MassPRIM

Minutes of the PRIM Investment Committee Remote Meeting
Tuesday, August 1, 2023

Committee members present:
- Treasurer Deborah Goldberg, Chair
- Catherine D'Amato
- Michael Even
- Constance Everson, CFA
- Ruth Ellen Fitch, Esq.
- James Hearty
- Peter Monaco
- Phillip Perelmuter
- Philip Rotner
- Paul Shanley, Esq.
- Glenn Strehle, CFA (arrived at 9:53 a.m.)
- Timothy Vaill

Committee members not present:
- Joseph Bonfiglio
- C. LaRoy Brantley

The PRIM Investment Committee meeting was called to order at 9:33 a.m. Chair Treasurer Deborah Goldberg announced that the meeting was being held by internet and telephone in accordance with the provisions of Massachusetts Acts of 2022 which was most recently amended on March 29, 2023, to include an extension of the 2020 Executive Order 'Suspending Certain Provisions of the Open Meeting Law' until March 31, 2025. Accordingly, all members of the Committee participated remotely via telephone and/or internet enabled audio and video conferencing, and all votes were taken by roll call. Public access to the deliberations of the Committee was likewise provided via telephone, with presentation materials made available on PRIM's website (www.mapension.com). At the start of the meeting, the names of the members participating remotely were announced.

I. Approval of the Minutes (Voting Item)

The PRIM Investment Committee approved, by unanimous roll-call vote, the amended minutes of its May 2, 2023, meeting.

II. Executive Director / Chief Investment Officer Comments

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

Mr. Trotsky was pleased to report that Fiscal Year 2023 (FY2023) was a very successful and productive year in an abnormally volatile and complex investment environment. The PRIT Fund ended with a record balance of $96.6 billion for the fiscal year ended June 30, 2023, surpassing the previous record of $95.7 billion set in fiscal year 2021. Net outflows to pay pension benefits during the year were $986 million. The PRIT Fund returned 6.0% (5.6%, net) for the fiscal year and posted strong positive gains in each of the last three quarters. In FY2023, U.S stocks were up 19.7%, developed international stocks were up 17.5%, and emerging markets stocks were up 9.1%, while diversified bonds were down less than 1%. The highest returning PRIT Fund asset classes included Global Equities, up 17.4%, Value-Added Fixed Income, up 7.7%, and Timberland, up 5.9%. Core Fixed Income was weaker, down 2.7%, while Real Estate and Private Equity, which are lagged one quarter, were down 2.8% and 3.5%, respectively. The investment team researched and deployed $5.4 billion in Board-approved investments in FY2023.

The solid gain in FY2023 followed the tumultuous fiscal year 2022 (FY2022) in which U.S. equities were down 10.6%, developed international equities were down 17.7%, emerging markets equities were down 25.2%, and diversified bonds were down 10.3%. The FY2022 PRIT Fund return of -3.0% (-3.4%, net) was a strong result in a very weak market. While PRIM cannot control market returns or the factors that have fueled the recent volatility in the markets, PRIM staff carefully control the construction of the PRIT Fund to perform well in both strong and weak markets. The last three fiscal years have provided an extraordinary test, and we remain pleased and confident in the resiliency of the PRIT Fund and its performance over all time periods and throughout several different market environments. The PRIT Fund's trailing 3-, 5-, and 10-year returns remain strong and consistently above benchmarks and the required actuarial rate of return.

Glenn Strehle joined the meeting at 9:53 a.m.

Organizational Updates

Mr. Trotsky noted that PRIM is now comprised of 68 highly trained, experienced, and dedicated employees after hiring eight new full-time employees and nine seasonal interns in FY2023. Six of the eight new employees are diverse in terms of race and/or gender and all interns are diverse. 62% of PRIM's workforce is diverse and 52% of our workforce identifies as female.

The work of PRIM staff continues to receive local and national recognition. In FY2023, PRIM's Private Equity portfolio ranked third out of 176 U.S. public pension plans based on 10-year performance. PRIM ranked eighth in the U.S. for assets managed by diverse managers according to *Pensions & Investments*. PRIM received the Commonwealth's "Equity in Governance Award" for the FUTURE Initiative, Institutional Investor's "Partnership of the Year" award for our role in the Aggregate Confusion Project, and the Certificate of Achievement for Excellence in Financial Reporting from the Government Finance Officers Association for the seventeenth consecutive year. PRIM also successfully completed the CFA Institute's Global Investment Performance Standards of Integrity and Transparency, a standard with which only a small handful of other pension funds comply. PRIM completed 36 separate audits, including unexpected audits from PERAC and the Office of the State Auditor. All audits resulted in unmodified (clean) opinions with no findings.

More recently, PE-WIN, the Private Equity Women Investor Network, the preeminent organization for senior-level women investment professionals in private equity, recognized PRIM as "Limited Partner of the Year" for "empowering women in private equity." The award reflected both PRIM's work on investing with women and diverse managers via the FUTURE Initiative and the strong leadership presence of women on our own Private Equity team. PRIM's Private Equity team also won Alpha Edge recognition for Alpha Generation from Institutional Investor. Institutional Investor cited PRIM's strong leadership culture, collaboration, and thesis-driven approach to manager selection as well as our annual commitment modeling process and our strong long-term performance in the asset class. PRIM also recently received our eighteenth Certificate of Achievement for Excellence in Financial Reporting.

The FUTURE Initiative, the program to increase the diversity of PRIM's investment managers and vendors to at least 20% by increasing access for minorities, female, and disabled investment managers and business partners, had a successful year in FY2023, investing approximately $2.2 billion with diverse managers over five asset classes. The PRIT Fund currently invests more than $9.9 billion with diverse investment managers, more than 10% of the PRIT Fund. With a ranking of eighth among the largest 200 funds in the U.S. for our allocation to diverse managers, PRIM is above its ranking in total assets under management. Additionally, PRIM doubled its total deployment to <u>emerging</u>, diverse managers to more than $470 million.

On Environmental, Social and Governance (ESG) issues, PRIM developed and approved the ESG Committee Charter, members were appointed, and the Committee held its inaugural meeting. PRIM recruited and hired its first-ever Director of Stewardship to support the Committee and its work in the space. PRIM voted 8,979 proxy ballots aligned with its progressive proxy voting guidelines on areas such as board diversity requirements, over-boarded directors, gender pay gaps, labor and human rights, climate change, and executive compensation. PRIM adopted new proxy voting guidelines to vote for shareholder resolutions that require companies to provide access to the full range of reproductive healthcare and comprehensive parental leave and to vote for shareholder resolutions that request companies to provide greater disclosure of corporate campaign financing. PRIM continues to support the MIT Sloan School of Management's Aggregate Confusion Project (ACP) as its first founding member. The goal of ACP is to develop tools to address inconsistencies in the measurement of ESG data, which has become widely recognized as an obstacle in ESG investing.

The focus and efforts of the PRIM team were nothing short of remarkable under the unique circumstances of the year. The team is hard working and dedicated, delivering not only strong investment performance, but also extraordinary non-investment innovation and responsiveness.

Markets and PRIT Fund Performance

The PRIT Fund gained 6.0% (5.6%, net) for the fiscal year ended June 30, 2023, underperforming the benchmark by 3.3%, net of fees. Assets under management at the fiscal year-end were $96.6 billion and net outflows to pay benefits were $986 million. The entire underperformance during the fiscal year was due to the Private Equity portfolio, which has two significant near-term benchmark mismatches. First, the portfolio is valued on a one-quarter lag, meaning the portfolio reflects valuations only through March 31, 2023, and does not include the strong June quarter. Additionally, the Private Equity benchmark is a seven-year annualized public market benchmark plus a 3% liquidity premium. The benchmark return in the period, reflecting a very strong seven-year market return, was 14.4%. This created a significant benchmark mismatch in the fiscal year. Private Equity is a long-term asset class and comparing a one-year, lagged return to a long-term, smoothed benchmark will periodically create significant near-term mismatches. We expect this anomaly to reverse over time.

The PRIT Fund's trailing 3-, 5-, and 10-year returns remain strong, above benchmark, and above the Actuarial Rate of Return, which is currently 7.0%.

The Sharpe Ratio for the PRIT Fund, a standard measure of risk adjusted returns, has been consistently higher than a passive 60/40 mix of global stocks and bonds. This, combined with our consistent outperformance, is an indication that the PRIM portfolio is consistently delivering higher returns and lower risk than the popular diversified portfolio benchmark.

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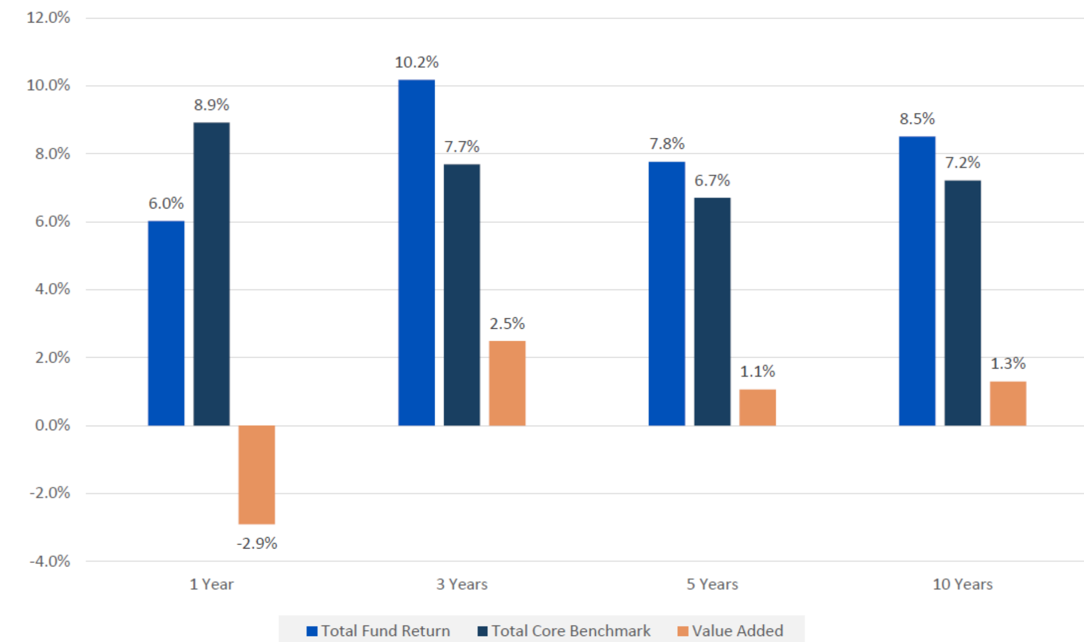
Mr. Trotsky referenced the following charts and graphs:

PRIT Fund Total Returns

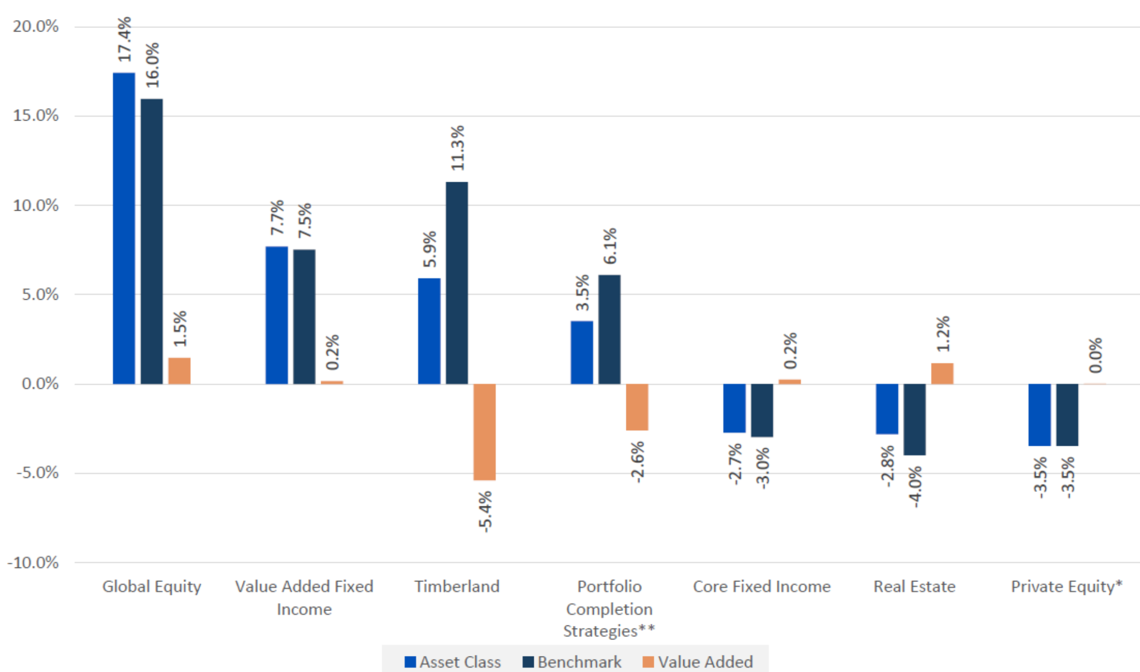
Annualized Returns as of June 30, 2023 (Gross of Fees)



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 June 30, 2023 (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 Fund Annualized Returns By Asset Class

As of June 30, 2023 (Gross of Fees)

1 Year	3 Year	5 Year	10 Year
GLOBAL EQUITY 17.4%	PRIVATE EQUITY 28.5%	PRIVATE EQUITY 21.3%	PRIVATE EQUITY 20.3%
VALUE-ADDED FIXED INCOME 7.7%	REAL ESTATE 12.6%	REAL ESTATE 8.9%	REAL ESTATE 9.8%
TIMBER 5.9%	GLOBAL EQUITY 11.9%	GLOBAL EQUITY 8.0%	GLOBAL EQUITY 9.0%
PORTFOLIO COMPLETION STRATEGIES 3.5%	TIMBER 8.4%	VALUE-ADDED FIXED INCOME 5.0%	TIMBER 6.3%
CORE FIXED INCOME (2.7%)	VALUE-ADDED FIXED INCOME 7.3%	TIMBER 5.0%	VALUE-ADDED FIXED INCOME 4.7%
REAL ESTATE (2.8%)	PORTFOLIO COMPLETION STRATEGIES 5.9%	PORTFOLIO COMPLETION STRATEGIES 2.8%	PORTFOLIO COMPLETION STRATEGIES 3.8%
PRIVATE EQUITY (3.5%)	CORE FIXED INCOME (5.1%)	CORE FIXED INCOME 1.1%	CORE FIXED INCOME 2.6%

Source: BNY Mellon.

Mr. Trotsky explained that the main concerns around the globe include inflation, economic growth, and geopolitical tensions. The primary risks to the market going forward are that inflation reaccelerates, consumer and business spending falters, and corporate earnings weaken more than anticipated causing economic growth to stall or decline.

Investment Committee member Constance Everson, CFA, provided her analysis and comments on inflation, the divergence between services and manufacturing and the value of the US dollar.

III. Public Markets

A. Performance Summary

Michael McElroy, CFA, Senior Investment Officer - Director of Public Markets, provided an update on the Public Markets performance.

The second quarter of 2023 was another positive quarter for Global Equities. Just as we saw last quarter, developed market returns outpaced those in the emerging markets, with US markets up almost 9% in the quarter, whereas emerging markets were up only about 1%. Growth stocks were leaders in the US, while value still dominated outside the US. Results for the PRIT Fund were strong. All regions of our Global Equity portfolio outperformed in Q2, with the strongest results from our Developed International and Emerging Markets managers. For FY23, all regions delivered positive absolute and excess returns, with Emerging Markets managers delivering outstanding results.

Mr. McElroy noted that bond returns were mixed in Q2. Returns in Core Fixed Income were down approximately 1%, whereas the more credit-sensitive mandates were up approximately 2%. Over the last 12 months, Core Fixed Income was down approximately 3% due to the rapid rise in interest rates, whereas Value-Added Fixed Income was up approximately 9%, as our Bank Loan portfolios and High-Yield portfolios gained due to their floating-rate characteristics and from a narrowing of credit spreads. The US and many developed markets' yield curves remain inverted, but the rapid increases in the Fed Funds Rate have slowed, providing investors a chance to assess the impact of these interest rate increases on economic activity and company performance. Expectations from this point are for few (if any) additional increases, and the potential for easing depending on market absorption and behavior.

PRIM continues to monitor inflation and recession conditions internally, as well as with our managers to get their views and positioning. PRIM's managers point to several positives which have helped support markets recently. The labor market has remained resilient throughout these policy decisions, and core inflation has been on a decline. Additionally, the labor market is "calmer" - immigration has helped to fill shortfalls, and employers are not cutting back staff due to worries about filling vacancies in the event of a rapid upturn. Fewer vacancies have slowed the pace of wage growth. Additionally, the housing industry and housing demand has been in a mini rebound recently, which is helping to boost consumer confidence. Global companies continue to post decent fundamentals in this difficult environment, both in terms of revenues and earnings relative to expectations. Finally, consumer activity remains healthy.

In closing, Mr. McElroy stated that risk management remains a focus for PRIM. PRIM's Public Markets portfolio remains well-diversified across geographies, styles and sectors, and its managers have performed well as a group through recent market action.

B. Issuance of a Request for Proposals (RFP) for Multi-Asset Class Credit Investment Strategies (Voting Item)

Chuck LaPosta, CFA, Senior Investment Officer - Director of Fixed Income, presented PRIM staff's request to issue a Request for Proposal for Multi-Asset Class Credit Investment Strategies within the Value-Added Fixed Income (VAFI) portfolio.

Mr. LaPosta explained PRIM's VAFI portfolio has a target allocation range of 5-11% of the PRIT Fund. At 7.1% as of June 30th, it is slightly below the mid-point of the range. VAFI is divided into three sub-categories: Public Value-Added Fixed Income, Private Debt and Other Credit Opportunities (or OCO). The public segment is further divided into three distinct strategies: High Yield Bonds, Bank Loans and Emerging Markets Debt. High yield bonds are issued by corporations, mostly US domiciled, with below investment grade credit ratings (between BB and CCC). They have fixed rate coupons and can represent secured or unsecured claims against the issuing company. Similarly, bank loans are issued by corporations with below investment grade credit ratings. However, loans have a floating coupon and represent senior secured or top priority claims against the company. Emerging Markets debt can contain a mix of investment grade and below investment grade bonds from Sovereign or Quasi-Sovereign issuers. It is US Dollar denominated, carries a fixed coupon, and is mostly unsecured.

Each of the portfolios within these three categories generally sticks to its defined asset class with little latitude for deviation. Using a multi-asset approach to credit investing allows for greater flexibility to manage interest rate and credit risk, adjust priority of claims and to toggle between corporate, sovereign, or quasi- sovereign issuers. Additionally, managers may complement exposure with other asset types such as securitized credit, structured credit, private credit, or convertible bonds.

These strategies are more complex and require an additional level of skill and oversight. They can be more reliant on liquidity conditions when trying to pull on the broader set of investment levers and may come with a higher management fee to support the additional resources necessary to successfully implement a multi-asset credit strategy.

In issuing an RFP, PRIM is looking to identify managers with the expertise and skill necessary to enhance risk adjusted returns by using a broader opportunity set in credit investing. PRIM will evaluate responses and determine if moving forward makes sense. Should PRIM move forward with any of the submissions, it will have headroom to add these strategies within its current allocation bands but will determine the appropriate allocation and any recommended changes upon completion of the RFP process.

The PRIM Investment Committee voted, by unanimous roll-call vote, to make a recommendation to the PRIM Board to approve the issuance of a Request for Proposals for Multi-Asset Class Credit Investment Strategies as described in the Expanded Agenda, and further to authorize the Executive Director to take all actions necessary to effectuate this vote.

C. Other Credit Opportunities Benchmark Recommendation (Voting Item)

Jay Leu, CFA, FRM, Senior Investment Officer – Director of Risk Management, presented the Other Credit Opportunities benchmark recommendation.

Mr. Leu reminded the Committee that PRIM hired Verus as its benchmark consultant in January 2021. One of the objectives for Verus was to do a comprehensive review of all the benchmarks used at PRIM. PRIM along with Verus has reviewed and recommended changes for Private Equity, the International or Non-U.S. Portfolio within Global Equity, Core Fixed Income, Value-Added Fixed Income, Private Debt, Real Estate, Hedge Fund, the US or Domestic Equity portfolio and the Global Equity benchmarks. The present recommendation is for the Other Credit Opportunities (OCO) portion of our Value-Added Fixed Income portfolio. This recommendation will complete PRIM's comprehensive benchmark review. It is anticipated that a comprehensive benchmark review will be conducted every 3-5 years.

PRIM's philosophy for choosing a benchmark requires that: (1) it should be representative of the opportunity set, and (2) it should be reflective of the return and risk of the asset class or sub-asset class. Some other important features for a benchmark are measurability, transparency, and clarity. PRIM's approach to benchmarking private assets (private assets) has been to use a strategic benchmark (or Public Markets Plus) benchmark as the Core or Primary benchmark and a peer benchmark as the Implementation or secondary benchmark. When using a strategic or public markets plus benchmark, it is important to focus on longer term results, such as three or five years, to gauge private asset success. In the short-term, there can be mismatches between the public markets which are priced daily versus less frequent and often lagged valuations for private assets. This is particularly important to remember during volatile market environments.

Strategic (or Primary) benchmarks are used to measure the efficacy of the allocation decision. In other words, would we have been better off in the public markets rather than the private assets? The implementation benchmark is a measure of manager selection. It helps PRIM evaluate how its private assets have performed versus their asset class peers.

Mr. Leu noted the OCO portfolio can be thought of as a portfolio of loans and bonds with (1) 3-7 years of maturity; (2) half fixed rate and half floating rate; (3) a credit quality lower than the high yield benchmark; and (4) seeking a return in the 10-12% range.

The recommended core benchmark will be a 50-50 blend of two public benchmarks: (1) bank loan index, (2) high yield bond index. These are the benchmarks we currently use in the Public Valued-Added Fixed Income portfolio. The loan index is the Morningstar LSTA US Leveraged Loan Index. The high yield bond index is the ICE Bank of America US High Yield Master II Constrained Index**.**

Mr. Leu noted the recommended benchmark weights assume a 50-50 mix of fixed and floating with similar average maturities to the OCO portfolio. Additionally, the credit quality of a typical OCO manager is less than the credit quality of either the high yield or loan index, therefore a 2% premium is added to capture the higher credit risk and higher credit spread of the underlying OCO portfolio. The benchmark will be lagged one month to reflect timing of finalization of month end data. The secondary benchmark will be Burgiss Mezzanine Debt Peer Universe which best reflects OCO strategy.

The PRIM Investment Committee voted, by unanimous roll-call vote, to make a recommendation to the PRIM Board to approve changing the Other Credit Opportunities benchmark to (50% Morningstar LSTA US Leveraged Loan Index and 50% ICE Bank of America US High Yield Master II Constrained Index) plus 200 basis points (lagged one month) as described in the Expanded Agenda, and further to authorize the Executive Director to take all actions necessary to effectuate this vote.

IV. Portfolio Completion Strategies Performance Summary

Bill Li, CFA, CAIA, Senior Investment Officer – Director of Portfolio Completion Strategies, provided an update on Portfolio Completions Strategies (PCS) performance.

In the trailing 1-year, despite flat returns measured by the HFRI Asset Weighted Composite, underneath the surface, dispersion was tremendous. For example, year-to-date alone, the gap between the average top decile performer and the average bottom decile performer had been as high as 36%. Against this dispersed industry reality, for hedge fund investors like PRIM, manager selection is critical.

Mr. Li explained how PRIM takes a different approach, emphasizing hedge fund talents via strategic partnerships. Aside from the benefits such as transparency and flexible customization in connection with a partnership approach, fee savings have been high, thanks in part to PRIM's Legal and Operations teams.

For FY23, the PCS portfolio returned approximately 3.5% and the Hedge Fund portfolio returned 4.5%, outpacing industry peers. From a risk-adjusted return perspective, PRIM's Hedge Fund portfolio continues to be a valuable diversifier. Over the trailing three years, PRIM's Hedge Fund portfolio's equity beta remained low at 0.2. The Hedge Fund portfolio annualized 6.5% with a 4.3% volatility, meaning, for each unit of volatility risk taken, the Hedge Fund portfolio delivered 1.5 units of return. The 1.5x ratio compared favorably against the market portfolio's 0.4x ratio.

Mr. Li noted Event-Driven strategy and Relative Value strategy continued to be the biggest return drivers. This is in line with our desire for unique returns, which are innately the nature of Event-Driven and Relative Value. PRIM staff remains focused on sourcing Special Situations and Distressed managers within the Event-Driven category.

V. Private Equity Performance Summary

Michael McGirr, CFA, Senior Investment Officer - Director of Private Equity, provided an update on Private Equity market performance.

Mr. McGirr first introduced Marietta Fieger, the Co-Head of the Strategic Partner Group at Hamilton Lane, who provided additional context of PRIM's Private Equity Portfolio when compared to a Public Markets Equivalent (PME). Ms. Fieger noted that PRIM's Private Equity portfolio outperformed the S&P 500 PME over every time frame reviewed, adding an additional $11.5 billion in value to the PRIT Fund since inception.

Mr. McGirr was pleased to announce that PRIM's long-term private equity performance has remained strong. PRIM's Private Equity portfolio's 3-, 5-, and 10-year performance was 29%, 21%, and 20% respectively, gross of fees. For the quarter ended June 30, 2023, the Private Equity portfolio returned 2.1% gross, or 1.7%, net of fees. The trailing 1-year return for Private Equity was -3.5% gross, or -4.6%, net, which compares favorably to the Russell 3000 index over the same time period but was less than the MSCI Europe index.

Mr. McGirr noted Venture Capital continued to decline in the quarter while Growth Equity stabilized. PRIM's Venture Capital portfolio returned -2.7% for the quarter and is down -19% for the trailing 1-year. Growth Equity returned 2% for the quarter but is down 14% for the trailing 1-year. Buyouts had another positive quarter. Small and mid-cap buyouts were up about 2.3% for the quarter and were about flat for the 1 year, while mega and large buyouts performed the best for us this quarter, up approximately 4%.

In Q2, distributions were slower than Q1 and had a cash outflow of $69 million. The overall volume of activity remains muted as there still remains a bid / ask spread in the market which has resulted in less overall market activity. Liquidity continues to be a focus for General Partners and Limited Partners alike in this market. PRIM's Private Equity portfolio grew slightly to a total $16.8 billion and remained steady as a percentage of the PRIT Fund at 17.4%.

The PRIM Investment Committee meeting adjourned at 11:33 a.m.

List of documents and exhibits used during the meeting:

- *Minutes of the PRIM Investment Committee Meeting on May 2, 2023*
- *PRIT Fund Performance Report (June 30, 2023)*
- *BNY Mellon Gross of Fees Performance Report (June 30, 2023)*
- *Public Value-Added Fixed Income Overview & Multi-Asset Class Credit Opportunities Presentation*
- *Other Credit Opportunities Benchmark Recommendation*
- *Verus Investments' Global Equities Benchmark Recommendation Memorandum*