CERS Quarterly Performance Update

December 2023

Pension Portfolios Performance

CERS & CERS-HAZ - PENSION FUND PLAN NET RETURNS - 12/31/23

Plan	Market Value	Month	3 Months	Fiscal YTD	1 Year	3 Years	5 Years	10 Years	20 Years	30 Years	ITD
CERS	**9,108,214,619.80**	**3.30**	**6.78**	**5.26**	**13.50**	**6.25**	**8.64**	**6.90**	**6.65**	**7.79**	**8.88**
KY Ret. CERS Plan IPS Index		2.48	6.45	5.50	15.21	5.76	8.30	6.61	6.57	7.70	8.89
CERS- H	**3,199,189,826.80**	**3.32**	**6.85**	**5.33**	**13.63**	**6.20**	**8.59**	**6.89**	**6.65**	**7.78**	**8.87**
KY Ret. CERS Haz Plan IPS Index		2.48	6.45	5.50	15.21	5.76	8.30	6.61	6.57	7.70	8.89

KPPA PENSION FUND UNIT - NET RETURNS - 12/31/23 - 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		**5.33**	**11.17**	**6.67**	**21.12**	**5.06**	**11.49**	**7.66**	**7.30**	**8.70**	**10.25**
MSCI ACWI		4.80	11.03	7.26	22.20	5.25	11.31	7.66	7.24	8.47	10.11
PRIVATE EQUITY		**0.06**	**0.22**	**2.93**	**7.79**	**15.44**	**12.40**	**12.85**	**11.50**		**11.68**
Russell 3000 + 3%(Qtr Lag)		-4.32	-2.35	6.58	23.46	12.44	12.18	14.51	11.64		11.87
SPECIALTY CREDIT		**1.83**	**3.45**	**6.19**	**11.24**	**6.82**	**6.77**				**6.23**
50% BB US HY / 50% Morningstar LSTA Lev'd Ln		2.69	5.02	7.07	13.42	3.91	5.62				4.53
CORE FIXED INCOME		**3.74**	**6.62**	**5.40**	**7.31**	**0.50**	**3.00**	**2.84**			**2.79**
Bloomberg US Aggregate		3.83	6.82	3.37	5.53	-3.31	1.10	1.81			1.76
CASH		**0.46**	**1.41**	**2.55**	**4.53**	**2.07**	**1.89**	**1.41**	**1.79**	**2.73**	**3.34**
FTSE Treasury Bill-3 Month		0.47	1.41	2.80	5.26	2.25	1.91	1.26	1.42	2.37	2.96
REAL ESTATE		**-1.54**	**-2.32**	**-4.89**	**-10.92**	**8.10**	**8.19**	**9.00**	**7.77**	**6.42**	**6.42**
NCREIF NFI-ODCE Net 1 Qtr in Arrears Index^		-2.10	-2.10	-4.93	-12.88	6.19	4.72	7.19	6.64	7.45	6.25
REAL RETURN		**-1.10**	**1.53**	**6.31**	**11.31**	**10.87**	**8.53**	**5.29**			**5.14**
US CPI +3%		0.05	0.75	2.44	6.14	9.54	7.75	4.34			4.17

Insurance Portfolios Performance

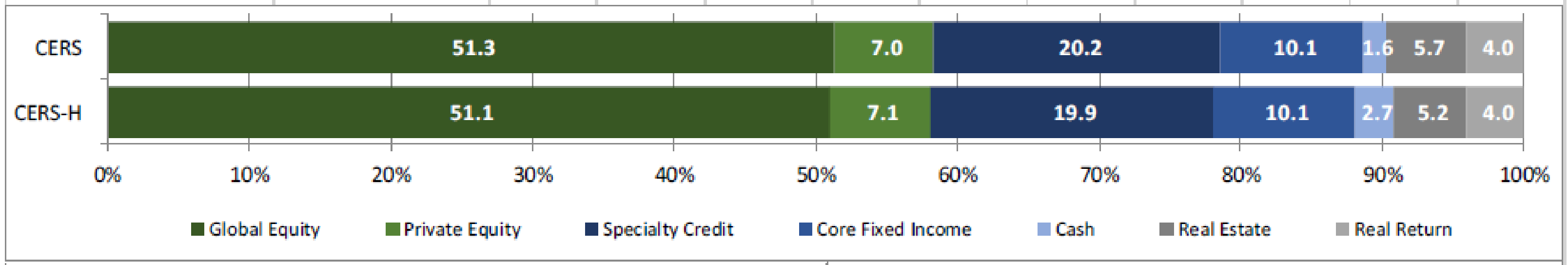
CERS INS & CERS HAZ INS - INSURANCE FUND - PLAN NET RETURNS - 12/31/23

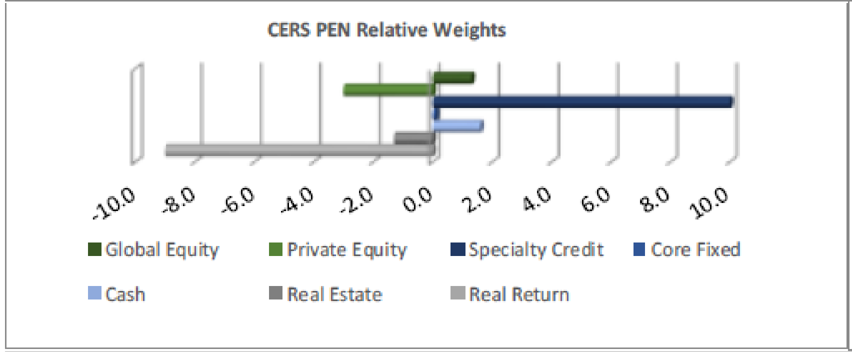
Plan	Market Value	Month	3 Months	Fiscal YTD	1 Year	3 Years	5 Years	10 Years	20 Years	30 Years	ITD
CERS INS	**3,427,603,471.08**	**3.35**	**6.87**	**5.38**	**13.64**	**6.32**	**8.48**	**6.87**	**6.49**	**6.91**	**7.42**
KY Ins. CERS Plan IPS Index		2.48	6.45	5.50	15.21	5.63	8.07	6.59	6.43	7.11	7.61
CERS - H INS	**1,661,501,697.63**	**3.28**	**6.71**	**5.30**	**13.45**	**6.43**	**8.54**	**6.93**	**6.51**	**6.93**	**7.43**
KY Ins. CERS Haz Plan IPS Index		2.48	6.45	5.50	15.21	5.63	8.07	6.59	6.43	7.11	7.61

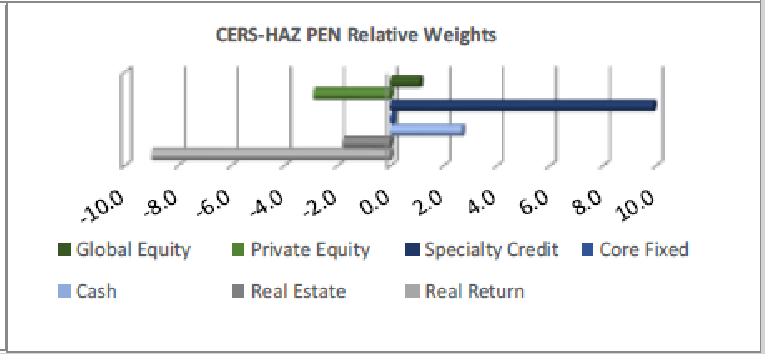
KPPA INSURANCE FUND UNIT - NET RETURNS - 12/31/23 - PROXY PLAN ASSET PERFORMANCE

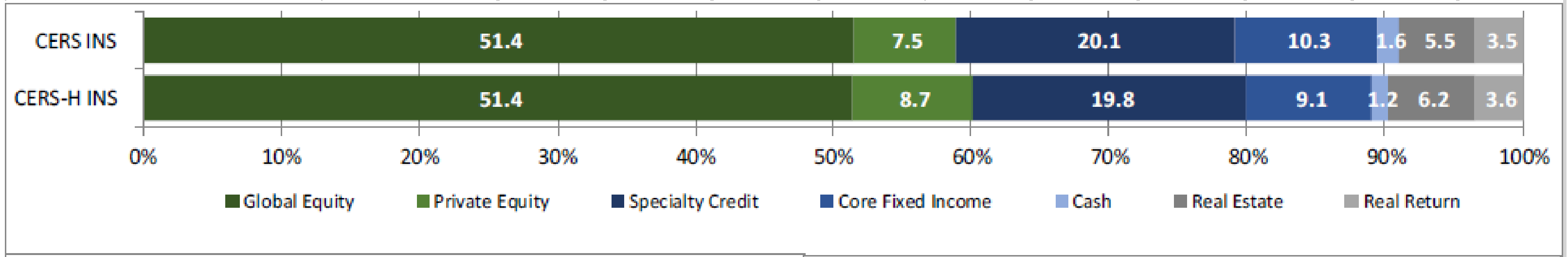
Structure		Month	3 Months	Fiscal YTD	1 Year	3 Years	5 Years	10 Years	20 Years	30 Years	ITD
PUBLIC EQUITY		**5.35**	**11.18**	**6.66**	**20.98**	**5.06**	**11.46**	**7.72**	**7.25**		**8.65**
MSCI ACWI		4.80	11.03	7.26	22.20	5.23	11.28	7.66	7.05		8.47
PRIVATE EQUITY		**0.58**	**0.71**	**3.93**	**8.77**	**17.76**	**12.35**	**13.96**	**11.08**		**10.89**
Russell 3000 + 3%(Qtr Lag)		-4.32	-2.35	6.58	23.46	12.44	12.18	14.51	11.34		11.44
SPECIALTY CREDIT		**1.79**	**3.40**	**6.24**	**11.35**	**6.96**	**6.68**				**6.11**
50% BB US HY / 50% Morningstar LSTA Lev'd Ln		2.69	5.02	7.07	13.42	3.91	5.62				4.53
CORE FIXED INCOME		**3.73**	**6.64**	**5.29**	**7.16**	**0.34**	**2.81**	**2.56**			**2.51**
Bloomberg US Aggregate		3.83	6.82	3.37	5.53	-3.31	1.10	1.81			1.76
CASH		**0.48**	**1.42**	**2.55**	**4.54**	**2.05**	**1.78**	**1.27**	**1.63**		**2.50**
FTSE Treasury Bill-3 Month		0.47	1.41	2.80	5.26	2.25	1.91	1.26	1.42		2.41
REAL ESTATE		**-1.55**	**-2.32**	**-4.73**	**-11.04**	**7.87**	**8.14**	**8.88**			**8.90**
NCREIF NFI-ODCE Net 1 Qtr in Arrears Index^		-2.10	-2.10	-4.93	-12.88	6.19	4.72	7.19			5.60
REAL RETURN		**-0.95**	**1.29**	**5.53**	**10.20**	**9.57**	**8.12**	**5.05**			**4.86**
US CPI +3%		0.05	0.75	2.44	6.14	8.78	7.65	4.40			4.21

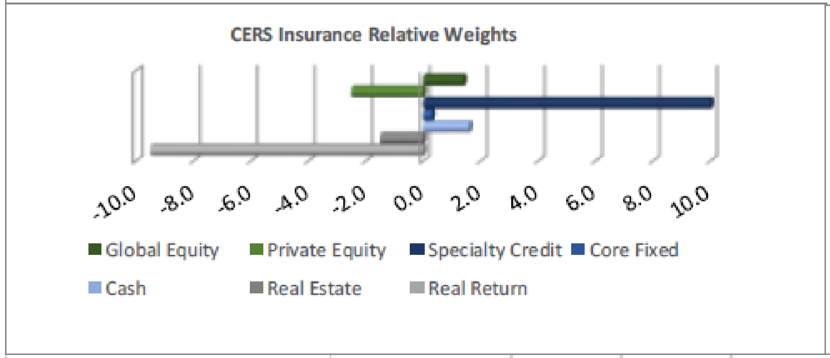
Allocations

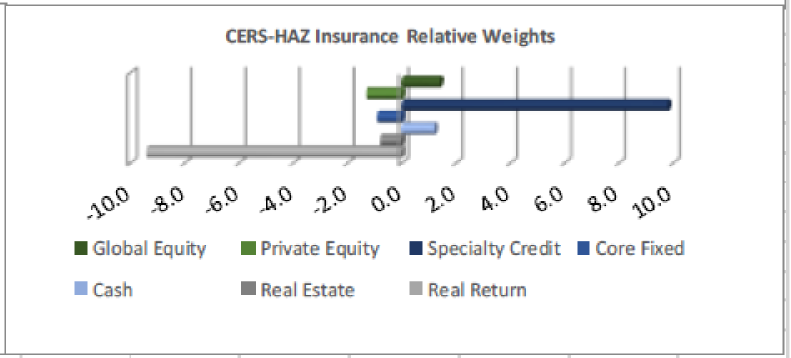






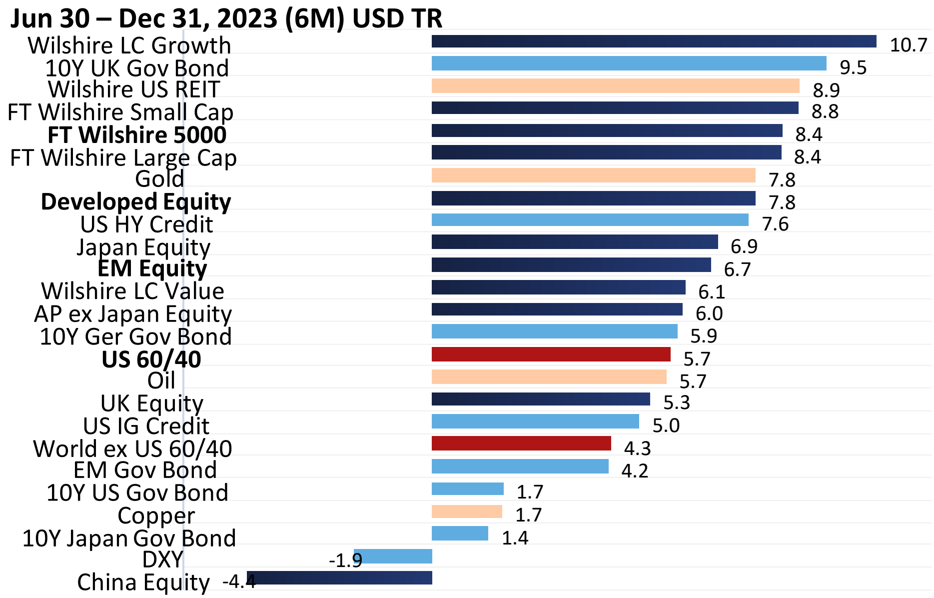


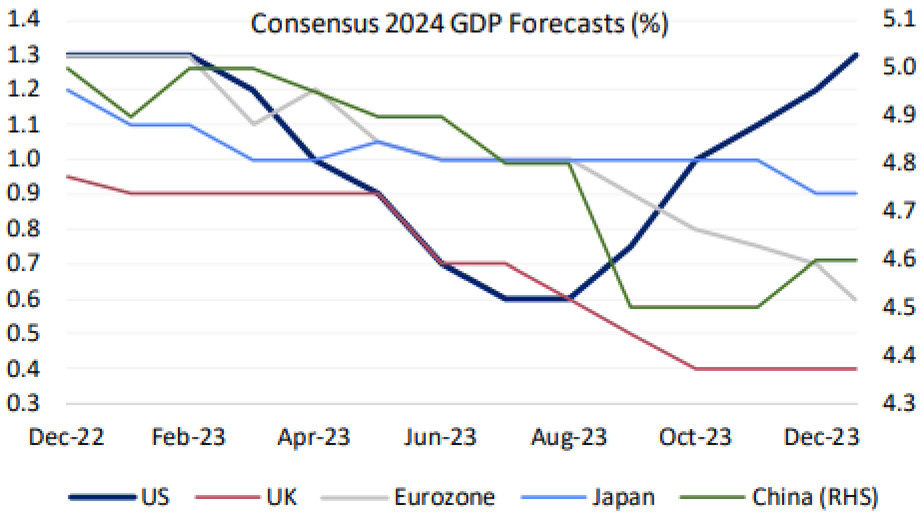




Performance Highlights

- The CERS and CERS-H Pension portfolios performed well during the quarter with returns of 6.78% and 6.85% respectively outperforming the benchmark's return of 6.45%
- The Insurance portfolios produced similar performance with the CERS portfolio returning 6.87% and the CERS-H portfolio returning 6.71%
- Across portfolios, for the quarter the largest contributors to outperformance were the underweight positioning in Real Return Private Equity as well as the relative outperformance of the Private Equity portfolio
- The most significant detractors of performance were the overweight to Specialty Credit, the proxy for Real Return, as well as relative underperformance in the Specialty Credit portfolio
- Markets across the board rebounded sharply during the quarter on optimism that earlier and larger cuts in interest rates that had previously been anticipated would usher in a "goldilocks" period of steady growth, moderate inflation and easing financial conditions
- 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

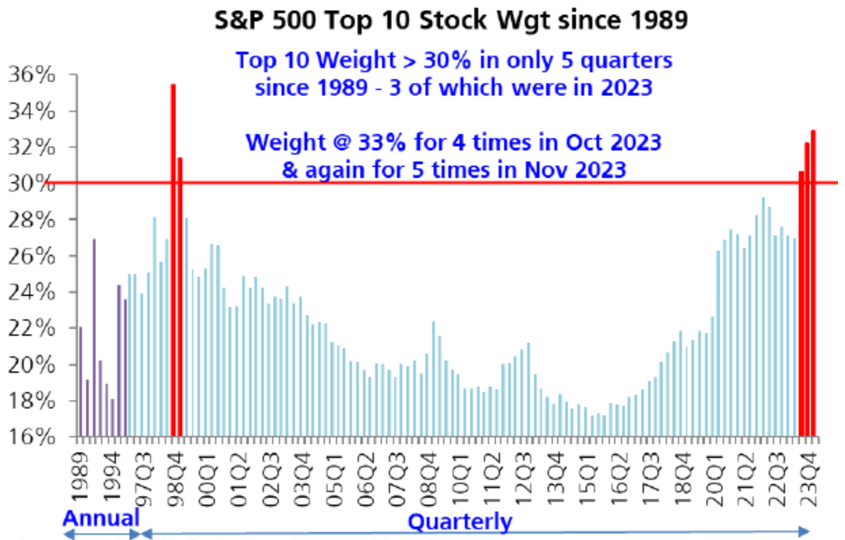




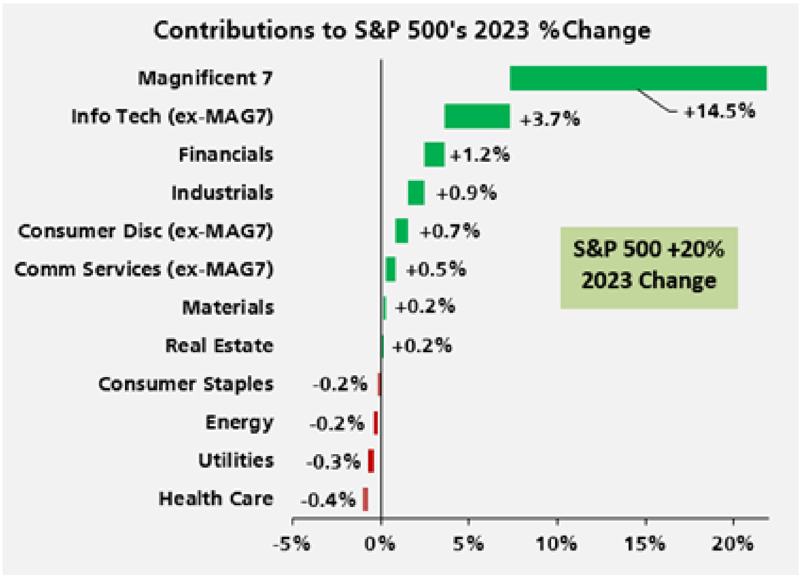
Performance Highlights

Public Equities

- Public Equity markets experienced a strong rally during the quarter accelerating towards the end of October bolstered by signs of weakening inflation, better-than-expected growth, and a change in central bank posture that hinted at softening rates
    - In the US almost every sector was positive for the quarter with the real estate and information technology sectors posting the best performance while energy was the only sector with negative performance
    - Dispersion within US markets continued to be high with index level performance largely driven by a handful of megacap stocks
    - Smallcap outperformed large-cap during the quarter and growth stocks generally outperformed value with large-cap growth stocks continuing to extend their massive advantage over largecap value stocks
    - NonUS public equity markets produced positive performance during the quarter but failed to keep pace with their US counterparts, especially emerging markets which were the worst performing segment during the quarter



Source: UBS Equity Derivatives Strategy, Bloomberg



Performance Highlights

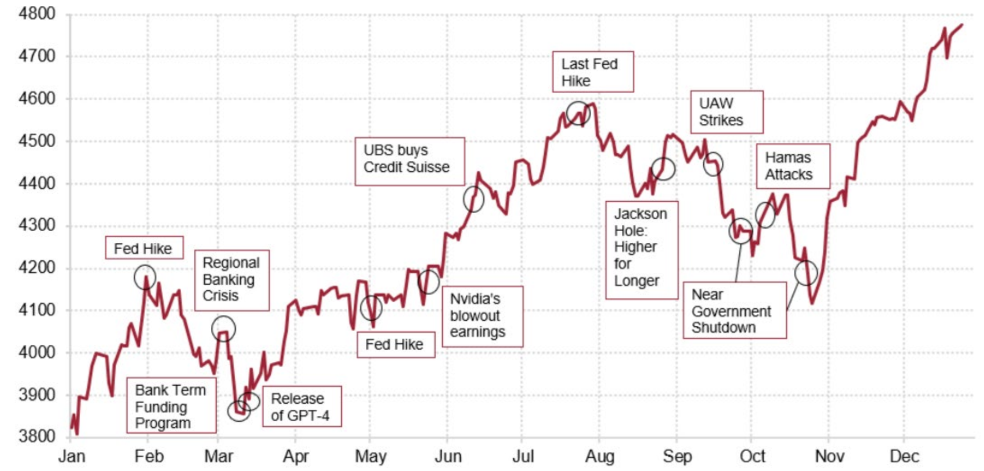
Public Equities

- The Public Equity portfolio returned 11.17% during the quarter versus its benchmark return of 11.03%, relative outperformance was primarily the result of a slight overweight to US markets combined with good stock selection within the NonUS portion of the portfolio
    - FYTD the Public Equity Portfolio has produced a return of 6.67%, trailing the benchmark which returned 7.26%

- Within the US equity allocation, the portfolio trailed its index by 26bps (11.81% vs 12.07%), primarily resulting from stock selection
    - Stock selection amongst the individual strategies was mixed during the quarter and biased to the downside as the Fed's shifting tone created a market leadership whipsaw which proved challenging to navigate

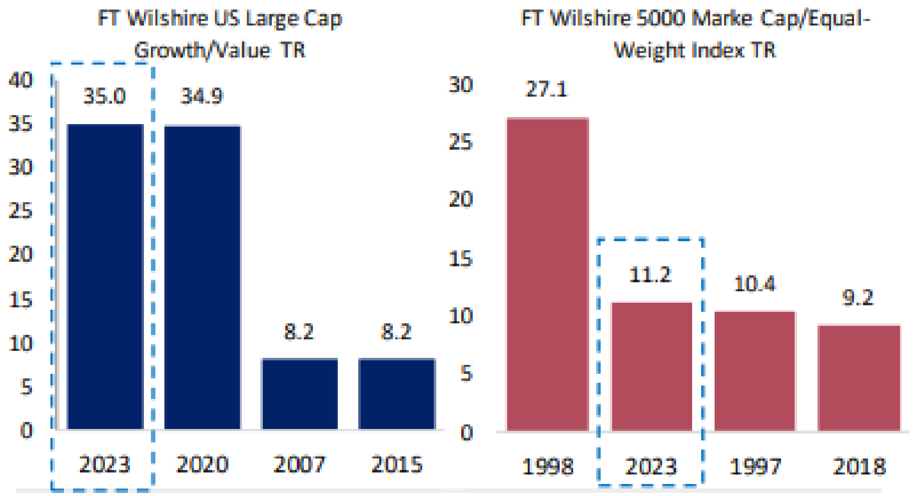
- The NonUS equity allocation outperformed during the quarter, returning 10.19% versus a benchmark return of 9.81%
    - Outperformance was driven by the strong performance of the growth strategies within the allocation, benefiting from a style tailwind

S&P 500 in 2023



Source: Haver Analytics, Rosenberg Research

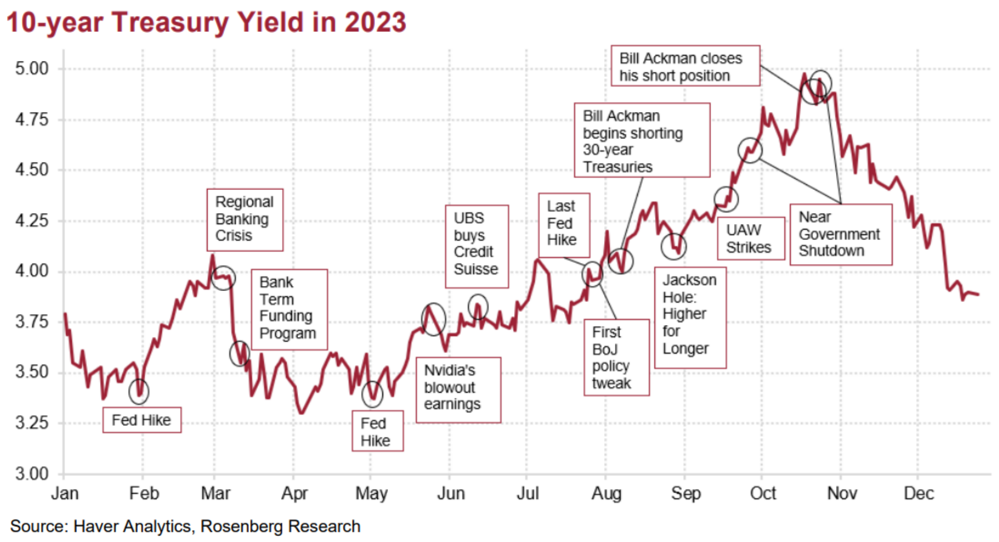
Largest outperformance of Growth relative to Value in over two decades

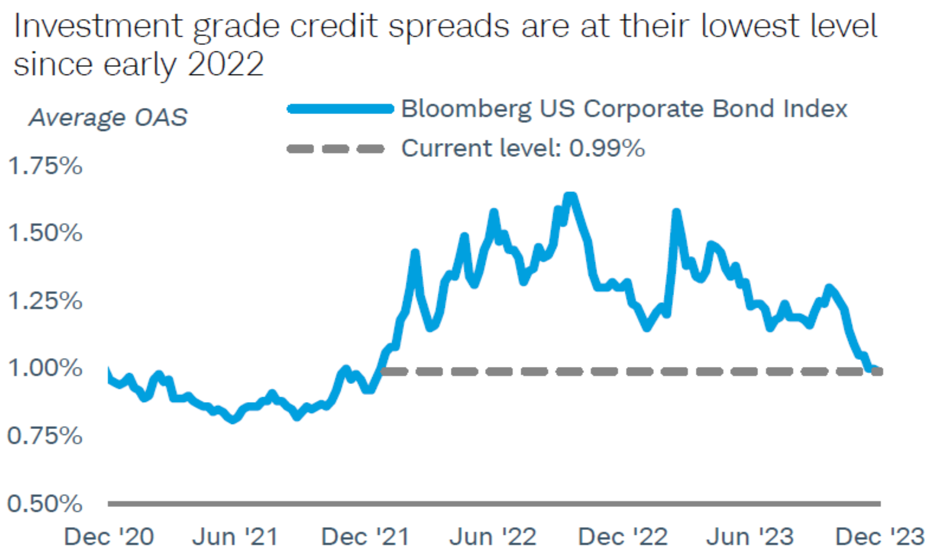


Performance Highlights

Core Fixed Income

- Core Fixed Income staged a remarkable recovery in the 2nd quarter following the significant selloff experienced during the 1st quarter
- The rally in rates that started in November picked up steam to close the year as the FOMC offered a surprising lack of pushback against dovish market expectations at their December meeting with the FED's communication about the likely course of monetary policy becoming decidedly less hawkish causing the yield curve to remain inverted
- The Treasury curve fell across all maturities during the with the 10-year Treasury closing at 3.88%, down 69 basis points and the 10-year real yield falling 52 basis points to 1.71%
- Corporate bonds were the top performing spread sector, outgaining same duration Treasuries by 203 basis points for the quarter

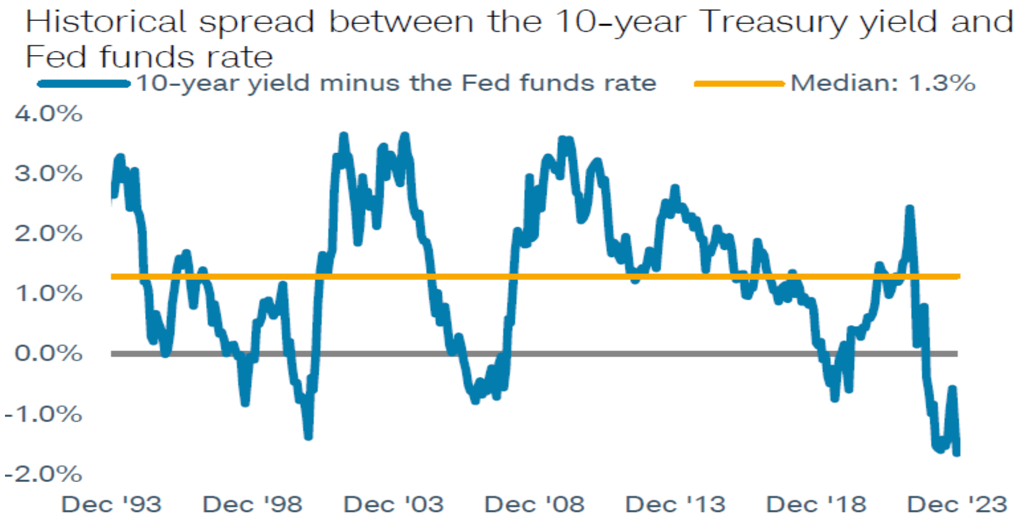


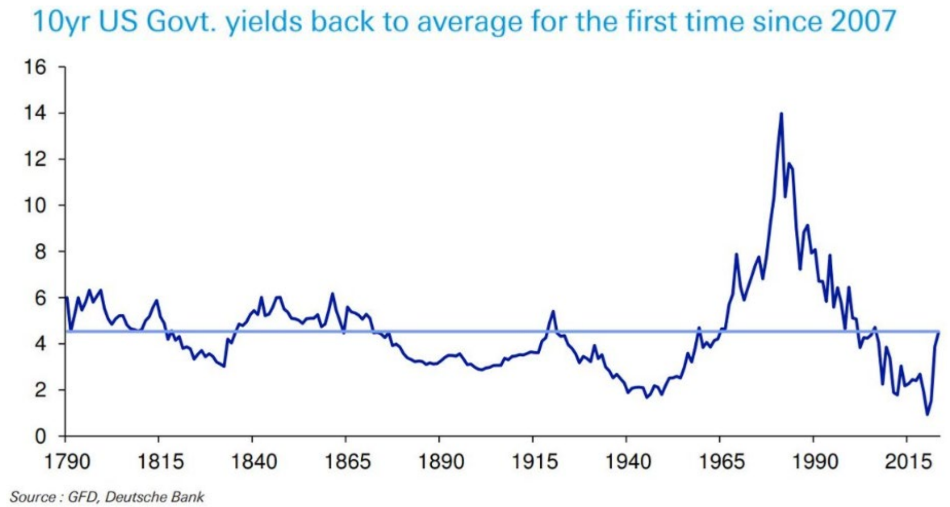


Performance Highlights

Core Fixed Income

- The Core Fixed Income Portfolio produced a return of 6.62% for the quarter, slightly underperforming the benchmark's return of 6.82%
- The portfolio's relative underperformance was driven by its shorter duration profile as staff rebalanced the portfolio over several legs during the quarter to extend the overall duration to be inline with the benchmark's duration
- Despite losing ground during the quarter, FYTD the portfolio continued to deliver strong relative performance producing a return of 5.40% and outperforming the Bloomberg Aggregate Index by 203 basis points
- The internally managed Core Portfolio was the strongest performer in the overall Core allocation for the quarter, producing 21 basis points of excess return





Performance Highlights

Specialty Credit Fixed Income

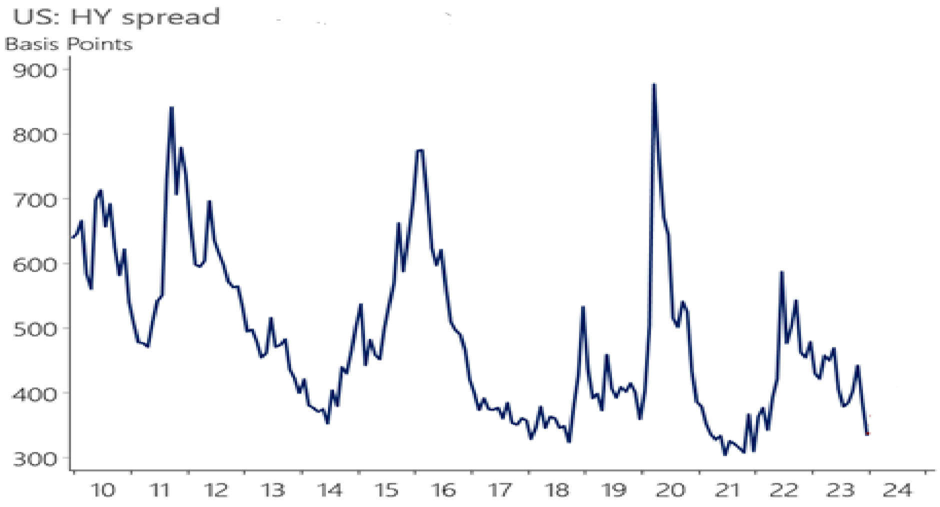
- The Specialty Credit portfolio produced a return of 3.45% for the quarter, trailing the blended benchmark which returned 5.02%. Fiscal Year to Date the portfolio has continued to perform well, returning 6.19% compared to the benchmark's return of 7.07%

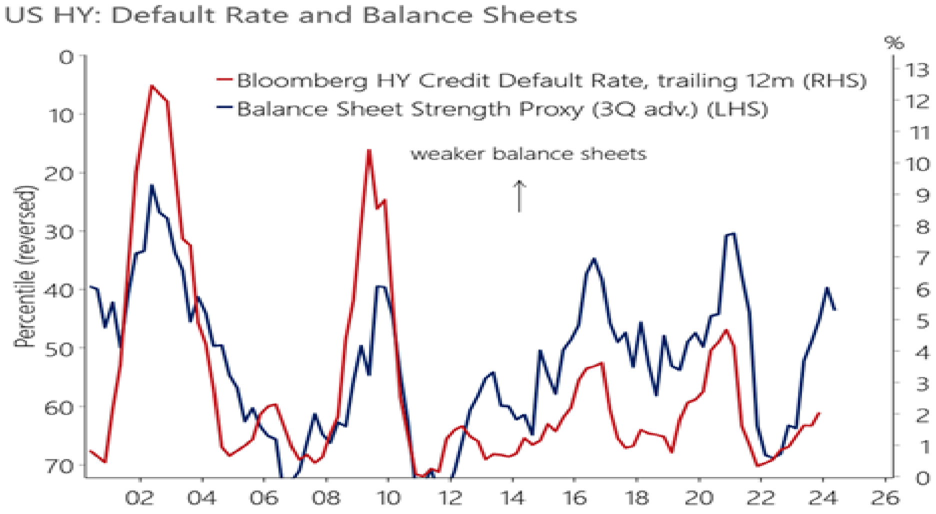
- The public High Yield Bond and Private Credit components of the portfolio were all positive contributors to relative performance, mandates with structured credit and mortgage-backed exposures were a drag on overall performance as they failed to keep pace in the rally over the last three months

- Over longer periods the portfolio has contributed significant outperformance, beating the benchmark by 291 and 115 basis point over three- and five-year periods respectively

- Leveraged Loans trailed High Yield Bonds as they benefited less from the rally in rates and failed to keep pace with spread tightening

- The High Yield option adjusted spread (OAS) tightened 71 basis points for the quarter and 67 basis points fiscal year-to-date to 323

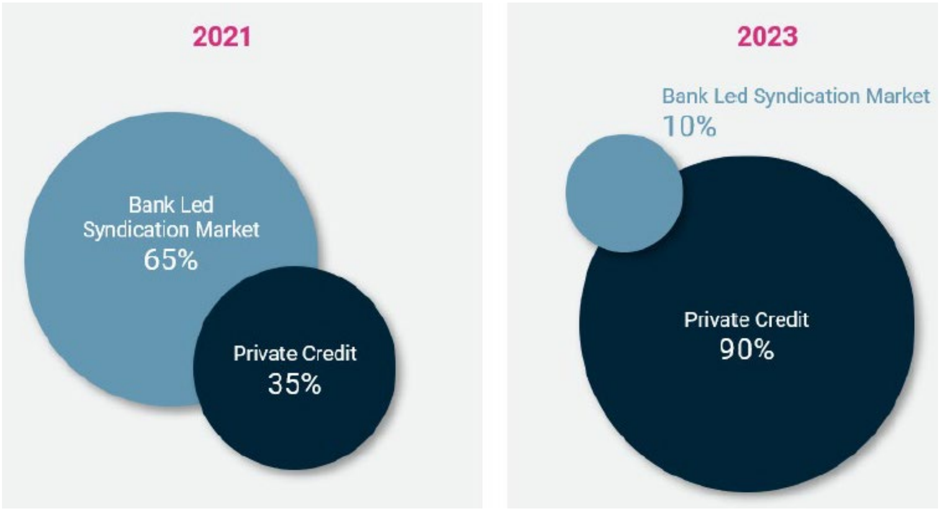




Performance Highlights

Specialty Credit Fixed Income

- Consistent with the risk on environment, lower quality bonds outperformed with CCCs returning 9.60% FYTD while Bs returned 7.91% and BBs produced returns of 6.94%
- The most recent balance sheet data continued to show modest improvements in High Yield fundamentals, driven by stronger profitability, liquidity positions and default rates remaining subdued
- Private credit markets continued their growth as banks and public lenders have accelerated their move away from the middle market
- Despite the continued growth, structuring and economic terms remain favorable to lenders
- The higher prevailing cost of capital is likely to impact sectors and firms differently which will be an important driver of dispersion, with a more defensive approach to investing, including structural protections, granularity in underwriting and credit selectivity becoming critical



Performance Highlights

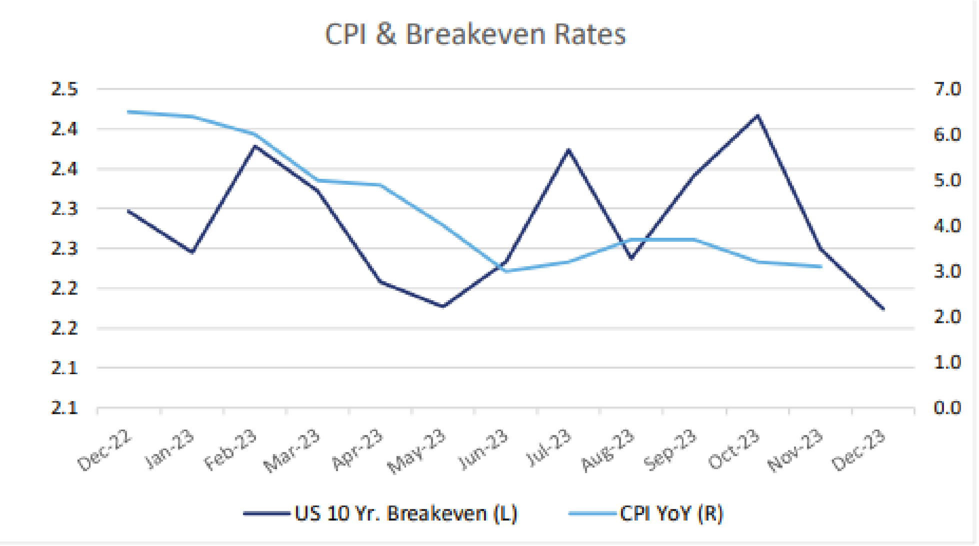
Real Return- Real Estate

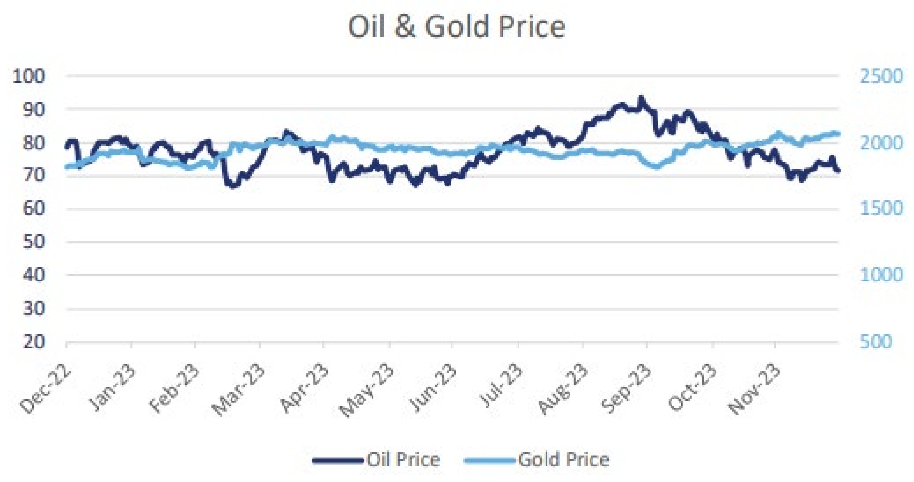
- Real Estate and Real Return performance was mixed during the quarter and through the first six months of the fiscal year but were largely able to end the period well bid with expectations that inflation had been beaten and rates were poised to continue their downward trajectory

- The Real Return portfolio produced a return of 1.53% for the quarter, outperforming the benchmark which produced a return of 0.75%

- FYTD the Real Return Portfolio has significantly outperformed the benchmark, producing a return of 6.31% compared to the benchmark's return of 2.44%
    - Outperformance has been paced by the portfolio's MLP exposure which returned over 12% FYTD as strong cash flows, disciplined capex and consolidation have continued to benefit the industry

- Broad commodities were down for the quarter and FYTD with the Bloomberg Commodities Index falling almost 6% for the first six months of the Fiscal Year and almost 13% during the LTM.
    - Despite declining 21% during the quarter Oil was able to return almost 6% FYTD, Gold rallied 12% during the quarter on rising rate cut optimism reversing 6 months of declines, ending up almost 8% FYTD

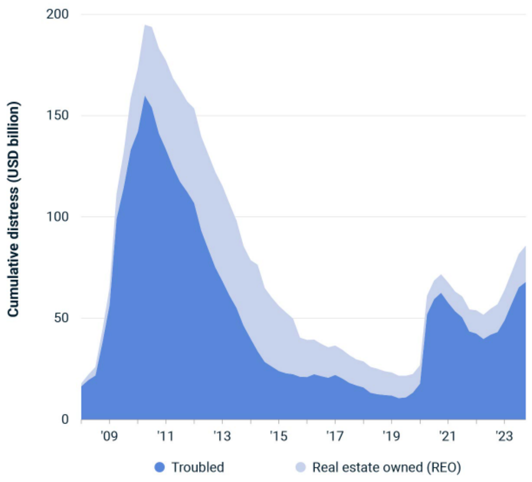


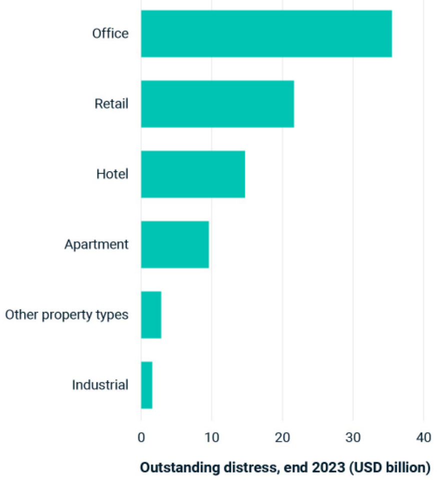


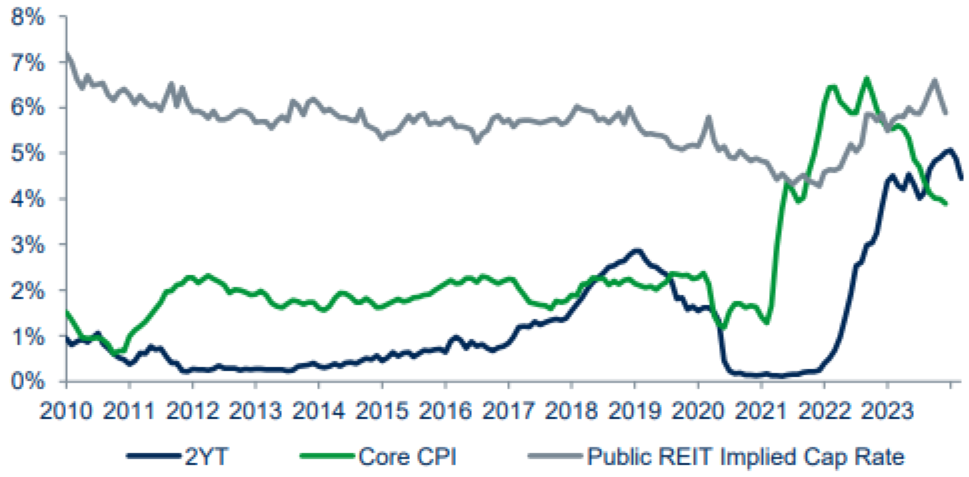
Performance Highlights

Real Return- Real Estate

- Globally, Real Estate valuations continued to adjust down from their 2022 peaks, as a result of higher inflation, interest rates and volatility
- The pool of distressed U.S. commercial properties grew to USD 85.8 billion by the end of 2023, led by distressed office assets, as weaker prices and higher lending rates challenged the market
- The Real Estate portfolio produced a return of -2.32% for the quarter, modestly underperforming the benchmark's -2.10% return
- Fiscal Year to Date, the Real Estate portfolio has performed inline with the benchmark returning -4.89% compared to the benchmark's performance of -4.93%
- The Real Estate portfolio has been more affected by higher cap rates than declining property-level performance with the portfolio's exposures to industrial, self-storage, student housing, medical office, and senior living continuing to experience positive rent growth and pricing





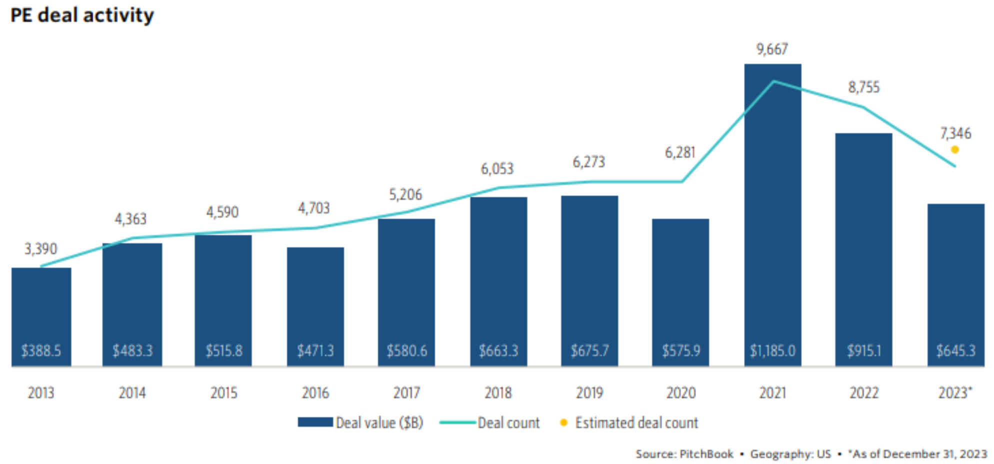


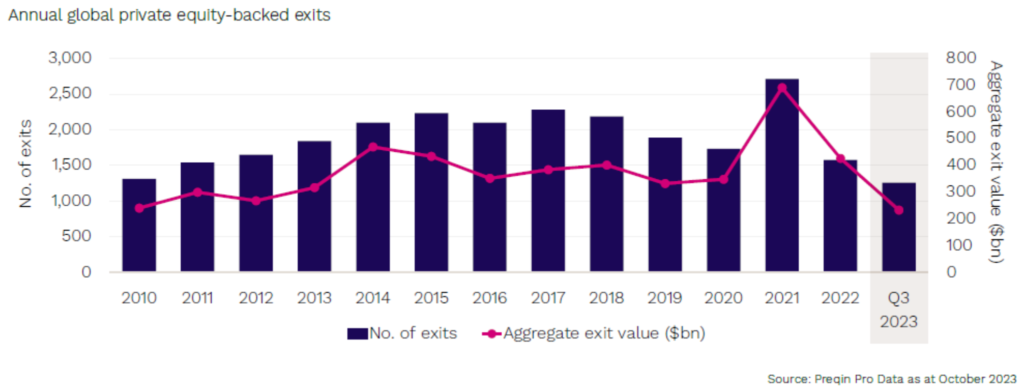
Source: BLS; Federal Reserve; Green Street. As of December 31, 2023.

Performance Highlights

Private Equity

- The Private Equity portfolio produced a return of 0.22% for the quarter, outperforming the benchmark's return of -2.35%
- Performance relative to the benchmark (Russell 3000 + 3% based on a quarter lag) continues to be volatile given the market and timing misalignments
- 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
- 2023 proved to be the worst year for Private Equity deal activity since 2016, with selling activity falling to its lowest point in over a decade
    - Private Equity capital deployment in the US declined by 29.5% YOY
    - Value derived from US exits fell by 26.4% YOY and by 73% from 2021 levels

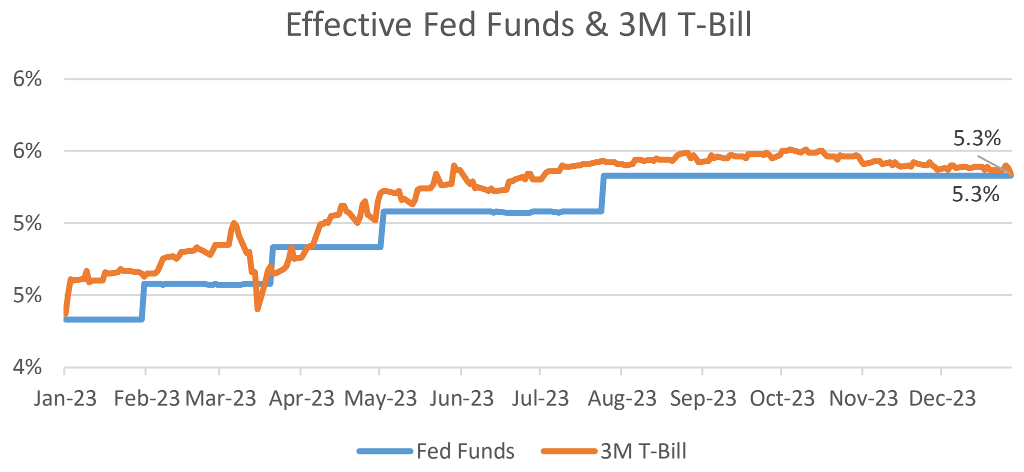


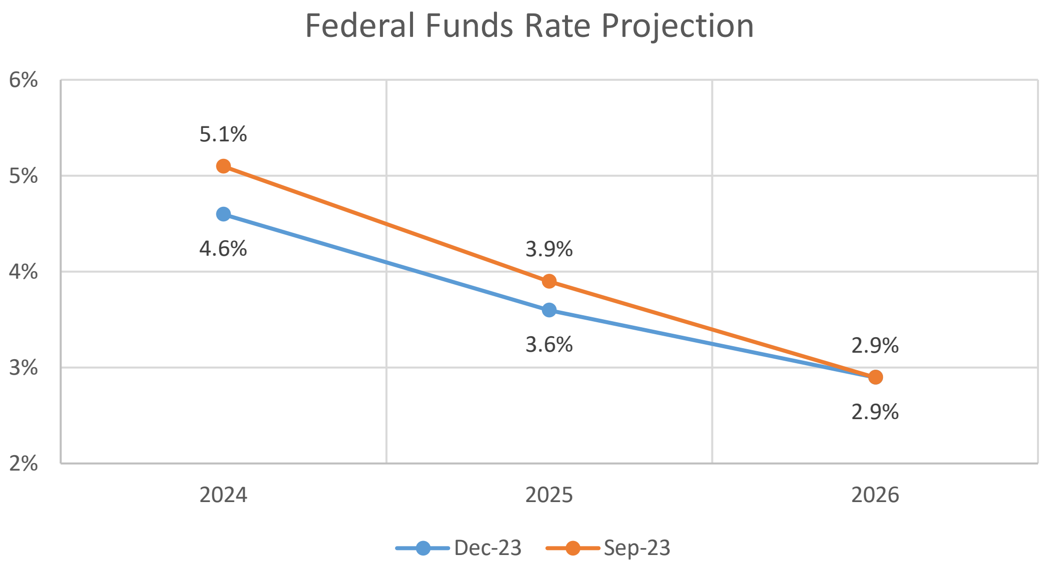


Performance Highlights

Liquidity

- After increasing rates four times during the first half of 2023, the FOMC held rates the same during the final quarter of the calendar year
- The 3-month Bill also remained steady since mid-year finishing the quarter at 5.3%. Coincidently, the same rate for the effective Fed funds rate
- Cash produced a return of 2.55% for the 6-month period ending December 31st, slightly underperforming the 3-Month Treasury Bill benchmark which returned 2.80%. The underperformance is due to deposit rates (Fed funds) lagging market rates (T-Bills)
- For the quarter, cash returned 1.41%, matching the benchmark as deposit and market rates compressed over the time period
- With inflation continuing to recede, the Federal Reserve's economic projections for the Federal finds rate changed in December
- Rate projections shifted downward for 2024 and 2025 compared to the September projection
- Chair Powell stated, inflation has eased from its highs, and this has come without significant rise in unemployment





Investment Highlights Fiscal YTD

- Investment activity occurred across asset classes for the first half of the Fiscal Year as managers called committed capital and Staff rebalanced portfolios

  - Across a number of legs Staff was able to rebalanced the Core Fixed Income during the period, moving the duration of the overall portfolio from 3 years short to flat relative to the benchmark index
    - The benchmark for the Loomis portfolio was updated to the Bloomberg US Aggregate Index from the Bloomberg US Intermediate Aggregate Index
    - A total of $1,925MM was transferred from the Lord Abbett Short Duration Credit portfolio, $996.5MM to the existing external Core portfolios and $928MM to the new internally managed Core Portfolio
    - The Lord Abbett account is in wind down, holding a single CMBS security and will be closed and the agreement terminated once the security is sold or matures

  - Specialty Credit managers continued to find compelling opportunities, deploying over $150MM during the period including the first capital calls for the new Adams Street Fund and Co-Investment vehicle approved in 2023

  - A total of almost $300MM was called and invested by Real Return mangers, the majority of which was the initial investment for Arctos and Maritime Partners, managers approved in 2023

  - Rebalancing and investing activity in Public Equities totaled $150MM as Staff managed exposures across cap weights and geographies while aligning individual portfolios

- The first Proxy Voting Report was posted to the KPPA website