MEKETA | 45 YEARS
CELEBRATING A MILESTONE

City of Quincy Retirement System

February 28, 2023

Interim Update

Agenda

Executive Summary

Economic and Market Update

Data as of February 28, 2023

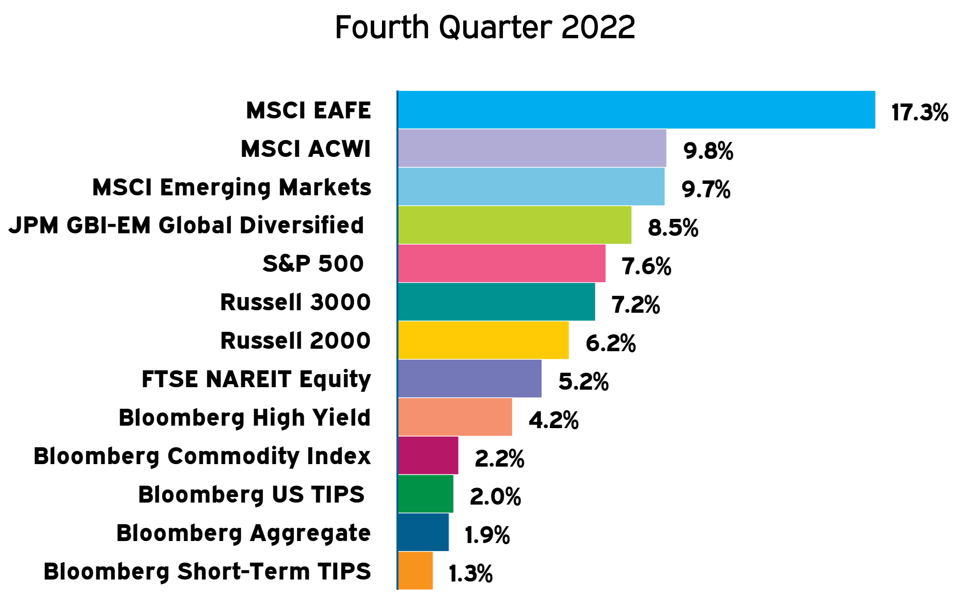
Commentary

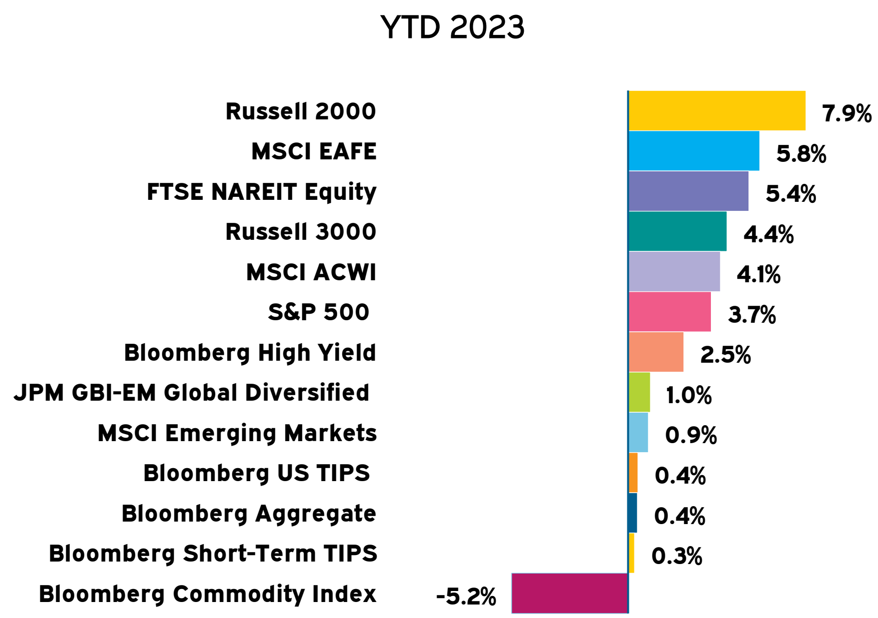
→ After a strong start to the year, markets sold-off as better-than-expected economic data pushed investors to raise their inflation and interest rate expectations. Despite the sell-off most asset classes remain positive year-to-date.

- Chair Powell's February press conference where he reiterated previous messaging on high and persistent inflation and the need for an extended period of high interest rates weighed on both stocks and bonds.
- US equity markets declined in February with the Russell 3000 falling 2.3% and growth continuing to outperform value.
- Developed equity markets outside the US were up slightly in local terms for the month but a strengthening dollar brought returns negative for US investors. The MSCI EAFE fell 2.1% for the month.
- Emerging market equities had the weakest returns in February (-6.5%) driven by renewed tensions between the US and China, as well as the strengthening dollar.
- On expectations for higher rates for longer, bonds gave back most of their January gains with the broad US bond market (Bloomberg Aggregate) declining 2.6%.
- After month-end, concerns in the banking sector created considerable market volatility with dramatic declines in interest rates and significant pressure in the financial sector. Support from the Fed and others in the US related to Silicon Valley and Signature Banks helped somewhat to ease concerns but risks remain.

→ This year, the path of inflation and monetary policy, slowing global growth, China reopening its economy, and the war in Ukraine, as well as recent pressures in the banking sector, will all be key.

Index Returns[1]





→ After a strong fourth quarter and start to 2023, markets sold off in February as investors revised higher their interest rate assumptions for the year.

[1] Source: Bloomberg and FactSet. Data is as of February 28, 2023.

Domestic Equity Returns[1]

Domestic Equity	February (%)	Q4 (%)	YTD (%)	1 YR (%)	3 YR (%)	5 YR (%)	10 YR (%)
S&P 500	-2.4	7.6	3.7	-7.7	12.1	9.8	12.2
Russell 3000	-2.3	7.2	4.4	-8.1	11.8	9.4	11.9
Russell 1000	-2.4	7.2	4.2	-8.2	11.9	9.7	12.1
Russell 1000 Growth	-1.2	2.2	7.0	-13.3	12.0	11.5	14.2
Russell 1000 Value	-3.5	12.4	1.5	-2.8	10.9	7.2	9.6
Russell MidCap	-2.4	9.2	5.7	-5.0	11.4	8.4	10.7
Russell MidCap Growth	-1.0	6.9	7.7	-8.3	8.7	8.7	11.4
Russell MidCap Value	-3.2	10.5	4.6	-3.4	11.9	7.3	9.6
Russell 2000	-1.7	6.2	7.9	-6.0	10.1	6.0	9.1
Russell 2000 Growth	-1.1	4.1	8.8	-7.9	6.5	5.1	9.3
Russell 2000 Value	-2.3	8.4	7.0	-4.4	12.9	6.4	8.5

US Equities: Russell 3000 Index fell 2.3% in February after rising sharply in January.

→ US stocks fell in February as persistently strong labor and inflation data prompted investors to expect further interest rate increases by the Federal Reserve.

→ Growth stocks again outperformed value stocks across the market capitalization spectrum. Technology stocks continue to fare better this year after steep declines in 2022. This contributed to the divergence between the growth and value indices year-to-date.

→ Energy was the worst performing sector in the S&P 500 index. Investors lowered their expectations for global growth as central banks continue to fight inflation.

[1] Source: Bloomberg. Data is as of February 28, 2023.

Foreign Equity Returns[1]

Foreign Equity	February (%)	Q4 (%)	YTD (%)	1 YR (%)	3 YR (%)	5 YR (%)	10 YR (%)
MSCI ACWI ex. US	-3.5	14.3	4.3	-7.2	5.3	1.6	3.9
MSCI EAFE	-2.1	17.3	5.8	-3.1	6.8	2.6	4.8
MSCI EAFE (Local Currency)	0.6	8.7	7.0	5.5	9.4	5.7	7.5
MSCI EAFE Small Cap	-2.2	15.8	5.1	-9.7	5.3	0.7	6.1
MSCI Emerging Markets	-6.5	9.7	0.9	-15.3	1.0	-1.9	1.5
MSCI Emerging Markets (Local Currency)	-4.7	6.6	1.6	-10.5	3.1	1.1	4.7
MSCI China	-10.4	13.5	0.2	-16.1	-6.2	-5.5	2.4

Foreign Equity: Developed international equities (MSCI EAFE) fell 2.1% in February and emerging markets (MSCI EM) declined 6.5%.

→ Non-US equities also reversed course in February after a strong start to the year.

→ Developed market equities were up for the month in local terms but the strengthening US dollar made them negative for US investors. An improved economic outlook for Europe and a rebound in tourism for Japan both contributed to results.

→ Emerging market equities were the worst performer for the month, driven by returns from China. The MSCI China index was down sharply in February due to heightened tensions with the US. The strong US dollar also proved an additional headwind for emerging market equities.

[1] Source: Bloomberg. Data is as of February 28, 2023.

Fixed Income Returns[1]

Fixed Income	February (%)	Q4 (%)	YTD (%)	1 YR (%)	3 YR (%)	5 YR (%)	10 YR (%)	Current Yield (%)	Duration (Years)
Bloomberg Barclays Universal	-2.5	2.2	0.6	-9.3	-3.4	0.7	1.4	5.2	6.2
Bloomberg Barclays Aggregate	-2.6	1.9	0.4	-9.7	-3.8	0.5	1.1	4.8	6.5
Bloomberg Barclays US TIPS	-1.4	2.0	0.4	-10.4	0.2	2.6	1.2	4.6	7.0
Bloomberg Short-term TIPS	-0.4	1.3	0.3	-2.9	2.3	2.7	1.4	5.1	2.5
Bloomberg Barclays High Yield	-1.3	1.3	2.5	-5.5	1.3	2.9	4.1	8.6	4.3
JPM GBI-EM Global Diversified (USD)	-3.2	8.5	1.0	-6.1	-4.3	-3.0	-2.0	7.1	5.0

Fixed Income: The Bloomberg Universal fell 2.5% in February as global sovereign debt yields rose on monetary policy expectations.

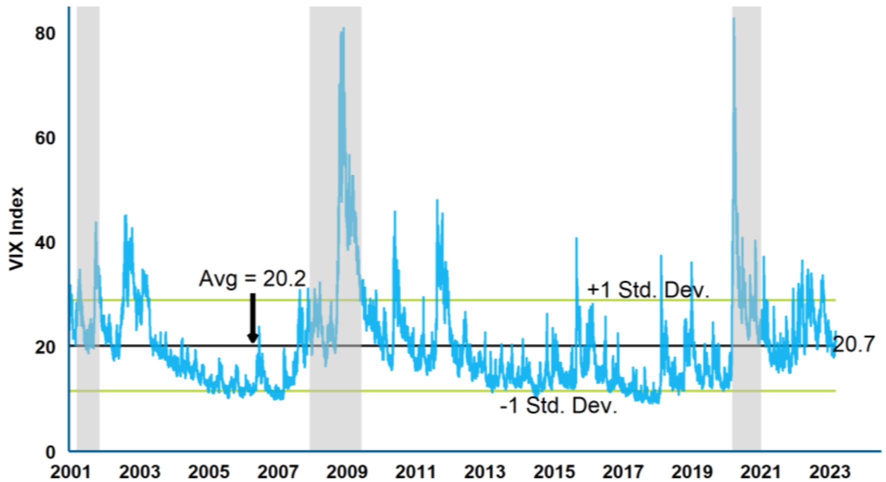
→ Global inflation risks have been improving, but the pace of price declines slowed over the month, prompting central bank officials to recast expectations for higher policy rates in the coming year.

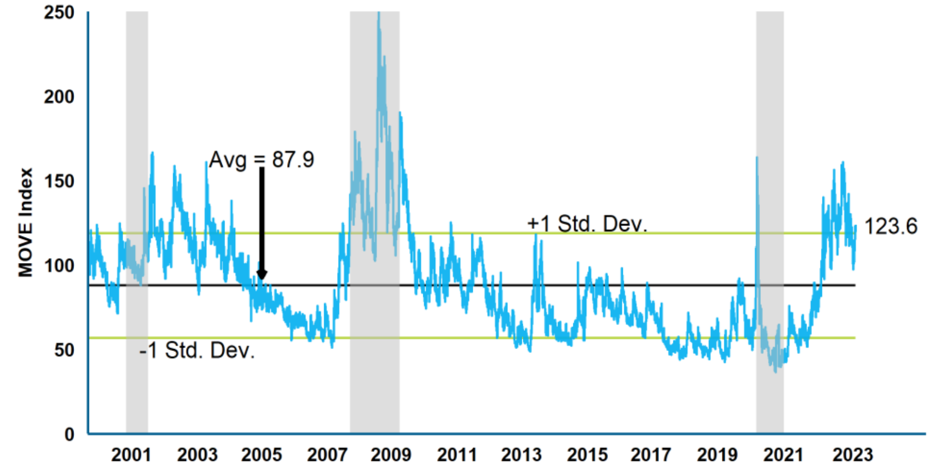
→ TIPS outperformed the broad US bond market (Bloomberg Aggregate) on a modest increase in longer-dated inflation expectations.

→ High yield debt declined less than the broad US bond market while emerging market debt was the worst performer for the month.

[1] Source: Bloomberg. JPM GBI-EM data is from InvestorForce. Data is as of February 28, 2023. The yield and duration data from Bloomberg is defined as the index's yield to worst and modified duration respectively.

Equity and Fixed Income Volatility[1]

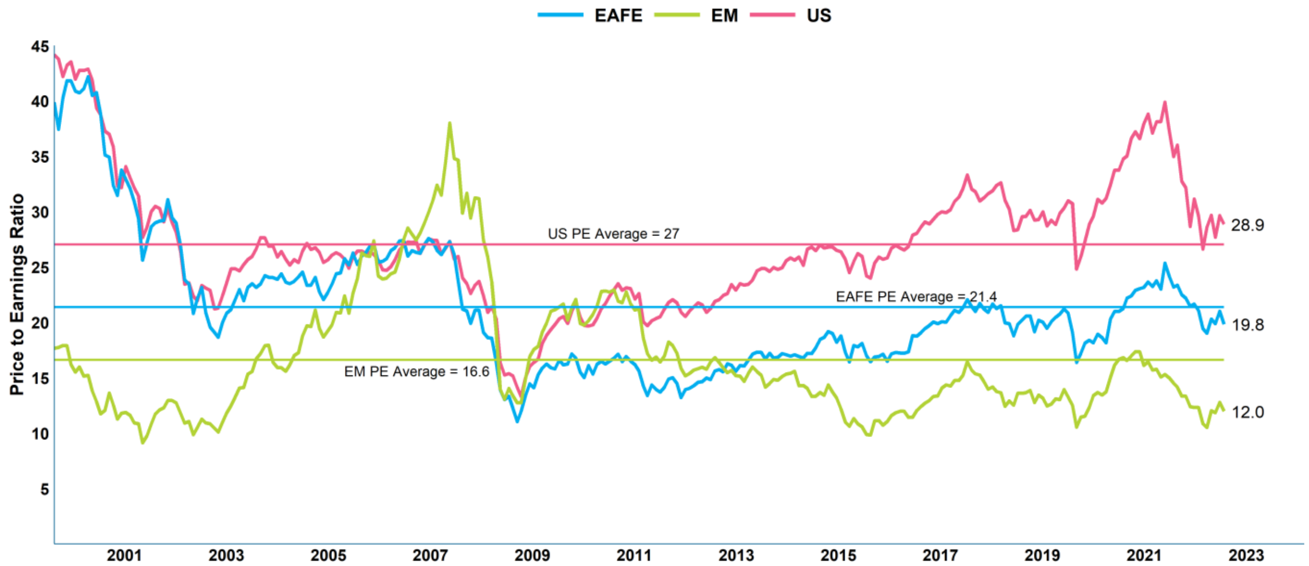




- → Volatility in equities (VIX) remained subdued through the end of February as investors continue to anticipate the end of the Fed's policy tightening.
- → The Fed's continued hawkish stance on inflation has led to the more policy sensitive MOVE (fixed income volatility) to remain well above its long-run average though.

[1] 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 February 2023. The average line indicated is the average of the VIX and MOVE values between January 2000 and February 2023.

Equity Cyclically Adjusted P/E Ratios[1]

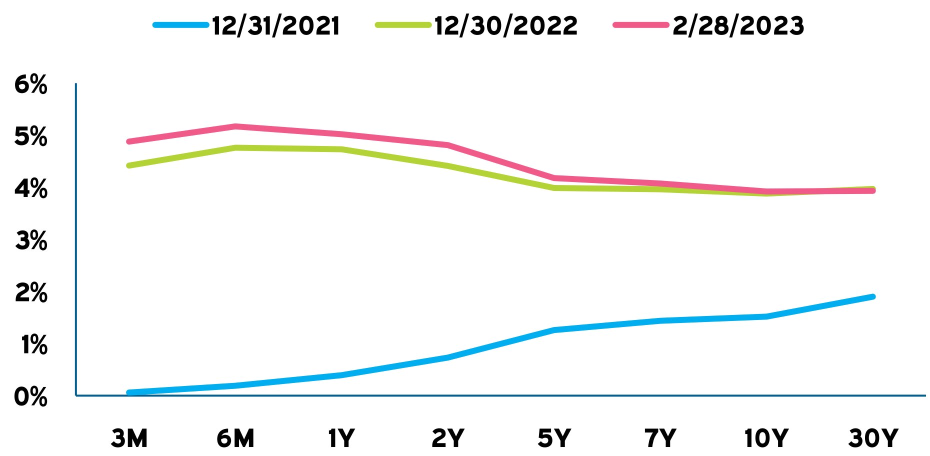


→ The US equity price-to-earnings ratio remains slightly above its long-run (21st century) average.

→ International developed market valuations are slightly below their own long-term average, with those for emerging markets the lowest and well under the long-term average.

[1] 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 February 2023. 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.

US Yield Curve[1]



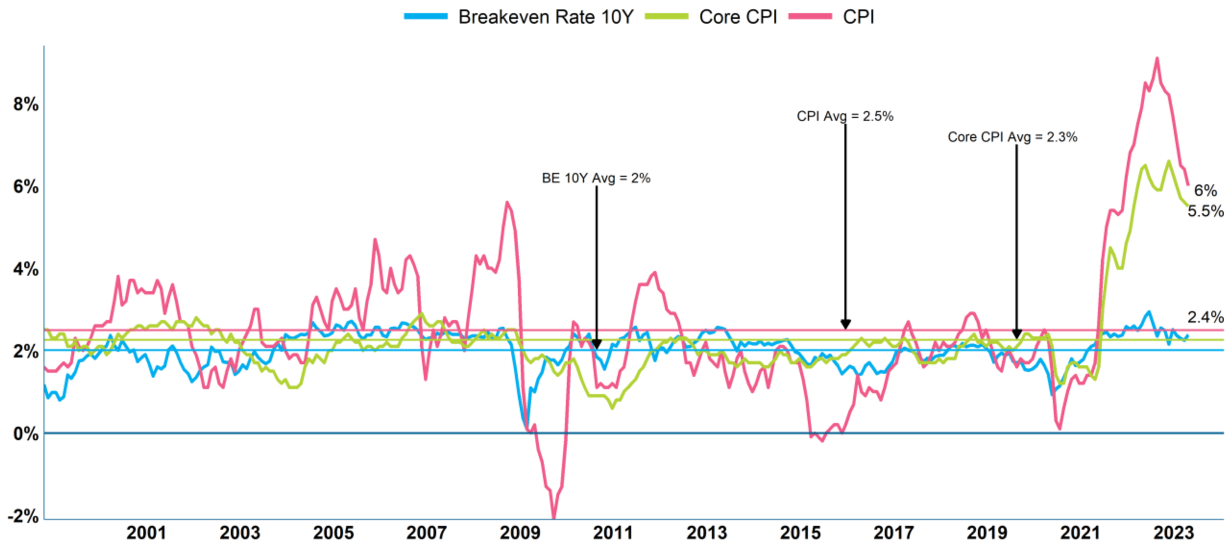
→ In February, policy-sensitive interest rates at the front-end of the curve rose, with the two-year Treasury yield increasing from 4.2% to 4.8%. Longer dated ten-year Treasury yields rose (3.5% to 3.9%) to a level close to where they started the year.

→ The yield spread between two-year and ten-year Treasuries widened to -0.90% in February a level not seen since the early 1980s. The more closely watched measure by the Fed of three-month and ten-year Treasuries also remained inverted. Inversions in the yield curve have often preceded recessions.

→ The Fed remained committed to fighting inflation, as it increased rates another 25 basis points to a range of 4.5% to 4.75% at its February meeting. Questions remain about the pace of future rate hikes and the ultimate terminal rate as the Fed tries to balance fighting inflation and maintaining stability in markets.

[1] Source: Bloomberg. Data is as of February 28, 2023.

Ten-Year Breakeven Inflation and CPI[1]



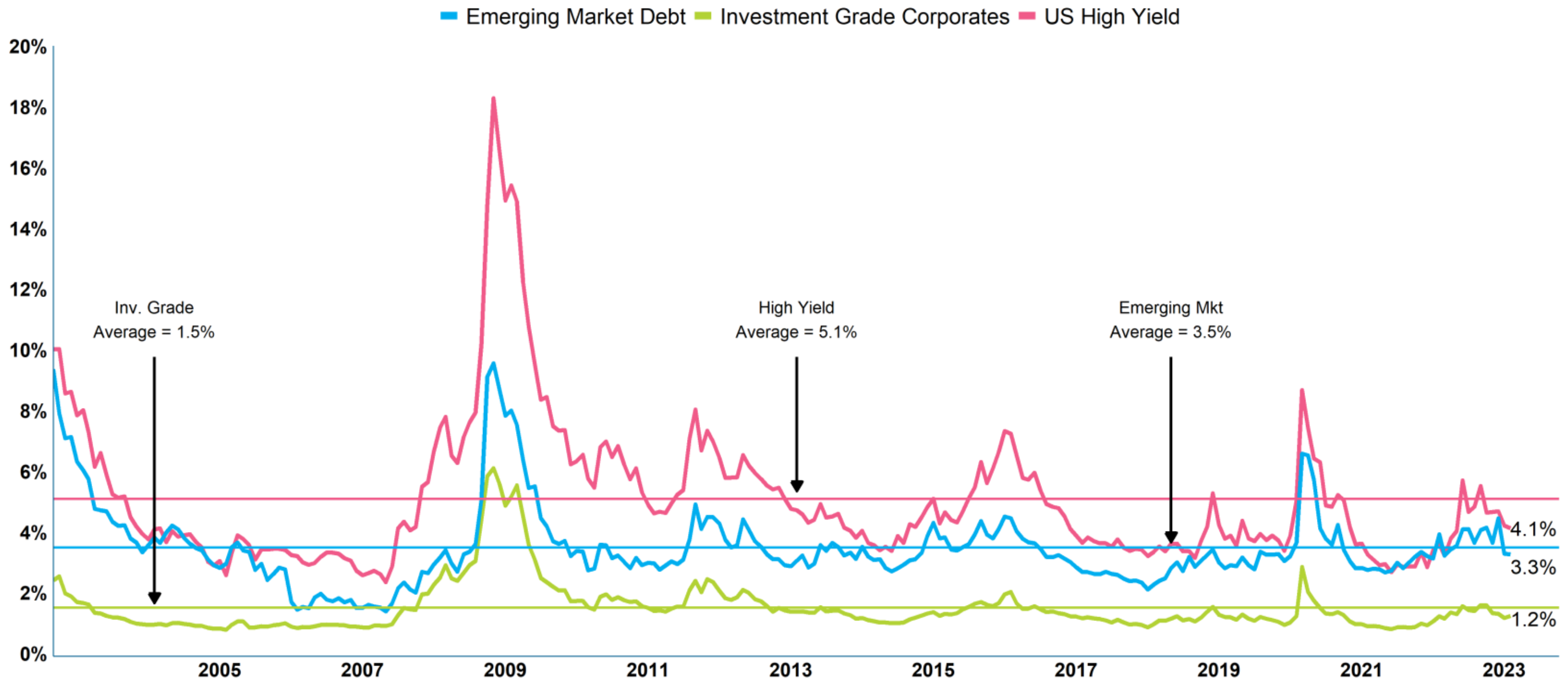
→ Inflation continued to decline in February with the year-over-year reading falling from 6.4% to 6.0% matching expectations. Prices rose 0.4% month-over-month with food prices increasing (0.4%) and energy prices falling (-0.6%).

→ Core inflation – excluding food and energy – also continued to decline year-over-year (5.5% versus 5.6%) but increased month-over-month (0.5% versus 0.4%) driven by housing.

→ Inflation expectations (break evens) rose over the month but remain well below current inflation levels as investors anticipate a significant moderation in inflation.

[1] Source: Bloomberg. Data is as of February 2023. 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[1]

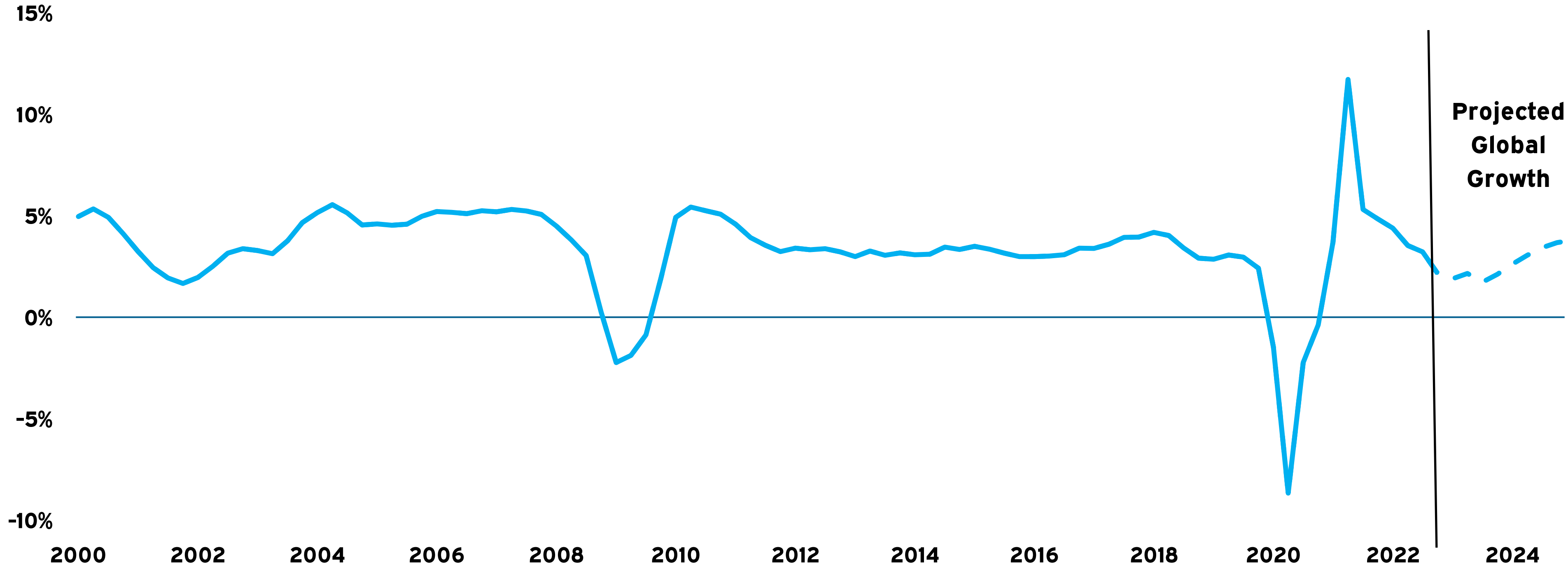


→ Spreads (the added yield above a comparable maturity Treasury) largely remained the same in February as both credit markets and government bonds declined on the anticipation that rates would stay higher for longer.

→ High yield spreads fell from 4.2% to 4.1% in February while investment grade spreads remained steady at 1.2%. Emerging market spreads were also stable at 3.3%.

[1] Sources: Bloomberg. Data is as of February 28, 2023. 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[1]



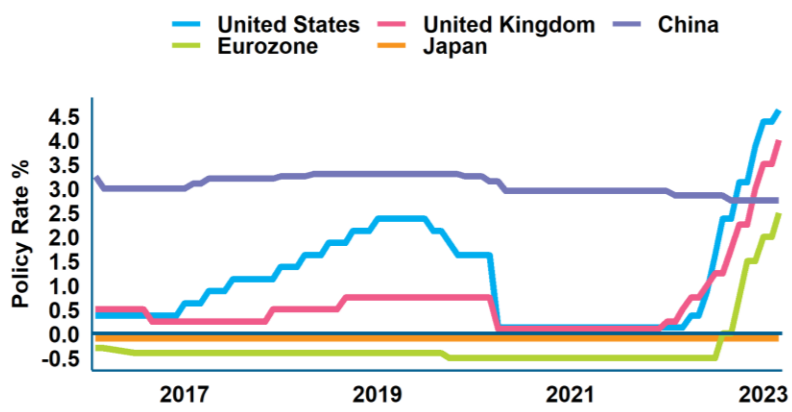
→ Global economies are expected to slow in 2023 compared to 2022, with risks of recession increasing given persistently high inflation and related tighter monetary policy.

→ The delicate balancing act of central banks trying to reduce inflation without dramatically impacting growth will remain key.

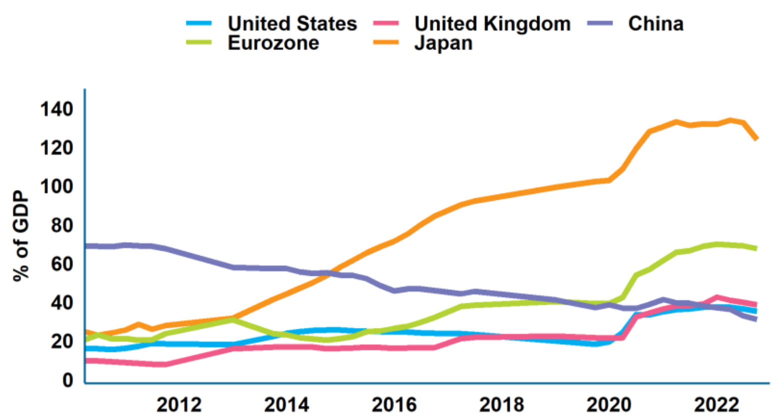
[1] Source: Oxford Economics (World GDP, US$ prices & PPP exchange rate, real, % change YoY). Updated February 2023.

Central Bank Response[1]

Policy Rates



Balance Sheet as % of GDP



→ In 2022 many central banks aggressively reduced pandemic-era policy support in the face of high inflation with the US taking the most aggressive approach. However, global inflation has begun to moderate, and markets anticipate a slowing in the rate of policy tightening in the future.

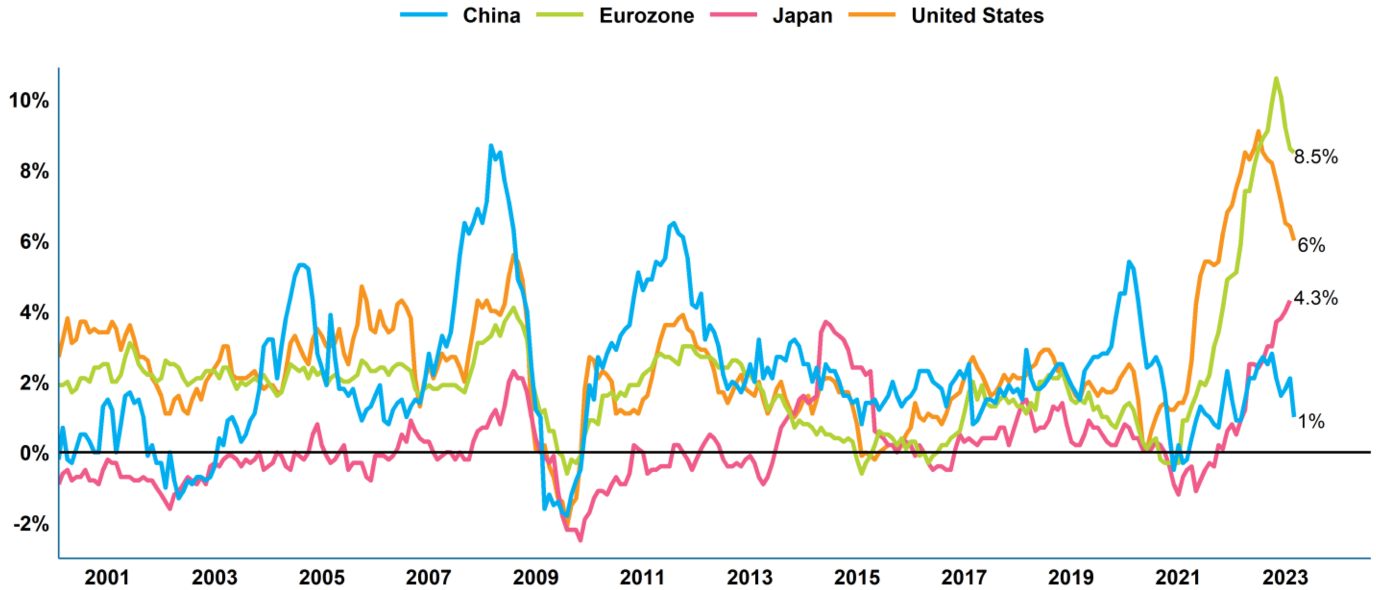
→ In December, the Bank of Japan relaxed its target yield for the 10-year bond which may mark an incremental step toward policy normalization after eight years of quantitative easing.

→ China's central bank is expected to maintain its accommodative monetary stance to support consumer demand and investment as well as offer liquidity to the troubled real estate sector.

→ The risk remains for a policy error, particularly overtightening, as record inflation and aggressive tightening to date could heavily weigh on global growth. The Federal Reserve's policy rate path could diverge from others this year given their strong early start to tightening.

[1] Source: Bloomberg. Policy rate data is as of February 28, 2023. 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 December 31, 2022.

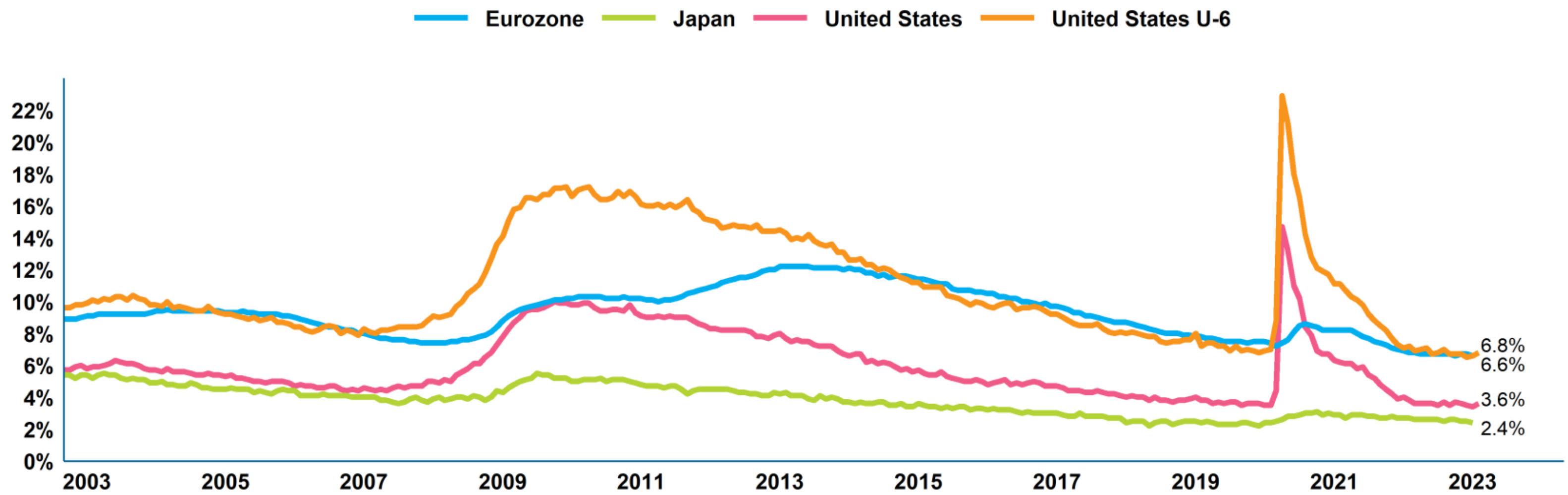
Inflation (CPI Trailing Twelve Months)[1]



- → 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 as supply issues ease, but they remain elevated, while in Europe they have also started to fall as energy prices have eased.
- → Lingering 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.

[1] Source: Bloomberg. Data is as of February 2023. The most recent Japanese inflation data is as of January 2023.

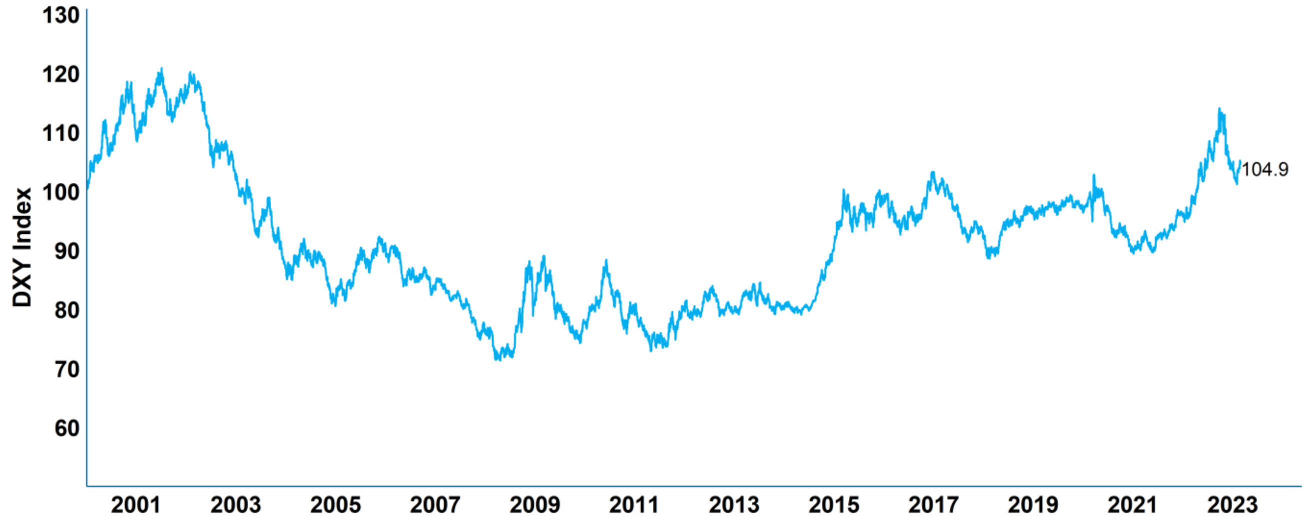
Unemployment[1]



- → Labor markets have significantly improved from the pandemic as economies have largely reopened.
- → Despite slowing growth and high inflation, the US labor market remains a particular bright spot. Unemployment in the US, which experienced the steepest rise, recently has returned to pre-pandemic levels. Broader measures of unemployment (U-6) remain higher at 6.8% but have also declined dramatically from their peak.
- → The strong labor market and higher wages, although beneficial for workers, motivates the Fed's efforts to fight inflation, likely leading to higher unemployment.

[1] Source: Bloomberg. Data is as February 28, 2022, for the US. The most recent data for Eurozone and Japanese unemployment is as of January 31, 2023.

US Dollar versus Broad Currencies[1]



→ The dollar finished 2022 much higher than it started, due to the increased pace of policy tightening, stronger relative growth, and safe-haven flows. Late last year and into early this year, the dollar experienced some weakness though as investors anticipated the end of Fed tightening.

→ Overall, the US dollar appreciated in February as better-than-forecasted economic data drove expectations for higher interest rates in the US.

→ This year, the track of inflation across economies and the corresponding monetary policies will likely be key drivers of currency moves.

[1] Source: Bloomberg. Data as of February 28, 2023.

Summary

Key Trends:

→ The impacts of record high inflation will remain key, with market volatility likely to stay high.

→ Recent issues related to the banking sector have created a delicate balance for central banks to continue to fight inflation but also try to maintain financial stability.

→ Global monetary policies could diverge in 2023 with the Fed pausing and others continuing to tighten. The risk of policy errors remains elevated given persistent inflation pressures and a strong US labor market.

→ Growth is expected to slow globally this year, 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 could weigh on consumer spending.

→ 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 risks remain, including potential continued strength in the US dollar, higher inflation particularly weighing on Europe, and China's rushed exit from COVID-19 restrictions and on-going weakness in the real estate sector.

Manager Highlights

IFM Global Infrastructure

→ IFM trailed its benchmark by 1.2% in February, posting a return of -0.2 % vs the benchmark's 1.0%.

→ In the first quarter of 2023, IFM trailed the benchmark by 0.3%, returning 2.6% net of fees.

- The portfolio quarterly return was primarily driven by the increase in the share price of two listed assets, Vienna International Airport and Naturgy Energy Group.Top performers for the quarter were Vienna Airport (+15.3%), Naturgy (+10.5%) and Veolia Energia Polska (+10.4%) on a local currency basis.
- Arqiva Limited and Colonial Pipeline Company continued to be held at the Low Point of the valuation for the quarter.

→ Since inception, IFM has returned 10.5%, (through 2/28/23) outpacing the benchmark by 1.3%, net of fees.

Loomis Sayles High Yield

→ Loomis lagged its benchmark in February, returning -1.9% vs. the benchmark -1.3%.

- Underperformance was driven primarily by security selection while sector allocation weighed on performance slightly throughout the month. High yield credit, emerging market credit, and convertibles sectors were the main detractors.
- The allocation to high yield credit limited performance for the month. On an absolute basis, performance in that sector had the greatest negative impact on the strategy. Exposure to securities issued by CSC Holdings detracted from overall performance.

→ Since inception, Loomis has returned 4.4%, trailing the benchmark, which has returned 5.0% over that same period.

Brown Small Cap Fundamental Value

→ Brown beat its benchmark by 1.0% in February, posting a return of -1.3 % vs the benchmark's -2.3%.

- The portfolio's financials and real estate holdings provided positive contribution, relative to the benchmark, for the month. Among the top five contributors were La-Z-Boy Incorporated (LZB) and Primerica, Inc. (PRI).

→ Since inception, Brown has returned 8.3%, per year underperforming the Russell 2000 Value by 0.5%, net of fees.

Driehaus Emerging Markets Growth

→ Driehaus outperformed its benchmark by 0.4% in February, posting a return of -6.1% vs the benchmark's -6.5%.

- Exposures within China, specifically an underweight and stock selection within consumer discretionary and consumer staples, were the largest source of positive relative results.
- Stock selection within India (utilities and industrials) and Mexico (financials) also contributed positively to results.

→ Since inception, Driehaus has returned 4.0%, per year well outpacing its benchmark which returned 0.2% over that same period.

Interim Update
As of February 28, 2023

Allocation vs. Targets and Policy

	Current Balance	Current Allocation	Policy	Policy Range
US Equity	$179,328,429	22%	24%	19% - 29%
Developed Market Equity	$97,769,471	12%	13%	8% - 18%
Emerging Market Equity	$60,763,857	8%	12%	7% - 17%
Investment Grade Bonds	$72,309,608	9%	5%	2% - 8%
Long-Term Government Bonds	$25,069,585	3%	7%	2% - 12%
TIPS	$15,646,823	2%	4%	1% - 7%
Emerging Market Bonds	--	--	2%	0% - 4%
High Yield Bonds	$40,091,706	5%	6%	3% - 9%
Bank Loans	$8,226,429	1%	2%	0% - 4%
Private Equity	$131,217,430	16%	10%	5% - 15%
Real Estate	$87,331,705	11%	10%	5% - 15%
Natural Resources	$17,465,868	2%	3%	0% - 6%
Infrastructure	$12,295,978	2%	2%	0% - 5%
Opportunistic	$36,973,261	5%	0%	0% - 5%
Balanced Assets	$14,730,178	2%	--	--
Cash	$7,057,066	1%	0%	0% - 5%
Total	**$806,277,395**	**100%**	**100%**	

	Current Balance	Current Allocation	Policy	Policy Range
Total Equity Including PE	$469,079,197	58%	59%	--
Total Fixed Income	$161,344,151	20%	26%	--
Real Assets	$117,093,551	15%	15%	--
Other	$58,760,505	7%	0%	--

Asset Class Performance Summary

	Market Value ($)	% of Portfolio	1 Mo (%)	QTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	20 Yrs (%)	Inception (%)	Inception Date
Total Retirement System (gross)	**806,277,395**	**100.0**	**-1.7**	**2.3**	**-4.1**	**8.5**	**6.6**	**7.1**	**7.3**	**8.1**	**Jan-89**
Total Retirement System			**-1.7**	**2.3**	**-4.2**	**8.3**	**6.4**	**6.9**	**7.0**	**7.8**	
Domestic Equity Assets	**179,328,429**	**22.2**	**-2.3**	**4.1**	**-6.1**	**11.6**	**9.0**	**11.5**	**10.2**	**9.7**	**Jul-93**
Russell 3000			*-2.3*	*4.4*	*-8.1*	*11.8*	*9.4*	*11.9*	*10.3*	*9.7*	*Jul-93*
International Developed Market Equity Assets	**97,769,471**	**12.1**	**-2.1**	**6.1**	**-4.8**	**6.1**	**1.3**	**4.3**	**6.4**	**4.7**	**Feb-98**
MSCI EAFE			*-2.1*	*5.8*	*-3.1*	*6.8*	*2.6*	*4.8*	*7.1*	*4.5*	*Feb-98*
International Emerging Market Equity Assets	**60,763,857**	**7.5**	**-5.4**	**1.6**	**-13.0**	**5.2**	**1.9**	**2.8**	**--**	**5.6**	**Sep-08**
MSCI Emerging Markets			*-6.5*	*0.9*	*-15.3*	*1.0*	*-1.9*	*1.5*	*8.9*	*2.5*	*Sep-08*
Investment Grade Bond Assets	**72,309,608**	**9.0**	**-2.8**	**1.1**	**-13.2**	**-5.0**	**-0.2**	**0.7**	**2.9**	**4.1**	**Jul-93**
Bloomberg US Aggregate TR			*-2.6*	*0.4*	*-9.7*	*-3.8*	*0.5*	*1.1*	*3.0*	*4.4*	*Jul-93*
Long-Term Government Bond Assets	**25,069,585**	**3.1**	**-2.8**	**1.3**	**-14.5**	**-4.6**	**1.0**	**--**	**--**	**1.5**	**Dec-15**
PRIT Core Fixed Income			*-2.8*	*1.3*	*-14.5*	*-4.6*	*1.0*	*2.1*	*3.6*	*1.5*	*Dec-15*
TIPS Assets	**15,646,823**	**1.9**	**-1.4**	**0.6**	**-10.4**	**0.2**	**2.6**	**1.2**	**--**	**3.4**	**Mar-07**
Bloomberg US TIPS TR			*-1.4*	*0.4*	*-10.4*	*0.2*	*2.6*	*1.2*	*3.6*	*3.5*	*Mar-07*
High Yield Bond Assets	**40,091,706**	**5.0**	**-1.1**	**2.2**	**-4.2**	**2.2**	**3.2**	**3.7**	**--**	**5.3**	**Apr-07**
Bloomberg US High Yield TR			*-1.3*	*2.5*	*-5.5*	*1.3*	*2.9*	*4.1*	*7.2*	*5.8*	*Apr-07*
Bank Loan Assets	**8,226,429**	**1.0**	**0.7**	**3.7**	**2.0**	**3.2**	**3.3**	**--**	**--**	**3.3**	**Aug-14**
Credit Suisse Leveraged Loans			*0.6*	*3.2*	*2.3*	*3.7*	*3.6*	*4.0*	*4.7*	*3.8*	*Aug-14*
Total Real Estate	**87,331,705**	**10.8**	**-0.2**	**0.3**	**7.0**	**7.9**	**7.0**	**8.6**	**--**	**--**	**Jan-89**
NCREIF ODCE			*0.0*	*0.0*	*7.5*	*9.9*	*8.7*	*10.1*	*8.4*	*7.5*	*Jan-89*

Some asset classes may show skewed performance relative to month over month changes in market value, this is due to PRIM General Allocation funds having their performance user entered while their market values are estimated using PRIM's current asset allocation.

	Market Value ($)	% of Portfolio	1 Mo (%)	QTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	20 Yrs (%)	Inception (%)	Inception Date
Private Equity Assets	**131,217,430**	**16.3**									
Natural Resources Assets	**17,465,868**	**2.2**									
Infrastructure Assets	**12,295,978**	**1.5**									
Opportunistic Assets	**36,973,261**	**4.6**									
Balanced Assets (PRIT General Allocation Fund)	**14,730,178**	**1.8**	**-1.6**	**2.5**	**-5.0**	**8.4**	**6.9**	**8.0**	**8.4**	**8.2**	**Apr-90**
60% Wilshire 5000 & 40% Barclays Aggregate			*-2.4*	*2.8*	*-8.4*	*5.9*	*6.3*	*7.8*	*7.8*	*8.4*	*Apr-90*
Cash	**7,057,066**	**0.9**									

Trailing Net Performance

	Market Value ($)	% of Portfolio	% of Sector	1 Mo (%)	QTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	20 Yrs (%)	Inception (%)	Inception Date
Total Retirement System (gross)	**806,277,395**	**100.0**	**--**	**-1.7**	**2.3**	**-4.1**	**8.5**	**6.6**	**7.1**	**7.3**	**8.1**	**Jan-89**
Total Retirement System				**-1.7**	**2.3**	**-4.2**	**8.3**	**6.4**	**6.9**	**7.0**	**7.8**	
Domestic Equity Assets	**179,328,429**	**22.2**	**22.2**	**-2.3**	**4.1**	**-6.1**	**11.6**	**9.0**	**11.5**	**10.2**	**9.7**	**Jul-93**
Russell 3000				*-2.3*	*4.4*	*-8.1*	*11.8*	*9.4*	*11.9*	*10.3*	*9.7*	*Jul-93*
RhumbLine Russell 1000 Growth Index	21,618,436	2.7	12.1	-1.2	7.0	-13.3	12.1	11.5	14.2	--	10.6	Jun-05
Russell 1000 Growth				*-1.2*	*7.0*	*-13.3*	*12.1*	*11.5*	*14.3*	*11.3*	*10.7*	*Jun-05*
RhumbLine Russell 1000 Value Index	26,681,527	3.3	14.9	-3.5	1.5	-2.8	10.9	7.2	9.5	--	7.4	Jun-05
Russell 1000 Value				*-3.5*	*1.5*	*-2.8*	*11.0*	*7.2*	*9.6*	*9.2*	*7.5*	*Jun-05*
Rhumbline QSI Index	30,016,537	3.7	16.7	-2.8	2.1	-4.7	11.3	9.3	--	--	10.9	Aug-13
QSI Index				*-2.8*	*2.1*	*-4.7*	*11.3*	*9.4*	*11.9*	*10.7*	*11.0*	*Aug-13*
Russell 3000				*-2.3*	*4.4*	*-8.1*	*11.8*	*9.4*	*11.9*	*10.3*	*11.0*	*Aug-13*
Brown Small Cap Fundamental Value	17,503,438	2.2	9.8	-1.3	6.6	2.4	12.4	6.2	--	--	8.3	Jul-16
Russell 2000 Value				*-2.3*	*7.0*	*-4.4*	*12.9*	*6.4*	*8.5*	*9.7*	*8.8*	*Jul-16*
PRIT General Allocation Domestic Equity	83,508,492	10.4	46.6	-2.3	4.4	-7.2	--	--	--	--	-12.9	Jan-22
PRIT Domestic Equity Benchmark				*-2.4*	*4.3*	*-7.6*	*--*	*--*	*--*	*--*	*-13.1*	*Jan-22*
International Developed Market Equity Assets	**97,769,471**	**12.1**	**12.1**	**-2.1**	**6.1**	**-4.8**	**6.1**	**1.3**	**4.3**	**6.4**	**4.7**	**Feb-98**
MSCI EAFE				*-2.1*	*5.8*	*-3.1*	*6.8*	*2.6*	*4.8*	*7.1*	*4.5*	*Feb-98*
SSgA MSCI EAFE Index	39,591,728	4.9	40.5	-2.1	5.8	-2.8	7.2	3.0	5.1	--	5.1	Oct-09
MSCI EAFE				*-2.1*	*5.8*	*-3.1*	*6.8*	*2.6*	*4.8*	*7.1*	*4.9*	*Oct-09*
Axiom International Small Cap Equity	10,913,736	1.4	11.2	-2.4	5.7	-13.7	--	--	--	--	8.0	May-20
S&P Developed Ex-U.S. SmallCap				*-2.2*	*6.3*	*-8.8*	*5.8*	*0.9*	*5.9*	*9.5*	*9.5*	*May-20*
MSCI EAFE Small Cap				*-2.2*	*5.1*	*-9.7*	*5.3*	*0.7*	*6.1*	*9.4*	*9.0*	*May-20*
PRIT General Allocation Int. Equity	47,264,007	5.9	48.3	-2.0	6.5	-4.3	--	--	--	--	-10.0	Jan-22
Custom MSCI World Ex-US IMI Net Divs				*-2.4*	*5.6*	*-4.8*	*--*	*--*	*--*	*--*	*-9.2*	*Jan-22*

	Market Value ($)	% of Portfolio	% of Sector	1 Mo (%)	QTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	20 Yrs (%)	Inception (%)	Inception Date
International Emerging Market Equity Assets	**60,763,857**	**7.5**	**7.5**	**-5.4**	**1.6**	**-13.0**	**5.2**	**1.9**	**2.8**	**--**	**5.6**	**Sep-08**
MSCI Emerging Markets				*-6.5*	*0.9*	*-15.3*	*1.0*	*-1.9*	*1.5*	*8.9*	*2.5*	*Sep-08*
Driehaus Emerging Markets Growth	34,978,430	4.3	57.6	-6.1	1.0	-14.7	3.1	--	--	--	4.0	Mar-19
MSCI Emerging Markets				*-6.5*	*0.9*	*-15.3*	*1.0*	*-1.9*	*1.5*	*8.9*	*0.2*	*Mar-19*
Acadian Emerging Markets Small Cap	8,993,773	1.1	14.8	-3.3	1.7	-8.7	11.7	2.4	--	--	5.9	Jun-14
MSCI Emerging Markets Small Cap				*-2.9*	*2.9*	*-9.5*	*10.2*	*1.3*	*3.1*	*10.2*	*3.1*	*Jun-14*
PRIT General Allocation EME	16,791,654	2.1	27.6	-4.9	2.7	-11.5	--	--	--	--	-14.2	Jan-22
Custom MSCI Emerging Market IMI Net Divs				*-6.0*	*1.2*	*-14.9*	*--*	*--*	*--*	*--*	*-16.3*	*Jan-22*
Investment Grade Bond Assets	**72,309,608**	**9.0**	**9.0**	**-2.8**	**1.1**	**-13.2**	**-5.0**	**-0.2**	**0.7**	**2.9**	**4.1**	**Jul-93**
Bloomberg US Aggregate TR				*-2.6*	*0.4*	*-9.7*	*-3.8*	*0.5*	*1.1*	*3.0*	*4.4*	*Jul-93*
SSgA U.S. Aggregate Bond Index-NL	20,360,429	2.5	28.2	-2.6	0.6	-9.7	-3.7	0.5	1.1	--	2.9	Apr-04
Bloomberg US Aggregate TR				*-2.6*	*0.4*	*-9.7*	*-3.8*	*0.5*	*1.1*	*3.0*	*2.9*	*Apr-04*
PRIT General Allocation Core FI	51,949,179	6.4	71.8	-2.8	1.3	-14.5	--	--	--	--	-15.0	Jan-22
PRIT Core Fixed Income				*-2.8*	*1.3*	*-14.5*	*-4.6*	*1.0*	*2.1*	*3.6*	*-15.0*	*Jan-22*
Long-Term Government Bond Assets	**25,069,585**	**3.1**	**3.1**	**-2.8**	**1.3**	**-14.5**	**-4.6**	**1.0**	**--**	**--**	**1.5**	**Dec-15**
PRIT Core Fixed Income				*-2.8*	*1.3*	*-14.5*	*-4.6*	*1.0*	*2.1*	*3.6*	*1.5*	*Dec-15*
PRIT Core Fixed Income	25,069,585	3.1	100.0	-2.8	1.3	-14.5	-4.6	1.0	--	--	1.5	Dec-15
PRIT Core Fixed Income				*-2.8*	*1.3*	*-14.5*	*-4.6*	*1.0*	*2.1*	*3.6*	*1.5*	*Dec-15*
TIPS Assets	**15,646,823**	**1.9**	**1.9**	**-1.4**	**0.6**	**-10.4**	**0.2**	**2.6**	**1.2**	**--**	**3.4**	**Mar-07**
Bloomberg US TIPS TR				*-1.4*	*0.4*	*-10.4*	*0.2*	*2.6*	*1.2*	*3.6*	*3.5*	*Mar-07*
SSgA TIPS Index	15,646,823	1.9	100.0	-1.4	0.6	-10.4	0.2	2.6	1.2	--	3.4	Mar-07
Bloomberg US TIPS TR				*-1.4*	*0.4*	*-10.4*	*0.2*	*2.6*	*1.2*	*3.6*	*3.5*	*Mar-07*

Total Retirement System | As of February 28, 2023

	Market Value ($)	% of Portfolio	% of Sector	1 Mo (%)	QTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	20 Yrs (%)	Inception (%)	Inception Date
High Yield Bond Assets	**40,091,706**	**5.0**	**5.0**	**-1.1**	**2.2**	**-4.2**	**2.2**	**3.2**	**3.7**	**--**	**5.3**	**Apr-07**
Bloomberg US High Yield TR				*-1.3*	*2.5*	*-5.5*	*1.3*	*2.9*	*4.1*	*7.2*	*5.8*	*Apr-07*
Loomis Sayles High Yield Conservative	11,612,236	1.4	29.0	-1.9	2.2	-7.2	0.9	2.0	3.3	--	4.4	Feb-12
Bloomberg US High Yield TR				*-1.3*	*2.5*	*-5.5*	*1.3*	*2.9*	*4.1*	*7.2*	*5.0*	*Feb-12*
Columbia High Yield	11,537,890	1.4	28.8	-1.5	2.2	-4.8	1.4	3.1	--	--	3.7	Dec-16
Bloomberg US High Yield TR				*-1.3*	*2.5*	*-5.5*	*1.3*	*2.9*	*4.1*	*7.2*	*3.7*	*Dec-16*
PRIT General Allocation Value Added FI	16,941,579	2.1	42.3	-0.3	2.3	-1.7	--	--	--	--	-2.8	Jan-22
PRIT Public Value-Added Fixed Income				*-0.7*	*2.6*	*-2.4*	*1.1*	*1.8*	*2.0*	*5.9*	*-4.6*	*Jan-22*
Bank Loan Assets	**8,226,429**	**1.0**	**1.0**	**0.7**	**3.7**	**2.0**	**3.2**	**3.3**	**--**	**--**	**3.3**	**Aug-14**
Credit Suisse Leveraged Loans				*0.6*	*3.2*	*2.3*	*3.7*	*3.6*	*4.0*	*4.7*	*3.8*	*Aug-14*
Beach Point Loan Fund	8,226,429	1.0	100.0	0.7	3.7	2.0	3.2	3.3	--	--	3.3	Aug-14
Credit Suisse Leveraged Loans				*0.6*	*3.2*	*2.3*	*3.7*	*3.6*	*4.0*	*4.7*	*3.8*	*Aug-14*

	Market Value ($)	% of Portfolio	% of Sector	1 Mo (%)	QTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	20 Yrs (%)	Inception (%)	Inception Date
Total Real Estate	**87,331,705**	**10.8**	**10.8**	**-0.2**	**0.3**	**7.0**	**7.9**	**7.0**	**8.6**	--	--	**Jan-89**
NCREIF ODCE				*0.0*	*0.0*	*7.5*	*9.9*	*8.7*	*10.1*	*8.4*	*7.5*	*Jan-89*
UBS Trumbull Property Income Fund	11,154,123	1.4	12.8	0.0	0.0	3.7	6.0	5.9	7.1	7.3	7.3	Jan-89
NCREIF ODCE (net)				*0.0*	*0.0*	*6.5*	*9.0*	*7.7*	*9.1*	*7.4*	*6.5*	*Jan-89*
UBS Trumbull Property Fund	2,898,069	0.4	3.3	0.0	0.0	-3.1	2.2	1.9	5.1	5.9	6.3	Jan-89
NCREIF ODCE (net)				*0.0*	*0.0*	*6.5*	*9.0*	*7.7*	*9.1*	*7.4*	*6.5*	*Jan-89*
JPMCB Strategic Property Fund	11,176,066	1.4	12.8	-1.4	-1.7	4.2	8.2	--	--	--	7.0	Jan-19
NCREIF ODCE (net)				*0.0*	*0.0*	*6.5*	*9.0*	*7.7*	*9.1*	*7.4*	*7.5*	*Jan-19*
AEW Partners VII	435,243	0.1	0.5									
Rockwood X	6,562,090	0.8	7.5									
Torchlight Debt Opportunity Fund VI	3,632,861	0.5	4.2									
TerraCap Partners IV (Institutional), L.P.	4,457,357	0.6	5.1									
Rockwood Capital Real Estate Partners Fund XI, L.P.	6,311,130	0.8	7.2									
PRIT General Allocation Real Estate	40,704,768	5.0	46.6	-0.1	1.1	10.4	--	--	--	--	8.4	Jan-22
PRIT Real Estate Benchmark				*-0.5*	*0.6*	*20.7*	--	--	--	--	*16.1*	*Jan-22*

	Market Value ($)	% of Portfolio	% of Sector	1 Mo (%)	QTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	20 Yrs (%)	Inception (%)	Inception Date
Private Equity Assets	**131,217,430**	**16.3**	**16.3**									
Adams Street Partners 2010	5,847,401	0.7	4.5									
Goldman Sachs Private Equity Partners 2005	462,364	0.1	0.4									
North American Strategic Partners 2006	65,081	0.0	0.0									
Brookfield Capital Partners IV	3,809,337	0.5	2.9									
PRIT Vintage Year 2001	62,077	0.0	0.0									
PRIT Vintage Year 2002	7,848	0.0	0.0									
Ridgemont Equity Partners II	5,377,446	0.7	4.1									
TA XII	3,090,921	0.4	2.4									
LLR Equity Partners V	6,318,843	0.8	4.8									
Wellspring Capital Partners VI	6,460,939	0.8	4.9									
Trilantic Capital Partners VI	5,830,789	0.7	4.4									
Brookfield Capital Partners V, L.P.	4,149,982	0.5	3.2									
FS Equity Partners VIII L.P.	6,056,157	0.8	4.6									
Ridgemont Equity Partners III	8,631,034	1.1	6.6									
Searchlight Capital III	4,009,670	0.5	3.1									
Charlesbank Technology Opportunities Fund	5,687,621	0.7	4.3									
LLR Equity Partners VI, L.P	2,606,108	0.3	2.0									
PRIT General Allocation Private Equity	62,743,813	7.8	47.8	-0.4	1.2	-4.9	--	--	--	--	-3.1	Jan-22
State Street PE Index (SSPEI) All PE Excluding PD				*0.0*	*0.0*	*-2.2*	--	--	--	--	*-1.9*	*Jan-22*

	Market Value ($)	% of Portfolio	% of Sector	1 Mo (%)	QTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	20 Yrs (%)	Inception (%)	Inception Date
Natural Resources Assets	**17,465,868**	**2.2**	**2.2**									
Hancock Timberland IX	3,549,954	0.4	20.3									
PRIT General Allocation Timberland	12,181,445	1.5	69.7	-0.6	-0.1	0.9	--	--	--	--	0.8	Jan-22
Oppenheimer Natural Resources	1,734,469	0.2	9.9									
Infrastructure Assets	**12,295,978**	**1.5**	**1.5**									
IFM Global Infrastructure (U.S.), L.P.	8,310,040	1.0	67.6	-0.2	0.5	10.6	9.9	--	--	--	10.5	Oct-18
CPI+5%				*1.0*	*2.2*	*11.3*	*10.4*	*9.0*	*7.7*	*7.6*	*9.2*	*Oct-18*
Global Infrastructure Partners IV	3,985,938	0.5	32.4									
Opportunistic Assets	**36,973,261**	**4.6**	**4.6**									
HarbourVest Co-Investment Fund V, L.P.	4,538,578	0.6	12.3									
EnTrustPermal Special Opportunities Evergreen Fund, Ltd.	4,436,100	0.6	12.0									
PRIT General Allocation Hedge Funds	27,998,583	3.5	75.7	-0.7	2.5	1.4	--	--	--	--	0.4	Jan-22
HFRI FOF Composite Index				*-0.6*	*1.4*	*-1.2*	*4.5*	*3.1*	*3.4*	*3.6*	*-3.7*	*Jan-22*
Balanced Assets (PRIT General Allocation Fund)	**14,730,178**	**1.8**	**1.8**	**-1.6**	**2.5**	**-5.0**	**8.4**	**6.9**	**8.0**	**8.4**	**8.2**	**Apr-90**
60% Wilshire 5000 & 40% Barclays Aggregate				*-2.4*	*2.8*	*-8.4*	*5.9*	*6.3*	*7.8*	*7.8*	*8.4*	*Apr-90*
PRIT General Allocation	14,730,178	1.8	100.0	-1.6	2.5	-5.0	8.4	6.9	8.0	8.4	8.2	Apr-90
60% Wilshire 5000 & 40% Barclays Aggregate				*-2.4*	*2.8*	*-8.4*	*5.9*	*6.3*	*7.8*	*7.8*	*8.4*	*Apr-90*
Cash	**7,057,066**	**0.9**	**0.9**									
Cash Account	5,540,748	0.7	78.5									
91 Day T-Bills				*0.3*	*0.6*	*2.1*	*0.8*	*1.3*	*0.8*	*1.2*	*1.2*	*Jan-02*
PRIM Cash Account	1,516,318	0.2	21.5									

Cash Flow Summary

	Beginning Market Value	Contributions	Withdrawals	Net Investment Change	Ending Market Value	Month Return
Acadian Emerging Markets Small Cap	$9,287,526	$0	-$9,369	-$284,384	$8,993,773	-3.26%
Adams Street Partners 2010	$6,029,033	$0	-$181,632	$0	$5,847,401	0.00%
AEW Partners VII	$435,243	$0	$0	$0	$435,243	0.00%
Axiom International Small Cap Equity	$11,182,941	$0	-$7,276	-$261,930	$10,913,736	-2.41%
Beach Point Loan Fund	$8,171,754	$0	-$3,428	$58,102	$8,226,429	0.67%
Brookfield Capital Partners IV	$3,809,337	$0	$0	$0	$3,809,337	0.00%
Brookfield Capital Partners V, L.P.	$4,149,982	$0	$0	$0	$4,149,982	0.00%
Brown Small Cap Fundamental Value	$17,723,032	$0	-$16,045	-$203,549	$17,503,438	-1.33%
Cash Account	$4,879,535	$661,214	$0	$0	$5,540,748	0.00%
Charlesbank Technology Opportunities Fund	$5,654,393	$33,228	$0	$0	$5,687,621	0.00%
Columbia High Yield	$11,709,076	$0	-$3,942	-$167,243	$11,537,890	-1.46%
Driehaus Emerging Markets Growth	$37,254,883	$0	$0	-$2,276,452	$34,978,430	-6.11%
EnTrustPermal Special Opportunities Evergreen Fund, Ltd.	$4,436,100	$0	$0	$0	$4,436,100	0.00%
FS Equity Partners VIII L.P.	$6,056,157	$0	$0	$0	$6,056,157	0.00%
Global Infrastructure Partners IV	$3,993,840	$0	-$7,902	$0	$3,985,938	0.00%
Goldman Sachs Private Equity Partners 2005	$462,364	$0	$0	$0	$462,364	0.00%
Hancock Timberland IX	$3,549,954	$0	$0	$0	$3,549,954	0.00%
HarbourVest Co-Investment Fund V, L.P.	$4,538,578	$0	$0	$0	$4,538,578	0.00%
IFM Global Infrastructure (U.S.), L.P.	$8,328,714	$0	$0	-$18,674	$8,310,040	-0.22%
JPMCB Strategic Property Fund	$11,333,334	$0	$0	-$157,268	$11,176,066	-1.39%
LLR Equity Partners V	$6,400,494	$0	-$81,651	$0	$6,318,843	0.00%
LLR Equity Partners VI, L.P	$2,606,108	$0	$0	$0	$2,606,108	0.00%
Loomis Sayles High Yield Conservative	$11,834,155	$0	-$4,355	-$217,564	$11,612,236	-1.91%
North American Strategic Partners 2006	$65,081	$0	$0	$0	$65,081	0.00%

	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	$5,017,170	$0	-$3,517,170	$16,318	$1,516,318	0.33%
PRIT Core Fixed Income	$25,800,740	$0	-$2,298	-$728,857	$25,069,585	-2.83%
PRIT General Allocation	$14,842,622	$17,170	$0	-$129,614	$14,730,178	-1.57%
PRIT General Allocation Core FI	$52,698,806	$0	$0	-$749,627	$51,949,179	-2.83%
PRIT General Allocation Domestic Equity	$83,958,269	$0	$0	-$449,776	$83,508,492	-2.31%
PRIT General Allocation EME	$17,541,281	$0	$0	-$749,627	$16,791,654	-4.85%
PRIT General Allocation Hedge Funds	$27,698,732	$0	$0	$299,851	$27,998,583	-0.68%
PRIT General Allocation Int. Equity	$47,751,265	$0	$0	-$487,258	$47,264,007	-2.00%
PRIT General Allocation Private Equity	$61,994,186	$0	$0	$749,627	$62,743,813	-0.43%
PRIT General Allocation Real Estate	$39,542,845	$0	$0	$1,161,922	$40,704,768	-0.06%
PRIT General Allocation Timberland	$12,031,520	$0	$0	$149,925	$12,181,445	-0.59%
PRIT General Allocation Value Added FI	$16,754,172	$0	$0	$187,407	$16,941,579	-0.34%
PRIT Vintage Year 2001	$62,862	$0	$0	-$786	$62,077	-1.25%
PRIT Vintage Year 2002	$7,865	$0	$0	-$18	$7,848	-0.23%
Rhumbline QSI Index	$30,881,750	$0	-$1,751	-$863,463	$30,016,537	-2.80%
RhumbLine Russell 1000 Growth Index	$21,878,720	$0	-$1,216	-$259,069	$21,618,436	-1.19%
RhumbLine Russell 1000 Value Index	$27,654,241	$0	-$1,501	-$971,214	$26,681,527	-3.52%
Ridgemont Equity Partners II	$5,377,446	$0	$0	$0	$5,377,446	0.00%
Ridgemont Equity Partners III	$9,501,651	$0	-$870,616	$0	$8,631,034	0.00%
Rockwood Capital Real Estate Partners Fund XI, L.P.	$6,311,130	$0	$0	$0	$6,311,130	0.00%
Rockwood X	$6,562,090	$0	$0	$0	$6,562,090	0.00%
Searchlight Capital III	$4,009,670	$0	$0	$0	$4,009,670	0.00%
SSgA MSCI EAFE Index	$40,436,858	$0	-$3,299	-$841,831	$39,591,728	-2.09%
SSgA TIPS Index	$15,864,162	$0	-$782	-$216,557	$15,646,823	-1.37%

	Beginning Market Value	Contributions	Withdrawals	Net Investment Change	Ending Market Value	Month Return
SSgA U.S. Aggregate Bond Index-NL	$20,899,640	$0	-$1,018	-$538,193	$20,360,429	-2.58%
TA XII	$3,090,921	$0	$0	$0	$3,090,921	0.00%
TerraCap Partners IV (Institutional), L.P.	$4,457,357	$0	$0	$0	$4,457,357	0.00%
Torchlight Debt Opportunity Fund VI	$3,632,861	$0	$0	$0	$3,632,861	0.00%
Trilantic Capital Partners VI	$5,616,788	$214,002	$0	$0	$5,830,789	0.00%
UBS Trumbull Property Fund	$2,898,069	$0	$0	$0	$2,898,069	0.00%
UBS Trumbull Property Income Fund	$11,154,123	$0	$0	$0	$11,154,123	0.00%
Wellspring Capital Partners VI	$6,460,939	$0	$0	$0	$6,460,939	0.00%
Total	**$818,016,834**	**$925,614**	**-$4,715,251**	**-$7,949,802**	**$806,277,395**	--

Private Market Managers' Performance Overview[1]

Managers	Strategy	Vintage Year	Commitment Amount ($mm)	% called	Median Peer IRR	Quartile Rank	Net IRR	Net Multiple
Real Estate Managers								
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
Private Equity Managers								
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	86%	22.0	1	43.3%	2.5x
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	20.9%	2.0x

[1] As of 6/30/2022.
[2] 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)[1]

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	39.0%	2.9x
Wellspring VI	Buyout	2017	5.0	96%	22.0	2	24.7%	1.5x
Trilantic Capital Partners VI	Buyout	2018	5.0	85%	23.2	3	19.3%	1.4x
Brookfield Capital Partners V	Buyout	2019	4.0	77%	22.7	3	16.5%	1.2x
FS Equity Partners VIII	Buyout	2019	5.0	62%	22.7	2	34.4%	1.7x
Ridgemont Equity Partners III	Buyout	2019	6.0	85%	22.7	1	54.7%	2.0x
Searchlight Capital III	Special Situations	2020	5.0	65%	16.9	1	45.1%	1.7x
Charlesbank Technology Opportunities	Buyout	2019	5.0	54%	NM	NM	NM	NM
LLR Equity Partners VI	Buyout	2020	4.0	54%	NM	NM	NM	NM
Opportunistic Managers								
HarbourVest Co-Investment Fund V	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
Infrastructure Managers								
Global Infrastructure Partners IV	Value-Added	2019	5.0	48%	--	--	--	--
Natural Resources Managers								
Hancock Timberland	Timber	2008	8.0	100%	--	--	-1.5%	1.0x
Oppenheimer Natural Resources	Natural Resources	2010	7.0	100%	--	--	-2.7%	0.7x

[1] As of 6/30/2022.
[2] 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.

Current Issues

Non-Core Real Estate Manager Respondent Overview

Background

→ In March, Meketa Investment Group issued a search for a non-core real estate manager on behalf of Quincy Retirement System.

→ In non-core real estate, the System currently has exposure to AEW Partners VII, Rockwood X, Rockwood XI, Torchlight Debt Opportunity Fund VI, and TerraCap Partners IV.

→ Meketa Investment Group reviewed all the responses and rated each respondent with Highly Advantageous, Advantageous, or Not Advantageous.

→ The ratings are based on firm's investment team, performance, organization stability, fees, and other factors included in the Request for Proposals.

→ We rated two fund offerings as highly advantageous for the Board's consideration.

Summary

→ Sixteen real estate managers responded to the RFP. All managers have total net assets under management that exceed $1 billion as of 9/30/2022 and are investing funds that are expected to be well diversified with more than 20 investments. Five responses were disqualified for being late or not in the correct format.

Fund	Manager	Rating
AEW Partners Real Estate Fund X	AEW	Highly Advantageous
Stockbridge Value Fund V	Stockbridge	Highly Advantageous
TerraCap Partners VI	TerraCap	Advantageous
Torchlight Debt Fund VIII	Torchlight	Advantageous
Blue Vista Real Estate Partners VI	Blue Vista	Advantageous
KKR Real Estate Partners Americas IV	KKR	Advantageous
LaSalle Value Partners US IX	LaSalle	Advantageous
Principal Green Property Fund III	Principal	Advantageous
Rockpoint Real Estate Fund VII	Rockpoint	Advantageous
TA Realty Value Add Fund XIII	TA Realty	Advantageous
Cohen & Steers Real Estate Opportunities Fund	Cohen & Steers	Not Advantageous
Davis Investment Ventures Fund V	Davis Investment Ventures	Disqualified
Griffith Properties Fund V	Griffith Properties	Disqualified
Iron Point Real Estate Partners Fund V	Iron Point Partners	Disqualified
Pennybacker VI	Pennybacker	Disqualified
Virtus Real Estate Capital IV	Virtus	Disqualified

AEW Partners Real Estate Fund X

	Rating	Detail
Overall Rating	Highly Advantageous	
Organization	Advantageous	→ AEW was founded in 1981 and is headquartered in Boston, MA. It is a wholly owned subsidiary of Natixis Investment Management. AEW is solely dedicated to real estate investment management. In addition to its Boston office, the firm maintains a local presence in eight cities across Europe, Asia, and Australia → AEW's assets under management are approximately $51 billion
Team	Highly Advantageous	→ Across the entire firm, AEW has 253 employees. By function, AEW staffing is as follows: portfolio management (15), research (7), acquisitions (35), asset management (73), investment committee (7), accounting/financial (79), legal (13), other (24). → AEW has a dedicated fund team of 15 investment professionals. The Partners Fund team is led by Senior Portfolio Manager Anthony Crooks, who is supported by two additional portfolio managers who average 19 years at AEW. → Executive MD Pamela Herbst retired in December 2021. Previously Pamela was Head of Direct Investments. Her responsibilities were assumed by Michael Byrne. Additionally, MD Maureen Joyce left the firm to pursue another opportunity in June 2021.;
Investment Strategy & Process	Advantageous	→ Consistent with prior funds, AEW X will seek to opportunistically invest in ground-up development, re-development, and repositioning of real estate projects. The Fund will look to identify the best risk-adjusted opportunities across property sectors and markets, rather than adhering to established diversification guidelines. → Fund X is expected to make between 40 and 50 investments with an average equity investment size between $25 million and $40 million. → Fund X will seek to achieve an annualized net IRR of 15%.
Performance	Advantageous	→ Fund IV: 2000 vintage, 25.0% net IRR / 1.7x net multiple → Fund V: 2005 vintage, 2.0% net IRR / 1.1x net multiple → Fund VI: 2008 vintage, 16.5% net IRR / 1.9x net multiple → Fund VII: 2013 vintage, 10.5% net IRR / 1.4x net multiple → Fund VIII: 2016 vintage, 21.5% net IRR / 1.5x net multiple → Fund IX: 2020 vintage, 5.0% net IRR / 1.0x net multiple
Fees	Highly Advantageous	→ 1.25% for commitments less than $50m. → 9% preferred return, 20% carried interest, 50% catch-up

Stockbridge Value Fund V

	Rating	Detail
Overall Rating	Highly Advantageous	
Organization	Advantageous	→ Stockbridge was founded in 2009 and is headquartered in San Francisco. Stockbridge operates two main lines of business, the Stockbridge Platforms Business and the Core and Value Advisors business. → Stockbridge manages approximately $15.7 billion in real estate AUM across its core fund, logistics fund, and value add fund series.
Team	Advantageous	→ Stockbridge has 116 real estate professionals, with employees spread between portfolio management (16), research (1), acquisitions (15), asset management (28), accounting (25), investment committee (8), and other (23). → The Value Fund Series is led by Portfolio Manager Doug Sturiale and Senior Vice President Elizabeth Kirley, who have been a part of the fund team since 2011. The portfolio managers are supported by three additional dedicated professionals.
Investment Strategy & Process	Advantageous	→ Value Fund V seeks to acquire a diversified portfolio of distressed real estate assets, with a goal of generating gross equity returns of 12% to 15% and a net return of 10% to 13%. The strategy is two-pronged, focused on thematic trends and market dislocation. → Fund V will target high growth markets and strategic emerging markets throughout the US. The Fund will invest in industrial, multifamily, retail, select office and rescue capital opportunities. → Fund V is expected to make 25 to 35 investments with an average equity investment between $10 million and $50 million. Leverage is limited to 65% of the fair market value of gross assets.
Performance	Highly Advantageous	→ Fund I: 2011 vintage, 20.7% net IRR, 1.8x net multiple → Fund II: 2014 vintage, 16.4% net IRR, 1.7x net multiple → Fund III: 2017 vintage, 17.8% net IRR, 1.5x net multiple → Fund IV: 2020 vintage, 28.3% net IRR, 1.2x net multiple
Fees	Advantageous	→ 1.5% for commitments less than $75m. → 8% preferred return; 20% carried interest, 50% catch-up.

TerraCap Partners VI

	Rating	Detail
Overall Rating	Advantageous	
Organization	Advantageous	• TerraCap is a 100% employee/minority-owned firm founded in 2008 with $2.5 billion in total assets under management. • The firm was founded to take advantage of distressed real estate markets in Florida. Over time, TerraCap has evolved to focus more broadly across South Atlantic, West Central South, and West Mountain regions of the United States. • TerraCap focuses solely on investing its series of value-add real estate funds.
Team	Advantageous	• TerraCap's team has 12 real estate investment professionals, with 20 employees working across functions such as portfolio management (1), acquisitions (3), asset management (6), strategy/research (1), accounting (8), investor relations (4) and admin (1). Some professionals work across multiple roles. • TerraCap has had three senior level departures in the last five years.
Investment Strategy & Process	Advantageous	• Fund VI will pursue a value-add real estate strategy targeting multifamily, industrial, and flex properties in the South Atlantic, West Central South, and West Mountain regions of the US. TerraCap will avoid large gateway markets such as New York, Los Angeles, San Francisco, Seattle, Miami and Chicago. • Fund VI will focus on investing in remaining vacancy in well-built and well-located properties, where TerraCap can position for lease-up. TerraCap will also target undercapitalized owners, tenant in common dysfunctional ownership, and inheritance properties. Thematic factors will be considered such as business formation, employment and population growth, corporate relocations, GDP growth and market migration. • The fund expects to make 25 to 30 investments, with average investment size ranging from $20 million to $40 million of equity and $30 million to $120 million total capitalization. The fund will target a net IRR of 14% and utilize leverage between 65% and 70%.
Performance	Advantageous	• Fund II: 2011 vintage year, 12.2% net IRR, 1.6x net TVM. • Fund III: 2014 vintage year, 9.8% net IRR, 1.6x net TVM. • Fund IV: 2017 vintage year, 11.3% net IRR, 1.5x net TVM. • Fund V: 2020 vintage year, 12.9% net IRR, 1.2x net TVM.
Fees	Advantageous	• 1.5% of commitments during the Commitment Period; thereafter, 1.5% of invested capital. First close investors will pay 0.75% management fee for first year. • 20.0% Carried Interest; 8.0% Preferred Return. 15% carried interest for first close investors.

Torchlight Debt Fund VIII

	Rating	Detail
Overall Rating	Advantageous	
Organization	Advantageous	• Torchlight was founded in 1995 and is headquartered in New York, NY. Torchlight current manages $5.7 billion in assets under management. • The firm is entirely owned by senior officers of Torchlight (except for 0.4% held by a former colleague), with the majority held by founder Daniel Heflin.
Team	Advantageous	• The team consists of 60 professionals including 28 investment professionals. The investment management and acquisitions team is comprised of 14 professionals who average 18 years of experience. The asset management and credit team is comprised of 13 professionals with an average of 16 years of experience. • Torchlight has experienced three senior-level departures over the past five years.
Investment Strategy & Process	Advantageous	• Debt Fund VIII pursues investments across a broad spectrum of debt and other interests relating to commercial real estate, including, but not limited to senior mortgages, mezzanine loans, CMBS, preferred equity and equity positions. The mandate of the Debt Fund series affords Torchlight the flexibility needed to pursue various strategies as different parts of the real estate capital stack become more attractive at different times in their respective cycles. As such, Torchlight can avoid product types it believes are overvalued and focus on products where Torchlight perceives attractive risk-adjusted opportunity. • The fund is targeting 75 to 125 investments. Investments typically ranging in size from $25 million to $50 million. • Fund VIII will target transitional properties in primary or secondary markets requiring stabilization, including restructuring, redevelopment, releasing or repositioning. Fund VIII will target a net IRR of 10% to 12% and will limit leverage to 40%.
Performance	Advantageous	• Fund I: 2003 vintage year, 25.1% net IRR, 1.5x net TVM. • Fund II: 2006 vintage year, -1.2% net IRR, 0.9x net TVM. • Fund III: 2008 vintage year, 13.6% net IRR, 1.5x net TVM. • Fund IV: 2012 vintage year, 9.3% net IRR, 1.4x net TVM. • Fund V: 2015 vintage year, 10.5% net IRR, 1.3x net TVM. • Fund VI: 2017 vintage year, 8.8% net IRR, 1.3x net TVM. • Fund VII: 2020 vintage year, 6.1% net IRR, 1.1x net TVM.
Fees	Advantageous	• 1.5% of committed capital during the Commitment Period; thereafter, 1.5% of invested capital. • 20.0% Carried Interest; 9.0% Preferred Return with 50% catch-up.

Blue Vista Real Estate Partners VI

	Rating	Detail
Overall Rating	Advantageous	
Organization	Advantageous	→ Blue Vista was founded in October 2002. As of 9/30/2022, the firm had $4.6 billion in gross assets under management. Blue Vista is 100% owned by partners of the firm. → The Blue Vista platform consists of a real estate equity platform and real estate credit platform. The equity platform was founded in 2023 to focus on middle market opportunities and has expanded over time to include both single-sector strategies and diversified strategies across the risk-return spectrum. The credit platform was founded in 2015 and is focused on the origination of first mortgage loans. → Blue Vista manages private real estate equity and credit strategies offered through closed-end/open-end funds, separate accounts and joint ventures
Team	Advantageous	→ 70 professionals as of March 2023 → 4 portfolio management team members averaging 8 years with the firm/ 20 years of experience → 5 asset management team members averaging 9 years with the firm / 24 years of experience → 2 senior level (SVP+) departures in the past 5 years
Investment Strategy & Process	Advantageous	→ The Fund will target middle market real estate opportunities with equity investments between $3m and $25m. Blue Vista will make investments jointly with joint venture partners and operators. → The Fund will target residential, industrial, self-storage, R&D/flex, RV parks, NNN lease, mission-critical office properties throughout markets in the US. → The Fund will target 50-60 investments and a target net IRR of 13% to 15%. LTV is expected to be between 60% and 65%.
Performance	Advantageous	→ Fund I: 2004 vintage year, 17.44% net IRR, 1.49x net TVM. → Fund II: 2006 vintage year, 9.41% net IRR, 1.43x net TVM. → Fund III: 2012 vintage year, 15.78% net IRR, 1.60x TVM → Fund IV: 2015 vintage year, 12.31% net IRR, 1.57x TVM → Fund V: 2018 vintage year, 30.93% net IRR, 1.46x TVM
Fees	Advantageous	→ Management fee: 1.5% on committed equity during investment period, 1.5% on invested equity thereafter → Preferred return: 8% → Carried interest: 80 (LP) / 20 (GP) split

KKR Real Estate Partners Americas IV

	Rating	Detail
Overall Rating	Advantageous	
Organization	Advantageous	→ KKR was founded in 1976 as an employee-owned firm focused on leveraged buyouts (private equity). → KKR's business lines and service offerings have grown over the decades, and the firm now offers investment management services across private equity, infrastructure, credit, energy, and real estate, which was launched as a separate business line in 2011. → Today, KKR is publicly listed on the New York Stock Exchange and trades under the symbol "KKR." As of December 31, 2022, the firm had approximately $500 billion in assets under management, including roughly $64 billion of total real estate assets under management. The U.S. real estate platform manages approximately $46 billion across equity and credit strategies.
Team	Advantageous	→ As of March 2023, KKR Real Estate includes over 160 investment professionals across 16 offices. The Americas Real Estate Team is based in New York City and has more than 100 members. → KKR Real Estate is led by Ralph Rosenberg. Mr. Rosenberg has 36 years of real estate investing experience and led the establishment of the KKR Real Estate platform in 2011. → The senior team members (Partners, Managing Directors and Directors) of the equity branch of the Americas Real Estate Team have approximately 29 years of experience in real estate and private equity investing. Two senior team members (one Managing Director and one Director) have left the platform since its formation in 2011.
Investment Strategy & Process	Advantageous	→ The fund will pursue opportunistic investments in real estate, mainly in the U.S. The fund is expected to focus on the multifamily, single-family rental, student housing, senior housing, and self-storage sectors, primarily in the top 15 U.S. MSAs. KKR anticipates making 20-25 investments with individual gross asset values between $250 million and $1 billion, and with corresponding equity investments of $75-$300 million on average. Investments will be made in transitional assets, real estate companies and platforms, and distressed situations. Fund level leverage will not exceed 70%, with an 80% cap at the asset level.
Performance	Advantageous	→ Fund I (2013): 16.3% gross IRR / 11.5% net IRR → Fund II (2017): 31.4% gross IRR / 26.4% net IRR → Fund III (2021): 20.9% gross IRR / 17.2% net IRR
Fees	Advantageous	→ 1.5% annual management fee on commitments less than $100 million → 20% GP carried interest after a 9% preferred return → 60% GP catch up

LaSalle Value Partners US IX

	Rating	Detail
Overall Rating	Advantageous	
Organization	Advantageous	→ The Firm was established in 1979 and is headquartered in Chicago, IL. → LaSalle is a wholly owned, but operationally independent subsidiary of JLL, a publicly rated corporation listed on the New Stock Exchange (NYSE: JLL). As of June 30, 2022, approximately 55% of JLL stock was held by ten institutional investors, with the remaining balance held by other institutional investors, employees. and individuals. → LaSalle currently has over $79 billion assets under management including the following funds (and their gross size): Core Fund ($9,257 mm), Daily Valued Core Fund ($6,440 mm), Canada Core Fund ($1,681 mm), Value Add Fund A ($1,074 mm), and Value Add Fund B ($937 mm).
Team	Highly Advantageous	→ LaSalle's fully integrated platform employs almost 1,000 people across its portfolio management (130), research (27), acquisitions (116), asset management (207), accounting/financial (201), legal (42), and admin (233) teams. → The 13-person Fund team is led by Joe Munoz, Jeff Shuster, Ty Spearing, and Brian Gorz → LVP US IX utilizes the firm's shared resources for research & strategy, acquisitions, asset management, and legal.
Investment Strategy & Process	Advantageous	→ The LaSalle Value Partners US Funds will target multifamily, residential rental, industrial and healthcare sectors, with a focus in 10-12 US metros that share strong fundamentals and growth in population and jobs across the United States. The Fund anticipates investing in 25-40 assets with an average $50 to $200 million deal size. → LVP US IX will acquire and reposition existing properties, develop new assets (no more than 25% of the Fund's capital), and create real estate portfolios by aggregating smaller, existing portfolios. → Target: 12-14% levered net IRR and 65% leverage
Performance	Advantageous	→ Fund I: 1996 vintage; 11.5% gross IRR / 11.0% net IRR; 1.6x gross/ 1.5x net → Fund II: 1999 vintage; 23.3% gross IRR / 20.1% net IRR; 2.0x gross / 1.8x net → Fund III: 2002 vintage; 10.5% gross IRR / 9.2% net IRR; 1.6x gross / 1.5x net → Fund IV: 2005 vintage; (4.2%) gross IRR / (5.5%) net IRR; 0.8x gross / 0.7x net → Fund V: 2007 vintage; 15.4% gross IRR / 13.0% net IRR; 1.8x gross / 1.7x net → Fund VI: 2012 vintage; 11.3% gross IRR / 9.2% net IRR; 1.5x gross / 1.4x net → Fund VII: 2015 vintage; 12.9% gross IRR / 10.8% net IRR; 1.5x gross / 1.4x net → Fund VIII: 2019 vintage; 34% gross IRR / 21.0% net IRR; 1.3x gross / 1.2x net
Fees	Advantageous	→ 20% over a 9% preferred return with 50/50 catch-up → Asset Management: <$75M: 1.50%; $75M-150M: 1.40%; >$150M: 1.25%

Principal Green Property Fund III

	Rating	Detail
Overall Rating	Advantageous	
Organization	Advantageous	→ Principal was established in 1998 and is headquartered in Des Moines, Iowa with offices in Chicago, NYC, London, Singapore, Sydney, Frankfurt, Paris, Amsterdam, Madrid, Lisbon, Milan, and Luxembourg. → The Firm manages $98 billion across its public, private, and debt investments in real estate.
Team	Advantageous	→ Vance Voss, Greg Moss, and Jenna Souza are on the Principal Green Property Fund III portfolio management team. → The Fund will leverage the 325 Principal team members within the portfolio management (55), research (55), acquisitions (33), asset management (75); investment committee (14), and administrative (93) teams.
Investment Strategy & Process	Advantageous	→ Principal Real Estate will pursue a $1 billion opportunistic strategy focused on ground-up development in approximately 20-30 assets with an average transaction size between $100-$150 million. → The Fund will primarily focus on industrial and multifamily property sectors and may target life science and single-family rental sectors. It will utilize sustainability as a means to achieving attractive investment results and pursue green building and wellness certifications as economically attractive. → The Fund will focus on high growth North America markets within the following targeted regions: East 20%, Midwest 10%, South 25%, and West 45%. No more than 25% of the Fund's capital shall be invested in a single metropolitan statistical area (MSA). → The excess return objective for Principal Green Property Fund III is gross levered IRRs of 21% - 23% and net levered IRRs after fees of 17% - 19% and equity multiples of 1.55x gross and 1.44x net. Capital appreciation is expected to represent 90% or more of the excess return objective, with 10% or less coming from income returns. → The Fund may incur indebtedness up to 70% LTV at the property level and 70% on a portfolio basis until capital contributions reach $400 million and then 60% LTV on a portfolio basis thereafter.
Performance	Advantageous	→ Fund I (2008): 19.2% gross IRR / 15.1% net IRR (final, realized); 1.59x (gross) / 1.51x (net) → Fund II (2015): 23.3% gross IRR / 18.3% net IRR since inception (2 unrealized assets); 1.66x (gross) / 1.46x (net)
Fees	Advantageous	→ Asset Management Fee: < $50 million: 1.50%; $50 million- $100 million: 1.30%; $100 million- $200 million: 1.15%; >$200 million: 1.00% → 20% carried interest above an 8% net IRR preferred return; no catch-up provisions

Rockpoint Real Estate Fund VII

	Rating	Detail
Overall Rating	Advantageous	
Organization	Advantageous	→ Rockpoint is a real estate private equity firm headquartered in Boston, with additional U.S. offices in San Francisco and Dallas. The firm was founded in 2003 by William Walton and Keith Gelb as the continuation of the investment activities of Westbrook Real Estate Partners, a real estate investment firm executing a similar strategy as Rockpoint co-founded by Mr. Walton in 1994. Messrs. Walton and Gelb lead the firm with four additional managing members. → As of September 30, 2022, Rockpoint had approximately $16 billion in assets under management
Team	Advantageous	→ Rockpoint employs 104 professionals as of March 13, 2023 → Messrs. Walton and Gelb have worked and invested together for approximately 28 years. Rockpoint's managing members have worked together for an average of 22 years. Other senior investment professionals average 21 years of real estate experience, and almost 18 years of working together.
Investment Strategy & Process	Advantageous	→ Rockpoint's investment strategy relies heavily on fundamental value using an opportunistic approach. According to the firm, this means acquiring assets that present opportunities to add value at the property level at compelling costs relative to stabilized cash flows. This approach has been consistent across Rockpoint's opportunistic ventures. → It is currently anticipated that Fund VII will invest exclusively in the U.S. Focus property sectors including single family rental, multifamily, industrial, office, and hospitality. → Based on the targeted fund size and the average size of investments made in prior funds, Rockpoint anticipates the Fund VII portfolio will comprise roughly 50 to 60 individual investments. → Rockpoint is seeking gross annual returns in the range of 18%-20%. On a net basis, the firm is targeting returns in the 13%-15% range.
Performance	Advantageous	→ Fund I (2004): 26.3% gross IRR / 11.5% net IRR; Fund II (2005): -0.8% gross IRR / -2.9% net IRR; Fund III (2007): 22.2% gross IRR / 13.7% net IRR; Fund IV (2011): 22.6% gross IRR / 14.0% net IRR; Fund V (2015): 11.2% gross IRR / 8.4% net IRR; Fund VI (2019): 20.8% gross IRR / 15.5% net IRR
Fees	Advantageous	→ 1.5% management fee for commitments up to $50 million → 20% GP carried interest over an 8% preferred return hurdle

TA Realty Value Add Fund XIII

	Rating	Detail
Overall Rating	Advantageous	
Organization	Advantageous	→ TA Realty was founded in 1982 as a private real estate investment firm. In 2015, the Founder of TA Realty sold a majority of his interest to Mitsubishi Estate Co. ("MEC"), a global investment manager. MEC owns 70% of the firm while TA Realty's Founder and 22 partners own 30%. → TA Realty currently manages $20.1 billion in real estate AUM across its core fund, a logistics fund, a residential fund, a series of value-add funds and separate accounts.
Team	Advantageous	→ TA Realty has 119 employees across acquisitions (14), asset management (15), portfolio management (19), other investment professionals (9), financing & accounting (32), investor relations (14), information technology (5) and administrative (11). → James Raisides and Kendrick Leckband serve as portfolio managers for the Fund. The team brings an average of over 25 years of combined real estate experience and has worked together for approximately 15 years. → TA Realty has had four senior partner retirements in the last five years and three senior level departures.
Investment Strategy & Process	Advantageous	→ Fund XIII will seek to build a well-diversified real estate portfolio targeting industrial, multifamily, office, and retail properties. Investments will also be diversified throughout markets the US. TA Realty will acquire institutional quality properties that may require renovation, repositioning, or re-leasing with the intention of executing value-add strategies over the hold period. → TA Realty anticipates making approximately 60-70 investments, targeting an average investment size of approximately $35 million to $45 million (inclusive of leverage). → Fund XIII is targeting a net IRR between 10% and 12.5%. → Leverage will be limited to less than 50%.
Performance	Advantageous	→ Fund VI: 2002 vintage year, 8.55% net IRR, 1.5x net TVM. → Fund VII: 2004 vintage year, 0.33% net IRR, 1.0x net TVM. → Fund VIII: 2006 vintage year, -0.08% net IRR, 1.0x net TVM. → Fund IX: 2008 vintage year, 10.43% net IRR, 1.6x net TVM. → Fund X: 2012 vintage year, 12.58% net IRR, 1.6x net TVM. → Fund XI: 2015 vintage year, 13.55% net IRR, 1.7x net TVM. → Fund XII: 2018 vintage year, 32.82% net IRR, 1.6x net TVM.

TA Realty Value Add Fund XIII (continued)

	Rating	Detail
Fees	Advantageous	→ The management fee will be paid from the fund monthly. Calculations in years 1-3 are based on capital commitments and thereafter based on Aggregate Invested Capital, as defined, specifically 0.50% in year 1, 0.85% in year 2, 1.15% in year 3, all based upon capital commitments; then 1.20% in year 4, 1.25% in year 5, 1.20% in year 6, 1.00% in year 7 and 0.60% thereafter. → The Fund will first distribute 100% to LPs until such distributions equal the greater of (i) inflation-adjusted contributed capital or (ii) contributed capital. Thereafter, the Fund will distribute proceeds according to the following schedule of real returns achieved for LPs, with "real return" denoting an inflation-adjusted IRR (inflation adjustment calculated using CPI-Urban Index):

Real Return	LP Allocation	GP Allocation
1%	95%	5%
2%	94%	6%
3%	92.5%	7.5%
4%	90.5%	9.5%
5%	88.5%	11.5%
6%	86.5%	13.5%
7%	84.5%	15.5%
8%	82.5%	17.5%

→ Thereafter, 80% to the LPs and 20% to the GP.

Cohen & Steers Real Estate Opportunities Fund

	Rating	Detail
Overall Rating	Not Advantageous	
Organization	Advantageous	→ Global investment manager established in 1986 → Firm expanded its platform to include private real estate offerings in 2020 → Total AUM of $79.2 billion, of which $46.7 billion is in real estate (including real estate securities)
Team	Advantageous	→ Total firm headcount of 382, with 30 total real estate professionals across both listed and private real estate investment teams; 12-person dedicated private real estate team averaging just over 2 years with Cohen & Steers and just over 15 years of industry experience.
Investment Strategy & Process	Not Advantageous	→ Diversified across operating partners, property type, and geographic region → Focus on shopping centers, Sunbelt/suburban office properties, and residential housing opportunities. The Fund is also expected to execute in the warehouse and lodging sectors, as well as make entity-level investments in REITS or private companies. → Up to 25% of capital commitments in Europe, but expectation is closer to 10% - 15%. → Targeting a net IRR of 14-17% (using moderate leverage) for the overall fund. → Underlying assets held in joint venture or other structures may be leveraged up to 75%, with the Fund's target LTV approximately 50-55% across its total portfolio.
Performance	Not Advantageous	→ Not applicable
Fees	Advantageous	→ Direct Investments: 1.5% asset management fee on invested capital o 8% preferred return; 50/50 catch-up; followed by 15% to the GP and 85% to the LP → Fund investments: 0.75% asset management fee on invested capital o No incentive fees

Emerging Markets Small Cap Equity Manager Search

Background

→ The Quincy Retirement System currently employs Acadian to manage its emerging markets small cap allocation, which represents roughly 1% of the total portfolio.

- As of February 28, 2023, Acadian managed approximately $9.0 million on behalf of the System.

→ Since inception in June 2014, Acadian has generated an annual return of 5.9%, net of fees, outpacing the benchmark's 3.1% annual return over that same period.

→ In November of 2022, per PERAC guidelines, Meketa Investment Group issued an RFP on behalf of the Retirement System to evaluate the emerging market small cap universe.

→ At the February 2023 meeting, the Board voted to interview three firms as finalists for this mandate, Acadian, Cedar Street, and LSV.

→ In this document we will review the three finalist managers.

Emerging Markets Equity Manager Candidate Overview
As of December 31, 2022

	Acadian	Cedar Street	LSV
Firm Location	Boston, MA	Chicago, IL	Chicago, IL
Firm Inception	1986	2016	1994
Ownership Structure	Wholly-owned subsidiary of Brightsphere Investment Group (NYSE: BSIG)	100% Employee Owned	61% Employee Owned/39% Owned by SEI Investments Co. (NASDAQ: SEIC)
Strategy Name	Emerging Markets Small-Cap Equity	Emerging Markets Small Cap Value	Emerging Markets Small Cap Value Equity
Strategy Inception	April 2011	November 2013	October 2005
Assets Under Management (Firm)	$59.7 billion	$399 million	$91.1 billion
Assets Under Management (Strategy)	$3.6 billion	$60.9 million	$907.9 million

Acadian Asset Management

Organization

→ Acadian Asset Management is a quantitative equity manager based in Boston, Massachusetts and is a wholly-owned subsidiary of BrightSphere Investment Group (NYSE: BSIG), a publicly-traded company that was formerly known as Old Mutual Asset Management (NYSE: OMAM). Acadian was originally founded in 1986 and was acquired by what is now BrightSphere Investment Group in 2000. Acadian is operated as a single independent entity and maintains complete discretion over its investment philosophy, personnel, and process.

Investment Team

→ Acadian has a deep Global Equity Research team led by CIO Brendan Bradley. Mr. Bradley has 20+ years of industry experience and is supported by 14 portfolio managers and a bench of over 50 research analysts. This team supports all of the firm's global equity strategies.

→ Brendan Bradley joined Acadian in 2004 and has oversight responsibility for all Acadian strategies. Acadian employs a systematic investment process and a team-based approach to portfolio management, with a dedicated subset of portfolio managers focused on its Core Equity strategies. They are supported by the full resources of the larger 100+ person investment team inclusive of Investment Analytics and Data, Global Equity Research, and Implementation. Ryan Taliaferro, Director, oversees Acadian's equity strategies.

Acadian Asset Management (continued)

Investment Philosophy

→ Acadian believes markets are inefficient, in part due to behaviorally based mispricing's. The team utilizes multi-factor quantitative models, which they believe help remove human biases and exploit market inefficiencies.

Investment Process

→ The investment process starts with a quantitative evaluation of the global investable market of approximately 43,500 traded securities, including 15,500 emerging markets small cap stocks. Acadian utilizes models to develop bottom-up stock level return forecasts and top-down country/industry peer group forecasts.

→ Bottom-up stock models evaluate companies against their region/industry peer group on valuation, growth, quality, and technical strength. Top-down forecasts are created for industries at the country level using a similar combination of value, growth, and technical factors (note that quality is excluded), but these forecasts also incorporate risk and macro factors.

→ Using the firm's optimization tools, the investment team seeks to build a portfolio of stocks with high expected return forecasts, subject to strict limitations on idiosyncratic, stock-specific. The portfolio typically holds 500-1,600 securities. Turnover ranges from 40-80% per annum.

Cedar Street Asset Management

Organization

→ Cedar Street is an independent investment management firm based in Chicago, Illinois. The firm was founded in April 2016 by CIO Jonathan Brodsky and is 100% employee-owned by six current employees.

→ Prior to founding the firm, Mr. Brodsky worked at Advisory Research where he established its non-U.S. investment practice in 2004. He began developmental research for Cedar Street's EM Small Cap Value strategy in 2011 and has managed the strategy since inception.

→ Cedar Street specializes in international small cap value investing and manages $399 million in assets across its three international equity strategies.

Investment Team

→ The investment team is led by portfolio manager and founder Jonathan Brodsky, who is responsible for the firm's three strategies.

→ Mr. Brodsky is supported by one co-PM, Waldemar Mozes, three dedicated research analysts, and one trader. Both Mr. Brodsky and Mr. Mozes have 20+ years of investment experience. Messrs. Brodsky and Mozes are responsible for the product's investment strategy, asset allocation and portfolio construction.

→ The three dedicated analysts serve as generalists and are primarily responsible for research and security selection, although the PMs are ultimately responsible for any investment decisions.

Cedar Street Asset Management (continued)

Investment Philosophy

→ Cedar Street employs a conservative, long-term, bottom-up approach to value investing that includes elements from the classic Graham & Dodd investment style, which seeks to capture the disconnect that often exists between a company's intrinsic value and its current market price. The strategy focuses on capital preservation and requires each stock to have an identifiable catalyst in the near- to medium-term to unlock the stock's perceived value.

Investment Process

→ Cedar Street begins with a series of screens on the investable universe (2,000+ companies) with a focus on value factors, such as price/tangible book value, as well as quality factors, such as ROE and low debt levels.

→ Once ideas are identified, the team seeks to estimate the maximum potential downside for a given company, largely by focusing on financial statement analysis and stress tests.

→ Next, Cedar Street conducts "business analysis", whereby they seek to estimate the potential upside of a particular company using a combination of management interviews, site visits, and competitive analysis. At this stage, Cedar Street looks for management teams with a commitment to shareholders, a strong operating history, and a consistent track record of prudent capital allocation decisions. The portfolio holds between 50-70 stocks and, given their long-term approach, employs low portfolio turnover (25-35% annually).

LSV Asset Management

Organization

→ LSV Asset Management is a quantitative investment manager based in Chicago, Illinois. Founded in 1994, the firm is partially employee-owned (61%), with the remaining ownership belonging to SEI Funds, Inc. (39%), a wholly-owned subsidiary of SEI Investments (NASDAQ: SEIC). Josef Lakonishok is the CEO, CIO and one of the founding partners; he owns 25% of the firm. There are currently 32 equity partners who are actively involved in the business.

→ LSV manages roughly $91.1 billion in AUM across ~20 equity strategies, with $907.9 million in the Emerging Markets Small Cap Value strategy.

Investment Team

→ Key personnel are Josef Lakonishok, Menno Vermeulen, Puneet Mansharamani, Guy Lakonishok, Greg Sleight and Jason Karceski. Together, these six are responsible for day-to-day portfolio management and are involved in ongoing research pertaining to the LSV model.

→ LSV's quantitative model was developed and is maintained in house. Josef Lakonishok is a founding partner of LSV and developed the original LSV model. Menno and Josef began working together on a quantitative project Josef was managing under a consulting agreement at ABP in the Netherlands. That experience led to Menno joining LSV in 1995 as a senior member of the portfolio implementation team. Puneet Mansharamani joined the firm in 2000 as a quantitative analyst and was promoted to a portfolio management role in 2006. Greg Sleight (2006) and Guy Lakonishok (2009) also started out as quantitative analysts before being named portfolio managers in 2014.

Investment Team (continued)

→ LSV's ~20 equity strategies are managed by the same team and model. In addition to its six PMs, the investment team has eight quantitative research analysts and three academic advisors at its disposal. All PMs and analysts serve as generalists. Additionally, LSV has five dedicated securities traders.

Investment Philosophy

→ LSV's research and investment team developed the model through years of research in value investing, contrarian strategies, and behavioral finance. The team's roots in these areas of academic research form the core of its investment philosophy and continue to drive the evolution of the LSV model over time.

→ LSV believes that superior long-term results can be achieved by systematically exploiting the judgmental biases and behavioral weaknesses that influence many investors' decisions (e.g., the tendency to extrapolate the past too far into the future, mistaking a good company for a good investment, ignoring statistical evidence, and creating a "mindset" about a company).

→ They are deep value investors, employing a proprietary, disciplined quantitative process to rank stocks and construct portfolios; however, unlike other deep value managers, LSV does not invest in distressed companies that require major turnarounds. Rather, they look for generally healthy companies that have gone through extended periods of underperformance, but more recently exhibit positive signs of change.

Investment Process

→ The portfolio decision-making process is quantitative and driven by bottom-up stock selection. LSV's process involves two main components: a proprietary model that ranks securities based on fundamental measures of value and indicators of recent recovery, and a risk control process that controls for residual benchmark risk while maximizing the expected return of the portfolio.

→ A universe of approximately 16,400 equity securities is screened for market capitalization between $100 million and $5 billion and for sufficient liquidity, resulting in an investable universe of approximately 3,800 securities. These securities are ranked by LSV's quantitative model based on fundamental measures of value, past performance, and indicators of near-term potential.

→ The top 15% of stocks in each country are ranked by expected return (approximately 500 securities) and then optimized for risk control. This produces a buy list of approximately 175-225 securities. Portfolio holdings have historically ranged from 300-400 names and turnover rate is low (averaging ~25% annually), with a typical investment horizon of 3-5 years.

Fees & Terms

	Acadian	Cedar Street	LSV
Vehicle Name	Emerging Markets Small-Cap Equity	Emerging Markets Small Cap Value	Emerging Markets Small Cap Value Equity
Vehicle Type	Commingled	Commingled LP	Commingled LP
Liquidity	Daily	Daily	Monthly
Management Fee	1.25%	0.85%	1.25%

→ The all-in fee for Acadian's commingled vehicle is estimated at 1.41%, with a management fee of 1.25% and estimated operating expenses of 0.16% as of September 30, 2022.

→ The all-in fee for Cedar Street's limited partnership is estimated at 0.95%, with a management fee of 0.85% and operating expenses that have been approximately 0.10% since inception.

→ In addition to a management fee of 1.25%, LSV's limited partnership pays custody, fund administration and audit fees directly to its service providers. In total, these fees will not exceed 0.25% annually. Additionally, an investor will pay the fund a transaction fee to offset the fund's costs of buying or selling securities and/or currencies each time the investor contributes to, or withdraws money from, the fund. This transaction fee is currently 0.50% and will be kept by the fund, not LSV.

→ The median fee for a $9 million commingled fund in the eVestment Global Emerging Market Small Cap Equity peer group is 1.01%.

Disclaimer, Glossary, and Notes

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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. Portfolio Return- [Risk Free Rate+Beta*(market return-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 is 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%.

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

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.