First Quarter 2023

Capital Markets Review

Callan Institute

Higher Interest Rates Work! That's Good?

ECONOMY

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Fed rate hikes seem to be working as designed, but there is always a delicate balancing act in trying to avoid a recession. The U.S. economy has held up pretty well, but GDP is slowing and the bond market is signaling a recession is ahead. The risks of that event have increased.

4Q22 and 1Q23 Gains Help Ease the Pain

INSTITUTIONAL INVESTORS

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All investor types saw declines for the trailing year ended 1Q23, but the pain was eased by rebounds for stocks and bonds in 4Q22 and 1Q23. And while 2022 was a tough year, the silver lining is that return expectations going forward are now materially higher.

Increase but the Ride Was Bumpy in 1Q

EQUITY

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The S&P 500 posted a second straight quarter of positive performance, gaining 7.5% in 1Q23; large cap growth led all style and cap indices higher, advancing 14.4%. Results were mixed across developed markets but most delivered positive returns.

After Worst Year Ever, A Rebound for Bonds

FIXED INCOME

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Following the worst year ever for core fixed income, the Bloomberg US Aggregate Bond Index rose 3.0% in 1Q. As with equities, it was a bumpy ride with solid returns in January and March sandwiching a negative February. Global indices also rose in the quarter

Private RE Mixed; REITs Lag Equities

REAL ESTATE/REAL ASSETS

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Income returns for the NCREIF Property Index were positive but appreciation fell for the four major property sectors. REITs lagged equities in the quarter, and real assets were mixed but also lagged equities. Transaction volume continues to decrease on a rolling four-quarter basis.

Asset Class Adjusts To Tighter Conditions

PRIVATE EQUITY

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Except for fundraising dollar volume, virtually all activity measures moderated in 1Q23. Company-level entry and exit transactions retreated to levels seen in 2020, which remain healthy but look meager compared to 2021's stimulus-fueled liquidity peak, and 2022's gradual slowdown.

Interest Continues as IRRs Stay Steady

PRIVATE CREDIT

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Private credit generated net IRRs between 7% and 10% for trailing periods ended 9/30/22. Interest in the asset class remains strong and a renewed focus has been placed on relative value, downside protection, and managers' internal workout resources.

Steady Gains Amid Volatile Markets

HEDGE FUNDS/MACs

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Hedge funds ended the quarter in positive territory, although they underperformed broader equity indices, as the group provided steady performance through a volatile market environment. The median manager in the Callan Institutional Hedge Fund Peer Group rose 1.3%.

Index Rises After 3 Quarters of Losses

DEFINED CONTRIBUTION

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The Callan DC Index rose 6.3% in 4Q22 after three straight quarterly declines. Balances also rose, driven by investment gains. TDFs continued to see the largest inflows. Allocations to equities rose slightly. Fees fell but the amount varied by plan size.

Broad Market Quarterly Returns

U.S. Equity
Russell 3000

7.2%

Global ex-U.S. Equity
MSCI ACWI ex USA

6.9%

U.S. Fixed Income
Bloomberg Agg

3.0%

Global ex-U.S. Fixed Income
Bloomberg Global Agg ex US

3.1%

Sources: Bloomberg, FTSE Russell, MSCI

Higher Interest Rates Work! That's Good, Right?!

ECONOMY | Jay Kloepfer

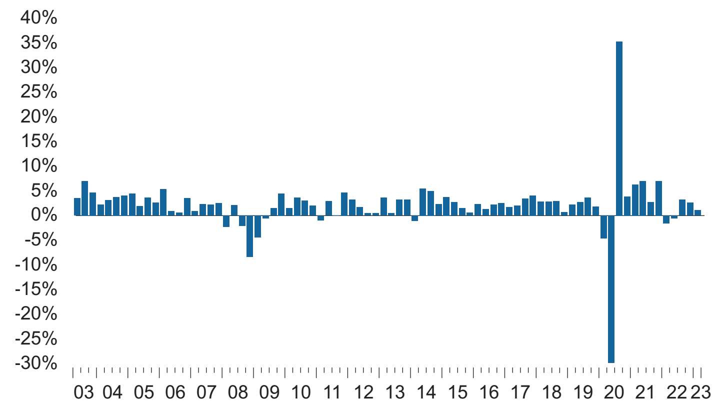
The Federal Reserve has two very public mandates: to support employment growth and to maintain low, stable inflation. When the economy falls into recession (GDP and jobs are contracting) and unemployment rises, the Fed typically steps in and lowers interest rates. Lower rates stimulate borrowing by consumers and businesses, and thereby spur demand that will ultimately pull the economy back into the black with positive economic growth and a resumption of hiring. When inflation rises, the Fed typically steps in and raises interest rates. Higher rates slow borrowing by consumers and businesses, and thereby lessen demand and slow the upward pressure on prices.

There is a balancing act on both sides of this policy equation: How much stimulus is enough to get the economy growing and spur recovery in the job market to pull down unemployment, before the resumption in demand pushes up prices? How high can interest rates go before the economy slows enough to tip into recession and unemployment shoots up? While this characterization is incredibly simplistic compared to the complex inner workings of the Fed, and ignores for the moment the impact of the Fed balance sheet and monetary tightening or easing, the story works to help explain the conundrum we currently face as we move into 2Q23.

The last three years saw incredible mayhem in the supply chains, capital flows, and job markets of the world, with equally volatile yet weirdly out-of-sync (at times) mayhem in the capital markets. We suffered through a pandemic with an uneven global policy response, and the invasion of Ukraine in winter 2022. Global energy fell to an effective price of zero in 2020 only to skyrocket immediately thereafter. Inflation surged hard after more than a decade of suppression, and central bank responses to withdraw stimulus and put out the inflation fire in 2022 spooked equity markets and drove fixed income returns to their worst year ever.

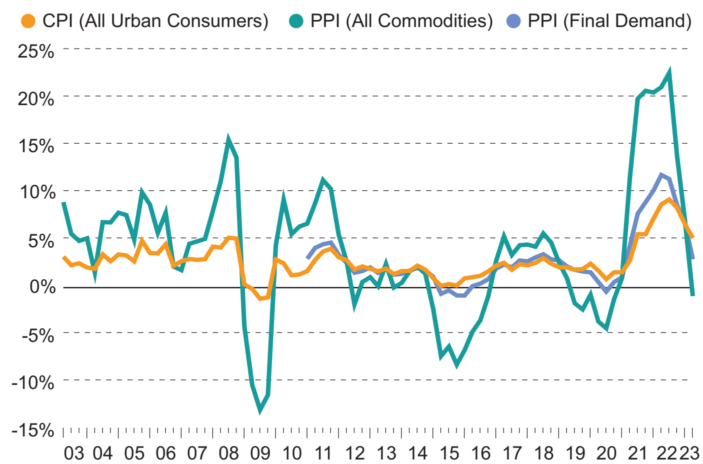
Underneath all this, the U.S. economy has actually held up pretty darn well. We regained the pre-pandemic levels of GDP and employment in fairly short order, given the depth of the declines. The job market in the U.S. has been particularly robust; even in 2022 as the capital markets plummeted, we added 4.8 million jobs during the year, with two monster months in February and July, and an average of 330,000 new jobs in the other 10 months of 2022. On the downside, overall gains in jobs hide the continued mismatch between the supply of jobs from employers and the type of jobs workers are demanding. Many trade and service industries remain woefully understaffed. Personal income surged, first through pandemic support in 2020 and the inability to spend in lockdown, and then as wages and salaries rose when economic growth burst into the open in 2021 and 2022. However, inflation ate into income gains and drove up prices for businesses, crimping real returns and company margins. Now that the Fed Funds rate has reached 5% and mortgage rates are at 7%, is it time for us to tip into recession? Did the Fed do "too much, too late?"

Quarterly Real GDP Growth (20 Years)



Source: Bureau of Economic Analysis

Inflation Year-Over-Year



Source: Bureau of Labor Statistics

1Q23 GDP grew 1.1%, a definite slowdown from the second half of 2022, and below consensus expectations of 2%. Two culprits for the slower growth were weaker retail sales and a drop in new home construction. Another culprit was inventory reduction—companies worked down their stockpiles. Reducing inventories in anticipation of slower demand can be a self-fulfilling prophecy, as inventory reduction is a negative to GDP, but it can also set the economy up for a stronger 2Q, with the potential to rebuild inventory in the coming months. The consensus among economic forecasters is for substantial slowdown in 2023, to near zero growth in 2Q and 3Q, reaching the soft landing that is the holy grail of central banks.

Over history, however, we have not enjoyed soft landings in recessions; unemployment has spiked far beyond what would be thought of as a soft landing. The data for tracking recessions are all lagged, but the sequence of events in the economy is typically 1) slowing activity that takes a while to show up in the GDP data, then 2) cutting back in the form of spending and hiring, 3) layoffs starting in high-flying industries, leading to 4) the multiplier effects of the slowdown snowballing into significant job losses across the broad economy. The stock market usually prices in recession first, often far ahead of the economic data, and then the market begins to advance, pricing in the recovery while the recession is still unfolding.

The bond market has been signaling belief in recession with an inverted yield curve. The market fully believed in the Fed's interest rate plans in March 2022 when inflation took off, and the yield curve shifted up sharply. As the year went on, the bond market then began worrying that the Fed would have to reverse course "soon" and start cutting rates to stave off recession, hence the inversion of the yield curve. The Fed has made it clear that inflation remains concern

Recent Quarterly Economic Indicators

	1Q23	4Q22	3Q22	2Q22
Employment Cost: Total Compensation Growth	4.8%	5.1%	5.0%	5.1%
Nonfarm Business: Productivity Growth	-2.7%	1.6%	1.2%	-3.7%
GDP Growth	1.1%	2.6%	3.2%	-0.9%
Manufacturing Capacity Utilization	78.3%	78.5%	79.4%	79.6%
Consumer Sentiment Index (1966=100)	64.6	58.8	56.1	57.8

Sources: Bureau of Economic Analysis, Bureau of Labor Statistics, Federal Reserve, IHS Economics, Reuters/University of Michigan

The Long-Term View

Index	1Q23	Periods Ended 3/31/23 1 Yr	5 Yrs	10 Yrs	25 Yrs
U.S. Equity					
Russell 3000	7.2	-8.6	10.5	11.7	7.4
S&P 500	7.5	-7.7	11.2	12.2	7.4
Russell 2000	2.7	-11.6	4.7	8.0	6.8
Global ex-U.S. Equity					
MSCI EAFE	8.5	-1.4	3.5	5.0	4.3
MSCI ACWI ex USA	6.9	-5.1	2.5	4.2	--
MSCI Emerging Markets	4.0	-10.7	-0.9	2.0	--
MSCI ACWI ex USA Small Cap	4.7	-10.4	1.7	5.1	6.5
Fixed Income					
Bloomberg Agg	3.0	-4.8	0.9	1.4	4.0
90-Day T-Bill	1.1	2.5	1.4	0.9	1.9
Bloomberg Long G/C	5.8	-13.4	0.6	2.3	5.6
Bloomberg Gl Agg ex US	3.1	-10.7	-3.2	-1.0	2.8
Real Estate					
NCREIF Property	-1.8	-1.6	6.7	8.3	8.8
FTSE Nareit Equity	2.7	-19.2	6.0	6.0	8.0
Alternatives					
CS Hedge Fund	0.2	-0.9	4.2	3.9	5.5
Cambridge PE*	0.8	-8.2	16.1	15.1	14.1
Bloomberg Commodity	-5.4	-12.5	5.4	-1.7	1.8
Gold Spot Price	8.8	1.6	8.4	2.2	7.8
Inflation – CPI-U	1.7	5.0	3.9	2.6	2.5

*Data for most recent period lags. Data as of 9/30/22.
Sources: Bloomberg, Bureau of Economic Analysis, Credit Suisse, FTSE Russell, MSCI, NCREIF, Refinitiv/Cambridge, S&P Dow Jones Indices

No. 1, and the potential to cause a recession has not entered its deliberations. The strong job market in 1Q—almost a million new jobs—gives the Fed cover to continue course. The storm clouds on the horizon are the various measures of inflation: CPI-U and PCE both rose 5% in the first quarter, and the employment cost index for private industry rose 4.8%. While these rates are high relative to longer term history, they are down substantially from the peaks of mid-2022.

So higher interest rates are working, slowing demand and lessening price pressure, but inflation has a habit of being sticky on the downside. Squeezed margins means pressure to trim costs (and raise prices if possible). Highly visible layoffs in technology may soon expand to the broader economy. The chance of a recession in 2023 remains high.

Returns Fall for Trailing Year, but 4Q22, 1Q23 Gains Help Ease the Pain

INSTITUTIONAL INVESTORS

- Gains for stocks and bonds at the end of 2022 and beginning of 2023 eased the pain of a tough year for all institutional investors in 2022.
- While all investor types saw losses for the trailing one-year ending 1Q23, the declines were less than the double-digit losses they had experienced last year.
- Most investor types topped a 60% S&P 500/40% Bloomberg Aggregate benchmark over the trailing one year, with the exception of corporate plans.
- Results over the last 20 years for all investor types are in line with the stock-bonds benchmark.
- Entering 2023, for all investor types inflation is still an issue, despite recent declines.
  - Even if the rate goes to zero, the level of prices is permanently higher unless we get to deflation. The impact on individual and business real net income is substantial and portends slower growth in 2023 and 2024.
- Rate hikes from the Fed are another key concern.
  - The Fed has increased rates 475 bps since March 2022, from 0.0%-0.25% to 4.75%-5.0% in March 2023.
- While the painful losses across the board for investors in 2022 were a challenge, the silver lining is that higher returns are expected going forward.
  - Return targets are now in sight.
  - Risk reduction is on the table.

Quarterly Returns, Callan Database Groups (3/31/23)

	Public	Corporate	Nonprofit	Taft-Hartley	Insurance Assets
10th Percentile	5.7	6.3	5.9	5.3	4.6
25th Percentile	5.1	5.8	5.2	4.7	3.9
Median	4.6	5.3	4.5	4.1	3.4
75th Percentile	3.9	4.5	3.7	3.3	3.0
90th Percentile	3.3	3.5	2.3	2.7	1.9

Source: Callan

Callan Database Median and Index Returns* for Periods Ended 3/31/23

Database Group	Quarter	1 Year	3 Years	5 Years	10 Years	20 Years
Public Database	**4.6**	**-4.8**	**11.2**	**6.2**	**7.2**	**7.9**
Corporate Database	**5.3**	**-7.3**	**5.5**	**4.2**	**5.9**	**7.3**
Nonprofit Database	**4.5**	**-4.7**	**11.2**	**5.8**	**6.7**	**7.7**
Taft-Hartley Database	**4.1**	**-4.0**	**11.2**	**6.4**	**7.3**	**7.5**
Insurance Assets Database	**3.4**	**-3.0**	**4.4**	**3.2**	**3.6**	**5.1**
All Institutional Investors	**4.6**	**-4.9**	**10.6**	**5.7**	**6.8**	**7.6**
Large (>$1 billion)	**4.2**	**-4.9**	**11.2**	**6.5**	**7.3**	**8.0**
Medium ($100mm - $1bn)	**4.7**	**-4.9**	**10.7**	**5.8**	**7.0**	**7.6**
Small (<$100 million)	**4.6**	**-4.9**	**10.4**	**5.5**	**6.6**	**7.2**
60% S&P 500/40% Bloomberg Agg	5.7	-6.3	9.9	7.5	8.1	7.8

*Returns less than one year are not annualized.

Source: Callan. Callan's database includes the following groups: public defined benefit (DB) plans, corporate DB plans, nonprofits, insurance assets, and Taft-Hartley plans. Approximately 10% to 15% of the database constituents are Callan's clients. All database group returns presented gross of fees. Past performance is no guarantee of future results. Reference to or inclusion in this report of any product, service, or entity should not be construed as a recommendation, approval, affiliation, or endorsement of such product, service, or entity by Callan.

– Private markets are now over target allocations.
  - Downward market valuations are slower in coming, distorting true exposures.
  - Interest remains strong in all private assets.
  - Sharpened interest in real assets continues.
  - But current real assets exposures did not help, given losses in the asset class.
– Strategic themes in client conversations: How much has the world changed, and does it alter how we should view and implement our portfolio?

Corporated Defined Benefit (DB) Plans

– Liabilities fell sharply with rising interest rates. Liability-driven investing (LDI) portfolios were hammered by long duration exposure; typical LDI plan treaded water in funded status.
– Plans are questioning what they are doing with LDI, and why. Funded status no longer translates directly to contributions, or expense. Funding relief changed views.
– Total return-oriented plans saw funded status improve as equities declined less than liabilities.
– We expect higher interest rates will increase discussions about pension risk transfer. Most of our corporate DB clients are inclined to keep the plan on the balance sheet.

Public DB Plans

– Downward pressure on actuarial discount rates may now abate as capital markets expectations are higher following the market decline.
– Higher return expectations and lowered discount rates have led to a number of discussions of de-risking, after years of risking-up to chase returns.
– Inflation impacts future liabilities through pressure on salary and hits plans now with COLAs. Political pressures are high on plans with discretionary COLAs. Most COLAs are NOT funded, which is the reason why many plans suspended or eliminated them to address funding shortfalls over the past decade.

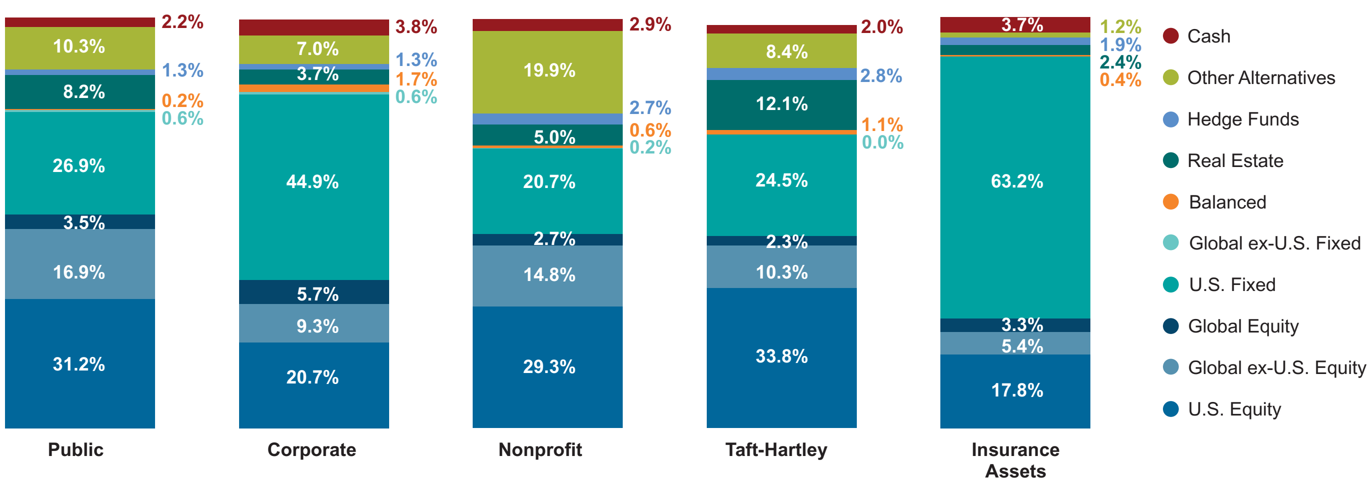
Nonprofits

– They are expanding the depth and breadth of their private markets allocations to diversify a prior focus on growth.
– Inflation concerns will lead to reconsideration of spending policies in 2023.

Defined Contribution (DC) Plans

– Pressure on investment management fees shows no signs of abating.
– Plans are also focused on compliance as they digest the implications of SECURE 2.0.

Average Asset Allocation, Callan Database Groups



Note: Charts may not sum to 100% due to rounding. Other alternatives include but is not limited to: diversified multi-asset, private credit, private equity, and real assets.
Source: Callan

Equity

U.S. Equities

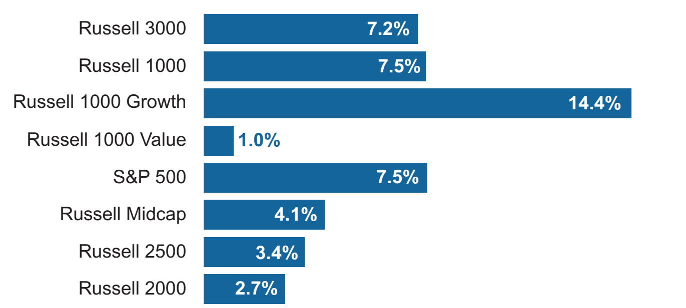
Markets gain, with exception of small cap value

– The S&P 500 posted a second straight quarter of positive performance, gaining 7.5% in 1Q23; large cap growth led all style and cap indices higher, advancing 14.4%.
– Russell 2000 Value was a notable exception and experienced a slight decline of 0.7% due to greater exposure to Financials, specifically banks.
– During the quarter, three sectors comprising 44% of the S&P 500 (and 63% of the Russell 1000 Growth Index) drove performance: Technology (+21.8%), Communication Services (+20.5%), and Consumer Discretionary (+16.1%).
– Financials, Energy, and Health Care posted negative returns for the quarter but had only a modest impact on total returns given smaller weights in respective benchmarks.
– Small caps (Russell 2000) underperformed large caps (Russell 1000) and growth outperformed value during the quarter, a reversal from 2022. Greater exposure to banks in Russell 2000 (8.3%) versus Russell 1000 (3.3%) was one differentiator for returns; strong returns for mega-cap Technology also increased divergence.

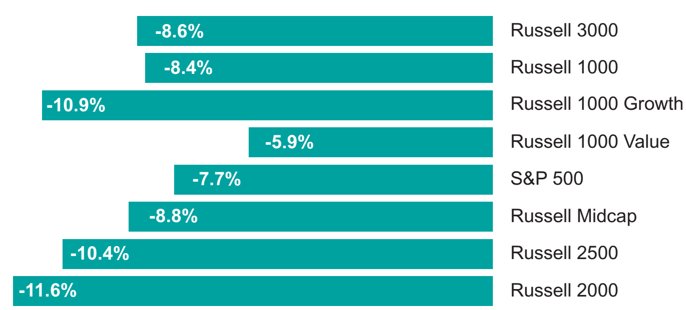
Large cap growth outperformance drivers

– The large cap growth outperformance was driven by increased valuations as interest rates declined and expectations of a more dovish Fed emerged.
– Asset managers may take a more cautious approach in equity markets into coming quarters as earnings estimates decline; expect a focus on quality, cash flow, defensive value names, and profitable growth stocks.
– Price multiples continue to be important as elevated valuations may compress if markets anticipate that monetary easing is not on the near-term horizon.
– Analyst estimates for future earnings are diverging, typically a sign of elevated economic turbulence.
– Investors "bought the dip" as stock performance reversed from the prior year; the worst-performing stocks for 2022 became best-performing stocks during 1Q23.

U.S. Equity: Quarterly Returns (3/31/23)

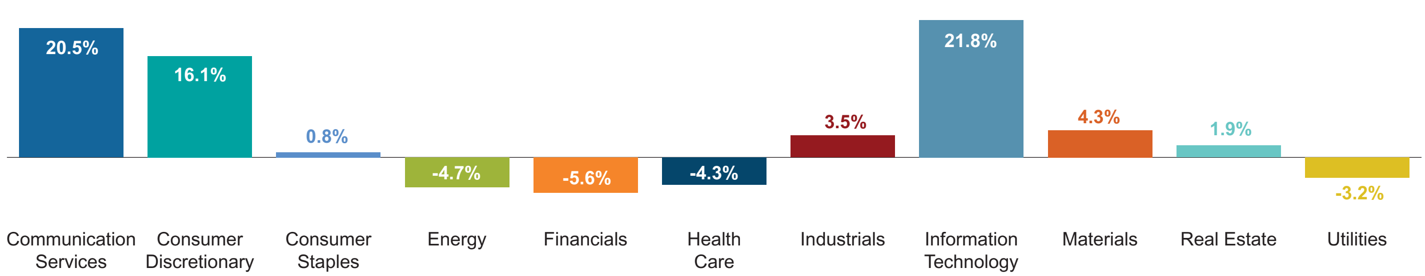


U.S. Equity: One-Year Returns (3/31/23)



Sources: FTSE Russell and S&P Dow Jones Indices

Quarterly Performance of Industry Sectors (12/31/22)



Source: S&P Dow Jones Indices

Global Equity

1Q23 brought global equity markets back to black

- Positive results despite hiccups
- 1Q23 was marked by the collapse of Silicon Valley Bank and Credit Suisse, which sent fears of a banking crisis across global markets.
- Despite a Fed hike during the period, investors began to price in lower rate expectations.
- Europe outperformed other regions, making up ground lost in 2022 as inflation eased and recession fears lessened.

Growth vs. value

- Growth outpaced value across developed and emerging markets.
- In a reversal from 2022, investors preferred growth alongside a drawdown in banks; Information Technology was the largest outperformer.

U.S. dollar vs. other currencies

- After some strength early in the quarter, the U.S. dollar declined 1% as interest rate differentials narrowed globally.

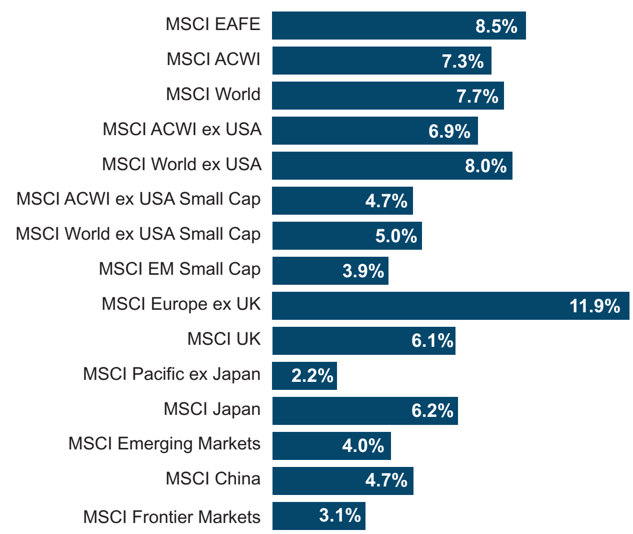
Developed markets outpace U.S.

- Outperformance of developed markets over the past year has been driven by Europe.
- Europe beat U.S. as the worst fears in the wake of the Russia-Ukraine War were not realized.
- Europe benefited from falling gas prices and China reopening.
- Value-growth dispersion was impacted less in developed markets relative to U.S. given the composition of the markets.
- EAFE Value outperformed Growth by 2.5 percentage points.
- S&P 500 Value outperformed Growth by 15.2 percentage points.
- Weak dollar in recent quarters helped global ex-U.S. equities.
- Since DXY Index reached a 20-year high in September 2022, it has fallen by 10%.

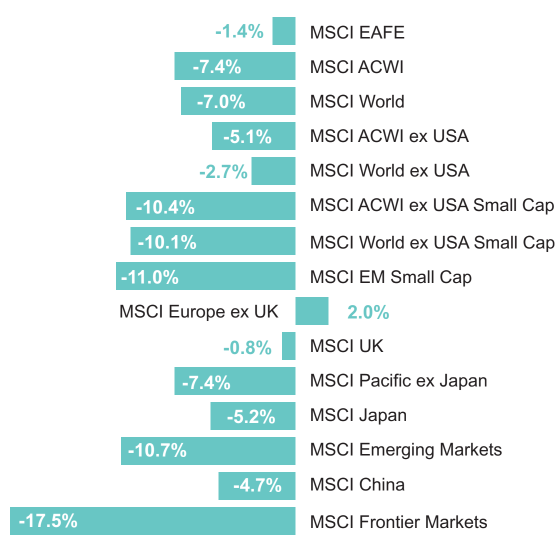
Will Europe continue to be a source of return?

- EPS growth expectations have fallen for both S&P 500 (-7%) and Europe (-9%).
- However, euro zone provides valuation support relative to the U.S.
- Euro zone trades at a 30% discount vs. the U.S.

Global ex-U.S. Equity: Quarterly Returns (U.S. Dollar, 3/31/23)



Global ex-U.S. Equity: One-Year Returns (U.S. Dollar, 3/31/23)



Source: MSCI

Fixed Income

U.S. Fixed Income

Bloomberg Aggregate was positive in 1Q but mixed

- January: +3.1%
- February: -2.6%
- March: +2.5%

U.S. Treasury volatility was pronounced

- 2-year U.S. Treasury yield high was 5.08% on 3/8 and low was 3.77% on 3/24
- MOVE Index highest since 2008

Yield curve remained inverted but also volatile

- 2yr/10yr | 3/31: -58 bps; max 3/8: -109; min 3/23: -38
- 1yr/10yr | 3/31: -116 bps

Fed raised rates, bringing target to 4.75%–5.00%

- Median expectation from Fed is 5.1% for year-end 2023; market pricing in Fed cuts by year-end
- Inflation moderated but still high and job market tight

Sector performance mixed

- Corporate Industrials excess return: +58 bps
- Corporate Financials excess return: -39 bps
- RMBS excess return: -50 bps
- CMBS excess return: -74 bps
- High yield excess return: +123 bps

Valuations fair

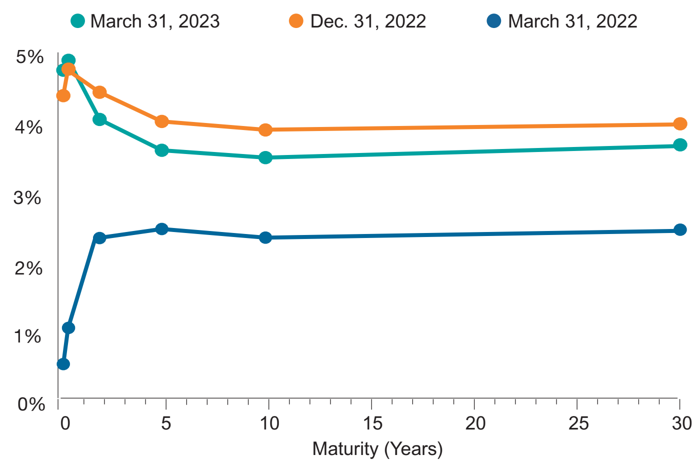
- Credit spreads have not widened materially and are close to historical averages

Municipal Bonds

Indices gained in 1Q23

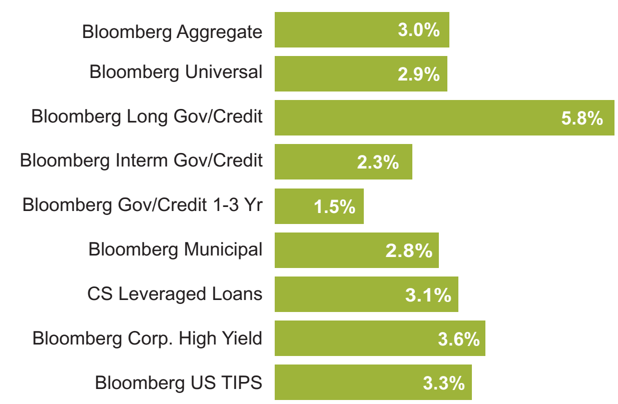
- Lower quality outperformed (AAA: +2.5%; AA: +2.7%; A: +3.0%; BBB: +3.7%)
- Muni curve inverted but less so than U.S. Treasuries
- 2-year AAA yield: 2.41%; 10-year AAA yield: 2.28%
- Valuations relative to U.S. Treasuries are rich

U.S. Treasury Yield Curves



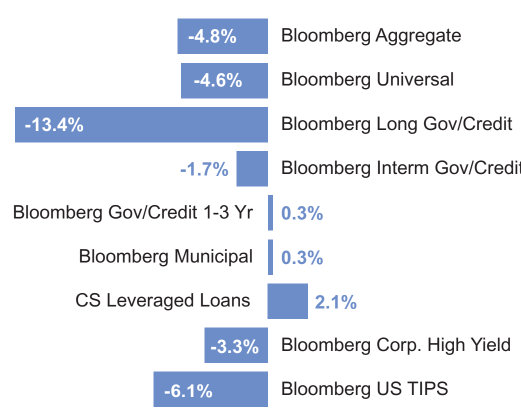
Source: Bloomberg

U.S. Fixed Income: Quarterly Returns (3/31/23)



Sources: Bloomberg and Credit Suisse

U.S. Fixed Income: One-Year Returns (3/31/23)



Sources: Bloomberg and Credit Suisse

- 10-year AAA Muni/10-year U.S. Treasury yield ratio 65%; below 10-year average of 88%
- Over the last 10 years, 10-year ratio was richer 4% of the time
- After-tax yield of Muni Bond Index = 5.5%; Bloomberg IG Corporate = 5.2% (Source: Eaton Vance)

Supply/demand

- Outflows nearly $2 billion but lower than the $22 billion in 1Q22
- Supply about 25% lower year-over-year
- Munis not immune to turmoil in banking, but fundamentals remain sound
- Banks are third largest holder of munis (about 15%) but thus far have not been sellers
- Municipals could be affected by tighter lending standards but likely result would be more public issuance
- "Rainy Day" fund balances and state tax revenues robust

Global Fixed Income

Global Aggregate was positive in 1Q but mixed

- January: +3.3%
- February: -3.3%
- March: +3.2%
- ECB and UK hiked rates; Japan held steady

U.S. dollar was mixed but mostly lower

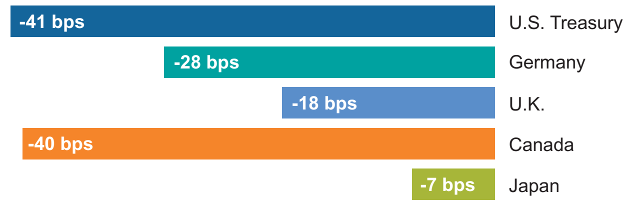
- Euro: +2% vs dollar
- British pound: +3% vs dollar
- Japanese yen: -1% vs dollar
- Australian dollar: -1% vs dollar
- Mexican peso: +8% vs dollar
- Brazilian real: +4% vs dollar

Emerging market debt delivered solid results

- EM currencies did well versus U.S. dollar, especially in Latin America; Latin America local currency return: +4.1%; unhedged in $US: +9.8%

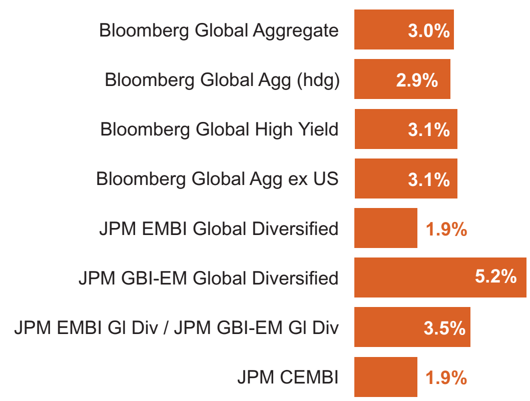
Change in 10-Year Global Government Bond Yields

4Q22 to 1Q23



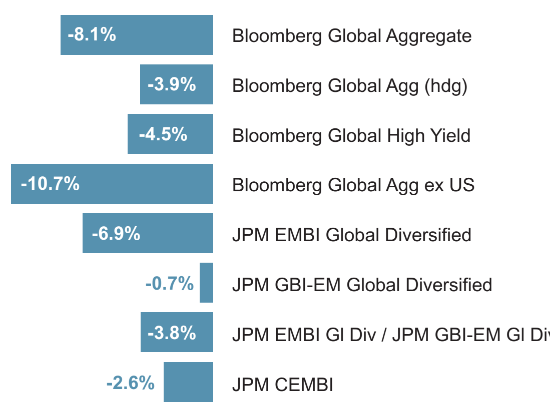
Source: Bloomberg

Global Fixed Income: Quarterly Returns (3/31/23)



Sources: Bloomberg and JPMorgan Chase

Global Fixed Income: One-Year Returns (3/31/23)



Sources: Bloomberg and JPMorgan Chase

Private Real Estate Sees Mixed Results, While REITs Lag Equities

REAL ESTATE/REAL ASSETS | Kristin Bradbury, Munir Iman, and Aaron Quach

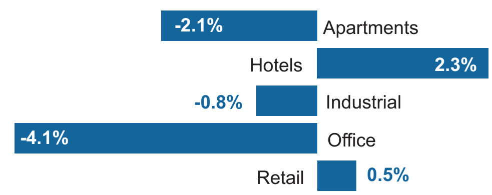
Income returns positive but appreciation negative

- Income returns were positive across all property sectors and regions in the NCREIF Property Index.
- All sectors and regions, except for Hotel, experienced negative appreciation.
- Valuations are reflective of higher interest rates, which have put upward pressure on capitalization rate and discount rate assumptions.
- Return dispersion by manager within the ODCE Index was due to the composition of underlying portfolios.
- Outstanding redemption requests for most large ODCE funds are approximately 8% to 16% of net asset value.
- There is more than $200 billion of capital waiting to be deployed in North America.
- Majority of dry powder capital in opportunistic, value-add, and debt funds
- Transaction volume continues to decrease on a rolling four-quarter basis and is now below five-year averages.
- The rise in interest rates is the driving force behind the slowdown in transactions. A bid-ask spread remains and price discovery continues to occur among market participants.

REITs Underperform Equity Indices

- Global REITs underperformed in 1Q23, rising 0.8% compared to a 7.7% rise for global equities (MSCI World).

Sector Quarterly Returns by Property Type (3/31/23)



Source: NCREIF

- U.S. REITs gained 2.7% in 1Q23, in contrast with the S&P 500 Index, which rose 7.5%.
- REITs are now trading at a discount to NAV (-12%) and offer relative value given the strength of underlying fundamentals.
- Historically, global REITs have traded at a -5.1% discount to NAV.

Real assets mixed but lagged global equities

- Real assets were mixed in 1Q but generally underperformed global equities.
- Gold (S&P Gold Spot Price Index: +8.8%), REITs (MSCI US REIT: +2.7%), infrastructure (DJB Global Infrastructure: +2.5%), and TIPS (Bloomberg TIPS: +2.0%) all posted positive returns.
- The S&P GSCI Index fell 4.9% with oil down about 7%. WTI Crude closed the quarter at $74/barrel, just before OPEC announced its intention to cut production in May.

Callan Database Median and Index Returns* for Periods Ended 3/31/23

Private Real Assets	Quarter	Year to Date	1 Year	3 Years	5 Years	10 Years	15 Years
Real Estate ODCE Style	**-1.7**	**-1.7**	**-2.2**	**8.4**	**7.5**	**9.0**	**5.1**
NFI-ODCE (value-weighted, net)	-3.4	-3.4	-3.9	7.5	6.6	8.5	5.0
NCREIF Property	-1.8	-1.8	-1.6	7.2	6.7	8.3	6.3
NCREIF Farmland	2.1	2.1	8.9	7.5	6.5	8.5	10.2
NCREIF Timberland	1.8	1.7	11.3	8.1	5.5	5.8	4.6
Public Real Estate							
Global Real Estate Style	**1.8**	**1.8**	**-20.2**	**7.9**	**3.3**	**4.7**	**4.5**
FTSE EPRA Nareit Developed	0.8	0.8	-21.4	6.6	0.9	2.5	2.5
Global ex-U.S. Real Estate Style	**0.1**	**0.0**	**-21.9**	**2.8**	**-0.7**	**3.4**	**2.4**
FTSE EPRA Nareit Dev ex US	-1.7	-1.6	-23.0	1.1	-3.1	0.3	0.7
U.S. REIT Style	**3.1**	**3.1**	**-19.0**	**11.4**	**7.2**	**6.9**	**7.3**
FTSE EPRA Nareit Equity REITs	2.7	2.7	-19.2	12.1	6.0	6.0	6.3

*Returns less than one year are not annualized. Sources: Callan, FTSE Russell, NCREIF

Deceleration in 2022, with Trends for 2023 Very Unclear

PRIVATE EQUITY | Gary Robertson

Private equity continued the trend of slower activity in 1Q23, after the frothy 2021 peak period. Fundraising dollar volume ticked up slightly, but overall combined company-level entry and exit volumes averaged drops of about 34% by count and 54% by dollar volume from 4Q22. Exits continue to suffer more than fund commitments and new investments.

Fundraising ▶ Based on preliminary data, 1Q23 private equity partnerships holding final closes totaled $188.7 billion, up 20% from 4Q22. New partnerships formed dropped 47% to 339, with the trend continuing of larger funds consolidating most commitments. Secondary funds surged to 17% of commitments, which is an anomaly for the strategy that normally has a low single-digit market share. New buyout funds with 44% of commitments remains low. Venture capital has declined from recent 30%-plus levels but remains significant. (Unless otherwise noted, all data comes from PitchBook.)

Buyouts ▶ Funds closed 2,429 investments with $123 billion in disclosed deal value, a 21% decline in count and a 53% drop in dollar value from 4Q.

VC Investments ▶ New investments in venture capital companies totaled 10,271 rounds of financing, down 10%, with $78 billion of announced value, down 11%.

Exits ▶ There were 462 private M&A exits of private equity-backed companies, a 3% increase. Disclosed values declined 36% to $89 billion. There were 47 private equity-backed IPOs, down 20%, which raised an aggregate $5 billion, down 44%.

Venture-backed M&A exits totaled 527 with disclosed value of $22 billion. The number of sales rose only 1% from 4Q, but announced value jumped 175%. There were 58 VC-backed IPOs, down 51%, and the combined float totaled $6 billion, a 33% decrease.

Returns ▶ Preliminary numbers (finals will be published in mid-May) for 4Q22 indicate a modestly up quarter for All Private Equity, with Buyout and Credit-related strategies offsetting continued declines in Venture Capital and Growth Equity.

Funds Closed 1/1/23 to 3/31/23

Strategy	No. of Funds	Amt ($mm)	Share
Venture Capital	200	31,629	17%
Growth Equity	14	15,316	8%
Buyouts	93	83,346	44%
Mezzanine Debt	8	16,012	8%
Distressed/Special Credit	3	10,515	6%
Energy	0	0	0%
Secondary and Other	20	31,608	17%
Fund-of-Funds	1	274	0%
Totals	**339**	**188,700**	**100%**

Source: PitchBook (Figures may not total due to rounding.)

Private Equity Performance (%) (Pooled Horizon IRRs through 12/31/22*)

Strategy	Quarter	1 Year	3 Years	5 Years	10 Years	15 Years	20 Years	25 Years
All Venture	-5.40	-19.17	24.33	22.38	19.22	13.19	12.60	23.50
Growth Equity	-1.29	-14.64	19.32	18.13	15.85	12.62	14.76	15.15
All Buyouts	4.15	-3.00	17.52	15.75	15.14	10.06	15.01	12.77
Mezzanine	3.82	4.34	11.60	11.04	11.23	10.19	11.19	10.00
Credit Opportunities	2.53	4.37	8.60	7.02	8.24	8.74	9.79	9.54
Control Distressed	1.98	3.91	19.76	13.44	12.29	10.49	11.92	11.71
All Private Equity	**0.67**	**-8.32**	**18.62**	**16.60**	**15.20**	**10.90**	**13.83**	**13.71**
S&P 500	7.56	-18.11	7.66	9.42	12.56	8.81	9.80	7.64
Russell 3000	1.87	-13.01	-2.71	0.02	1.06	2.66	3.10	3.97

Note: Private equity returns are net of fees. Sources: Refinitiv/Cambridge and S&P Dow Jones Indices
*Most recent data available at time of publication

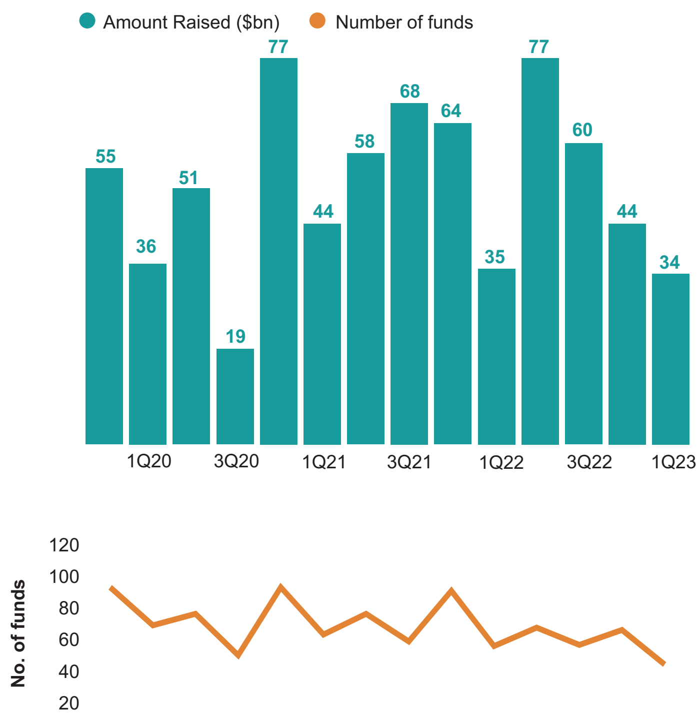
Note: Transaction count and dollar volume figures across all private equity measures are preliminary figures and are subject to update in subsequent versions of the *Capital Markets Review* and other Callan publications.

Net IRRs Range Between 7%-10%; Interest Remains Strong

PRIVATE CREDIT | Catherine Beard

- Private credit performance varies across sub-asset class and underlying return drivers. On average, the asset class has generated net IRRs of 7% to 10% for trailing periods ended Sept. 30, 2022. Higher-risk strategies performed better than lower-risk strategies.
- As interest rates declined after the Global Financial Crisis (GFC), private credit attracted increased interest from institutional investors.
- Private credit fundraising was robust leading into the COVID dislocation with a particular focus on direct lending, asset-based lending, and distressed strategies.
- In the current rate environment, a renewed focus has been placed on relative value, downside protection, and managers' internal workout resources.
- There is renewed interest in strategies with strong collateral protection such as asset-based lending.
- Larger sponsor-backed lending is seeing a new focus due to the high yield/broadly syndicated loan disintermediation by private debt.
  - U.S. sub-investment grade corporate yields rose dramatically at the beginning of 2022 with yields peaking in September. This was a combination of higher interest rates due to tighter Fed policy and a widening of high yield spreads.
  - Spreads widened during the first half of 2022 due to weaker credit conditions as the U.S. economic outlook worsened. This has since moderated.
  - Default rates for U.S. corporate bonds ticked up in 1Q but remained well below the historical average of 3%-4%. Callan expects defaults to increase somewhat in coming months as economic growth slows and potentially turns negative.
  - The Corporate Bond Market Distress Index (CMDI) rose rapidly during the first nine months of 2022, especially for investment grade bonds, highlighting market volatility and a drying up of liquidity, but has fallen since then. In 2023, as the IG distress index continues to fall, the HY bond indicator is on the rise. The CMDI incorporates a range of indicators, including new issuance and pricing for primary and secondary market bonds and relative pricing between traded and nontraded bonds.

Private Credit Fundraising ($bn)



Source: Preqin

Private Credit Performance (%) (Pooled Horizon IRRs through 9/30/22*)

Strategy	Quarter	1 Year	3 Years	5 Years	8 Years	10 Years	15 Years	20 Years
Senior Debt	-2.4	-3.5	4.6	5.1	5.7	5.9	6.3	6.1
Mezzanine	0.2	5.0	11.8	11.1	10.8	11.3	10.5	11.3
Credit Opportunities	0.7	3.9	8.4	7.2	6.6	8.3	8.6	9.7
Total Private Credit	-0.1	2.6	8.4	7.7	7.4	8.6	8.8	9.7

Source: Refinitiv/Cambridge

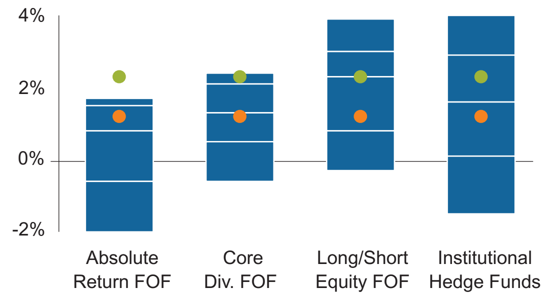
*Most recent data available at time of publication

Steady Gains Amid Volatile Markets

HEDGE FUNDS/MACs | Joe McGuane

- Equity and credit markets saw volatility spike during 1Q23, as sentiment on inflation and Federal Reserve policy whipsawed in response to signs of persistent inflation following strong economic data on the labor market.
- Both stocks and bonds gained ground, and hedge funds ended the quarter in positive territory, although they underperformed broader equity indices, as the group provided steady performance through a volatile market environment.
- Equity hedge strategies had a strong start to the year, as tech-focused managers saw performance soar.
- Relative value managers also had a nice quarter, as fixed income relative value strategies were able to profit off the move in short-term rates in March.
- Event-driven strategies posted gains, as some managers profited from merger arbitrage exposures as spreads tightened with the completion of several large strategic deals.

Hedge Fund Style Group Returns (3/31/23)



	Absolute Return FOF	Core Div. FOF	Long/Short Equity FOF	Institutional Hedge Funds
10th Percentile	1.7	2.4	3.9	4.0
25th Percentile	1.5	2.1	3.0	2.9
Median	0.8	1.3	2.3	1.6
75th Percentile	-0.6	0.5	0.8	0.1
90th Percentile	-2.0	-0.6	-0.3	-1.5
HFRI Fund Weighted ●	1.2	1.2	1.2	1.2
90-Day T-Bill +5% ●	2.3	2.3	2.3	2.3

Sources: Callan, Credit Suisse, Federal Reserve

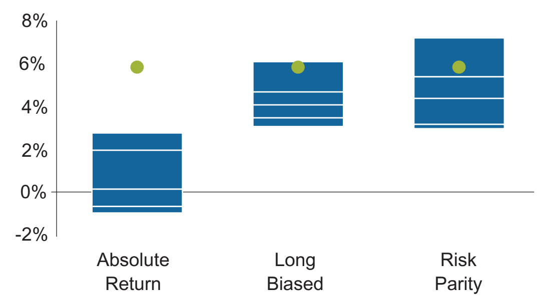
Callan Peer Group Median and Index Returns* for Periods Ended 3/31/23

Hedge Fund Universe	Quarter	1 Year	3 Years	5 Years	10 Years	15 Years
Callan Institutional Hedge Fund Peer Group	**1.6**	**2.6**	**9.2**	**5.7**	**5.8**	**6.1**
Callan Fund-of-Funds Peer Group	**1.2**	**0.9**	**8.1**	**4.2**	**4.2**	**3.7**
Callan Absolute Return FOF Style	**0.8**	**2.3**	**8.8**	**4.1**	**4.5**	**3.6**
Callan Core Diversified FOF Style	**1.3**	**1.5**	**8.1**	**4.0**	**4.0**	**3.4**
Callan Long/Short Equity FOF Style	**2.3**	**-2.3**	**6.6**	**4.5**	**4.6**	**4.1**
HFRI Fund-Weighted Index	1.2	-2.1	10.5	4.7	4.4	4.0
HFRI Fixed Convertible Arbitrage	1.4	1.0	9.1	5.3	5.0	5.4
HFRI Distressed/Restructuring	0.9	-4.6	12.2	4.7	4.4	4.5
HFRI Emerging Markets	1.9	-4.9	8.0	1.0	2.8	2.0
HFRI Equity Market Neutral	0.8	2.5	4.1	1.9	2.9	2.0
HFRI Event-Driven	1.4	-2.2	11.7	4.5	4.6	4.5
HFRI Relative Value	1.3	0.0	7.7	3.6	3.9	4.7
HFRI Macro	-2.4	-0.4	7.0	4.6	2.7	2.4
HFRI Equity Hedge	2.5	-3.7	12.4	5.0	5.3	4.2
HFRI Multi-Strategy	1.4	-6.3	7.1	2.4	2.8	3.1
HFRI Merger Arbitrage	-1.8	-0.3	9.7	5.3	4.3	4.0
90-Day T-Bill + 5%	2.3	7.5	5.9	6.4	5.9	5.7

*Net of fees. Sources: Callan, Credit Suisse, Hedge Fund Research

- Macro strategies generated negative performance on the quarter, as losses came from short positions in U.S. rates, and short positions in U.S. equity indices detracted from performance.
- The median manager in the Callan Institutional Hedge Fund Peer Group rose 1.6%.
- Within this style group of 50 peers, the average hedged credit manager gained 2.1%, as high yield markets had a strong start to the year as near-term recession risks receded and capital market access improved.
- Hedged rates managers rose 1.5%, as those strategies were able to profit off short-term rates falling in March, as the banking crisis flared up.
- The average hedged equity manager fell 0.3%, as managers with a focus on tech, media, and telecom (TMT) and consumer stocks led the rally after lagging for all of 2022.
- Within the HFRI Indices, the best-performing strategy in 1Q was the equity hedge index (+2.5%), as managers that were focused on growth stocks saw a strong bounce in performance compared to last year.
- Event-driven strategies finished up 1.4%, as hard catalyst situations contributed to performance along with select merger arbitrage exposures as spreads tightened.
- Macro strategies ended the quarter 2.4% lower, primarily due to losses in short fixed income exposures, as banking turmoil abruptly shifted rate expectations.
- Across the Callan Hedge FOF Database, the median Callan Long-Short Equity FOF gained 2.3%, as managers benefited from a strong S&P 500 during 1Q.
- The median Callan Core Diversified FOF rose 1.3%, as equity hedge exposure offset negative performance from macro managers during the quarter.
- Callan Absolute Return FOF was up 0.8%, as multi-strategy and equity hedge exposure was able to offset the underperformance from macro managers in the quarter.
- The median Callan MAC Risk Parity manager gained 4.4%, as equities and fixed income drove performance during the quarter.
- The Callan MAC Long Biased peer group rose 4.1%, as strong equity performance led the group higher.
- The Callan MAC Absolute Return manager finished up 0.2%, as a bias toward value equities caused underperformance relative to the other peer groups, as growth equities had a strong start to the year.

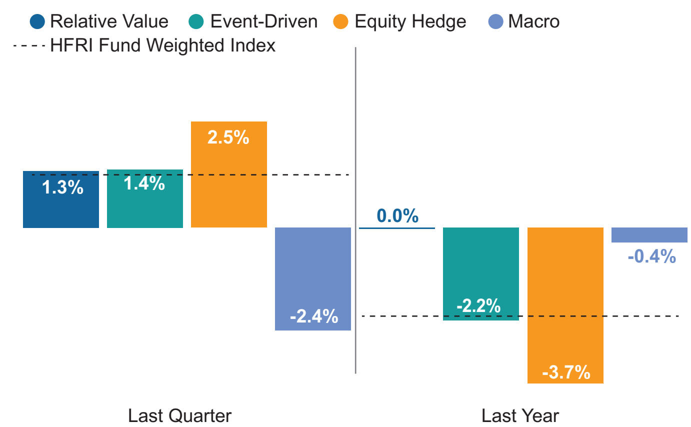
MAC Style Group Returns (3/31/23)



	Absolute Return	Long Biased	Risk Parity
10th Percentile	2.8	6.1	7.2
25th Percentile	2.0	4.7	5.4
Median	0.2	4.1	4.4
75th Percentile	-0.6	3.5	3.2
90th Percentile	-0.9	3.1	3.0
60% MSCI ACWI/ 40% Bloomberg Agg	5.6	5.6	5.6

Sources: Bloomberg, Callan, Eurekahedge, S&P Dow Jones Indices

HFRI Hedge Fund-Weighted Strategy Returns (3/31/23)



Source: HFRI

Index Rises After Three Straight Quarters of Losses

DEFINED CONTRIBUTION | Scotty Lee

Performance: Index gains 6.3%, breaking streak of losses

- The Callan DC Index™ rose 6.3% in 4Q22 after three previous quarterly declines.
- The Age 45 Target Date Fund gained 8.4%.

Growth Sources: Investment gains lead to rise in balances

- Balances rose by 5.8% after a 4.7% decrease the previous quarter, driven by investment gains.

Turnover: Net transfers increase slightly

- Turnover (net transfer activity levels within DC plans) slightly increased to 0.18% from the previous quarter's 0.14%.
- Despite the small increase, the Index's historical average (0.56%) remained steady.

Net Cash Flow: TDFs remain in top spot

- Target date funds (TDFs) received the largest net inflows in the DC Index, garnering 84.6% of quarterly net flows.
- Investors withdrew assets from U.S. large cap equity (-19.5%) and global ex-U.S. equity (-9.5%).
- Stable value (-34.7%) saw relatively large outflows.

Equity Allocation: Exposure rises

- The Index's overall allocation to equity (70.1%) rose slightly from the previous quarter's level (69.3%).

Asset Allocation: Capital preservation declines

- Global ex-U.S. equity (5.0%) and U.S. large cap (25.2%) were among the asset classes with the largest percentage increases in allocation.
- Stable value (10.0%) had a decrease in allocation from the previous quarter's level (10.5%).

Prevalance: Balanced funds dip—again

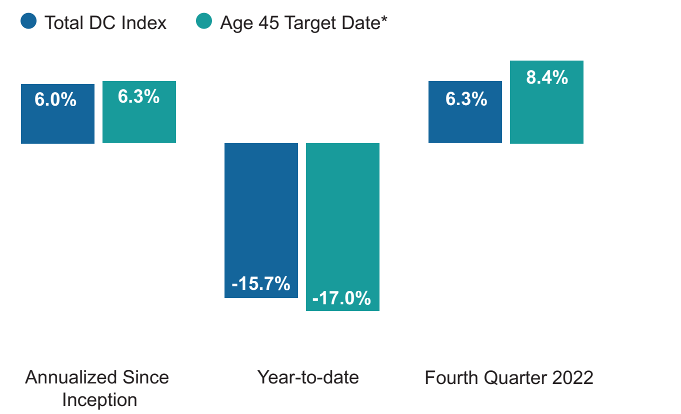
- The prevalence of a balanced fund (40.8%) decreased again to its lowest level since the inception of the Index in 2006.

Management Fees: Declines vary by plan size

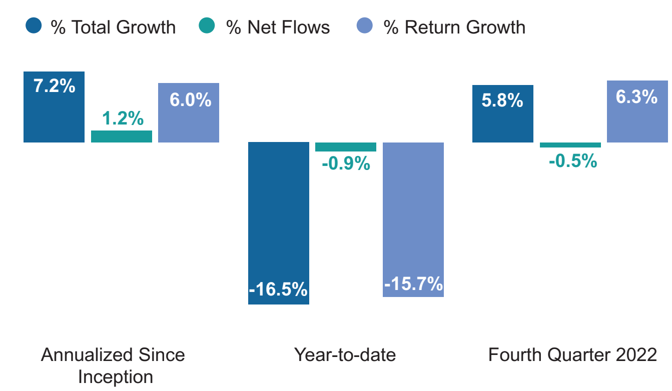
- Less than $500 million in assets: fees fell by 1 basis point.
- $500 million-$1 billion: -2 bps.
- More than $1 billion: -4 bps.

Underlying fund performance, asset allocation, and cash flows of more than 100 large defined contribution plans representing approximately $400 billion in assets are tracked in the Callan DC Index.

Investment Performance (12/31/22)



Growth Sources (12/31/22)



Net Cash Flow Analysis (4Q22)
(Top Two and Bottom Two Asset Gatherers)

Asset Class	Flows as % of Total Net Flows
Target Date Funds	84.6%
Money Market	8.0%
U.S. Large Cap	-19.5%
Stable Value	-34.7%
Total Turnover**	**0.2%**

Data provided here is the most recent available at time of publication.

Source: Callan DC Index

Note: DC Index inception date is January 2006.

* The Age 45 Fund transitioned from the average 2035 TDF to the 2040 TDF in June 2018.

** Total Index "turnover" measures the percentage of total invested assets (transfers only, excluding contributions and withdrawals) that moved between asset classes.

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About Callan

Callan was founded as an employee-owned investment consulting firm in 1973. Ever since, we have empowered institutional clients with creative, customized investment solutions that are backed by proprietary research, exclusive data, and ongoing education. Today, Callan advises on more than $3 trillion in total fund sponsor assets, which makes it among the largest independently owned investment consulting firms in the U.S. Callan uses a client-focused consulting model to serve pension and defined contribution plan sponsors, endowments, foundations, independent investment advisers, investment managers, and other asset owners. Callan has six offices throughout the U.S. For more information, please visit www.callan.com.

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