



**PENSION RESERVES
INVESTMENT
MANAGEMENT BOARD**

Minutes of the PRIM Real Estate and Timberland Committee Meeting
Wednesday, January 31, 2018

Committee members present:

- Jill S. Hatton, CRE, Chair
- Treasurer Deborah Goldberg arrived at 9:45 a.m.
- Sarah Kim, Esq., Treasurer Goldberg's designee.
- Lydia Chesnick, Esq.
- Robert Gifford
- Anthony E. Hubbard, Esq.
- Jack Lutz, Ph.D.
- William F. McCall, Jr., CRE, via phone at 9:35 a.m.
- Garlan Morse, Jr., CRE
- Carly Rose arrived at 9:34 a.m.

Committee members not present:

- Peter O'Connell

The PRIM Real Estate and Timberland Committee meeting was called to order at 9:30 a.m.

I. Approval of the Minutes (Voting Item)

The PRIM Real Estate and Timberland Committee unanimously approved by roll call vote the minutes of its November 1, 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%.

Carly Rose arrived at 9:34 a.m.

Bill McCall joined via telephone at 9:35 a.m.

The Chair stated that "the PRIM Board has adopted the provision of the Massachusetts Open Meeting Law that permits remote participation in meetings if the Chair determines that the member's in-person attendance is unreasonably difficult due to geographic distance, as is the case today with William F. McCall, Jr., who accordingly will participate in today's meeting remotely by telephone."

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.

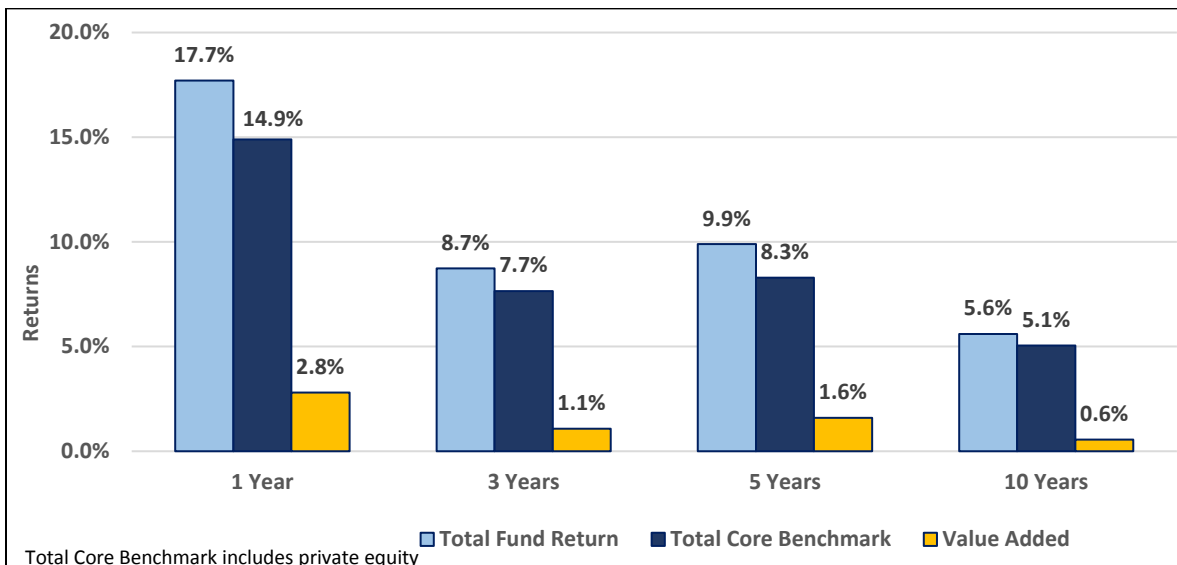
PRIT Fund Performance Summary

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.

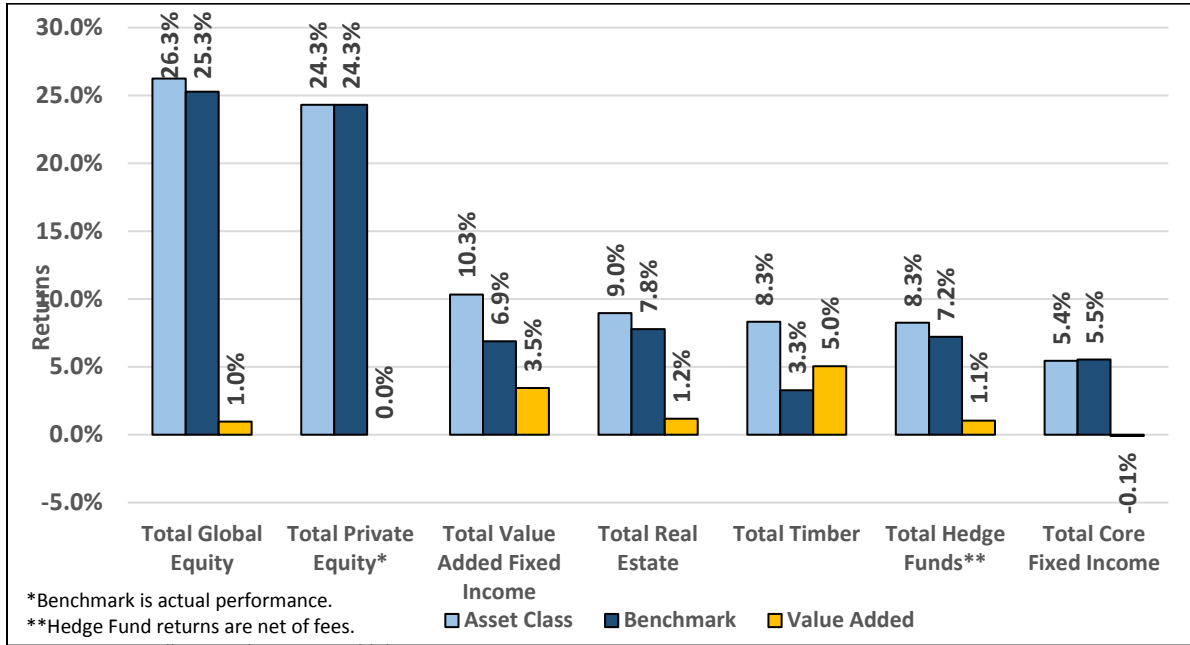
Mr. Trotsky referred to the following charts:

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



PRIT Asset Class Performance

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



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%

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. PRIM Asset Allocation

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.

Eric Nierenberg, Ph.D., Chief Strategy Officer 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."

IV. Performance Review and Market Update

Timothy Schlitzer, CRE, CFA, Senior Investment Officer - Director of Real Estate and Timberland, updated the Committee on performance.

Markets

Mr. Schlitzer said new supply remains historically low in the U.S. but there are pockets of oversupply by geography and property type. Construction costs have increased in terms of both labor and materials, making development more challenging.

The lending environment remains favorable, particularly for high quality assets and development projects. Interest rates have not ticked up significantly. That said, lenders are showing discipline.

Capital markets remain robust, Mr. Schlitzer said, driving up pricing but creating strong liquidity for sales.

Cap rates remain at historical lows and expectations for further rent growth remain mixed.

Nashville is representative of the conditions in some real estate markets and the decision making required related to PRIM's portfolio, he said. Nashville had the highest job growth in the country last year. However, it is a small market with less liquidity and substantial supply that has negatively affected apartment rents and valuation.

Allocation

Real estate assets were valued at \$6.1 billion, or 8.5% of the PRIT Fund, at calendar year end. This equates to a dollar underweight to the mid-point of our range of \$1.05 billion. The underweight is primarily due to the increase in the denominator during the calendar year. The PRIT Fund increased by almost 18% versus the asset class return of 9%. That said, there is also information in the annual plan which shows that PRIM were net sellers in the private accounts by approximately \$390 million during the year.

Timberland is valued at \$2.5 billion or 3.5% of the PRIT Fund, a dollar underweight to the asset class mid-point of approximately \$330 million.

Mr. Schlitzer said PRIM faces a similar denominator situation in timberland, where returns were 8.3% for the year. Transaction activity was flat for the year with one small acquisition completed. As mentioned in the agenda though, we do have a large international acquisition pending.

Real Estate Strategic Mix

Mr. Schlitzer said the PRIT Fund has been slightly overweight to REITs compared to PRIM's combined benchmark. This benefitted the portfolio during the year as REITs outperformed PRIM's private benchmark by about 500 basis points.

The fund completed five acquisitions during the year for \$127 million in invested cash plus an additional \$131 million committed. Three of the acquisitions were in PRIM's industrial development portfolio, which will hold the additional commitments. There has been only one acquisition since the last meeting which was a core apartment acquisition in Denver.

PRIM completed 12 dispositions during the year for \$518 million. Mr. Schlitzer characterized these as a mix of sales in the AEW takeover and J.P. Morgan accounts and a few other opportunistic sales.

Appraisals and internal valuations provided \$112 million in appreciation or a 2% gain in the fourth quarter.

Real Estate Performance

Total real estate returned 9% over the past year, 119 basis points above PRIM's benchmark, Mr. Schlitzer said.

The private portfolio returned 8.1%, 121 basis points above benchmark.

The REIT portfolio returned 11.8% for the year, outperforming the NAREIT global benchmark by 60 basis points.

Strong REIT performance was led by Europe and Asia, both of which saw returns in the mid-20% range, and illustrating the benefit of the international piece of PRIM's portfolio. About half of these non-US returns were due to currency impact.

US REITs returned 5.23% during the year. We continued to see significant dispersion at the sector level. Industrial and data centers were both up over 20% for the year while shopping centers were down 11%. Timber REITs were up 22% for the year.

Timberland Markets

Mr. Schlitzer said housing starts fell in December which is being blamed on cold weather impacting construction.

[Mr. Gifford mentioned that he believed other factors include lack of skilled labor and availability of buildable land.]

Starts dropped 8.2% to 1.19 million (annualized). Single family starts dropped 11.8% to 836,000. Multifamily starts increased 1.4% to 356,000 (annualized).

Permits fell 0.1% to 1.3 million (annualized) suggesting increases in starts in the coming months.

Southern timber prices were down during 2017, most attributable to a growing supply of forest inventory and an improving but not yet robust home construction environment.

Timber prices were down 3-7% in the South YOY. Sawtimber prices increased 2.6% in the fourth quarter. Prices in the Pacific Northwest have been very strong due to export demand and a lack of supply build up due to consistent demand.

The NCREIF benchmark increased 3.6% in 2017. The South returned 2.7% while the Pacific Northwest returned 7%.

Performance

Total timberland returned 8.3% over the last 12 months, 504 basis points above PRIM's benchmark.

Both managers outperformed the NCREIF benchmark.

Campbell experienced significant outperformance which was primarily due to strong performance and currency effect in Australia.

PRIM completed one acquisition for \$50,000,000 in Washington which was an add-on of adjacent acreage to PRIM's large Snoqualmie property in Washington State - currently valued at \$308 million.

Anthony Hubbard asked about the impact of the tax bill on commercial real estate. Jill Hatton and Rob Gifford communicated that the tax bill had been favorable to the commercial real estate industry.

Mr. Morse asked what the operating yield on PRIM's portfolio is and what the current blended rate of PRIM's debt is. Mr. Schlitzer said PRIM's debt was still accretive which would increase returns in a low but positive return environment.

Mr. Lutz described the handout on timberland markets. The information was well received. Mr. Morse asked what China's capacity for timberland growth was. Mr. Lutz stated that the climate and topography of China are not well suited for timberland growth and that the Chinese would need to import a significant portion of their timber.

V. 2018 Real Estate and Timberland Annual Plan

Mr. Schlitzer briefly summarized each of the items on pages two and three of Appendix G.

Mr. Gifford asked how staff was thinking about currency risk. Tim Schlitzer indicated that currency risk was an important consideration in non-US investing. While PRIM does not typically hedge currency risk, it would be an important component of any individual investment decision. Ms. Hatton reiterated that she believed that non-US capital would be allocated at the individual transaction level through separate accounts and that staff could evaluate currency risk as each investment is analyzed.

Mr. Gifford asked how staff were thinking about strategy for direct investments. Mr. Schlitzer stated that staff continued to focus on low management intensity assets as well as joint ventures with operating partners on assets requiring repositioning, leasing and capital.

Mr. Gifford, referencing page 7, asked for some additional detail about how we planned to get to the 10% allocation. Mr. Schlitzer indicated that the methodology used included all outstanding capital commitments which amounted to close to a billion dollars. He stated that while staff continued to work with PRIM's managers on reviewing acquisition opportunities, there was a good chance that PRIM would end the year in a net sales position. He also reminded the Committee that the steep increase in the denominator, due to strong public markets, had created a significant change in PRIM's allocation as a percentage of the PRIT Fund.

VI. Timberland Investment Policy Recommendation (Voting Item)

Mr. Schlitzer provided a verbal summary of the material in Section VI of the Real Estate and Timberland Committee Expanded Agenda. He reiterated that the changes to the timberland policy were primarily related to changes in the geographic ranges as well as the addition of two new monitoring categories, end-market and end-use. He stated that by broadening the international range, PRIM's ranges would better reflect the global market opportunity and the positioning of PRIM's portfolio. Jill Hatton reminded the Committee that staff had communicated the expectation a year ago that the international component would continue to grow over time.

Ms. Kim asked about the use of the term "reasonably" related to age and species requirements. The Committee engaged in a brief discussion on this topic. Ms. Hatton commented that she felt that it was a common term. She believes that it is appropriate to put the burden of interpretation on the manager in properly diversifying the portfolio. Lydia Chesnick agreed that it was common and indicated that she felt that being too specific was not prudent in this case. The Committee approved the recommendations.

The Real Estate and Timberland Committee voted (unanimously) by roll-call vote to recommend to the PRIM Board the acceptance of the proposed changes to PRIM's timberland investment policy.

VII. Timberland Valuation Process Recommendation (Voting Item)

Mr. Schlitzer summarized the recommendation as described in the Expanded agenda. The Committee engaged in a brief discussion. Mr. Lutz indicated that he wasn't aware of any changes in the appraisal industry that would change PRIM's appraiser list in 2018. The Committee approved the recommendations.

The Real Estate and Timberland Committee voted (unanimously) by roll-call vote to recommend to the PRIM Board the extension of the qualification period of PRIM's existing timberland appraisers through December 31, 2018 and to approve the issuance of a Request for Qualifications for timberland appraisers in 2018.

VIII. Update – Timberland Acquisition Update

Mr. Schlitzer described the information in the Expanded Agenda, clarifying that the transaction has not closed and that the information in the agenda is what is currently public.

The PRIM Real Estate and Timberland Committee meeting adjourned at 11:34 a.m.

List of documents and exhibits used during the meeting:

- *Minutes of the PRIM Real Estate and Timberland Committee Meeting of November 1, 2017*
- *PRIT Fund Performance Report*
- *BNY Mellon Gross of Fees Performance Report*
- *2018 Investment Team Annual Plans*
- *2018 Asset Allocation Presentation*
- *Real Estate and Timberland Performance Charts*
- *2018 Real Estate and Timberland Investment Plan*
- *Proposed Timberland Investment Policy – Redline*
- *Proposed Timberland Investment Policy – Final Version*