Overview

The narrative focus of the markets shifted from 'transitory' to 'resilient' as risk markets continued to rebound and perform better than expectations despite a multitude of headwinds including the gradual acceptance that inflation might take longer to moderate than hoped resulting in the global central banks having to keep interest rates higher for longer.

The CERS and CERS-H Pension portfolios produced returns of 3.30% and 3.31% respectively during the quarter while the CERS Insurance portfolio returned 3.24% and the CERS-H Insurance portfolio produced a return of 3.25% compared to their benchmark performance of 4.06%. Underperformance in the Public Equity and Private Equity portfolios were the primary drivers of relative performance during the quarter as the benefit from the underweight to Real Return was offset by the proxy overweight to Specialty Credit. The relative underperformance in the Private Equity portfolios was partially driven by vintage and legacy issues as well as the issues associated with timing differences between the private market mandates and the public market benchmarks which tend to be exacerbated during periods of larger moves in the public markets.

For the fiscal year, the CERS Pension Composite gained 10.27%, outperforming the benchmark return of 9.54%, while the CERS Insurance Composite returned 10.26%, outperforming the benchmark return by 72bps. Fiscal Year outperformance was driven by strong performance in the Public Equities, Core Fixed Income, Private Equity and Real Return portfolios which was partially offset by underperformance in the Specialty Credit portfolio.

Public Equity

Global equity markets continued to advance during the second quarter, gaining 6.18% per the MSCI ACWI. This brought the asset class return to 16.53% for the one-year period. US markets outpaced Non-US markets for the year (18.95% versus 12.47%), driven by their significant outperformance during the quarter ending June 30, 2023. For the quarter, US markets returned 8.39% per the Russell 3000, compared to the 2.38% of international markets.

US market gains during the second quarter were the result of a narrow market driven almost entirely by mega cap tech, growth, and the excitement surrounding artificial intelligence (AI). The fuel behind this market push was four-fold. Liquidity provided in response to the regional banking crisis experienced in the early quarter, mega cap safe haven perception during volatility, P/E multiple expansion in large cap tech names, and an almost euphoric response to AI and its potential. In addition, inflation and the Fed continue to significantly influence the market. Inflation continued to fall during the quarter, allowing the Fed to slow the pace of additional hikes, causing some to conclude that we may have reached the end of the tightening cycle.

Non-US developed markets pushed higher, partly in response to abating concerns surrounding the US banking system. European and UK markets gained as their central banks continued to raise rates in an attempt to curtail inflation in the region. Broadly speaking, as with the domestic market, large-cap stocks outperformed small caps, and growth outpaced value. An interesting phenomenon is occurring where a divergence between hard and soft data continues to manifest. Despite recession fears, the consumer has remained relatively strong and wage growth continues. Manufacturing trends also remain positive as supply chain issues subside and capacity continues to come online.

The KPPA global equity returned 5.57% during the quarter versus its benchmark return of 6.18%. Relative underperformance is primarily the result of allocation. The KPPA global equity portfolio is slightly underweight domestic markets compared to that of the benchmark, which created a relative performance headwind as US markets broadly outperformed their international counterparts.

Within the US equity allocation, the portfolio trailed its index by 61bps (7.78% vs 8.39%). This was the result of a combination of stock selection and allocation decisions. Strong returns concentrated in just seven names at the top of the market drove US index returns and created a hurdle for active management. The “Magnificent 7” returned approximately 64% in the first 6 months of the year versus just 3% for the rest of the S&P 500. This extraordinary performance has now created a scenario were these few companies account for over 15% of the global market cap. As a result, investments down market cap and those with a value orientation had no chance of keeping pace. The strong relative outperformance of the mega cap growth names seems unsustainable.

The international equity allocation performed well from a relative perspective, returning 2.47% versus the benchmark return of 2.38%. Relative outperformance was driven by strong stock selection from the value mandates within the portfolio, both active developed and the emerging market managers.

The KPPA global equity portfolio returned 17.74% versus 16.53% for the fiscal year. This was primarily attributed to stock selection. The US equity portion of the portfolio returned 18.54% versus the Russell 3000 return of 18.95%. Stock selection was particularly strong within the mid-, small, and micro-cap strategies; however, it was not able to overcome the influence of the narrow market and value headwinds. The Non-US portfolio returned 16.43% versus the MSCI ACWI Ex-US return of 12.72%. Strong stock selection drove relative outperformance, with all active mandates, with the exception of one, beating their respective benchmark.

Core Fixed Income

The Bloomberg U.S. Aggregate Bond Index returned (0.36%) for June resulting in a quarterly loss of (0.84%) and finishing the fiscal year losing (0.94%) as U.S. Treasury yields rose and credit spreads tightened. The yield curve inverted further during June, almost entirely from higher yields at the shorter end of the curve. Rising fed funds expectations, reinforced by data consistently stronger than expected in June, helped move 2-year UST yields to their highest since the first week of March. The 10 year and 20 year Treasuries were steadier through the month, reaching as high as 3.84% and 4.12%, respectively. Bank tensions caused the 2-year UST to rally in March, narrowing the 10s-2s spread, but the inversion has since moved to its widest level of the quarter.

Corporate bonds were the best performing spread sector for the quarter and fiscal year, returning 1.31% and 3.98% in excess returns to Treasuries, respectively. The Securitized sector (CMBS, ABS and MBS) provided 0.76% excess return for the quarter but a loss of (0.41%) for the fiscal year.

The Core Fixed Income portfolio posted a loss of (0.12%) for the quarter but a positive return of 1.27% for the fiscal year, outperforming the benchmark by 0.72% for the quarter and 2.21% for the fiscal year. The relative outperformance is directly attributable to the underweight overall duration as rates rose and allocations to the Corporate and ABS sectors within our mandates.

Specialty Credit - Private Equity – Real Return – Real Estate

High yield bonds delivered strong returns for the quarter and fiscal year as the benchmark posted returns of 2.45% and 9.94%, respectively. Performance was driven by positive sentiment around the economy, including receding macro risks and resilient labor market data causing spreads to compress on the high yield side. For the loan universe, key performance drivers were a steady rise in rates, lighter retail withdrawals and collateralized loan obligation (CLO) origination.

At the end of June, default activity was elevated and raised the high yield bond default rate to a fresh 2-year high. The par-weighted U.S. high yield bond and loan default rates increased to 2.71% and 2.94%, respectively. Although default rates have moved higher, forecasts for broader high yield bond and leveraged loan defaults for the remainder of 2023 continue to be 3.00% and 3.50%, respectively. These rate projections remain roughly in line with long-term averages of 3.2% for high yield bonds and 3.1% for leveraged loans. The Federal Reserve's seven rate increases totaling 350 basis points during FY 2022-23 greatly improved current and future expected returns in the Specialty Credit portfolio. Although defaults have increased, the pickup in yield has helped areas with floating rate exposure like direct lending and regulatory capital relief produce high single digit to low teens returns for the fiscal year.

The Specialty Credit portfolio returned 1.90% for the quarter ending June 30 and 7.16% for the fiscal year underperforming the benchmark by 0.55% and 2.78%, respectively. The relative underperformance was driven by portfolios with underlying real estate exposure as part of the mandate as those sectors lagged as well as the issues associated with timing differences between the private market mandates and the public market benchmarks which tend to be exacerbated during periods of larger moves in the public markets. However, the portfolio has performed well over longer time periods as represented by the 3-Year and 5-Year returns outperforming the benchmark by 2.96% and 1.88%, respectively. The top three managers within the Specialty Credit portfolio for the fiscal year were Capital Springs returning 21.41%, Blue Torch returning 14.13% and Arrowmark returning 13.81%.

The slowdown in M&A and real estate that began in 2022 continued through the first half of 2023. Increasing interest rates have reduced the value of the discounted cash flows that underpin asset values, but this mathematic change has generally not been accepted by sellers in their expectations of asset value.

As a result of this bid/ask spread, global private equity deal volume fell 63% year-over-year in the first half of 2023 according to Dealogic. Similarly, CBRE noted that global commercial real estate investment volume declined by 55% year-over-year in the first quarter of 2023. Higher rates have also tightened credit availability. Although this has constrained new deal activity overall, lenders that remain in the market have benefited as their capital has become more valuable.

Though not as steep as the decline in public markets, valuations in private equity and venture capital fell noticeably during the fiscal year. The aforementioned decline in deal activity has also slowed fundraising. The $107 billion raised by global private equity firms from April-June 2023 was down 35% compared to prior year and the lowest quarterly total since 2018, according to Preqin. The KPPA portfolio has been primarily impacted by markdowns in its legacy fund-of-funds and venture capital assets. While many of these are still strong performers in absolute terms, their valuations have come down from 2021 peak levels.

Asset markdowns in Real Estate investments continued during the quarter but seem to be more a result of interest rate increases rather than deteriorating property-level fundamentals. Industrial has grown to be the portfolio's largest sector exposure, and while rent growth in that area has slowed, it continues to rise as occupancy remains in the high-90s. Occupancy has stayed stable or even increased in certain sectors of the portfolio, like student housing and senior living. The portfolio also stands to benefit from reduced supply, as higher interest rates constrain new construction across all sectors.

MLP exposure has been the main driver of performance in the Real Return portfolio, returning nearly 30% for the fiscal year. Strong cash flows, disciplined capex, and consolidation have contributed to the industry's 30% annualized returns for the past 3 years since its crash during the early months of COVID. Additionally, higher rates benefited the portfolio's infrastructure debt portfolio as well as its legacy Prisma exposure, which is mostly in cash pending litigation. The Real Return portfolio has also begun to grow as the mandates approved earlier this year begin to deploy capital. KPPA has met two capital calls totaling 20% of its fund commitment to Arctos and expects to fund a sizable portion of its commitment to Maritime Partners in the September/October timeframe.

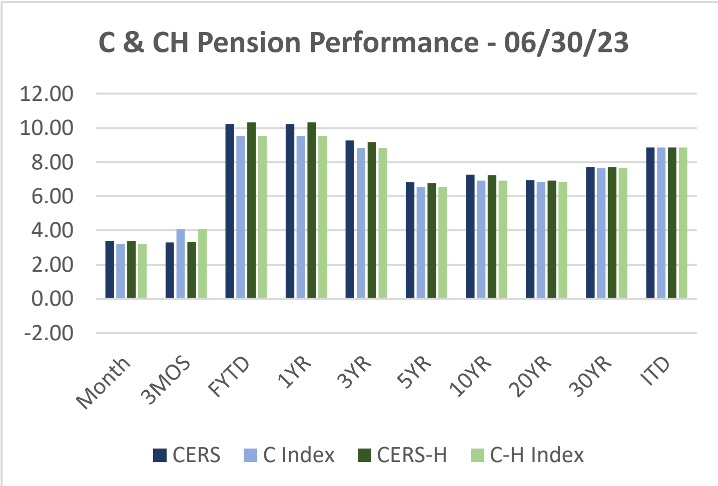
Cash

Federal Reserve officials paused in June following 15 months of interest-rate hikes but signaled they would likely resume tightening to cool inflation. New economic projections released in June showed the Fed expects to raise rates, at a slower pace, to 5.60% by year-end 2023 from 5.10% in March, according to the median estimate.

The T-Bill market has so far shown no significant disruptions from one month of catch-up Treasury issuance following the debt ceiling resolution. T-Bill yields hovered near 5.10% and did not experience the wild increases or fluctuations some had feared. As expected, the Fed's reverse repo facility has provided a big buffer for this needed liquidity, declining in step with the increasing issuance and taking much of the pressure off bank reserves.

The 3-month T-Bill ended June yielding 5.28%. However, from a total return perspective, the cash benchmark returned 0.43% for the month, 1.25% for the quarter and ended the fiscal year returning 3.75%. The pause from the Federal Reserve allowed the cash portfolio to catch-up to market rates returning 0.40% for June but lagging the benchmark for the quarter returning 1.05% and fiscal year-end returning 3.38%. The underperformance is attributable to lower rates offered by overnight repurchase agreements which is tied to the Fed Funds rate relative to market yields of the 3-month T-Bill. Since the Federal Reserve has begun to slow interest rate hikes, the difference in deposit rates compared to market rates will begin to compress going forward.

End of June key cash market interest rates: Fed Funds Effective 5.08%, 1M T-Bill 5.11% and 3M T-Bill 5.28%.



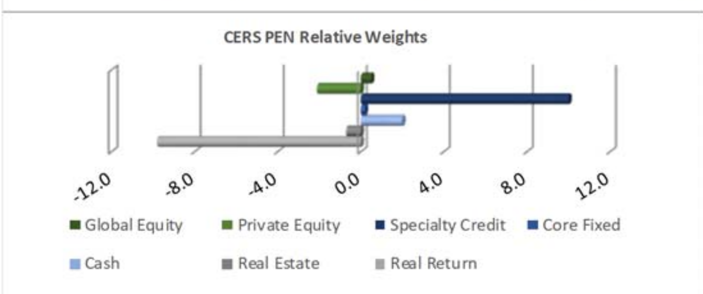
CERS
County Employees Retirement System

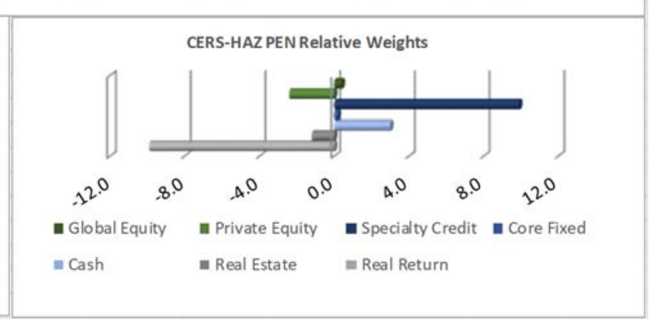
CERS & CERS-HAZ - PENSION FUND PLAN NET RETURNS - 06/30/23

Plan	Market Value	Month	3 Months	Fiscal YTD	1 Year	3 Years	5 Years	10 Years	20 Years	30 Years	ITD
CERS	**8,693,825,539.82**	**3.38**	**3.30**	**10.24**	**10.24**	**9.26**	**6.82**	**7.27**	**6.93**	**7.72**	**8.85**
KY Ret. CKERS Plan IPS Index		3.20	4.06	9.54	9.54	8.83	6.55	6.92	6.85	7.65	8.86
CERS- H	**3,006,298,532.55**	**3.39**	**3.31**	**10.33**	**10.33**	**9.18**	**6.76**	**7.24**	**6.92**	**7.71**	**8.85**
KY Ret. CERS Haz Plan IPS Index		3.20	4.06	9.54	9.54	8.83	6.55	6.92	6.85	7.65	8.86

KPPA PENSION FUND UNIT - NET RETURNS - 06/30/23 - PROXY PLAN ASSET PERFORMANCE

Structure	Month	3 Months	Fiscal YTD	1 Year	3 Years	5 Years	10 Years	20 Years	30 Years	ITD
PUBLIC EQUITY	**5.72**	**5.57**	**17.74**	**17.74**	**10.87**	**7.55**	**8.57**	**7.89**	**8.61**	**10.21**
MSCI ACWI	5.81	6.18	16.53	16.53	10.83	7.52	8.46	7.82	8.41	10.05
PRIVATE EQUITY	**3.51**	**3.13**	**-1.55**	**-1.55**	**19.70**	**13.91**	**13.39**	**12.29**		**11.82**
Russell 3000 + 3%(Qtr Lag)	3.04	8.02	-5.58	-5.58	21.56	13.51	14.96	11.97		11.83
SPECIALTY CREDIT	**1.67**	**1.90**	**7.16**	**7.16**	**7.72**	**5.66**				**5.70**
50% BB US HY / 50% SP LSTA Leveraged Loan	1.97	2.45	9.94	9.94	4.76	3.78				3.73
CORE FIXED INCOME	**-0.29**	**-0.12**	**1.27**	**1.27**	**-0.35**	**2.23**				**2.39**
Bloomberg Barclays US Aggregate	-0.36	-0.84	-0.94	-0.94	-3.96	0.77				1.52
CASH	**0.40**	**1.05**	**3.38**	**3.38**	**1.24**	**1.59**	**1.21**	**1.69**	**2.71**	**3.31**
Citigroup Treasury Bill-3 Month	0.43	1.25	3.75	3.75	1.33	1.57	0.98	1.31	2.33	2.92
REAL ESTATE	**-1.81**	**-2.19**	**-2.69**	**-2.69**	**11.12**	**10.38**	**9.81**	**8.23**	**6.64**	**6.64**
NCREIF NFI-ODCE Net 1 Qtr in Arrears Index^	-3.38	-3.38	-3.91	-3.91	7.46	6.56	8.47	7.13	7.60	6.47
REAL RETURN	**3.33**	**2.55**	**12.77**	**12.77**	**12.72**	**6.42**	**4.71**			**4.83**
US CPI +3%	0.49	1.81	7.05	7.05	12.76	6.45	4.06			4.13





CERS INS & CERS HAZ INS - INSURANCE FUND - PLAN NET RETURNS - 06/30/23

Plan	Market Value	Month	3 Months	Fiscal YTD	1 Year	3 Years	5 Years	10 Years	20 Years	30 Years	ITD
CERS INS	**3,274,939,261.35**	**3.32**	**3.24**	**10.33**	**10.33**	**9.20**	**6.68**	**7.24**	**6.71**	**6.84**	**7.37**
KY Ins. CERS Plan IPS Index		3.20	4.06	9.54	9.54	8.62	6.28	6.90	6.92	7.04	7.56
CERS - H INS	**1,606,039,586.96**	**3.34**	**3.25**	**10.11**	**10.11**	**9.35**	**6.76**	**7.30**	**6.74**	**6.86**	**7.39**
KY Ins. CERS Haz Plan IPS Index		3.20	4.06	9.54	9.54	8.62	6.28	6.90	6.92	7.04	7.56

KPPA INSURANCE FUND UNIT - NET RETURNS - 06/30/23 - PROXY PLAN ASSET PERFORMANCE

Structure		Month	3 Months	Fiscal YTD	1 Year	3 Years	5 Years	10 Years	20 Years	30 Years	ITD
PUBLIC EQUITY		**5.71**	**5.52**	**17.60**	**17.60**	**10.88**	**7.53**	**8.62**	**7.80**		**8.57**
MSCI ACWI		5.81	6.18	16.53	16.53	10.81	7.49	8.47	7.55		8.37
PRIVATE EQUITY		**2.60**	**2.53**	**1.99**	**1.99**	**21.29**	**13.25**	**14.42**	**11.79**		**10.96**
Russell 3000 + 3%(Qtr Lag)		3.04	8.02	-5.58	-5.58	21.56	13.51	14.96	11.74		11.39
SPECIALTY CREDIT		**1.68**	**2.01**	**7.37**	**7.37**	**7.78**	**5.61**				**5.57**
50% BB US HY / 50% SP LSTA Leveraged Loan		1.97	2.45	9.94	9.94	4.76	3.78				3.73
CORE FIXED INCOME		**-0.31**	**-0.15**	**1.14**	**1.14**	**-0.48**	**2.06**				**2.11**
Bloomberg Barclays US Aggregate		-0.36	-0.84	-0.94	-0.94	-3.96	0.77				1.52
CASH		**0.40**	**1.04**	**3.36**	**3.36**	**1.22**	**1.48**	**1.03**	**1.53**		**2.45**
Citigroup Treasury Bill-3 Month		0.43	1.25	3.75	3.75	1.33	1.57	0.98	1.31		2.35
REAL ESTATE		**-2.02**	**-2.38**	**-3.06**	**-3.06**	**10.84**	**10.29**	**9.76**			**9.60**
NCREIF NFI-ODCE Net 1 Qtr in Arrears Index^		-3.38	-3.38	-3.91	-3.91	7.46	6.56	8.47			6.18
REAL RETURN		**3.56**	**2.86**	**11.12**	**11.12**	**11.64**	**6.28**	**4.54**			**4.60**
US CPI +3%		0.49	1.81	7.05	7.05	11.94	6.45	4.11			4.18