Kentucky Retirement Systems

State Police Retirement System

KRS Quarterly Performance Update

March 2024

Pension Portfolios Performance

KERS, KERS-HAZ, & SPRS - PENSION FUND - PLAN NET RETURNS - 03/31/24

Plan	Market Value	Month	3 Months	Fiscal YTD	1 Year	3 Years	5 Years	10 Years	20 Years	30 Years	ITD
KERS	**4,081,825,041.84**	**1.94**	**3.37**	**8.23**	**10.81**	**4.94**	**7.15**	**6.32**	**6.33**	**7.76**	**8.74**
KY Ret. KERS Plan IPS Index		1.58	3.29	8.03	10.91	4.91	6.66	6.13	6.29	7.72	8.78
KERS- H	**1,007,566,621.66**	**2.22**	**4.30**	**9.76**	**13.03**	**6.03**	**7.98**	**6.95**	**6.64**	**7.97**	**8.90**
KY Ret. KERS Haz Plan IPS Index		1.79	4.37	9.77	13.77	6.22	7.92	6.82	6.64	7.96	8.96
SPRS	**643,514,934.86**	**1.90**	**3.41**	**8.47**	**10.93**	**5.27**	**7.28**	**6.29**	**6.32**	**7.75**	**8.73**
KY Ret. SPRS Plan IPS Index		1.58	3.29	8.03	10.91	4.91	6.66	6.09	6.27	7.71	8.77

KPPA PENSION FUND UNIT - NET RETURNS - 03/31/24 - PROXY PLAN ASSET PERFORMANCE

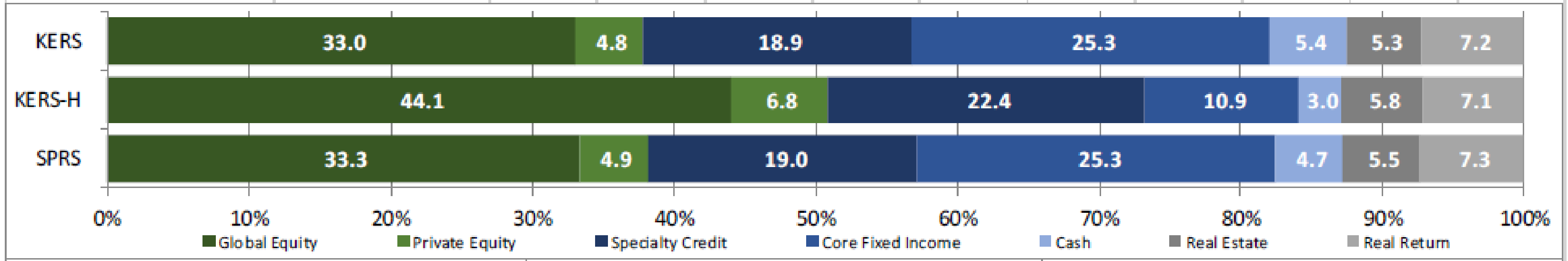
Structure		Month	3 Months	Fiscal YTD	1 Year	3 Years	5 Years	10 Years	20 Years	30 Years	ITD
PUBLIC EQUITY		**3.27**	**8.22**	**15.44**	**21.88**	**5.97**	**10.61**	**8.41**	**7.58**	**9.10**	**10.40**
MSCI ACWI		3.14	8.20	16.05	23.22	6.28	10.51	8.38	7.50	8.89	10.26
PRIVATE EQUITY		**1.51**	**1.08**	**4.05**	**7.30**	**13.63**	**13.10**	**11.95**	**10.92**		**11.59**
Russell 3000 + 3%(Qtr Lag)		5.71	12.01	19.38	28.96	11.61	18.21	14.61	12.15		12.31
SPECIALTY CREDIT		**1.38**	**2.58**	**8.93**	**11.00**	**6.71**	**6.54**				**6.39**
50% BB US HY / 50% Morningstar LSTA Lev'd Ln		1.02	1.97	9.17	11.84	4.13	4.88				4.66
CORE FIXED INCOME		**0.97**	**-0.59**	**4.78**	**4.65**	**0.37**	**2.31**	**2.60**			**2.67**
Bloomberg US Aggregate		0.92	-0.78	2.56	1.70	-2.46	0.36	1.54			1.65
CASH		**0.46**	**1.36**	**3.94**	**5.03**	**2.51**	**2.04**	**1.54**	**1.83**	**2.75**	**3.35**
FTSE Treasury Bill-3 Month		0.46	1.37	4.21	5.52	2.70	2.07	1.39	1.48	2.39	2.97
REAL ESTATE		**-0.95**	**-4.24**	**-8.92**	**-10.92**	**5.97**	**6.87**	**8.18**	**7.41**	**6.10**	**6.26**
NCREIF NFI-ODCE Net 1 Qtr in Arrears Index^		-5.00	-5.00	-9.68	-12.73	4.01	3.34	6.33	6.25	7.25	6.07
REAL RETURN		**3.00**	**4.75**	**11.36**	**14.19**	**10.91**	**8.12**	**5.43**			**5.42**
US CPI +3%		0.85	1.79	4.27	6.15	8.55	6.72	4.35			4.23

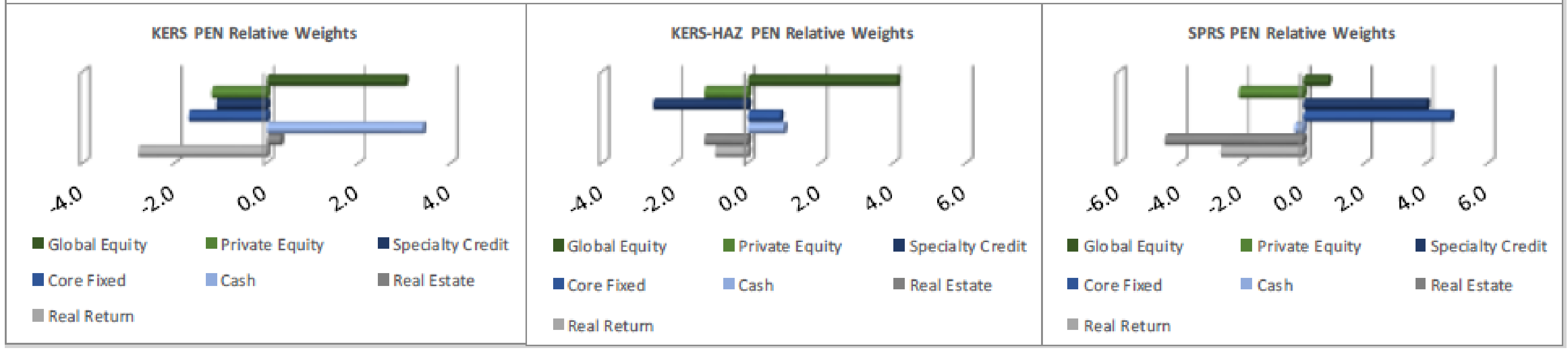
Insurance Portfolios Performance

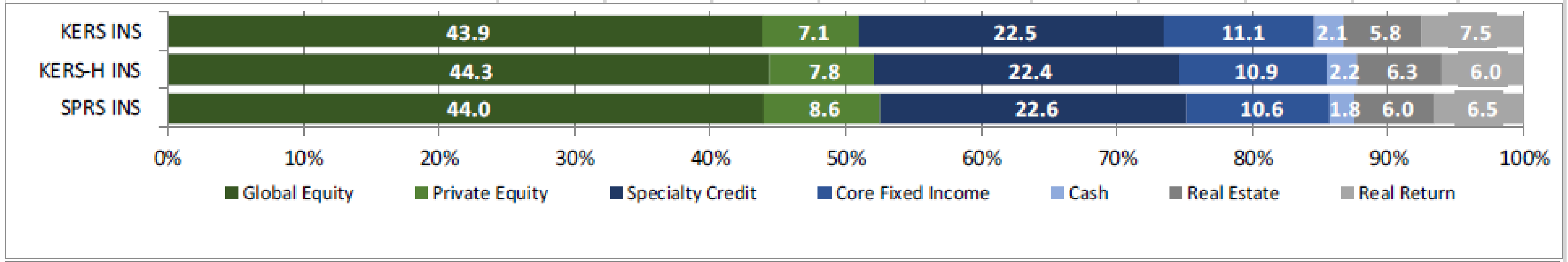
KERS INS, KERS-HAZ INS, SPRS INS - INSURANCE FUND - PLAN NET RETURNS - 03/31/24											
Plan	**Market Value**	**Month**	**3 Months**	**Fiscal YTD**	**1 Year**	**3 Years**	**5 Years**	**10 Years**	**20 Years**	**30 Years**	**ITD**
KERS INS	**1,647,445,780.61**	**2.23**	**4.40**	**9.73**	**13.10**	**5.97**	**7.99**	**6.77**	**6.37**	**7.03**	**7.38**
KY Ins. KERS Plan IPS Index		1.79	4.37	9.77	13.77	6.15	7.82	6.83	6.53	7.38	7.69
KERS - H INS	**663,026,680.28**	**2.14**	**4.31**	**9.68**	**12.80**	**6.42**	**8.06**	**7.02**	**6.52**	**7.13**	**7.47**
KY Ins. KERS Haz Plan IPS Index		1.79	4.37	9.77	13.77	6.15	7.71	6.82	6.53	7.38	7.69
SPRS INS	**267,015,860.37**	**2.14**	**4.28**	**9.63**	**12.88**	**6.49**	**8.25**	**7.20**	**6.61**	**7.19**	**7.51**
KY Ins. SPRS Plan IPS Index		1.79	4.37	9.77	13.77	6.15	7.71	6.84	6.54	7.39	7.69

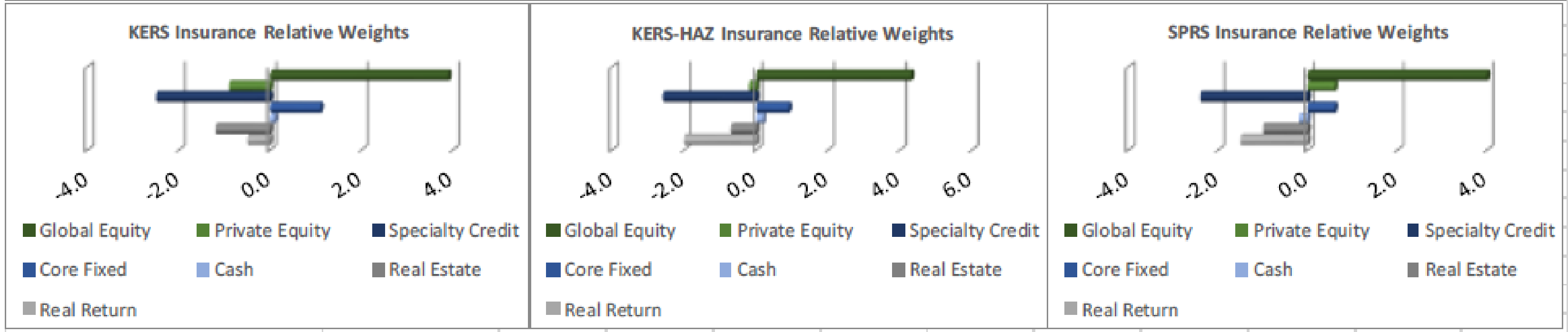
KPPA INSURANCE FUND UNIT - NET RETURNS - 03/31/24 - PROXY PLAN ASSET PERFORMANCE											
Structure		**Month**	**3 Months**	**Fiscal YTD**	**1 Year**	**3 Years**	**5 Years**	**10 Years**	**20 Years**	**30 Years**	**ITD**
PUBLIC EQUITY		**3.25**	**8.17**	**15.37**	**21.73**	**5.95**	**10.59**	**8.47**	**7.53**		**8.85**
MSCI ACWI		3.14	8.20	16.05	23.22	6.27	10.48	8.38	7.35		8.67
PRIVATE EQUITY		**2.01**	**1.99**	**6.01**	**8.69**	**16.11**	**12.96**	**13.28**	**10.94**		**10.86**
Russell 3000 + 3%(Qtr Lag)		5.71	12.01	19.38	28.96	11.61	18.21	14.61	11.86		11.88
SPECIALTY CREDIT		**1.39**	**2.69**	**9.10**	**11.29**	**6.90**	**6.55**				**6.30**
50% BB US HY / 50% Morningstar LSTA Lev'd Ln		1.02	1.97	9.17	11.84	4.13	4.88				4.66
CORE FIXED INCOME		**0.98**	**-0.63**	**4.63**	**4.47**	**0.23**	**2.12**	**2.33**			**2.39**
Bloomberg US Aggregate		0.92	-0.78	2.56	1.70	-2.46	0.36	1.54			1.65
CASH		**0.47**	**1.37**	**3.95**	**5.04**	**2.51**	**1.93**	**1.41**	**1.68**		**2.52**
FTSE Treasury Bill-3 Month		0.46	1.37	4.21	5.52	2.70	2.07	1.39	1.48		2.43
REAL ESTATE		**-1.03**	**-4.12**	**-8.66**	**-10.84**	**5.80**	**6.82**	**8.27**			**8.44**
NCREIF NFI-ODCE Net 1 Qtr in Arrears Index^		-5.00	-5.00	-9.68	-12.73	4.01	3.34	6.33			5.14
REAL RETURN		**2.53**	**3.96**	**9.71**	**12.84**	**9.50**	**7.67**	**5.13**			**5.09**
US CPI +3%		0.85	1.79	4.27	6.15	7.95	6.76	4.40			4.27

Allocations



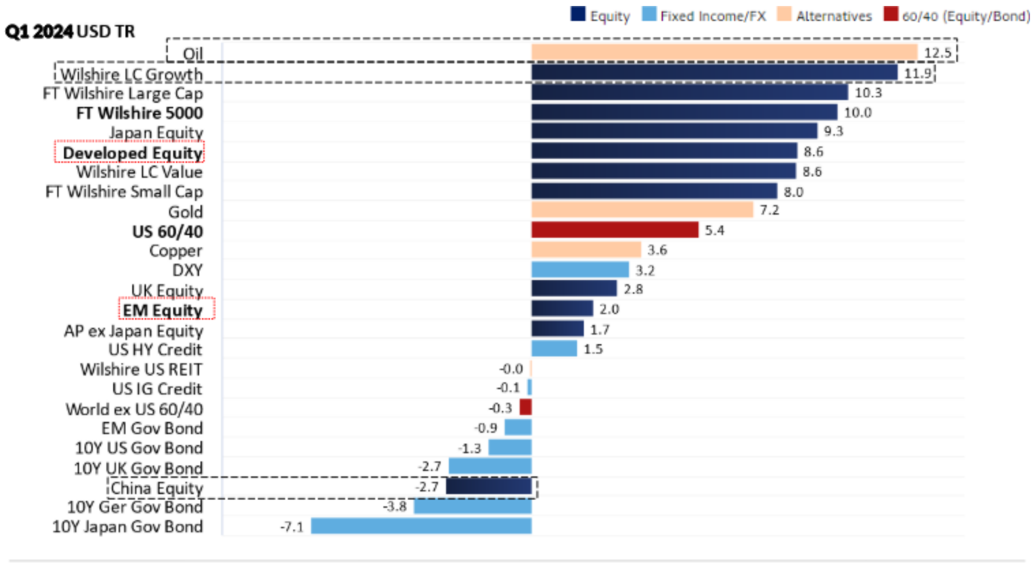




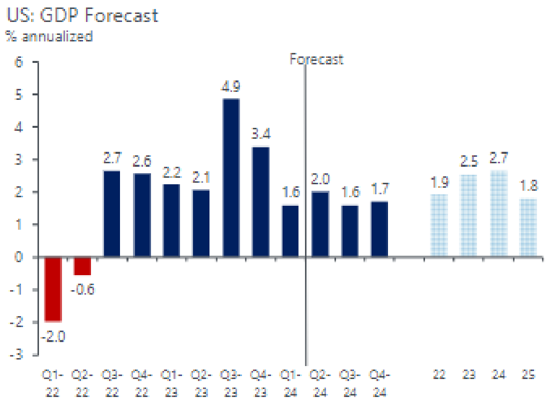


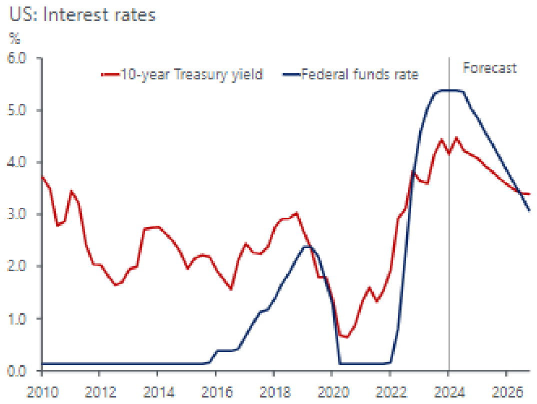
Performance Highlights

- The KRS Pension Composite produced a return of 3.54% for the quarter with the KERS and SPRS portfolios returning 3.37% and 3.41% respectively, while their benchmark returned 3.29%
- The KERSH Pension portfolio returned 4.30%% versus its benchmark return of 4.37%
- The Insurance portfolios had similar performance with returns ranging from 4.28% to 4.40%
- Across portfolios, for the quarter the largest contributors to outperformance were the underweight positioning in Core Fixed Income and the overweight in Public Equities as well as the relative outperformance of the Specialty Credit portfolio
- The most significant detractors of performance was the relative underperformance of the Private Equity portfolio compared to its public markets benchmark
- Despite geopolitical concerns and US rates rising on expectations of a shallower US easing cycle, markets charged higher during the quarter with various markets setting all-time highs on the back of AI optimism and US exceptionalism
- 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 outcomes for 2024



Source: Wilshire Indexes, FactSet and Refinitiv. Data as of March 29, 2024





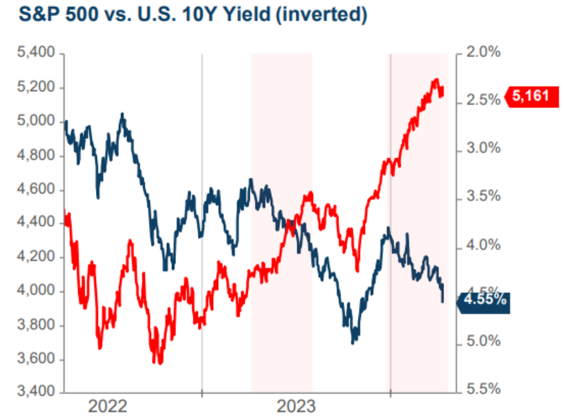
Source: Oxford Economics/Haver Analytics

Performance Highlights

Public Equities

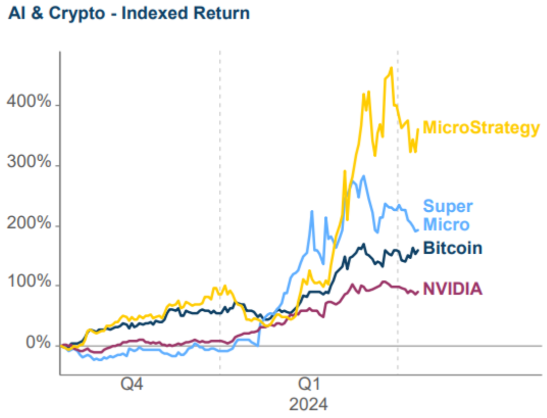
- Public Equity markets pushed higher despite expectations of fewer cuts pointing to higher rates for longer based on signals of economic strength
- Market participation broadened to include cyclicals and hard assets
- Large caps continued to outperform small and midcaps, growth outperformed value
- Stocks are priced close to perfection, meaning a lot has to go right for stocks to move higher, as such it is important to prioritize high quality and practice value discipline
- International Equity markets experienced steady growth during the quarter
- Improved inflation and growth trends, financial conditions eased, improved manufacturing activity, and earnings growth remained strong bolstering international developed markets
- Emerging market equities were mixed, domestic-oriented economies strengthened, while commodity-linked countries were weaker

The S&P and Rates (Inverted) Have Moved In Lockstep Outside of the AI Frenzy Over the Summer and in Q1



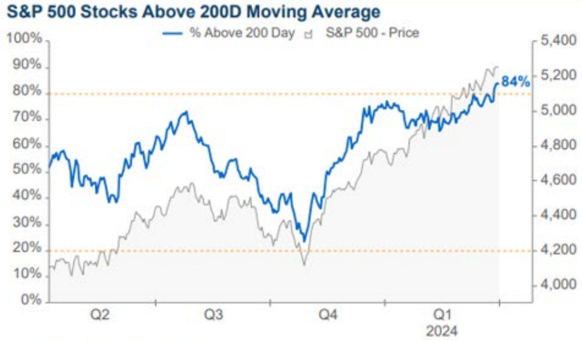
Source: FactSet as of 4/10/2024

AI & Crypto Related Assets Caught Fire in 1Q



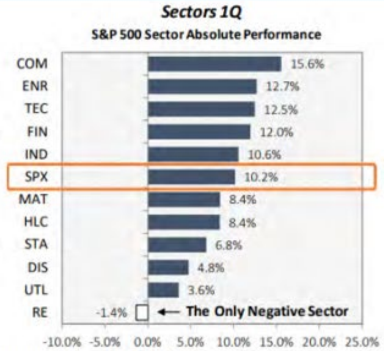
Source: FactSet as of 4/10/2024

Over 80% of the S&P 500 Above the 200 Day Moving Average



Source: FactSet as of 3/29/2024

Participation Broadening Beyond Tech into Cyclicals



Source: Piper Sandler, as of 4/1/2024

Performance Highlights

Public Equities

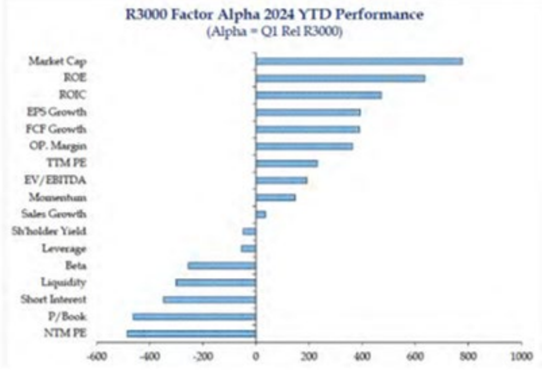
- The Public Equity portfolio returned 8.22% during the quarter versus its benchmark return of 8.20%
- Stock selection was a positive contributor to performance while a relative underweight to US and relative overweight to Non-US detracted from performance
- The US Equity Portfolio returned 10.33% vs 10.02% for the Russell 3000
- The Non-US Equity Portfolio returned 5.01% vs 4.33% for the MSCI ACWI Ex-US
- In the US portfolio, only 1 strategy did not outperform during the quarter, but it behaved as expected given factor tilts
- In the Non-US portfolio, relative performance was mixed, but skewed positive as strategies with modest style tilts performed better than those with a more aggressive bent

YTD Size and Style Returns (03/31/24)

	Value	Core	Growth
Large	8.99%	10.30%	11.41%
Mid	8.23%	8.60%	9.50%
Small	2.90%	5.18%	7.58%

**Data from FactSet, Russell Indices

Source: Westfield, FactSet, as of 3/31/2024



Source: Strategas, as of 3/31/2024

Source: Piper Sandler, as of 3/31/2024

Performance Highlights

Core Fixed Income

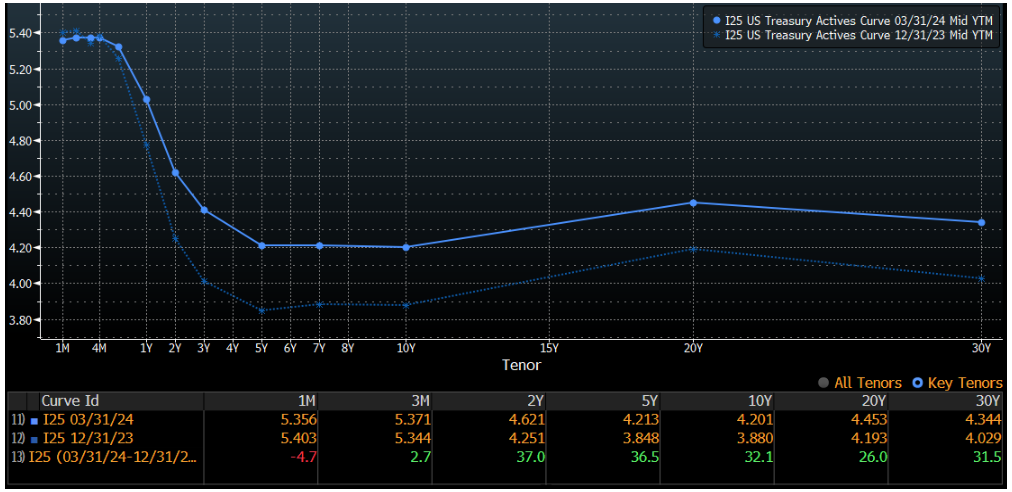
- Treasury rates rose across the curve, leading most fixed income categories to end the quarter with yields around their long-term averages

- Strong corporate and economic trends continued to boost the fundamental outlook for spread sectors and credit spreads tightened further in most categories, ending the quarter at the lower end of historical range

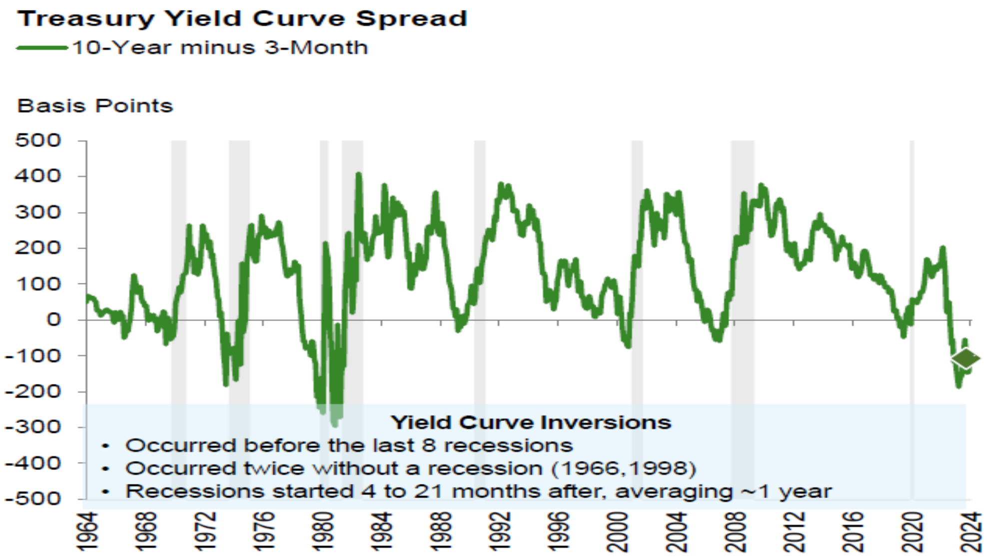
- The Treasury 10-Year minus 3-Month inversion continues with the current level at -117 basis points at the end of the quarter

- Corporate bonds were once again the top performing spread sector, outgaining same duration Treasuries by 89 basis points for the quarter

- Surprisingly, CMBS was the best performer within the securitized sector providing 145 basis points of excess returns followed by ABS providing 54 basis points of excess returns for the quarter



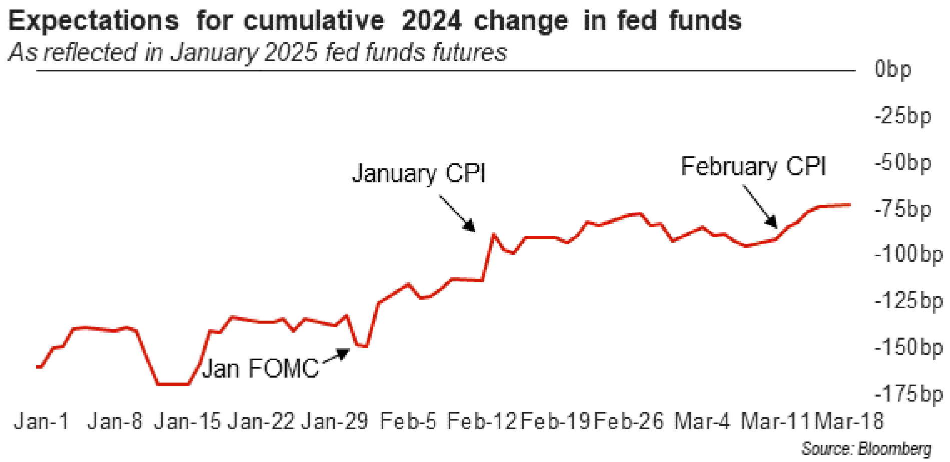
	Curve Id	1M	3M	2Y	5Y	10Y	20Y	30Y
11)	I25 03/31/24	5.356	5.371	4.621	4.213	4.201	4.453	4.344
12)	I25 12/31/23	5.403	5.344	4.251	3.848	3.880	4.193	4.029
13)	I25 (03/31/24-12/31/2...	-4.7	2.7	37.0	36.5	32.1	26.0	31.5

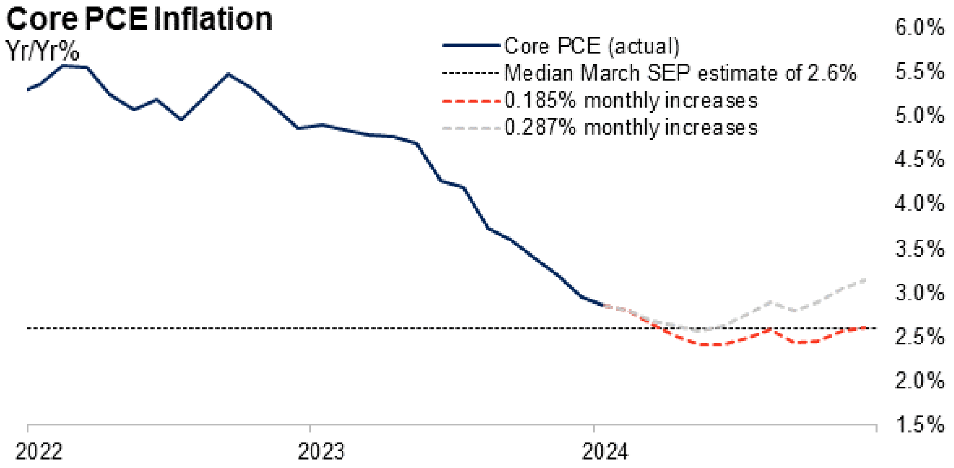


Performance Highlights

Core Fixed Income

- The Core Fixed Income Portfolio produced a return of -0.59% for the quarter, outperforming the benchmark’s return of -0.78%
- The portfolio’s relative outperformance was driven by its higher allocation to corporate and ABS sectors compared to the benchmark
- Despite losing ground during the quarter, FYTD the portfolio continued to deliver strong relative performance producing a return of 4.78% and outperforming the Bloomberg Aggregate Index by 222 basis points
- The bond market is trading with less optimism for 2024 policy easing than the start of the year
- Fed funds futures trading have slowly converged with the March dot plot’s median projection for three 25 basis point cuts in 2024
- Starting 2024, futures had priced in almost seven 25 basis point cuts
- Because of inflation concerns, all eyes will be on the PCE report for March released at the end of April

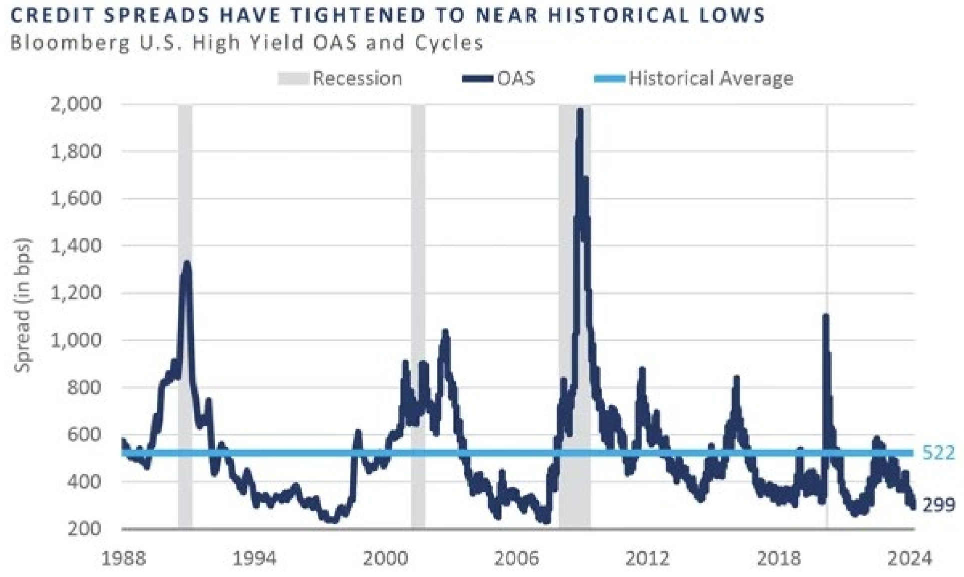


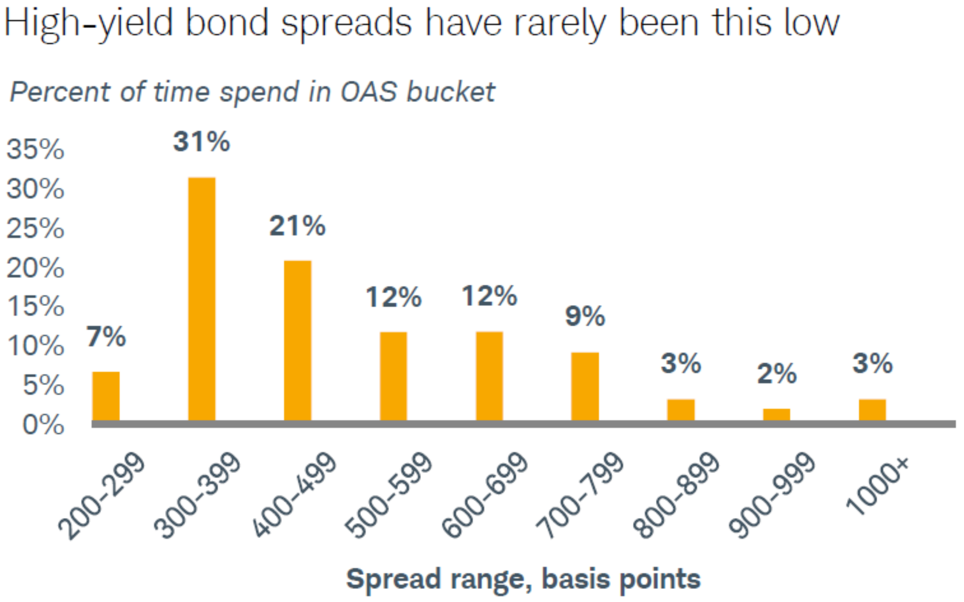


Performance Highlights

Specialty Credit Fixed Income

- The Specialty Credit portfolio produced a return of 2.58% for the quarter, outperforming the blended benchmark which returned 1.97%. Fiscal Year to Date the portfolio has continued to perform well, returning 8.93% compared to the benchmark's return of 9.17%
- The public High Yield Bond and Private Credit components of the portfolio were all positive contributors to relative performance, mandates with structured credit and mortgage-backed exposures performed well as spreads tightened
- Over longer periods the portfolio has contributed significant outperformance, beating the benchmark by 258 and 166 basis points over three- and five-year periods respectively
- The High Yield option adjusted spread (OAS) tightened 24 basis points for the quarter and 91 basis points fiscal year-to-date to 299



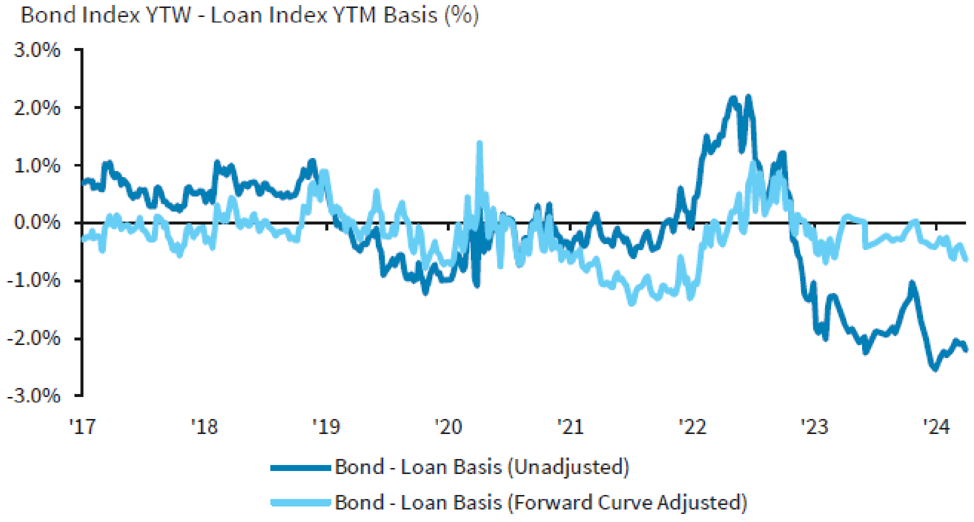


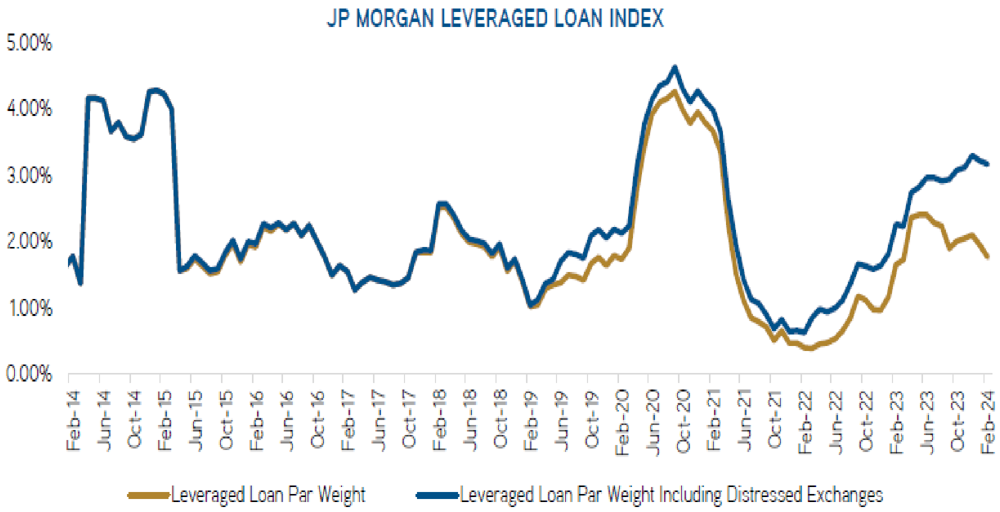
Performance Highlights

Specialty Credit Fixed Income

- With high yield spreads compressing to historically tight levels, the yield offering of loans versus high yield is attractive
- The spot yield pickup between loans and high yield is over 200 basis points, and on a curve-adjusted basis, the differential is still nearly 50 basis points
- Due to the elevated carry, demand for loans continues to increase
- Default activity in the leveraged finance markets subsided in March
- The trailing twelve-month par-weighted default rates for high yield bonds and leveraged loans ended the quarter at 1.67% and 1.77%, respectively, well below historical averages of approximately 3%
- After a relatively low level of M&A in 2023, early 2024 has shown a reversal in the trend within selected industries like Financials, Energy and Technology

Loan Yields vs HY Bonds

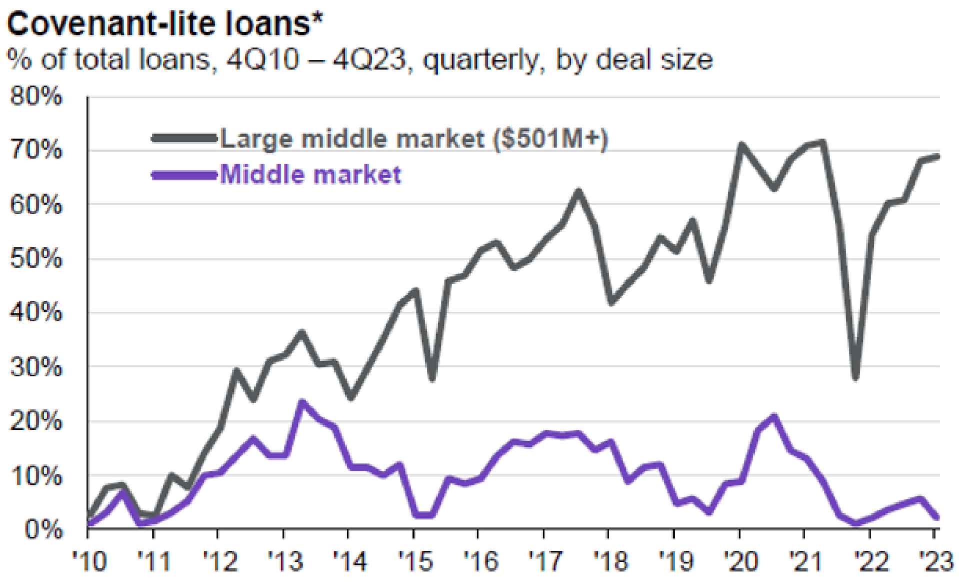


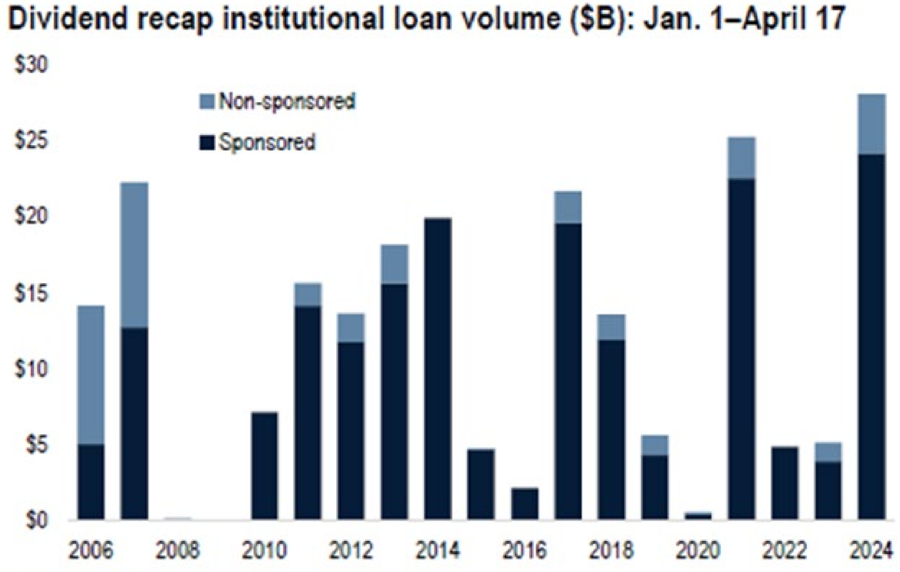


Performance Highlights

Specialty Credit Fixed Income

- While volumes in several areas have rebounded sharply, certain sectors have acted as if the easy money era never ended with generally worse credit protections and terms for lenders
- Leveraged loan issuance backing dividend recaps have risen significantly and are on a record pace as traditional deal-exit routes for private equity remain limited
- Recent spread compression in Private Credit has been driven by increased competition among lenders with significant capital to deploy as well as the revitalization of the syndicated loan market
- We continue to view the space as one of the most attractive current investment opportunities, but remain selective in deploying capital favoring mangers with strong underwriting that protect capital rather than being volume focused



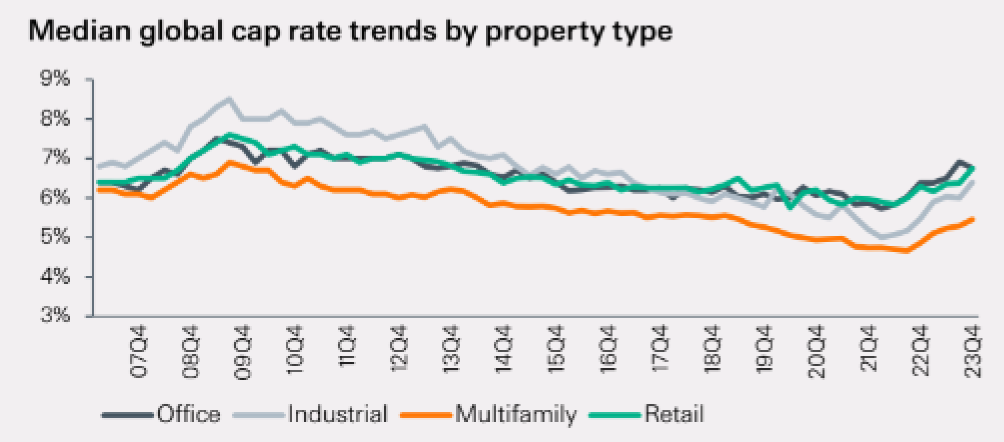


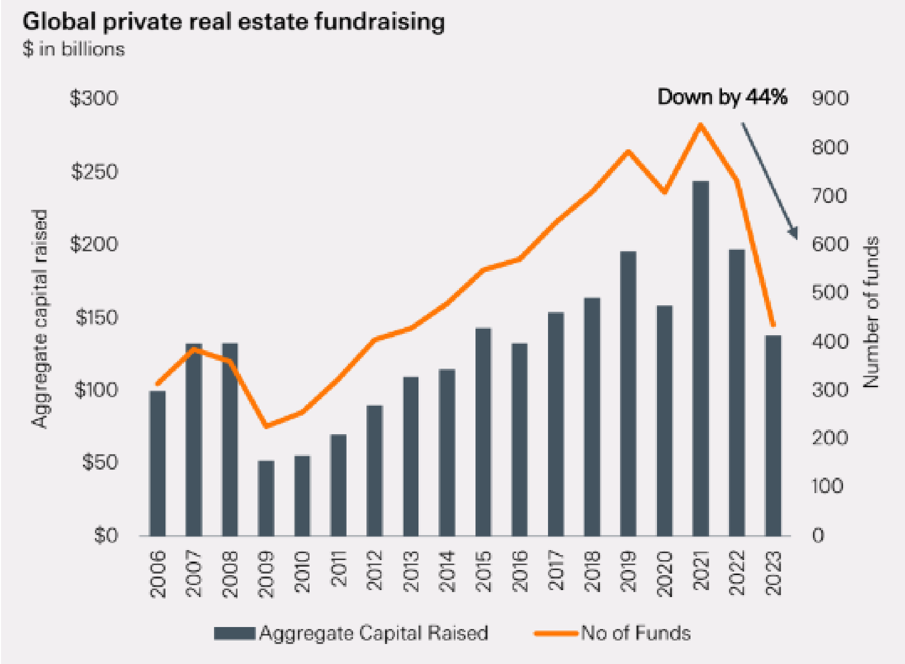
Source: PitchBook | LCD • Data through April 17, 2024

Performance Highlights

Real Return- Real Estate

- While Real Return markets were able to rebound during the quarter posting positive performance, Real Estate markets continued to struggle, posting their fifth consecutive quarter of negative performance
- The Real Estate portfolio declined 4.24% during the quarter but was able to outperform its benchmark which fell 5.00%
- FYTD the Real Estate portfolio has declined 8.92% while its benchmark has declined 9.68%
- Performance in the Real Estate portfolio has been mixed but overall outperformance has been driven by good performance in the Core strategies and lower exposures to the most stressed parts of the market including the Office sector
- We have maintained an underweight position in Real Estate as we view more pain to come for the asset class with cyclical slowing of fundamentals in healthily sectors, a challenging outlook for office due to work from home and functional obsolescence amid frozen capital markets and repricing ultimately needed to restore yields at normal spreads above now higher interest rates

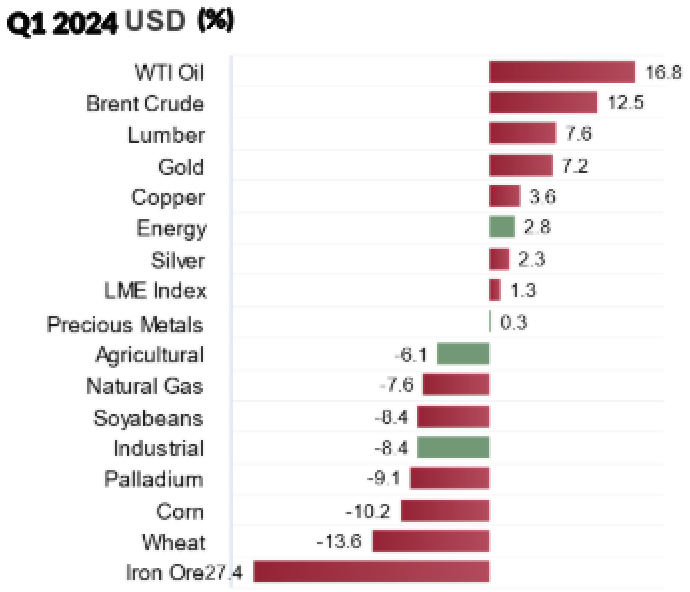




Performance Highlights

Real Return- Real Estate

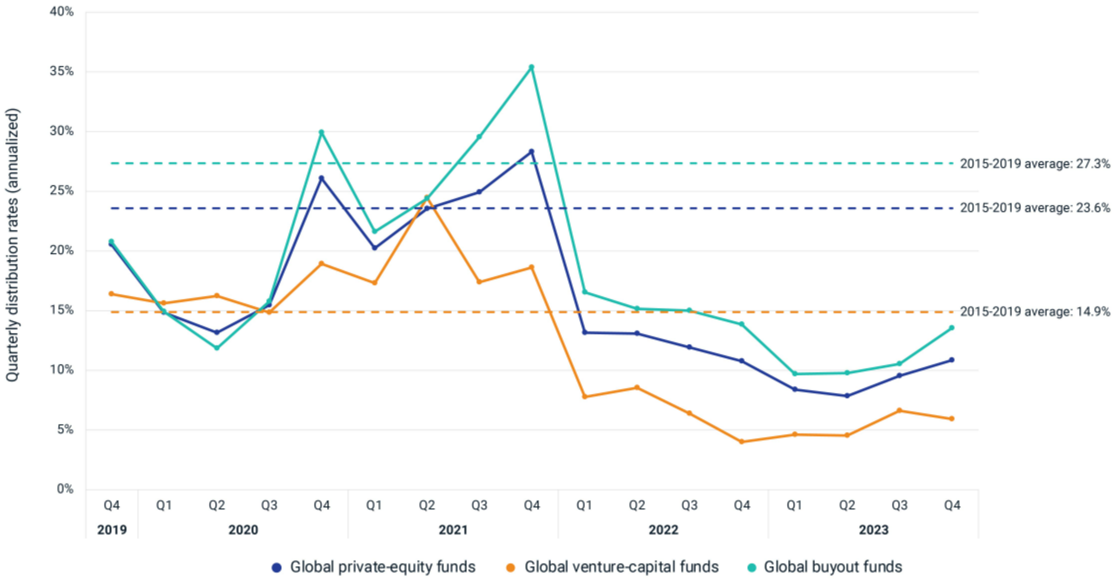
- The Real Return portfolio performed well during the quarter positing a return of 4.75% which outpaced the 1.79% return of the benchmark
- FYTD the Real Return portfolio has produced a return of 11.36%, significantly outperforming the 4.27% return of its benchmark
- Outperformance has continued to be paced by the portfolio's MLP exposure which returned over 14% for the quarter and is up over 28% FYTD as strong cash flows, disciplined capex and consolidation have continued to benefit the industry
- Broad commodities were up for the quarter with Oil and Gold leading the markets higher
    - Oil was up over 12% for the quarter on elevated geopolitical tensions but remains below the high it reached in September
    - Gold experienced a strong rally in March, setting a new all-time high for the precious metal
    - Agricultural commodities continued to struggle with Wheat down almost 14% for the quarter

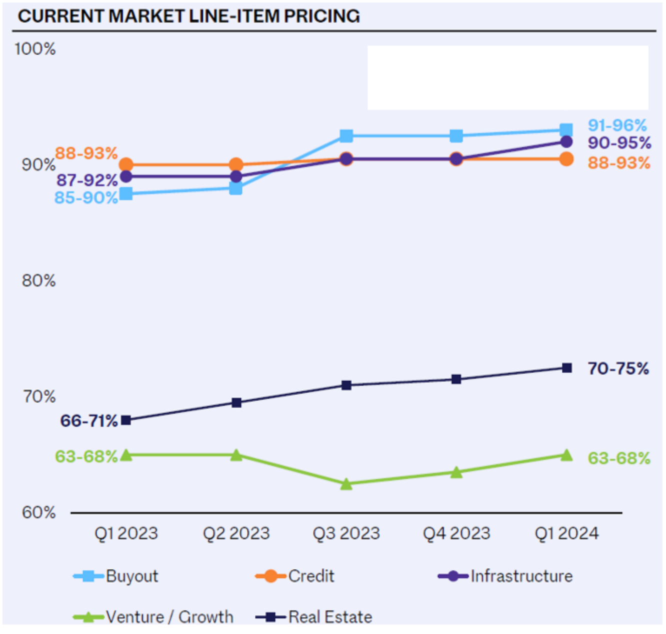


Performance Highlights

Private Equity

- The Private Equity portfolio produced a return of 1.08% for the quarter, underperforming the benchmark’s return of 12.01%
- 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
- Broad indications of Private Equity investment performance for the quarter indicated performance of around positive 2.5-3% with Buyout Funds outperforming Venture Capital Funds
- While the pace of PE Fund distributions has 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
- Markets have seen a slight improvement in secondary pricing over the past year but markets have been slow to move overall
- 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





Performance Highlights

Liquidity

- The Fed’s overnight reverse repo facility (RRP) has been steadily falling since May 2023. Seen as a gauge of excess reserves in the system and as it approaches zero (likely mid-year) the pace and timing of quantitative tightening (QT) will be reconsidered

- As long as short-maturity bill yields remain above the RRP rate, money will continue flowing out of RRP

- Cash produced a return of 1.36% for the 3-month period ending March 31st, slightly underperforming the 3-Month Treasury Bill benchmark which returned 1.37%

- Fiscal Year-To-Date, cash has earned 3.94% underperforming the benchmark by 27 basis points as market rates (T-Bills) yielded more than deposit rates (Fed funds)

- The FOMC maintained the range for the federal funds target rate at 5.25% to 5.50% during the quarter as it continued to cautiously assess the effects of its policy firming

- The Committee noted that inflation “remains elevated” while acknowledging that it has “eased over the past year”