Committee unanimously approved the minutes of its October 31, 2017, meeting.

II. Executive Director/Chief Investment Officer Comments

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

Market Summary

The final quarter of 2017 was strong, and it capped an outstanding year in the financial markets. In 2017, domestic equities rose 21.8%, developed international equities rose 25%, and emerging markets equities rose 37.3%. The moderate improvement in global economic indicators during the year failed to produce a corresponding increase in interest rates and inflation, and as such, diversified bonds rose 3.5% and long duration bonds rose 13.7%.

While global economic indicators have improved, we still monitor several risks in the market, many we first identified more than a year ago. The economic cycle is more than 9 years old and there are many uncertainties ahead – the impact of tax reform, the debt ceiling, federal budget appropriations, North Korea, immigration reform, currency manipulation, tariffs and trade agreements, to name a few. We believe that our carefully constructed, diversified portfolio is appropriate for this environment and we are very proud of our strong performance in 2017 even while, for the last five-plus years, we have systematically de-risked our portfolio.

The asset allocation changes being recommended to this Committee are a modest evolution of the path we have been on for the past several years.

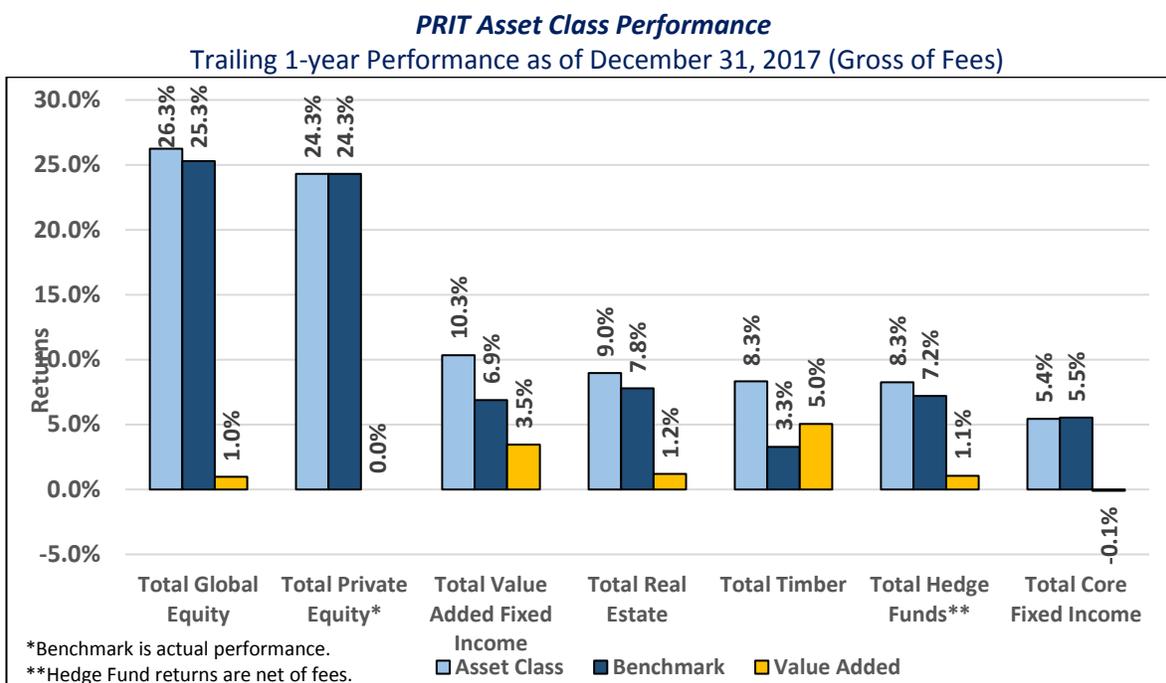
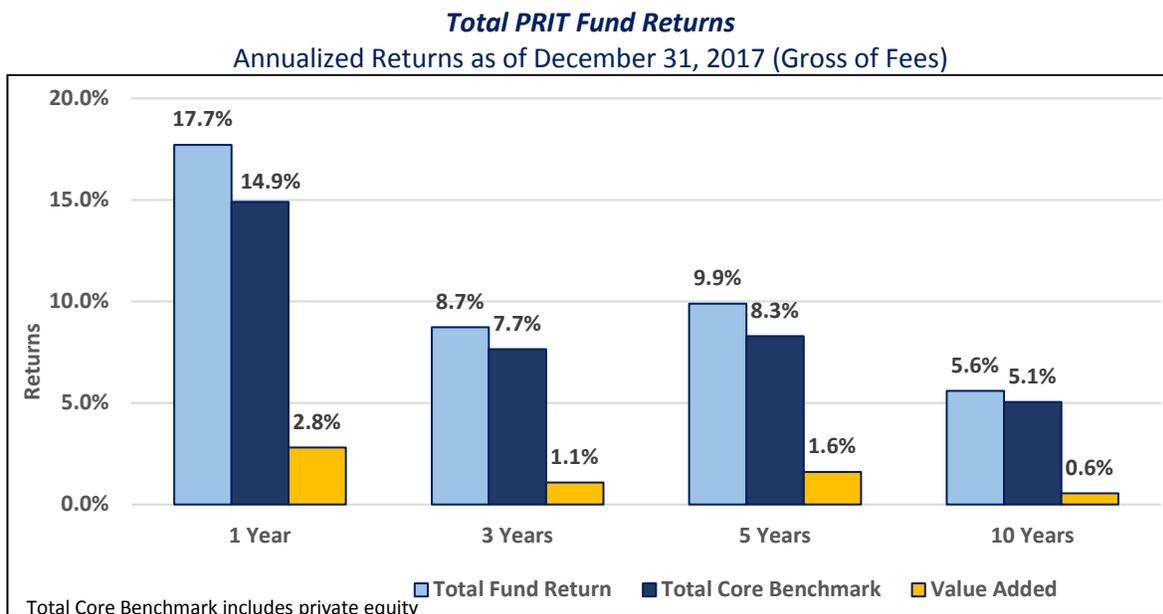
Glen P. Strehle, CFA arrived at 9:45 a.m.

PRIT Fund Performance Summary

As of December 31, 2017, the PRIT Fund net asset value stood at \$71.9 billion. For the one-year ended December 31, 2017, the PRIT Fund rose 17.7% gross (17.2% net), outperforming the total core benchmark of 14.9% by 281 basis points (232 bps net).

- This performance equates to an investment gain of \$10.8 billion, net of fees.
- This outperformance equates to \$1.4 billion of value above the benchmark return, net of fees.
- Six of the seven major asset classes outperformed their respective benchmarks.
- Net total outflows to pay benefits for the one-year ended December 31, 2017, were approximately \$1.4 billion.

Mr. Trotsky referred to the following charts:



PRIT Core Fund Performance Summary

Trailing 1-Year Performance as of December 31, 2017 (Gross of Fees)

Trailing 1-Year Performance: Dec. 31, 2017	Return	Benchmark Return	Over/(Under) Benchmark (bps)	\$Value (millions)	% of PRIT Fund
Total PRIT Fund	17.7%	14.9%	281	71,894	100%
Total Global Equity	26.3%	25.3%	97	32,615	45.5%
<i>Domestic Equity</i>	<i>20.9%</i>	<i>20.6%</i>	<i>22</i>	<i>13,723</i>	<i>19.1%</i>
<i>International Developed</i>	<i>26.7%</i>	<i>25.6%</i>	<i>104</i>	<i>12,965</i>	<i>18.1%</i>
<i>Emerging Markets</i>	<i>40.4%</i>	<i>37.4%</i>	<i>294</i>	<i>5,928</i>	<i>8.3%</i>
Private Equity	24.3%	24.3%	0	7,331	10.2%
Real Estate	9.0%	7.8%	119	6,110	8.5%
Total Timberland	8.3%	3.3%	504	2,542	3.5%
Hedge Funds	8.3%	7.2%	105	5,876	8.2%
Value Added Fixed Income	10.3%	6.9%	345	5,625	7.8%
Core Fixed Income	5.4%	5.5%	(10)	8,796	12.3%

PRIT Asset Class Performance

Annualized Returns as of December 31, 2017 (Gross of Fees)

1 Year	3 Year	5 Year	10 Year
GLOBAL EQUITY 26.3%	PRIVATE EQUITY 18.1%	PRIVATE EQUITY 19.1%	PRIVATE EQUITY 12.8%
PRIVATE EQUITY 24.3%	GLOBAL EQUITY 10.4%	GLOBAL EQUITY 11.5%	VALUE-ADDED FIXED INCOME 6.7%
VALUE-ADDED FIXED INCOME 10.3%	REAL ESTATE 9.5%	REAL ESTATE 10.8%	REAL ESTATE 6.5%
REAL ESTATE 9.0%	VALUE-ADDED FIXED INCOME 5.2%	TIMBER 6.8%	GLOBAL EQUITY 5.4%
TIMBER 8.3%	TIMBER 4.9%	HEDGE FUNDS (NET OF FEES) 5.7%	CORE FIXED INCOME 4.7%
HEDGE FUNDS (NET OF FEES) 8.3%	HEDGE FUNDS (NET OF FEES) 3.5%	VALUE-ADDED FIXED INCOME 4.4%	TIMBER 4.3%
CORE FIXED INCOME 5.4%	CORE FIXED INCOME 2.5%	CORE FIXED INCOME 3.8%	HEDGE FUNDS (NET OF FEES) 3.0%

Constance Everson, CFA, gave her customary update on the capital markets. She said it is important to discuss bond yields. Yields had been rising at a faster pace in recent weeks, although they were still only 20 basis points from the prior high point of December 2016, she noted, and currencies and the stock market have been moving faster since the end of calendar 2017 also. "Fear of missing out" is a powerful investor motivator but, having taken hold, it can make equity markets more vulnerable to rising yields, such as is happening at the current time, she said. Another risk factor is the widespread use of risk parity strategies that can be required to sell falling assets to maintain a portfolio's required risk profile, she added.

Ms. Everson said two features of the investment landscape are still true: first, investors still needed long-duration assets that were not government bonds, as most still had a required return higher than current government yields; and second, there is still a low ceiling on how far bond yields could rise, in the current environment.

Ms. Everson concluded the rise in bond yields is a "near-term situation" that could cause a "near-term storm" for equity markets. When equity markets declined and stayed down, in prior situations, there was always an underlying economic setback at the time, she said, and such a setback was "not impossible here," but not happening currently.

Organizational Update

Mr. Trotsky provided the Committee with an organizational update, including:

Bill Li, CFA, CAIA on the Portfolio Completion Strategies team was promoted to Senior Investment Officer. Bill was hired in May of 2016 as an Investment Officer and has been an extremely hardworking and valuable member of the investment team focused primarily on developing innovative initiatives from PCS and Strategy, including Alternative Risk Premia Harvesting strategies, the hedged equity program and asset allocation. With Eric Nierenberg, Ph.D., he is also responsible for ongoing due diligence and manager sourcing in our Hedge Fund portfolio. Bill has a Master's degree in economics and finance from Brandeis and a Bachelor of Science degree from Dongbei University in China.

Maria Garrahan joined PRIM in January of 2018 as an Investment Officer. She reports to Eric Nierenberg and joins Bill Li on the Portfolio Completion Strategies team. Maria joins PRIM after 2½ years at Columbia Threadneedle Investments as a research analyst focused on global asset allocation. Her prior experience includes working as a research assistant for Professor Ken Froot of the Harvard Business School where she focused on factor-based investment techniques, an element of investing that is becoming increasingly important to us at PRIM. Maria holds a Master's degree in applied economics from Northeastern University and a Bachelor of Arts degree in economics, magna cum laude, from Eastern Connecticut State University.

In November, **Ed Caron** joined PRIM as an Investment Operations Analyst. He will work on accounting and reporting on PRIM's private investments. Ed joins PRIM from BNY-Mellon, where he serviced two large public plans; and before that, he worked at State Street Bank. Ed is a graduate of UMass-Amherst, from which he holds a Bachelor of Arts in finance.

Alyssa Fiore, a member of PRIM's private equity team, and **Andrew Gromer**, a member of the public markets team, received their CFA Charters in November. This is a major accomplishment that requires passing three difficult exams over three years and working for four years in the investment sector. This brings the number of PRIM investment staff who have earned their CFA Charters to nine. That's about two-thirds of PRIM's investment staff.

Christina Marcarelli, Investment Officer – Real Estate and Timberland, has volunteered to lead PRIM's diversity initiatives. PRIM recognizes the value of diversity of thought in decision-making and of having a diverse staff. We are excited to have Christina continue a long legacy of recruitment and retention programs aimed at diverse employees. Christina has played an important role in direct real estate investments and in performing in-house analysis of real estate markets and due diligence on PRIM's real estate holdings.

Summary of 2018 Annual Plan Highlights

Mr. Trotsky told the Committee, as we do each year, senior staff members and asset class heads prepare an annual plan for 2018. We will present a summary of the plans to the Committee for feedback and comment, so the plans may likewise be presented to the Board for its feedback. We will revise the plans

as appropriate to incorporate feedback received from the Board, and at that point we will then approve the plans in accordance with the directive of the Charters.

Mr. Trotsky noted that the plans do not depart significantly from those presented at this time last year; rather, they represent a continuation of the innovative path we are currently on. Mr. Trotsky directed the Committee to Appendix D of the expanded agenda and highlighted a few of the important new initiatives including: active/passive split in emerging markets equities; micro-cap equities; review and update of the investment policy statement: Project SAVE, Phase II; asset allocation; PRIM University, which is Dr. Nierenberg's program of seminars for PRIM staff; the emerging managers direct hedge funds program; private equity investments; and risk-reporting.

III. **Asset Allocation Recommendations (Voting Item)**

Mr. Trotsky began his presentation on the calendar 2018 asset allocation process by listing seven core PRIM investing beliefs. They are:

1. PRIM is guided by the mandated rate of return, the actuarial rate of return, which currently is 7.5%. That makes it necessary to have a relatively aggressive portfolio with significant equity risk.
2. PRIM makes sure every active manager we hire has skill, and PRIM has developed tools to identify managers with skill. PRIM only pays active fees for managers with skill – an attractive manager will produce strong returns that cannot be explained by persistent factor tilts.
3. Every investment must be evaluated on three equally important parameters: risk, return and cost. "Too often," he added, "especially in years like we just had, investors are focused more on return than they are on risk and cost."
4. PRIM values a basis point of cost reduction more than a basis point of return because investors can count on cost savings every year, but nobody ever really knows what the markets will deliver.
5. Nobody can predict the future, so PRIM doesn't try.
6. Nobody can predict the stock market, so PRIM doesn't try
7. Every strategic decision PRIM makes on asset allocation must comply with PRIM's "do no harm" rule, identifying assets and strategies that improve the risk/return profile of the entire fund.

Mr. Brantley asked about strategies for identifying alpha rather than paying for beta and asked whether the 7.5% target rate of return is likely to be reduced. Treasurer Goldberg, participating by telephone, said her "long-term goal" is to see the target rate of return reduced to less than 7%.

Eric Nierenberg, Ph.D., Chief Strategy Officer and Bill Li, CFA, CAIA, Senior Investment Officer for Portfolio Completion Strategies, updated the Committee on the asset allocation recommendations developed by staff with input from NEPC. Dr. Nierenberg noted that he agrees with Mr. Trotsky's assessment that asset allocation decisions often are the most important an investor makes and the hardest to get right. Dr. Nierenberg said that as Chief Strategy Officer, he will place asset allocation among his highest priorities. He added that he is excited by the opportunity to take part in a thoughtful process involving many PRIM colleagues.

Dr. Nierenberg made numerous additional points regarding asset allocation at PRIM, including:

- The process begins each year with the existing allocation that is in place.
- The prevailing principle is Mr. Trotsky's "do no harm" edict.
- PRIM staff incorporates quantitative assessments developed internally and provided by consultants.
- Potential portfolios are modeled to assess the potential impact of various exposures, strategies and risks.
- Any actions are implemented gradually. This process is not an "overhaul."

Mr. Li discussed the statistical methods PRIM staff is using to extract useful information across asset classes. He also discussed the modeling process and its ability to test the effect of various scenarios, such as drawdowns, on the overall PRIT Fund. Mr. Li told the Committee about using a modeling process called Principal Component Analysis, or PCA, to accurately incorporate changes that involve variables that are not strongly and clearly correlated.

Mr. Li said PRIM staff developed 10,000 possible PRIT Fund scenarios to identify the best mix of investments for meeting the 7.5% mandated rate of return and avoid unacceptable drawdown risk. Dr. Nierenberg mentioned that new target allocations do not vary significantly from current targets. The proposed changes include increasing the private equities allocation by 1% and expanding the equity hedge program with PCS.

Ms. Fitch asked for details about the process for assessing the effectiveness of current allocations at any time. Mr. Trotsky said PRIM staff “philosophically” believes any new investment deserves one economic cycle to prove itself.

Representatives of NEPC discussed the firm’s asset allocation recommendations.

The PRIM Investment Committee voted (unanimously) to recommend to the PRIM Board that the Board approve the 2018 Asset Allocation Recommendations as described in Appendices E, F and G of the Expanded Agenda, and further to authorize the Executive Director to take all actions necessary to effectuate this vote.

IV. Public Markets

a. Emerging Markets Equity Recommendation (Voting Item)

David Gurtz, CPA, CFA, Deputy Chief Investment Officer – Director of Public Markets and Andre Clapp, Ph.D. CFA, Senior Investment Officer – Public Equities, presented the Committee with a recommendation to shift PRIM’s emerging markets equity investments to 100% actively managed from 75% actively managed.

PRIM staff told the Committee the change would entail moving approximately \$1.1 billion in investments to managers T. Rowe Price, AQR and Pzena from the SSGA EM IMI Index account. SSGA EM IMI Index would move to PRIM’s manager bench.

Dr. Clapp noted that PRIM shifted emerging markets equities investments to 75% actively managed from 50% actively in 2015 and that active management has consistently outperformed passive management in the sector. Mr. Clapp said the superior performance includes producing better Sharpe and Information ratios than index funds produce.

The PRIM Investment Committee voted (unanimously) to recommend to the PRIM Board that the Board approve a change to the active/passive split in Emerging Markets equities from 75% active/25% passive to 100% active 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.

b. Request for U.S. Micro-Cap Equity RFP (Voting Item)

Andre Abouhala, Investment Analyst on the Public Markets team, presented a staff recommendation to issue a request for proposals (RFP) for active US Micro-Cap equity investment management services. If successful, he said, PRIM would allocate up to \$700 million (or 1% of the PRIT Fund) to the strategy. Funding would come from existing U.S. Equities portfolios.

Mr. Abouhala said the Russell Micro-Cap Index is highly correlated to the Russell 2000 and S&P 500 indices and shares similar risk/return profiles, but there are strong signs that active management can generate significant benefits. He said that over the past 10 years, a number of active managers have consistently delivered significant excess return.

Mr. Abouhala said the median active manager outperforms the benchmark by 170 basis points net of fees and the dispersion between the best managers is 7.7%, which is wide within global equities. He also said analyst coverage of micro-cap stocks is light overall and in some cases nonexistent, leaving substantial opportunities for managers to identify and exploit inefficient pricing. He said pension systems in Oregon, Florida and Alaska have made investment decisions similar to the one PRIM staff is proposing to explore via an RFP.

The PRIM Investment Committee voted (unanimously) to recommend to the PRIM Board that the Board approve the issuance of a Request for Proposals for Active U.S. Micro-Cap Equity investment management services as described in Appendices J and K of the Expanded Agenda, and further to authorize the Executive Director to take all actions necessary to effectuate this vote.

V. Portfolio Completion Strategies (PCS)

a. Emerging Manager Direct Hedge Fund Advisory and Managed Account Platform Services RFP Recommendations (Voting Item)

Dr. Niereberg, Mr. Li, and Matt Liposky, Chief Investment Operating Officer, presented the results of a Request for Proposals issued in 2016 for direct hedge fund advisory and managed account platform services.

The two firms recommended by the RFP evaluation committee are NewAlpha Asset Management for direct hedge fund advisory services and Innocap for managed account platform services. If hired, staff told the Committee, they would begin searches for emerging managers in the global macro hedge fund space.

Mr. Li reminded the Committee that the vote staff was seeking at the Investment Committee meeting was not to fund a program, but to hire companies to help build a program and that funding decisions would follow.

Mr. Li said the RFP drew 22 responses and that respondents were allowed to partner with each other. The 22 respondents were evaluated based on criteria including fees, relevant experience, stability, depth of team and suitability of infrastructure, Mr. Li said. Of the 22, 10 were invited to visit PRIM's offices for interviews.

Mr. Li said the interviews further narrowed the pool of firms under consideration to four finalists – two for advisory services and two for platform services. The evaluation committee visited the four finalists' offices and checked references before deciding to recommend to the Investment Committee the hiring of New Alpha, which is based in Europe, and Innocap, which is based in Montreal.

Mr. Liposky provided the Investment Committee with details about Innocap, which he said has been providing managed account services since 1996. Both firms are leaders in their industries, Mr. Li and Mr. Liposky said.

Mr. Even left at 12:15 p.m.

The PRIM Investment Committee voted (unanimously) to recommend to the PRIM Board that the Board approve the selection of NewAlpha Asset Management to provide Emerging Manager Direct Hedge Fund Advisory services, and Innocap to provide managed account platform services, for the Emerging Manager Direct Hedge Fund program as described in Appendix L of the Expanded Agenda, and further to authorize the Executive Director to take all actions necessary to effectuate this vote.

The PRIM Investment Committee meeting adjourned at 12:19 p.m.

List of documents and other exhibits used at the meeting:

- *Minutes of the PRIM Investment Committee Meeting of October 31, 2017*
- *PRIT Fund Performance Report*
- *BNY Mellon Gross of Fees Performance Report*
- *2018 Investment Team Annual Plans*
- *NEPC Asset Allocation Presentation – Factors and Asset Class Assumptions*
- *NEPC Asset Allocation Presentation – Global Market Outlook*
- *2018 Asset Allocation Presentation*
- *Emerging Markets Equity Recommendation Presentation*
- *Callan’s Emerging Markets Equity Recommendation Memo*
- *U.S. Micro-Cap Equity RFP Recommendation Presentation*
- *Callan’s U.S. Micro-Cap Equity RFP Recommendation Memo*
- *Emerging Manager Direct Hedge Fund Advisory and Managed Account Platform Provider RFP Recommendation Report*
- *Handout - 2018 PRIM Asset Allocation - Summary Slides*