CERS

County Employees Retirement System

CERS Quarterly Performance Update

September 2024

Pension Portfolios Performance

CERS & CERS-HAZ - PENSION FUND PLAN NET RETURNS - 09/30/24

Plan	Market Value	Month	3 Months	Fiscal YTD	1 Year	3 Years	5 Years	10 Years	20 Years	30 Years	ITD
CERS	**10,044,169,836.35**	**1.58**	**4.89**	**4.89**	**18.75**	**6.26**	**8.75**	**7.57**	**7.08**	**8.12**	**8.99**
KY Ret. CERS Plan IPS Index		1.72	4.77	4.77	20.62	6.62	8.83	7.42	7.07	8.13	9.06
CERS- H	**3,568,481,448.72**	**1.58**	**4.92**	**4.92**	**18.92**	**6.27**	**8.71**	**7.56**	**7.07**	**8.12**	**8.99**
KY Ret. CERS Haz Plan IPS Index		1.72	4.77	4.77	20.62	6.62	8.83	7.42	7.07	8.13	9.06

KPPA PENSION FUND UNIT - NET RETURNS - 09/30/24 - 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		**1.89**	**6.69**	**6.69**	**30.10**	**6.75**	**11.54**	**9.12**	**8.08**	**9.20**	**10.48**
MSCI ACWI		2.32	6.61	6.61	31.76	7.65	11.87	9.13	8.03	9.05	10.38
PRIVATE EQUITY		**1.59**	**2.19**	**2.19**	**3.24**	**4.82**	**11.66**	**11.58**	**10.95**		**11.41**
Russell 3000 + 3%(Qtr Lag)		3.33	4.05	4.05	26.12	11.09	17.19	15.28	12.87		12.74
SPECIALTY CREDIT		**1.47**	**3.09**	**3.09**	**12.39**	**7.04**	**6.87**				**6.78**
50% BB US HY / 50% Morningstar LSTA Lev'd Ln		1.17	3.66	3.66	12.66	4.83	5.27				5.07
CORE FIXED INCOME		**1.29**	**5.13**	**5.13**	**11.76**	**1.80**	**2.59**	**3.01**			**3.03**
Bloomberg US Aggregate		1.34	5.20	5.20	11.57	-1.39	0.33	1.84			2.04
CASH		**0.43**	**1.33**	**1.33**	**5.54**	**3.41**	**2.33**	**1.80**	**1.94**	**2.76**	**3.38**
FTSE Treasury Bill-3 Month		0.44	1.37	1.37	5.63	3.63	2.38	1.67	1.59	2.41	3.01
REAL ESTATE		**0.30**	**1.71**	**1.71**	**-5.90**	**2.29**	**5.80**	**7.79**	**7.16**	**6.07**	**6.20**
NCREIF NFI-ODCE Net 1 Qtr in Arrears Index^		-0.66	-0.66	-0.66	-9.99	1.02	2.27	5.47	5.81	7.06	5.91
REAL RETURN		**2.89**	**6.70**	**6.70**	**16.38**	**11.94**	**9.49**	**6.05**			**5.93**
US CPI +3%		0.33	0.97	0.97	5.53	7.33	6.76	4.35			4.29

Insurance Portfolios Performance

CERS INS & CERS HAZ INS - INSURANCE FUND - PLAN NET RETURNS - 09/30/24											
Plan	**Market Value**	**Month**	**3 Months**	**Fiscal YTD**	**1 Year**	**3 Years**	**5 Years**	**10 Years**	**20 Years**	**30 Years**	**ITD**
CERS INS	**3,726,876,732.85**	**1.53**	**4.82**	**4.82**	**18.81**	**6.44**	**8.63**	**7.59**	**6.91**	**7.34**	**7.57**
KY Ins. CERS Plan IPS Index		1.72	4.77	4.77	20.62	6.63	8.63	7.40	6.95	7.62	7.81
CERS - H INS	**1,788,110,052.64**	**1.49**	**4.70**	**4.70**	**18.56**	**6.42**	**8.67**	**7.64**	**6.93**	**7.36**	**7.58**
KY Ins. CERS Haz Plan IPS Index		1.72	4.77	4.77	20.62	6.63	8.63	7.40	6.95	7.62	7.81

KPPA INSURANCE FUND UNIT - NET RETURNS - 09/30/24 - 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		**1.88**	**6.63**	**6.63**	**29.92**	**6.69**	**11.50**	**9.16**	**7.95**		**8.97**
MSCI ACWI		2.32	6.61	6.61	31.76	7.64	11.85	9.13	7.85		8.84
PRIVATE EQUITY		**1.22**	**1.63**	**1.63**	**4.99**	**8.43**	**11.93**	**12.74**	**11.10**		**10.71**
Russell 3000 + 3%(Qtr Lag)		3.33	4.05	4.05	26.12	11.09	17.19	15.28	12.62		12.31
SPECIALTY CREDIT		**1.39**	**3.07**	**3.07**	**12.47**	**7.31**	**6.89**				**6.69**
50% BB US HY / 50% Morningstar LSTA Lev'd Ln		1.17	3.66	3.66	12.66	4.83	5.27				5.07
CORE FIXED INCOME		**1.28**	**5.10**	**5.10**	**11.69**	**1.63**	**2.39**	**2.74**			**2.76**
Bloomberg US Aggregate		1.34	5.20	5.2	11.57	-1.39	0.33	1.84			2.04
CASH		**0.43**	**1.32**	**1.32**	**5.57**	**3.41**	**2.23**	**1.67**	**1.78**		**2.57**
FTSE Treasury Bill-3 Month		0.44	1.37	1.37	5.63	3.63	2.38	1.67	1.59		2.48
REAL ESTATE		**0.38**	**1.68**	**1.68**	**-6.06**	**2.06**	**5.65**	**7.82**			**8.17**
NCREIF NFI-ODCE Net 1 Qtr in Arrears Index^		-0.66	-0.66	-0.66	-9.99	1.02	2.27	5.47			4.75
REAL RETURN		**3.14**	**6.65**	**6.65**	**14.64**	**10.57**	**8.94**	**5.72**			**5.56**
US CPI +3%		0.33	0.97	0.97	5.53	6.98	6.80	4.41			4.33

Internal Portfolios Performance

BNY

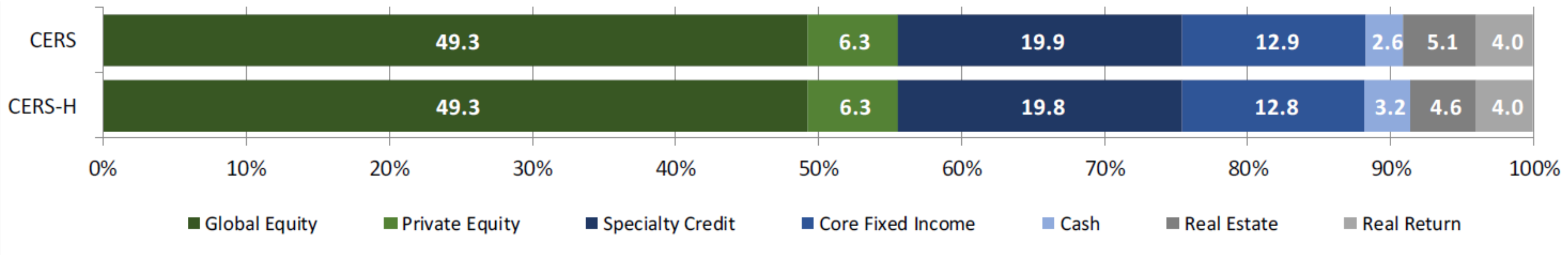
Monthly Investment Manager Performance (Net of Fee)

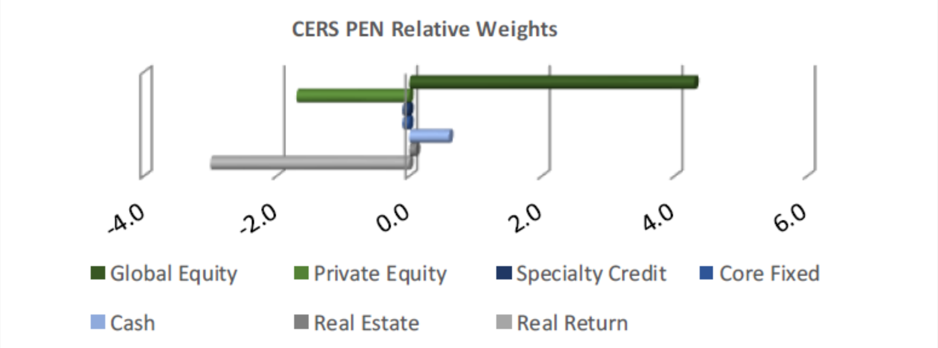
As of Date: 9/30/2024

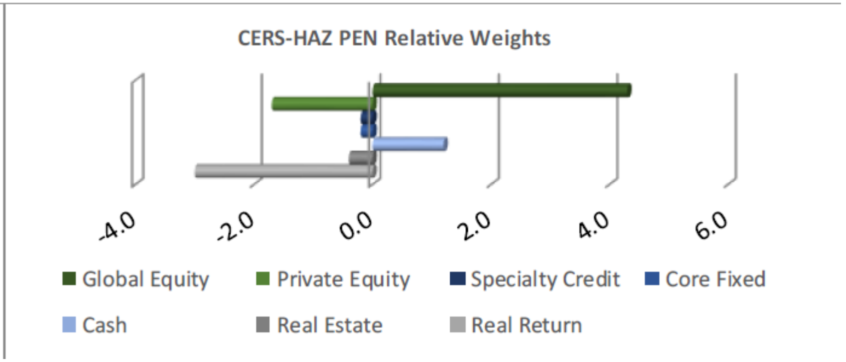
Reporting Currency: BASE

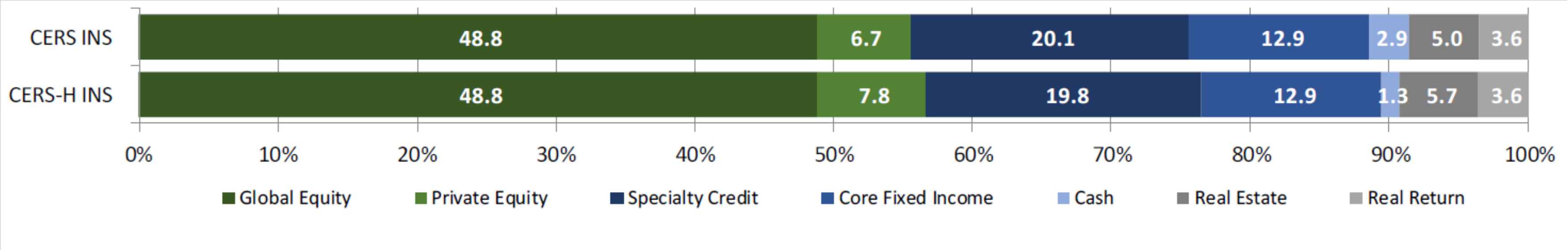
Structure	Account/Security Id	Market Value	% of Total	Month	3 Months	Fiscal YTD	1 Year	3 Years	5 Years	10 Years	20 Years	ITD	Inception Date
PUBLIC EQUITY													
S&P 500 INDEX	KR2F19020002	3,451,868,181.96	17.35	2.13	5.88	5.88	36.27	11.98	16.20	13.50	10.96	9.32	7/1/2001
KY Ret. S&P Blend	KR2GX00SP500			2.14	5.89	5.89	36.35	11.91	15.98	13.38	10.89	9.24	7/1/2001
Internal US Mid Cap	KR2F10100002	226,767,708.87	1.14	1.08	6.95	6.95	27.71	8.19	12.48	10.81		10.66	8/1/2014
S&P MidCap 400 Index	IX1F0000180C			1.16	6.94	6.94	26.79	7.47	11.78	10.32		10.18	8/1/2014
Scientific Beta	KR2F10110002	282,197,377.80	1.42	1.59	8.03	8.03	28.72	7.97	10.84			11.24	7/1/2016
S&P 500 - Total Return Index	IX1F00079488			2.14	5.89	5.89	36.35	11.91	15.98			15.04	7/1/2016
PRIVATE EQUITY													
INTERNAL PRIVATE EQ	KR2F48100002	90,999,868.25	0.46	1.31	5.13	5.13						16.50	12/1/2023
CORE FI													
INTERNAL CORE FI	KR2F30250002	1,017,348,078.00	5.11	1.32	5.28	5.28	11.90					8.31	9/1/2023
Bloomberg U.S. Aggregate Bond Index	IX1F00003848			1.34	5.20	5.20	11.57					8.04	9/1/2023
REAL ESTATE													
INTERNAL REAL ESTATE	KR2F48200002	53,185,497.33	0.27	3.40	17.11	17.11						15.45	12/1/2023
NCREIF NFI ODCE Net 1Qtr in Arrears Index^	IX1G00369207			-0.66	-0.66	-0.66							
REAL RETURN													
INTERNAL REAL RETURN	KR2F36130002	271,596,188.64	1.37	4.85	12.93	12.93						18.43	12/1/2023
KRS CPI + 300 bpts	KR2GX005CPI3			0.33	0.97	0.97						4.80	12/1/2023
INTERNAL TIPS	KR2F39010002	142,334.60	0.00	0.43	1.32	1.32	5.49	3.62	2.54	2.26	3.47	4.24	5/1/2002
KR2 Internal US TIPS Blend	KR2GX000TIPS			1.25	3.43	3.43	8.88	1.00	3.29	2.62	3.62	4.38	5/1/2002
CASH ACCOUNT	KR2F90010002	601,749,157.70	3.02	0.43	1.33	1.33	5.54	3.41	2.33	1.80	1.94	3.38	1/1/1988
FTSE Treasury Bill-3 Month	IX1F0003127C			0.44	1.37	1.37	5.63	3.63	2.38	1.67	1.59	3.01	1/1/1988

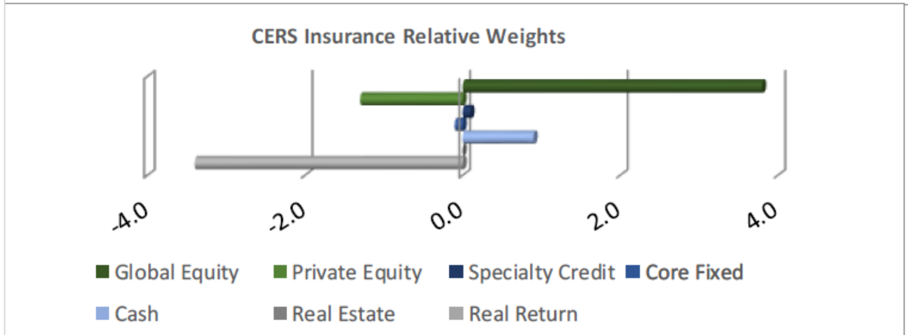
Allocations

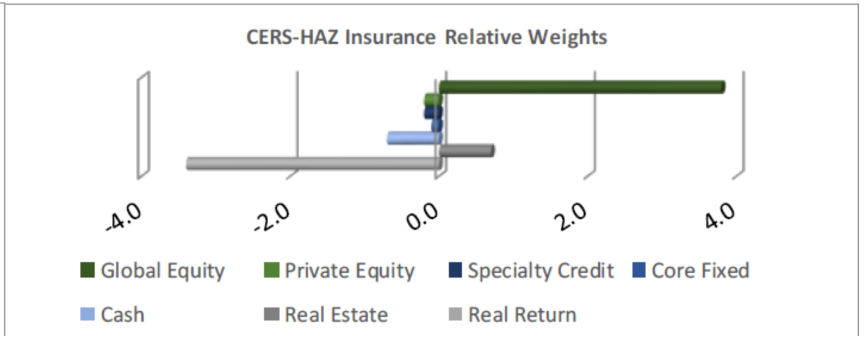












Performance Highlights

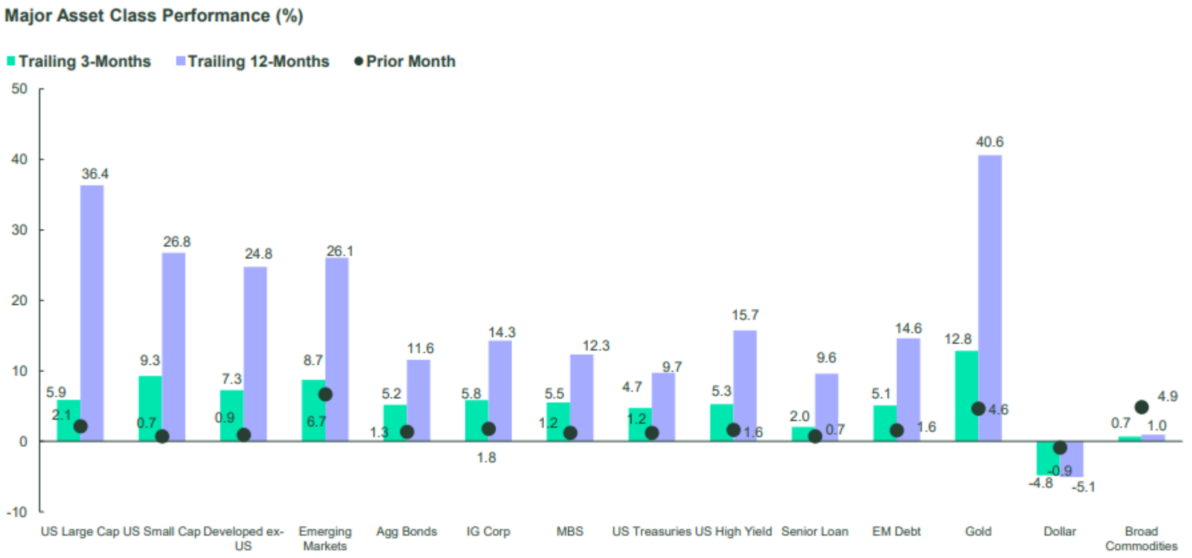
- The CERS Pension Composite produced a return of 4.90% while the CERS Insurance Composite returned 4.78% for the quarter versus the benchmark return of 4.77%.

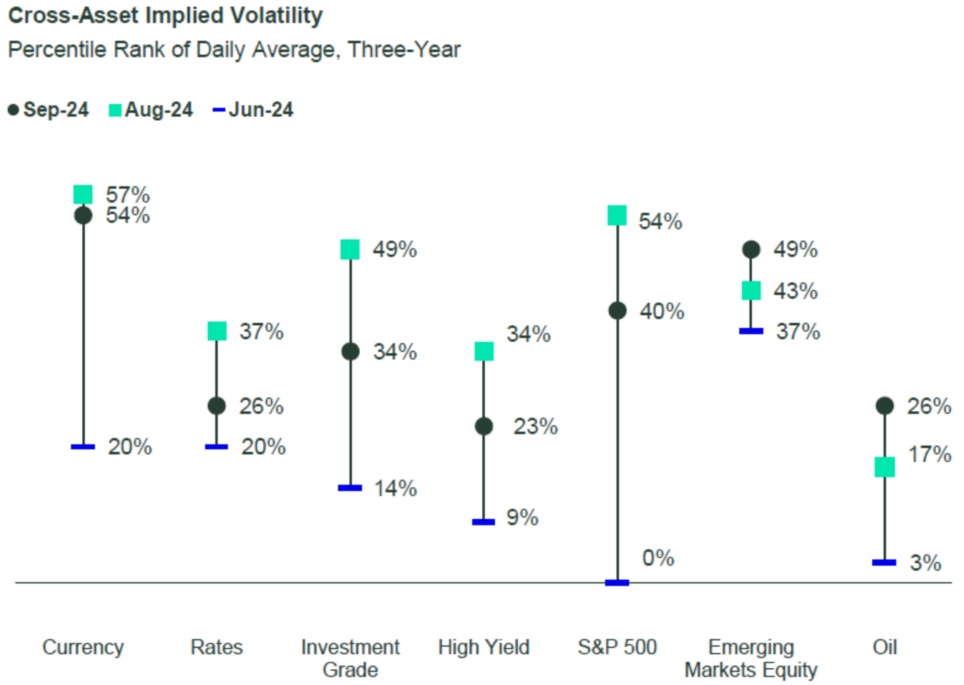
  CERS Pension 4.89%
  CERSH Pension 4.92%
  CERS Insurance 4.82%
  CERSH Insurance 4.70%
  Benchmark 4.77%

- Across portfolios, the largest contributors to outperformance were the relative outperformance in the Real Return and Real Estate portfolios as well as the overweight to Public Equities and the underweight to Real Return while underperformance in the Private Equity portfolio relative to its public equity benchmark was a modest detractor.

- Markets struggled early in the quarter as rising fears of a US recession led to a sharp rotation out of growth stocks and into value stocks. Equity markets fell while the yield curve steepened. Markets began to stabilize in August as stronger than expected data alleviated near-term recession fears and gained steam with the Fed signaling rate cuts were imminent. September saw markets further buoyed as the Fed began the easing cycle by cutting rates 50 bps and indicating a further 100 bps of cuts by the end of 2025.

- While the probability of a recession remains remote, monetary policy will continue to have an unduly high impact via the valuations discounting mechanism and the interaction between fiscal and monetary policy will be crucial to future outcomes.



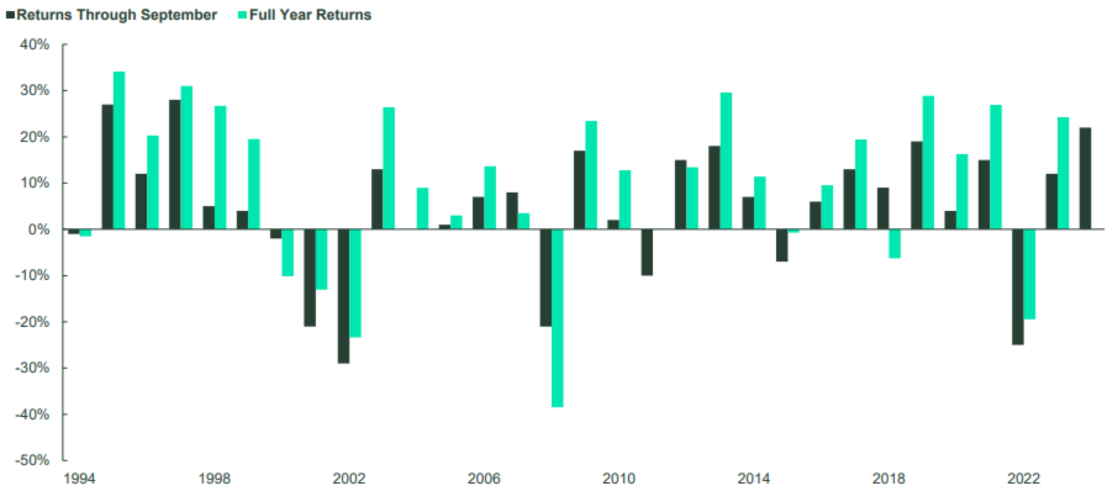


Performance Highlights

Public Equities

- Despite bouts of volatility, Public Equity markets pushed higher during the quarter with broad market indices reaching all-time highs as they recovered strongly from the early August lows with markets buoyed by the start of the Fed easing cycle.
- Market participation broadened significantly with a rotation in leadership away from Technology with Real Estate and Utilities the best performing sectors while Financials and Industrials contributed the most to performance and Value outperformed Growth.
- Small caps significantly outperformed Large caps for the quarter but still trailed by a large margin over the LTM.
- The S&P 500 Index is up 22% YTD, its best nine month start since 1997.
- International Equities markets also performed well, outperforming their US counterparts during the quarter with emerging markets outperforming developed.
- Small Cap equities remain compelling, trading near historic trough levels compared to the fuller valuations in Large Caps. A declining interest rate environment should bode well for this segment of the market as these companies tend to be more sensitive to borrowing costs.

S&P 500 Nine-Months Compared to the Rest of the Year

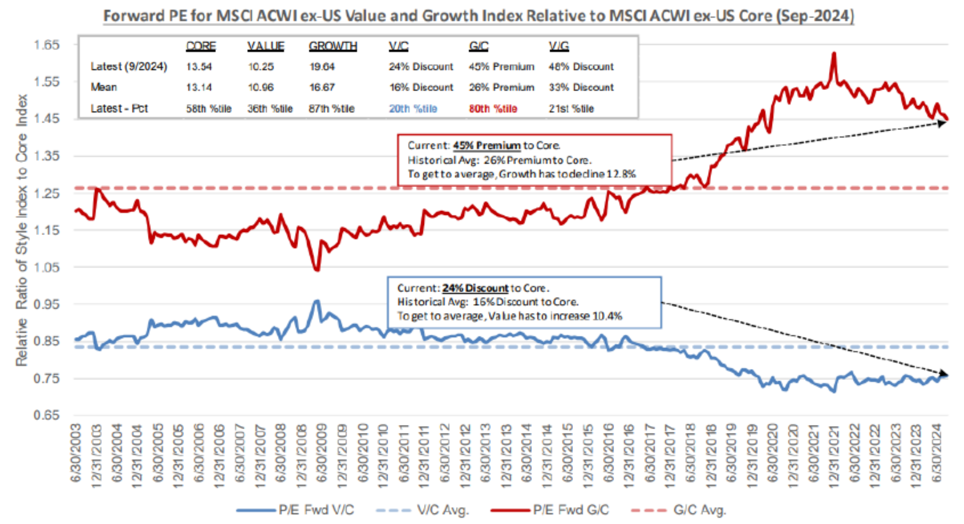


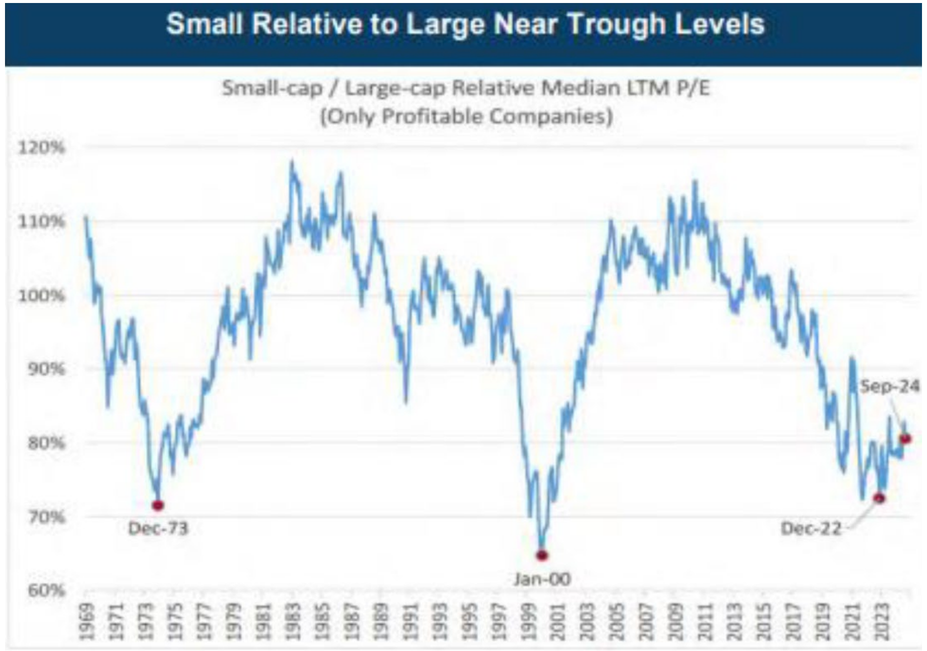
Performance Highlights

Public Equities

- The Public Equity portfolio returned 6.69% during the quarter versus its benchmark return of 6.61%.
- Overall, the relative overweight to Non-US equities was a positive contributor to performance while stock selection modestly detracted from performance.
- The US Equity Portfolio returned 6.18% vs 6.23% for the Russell 3000 with 5 of 7 mandates performing in line or outperforming their benchmark.
- The Non-US Equity Portfolio returned 7.47% vs 8.18% for the MSCI ACWI Ex-US with broad underperformance at the mandate level but outperformance provided by deep value strategies.
- Over the LTM the Public Equity portfolio has underperformed the benchmark by 166 basis points due to value and size factor tilts in the US portfolio and broad-based stock selection weakness in the Non-US portfolio.

Relative Valuations of Value vs. Growth at Extreme Levels





Performance Highlights

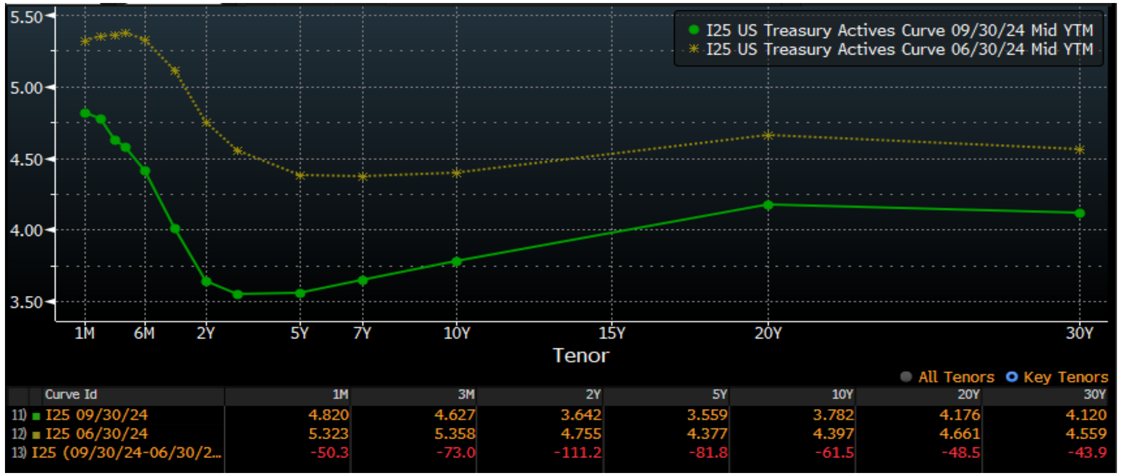
Core Fixed Income

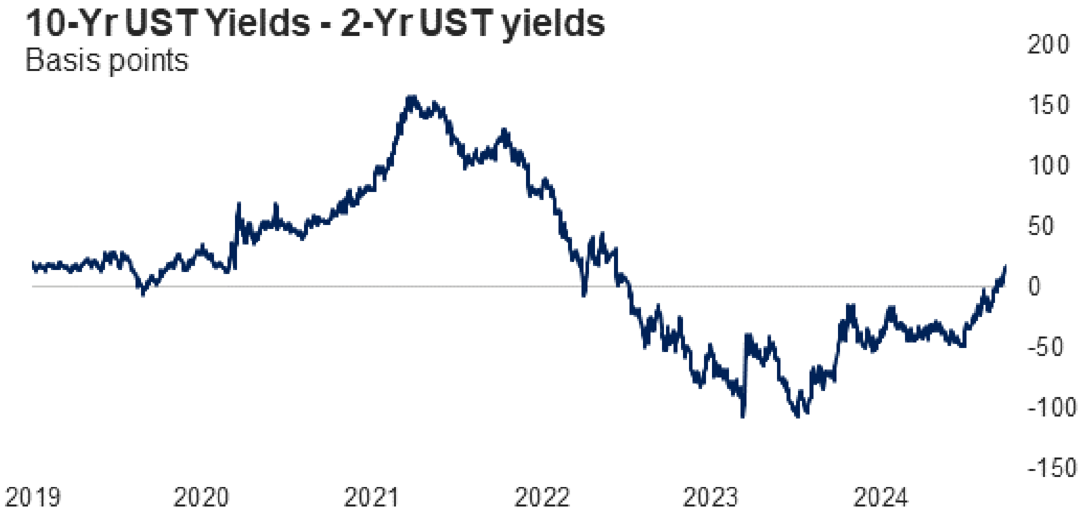
- US Treasury yields dropped across the curve over the quarter with the Federal Reserve cutting rates at their September meeting.

- The 2YR rallied the most with yields declining 111 basis points causing the 2-10YR curve to have a positive slope for the first time since mid-2022, finishing the quarter with a spread of 14 basis points.

- The 2YR closed the quarter at 3.64% while the 5YR US Treasury yield fell 82 basis points to close at 3.56%. The 10YR yield was 62 basis points lower to close at 3.78%. The 20YR and 30YR yields were lower 49 basis points and 44 basis points to finish the quarter at 4.18% and 4.12%, respectively.

- As of September 30, markets priced in an additional 75 basis points of cuts by the end of 2024, 25 basis points more than the FOMC's median of their dot plot.

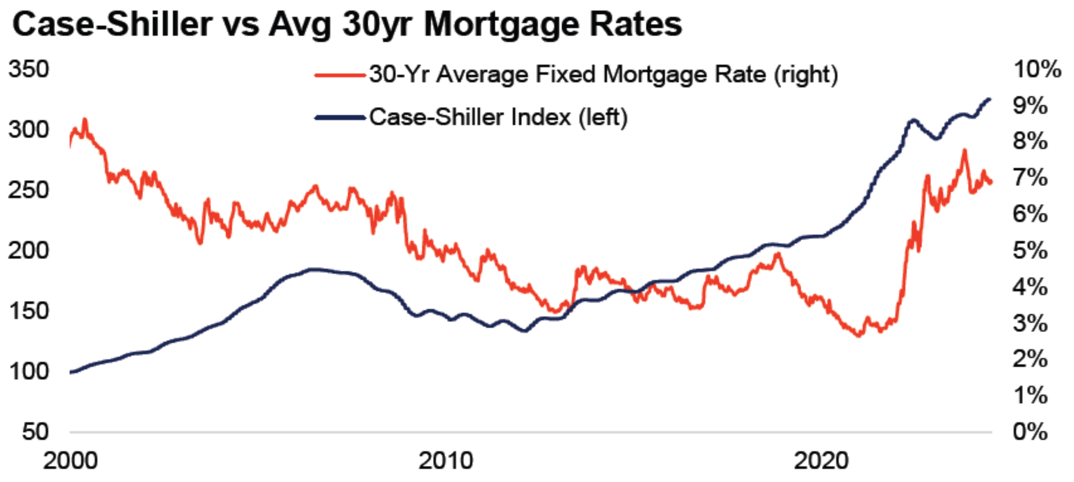


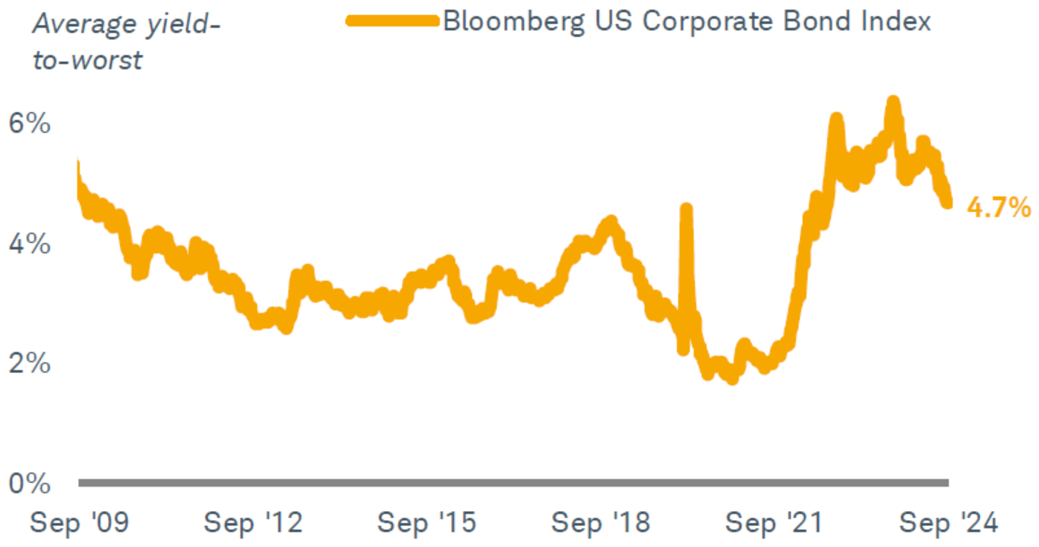


Performance Highlights

Core Fixed Income

- The Core Fixed Income Portfolio produced a return of 5.13% for the quarter, slightly underperforming the benchmark's return of 5.20%. The Internal Core portfolio produced a return of 5.28% for the quarter.
- The portfolio's relative underperformance was driven by an overweight ABS allocation as the sector generated a 3.35% total return for the quarter, the lowest of the Securitized sectors.
- Within the broader Securitized sector, MBS led the way with a 5.53% return followed by CMBS which produced a 4.65% while ABS returns trailed at 3.35%.
- The Corporate index OAS (Option Adjusted Spread) closed 5 basis points tighter at 89 during the quarter generating a total return of 5.84%, the best performing sector of the market, benefitting the most from falling yields.
- Home prices have steadily risen since GFC and surged in the pandemic. Demand from increasing immigration has mixed with inflexible supply to drive prices higher. Mortgage rates will fall slightly as the Fed cuts rates, but that will lead to further price increases.

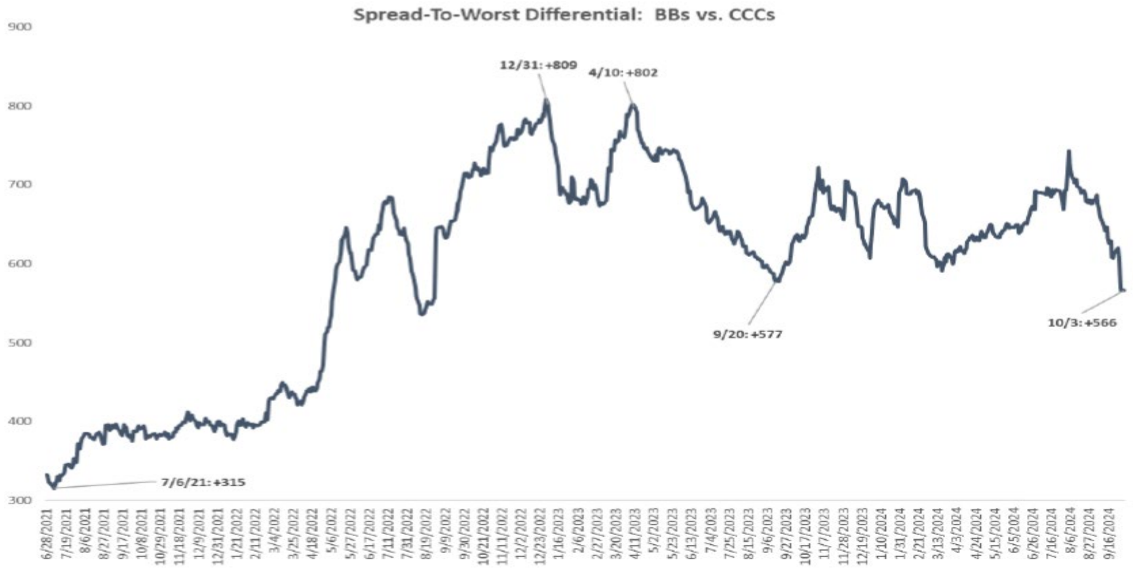




Performance Highlights

Specialty Credit Fixed Income

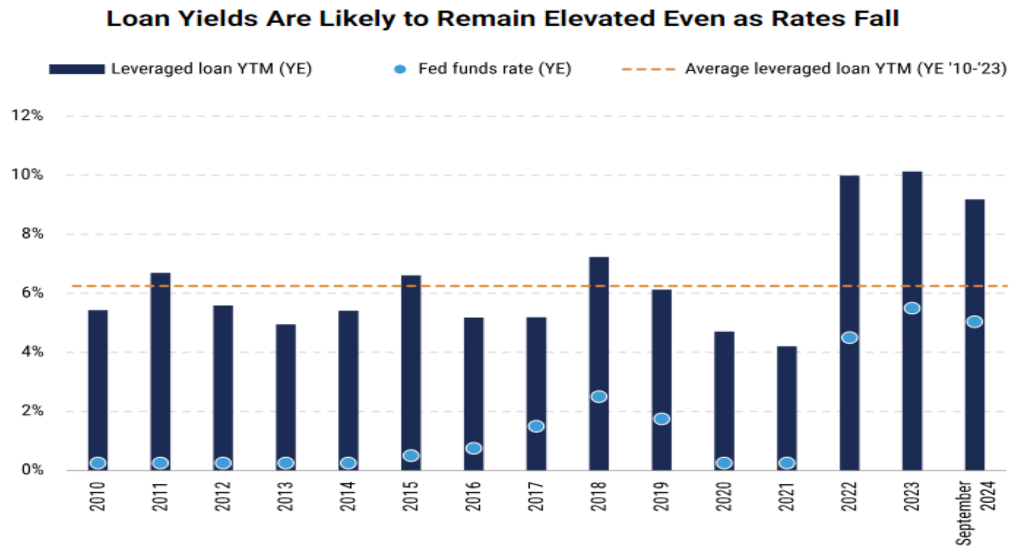
- The Specialty Credit portfolio produced a return of 3.09% for the quarter, underperforming the custom benchmark which returned 3.66%.
- Overall underperformance was driven by the relative overweight to floating rate exposure and shorter durations which benefitted less from the rally in rates during the quarter.
- The public market mandates with the Specially Credit portfolio underperformed during the quarter driven by security selection and industry allocation. Underweight allocations to distressed issuers, especially in the communication related sectors, hampered relative performance as these issuers significantly outperformed the non-distressed portion of the market.
- Over longer periods the portfolio has contributed significant outperformance, beating the benchmark by 221 and 160 basis points over three- and five-year periods respectively.

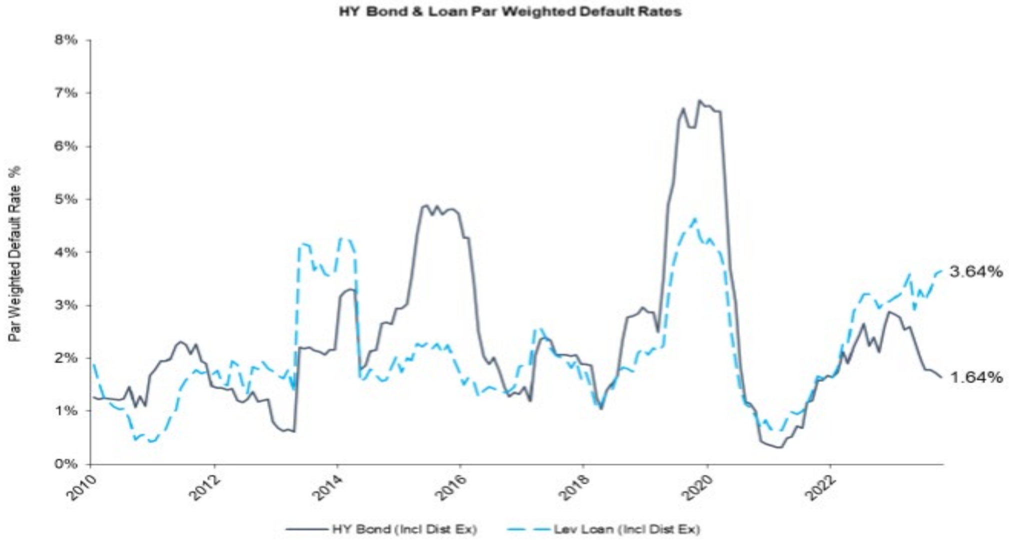


Performance Highlights

Specialty Credit Fixed Income

- The High Yield option adjusted spread (OAS) tightened 14 basis points during the quarter to 295.
- Lower quality and longer-dated issuers continued to outperform. For the quarter, BB, B, and CCC rated issues returned 4.20%, 4.53%, and 9.22%, respectively.
- Despite the Fed rate cut, loans posted an 11^{th} consecutive monthly gain in September as coupons remained attractive.
- Loan issuance rebounded sharply in September with $97.1 billion coming to market, a 276% increase from August. Year-to-date issuance has been dominated by repricing and refinancing activity, which have accounted for 52% and 35% of issuance, respectively.
- The high yield bond default and distressed exchange activity remained moderate for the quarter. The LTM par-weighted default rate including distressed exchanges decreased to 1.64%.
- Default and distressed exchange activity remains concentrated in the leveraged loan market, where the par-weighted default rate increased to 3.64%.
- The 200 basis point spread between high yield bond and leveraged loan default activity is the largest difference since October 2000.





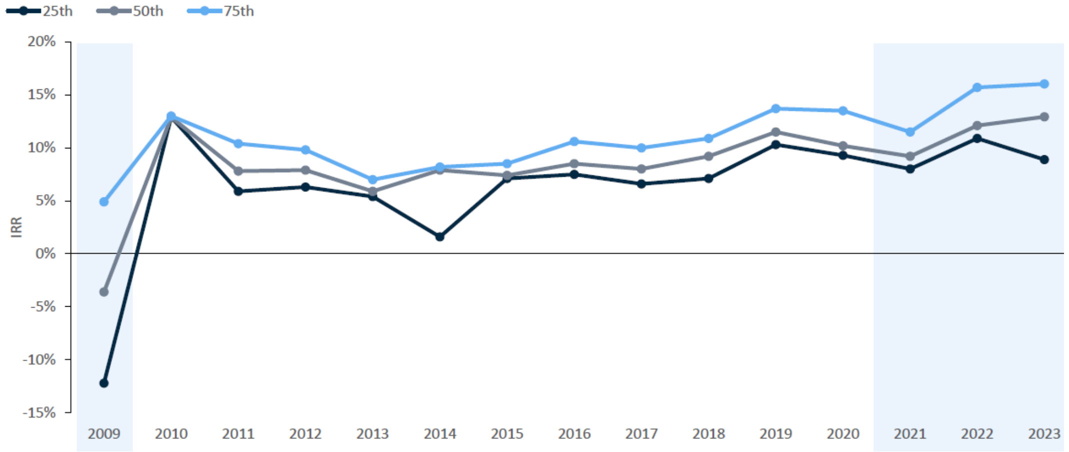
Performance Highlights

Specialty Credit Fixed Income

- Bearish ratings trends in the public high yield market continued, with activity on pace for a sixth straight year of the rating agency upgrade to downgrade ratios at 1x. Weakening business trends combined with more aggressive capital allocation plans have started to impact balance sheet metrics.
- While the possibility of having 'higher for longer' interest rates may cause stress for over-leveraged borrowers, today's accommodative capital markets and strong borrower demand present an attractive setup for Private Credit.
- Yield levels remain at relative highs and compare favorably to most credit alternatives.
- Private credit continues to gain lending market share as traditional banks retreat further from the market.

	Returns by calendar year					2024	
	2019	2020	2021	2022	2023	Q1	Q2
Global private-equity funds	17.6%	33.7%	40.4%	-8.4%	5.8%	1.2%	0.8%
Venture capital	20.4%	58.2%	49.8%	-20.6%	-2.2%	1.3%	-0.4%
Expansion capital	7.3%	18.2%	27.9%	-11.3%	3.9%	-0.2%	1.5%
Buyout	16.9%	24.6%	37.7%	-1.5%	9.6%	1.2%	1.2%
Global private-credit funds	6.9%	7.2%	15.6%	3.8%	10.0%	1.9%	2.1%
Senior	6.4%	7.9%	7.7%	3.5%	11.6%	1.8%	2.1%
Mezzanine	9.4%	8.5%	16.0%	4.9%	10.4%	2.6%	2.5%
Distressed	4.3%	7.9%	21.8%	3.4%	8.9%	2.0%	2.1%
Global private-real-asset funds	4.5%	0.9%	22.7%	8.3%	1.1%	0.7%	1.1%
Real estate	8.3%	1.6%	26.6%	1.9%	-6.4%	-0.8%	-0.3%
Natural resources	-5.0%	-9.4%	32.4%	21.7%	1.6%	3.8%	2.4%
Infrastructure	8.1%	7.8%	13.6%	9.8%	8.2%	1.1%	2.1%

Private Credit Fund Vintage IRR Quartiles[1]



1. Source: Burgiss is a recognized source of private equity data, and the Burgiss Manager Universe includes funds representing the full range of private capital strategies; it may not include all private equity funds.

Performance Highlights

Real Return - Real Estate

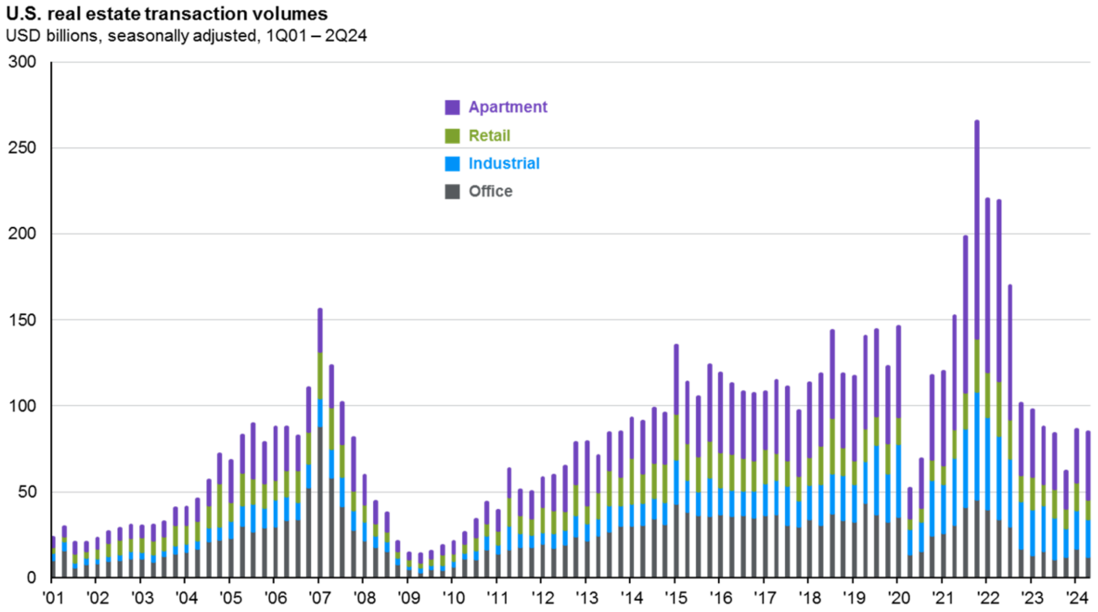
- Real Return markets were broadly positive for the quarter while Real Estate markets continued to struggle, with the benchmark posting its sixth consecutive quarter of negative performance.

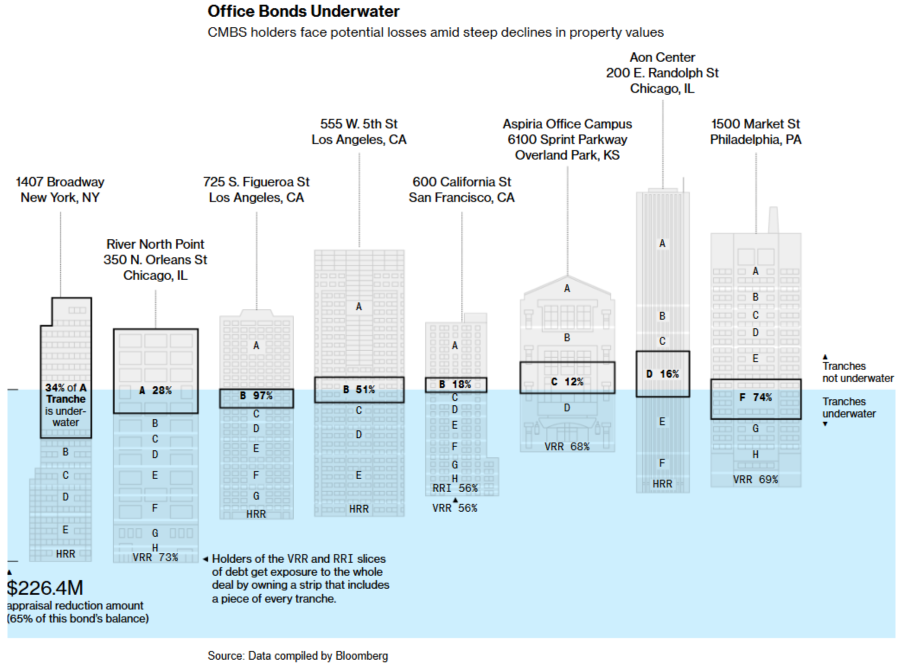
- The Real Estate portfolio produced a return of 1.71% during the quarter, outpacing the benchmark's -0.66% return.

- Relative outperformance was driven by the portfolio's open-ended Core strategies which were able to produce positive performance during the quarter although LTM performance remained negative. These strategies have benefitted from lower exposures to the most stressed parts of the market including the Office sector.

- While the prospects of Fed cuts has sparked a degree of optimism in the sector and there are nascent signs of stabilization, the market continues to struggle with low transaction volumes, anemic fundraising, still elevated rates and stagnant rental growth which warrants continued caution for the sector.

- The Office sector continues to face headwinds, with losses reaching the most senior tranches of some commercial mortgage-backed securities for the first time since the Great Financial Crisis.





Performance Highlights

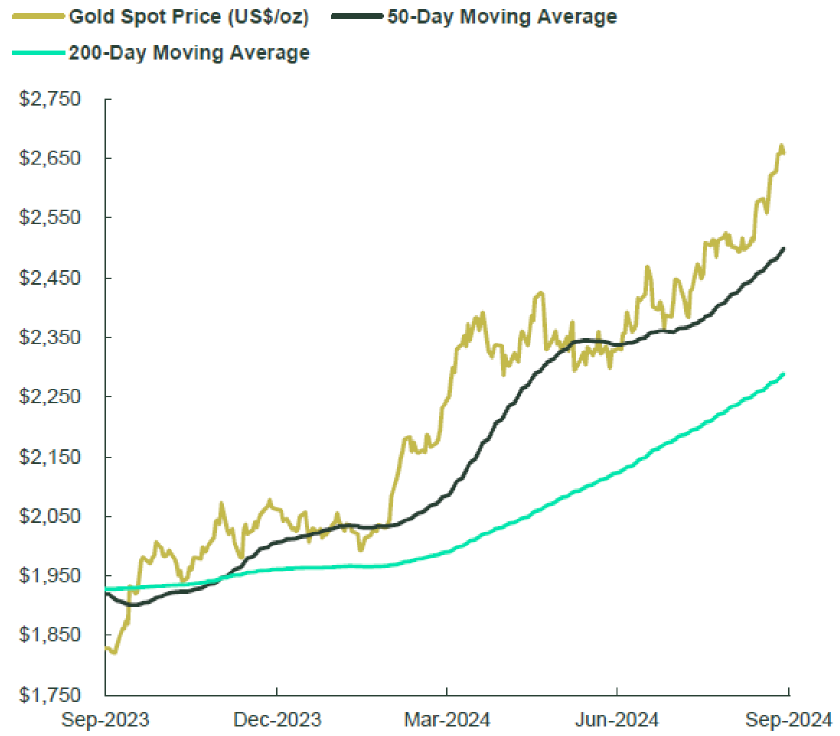
Real Return - Real Estate

- The Real Return portfolio continued to perform well during the quarter posting a return of 6.70% which outpaced the 0.97% return of the benchmark.

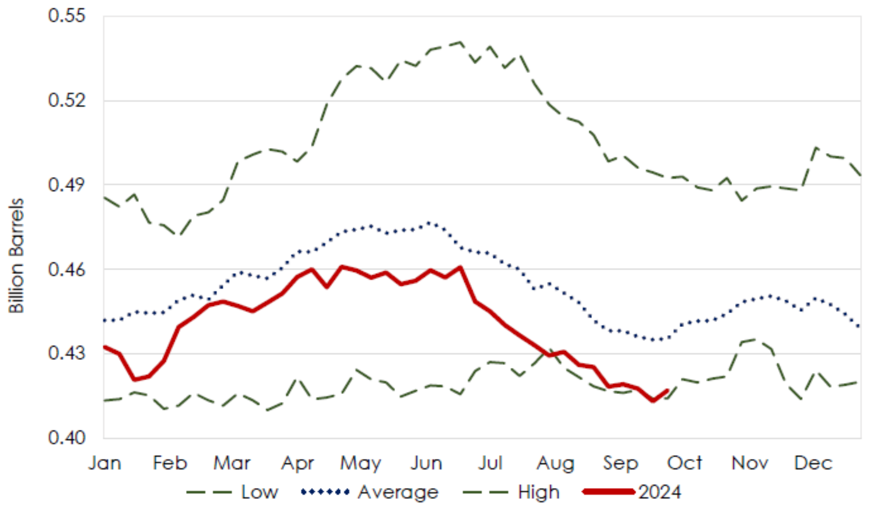
- Performance benefitted from strong performance across the recently approved and funded Real Return mandates, all of which outperformed their benchmark during the Quarter.

- The portfolio's MLP exposure continued to produce solid performance, with a return of 5.99% for the quarter versus its benchmark return of 0.72% and is up over 33% LTM as strong cash flows, disciplined capex and consolidation have continued to benefit the industry.

- Broad commodities were relatively flat for the quarter, with gold rising almost 13% and silver returning 7% while oil was down almost 18%.
  - Oil was down 18% near its lowest level over the past twelve months, but remains generally in line with post-COVID levels.
  - Gold was up almost 13% for the quarter and tallied its fortieth record high for 2024.
  - Agricultural commodities and industrial metals produced modestly positive performance during the quarter.



5-Year Seasonal Analysis of Crude Inventories in the United States

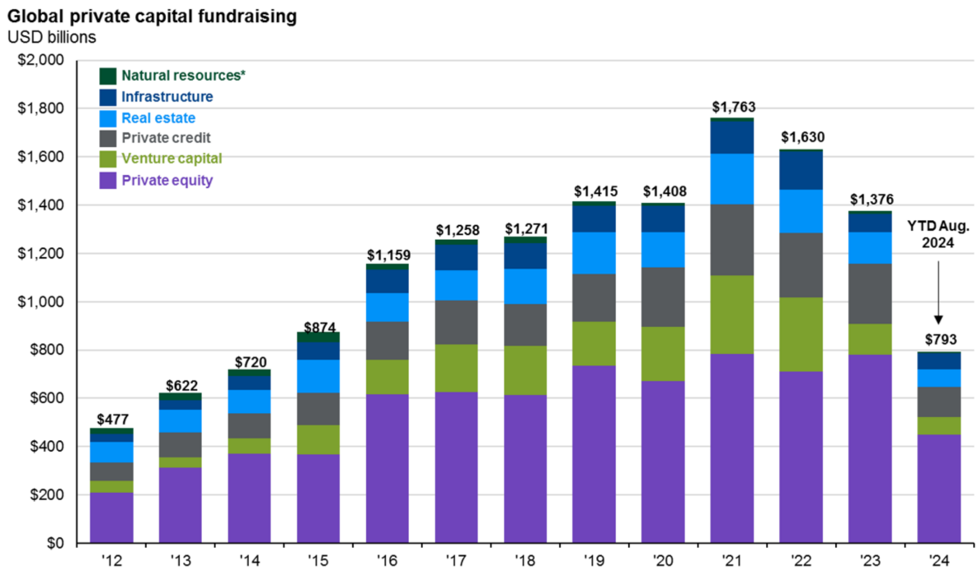


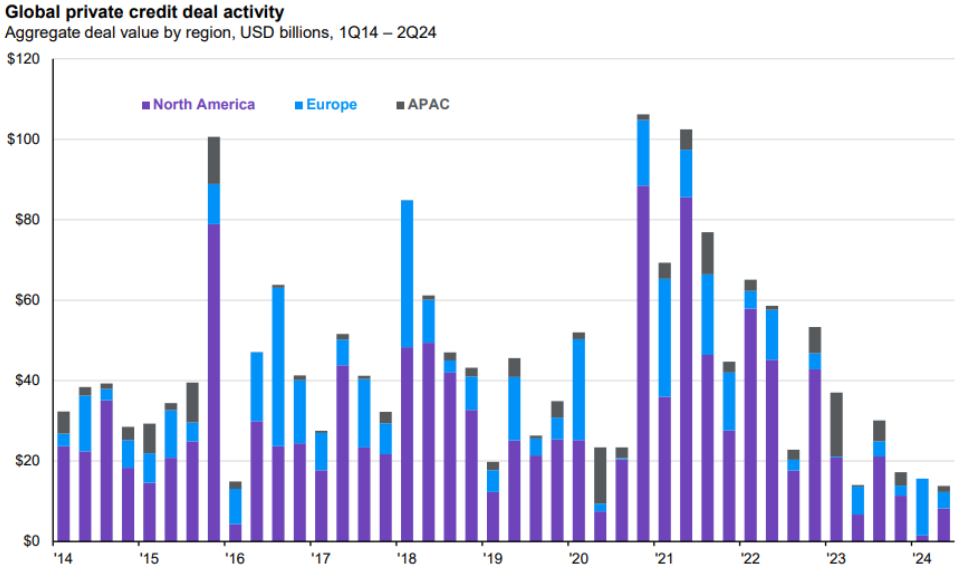
Source: U.S. Department of Energy, Bloomberg

Performance Highlights

Private Equity

- The Private Equity portfolio produced a return of 2.19% for the quarter, underperforming the benchmark's return of 4.05%.
- Performance relative to the benchmark (Russell 3000 + 3% based on a quarter lag) continues to be volatile given the market and timing misalignments as well as the vintage of the investments in the portfolio.
- While the pace of PE Fund exits and distributions have picked up recently, the very slow pace of distributions remains a concern for LPs in PE funds as newly raised funds continued to call capital while distributions from mature funds have been muted since 2022.
- Pricing in the secondary market has continued to improve, but remains well below peak levels reached in 2021. Some categories are still 25% below 2021 levels.
- Capital remained scarce as GPs faced a more arduous fundraising environment with constrained capital allocations from LPs as a result of limited distributions and already full allocations which continues to slowdown overall deal activity.





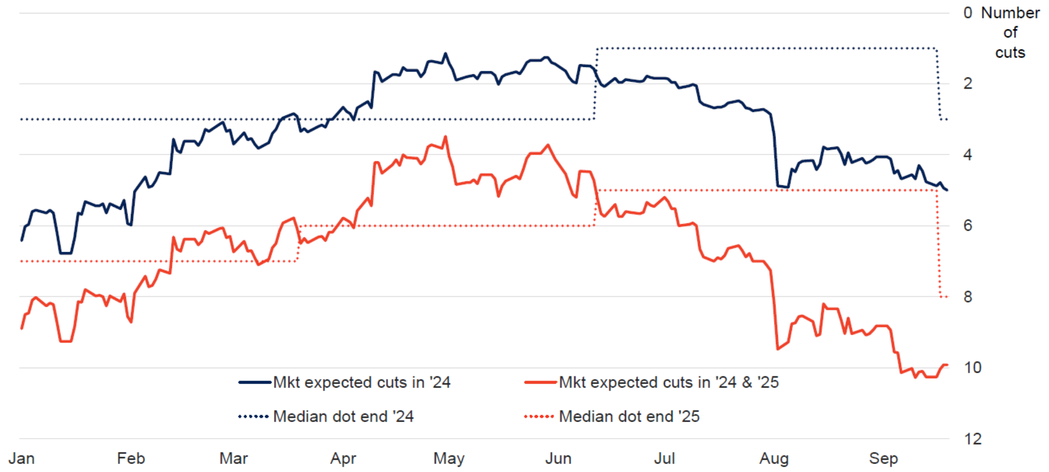
Source: Preqin, J.P. Morgan Asset Management. APAC includes data from Asia, Australia and New Zealand.
Data are based on availability as of August 31, 2024.

Performance Highlights

Liquidity

- Dot plot estimates moved decidedly lower in September, indicating a faster pace of rate cuts than anticipated in June. The longer-run range did not change, but the distribution is more even and a higher terminal rate is now expected.
- Cash produced a return of 1.33% for the 3-month period ending September 30th, slightly underperforming its 3-Month Treasury Bill benchmark which returned 1.37%.
- After more than a year on hold, the Fed cut rates 50 basis points in September, the first rate cut in more than four years. The question now for markets is how far the Fed will cut and how quickly they'll get there.
- The Federal Reserve has shifted the focus from inflation to jobs seeing two 25 basis point cuts for the remainder of 2024 and expects to cut four times in 2025 with the median neutral rate of 2.75 – 3.00%.

Market expectation versus FOMC dot-plot median



Dots reset mostly reflecting big September cut