

# City of Quincy Retirement System

November 30, 2022

Interim Update

## Agenda

1. Executive Summary
  - November Market Overview
  - Manager Highlights
2. Interim Update as of November 30, 2022
3. Disclaimer, Glossary & Notes

# Executive Summary

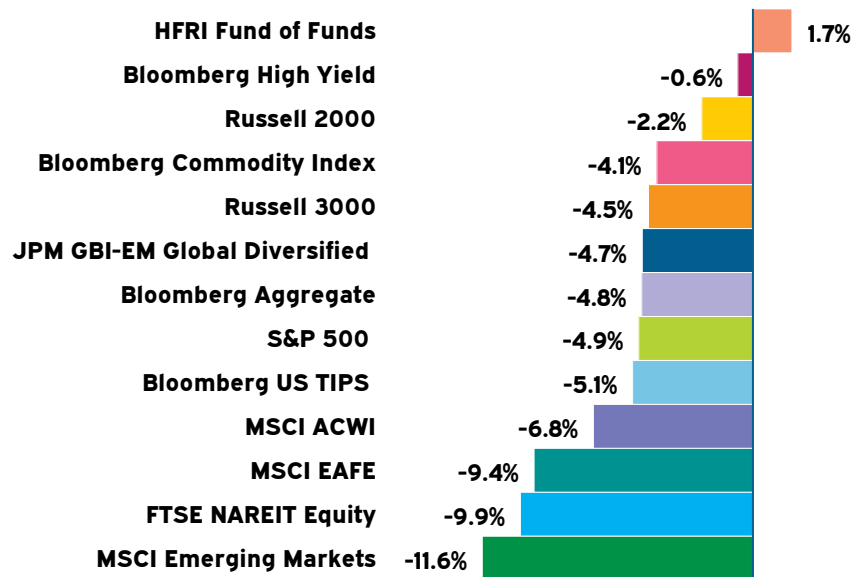
**Economic and Market Update**  
Data as of November 30, 2022

### Commentary

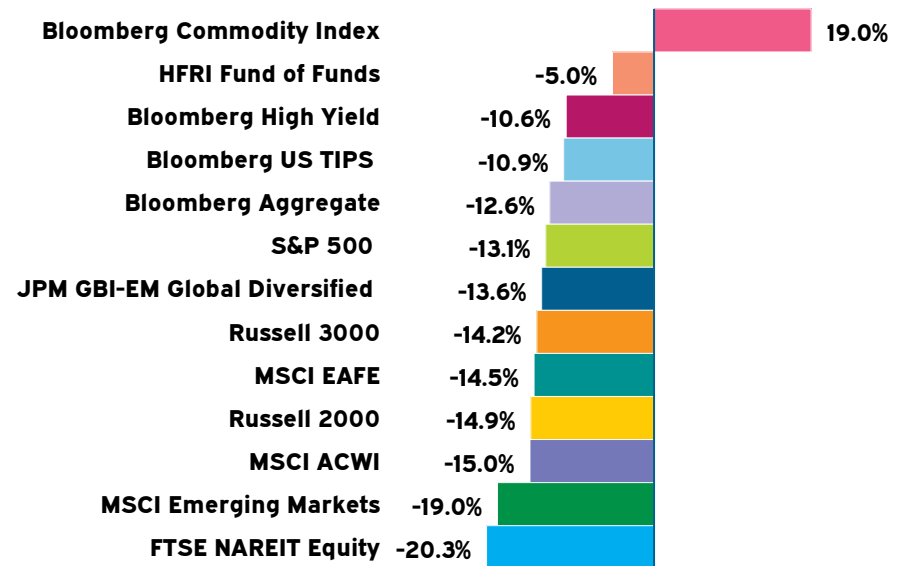
- Investor sentiment improved in November as markets repriced for declining inflation risks, a potential slowing in monetary policy tightening efforts, and signs that China may be loosening its strict COVID-19 policies.
- Chairman Powell's testimony in November reiterated previous messaging on persistent and high inflation and the need for an extended period of monetary tightening. Markets seem to remain focused though on data showing that inflation is slowly declining and that the size of future Fed rate hikes could be lower.
  - US equity markets had another strong month (+5.2%), building on the 8.2% gains from October. In developed markets outside of the US, equity markets posted very strong results for the month (+11.3%) driven by declining inflation there and the weakening US dollar.
  - Emerging market equities were one of the best monthly performers, outgaining developed markets. Declining inflation globally, the weaker US dollar, and signs of China reopening its economy all contributed to the results.
  - Optimism over potentially peaking inflation and a slower pace of policy tightening benefited bonds too, with interest rates largely declining for the month and credit spreads tightening. Despite improving investor sentiment, the US yield curve inversion continued to steepen as short-term rates remained elevated and longer-term bond yields fell. This year has witnessed one of the worst starts to a calendar year for bond investors.
- High inflation and tightening of monetary policy, slowing growth globally, the war in Ukraine, lingering COVID-19 issues, and recent political developments in China will continue to have considerable effects on the global economy.

### Index Returns<sup>1</sup>

#### Third Quarter



#### YTD through November



→ After broad declines in Q3 driven by expectations for further policy tightening, most major asset classes are up in the first two months of the fourth quarter, with equities producing double-digit results globally.

→ Outside of commodities, all other public market asset classes remain significantly negative year-to-date.

<sup>1</sup> Source: Bloomberg and FactSet. Data is as of November 30, 2022.

### Domestic Equity Returns<sup>1</sup>

Domestic Equity	November (%)	QTD (%)	Q3 (%)	YTD (%)	1 YR (%)	3 YR (%)	5 YR (%)	10 YR (%)
S&P 500	5.6	14.1	-4.9	-13.1	-9.2	10.9	11.0	13.3
Russell 3000	5.2	13.8	-4.5	-14.2	-10.8	10.3	10.3	12.9
Russell 1000	5.4	13.9	-4.6	-14.1	-10.7	10.5	10.7	13.2
Russell 1000 Growth	4.6	10.7	-3.6	-23.3	-21.6	11.8	12.9	15.0
Russell 1000 Value	6.2	17.1	-5.6	-3.7	2.4	8.4	7.9	11.0
Russell MidCap	6.0	15.4	-3.4	-12.6	-9.0	8.7	8.5	11.8
Russell MidCap Growth	5.4	13.7	-0.7	-22.0	-21.8	6.4	9.1	12.3
Russell MidCap Value	6.3	16.4	-4.9	-7.3	-1.5	8.7	7.1	11.0
Russell 2000	2.3	13.6	-2.2	-14.9	-13.0	6.4	5.4	10.1
Russell 2000 Growth	1.6	11.3	0.2	-21.3	-21.0	3.7	4.9	10.2
Russell 2000 Value	3.1	16.0	-4.6	-8.5	-4.7	8.3	5.3	9.7

#### US Equities: Russell 3000 Index rose 5.2% for November.

- Building on positive monthly returns in October, US stocks rose across all indices again in November as earnings remained resilient despite economic pressures.
- Most sectors gained in November, led by the 11.5% performance of the materials sector. After leading all sectors in October, Energy was the laggard of the index in November as fuel prices moderated.
- Large cap stocks outperformed small cap stocks in November, partly driven by a few mega cap technology and communication services names.
- Value stocks continued to outperform growth stocks across the market capitalization spectrum, partially driven by stocks within the consumer discretionary sector.

<sup>1</sup> Source: Bloomberg. Data is as of November 30, 2022.

### Foreign Equity Returns<sup>1</sup>

Foreign Equity	November (%)	QTD (%)	Q3 (%)	YTD (%)	1 YR (%)	3 YR (%)	5 YR (%)	10 YR (%)
MSCI ACWI ex. US	11.8	15.1	-9.9	-15.4	-11.9	1.7	1.5	4.2
MSCI EAFE	11.3	17.2	-9.4	-14.5	-10.1	1.9	1.8	5.0
MSCI EAFE (Local Currency)	6.4	12.1	-3.6	-4.1	0.0	5.2	4.7	8.2
MSCI EAFE Small Cap	9.9	14.6	-9.8	-22.2	-18.8	0.1	0.3	6.5
MSCI Emerging Markets	14.8	11.3	-11.6	-19.0	-17.4	0.1	-0.4	2.1
MSCI Emerging Markets (Local Currency)	11.7	8.7	-8.2	-13.8	-12.5	2.7	2.2	5.2
MSCI China	29.7	7.9	-22.5	-25.8	-28.1	-6.6	-5.1	2.4

Developed international equities (MSCI EAFE) rose 11.3%, while emerging markets (MSCI EM) returned 14.8% in November, driven largely by a rally in China (+29.7%).

- November saw a strong rally across non-US equity markets due to declines in inflation, hints from the Fed that the size of rate hikes could decline, and a weaker US dollar.
- Non-US developed market returns (+11.3%) were over double those here in the US with outperformance driven largely by the decline in the US dollar.
- Emerging markets (+14.8%) led the way for November, driven by China (+29.7%). Expectations for continued policy support plus a reopening of the economy drove positive sentiment. Hopes for improvements in US-China relations after the Biden-Xi meeting likely contributed to the results as well.

<sup>1</sup> Source: Bloomberg. Data is as of November 30, 2022.



### Fixed Income Returns<sup>1</sup>

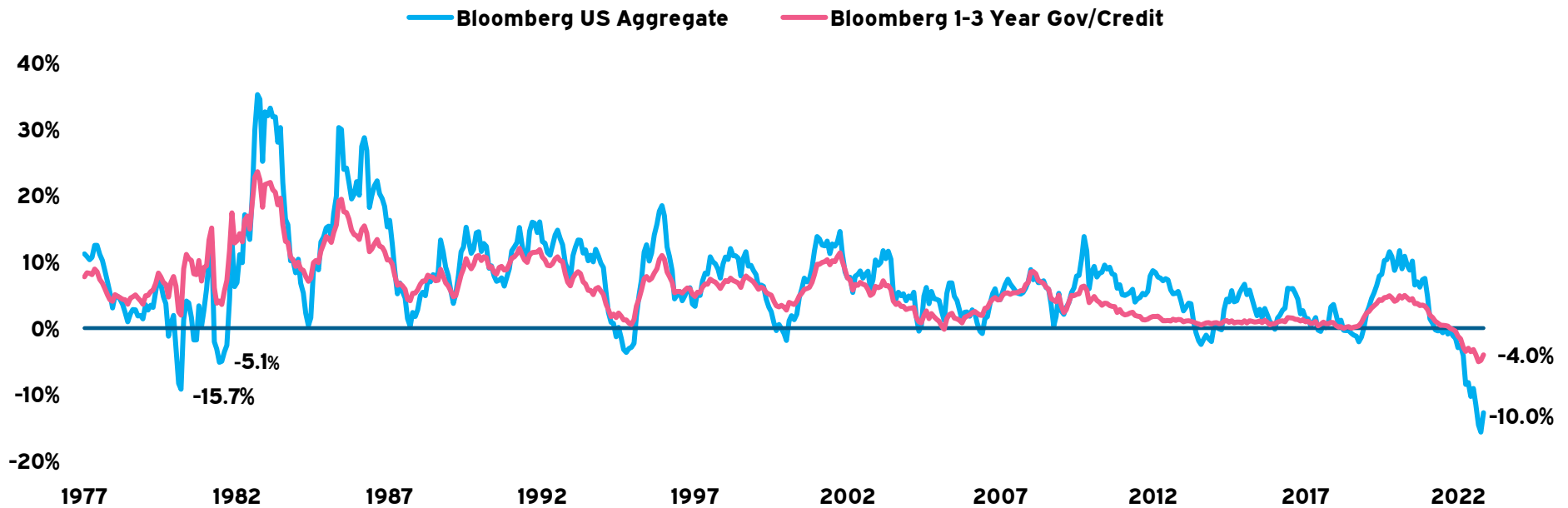
Fixed Income	November (%)	QTD (%)	Q3 (%)	YTD (%)	1 YR (%)	3 YR (%)	5 YR (%)	10 YR (%)	Current Yield (%)	Duration (Years)
Bloomberg Universal	3.7	2.6	-4.5	-12.7	-12.8	-2.4	0.3	1.4	5.0	6.3
Bloomberg Aggregate	3.7	2.3	-4.8	-12.6	-12.8	-2.6	0.2	1.1	4.6	6.5
Bloomberg US TIPS	1.8	3.1	-5.1	-10.9	-10.7	1.7	2.5	1.2	4.3	6.9
Bloomberg High Yield	2.2	4.8	-0.6	-10.6	-9.0	0.9	2.5	4.3	8.6	4.5
JPM GBI-EM Global Diversified (USD)	7.1	6.2	-4.7	-13.6	-12.2	-5.5	-2.5	-2.0	7.2	4.9

#### Fixed Income: The Bloomberg Universal rose 3.7% in November.

- Potentially peaking inflation and corresponding expectations for the slowing of policy rate hikes also benefited fixed income in November.
- Generally, government bond yields declined, and credit spreads fell. Government and investment grade bonds outperformed high yield bonds in this environment as markets lowered long-run policy rate expectations.
- Reflecting market expectations of peak inflation, TIPS lagged investment grade and high yield bonds in November.

<sup>1</sup> Source: Bloomberg. JPM GBI-EM data is from InvestorForce. Data is as of November 30, 2022. The yield and duration data from Bloomberg is defined as the index's yield to worst and modified duration respectively.

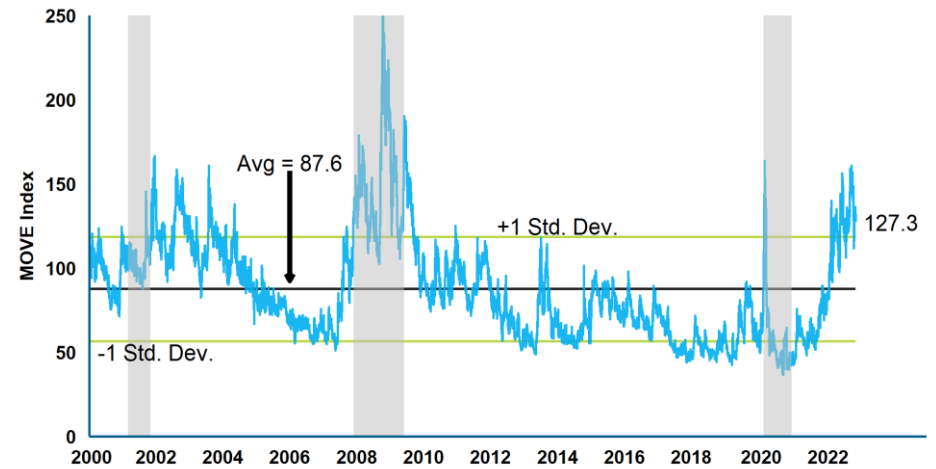
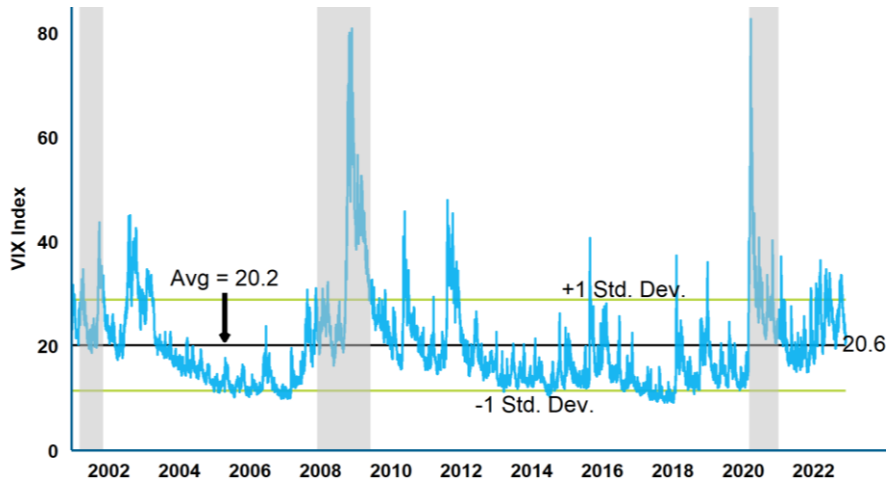
Fixed Income  
Rolling One-year Returns<sup>1</sup>



- This has been one of the worst rolling one-year return periods for the US bond market given the historic inflation levels and the corresponding rapid rise in interest rates.
- Through November the trailing one-year return was -10.0% for the broad bond market (Bloomberg US Aggregate) making it one of the worst periods on record.
- Short-term bond declines have been far less (-4.0%) over the trailing year, but also are one of the worst on record.

<sup>1</sup> Source: Bloomberg. Data is as of November 30, 2022.

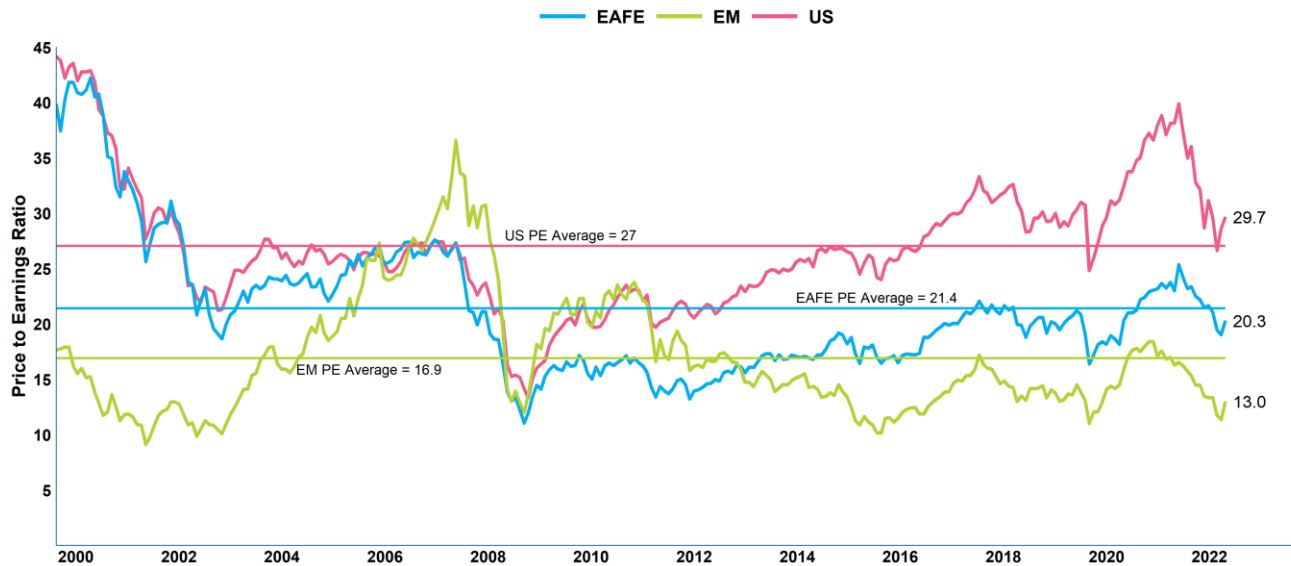
### Equity and Fixed Income Volatility<sup>1</sup>



- Volatility in equities (VIX) declined and neared its long run average as investors anticipate the potential end of Fed rate hikes next year. Fixed income (MOVE) remained elevated and well above its long-run average in November.
- Fixed income volatility remains high due to the uncertain path of US interest rates as the Federal Reserve continues its hawkish stance on inflation.

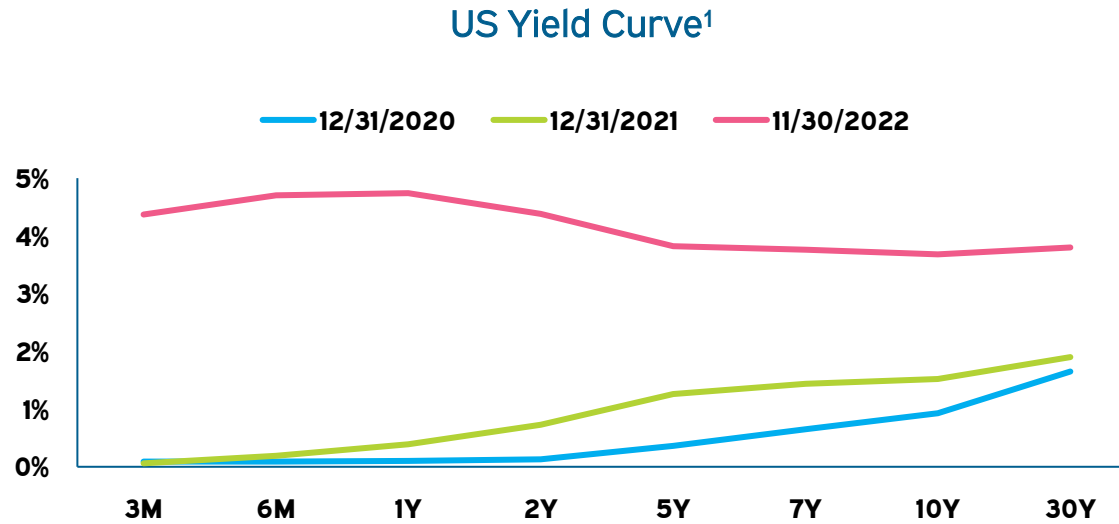
<sup>1</sup> Equity and Fixed Income Volatility – Source: Bloomberg. Implied volatility as measured using VIX Index for equity markets and the MOVE Index to measure interest rate volatility for fixed income markets. Data is as of November 2022. The average line indicated is the average of the VIX and MOVE values between January 2000 and the recent month-end respectively.

**Equity Cyclically Adjusted P/E Ratios<sup>1</sup>**



- November’s US equity rally caused the market’s price-to-earnings ratio to rise further above the long-term (21st century) average.
- International developed market valuations also rose but remain below the US and their own long-term average, with those for emerging markets the lowest and well under the long-term average.
- Price declines have been the main driver of recent multiple compression as earnings have remained resilient. Concerns remain over whether earnings strength will continue in the face of slowing growth.

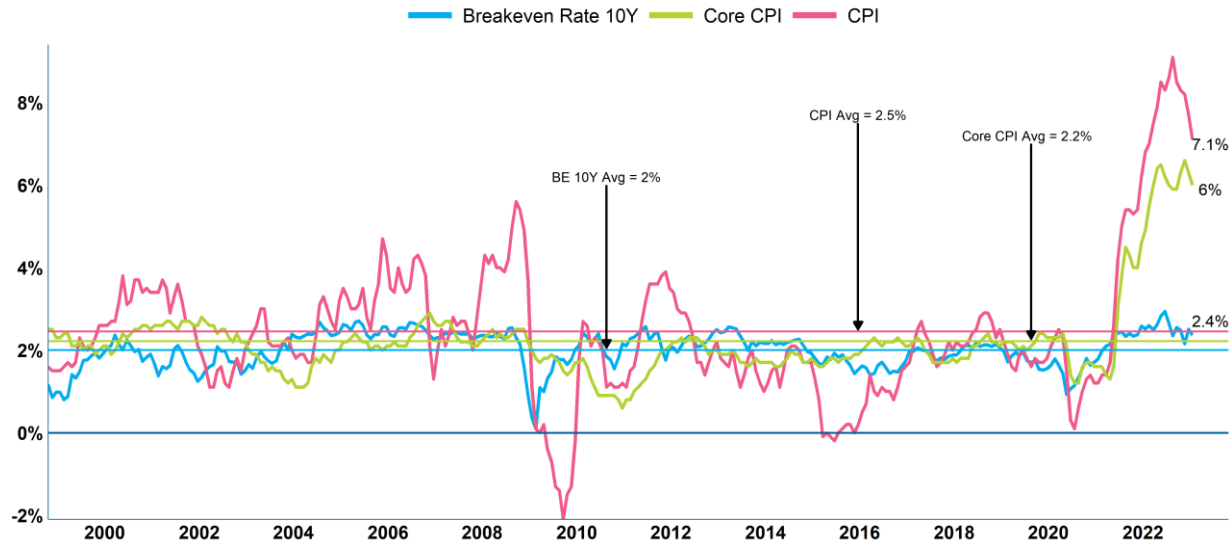
<sup>1</sup> US Equity Cyclically Adjusted P/E on S&P 500 Index. Source: Robert Shiller, Yale University, and Meketa Investment Group. Developed and Emerging Market Equity (MSCI EAFE and EM Index) Cyclically Adjusted P/E – Source: MSCI and Bloomberg. Earnings figures represent the average of monthly “as reported” earnings over the previous ten years. Data is as of November 2022. The average line is the long-term average of the US, EM, and EAFE PE values from December 1999 to the recent month-end respectively.



- In November, policy-sensitive interest rates at the front-end of the curve continued to rise while longer dated rates fell on easing inflation pressures. Two-year Treasury yields rose from 4.6% to 4.7% for the month, while ten-year Treasury yields declined from 4.1% to 3.6%.
- The Fed remains strongly committed to fighting inflation, as it increased rates another 75 basis points to a range of 3.75% to 4.0% at its November meeting. This was the sixth increase this year and the fourth consecutive increase of this amount.
- The yield spread between two-year and ten-year Treasuries reached negative levels not seen in decades, finishing November at -0.70%. The more closely watched measure by the Fed of three-month and ten-year Treasuries also remained inverted. Historically, inversions in the yield curve have often preceded recessions.

<sup>1</sup> Source: Bloomberg. Data is as of November 30, 2022.

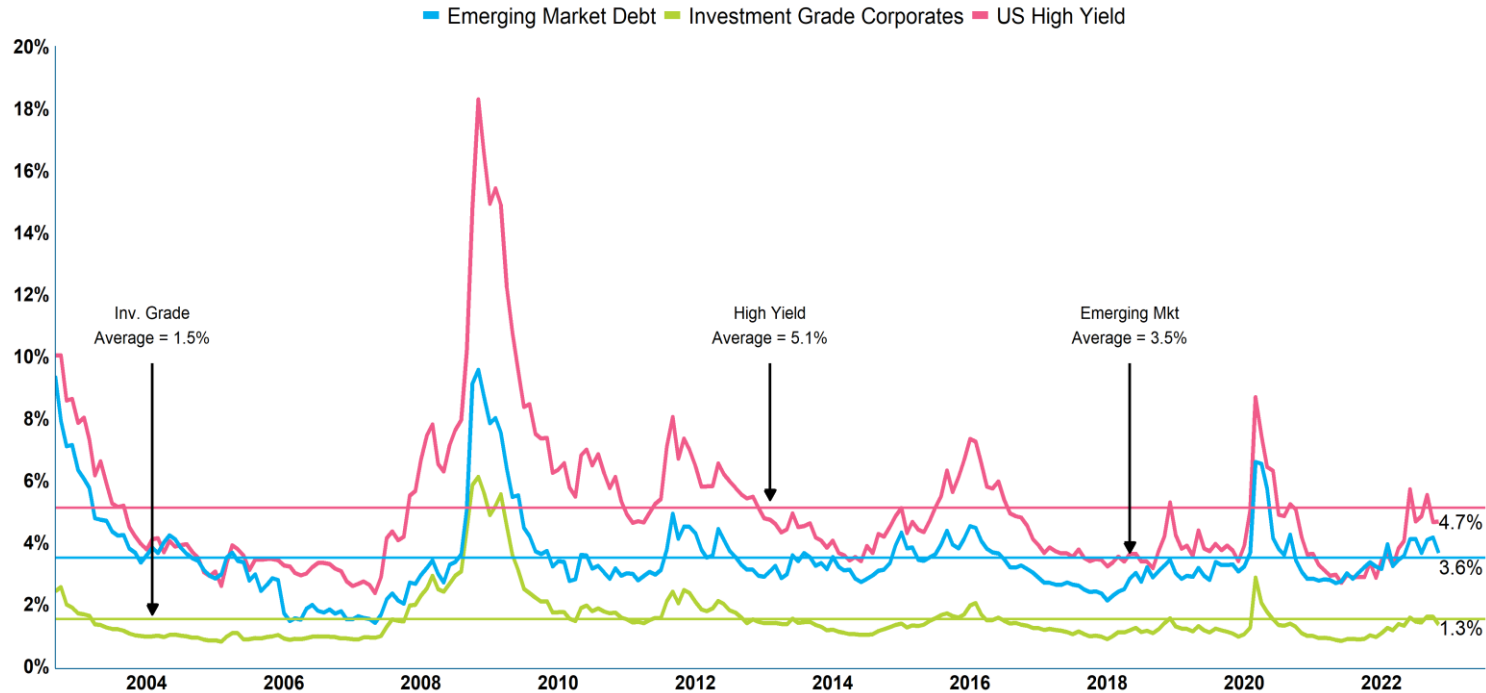
**Ten-Year Breakeven Inflation and CPI<sup>1</sup>**



- Inflation continued to decline in November (7.1% versus 7.7%), coming in below expectations but remaining elevated. Energy prices fell for the month but remain up 13% from a year prior, while food prices and stickier service prices continued to increase.
- Core inflation – excluding food and energy – also moderated in November (6.0% versus 6.3%) and came in below estimates.
- Inflation expectations (breakevens) declined slightly for the month to the long-run average. Breakevens remain well below current inflation levels as investors anticipate a significant moderation in inflation.

<sup>1</sup> Source: Bloomberg. Data is as of November 31, 2022. The CPI and 10 Year Breakeven average lines denote the average values from August 1998 to the present month-end respectively. Breakeven values represent month-end values for comparative purposes.

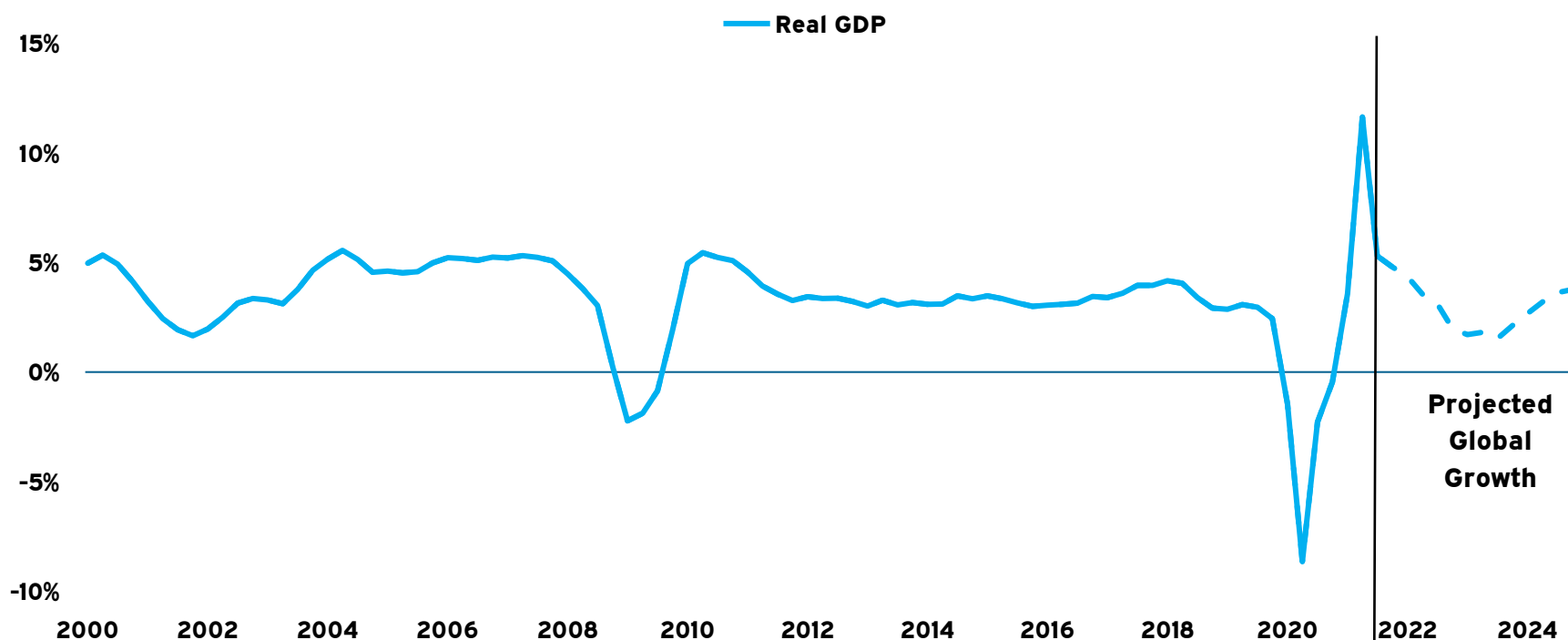
**Credit Spreads vs. US Treasury Bonds<sup>1</sup>**



- High yield spreads (the added yield above a comparable maturity Treasury) finished November at 4.7% remaining below their long-run average.
- Investment grade spreads fell (1.3% versus 1.6%) as attractive yields and strong balance sheets attracted investors, while emerging market spreads fell the most (3.6% versus 4.1%).

<sup>1</sup> Sources: Bloomberg. Data is as of November 30, 2022. Average lines denote the average of the investment grade, high yield, and emerging market spread values from August 2000 to the recent month-end respectively.

### Global Real Gross Domestic Product (GDP) Growth<sup>1</sup>



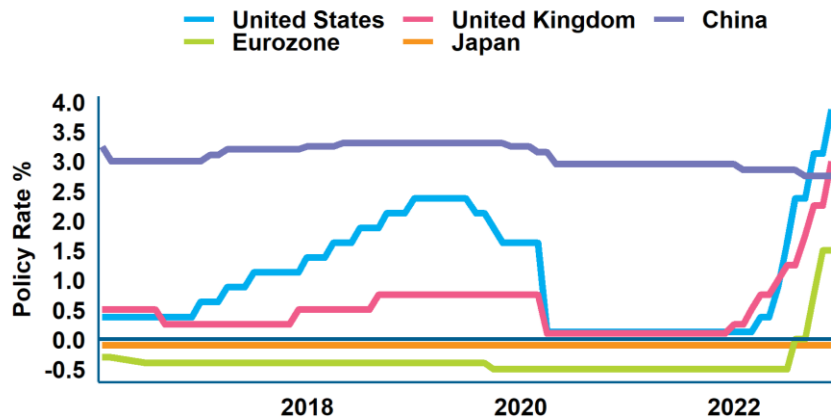
- Global economies are expected to slow in 2023 compared to 2022, with risks of recession increasing given persistently high inflation and related tighter monetary policy.
- The delicate balancing act of central banks trying to reduce inflation without dramatically impacting growth will remain key.

<sup>1</sup> Source: Oxford Economics (World GDP, US\$ prices & PPP exchange rate, real, % change YoY). Updated November 2022.

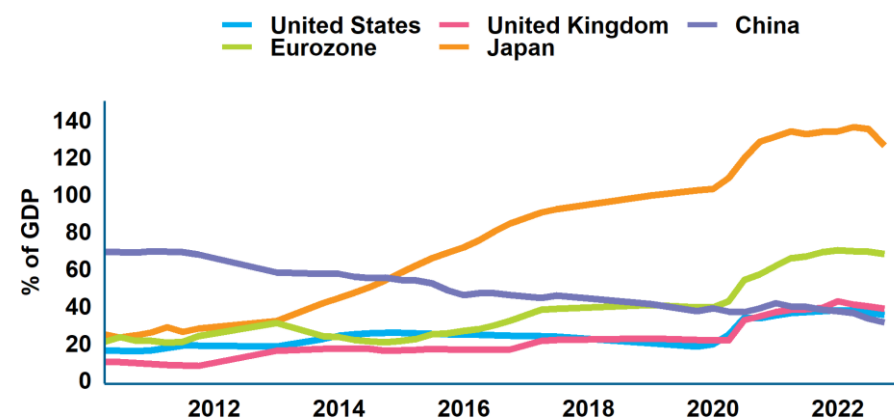


### Central Bank Response<sup>1</sup>

#### Policy Rates



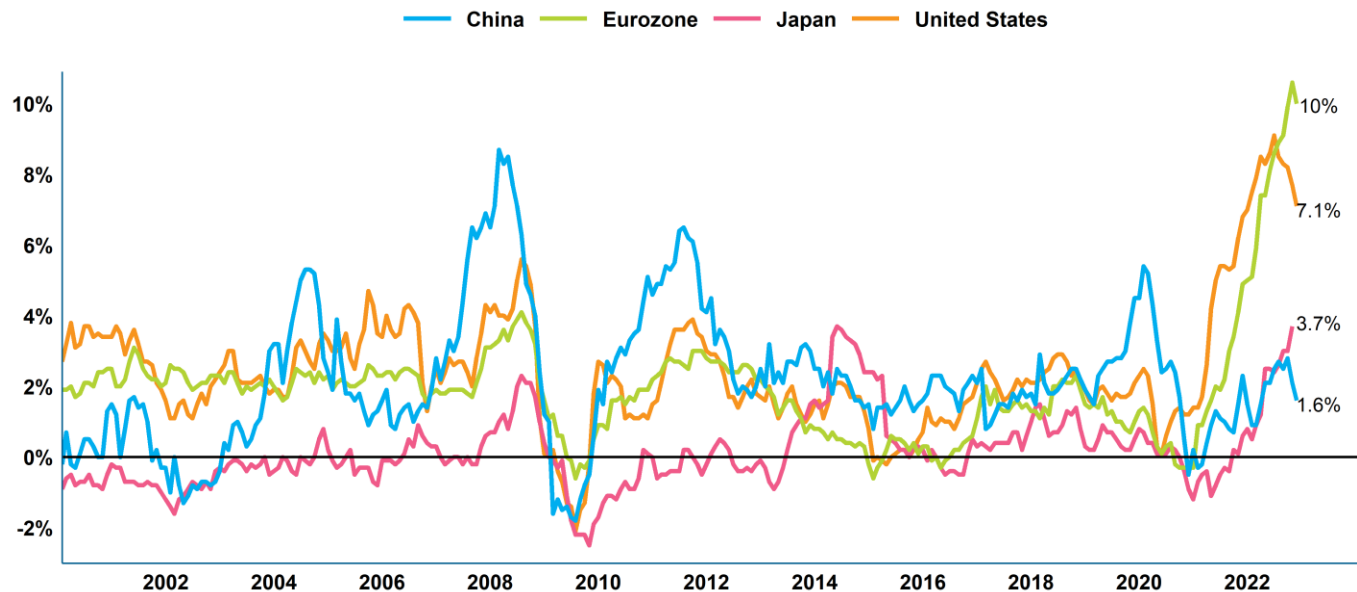
#### Balance Sheet as % of GDP



- After global central banks took extraordinary action to support economies during the pandemic, including policy rate cuts and emergency stimulus through quantitative easing (QE), many are now aggressively reducing support in the face of high inflation.
- The pace of withdrawing support varies across central banks with the US taking a more aggressive approach.
- The one notable central bank outlier is China, where the central bank has lowered rates and reserve requirements in response to slowing growth. Japan has also not moved to tighten monetary policy given persistently low inflation.
- The risk remains for a policy error, particularly overtightening, as record inflation, the war in Ukraine, and a relatively tough COVID-19 policy in China could suppress global growth.

<sup>1</sup> Source: Bloomberg. Policy rate data is as of November 30, 2022. China policy rate is defined as the medium-term lending facility 1 year interest rate. Balance sheet as % of GDP is based on quarterly data and is as of September 30, 2022.

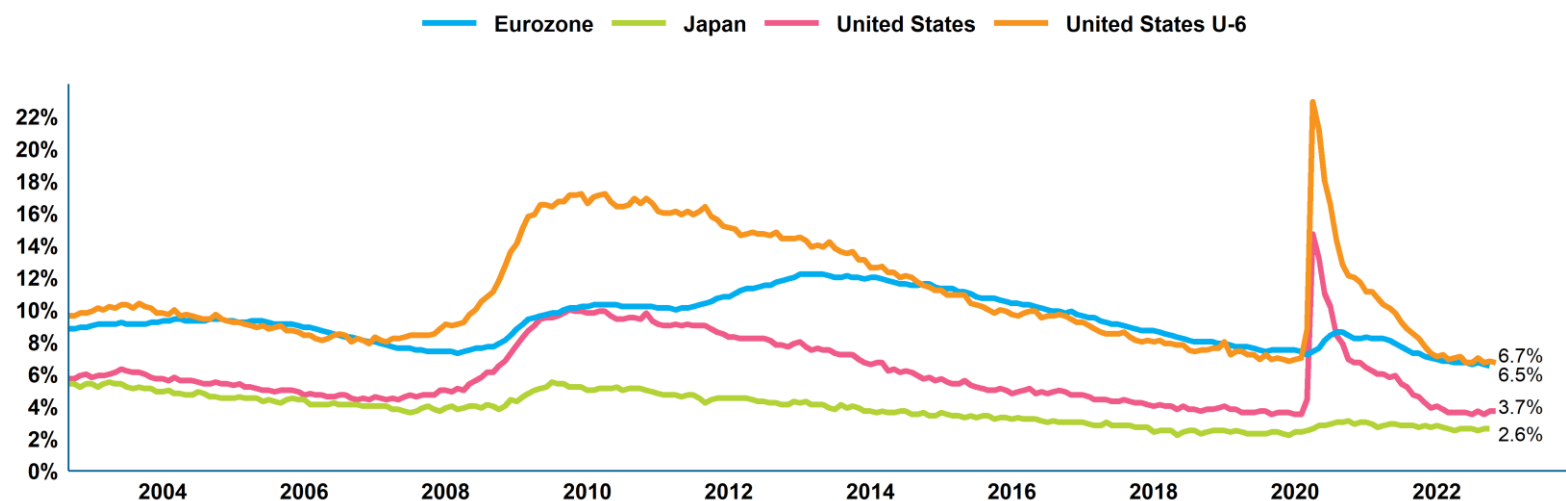
**Inflation (CPI Trailing Twelve Months)<sup>1</sup>**



- Inflation increased dramatically from the lows of the pandemic, particularly in the US and Eurozone where it has reached levels not seen in many decades.
- Inflation pressures are slowly declining in the US, but they remain elevated, while in Europe they have reached historic levels due to skyrocketing energy prices and a weak euro.
- Supply issues related to the pandemic, record monetary and fiscal stimulus, strict COVID-19 restrictions in China, and higher commodity prices driven by the war in Ukraine have been key global drivers of inflation.

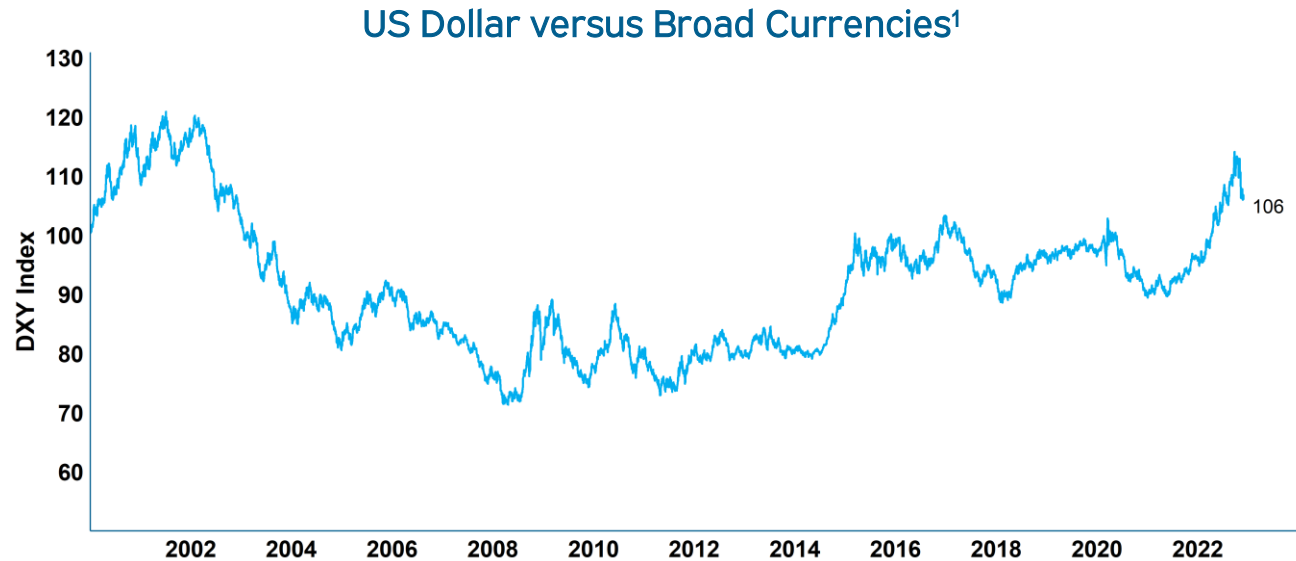
<sup>1</sup> Source: Bloomberg. Data is as of November 2022. The most recent Japanese inflation data is as of October 2022.

### Unemployment<sup>1</sup>



- As economies have largely reopened, helped by vaccines for the virus, improvements have been seen in the labor market.
- Despite slowing growth and high inflation, the US labor market remains a bright spot. Unemployment in the US, which experienced the steepest rise from the pandemic, has remained in a tight 3.5%-3.7% range for most of the year. The broader measure (U-6) that includes discouraged and underemployed workers remains much higher at 6.7%.
- The strong labor market and higher wages, although beneficial for workers, motivates the Fed's efforts to fight inflation, likely leading to eventually higher unemployment.

<sup>1</sup> Source: Bloomberg. Data is as November 2022, for the US. The most recent data for Eurozone and Japanese unemployment is as of October 31, 2022.



- Overall, the US dollar remained elevated in November but showed some weakening. After month-end, the dollar weakened further.
- The increased pace of policy tightening, stronger relative growth, and safe-haven flows all contributed to the dollar's strength this year.
- The euro, yen, pound, and yuan have all experienced significant declines versus the dollar, adding to inflationary pressures in those countries.

<sup>1</sup> Source: Bloomberg. Data as of November 30, 2022.

## Summary

### Key Trends:

- The impacts of record high inflation will remain key, with market volatility likely to stay high.
- The pace of monetary tightening globally will be faster than previously expected, with the risk of overtightening.
- Expect growth to continue to slow globally next year to the long-term trend or below, with many economies likely falling into recessions. Inflation, monetary policy, and the war will all be key.
- In the US the end of many fiscal programs is expected to put the burden of continued growth on consumers. Higher energy and food prices will depress consumers' spending in other areas.
- Valuations have significantly declined in the US to around long-term averages, largely driven by price declines. The key going forward will be whether earnings can remain resilient if growth continues to slow.
- Outside the US, equity valuations remain lower in both emerging and developed markets, but major risks remain, including continued strength in the US dollar, higher inflation particularly weighing on Europe, and China maintaining its relatively restrictive COVID-19 policies.

## Manager Highlights

#### Brown Small Cap Fundamental Value

- Brown outperformed its benchmark by 1.6% in November, posting a return of 4.7% vs the benchmark's 3.1%.
- Brown's value bias coupled with their stock selection in the consumer discretionary and consumer staples sectors contributed positively to performance over the one-month period.
- Since inception, Brown has returned 8.5%, per year underperforming the Russell 2000 Value by 0.7%, net of fees.

#### Axiom International Small Cap Equity

- Axiom underperformed its benchmark by 2.2% in November, gaining 9.1%.
- Stock selection in the industrials and information technology sectors detracted from relative returns in the month of November. Europe ex U.K. and Asia ex. Japan also weighed on performance over the one-month period.
- Since inception, Axiom has returned 7.0%, trailing the benchmark by 0.6%.

### Driehaus Emerging Markets Growth

- Driehaus underperformed in November, returning 8.2% vs. the benchmark which gained 14.8%.
- Underperformance was largely driven by an underweight to China, which bounced back in November amidst easing COVID restrictions.
  - The portfolio also was negatively impacted by an overweight to Brazil and Indonesia and stock selection in Mexico.
- Since inception, Driehaus has returned 5.1%, well outpacing the benchmark, which has returned 0.4% over that same period, and ranking in the top 14<sup>th</sup> percentile of its peer group.



**Interim Update**  
**As of November 30, 2022**

Total Retirement System | As of November 30, 2022

Allocation vs. Targets and Policy				
	Current Balance	Current Allocation	Policy	Policy Range
US Equity	\$181,304,601	22%	24%	19% - 29%
Developed Market Equity	\$95,129,353	12%	13%	8% - 18%
Emerging Market Equity	\$62,225,143	8%	12%	7% - 17%
Investment Grade Bonds	\$72,564,995	9%	5%	2% - 8%
Long-Term Government Bonds	\$25,071,027	3%	7%	2% - 12%
TIPS	\$15,737,779	2%	4%	1% - 7%
Emerging Market Bonds	--	--	2%	0% - 4%
High Yield Bonds	\$39,317,314	5%	6%	3% - 9%
Bank Loans	\$7,899,563	1%	2%	0% - 4%
Private Equity	\$129,346,800	16%	10%	5% - 15%
Real Estate	\$87,060,340	11%	10%	5% - 15%
Natural Resources	\$17,203,491	2%	3%	0% - 6%
Infrastructure	\$11,666,816	1%	2%	0% - 5%
Opportunistic	\$36,660,333	5%	0%	0% - 5%
Balanced Assets	\$15,169,723	2%	--	--
Cash	\$10,069,271	1%	0%	0% - 5%
<b>Total</b>	<b>\$806,426,549</b>	<b>100%</b>	<b>100%</b>	

	Current Balance	Current Allocation	Policy	Policy Range
Total Equity Including PE	\$468,005,897	58%	59%	--
Total Fixed Income	\$160,590,678	20%	24%	--
Real Assets	\$115,930,647	14%	15%	--
Other	\$61,889,327	8%	0%	--

Asset Class Performance Summary												
	Market Value (\$)	% of Portfolio	1 Mo (%)	QTD (%)	YTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	20 Yrs (%)	Inception (%)	Inception Date
<b>Total Retirement System (gross)</b>	<b>806,426,549</b>	<b>100.0</b>	<b>3.8</b>	<b>6.2</b>	<b>-8.7</b>	<b>-4.7</b>	<b>7.5</b>	<b>6.9</b>	<b>7.5</b>	<b>7.1</b>	<b>8.2</b>	<b>Jan-89</b>
<b>Total Retirement System</b>			<b>3.8</b>	<b>6.2</b>	<b>-8.7</b>	<b>-4.7</b>	<b>7.3</b>	<b>6.7</b>	<b>7.3</b>	<b>6.8</b>	<b>7.8</b>	
<b>Domestic Equity Assets</b>	<b>181,304,601</b>	<b>22.5</b>	<b>5.3</b>	<b>14.5</b>	<b>-12.1</b>	<b>-7.8</b>	<b>9.5</b>	<b>9.7</b>	<b>12.6</b>	<b>9.8</b>	<b>9.9</b>	<b>Jul-93</b>
<i>Russell 3000</i>			<i>5.2</i>	<i>13.8</i>	<i>-14.2</i>	<i>-10.8</i>	<i>10.3</i>	<i>10.3</i>	<i>12.9</i>	<i>9.9</i>	<i>9.8</i>	<i>Jul-93</i>
<b>International Developed Market Equity Assets</b>	<b>95,129,353</b>	<b>11.8</b>	<b>10.9</b>	<b>16.0</b>	<b>-17.9</b>	<b>-14.4</b>	<b>0.7</b>	<b>0.5</b>	<b>4.4</b>	<b>5.6</b>	<b>4.5</b>	<b>Feb-98</b>
<i>MSCI EAFE</i>			<i>11.3</i>	<i>17.2</i>	<i>-14.5</i>	<i>-10.1</i>	<i>1.9</i>	<i>1.8</i>	<i>5.0</i>	<i>6.2</i>	<i>4.3</i>	<i>Feb-98</i>
<b>International Emerging Market Equity Assets</b>	<b>62,225,143</b>	<b>7.7</b>	<b>9.6</b>	<b>9.5</b>	<b>-17.4</b>	<b>-16.1</b>	<b>4.9</b>	<b>3.6</b>	<b>3.6</b>	<b>--</b>	<b>5.8</b>	<b>Sep-08</b>
<i>MSCI Emerging Markets</i>			<i>14.8</i>	<i>11.3</i>	<i>-19.0</i>	<i>-17.4</i>	<i>0.1</i>	<i>-0.4</i>	<i>2.1</i>	<i>8.6</i>	<i>2.5</i>	<i>Sep-08</i>
<b>Investment Grade Bond Assets</b>	<b>72,564,995</b>	<b>9.0</b>	<b>4.0</b>	<b>2.1</b>	<b>-16.0</b>	<b>-16.2</b>	<b>-3.8</b>	<b>-0.6</b>	<b>0.7</b>	<b>3.1</b>	<b>4.1</b>	<b>Jul-93</b>
<i>Bloomberg US Aggregate TR</i>			<i>3.7</i>	<i>2.3</i>	<i>-12.6</i>	<i>-12.8</i>	<i>-2.6</i>	<i>0.2</i>	<i>1.1</i>	<i>3.2</i>	<i>4.4</i>	<i>Jul-93</i>
<b>Long-Term Government Bond Assets</b>	<b>25,071,027</b>	<b>3.1</b>	<b>4.2</b>	<b>1.9</b>	<b>-17.3</b>	<b>-17.9</b>	<b>-2.8</b>	<b>0.6</b>	<b>--</b>	<b>--</b>	<b>1.6</b>	<b>Dec-15</b>
<i>PRIT Core Fixed Income</i>			<i>4.2</i>	<i>2.0</i>	<i>-17.3</i>	<i>-17.9</i>	<i>-2.8</i>	<i>0.6</i>	<i>2.0</i>	<i>3.8</i>	<i>1.6</i>	<i>Dec-15</i>
<b>TIPS Assets</b>	<b>15,737,779</b>	<b>2.0</b>	<b>1.8</b>	<b>3.1</b>	<b>-10.9</b>	<b>-10.7</b>	<b>1.7</b>	<b>2.5</b>	<b>1.1</b>	<b>--</b>	<b>3.5</b>	<b>Mar-07</b>
<i>Bloomberg US TIPS TR</i>			<i>1.8</i>	<i>3.1</i>	<i>-10.9</i>	<i>-10.7</i>	<i>1.7</i>	<i>2.5</i>	<i>1.2</i>	<i>4.1</i>	<i>3.5</i>	<i>Mar-07</i>
<b>High Yield Bond Assets</b>	<b>39,317,314</b>	<b>4.9</b>	<b>2.0</b>	<b>4.1</b>	<b>-8.6</b>	<b>-6.6</b>	<b>1.7</b>	<b>2.7</b>	<b>4.0</b>	<b>--</b>	<b>5.3</b>	<b>Apr-07</b>
<i>Bloomberg US High Yield TR</i>			<i>2.2</i>	<i>4.8</i>	<i>-10.6</i>	<i>-9.0</i>	<i>0.9</i>	<i>2.5</i>	<i>4.3</i>	<i>7.4</i>	<i>5.8</i>	<i>Apr-07</i>
<b>Bank Loan Assets</b>	<b>7,899,563</b>	<b>1.0</b>	<b>1.8</b>	<b>2.8</b>	<b>-2.1</b>	<b>-1.5</b>	<b>2.0</b>	<b>2.7</b>	<b>--</b>	<b>--</b>	<b>2.9</b>	<b>Aug-14</b>
<i>Credit Suisse Leveraged Loans</i>			<i>1.1</i>	<i>2.0</i>	<i>-1.4</i>	<i>-0.8</i>	<i>2.8</i>	<i>3.2</i>	<i>3.8</i>	<i>4.7</i>	<i>3.4</i>	<i>Aug-14</i>
<b>Total Real Estate</b>	<b>87,060,340</b>	<b>10.8</b>	<b>0.1</b>	<b>0.3</b>	<b>8.4</b>	<b>14.3</b>	<b>9.0</b>	<b>7.7</b>	<b>9.0</b>	<b>--</b>	<b>--</b>	<b>Jan-89</b>
<i>NCREIF ODCE</i>			<i>0.0</i>	<i>0.0</i>	<i>13.1</i>	<i>22.1</i>	<i>12.4</i>	<i>10.2</i>	<i>10.9</i>	<i>8.8</i>	<i>7.7</i>	<i>Jan-89</i>

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	Market Value (\$)	% of Portfolio	1 Mo (%)	QTD (%)	YTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	20 Yrs (%)	Inception (%)	Inception Date
<b>Private Equity Assets</b>	<b>129,346,800</b>	<b>16.0</b>										
<b>Natural Resources Assets</b>	<b>17,203,491</b>	<b>2.1</b>										
<b>Infrastructure Assets</b>	<b>11,666,816</b>	<b>1.4</b>										
<b>Opportunistic Assets</b>	<b>36,660,333</b>	<b>4.5</b>										
<b>Balanced Assets (PRIT General Allocation Fund)</b>	<b>15,169,723</b>	<b>1.9</b>	<b>3.8</b>	<b>5.9</b>	<b>-9.3</b>	<b>-6.6</b>	<b>7.7</b>	<b>7.2</b>	<b>8.4</b>	<b>8.1</b>	<b>8.3</b>	<b>Apr-90</b>
<i>60% Wilshire 5000 &amp; 40% Barclays Aggregate</i>			<i>4.6</i>	<i>9.2</i>	<i>-13.1</i>	<i>-11.2</i>	<i>5.6</i>	<i>6.7</i>	<i>8.4</i>	<i>7.6</i>	<i>8.5</i>	<i>Apr-90</i>
<b>Cash</b>	<b>10,069,271</b>	<b>1.2</b>										

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	Trailing Net Performance												Inception (%)	Inception Date
	Market Value (\$)	% of Portfolio	% of Sector	1 Mo (%)	QTD (%)	YTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	20 Yrs (%)			
<b>Total Retirement System (gross)</b>	<b>806,426,549</b>	<b>100.0</b>	<b>--</b>	<b>3.8</b>	<b>6.2</b>	<b>-8.7</b>	<b>-4.7</b>	<b>7.5</b>	<b>6.9</b>	<b>7.5</b>	<b>7.1</b>	<b>8.2</b>	<b>Jan-89</b>	
<b>Total Retirement System</b>				<b>3.8</b>	<b>6.2</b>	<b>-8.7</b>	<b>-4.7</b>	<b>7.3</b>	<b>6.7</b>	<b>7.3</b>	<b>6.8</b>	<b>7.8</b>		
<b>Domestic Equity Assets</b>	<b>181,304,601</b>	<b>22.5</b>	<b>22.5</b>	<b>5.3</b>	<b>14.5</b>	<b>-12.1</b>	<b>-7.8</b>	<b>9.5</b>	<b>9.7</b>	<b>12.6</b>	<b>9.8</b>	<b>9.9</b>	<b>Jul-93</b>	
<i>Russell 3000</i>				5.2	13.8	-14.2	-10.8	10.3	10.3	12.9	9.9	9.8	Jul-93	
RhumbLine Russell 1000 Growth Index	21,867,791	2.7	12.1	4.6	10.7	-23.2	-21.6	11.8	12.9	15.0	--	10.8	Jun-05	
<i>Russell 1000 Growth</i>				4.6	10.7	-23.3	-21.6	11.8	12.9	15.0	10.8	10.9	Jun-05	
<i>Large Growth MStar MF Median</i>				4.9	10.9	-24.9	-23.5	8.6	10.3	12.8	9.8	9.6	Jun-05	
<i>Large Growth MStar MF Rank</i>				61	55	40	41	14	9	7	--	16	Jun-05	
RhumbLine Russell 1000 Value Index	27,395,887	3.4	15.1	6.2	17.1	-3.6	2.4	8.4	7.9	10.9	--	7.7	Jun-05	
<i>Russell 1000 Value</i>				6.2	17.1	-3.7	2.4	8.4	7.9	11.0	8.8	7.8	Jun-05	
<i>Large Value MStar MF Median</i>				6.2	17.8	-1.3	5.0	10.0	8.7	11.2	8.8	8.2	Jun-05	
<i>Large Value MStar MF Rank</i>				48	65	73	72	78	70	61	--	66	Jun-05	
Rhumbline QSI Index	30,960,757	3.8	17.1	5.8	14.6	-10.4	-5.3	9.4	10.3	--	--	11.6	Aug-13	
<i>QSI Index</i>				5.8	14.7	-10.4	-5.3	9.4	10.3	13.1	10.4	11.7	Aug-13	
<i>Russell 3000</i>				5.2	13.8	-14.2	-10.8	10.3	10.3	12.9	9.9	11.6	Aug-13	
<i>Large Cap MStar MF Median</i>				5.8	14.6	-13.1	-9.1	9.8	9.8	12.3	9.5	11.0	Aug-13	
<i>Large Cap MStar MF Rank</i>				47	50	42	41	60	39	--	--	34	Aug-13	
Brown Small Cap Fundamental Value	17,273,049	2.1	9.5	4.7	18.1	-3.7	2.0	7.1	5.2	--	--	8.5	Jul-16	
<i>Russell 2000 Value</i>				3.1	16.0	-8.5	-4.7	8.3	5.3	9.7	9.1	9.2	Jul-16	
<i>Small Value MStar MF Median</i>				4.7	17.8	-5.1	-0.2	10.1	6.2	10.3	9.7	9.5	Jul-16	
<i>Small Value MStar MF Rank</i>				49	46	35	34	88	71	--	--	78	Jul-16	
PRIT General Allocation Domestic Equity	83,807,117	10.4	46.2	5.2	13.9	-13.5	--	--	--	--	--	-13.5	Jan-22	
<i>PRIT Domestic Equity Benchmark</i>				5.1	13.8	-13.6	--	--	--	--	--	-13.6	Jan-22	

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	Market Value (\$)	% of Portfolio	% of Sector	1 Mo (%)	QTD (%)	YTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	20 Yrs (%)	Inception (%)	Inception Date
<b>International Developed Market Equity Assets</b>	<b>95,129,353</b>	<b>11.8</b>	<b>11.8</b>	<b>10.9</b>	<b>16.0</b>	<b>-17.9</b>	<b>-14.4</b>	<b>0.7</b>	<b>0.5</b>	<b>4.4</b>	<b>5.6</b>	<b>4.5</b>	<b>Feb-98</b>
<i>MSCI EAFE</i>				11.3	17.2	-14.5	-10.1	1.9	1.8	5.0	6.2	4.3	Feb-98
SSgA MSCI EAFE Index	37,385,910	4.6	39.3	11.3	17.3	-14.2	-9.8	2.3	2.2	5.3	--	4.8	Oct-09
<i>MSCI EAFE</i>				11.3	17.2	-14.5	-10.1	1.9	1.8	5.0	6.2	4.5	Oct-09
<i>Foreign MStar MF Median</i>				12.6	18.5	-16.0	-12.4	2.6	1.9	5.2	6.7	5.2	Oct-09
<i>Foreign MStar MF Rank</i>				78	70	42	37	58	42	46	--	62	Oct-09
Axiom International Small Cap Equity	10,440,807	1.3	11.0	9.1	10.9	-32.0	-30.7	--	--	--	--	7.0	May-20
<i>S&amp;P Developed Ex-U.S. SmallCap</i>				10.3	15.6	-22.0	-18.4	0.4	0.2	6.1	8.8	7.6	May-20
<i>MSCI EAFE Small Cap</i>				9.9	14.6	-22.2	-18.8	0.1	0.3	6.5	8.9	7.4	May-20
PRIT General Allocation Int. Equity	47,302,635	5.9	49.7	10.9	16.2	-17.1	--	--	--	--	--	-17.1	Jan-22
<i>Custom MSCI World Ex-US IMI Net Divs</i>				10.4	16.3	-15.1	--	--	--	--	--	-15.1	Jan-22
<b>International Emerging Market Equity Assets</b>	<b>62,225,143</b>	<b>7.7</b>	<b>7.7</b>	<b>9.6</b>	<b>9.5</b>	<b>-17.4</b>	<b>-16.1</b>	<b>4.9</b>	<b>3.6</b>	<b>3.6</b>	<b>--</b>	<b>5.8</b>	<b>Sep-08</b>
<i>MSCI Emerging Markets</i>				14.8	11.3	-19.0	-17.4	0.1	-0.4	2.1	8.6	2.5	Sep-08
Driehaus Emerging Markets Growth	36,078,800	4.5	58.0	8.2	8.2	-18.4	-18.0	3.6	--	--	--	5.1	Mar-19
<i>MSCI Emerging Markets</i>				14.8	11.3	-19.0	-17.4	0.1	-0.4	2.1	8.6	0.4	Mar-19
<i>Diversified Emerging Mkts MStar MF Median</i>				14.6	12.9	-20.1	-18.9	0.2	-0.4	2.3	8.6	1.2	Mar-19
<i>Diversified Emerging Mkts MStar MF Rank</i>				94	92	34	48	19	--	--	--	14	Mar-19
Acadian Emerging Markets Small Cap	8,884,244	1.1	14.3	9.4	11.3	-13.1	-7.1	9.2	3.7	--	--	6.0	Jun-14
<i>MSCI Emerging Markets Small Cap</i>				9.4	9.3	-17.2	-13.7	7.6	2.0	3.8	9.9	3.0	Jun-14
<i>Diversified Emerging Mkts MStar MF Median</i>				14.6	12.9	-20.1	-18.9	0.2	-0.4	2.3	8.6	1.9	Jun-14
<i>Diversified Emerging Mkts MStar MF Rank</i>				90	74	13	4	1	6	--	--	1	Jun-14
PRIT General Allocation EME	17,262,099	2.1	27.7	12.6	11.3	-17.3	--	--	--	--	--	-17.3	Jan-22
<i>Custom MSCI Emerging Market IMI Net Divs</i>				14.1	11.0	-18.6	--	--	--	--	--	-18.6	Jan-22

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	Market Value (\$)	% of Portfolio	% of Sector	1 Mo (%)	QTD (%)	YTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	20 Yrs (%)	Inception (%)	Inception Date
<b>Investment Grade Bond Assets</b>	<b>72,564,995</b>	<b>9.0</b>	<b>9.0</b>	<b>4.0</b>	<b>2.1</b>	<b>-16.0</b>	<b>-16.2</b>	<b>-3.8</b>	<b>-0.6</b>	<b>0.7</b>	<b>3.1</b>	<b>4.1</b>	<b>Jul-93</b>
<i>Bloomberg US Aggregate TR</i>				3.7	2.3	-12.6	-12.8	-2.6	0.2	1.1	3.2	4.4	Jul-93
SSgA U.S. Aggregate Bond Index-NL	20,367,696	2.5	28.1	3.7	2.3	-12.6	-12.8	-2.6	0.2	1.1	--	3.0	Apr-04
<i>Bloomberg US Aggregate TR</i>				3.7	2.3	-12.6	-12.8	-2.6	0.2	1.1	3.2	3.0	Apr-04
<i>Intermediate Core Bond MStar MF Median</i>				3.7	2.2	-12.9	-13.1	-2.5	0.2	1.1	3.3	3.1	Apr-04
<i>Intermediate Core Bond MStar MF Rank</i>				50	38	36	32	57	46	55	--	61	Apr-04
PRIT General Allocation Core FI	52,197,300	6.5	71.9	4.2	2.0	-17.3	--	--	--	--	--	-17.3	Jan-22
<i>PRIT Core Fixed Income</i>				4.2	2.0	-17.3	-17.9	-2.8	0.6	2.0	3.8	-17.3	Jan-22
<b>Long-Term Government Bond Assets</b>	<b>25,071,027</b>	<b>3.1</b>	<b>3.1</b>	<b>4.2</b>	<b>1.9</b>	<b>-17.3</b>	<b>-17.9</b>	<b>-2.8</b>	<b>0.6</b>	<b>--</b>	<b>--</b>	<b>1.6</b>	<b>Dec-15</b>
<i>PRIT Core Fixed Income</i>				4.2	2.0	-17.3	-17.9	-2.8	0.6	2.0	3.8	1.6	Dec-15
PRIT Core Fixed Income	25,071,027	3.1	100.0	4.2	1.9	-17.3	-17.9	-2.8	0.6	--	--	1.6	Dec-15
<i>PRIT Core Fixed Income</i>				4.2	2.0	-17.3	-17.9	-2.8	0.6	2.0	3.8	1.6	Dec-15
<b>TIPS Assets</b>	<b>15,737,779</b>	<b>2.0</b>	<b>2.0</b>	<b>1.8</b>	<b>3.1</b>	<b>-10.9</b>	<b>-10.7</b>	<b>1.7</b>	<b>2.5</b>	<b>1.1</b>	<b>--</b>	<b>3.5</b>	<b>Mar-07</b>
<i>Bloomberg US TIPS TR</i>				1.8	3.1	-10.9	-10.7	1.7	2.5	1.2	4.1	3.5	Mar-07
SSgA TIPS Index	15,737,779	2.0	100.0	1.8	3.1	-10.9	-10.7	1.7	2.5	1.1	--	3.5	Mar-07
<i>Bloomberg US TIPS TR</i>				1.8	3.1	-10.9	-10.7	1.7	2.5	1.2	4.1	3.5	Mar-07
<i>Inflation-Protected Bond MStar MF Median</i>				1.8	3.1	-10.6	-10.4	1.8	2.4	1.0	3.7	3.3	Mar-07
<i>Inflation-Protected Bond MStar MF Rank</i>				42	48	59	57	60	39	31	--	24	Mar-07

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	Market Value (\$)	% of Portfolio	% of Sector	1 Mo (%)	QTD (%)	YTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	20 Yrs (%)	Inception (%)	Inception Date
<b>High Yield Bond Assets</b>	<b>39,317,314</b>	<b>4.9</b>	<b>4.9</b>	<b>2.0</b>	<b>4.1</b>	<b>-8.6</b>	<b>-6.6</b>	<b>1.7</b>	<b>2.7</b>	<b>4.0</b>	<b>--</b>	<b>5.3</b>	<b>Apr-07</b>
<i>Bloomberg US High Yield TR</i>				2.2	4.8	-10.6	-9.0	0.9	2.5	4.3	7.4	5.8	Apr-07
Loomis Sayles High Yield Conservative	11,412,962	1.4	29.0	2.3	4.7	-12.6	-10.7	0.6	1.6	3.6	--	4.4	Feb-12
<i>Bloomberg US High Yield TR</i>				2.2	4.8	-10.6	-9.0	0.9	2.5	4.3	7.4	4.9	Feb-12
<i>High Yield Bond MStar MF Median</i>				2.0	4.7	-10.0	-8.3	0.6	2.1	3.7	6.5	4.4	Feb-12
<i>High Yield Bond MStar MF Rank</i>				32	53	94	92	53	81	60	--	52	Feb-12
Columbia High Yield	11,389,530	1.4	29.0	2.0	5.4	-9.4	-7.4	1.0	2.7	--	--	3.6	Dec-16
<i>Bloomberg US High Yield TR</i>				2.2	4.8	-10.6	-9.0	0.9	2.5	4.3	7.4	3.6	Dec-16
<i>High Yield Bond MStar MF Median</i>				2.0	4.7	-10.0	-8.3	0.6	2.1	3.7	6.5	3.1	Dec-16
<i>High Yield Bond MStar MF Rank</i>				47	15	36	29	40	27	--	--	29	Dec-16
PRIT General Allocation Value Added FI	16,514,822	2.0	42.0	1.9	2.9	-5.4	--	--	--	--	--	-5.4	Jan-22
<i>PRIT Public Value-Added Fixed Income</i>				1.8	3.0	-8.9	-8.0	0.1	1.3	1.9	6.0	-8.9	Jan-22
<b>Bank Loan Assets</b>	<b>7,899,563</b>	<b>1.0</b>	<b>1.0</b>	<b>1.8</b>	<b>2.8</b>	<b>-2.1</b>	<b>-1.5</b>	<b>2.0</b>	<b>2.7</b>	<b>--</b>	<b>--</b>	<b>2.9</b>	<b>Aug-14</b>
<i>Credit Suisse Leveraged Loans</i>				1.1	2.0	-1.4	-0.8	2.8	3.2	3.8	4.7	3.4	Aug-14
Beach Point Loan Fund	7,899,563	1.0	100.0	1.8	2.8	-2.1	-1.5	2.0	2.7	--	--	2.9	Aug-14
<i>Credit Suisse Leveraged Loans</i>				1.1	2.0	-1.4	-0.8	2.8	3.2	3.8	4.7	3.4	Aug-14
<i>Bank Loan MStar MF Median</i>				1.3	2.3	-2.1	-1.3	1.9	2.4	3.1	4.3	2.8	Aug-14
<i>Bank Loan MStar MF Rank</i>				3	8	51	55	41	30	--	--	40	Aug-14



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	Market Value (\$)	% of Portfolio	% of Sector	1 Mo (%)	QTD (%)	YTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	20 Yrs (%)	Inception (%)	Inception Date
<b>Total Real Estate</b>	<b>87,060,340</b>	<b>10.8</b>	<b>10.8</b>	<b>0.1</b>	<b>0.3</b>	<b>8.4</b>	<b>14.3</b>	<b>9.0</b>	<b>7.7</b>	<b>9.0</b>	<b>--</b>	<b>--</b>	<b>Jan-89</b>
<i>NCREIF ODCE</i>				<i>0.0</i>	<i>0.0</i>	<i>13.1</i>	<i>22.1</i>	<i>12.4</i>	<i>10.2</i>	<i>10.9</i>	<i>8.8</i>	<i>7.7</i>	<i>Jan-89</i>
UBS Trumbull Property Income Fund	11,481,039	1.4	13.2	0.0	0.0	6.8	12.3	7.5	6.9	7.7	7.6	7.5	Jan-89
<i>NCREIF ODCE (net)</i>				<i>0.0</i>	<i>0.0</i>	<i>12.4</i>	<i>21.0</i>	<i>11.4</i>	<i>9.3</i>	<i>9.9</i>	<i>7.8</i>	<i>6.7</i>	<i>Jan-89</i>
UBS Trumbull Property Fund	3,152,569	0.4	3.6	0.0	0.0	2.4	7.3	4.0	3.4	5.9	6.3	6.5	Jan-89
<i>NCREIF ODCE (net)</i>				<i>0.0</i>	<i>0.0</i>	<i>12.4</i>	<i>21.0</i>	<i>11.4</i>	<i>9.3</i>	<i>9.9</i>	<i>7.8</i>	<i>6.7</i>	<i>Jan-89</i>
JPMCB Strategic Property Fund	11,680,151	1.4	13.4	-2.2	-2.6	8.6	17.2	10.5	--	--	--	8.6	Jan-19
<i>NCREIF ODCE (net)</i>				<i>0.0</i>	<i>0.0</i>	<i>12.4</i>	<i>21.0</i>	<i>11.4</i>	<i>9.3</i>	<i>9.9</i>	<i>7.8</i>	<i>9.5</i>	<i>Jan-19</i>
AEW Partners VII	521,639	0.1	0.6										
Rockwood X	6,727,457	0.8	7.7										
Torchlight Debt Opportunity Fund VI	3,602,641	0.4	4.1										
TerraCap Partners IV (Institutional), L.P.	4,327,530	0.5	5.0										
Rockwood Capital Real Estate Partners Fund XI, L.P.	5,139,627	0.6	5.9										
PRIT General Allocation Real Estate	40,427,687	5.0	46.4	1.0	1.5	11.2	--	--	--	--	--	11.2	Jan-22
<i>PRIT Real Estate Benchmark</i>				<i>0.8</i>	<i>6.1</i>	<i>18.4</i>	<i>--</i>	<i>--</i>	<i>--</i>	<i>--</i>	<i>--</i>	<i>18.4</i>	<i>Jan-22</i>

Total Retirement System | As of November 30, 2022

	Market Value (\$)	% of Portfolio	% of Sector	1 Mo (%)	QTD (%)	YTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	20 Yrs (%)	Inception (%)	Inception Date
<b>Private Equity Assets</b>	<b>129,346,800</b>	<b>16.0</b>	<b>16.0</b>										
Adams Street Partners 2010	6,324,975	0.8	4.9										
Goldman Sachs Private Equity Partners 2005	481,149	0.1	0.4										
North American Strategic Partners 2006	65,081	0.0	0.1										
Brookfield Capital Partners IV	3,848,617	0.5	3.0										
PRIT Vintage Year 2001	65,168	0.0	0.1										
PRIT Vintage Year 2002	7,906	0.0	0.0										
Ridgemont Equity Partners II	5,457,847	0.7	4.2										
TA XII	3,124,281	0.4	2.4										
LLR Equity Partners V	6,400,494	0.8	4.9										
Wellspring Capital Partners VI	6,292,523	0.8	4.9										
Trilantic Capital Partners VI	5,390,908	0.7	4.2										
Brookfield Capital Partners V, L.P.	4,141,770	0.5	3.2										
FS Equity Partners VIII L.P.	5,656,260	0.7	4.4										
Ridgemont Equity Partners III	8,479,932	1.1	6.6										
Searchlight Capital III	3,927,941	0.5	3.0										
Charlesbank Technology Opportunities Fund	5,163,940	0.6	4.0										
LLR Equity Partners VI, L.P.	2,606,108	0.3	2.0										
PRIT General Allocation Private Equity	61,911,901	7.7	47.9	-0.7	-0.6	-4.8	--	--	--	--	--	-4.8	Jan-22
<i>State Street PE Index (SSPEI) All PE Excluding PD</i>				0.0	0.0	-0.6	--	--	--	--	--	-0.6	Jan-22

### Total Retirement System | As of November 30, 2022

	Market Value (\$)	% of Portfolio	% of Sector	1 Mo (%)	QTD (%)	YTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	20 Yrs (%)	Inception (%)	Inception Date
<b>Natural Resources Assets</b>	<b>17,203,491</b>	<b>2.1</b>	<b>2.1</b>										
Hancock Timberland IX	3,549,954	0.4	20.6										
PRIT General Allocation Timberland	11,919,068	1.5	69.3	0.6	0.5	-1.9	--	--	--	--	--	-1.9	Jan-22
Oppenheimer Natural Resources	1,734,469	0.2	10.1										
<b>Infrastructure Assets</b>	<b>11,666,816</b>	<b>1.4</b>	<b>1.4</b>										
IFM Global Infrastructure (U.S.), L.P. <i>CPI+5%</i>	8,101,130	1.0	69.4	0.7 0.5	1.1 1.3	5.1 11.1	8.7 12.1	10.2 10.0	-- 8.8	-- 7.6	-- 7.5	10.2 9.1	Oct-18 Oct-18
Global Infrastructure Partners IV	3,565,686	0.4	30.6										
<b>Opportunistic Assets</b>	<b>36,660,333</b>	<b>4.5</b>	<b>4.5</b>										
HarbourVest Co-Investment Fund V, L.P.	4,587,707	0.6	12.5										
EnTrustPermal Special Opportunities Evergreen Fund, Ltd.	4,946,470	0.6	13.5										
PRIT General Allocation Hedge Funds <i>HFRI FOF Composite Index</i>	27,126,156	3.4	74.0	0.9 1.0	1.1 1.5	-2.3 -5.9	-- -5.6	-- 4.0	-- 3.1	-- 3.6	-- 3.6	-2.3 -5.9	Jan-22 Jan-22
<b>Balanced Assets (PRIT General Allocation Fund)</b> <i>60% Wilshire 5000 &amp; 40% Barclays Aggregate</i>	<b>15,169,723</b>	<b>1.9</b>	<b>1.9</b>	<b>3.8</b>	<b>5.9</b>	<b>-9.3</b>	<b>-6.6</b>	<b>7.7</b>	<b>7.2</b>	<b>8.4</b>	<b>8.1</b>	<b>8.3</b>	<b>Apr-90</b>
				4.6	9.2	-13.1	-11.2	5.6	6.7	8.4	7.6	8.5	Apr-90
PRIT General Allocation <i>60% Wilshire 5000 &amp; 40% Barclays Aggregate</i>	15,169,723	1.9	100.0	3.8	5.9	-9.3	-6.6	7.7	7.2	8.4	8.1	8.3	Apr-90
				4.6	9.2	-13.1	-11.2	5.6	6.7	8.4	7.6	8.5	Apr-90
<b>Cash</b>	<b>10,069,271</b>	<b>1.2</b>	<b>1.2</b>										
Cash Account <i>91 Day T-Bills</i>	8,556,532	1.1	85.0										
				0.3	0.5	1.1	1.1	0.6	1.1	0.7	1.2	1.2	Jan-02
PRIM Cash Account	1,512,739	0.2	15.0										

Total Retirement System | As of November 30, 2022

Cash Flow Summary

	Beginning Market Value	Contributions	Withdrawals	Net Investment Change	Ending Market Value	Month Return
Acadian Emerging Markets Small Cap	\$8,111,862	\$0	-\$9,254	\$781,636	\$8,884,244	9.41%
Adams Street Partners 2010	\$6,332,705	\$0	-\$7,730	\$0	\$6,324,975	0.00%
AEW Partners VII	\$521,639	\$0	\$0	\$0	\$521,639	0.00%
Axiom International Small Cap Equity	\$9,567,708	\$0	-\$6,961	\$880,059	\$10,440,807	9.13%
Beach Point Loan Fund	\$7,762,988	\$0	-\$3,291	\$139,866	\$7,899,563	1.76%
Brookfield Capital Partners IV	\$3,848,617	\$0	\$0	\$0	\$3,848,617	0.00%
Brookfield Capital Partners V, L.P.	\$4,141,770	\$0	\$0	\$0	\$4,141,770	0.00%
Brown Small Cap Fundamental Value	\$16,475,024	\$0	-\$15,834	\$813,859	\$17,273,049	4.75%
Cash Account	\$8,755,685	\$0	-\$199,153	\$0	\$8,556,532	0.00%
Charlesbank Technology Opportunities Fund	\$5,163,940	\$0	\$0	\$0	\$5,163,940	0.00%
Columbia High Yield	\$11,161,283	\$0	-\$3,891	\$232,139	\$11,389,530	2.04%
Driehaus Emerging Markets Growth	\$33,339,746	\$0	\$0	\$2,739,053	\$36,078,800	8.22%
EnTrustPermal Special Opportunities Evergreen Fund, Ltd.	\$4,946,470	\$0	\$0	\$0	\$4,946,470	0.00%
FS Equity Partners VIII L.P.	\$5,656,260	\$0	\$0	\$0	\$5,656,260	0.00%
Global Infrastructure Partners IV	\$3,294,917	\$270,769	\$0	\$0	\$3,565,686	0.00%
Goldman Sachs Private Equity Partners 2005	\$481,149	\$0	\$0	\$0	\$481,149	0.00%
Hancock Timberland IX	\$3,549,954	\$0	\$0	\$0	\$3,549,954	0.00%
HarbourVest Co-Investment Fund V, L.P.	\$4,745,161	\$0	-\$157,454	\$0	\$4,587,707	0.00%
IFM Global Infrastructure (U.S.), L.P.	\$8,042,598	\$0	\$0	\$58,532	\$8,101,130	0.73%
JPMCB Strategic Property Fund	\$11,936,855	\$0	\$0	-\$256,704	\$11,680,151	-2.15%
LLR Equity Partners V	\$6,400,494	\$0	\$0	\$0	\$6,400,494	0.00%
LLR Equity Partners VI, L.P	\$2,606,108	\$0	\$0	\$0	\$2,606,108	0.00%
Loomis Sayles High Yield Conservative	\$11,154,812	\$0	-\$4,280	\$262,430	\$11,412,962	2.28%
North American Strategic Partners 2006	\$65,081	\$0	\$0	\$0	\$65,081	0.00%

Total Retirement System | As of November 30, 2022

	Beginning Market Value	Contributions	Withdrawals	Net Investment Change	Ending Market Value	Month Return
Oppenheimer Natural Resources	\$1,734,469	\$0	\$0	\$0	\$1,734,469	0.00%
PRIM Cash Account	\$2,511,176	\$2,488,824	-\$3,500,000	\$12,739	\$1,512,739	0.51%
PRIT Core Fixed Income	\$24,064,827	\$0	-\$2,298	\$1,008,498	\$25,071,027	4.18%
PRIT General Allocation	\$17,363,230	\$0	-\$2,488,827	\$295,320	\$15,169,723	3.77%
PRIT General Allocation Core FI	\$50,385,992	\$0	\$0	\$1,811,307	\$52,197,300	4.19%
PRIT General Allocation Domestic Equity	\$80,798,832	\$0	\$0	\$3,008,285	\$83,807,117	5.21%
PRIT General Allocation EME	\$15,405,789	\$0	\$0	\$1,856,310	\$17,262,099	12.59%
PRIT General Allocation Hedge Funds	\$27,259,184	\$0	\$0	-\$133,029	\$27,126,156	0.92%
PRIT General Allocation Int. Equity	\$42,338,733	\$0	\$0	\$4,963,902	\$47,302,635	10.92%
PRIT General Allocation Private Equity	\$62,783,121	\$0	\$0	-\$871,221	\$61,911,901	-0.66%
PRIT General Allocation Real Estate	\$38,097,610	\$0	\$0	\$2,330,077	\$40,427,687	0.96%
PRIT General Allocation Timberland	\$11,925,893	\$0	\$0	-\$6,825	\$11,919,068	0.61%
PRIT General Allocation Value Added FI	\$16,130,767	\$0	\$0	\$384,055	\$16,514,822	1.89%
PRIT Vintage Year 2001	\$63,971	\$2	\$0	\$1,195	\$65,168	1.87%
PRIT Vintage Year 2002	\$9,427	\$0	\$0	-\$1,521	\$7,906	-16.14%
Rhumblin QSI Index	\$29,258,028	\$0	-\$1,806	\$1,704,534	\$30,960,757	5.82%
RhumbLine Russell 1000 Growth Index	\$20,915,853	\$0	-\$1,230	\$953,167	\$21,867,791	4.55%
RhumbLine Russell 1000 Value Index	\$25,786,871	\$0	-\$1,541	\$1,610,557	\$27,395,887	6.24%
Ridgemont Equity Partners II	\$5,389,252	\$68,595	\$0	\$0	\$5,457,847	0.00%
Ridgemont Equity Partners III	\$8,101,670	\$378,262	\$0	\$0	\$8,479,932	0.00%
Rockwood Capital Real Estate Partners Fund XI, L.P.	\$5,139,627	\$0	\$0	\$0	\$5,139,627	0.00%
Rockwood X	\$6,727,457	\$0	\$0	\$0	\$6,727,457	0.00%
Searchlight Capital III	\$3,927,941	\$0	\$0	\$0	\$3,927,941	0.00%
SSgA MSCI EAFE Index	\$33,599,148	\$0	-\$3,115	\$3,789,878	\$37,385,910	11.27%
SSgA TIPS Index	\$15,456,314	\$0	-\$787	\$282,252	\$15,737,779	1.82%

Total Retirement System | As of November 30, 2022

	Beginning Market Value	Contributions	Withdrawals	Net Investment Change	Ending Market Value	Month Return
SSgA U.S. Aggregate Bond Index-NL	\$19,643,660	\$0	-\$1,018	\$725,054	\$20,367,696	3.69%
TA XII	\$3,124,281	\$0	\$0	\$0	\$3,124,281	0.00%
TerraCap Partners IV (Institutional), L.P.	\$4,327,530	\$0	\$0	\$0	\$4,327,530	0.00%
Torchlight Debt Opportunity Fund VI	\$3,602,641	\$0	\$0	\$0	\$3,602,641	0.00%
Trilantic Capital Partners VI	\$5,390,908	\$0	\$0	\$0	\$5,390,908	0.00%
UBS Trumbull Property Fund	\$3,152,569	\$0	\$0	\$0	\$3,152,569	0.00%
UBS Trumbull Property Income Fund	\$11,481,039	\$0	\$0	\$0	\$11,481,039	0.00%
Wellspring Capital Partners VI	\$6,292,523	\$0	\$0	\$0	\$6,292,523	0.00%
<b>Total</b>	<b>\$780,253,162</b>	<b>\$3,206,453</b>	<b>-\$6,408,471</b>	<b>\$29,375,406</b>	<b>\$806,426,549</b>	<b>--</b>

Private Market Managers' Performance Overview<sup>1</sup>

Managers	Strategy	Vintage Year	Commitment Amount (\$mm)	% called	Median Peer IRR	Quartile Rank	Net IRR	Net Multiple
<b>Real Estate Managers</b>								
AEW Partners VII	Opportunistic	2014	5.0	93%	20.0	4	10.6%	NA
Rockwood X	Value-Added	2016	10.0	94%	15.1	3	10.4%	1.4x
Torchlight Debt Opportunity Fund VI	Opportunistic	2019	5.0	100%	21.9	4	8.7%	1.2x
TerraCap Partners IV	Value-Added	2019	5.0	100%	19.5	3	12.5%	NA
Rockwood XI	Value-Added	2019	8.0	51%	19.5	2	23.3%	1.3x
<b>Private Equity Managers</b>								
Adams Street Partners	Fund of Funds	2010	10.0	89%	9.8	NA	15.2%	2.3x
Goldman Sachs PE Partners	Fund of Funds	2005	10.0	100%	8.0	NA	NA	NA
North American Strategic Partners	Fund of Funds	2006	9.1	88%	NA	NA	NA	NA
PRIT Vintage Year 2001	Fund of Funds	2001	2.5	NA	9.0	NA	NA	NA
PRIT Vintage Year 2002	Fund of Funds	2002	0.5	NA	8.8	NA	NA	NA
Brookfield Capital Partners IV	Buyout	2015	4.0	87%	22.0	1	47.4%	2.8x
LLR Equity Partners V	Buyout	2017	5.0	92%	22.0	2	22.0%	1.7x
Ridgemont Equity Partners II	Buyout	2015	6.0	92%	22.0	3	18.6%	2.6x

<sup>1</sup> As of 6/30/2022.

<sup>2</sup> NM indicates that a fund is early in its investment period; therefore, the return is not yet meaningful. NA indicates that the relevant data is not available at the time of report generation.

Private Market Managers' Performance Overview (continued)<sup>1</sup>

Managers	Strategy	Vintage Year	Commitment Amount (\$mm)	% called	Median Peer IRR	Quartile Rank	Net IRR	Net Multiple
TA XII	Growth Equity	2016	4.0	100%	23.5	1	40.0%	2.9x
Wellspring VI	Buyout	2017	5.0	88%	22.0	2	26.1%	1.5x
Trilantic Capital Partners VI	Buyout	2018	5.0	74%	23.2	3	19.6%	1.4x
Brookfield Capital Partners V	Buyout	2019	4.0	77%	22.7	3	17.6%	1.3x
FS Equity Partners VIII	Buyout	2019	5.0	62%	22.7	2	33.6%	1.5x
Ridgemont Equity Partners III	Buyout	2019	6.0	67%	22.7	1	56.1%	1.8x
Searchlight Capital III	Special Situations	2020	5.0	56%	16.9	1	51.8%	1.7x
Charlesbank Technology Opportunities	Buyout	2019	5.0	38%	NM	NM	NM	NM
LLR Equity Partners VI	Buyout	2020	4.0	54%	NM	NM	NM	NM
<b>Opportunistic Managers</b>								
HarbourVest Co-Investment Fund IV	Opportunistic	2019	4.0	78%	NA	NA	30.3%	1.7x
EnTrustPermal Spec. Opps. Evergreen Fund	Opportunistic	2020	6.0	55%	NM	NM	NM	NM
<b>Infrastructure Managers</b>								
Global Infrastructure Partners IV	Value-Added	2019	5.0	48%	--	--	--	--
<b>Natural Resources Managers</b>								
Hancock Timberland	Timber	2008	8.0	100%	--	--	-0.3%	1.0x
Oppenheimer Natural Resources	Natural Resources	2010	7.0	100%	--	--	-4.3%	0.7x

<sup>1</sup> As of 6/30/2022.

<sup>2</sup> NM indicates that a fund is early in its investment period; therefore, the return is not yet meaningful. NA indicates that the relevant data is not available at the time of report generation.



## **Disclaimer, Glossary, and Notes**

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SIGNIFICANT EVENTS MAY OCCUR (OR HAVE OCCURRED) AFTER THE DATE OF THIS REPORT AND THAT IT IS NOT OUR FUNCTION OR RESPONSIBILITY TO UPDATE THIS REPORT. ANY OPINIONS OR RECOMMENDATIONS PRESENTED HEREIN REPRESENT OUR GOOD FAITH VIEWS AS OF THE DATE OF THIS REPORT AND ARE SUBJECT TO CHANGE AT ANY TIME. ALL INVESTMENTS INVOLVE RISK. THERE CAN BE NO GUARANTEE THAT THE STRATEGIES, TACTICS, AND METHODS DISCUSSED HERE WILL BE SUCCESSFUL.

INFORMATION USED TO PREPARE THIS REPORT WAS OBTAINED FROM INVESTMENT MANAGERS, CUSTODIANS, AND OTHER EXTERNAL SOURCES. WHILE WE HAVE EXERCISED REASONABLE CARE IN PREPARING THIS REPORT, WE CANNOT GUARANTEE THE ACCURACY OF ALL SOURCE INFORMATION CONTAINED HEREIN.

CERTAIN INFORMATION CONTAINED IN THIS REPORT MAY CONSTITUTE "FORWARD - LOOKING STATEMENTS," WHICH CAN BE IDENTIFIED BY THE USE OF TERMINOLOGY SUCH AS "MAY," "WILL," "SHOULD," "EXPECT," "AIM," "ANTICIPATE," "TARGET," "PROJECT," "ESTIMATE," "INTEND," "CONTINUE" OR "BELIEVE," OR THE NEGATIVES THEREOF OR OTHER VARIATIONS THEREON OR COMPARABLE TERMINOLOGY. ANY FORWARD-LOOKING STATEMENTS, FORECASTS, PROJECTIONS, VALUATIONS, OR RESULTS IN THIS PRESENTATION ARE BASED UPON CURRENT ASSUMPTIONS. CHANGES TO ANY ASSUMPTIONS MAY HAVE A MATERIAL IMPACT ON FORWARD - LOOKING STATEMENTS, FORECASTS, PROJECTIONS, VALUATIONS, OR RESULTS. ACTUAL RESULTS MAY THEREFORE BE MATERIALLY DIFFERENT FROM ANY FORECASTS, PROJECTIONS, VALUATIONS, OR RESULTS IN THIS PRESENTATION.

PERFORMANCE DATA CONTAINED HEREIN REPRESENT PAST PERFORMANCE. PAST PERFORMANCE IS NO GUARANTEE OF FUTURE RESULTS.

**Credit Risk:** Refers to the risk that the issuer of a fixed income security may default (i.e., the issuer will be unable to make timely principal and/or interest payments on the security.)

**Duration:** Measure of the sensitivity of the price of a bond to a change in its yield to maturity. Duration summarizes, in a single number, the characteristics that cause bond prices to change in response to a change in interest rates. For example, the price of a bond with a duration of three years will rise by approximately 3% for each 1% decrease in its yield to maturity. Conversely, the price will decrease 3% for each 1% increase in the bond's yield. Price changes for two different bonds can be compared using duration. A bond with a duration of six years will exhibit twice the percentage price change of a bond with a three-year duration. The actual calculation of a bond's duration is somewhat complicated, but the idea behind the calculation is straightforward. The first step is to measure the time interval until receipt for each cash flow (coupon and principal payments) from a bond. The second step is to compute a weighted average of these time intervals. Each time interval is measured by the present value of that cash flow. This weighted average is the duration of the bond measured in years.

**Information Ratio:** This statistic is a measure of the consistency of a portfolio's performance relative to a benchmark. It is calculated by subtracting the benchmark return from the portfolio return (excess return), and dividing the resulting excess return by the standard deviation (volatility) of this excess return. A positive information ratio indicates outperformance versus the benchmark, and the higher the information ratio, the more consistent the outperformance.

**Jensen's Alpha:** A measure of the average return of a portfolio or investment in excess of what is predicted by its beta or "market" risk.  $\text{Portfolio Return} - [\text{Risk Free Rate} + \text{Beta} * (\text{market return} - \text{Risk Free Rate})]$ .

**Market Capitalization:** For a firm, market capitalization is the total market value of outstanding common stock. For a portfolio, market capitalization is the sum of the capitalization of each company weighted by the ratio of holdings in that company to total portfolio holdings; thus it is a weighted-average capitalization. Meketa Investment Group considers the largest 65% of the broad domestic equity market as large capitalization, the next 25% of the market as medium capitalization, and the smallest 10% of stocks as small capitalization.

**Market Weighted:** Stocks in many indices are weighted based on the total market capitalization of the issue. Thus, the individual returns of higher market-capitalization issues will more heavily influence an index's return than the returns of the smaller market-capitalization issues in the index.

**Maturity:** The date on which a loan, bond, mortgage, or other debt/security becomes due and is to be paid off.

**Prepayment Risk:** The risk that prepayments will increase (homeowners will prepay all or part of their mortgage) when mortgage interest rates decline; hence, investors' monies will be returned to them in a lower interest rate environment. Also, the risk that prepayments will slow down when mortgage interest rates rise; hence, investors will not have as much money as previously anticipated in a higher interest rate environment. A prepayment is any payment in excess of the scheduled mortgage payment.

**Price-Book Value (P/B) Ratio:** The current market price of a stock divided by its book value per share. Meketa Investment Group calculates P/B as the current price divided by Compustat's quarterly common equity. Common equity includes common stock, capital surplus, retained earnings, and treasury stock adjusted for both common and nonredeemable preferred stock. Similar to high P/E stocks, stocks with high P/B's tend to be riskier investments.

**Price-Earnings (P/E) Ratio:** A stock's market price divided by its current or estimated future earnings. Lower P/E ratios often characterize stocks in low growth or mature industries, stocks in groups that have fallen out of favor, or stocks of established blue chip companies with long records of stable earnings and regular dividends. Sometimes a company that has good fundamentals may be viewed unfavorably by the market if it is an industry that is temporarily out of favor. Or a business may have experienced financial problems causing investors to be skeptical about its future. Either of these situations would result in lower relative P/E ratios. Some stocks exhibit above-average sales and earnings growth or expectations for above average growth. Consequently, investors are willing to pay more for these companies' earnings, which results in elevated P/E ratios. In other words, investors will pay more for shares of companies whose profits, in their opinion, are expected to increase faster than average. Because future events are in no way assured, high P/E stocks tend to be riskier and more volatile investments. Meketa Investment Group calculates P/E as the current price divided by the I/B/E/S consensus of twelve-month forecast earnings per share.

**Quality Rating:** The rank assigned a security by such rating services as Fitch, Moody's, and Standard & Poor's. The rating may be determined by such factors as (1) the likelihood of fulfillment of dividend, income, and principal payment of obligations; (2) the nature and provisions of the issue; and (3) the security's relative position in the event of liquidation of the company. Bonds assigned the top four grades (AAA, AA, A, BBB) are considered investment grade because they are eligible bank investments as determined by the controller of the currency.

**Sharpe Ratio:** A commonly used measure of risk-adjusted return. It is calculated by subtracting the risk free return (usually three-month Treasury bill) from the portfolio return and dividing the resulting excess return by the portfolio's total risk level (standard deviation). The result is a measure of return per unit of total risk taken. The higher the Sharpe ratio, the better the fund's historical risk adjusted performance.

**STIF Account:** Short-term investment fund at a custodian bank that invests in cash-equivalent instruments. It is generally used to safely invest the excess cash held by portfolio managers.

**Standard Deviation:** A measure of the total risk of an asset or a portfolio. Standard deviation measures the dispersion of a set of numbers around a central point (e.g., the average return). If the standard deviation is small, the distribution is concentrated within a narrow range of values. For a normal distribution, about two thirds of the observations will fall within one standard deviation of the mean, and 95% of the observations will fall within two standard deviations of the mean.

**Style:** The description of the type of approach and strategy utilized by an investment manager to manage funds. For example, the style for equities is determined by portfolio characteristics such as price-to-book value, price-to-earnings ratio, and dividend yield. Equity styles include growth, value, and core.

**Tracking Error:** A divergence between the price behavior of a position or a portfolio and the price behavior of a benchmark, as defined by the difference in standard deviation.

**Yield to Maturity:** The yield, or return, provided by a bond to its maturity date; determined by a mathematical process, usually requiring the use of a “basis book.” For example, a 5% bond pays \$5 a year interest on each \$100 par value. To figure its current yield, divide \$5 by \$95—the market price of the bond—and you get 5.26%. Assume that the same bond is due to mature in five years. On the maturity date, the issuer is pledged to pay \$100 for the bond that can be bought now for \$95. In other words, the bond is selling at a discount of 5% below par value. To figure yield to maturity, a simple and approximate method is to divide 5% by the five years to maturity, which equals 1% pro rata yearly. Add that 1% to the 5.26% current yield, and the yield to maturity is roughly 6.26%.

$$\frac{5\% \text{ (discount)}}{5 \text{ (yrs. to maturity)}} = 1\% \text{ pro rata, plus } 5.26\% \text{ (current yield)} = 6.26\% \text{ (yield to maturity)}$$

**Yield to Worst:** The lowest potential yield that can be received on a bond without the issuer actually defaulting. The yield to worst is calculated by making worst-case scenario assumptions on the issue by calculating the returns that would be received if provisions, including prepayment, call, or sinking fund, are used by the issuer.

**NCREIF Property Index (NPI):** Measures unleveraged investment performance of a very large pool of individual commercial real estate properties acquired in the private market by tax-exempt institutional investors for investment purposes only. The NPI index is capitalization-weighted for a quarterly time series composite total rate of return.

**NCREIF Fund Index - Open End Diversified Core Equity (NFI-ODCE):** Measures the investment performance of 28 open-end commingled funds pursuing a core investment strategy that reflects funds' leverage and cash positions. The NFI-ODCE index is equal-weighted and is reported gross and net of fees for a quarterly time series composite total rate of return.

Sources: *Investment Terminology*, International Foundation of Employee Benefit Plans, 1999.  
*The Handbook of Fixed Income Securities*, Fabozzi, Frank J., 1991

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Throughout this report, numbers may not sum due to rounding.

Returns for periods greater than one year are annualized throughout this report.

Values shown are in millions of dollars, unless noted otherwise.