Callan Institute

Third Quarter 2022

Capital Markets Review

Mayhem Continues in the Capital Markets

ECONOMY

2 PAGE

Mayhem continued to plague the capital markets, with both stocks and bonds falling through the first three quarters of the year. But the underlying U.S. economy remains strong, with an uptick in GDP in 3Q and the job market reaching its pre-pandemic level in August.

Double-digit Declines for Last 12 Months

INSTITUTIONAL INVESTORS

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Institutional investors saw double-digit losses over the year ending 9/30/22. Almost every asset class was down, and it was the worst start to a year for a 60/40 portfolio in decades. Despite inflation worries, the drop in stocks and bonds became the top concern of institutional investors.

First Three Quarters The Worst in Decades

EQUITY

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The S&P 500 Index fell 4.9% in 3Q22, and equities are off to the worst three quarters in decades. All major U.S. indices across styles and market cap ranges were negative except for the Russell 2000 Growth. Global markets waned for three straight quarters as well.

Bonds Hit Hard as Rates Rose Sharply

FIXED INCOME

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The Bloomberg US Aggregate saw its worst nine-month return in its history. The yield curve inverted at quarter-end; the 10-year was at 3.83% and 2-year at 4.22%. Negative returns for global fixed income were driven by broad interest rate increases.

NPI Shows Gains; REITs Lag Equities

REAL ESTATE/REAL ASSETS

10 PAGE

The NCREIF Property Index rose 0.6% during 3Q22. The NCREIF Open-End Diversified Core Equity Index rose 0.5%. The FTSE EPRA Nareit Developed Asia Index (USD) fell 9.4%. The FTSE EPRA Nareit Developed Europe Index (USD) plunged 21.7%.

Activity Reflects Pre-Pandemic Levels

PRIVATE EQUITY

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All private equity activity measures dipped in 3Q22 compared to the previous quarter, except for an increase in IPOs. Steep year-to-date declines are largely in contrast to last year's stimulus-induced hyper-liquidity, with 2022 generally reflecting active pre-pandemic levels.

Appeal for Investors in Low-Yield Climate

PRIVATE CREDIT

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Clients moved away from new allocations to traditional sponsor-backed direct lending due to the increased competition and commoditization within the space. Demand has continued to be healthy for less-competitive areas of private credit with high barriers to entry.

Managers in General Outpace Benchmarks

HEDGE FUNDS/MACs

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Hedge funds fell but outperformed broader indices. The median member of the Callan Institutional Hedge Fund Peer Group rose 0.6%. The median manager of the Callan Multi-Asset Class (MAC) Style Groups saw lower returns, consistent with their underlying risk exposures.

DC Index Sees Third-Worst Decline Ever

DEFINED CONTRIBUTION

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The Callan DC Index™ fell 12.2% in 2Q22; the Age 45 Target Date Fund dropped 13.4%. Balances within the DC Index declined by 12.3%. Stable value received 47.7% of net flows, topping target date funds. U.S. large cap (25.1%) had the largest percentage decrease in allocation.

Broad Market Quarterly Returns

U.S. Equity
Russell 3000

-4.5%

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

-9.9%

U.S. Fixed Income
Bloomberg Agg

-4.8%

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

-8.8%

Sources: Bloomberg, FTSE Russell, MSCI

Mayhem in the Capital Markets

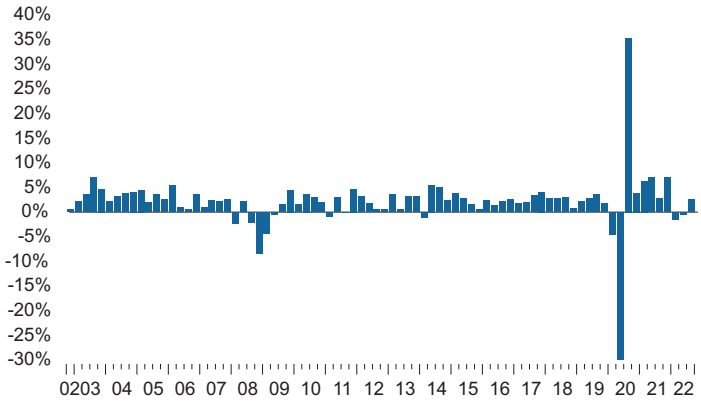
ECONOMY | Jay Kloepfer

Capital markets abhor uncertainty, and we have seen nothing but uncertainty this year. The Russian invasion of Ukraine threw expectations for an orderly transition from the pandemic era out the window. Kinks in supply chains were expected to be smoothed, energy prices and inflation in general were projected to calm and subside after surging in 2021, and market participants anticipated an orderly transition from zero interest rate policy to a more "normal" yield curve. All these were key components to a consensus view that U.S. and global economies, and their capital markets, would slow gradually toward trend growth and reach the proverbial "Goldilocks" scenario: not too hot, not too cold. Like a soft landing for the Fed, the Goldilocks scenario is aspirational and has never really been achieved.

Instead, inflation is burning out of control. Global energy markets are surging and volatile. Geopolitical uncertainty is moving toward a level some experts liken to the period after World War II, when the United States and the Soviet Union were trying to figure out a new world order. This time, China represents a third axis of power with another agenda. Stock and bond markets around the globe are down together for three quarters in a row through September 2022. The S&P 500 plunged 24% year-to-date, and developed and emerging market equities are down a similar amount, punished by the strong dollar. While painful, such a drawdown in the equity markets is expected periodically. What is not expected is the 14.6% loss in the bond market (Bloomberg Aggregate) at the same time. The nine-month returns for the Aggregate are the worst in its history. There is no place to hide for a diversified portfolio.

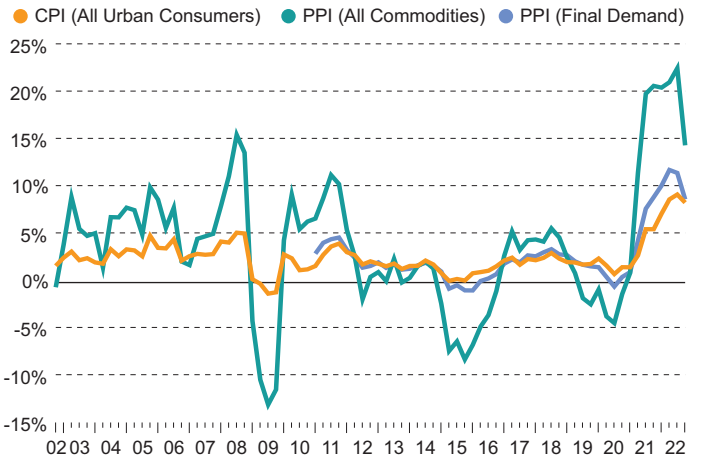
The losses in both the bond and stock markets this year are primarily due to the sharp rise in interest rates. The lack of any yield cushion at the start of 2022 makes the rise in rates particularly painful for bonds. Rates have risen this much in the past, but the last time was during the regime change for monetary policy in the early 1980s. The giant capital losses were cushioned by yields as high as 14%. We began this year with the yield on the Aggregate at 1.75%; by Sept. 30, it reached 4.75%. With a duration of over six years for the Aggregate, the capital loss implied by such a rate rise is close to 20%. The rising yield collected offsets some of this capital loss.

Quarterly Real GDP Growth (20 Years)



Source: Bureau of Economic Analysis

Inflation Year-Over-Year



Source: Bureau of Labor Statistics

The Fed announced plans to raise rates aggressively in 2022, targeting a Fed Funds rate of 3.25% to 3.5% by December, but the market didn't really believe it until the Russian invasion in February. Then investors fully priced in the Fed's plans all at once. During the long period of zero interest rate policy over the past decade, we often mused that the best way to return to normal in the bond market would be to rip the "low-rate bandage" off and

move at once to the new normal. Get the pain over with, absorb the capital loss, and start collecting the higher yield. Be careful what you wish for.

Underneath this mayhem in the capital markets, the U.S. economy has been strong, with a particularly robust job market and healthy consumer spending. The economy added 263,000 jobs in September, down from the torrid pace set earlier this year, but for the quarter nonfarm employment increased by more than 1.1 million jobs. Even more importantly, we finally reached the pre-pandemic level for total employment in August 2022. Personal income growth has recovered from the withdrawal of pandemic support (transfer payments), rising 5.9% in 2Q and 5.5% in 3Q. Disposable income (after tax) rose by similar rates. However, inflation has taken a toll this year; real disposable income is 4% to 5% lower than the same month one year ago starting in May 2022, while real consumption expenditures are 6% to 7% higher.

Traditional measures of economic health are still out of whack as they often were during the pandemic. GDP is the biggest puzzle so far this year. GDP fell 1.6% in 1Q and another 0.6% in 2Q, while at the same time we generated more than 2 million new jobs. The GDP declines were deemed to be anomalies driven by inventory swings and net exports, not underlying economic weakness. Third quarter GDP grew by 2.6%, with strong contributions from exports, business fixed investment (equipment and intellectual property), and a resumption of government spending. However, fourth quarter GDP is now projected to fall. After all the mayhem, GDP growth will likely end up being positive in 2022—but it is projected to be negative in 2023, signaling more challenges ahead and the potential for a recession to extend through 2Q23.

The Long-Term View

		Periods Ended 9/30/22			
Index	**3Q22**	**1 Yr**	**5 Yrs**	**10 Yrs**	**25 Yrs**
U.S. Equity					
Russell 3000	-4.5	-17.6	8.6	11.4	7.5
S&P 500	-4.9	-15.5	9.2	11.7	7.4
Russell 2000	-2.2	-23.5	3.6	8.6	6.7
Global ex-U.S. Equity					
MSCI EAFE	-9.4	-25.1	-0.8	3.7	3.5
MSCI ACWI ex USA	-9.9	-25.2	-0.8	3.0	--
MSCI Emerging Markets	-11.6	-28.1	-1.8	1.0	--
MSCI ACWI ex USA Small Cap	-8.4	-28.9	-0.6	4.4	5.6
Fixed Income					
Bloomberg Agg	-4.8	-14.6	-0.3	0.9	4.0
90-Day T-Bill	0.5	0.6	1.1	0.7	1.9
Bloomberg Long G/C	-9.0	-27.4	-1.2	1.4	5.5
Bloomberg Gl Agg ex US	-8.8	-24.8	-4.0	-2.4	2.4
Real Estate					
NCREIF Property	0.6	16.1	8.6	9.5	9.4
FTSE Nareit Equity	-9.9	-16.4	2.9	6.3	7.7
Alternatives					
CS Hedge Fund	0.4	1.1	4.5	4.3	5.9
Cambridge PE*	-5.6	3.3	18.2	15.9	14.7
Bloomberg Commodity	-4.1	11.8	7.0	-2.1	1.5
Gold Spot Price	-7.5	-4.8	5.4	-0.6	6.6
Inflation – CPI-U	0.2	8.2	3.8	2.5	2.5

*Data for most recent period lags. Data as of 6/30/22.
Sources: Bloomberg, Bureau of Economic Analysis, Credit Suisse, FTSE Russell, MSCI, NCREIF, Refinitiv/Cambridge, S&P Dow Jones Indices

Recent Quarterly Economic Indicators

	3Q22	2Q22	1Q22	4Q21	3Q21	2Q21	1Q21	4Q20
Employment Cost–Total Compensation Growth	5.0%	5.1%	4.5%	4.0%	3.7%	2.9%	2.6%	2.5%
Nonfarm Business–Productivity Growth	0.3%	-4.1%	-5.9%	4.4%	-2.4%	2.7%	3.0%	-3.9%
GDP Growth	2.6%	-0.9%	-1.6%	6.9%	2.3%	6.7%	6.3%	4.5%
Manufacturing Capacity Utilization	79.7%	79.5%	79.1%	78.6%	77.5%	76.8%	75.7%	75.0%
Consumer Sentiment Index (1966=100)	56.1	57.8	63.1	69.9	74.8	85.6	80.2	79.8

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

Double-digit Declines for Last 12 Months

INSTITUTIONAL INVESTORS

Rough year but most investors topped benchmarks

- Institutional investors saw double-digit losses over the year ending 9/30/22.
- Corporate defined benefit (DB) plans had the lowest returns, Taft-Hartley plans the best.
- All investor types aside from corporate DB plans outperformed a 60% S&P 500/40% Bloomberg Aggregate benchmark.
- And all types but corporate DB plans also outperformed equity and bond benchmarks.
- Over longer time periods, all investor types generally underperformed the stocks/bonds benchmark.

Major concern shifts

- Declines in both equities and fixed income replaced inflation as the greatest concern for institutional investors in 3Q22.
- Almost every asset class was down, and it was the worst start to a year for a 60/40 portfolio in decades.
- But … inflation is still burning out of control. One ray of hope: month-to-month inflation flattened to zero starting in June.
- Institutional investors are starting to ask questions about what to do now:
  - How does a yield of 4% change the demand for yield substitutes: investment grade credit, bank loans, high yield, private credit? Real estate and infrastructure?
- Rebalancing is a natural outcome of a market downturn, except when everything goes down.
- Alternatives are now over target allocations.
  - *This stems from the denominator effect: the plunge in stocks and bonds is immediate but there is a delay in private market loss reporting, meaning the overweight is somewhat artificial.*
  - *This is not the time to hold back on re-upping private market commitments—the "overweight" will self-correct as appraisals reflect public market performance.*

Quarterly Returns, Callan Database Groups (9/30/22)

	Public	Corporate	Nonprofit	Taft-Hartley	Insurance Assets
10th Percentile	-2.9	-3.2	-2.7	-1.8	-1.6
25th Percentile	-3.5	-4.4	-3.4	-2.4	-2.9
Median	-4.2	-5.3	-4.2	-3.3	-3.9
75th Percentile	-4.9	-7.2	-5.1	-4.2	-4.3
90th Percentile	-5.4	-8.4	-5.8	-4.8	-5.1

Source: Callan

Callan Database Median and Index Returns* for Periods Ended 9/30/22

Database Group	Quarter	1 Year	3 Years	5 Years	10 Years	20 Years
Public Database	**-4.2**	**-13.4**	**4.1**	**4.8**	**6.8**	**7.3**
Corporate Database	**-5.3**	**-17.8**	**0.8**	**3.0**	**5.6**	**6.9**
Nonprofit Database	**-4.2**	**-14.5**	**3.6**	**4.3**	**6.3**	**7.4**
Taft-Hartley Database	**-3.3**	**-11.1**	**4.8**	**5.4**	**7.2**	**7.1**
Insurance Assets Database	**-3.9**	**-11.8**	**0.7**	**2.3**	**3.8**	**4.8**
All Institutional Investors	**-4.3**	**-14.3**	**3.4**	**4.3**	**6.5**	**7.2**
Large (>$1 billion)	**-4.2**	**-13.0**	**4.2**	**5.0**	**6.8**	**7.5**
Medium ($100mm - $1bn)	**-4.3**	**-14.7**	**3.4**	**4.4**	**6.6**	**7.1**
Small (<$100 million)	**-4.3**	**-14.5**	**3.0**	**4.0**	**6.2**	**6.8**
60% S&P 500/40% Bloomberg Agg	-4.8	-14.9	3.9	5.7	7.5	7.4

*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.

Key issues for corporate DB plans

- Corporate plans are rethinking their approach to liability-driven investing (LDI). LDI portfolios were hammered by long duration exposure; the typical LDI plan treaded water in funded status.
- According to a survey of client activity, there was a big drop in concern about funded status in recent quarters; plans' interest in alternative asset classes dropped significantly.

Key issues for public DB plans

- Downward pressure on actuarial discount rates continued into 2022, with the typical rate at or below 7%. This trend may abate now as capital markets expectations rise following the market decline.
- Inflation impacts future liabilities through pressure on salary, and hits plans now with COLAs.
- According to our survey, return enhancement remains the top issue of concern; interest in adding to alternatives stayed steady.
- Clients plan to make few changes with allocations to most traditional asset classes.
- The survey started tracking private credit in 3Q20, and since then interest in increasing allocations to the asset class has held steady, with no clients saying they plan to cut their allocations.

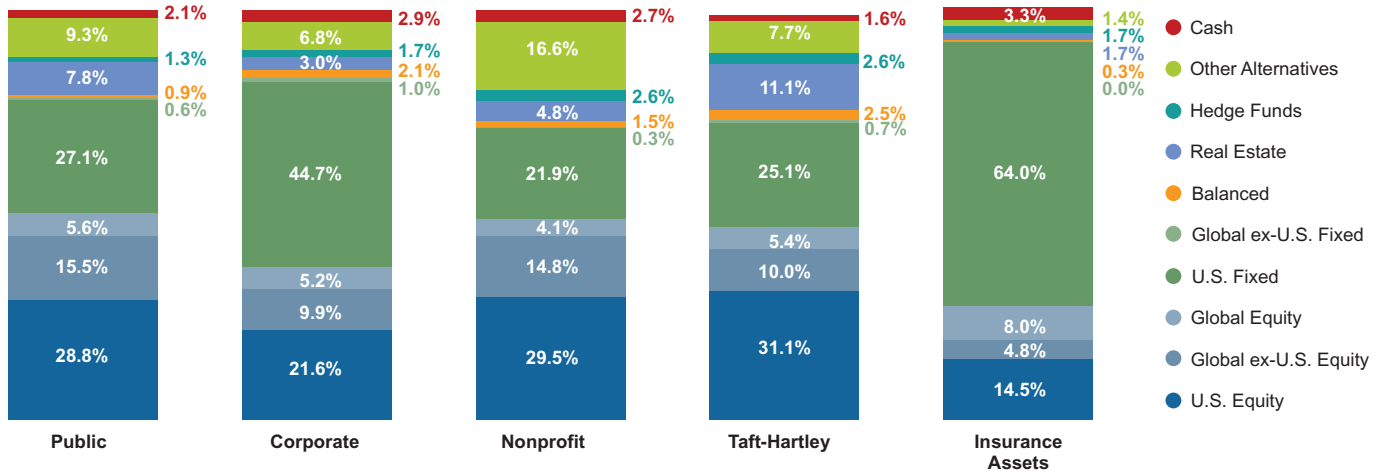
Key issues for defined contribution (DC) plans

- Use of passive target date funds hit an all-time high.
- Fees remained, as they have for years, the top issue, but some plans are focusing on participant communication amid the market turmoil.

Nonprofit priorities

- Nonprofits have expanded the depth and breadth of their private markets investments after a decade of high valuations in public markets growth assets. The inflation surge heightens concern about the erosion of the real values of their assets and distributions.
- According to our survey, there was a noticeable drop in their concerns about liquidity; interest in increasing private real estate allocations hit another high.
- There was also a significant decline in plans to increase private credit allocations between 1Q22 and 3Q22.

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

Worst three-quarter start to year in decades

- The S&P 500 Index fell 4.9% in 3Q22; all major U.S. indices across styles and market cap ranges were negative except for the Russell 2000 Growth Index, which gained 0.24%.
- During the quarter, all sectors posted negative returns except for Energy (+2%) and Consumer Discretionary (+4%). The return for Consumer Discretionary was aided by an exceptional July when the sector was up more than 18%. Returns for Real Estate and Communication Services were the worst, down 11% and 13%, respectively.
- Small cap (Russell 2000) outpaced large cap (Russell 1000) and growth outperformed value during the quarter, a reversal from previous quarters this year.
- Continued concerns around inflation and a potential recession, along with geopolitical headlines, contributed to a volatile and risk-averse environment.

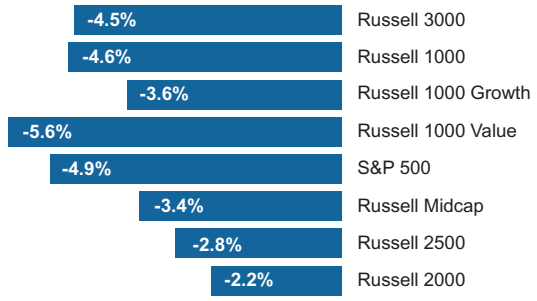
More market difficulties; no place to hide

- The pullback of the U.S. equity markets was reminiscent of other periods marked by bearish sentiment, such as 2008 (Global Financial Crisis) and 2020 (start of pandemic).
- High inflation and interest rates continued to pressure the markets. While some inflationary data (particularly around energy) seemed to soften, other data points around food, shelter, and services remained elevated.
- U.S. equity did not provide a safe haven for investors. Like most other asset classes, it has not generated YTD gains and continues to be overshadowed by the outsized outperformance of commodities.

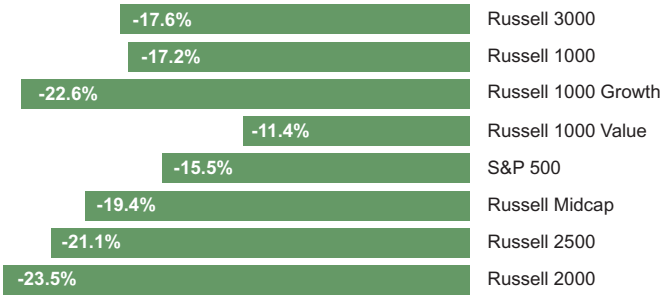
'Relief rally' but not for active managers

- The market experienced a "relief rally" in late June to August based on optimism that inflation had peaked, lessening the urgency for continued rate hikes.
- The rally was marked by a rebound of cyclical growth companies, and unprofitable companies outperformed profitable companies by wide margins across caps. Active managers underperformed significantly during this period.

U.S. Equity: Quarterly Returns (9/30/22)

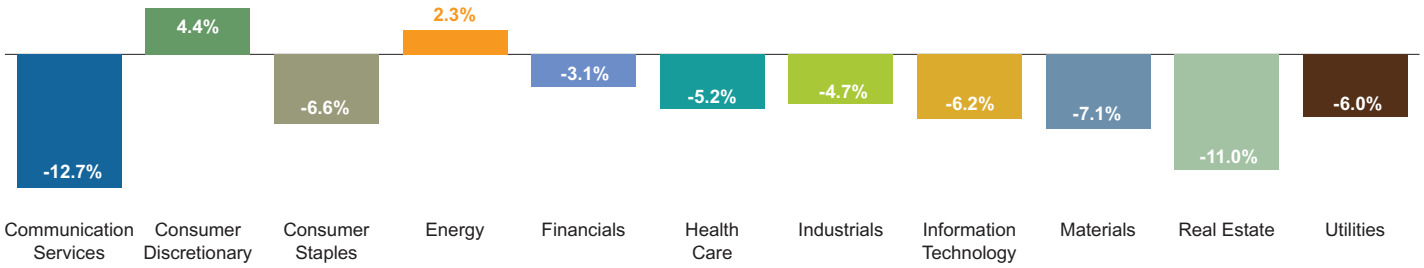


U.S. Equity: One-Year Returns (9/30/22)



Sources: FTSE Russell and S&P Dow Jones Indices

Quarterly Performance of Industry Sectors (9/30/22)



Source: S&P Dow Jones Indices

Global Equity

Market turmoil around the world

- Global and global ex-U.S. equity markets waned for three straight quarters due to inflation, rising rates, and fears of global recession.

Geopolitical and macro factors plague market

- Political instability in Italy and the U.K. as a result of prime minister departures weighed on the market.
- U.K. equities lost confidence as its newly elected prime minister Liz Truss announced her economic policy.
- China's COVID-19 lockdowns and growing concerns around the property sector sapped sentiment and economic activity.

Growth and value switch places globally

- Growth outpaced value in developed markets but lagged value in emerging markets.
- Rate-sensitive sectors in developed markets (e.g., Communication Services and Real Estate) were challenged given the tightening cycle by global central banks.
- The profitability of Chinese internet companies has compressed due to lockdowns and regulation, and a cyclical downturn in electronics weakened Taiwan and Korean semiconductors.

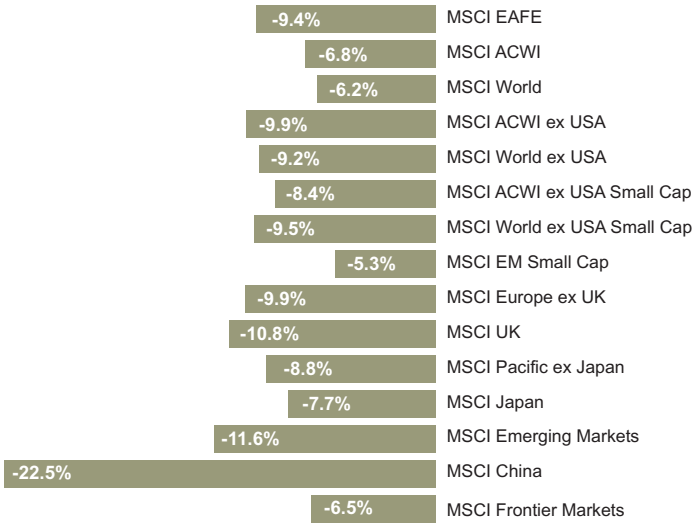
U.S. dollar vs. other currencies

- Growth and the interest rate differential as well as its safe-haven status fueled the U.S. dollar to its highest level in decades.
- The dollar gained vs. the euro and the yen by about 6%.

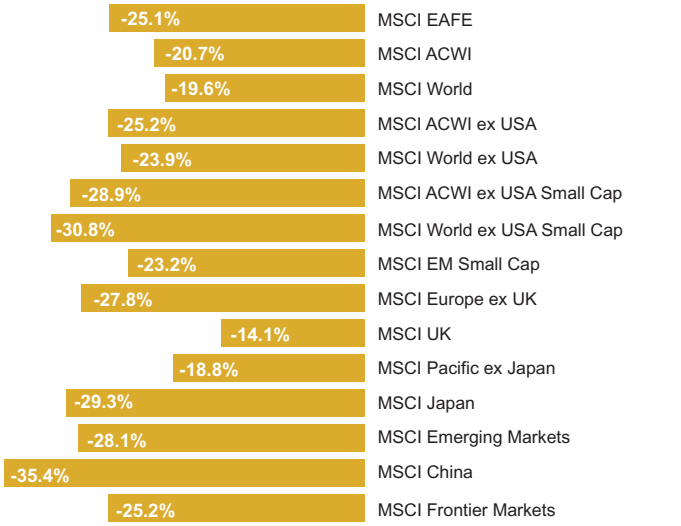
The case for global ex-U.S. equities

- Diversification: Global ex-U.S. equities remain a good diversifier to other public markets investments.
- Valuations/Yield: Valuation of U.S. stocks took off after the Global Financial Crisis (GFC); many of the tailwinds have dissipated—rates, inflation, and liquidity.
- Developed ex-U.S. stocks continue to be undervalued and currently provide a 1.6% yield premium to U.S. stocks (MSCI EAFE 3.5% vs. S&P 500 1.9%).

Global ex-U.S. Equity: Quarterly Returns (U.S. Dollar, 9/30/22)



Global ex-U.S. Equity: One-Year Returns (U.S. Dollar, 9/30/22)



Source: MSCI

- Economic exposure: Emerging market and developing economies' contribution to global GDP has increased while advanced economies' share has steadily decreased since the GFC.
- U.S. companies do not provide significant exposure to non-U.S. economies

Fixed Income

U.S. Fixed Income

Bonds hit hard as rates rose sharply (again)

- Bloomberg US Aggregate saw its worst nine-month return in its history—as did trailing 1-, 3-, 5-, and 10-year returns!
- 10-year annualized return for Aggregate is a mere 0.9%.
- Yield curve inverted at quarter-end; 10-year at 3.83% and 2-year at 4.22%
- 10-year at 4% briefly in late September; first time since 2009
- TIPS underperformed nominal Treasuries, and 10-year breakeven spreads fell to 2.11% from 2.33% as of 6/30/22.
- Fed raised rates by 150 bps during the quarter, bringing target to 3.0% to 3.25%.
- Median expectation from Fed is 4.4% at year-end and 4.6% at the end of 2023.
- Longer-term expectations are much lower.
- Volatility climbed to levels not seen since early 2020.

Spread sectors underperformed

- Mortgages had worst month ever vs. like-duration U.S. Treasuries in September; underperformed by 169 bps for 3Q.
- Corporates also underperformed: 33 bps of excess return.
- Bloomberg Corporate Bond Index yield-to-worst 5.7%
- High yield fared better and loans posted a positive return.
- Bloomberg High Yield Corp yield-to-worst 9.7%

Municipal Bonds

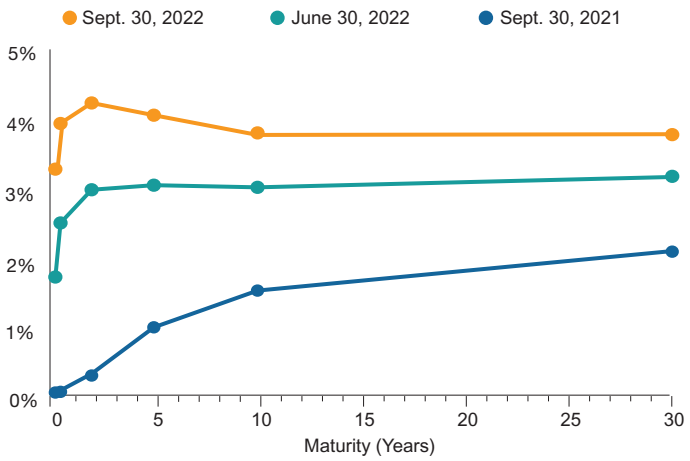
Municipal bond returns hurt by rising rates

- Lower quality continued to underperform.
- BBB: -4.1%; AAA: -3.5% (YTD BBB: -14.9%; AAA: -11.7%)

Valuations relative to U.S. Treasuries at fair value

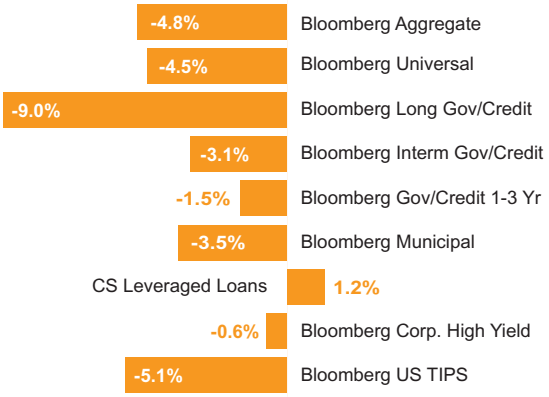
- 10-year AAA Muni/10-year U.S. Treasury yield ratio roughly 87%; in line with 10-year average
- Municipal Bond Index after-tax yield = 6.8% (source: Morgan Stanley)

U.S. Treasury Yield Curves



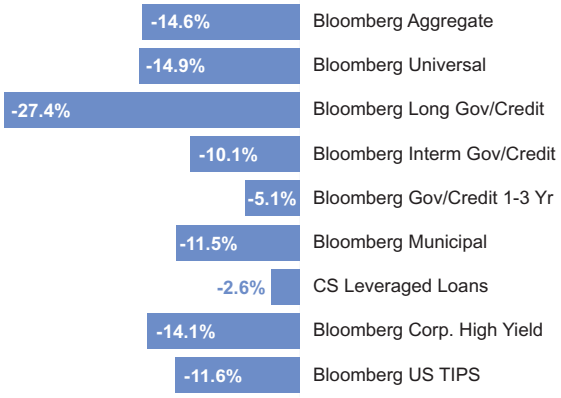
Source: Bloomberg

U.S. Fixed Income: Quarterly Returns (9/30/22)



Sources: Bloomberg and Credit Suisse

U.S. Fixed Income: One-Year Returns (9/30/22)



Sources: Bloomberg and Credit Suisse

Supply/demand

- Outflows of $91.5 billion YTD—highest cycle outflow since data series began in 1992
- YTD issuance down 14% vs. last year

Credit quality remains stable to improving

- State revenues up more than 18% vs. 2021
- Number of defaults lower than 2021 and concentrated in senior living and industrial revenue bonds

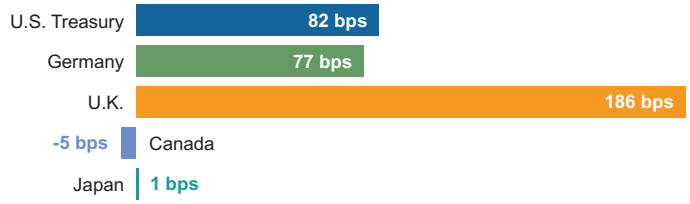
Global Fixed Income

Negative returns driven by broad interest rate increases

- U.S. dollar continued to appreciate vs. yen, euro, and pound
- Bank of Japan intervened to support currency for first time since 1998.
- Pound hit record low vs. U.S. dollar.
- Double-digit negative returns were widespread across developed markets.
- U.K. government bonds were hard-hit on U.K.'s "mini-budget" fiasco.
- ICE BofA U.K. Gilts Index -20.6% in 3Q
- Emerging market debt returns also sharply negative
- Most countries in the USD-denominated JPM EMBI Global Diversified Index posted negative returns, hurt by rising rates in the U.S.
- JPM GBI-EM Global Diversified also fell due largely to EM currency depreciation vs. the U.S. dollar.

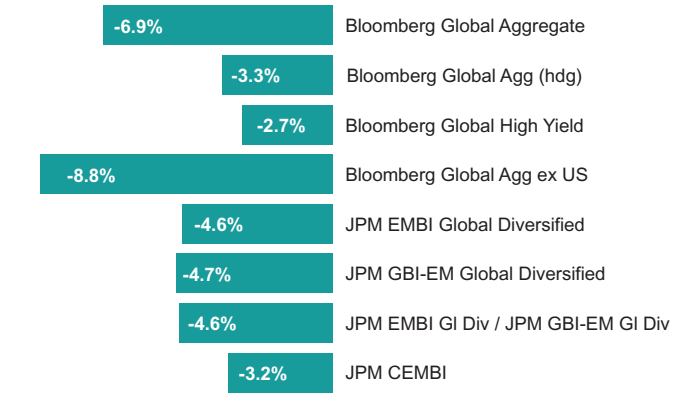
Change in 10-Year Global Government Bond Yields

2Q22 to 3Q22



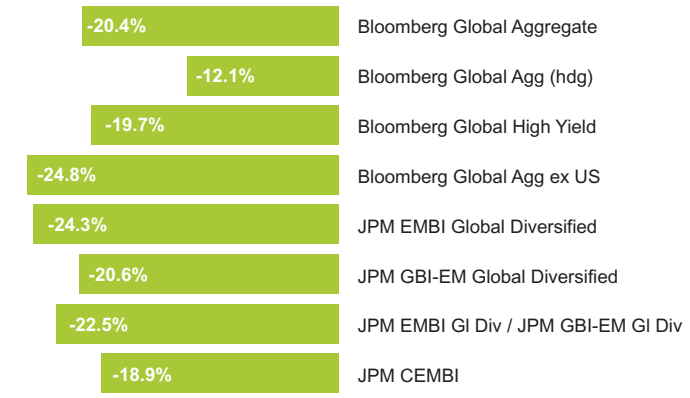
Source: Bloomberg

Global Fixed Income: Quarterly Returns (9/30/22)



Sources: Bloomberg and JPMorgan Chase

Global Fixed Income: One-Year Returns (9/30/22)



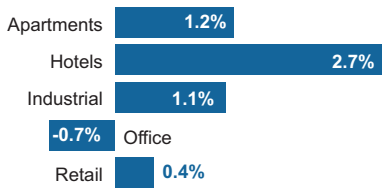
Sources: Bloomberg and JPMorgan Chase

NPI Shows Gains but REITs Lag Equity Indices

REAL ESTATE/REAL ASSETS | Munir Iman

- The NCREIF Property Index, an unlevered measure of U.S. institutional real estate assets, rose 0.6% during 3Q22. The income return was 0.9%; the appreciation return was -0.4%.
- Hotels, which represent a small portion of the index, led property sector performance with a gain of 2.7%. Office finished last with a loss of 0.7%.
- Regionally, the South led with a 1.1% gain, while the Midwest was the worst performer but still rose 0.2%.
- The NCREIF Open-End Diversified Core Equity Index, representing equity ownership positions in U.S. core real estate with leverage, rose 0.3% during 3Q, with an income return of 0.6% and an appreciation return of -0.3%.
- U.S. REITs underperformed the S&P 500 (-4.9%) but exhibited strong performance relative to European REITs. Real estate securities underperformed on the cloudy economic outlook as well as a sizeable upward move in U.S. government bond yields.
- While all property sectors traded lower during the quarter, the sectors that were most resilient included self-storage and hotels amid strong fundamentals and pricing power. Malls also outperformed after being a meaningful laggard year to date.
- The poorest-performing sectors included data centers, due to fears around power costs and higher cost of capital; office, due to sluggish return-to-office momentum; and health care, due to labor cost pressures in senior housing.
- The FTSE EPRA Nareit Developed Asia Index (USD) fell 9.4% during the quarter.
- Australian REITs (-11.5%) were the weakest performers in the region, driven by concerns over slowing demand in office and cap rate expansion in industrial stocks.
- The FTSE EPRA Nareit Developed Europe Index (USD) fell 21.7% during the quarter, led by the United Kingdom (-25.9%), which lagged on the new government's approach to a debt-financed fiscal expansion that resulted in a sharp decline in the pound and government bonds.
- Continental Europe (-19.2%) performed better on a relative basis, but was still weighed down by currency headwinds, accelerating inflation, rate hike expectations, soaring energy prices, and continued conflict between Russia and Ukraine.

Sector Quarterly Returns by Property Type (9/30/22)



Source: NCREIF

Callan Database Median and Index Returns* for Periods Ended 9/30/22

Private Real Assets	Quarter	Year to Date	1 Year	3 Years	5 Years	10 Years	15 Years
Real Estate ODCE Style	**3.1**	**14.8**	**23.3**	**12.4**	**9.9**	**10.4**	**6.0**
NFI-ODCE (value-weighted, net)	0.3	12.4	21.0	11.4	9.3	9.9	5.8
NCREIF Property	0.6	9.4	16.1	9.9	8.6	9.5	7.0
NCREIF Farmland	2.0	7.4	11.5	6.9	6.6	9.6	10.6
NCREIF Timberland	2.4	7.6	12.5	5.8	4.7	5.9	5.0
Public Real Estate							
Global Real Estate Style	**-11.4**	**-29.9**	**-22.0**	**-3.7**	**2.0**	**5.1**	**2.8**
FTSE EPRA Nareit Developed	-11.6	-29.9	-22.8	-6.5	-0.9	2.9	0.9
Global ex-U.S. Real Estate Style	**-13.8**	**-32.0**	**-30.8**	**-8.6**	**-2.3**	**3.7**	**0.7**
FTSE EPRA Nareit Dev ex US	-13.8	-31.4	-30.0	-10.1	-3.7	0.7	-1.2
U.S. REIT Style	**-10.4**	**-28.3**	**-16.6**	**-0.4**	**4.5**	**7.1**	**5.8**
FTSE EPRA Nareit Equity REITs	-9.9	-28.1	-16.4	-2.0	2.9	6.3	4.9

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

Persistence Amid Volatility

PRIVATE EQUITY | Gary Robertson

Private equity activity measures in 3Q22 fell from 2Q, although totals reflect reasonable pre-pandemic levels. The IPO market for both venture capital and buyouts increased, but dollar volumes remained miniscule.

Fundraising ▶ Based on preliminary data, private equity partnerships holding final closes in 3Q totaled $226 billion, with 484 new partnerships formed (unless otherwise noted, all data are from PitchBook). The dollar volume fell 6% from 2Q22, and the number of funds holding final closes declined 9%. So far, capital raised is running only 2% behind YTD 2021, but the number of funds trails by 31%.

Buyouts ▶ New buyout transactions and dollar volume fell moderately. Funds closed 2,881 company investments with $152 billion of disclosed deal value, a 10% decrease in count and a 7% drop in dollar value from 2Q22.

VC Investments ▶ New financing rounds in venture capital companies totaled 9,985, with $97 billion of announced value. The number of investments was down 17% from the prior quarter, and the announced value plunged 32%.

Exits ▶ There were 594 private M&A exits of private equity-backed companies (excluding venture capital), with disclosed values totaling $128 billion. Exits fell 3% from the prior quarter and announced dollar volume dropped 10%. There were 62 private equity-backed IPOs in 3Q raising $11 billion, up from 46 totaling $7 billion in 2Q.

Venture-backed M&A exits totaled 520 transactions with disclosed value of $24 billion. The number of sales declined 26% but announced dollar volume fell only 4%. There were 104 VC-backed IPOs with a combined float of $15 billion.

Returns ▶ With the strong 2Q retreat in public equity markets, private equity outperformance has widened given private equity's more gradual quarterly mark-to-market valuation methodology. While GPs have put forward persistently high valuations relative to public markets, continued declines are expected.

Funds Closed 1/1/22 to 9/30/22

Strategy	No. of Funds	Amt ($mm)	Share
Venture Capital	1,030	222,528	32%
Growth Equity	106	81,859	12%
Buyouts	350	297,832	43%
Mezzanine Debt	13	24,423	3%
Distressed/Special Credit	29	36,121	5%
Energy	7	2,050	0%
Secondary and Other	81	29,338	4%
Fund-of-funds	20	5,807	1%
Totals	**1,636**	**699,958**	**100%**

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

Private Equity Performance (%) (Pooled Horizon IRRs through 6/30/22*)

Strategy	Quarter	1 Year	3 Years	5 Years	10 Years	15 Years	20 Years	25 Years
All Venture	-8.5	0.8	29.2	25.2	19.5	14.0	12.1	22.6
Growth Equity	-7.6	-3.1	21.4	19.7	16.1	13.1	14.1	14.9
All Buyouts	-4.5	5.4	19.7	17.6	15.8	10.8	14.5	13.3
Mezzanine	-0.5	9.3	12.1	11.9	11.6	10.3	11.0	10.1
Credit Opportunities	-1.7	5.4	7.9	7.4	8.8	8.6	9.8	9.6
Control Distressed	-1.1	20.5	20.0	14.5	13.4	10.7	12.0	12.0
All Private Equity	**-5.7**	**3.6**	**21.2**	**18.6**	**15.9**	**11.5**	**13.5**	**14.1**
S&P 500	-16.1	-10.6	10.6	11.3	13.0	8.5	9.1	8.0
Russell 3000	-16.7	-13.9	9.8	10.6	12.6	8.4	9.1	8.1

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.

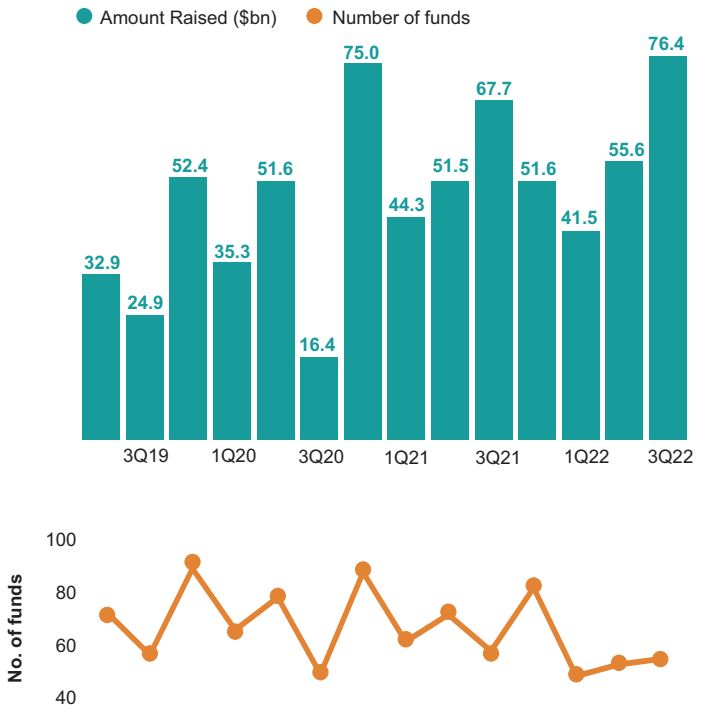
Appealing to Investors in Low-Yield Climate

PRIVATE CREDIT | Catherine Beard

Illiquidity premium close to zero

- There is continued strong private credit demand in a rising rate environment where the returns of floating-rate loans are bolstered.
- During 3Q22, clients moved away from new allocations to traditional sponsor-backed direct lending due to the increased competition and commoditization within the space.
- Demand has continued to be robust for less-competitive areas of private credit with high barriers to entry and attractive risk/reward opportunities.
  - Includes opportunistic lending, specialty finance, and industry or other niche-focused lending strategies such as venture debt and health care lending
- Limited partners (LPs) are seeking alternative structures designed to streamline the investment process while improving underlying liquidity. A number of general partners are launching evergreen structures as a response to LP interest.
- Private credit fundraising was robust leading into the COVID dislocation with a particular focus on direct lending, asset-based lending, and distressed strategies.
- Fundraising activity increased year-over-year, with $68 billion in capital raised in 3Q21 vs. $76 billion in 3Q22.
- The average fund size year-over-year increased from $1.4 billion in 3Q21 to $1.6 billion in 3Q22 as established managers grow fund sizes in response to strong LP demand.
- For mature private credit programs, demand is increasing for diversifying strategies like specialty finance and royalties' strategies to capture opportunities outside of traditional sponsor-backed direct lending.

Private Credit Fundraising ($bn)



Source: Preqin

Private Credit Performance (%) (Pooled Horizon IRRs through 6/30/22*)

Strategy	Quarter	1 Year	3 Years	5 Years	8 Years	10 Years	15 Years	20 Years
Senior Debt	-2.2	0.0	5.3	6.3	6.3	6.5	6.8	6.7
Mezzanine	-0.5	9.3	12.1	11.9	11.1	11.6	10.3	11.0
Credit Opportunities	-1.7	5.4	7.9	7.4	6.4	8.8	8.6	9.8
Total Private Credit	-1.6	5.0	8.3	8.2	7.4	9.1	8.8	9.7

Source: Refinitiv/Cambridge
*Most recent data available at time of publication

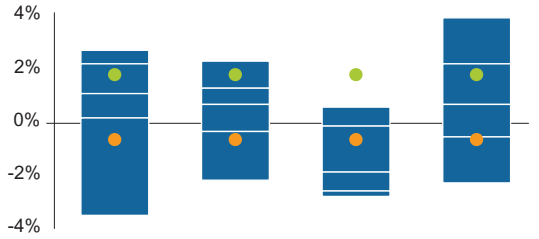
Managers See Declines but Outpace Benchmarks

HEDGE FUNDS/MACs | Joe McGuane

Global markets were volatile throughout 3Q22, as persistent inflation, slowing economic growth, and interest rate hikes by central banks caused most asset classes to fall. The S&P 500 dropped 4.9% as U.S. equities ended 3Q back in bear market territory, reversing a bounce upward that began in the final weeks of 2Q. Within technology, the Nasdaq ended the quarter down 4.0%, as the communication and media sectors fell meaningfully for the quarter, slightly offset by mega-cap stocks like Apple, Amazon, and Tesla. Credit markets remained choppy for the quarter as high yield bond prices whipsawed.

Hedge funds again finished the quarter lower but outperformed broader market indices, as equity hedge strategies that focused on growth spaces like tech, media, and telecom continued to be a drag on performance. Some of those declines were offset by managers that focused on the energy sector.

Hedge Fund Style Group Returns (9/30/22)



	Absolute Return FOF	Core Div. FOF	Long/Short Equity FOF	Institutional Hedge Funds
10th Percentile	2.6	2.2	0.5	3.8
25th Percentile	2.1	1.2	-0.2	2.1
Median	1.0	0.6	-1.9	0.6
75th Percentile	0.1	-0.4	-2.6	-0.6
90th Percentile	-3.5	-2.2	-2.8	-2.3
HFRI Fund Weighted	-0.7	-0.7	-0.7	-0.7
90-Day T-Bill +5%	1.7	1.7	1.7	1.7

Sources: Callan, Credit Suisse, Federal Reserve

Callan Peer Group Median and Index Returns* for Periods Ended 9/30/22

Hedge Fund Universe	Quarter	Year to Date	1 Year	3 Years	5 Years	10 Years
Callan Institutional Hedge Fund Peer Group	**0.6**	**3.2**	**4.0**	**5.4**	**6.0**	**6.2**
Callan Fund-of-Funds Peer Group	**0.5**	**-3.4**	**-3.5**	**4.7**	**3.8**	**4.3**
Callan Absolute Return FOF Style	**1.0**	**3.0**	**3.0**	**5.9**	**4.3**	**4.6**
Callan Core Diversified FOF Style	**0.6**	**-4.3**	**-4.2**	**4.7**	**3.7**	**4.1**
Callan Long/Short Equity FOF Style	**-1.9**	**-13.5**	**-15.5**	**2.7**	**2.9**	**4.3**
HFRI Fund-Weighted Index	-0.7	-6.3	-5.9	6.1	4.5	4.6
HFRI Fixed Convertible Arbitrage	0.9	-4.1	-2.6	6.0	4.8	5.0
HFRI Distressed/Restructuring	-1.4	-5.0	-4.3	7.1	4.8	5.0
HFRI Emerging Markets	-5.5	-16.9	-17.3	1.8	0.7	2.9
HFRI Equity Market Neutral	0.7	0.4	1.0	2.5	2.1	3.0
HFRI Event-Driven	-0.4	-7.7	-6.8	5.2	4.0	4.9
HFRI Relative Value	0.0	-2.1	-1.9	3.5	3.3	4.1
HFRI Macro	1.8	10.5	10.1	7.8	5.6	3.1
HFRI Equity Hedge	-2.3	-13.8	-13.2	6.2	4.4	5.3
HFRI Multi-Strategy	-1.7	-10.8	-11.9	4.2	2.0	3.0
HFRI Merger Arbitrage	2.3	0.3	1.9	6.1	5.2	4.5
90-Day T-Bill + 5%	1.7	4.3	5.6	5.6	6.1	5.7

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

Serving as a proxy for large, broadly diversified hedge funds with low-beta exposure to equity markets, the median member of the Callan Institutional Hedge Fund Peer Group rose 0.6%. Within this style group of 50 peers, the average rates manager gained 1.9%, driven by the continued volatility in interest rates. Meanwhile, hedged credit managers were slightly higher at 0.6%, as managers were actively trading around interest rate volatility. The average equity hedge manager gained 1.9%, as this group of managers was able to profit off dispersion in equity indices.

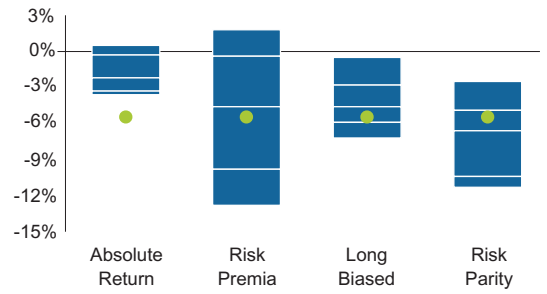
Within the HFRI indices, the best-performing strategy last quarter continued to be macro (+1.8%), aided by its exposure to commodities, currencies, and rates trading. Equity hedge had its third consecutive quarter of negative performance (-2.3%), as managers with a focus on growth sectors continued to be the main drag on performance.

Across the Callan Hedge FOF Database, the median Absolute Return FOF gained 1.0%, the median Callan Long-Short Equity FOF fell 1.9%, and the median Callan Core Diversified FOF rose 0.6%.

The Bloomberg GSAM Risk Premia Index increased 3.0% based upon a 6% volatility target. Within the underlying styles of the index's derivative-based risk premia, Bond Futures Value (+5.8%) and FX Trend (+4.7%) profited from the volatility in interest rates, along with commodity and currency exposures. The weakest risk premia strategy was FX G10 Value (-1.6%).

Within Callan's database of liquid alternative solutions, the median manager in the Callan Multi-Asset Class (MAC) Style Groups generated lower returns for the quarter, gross of fees, consistent with their underlying risk exposures. For example, the median Callan Long Biased MAC manager fell 4.6%, as exposure to equity and fixed income continued to be a drag on performance. The Callan Risk Parity MAC Index, which typically targets an equity risk-weighted allocation to the major asset classes with leverage, fell 6.6%.

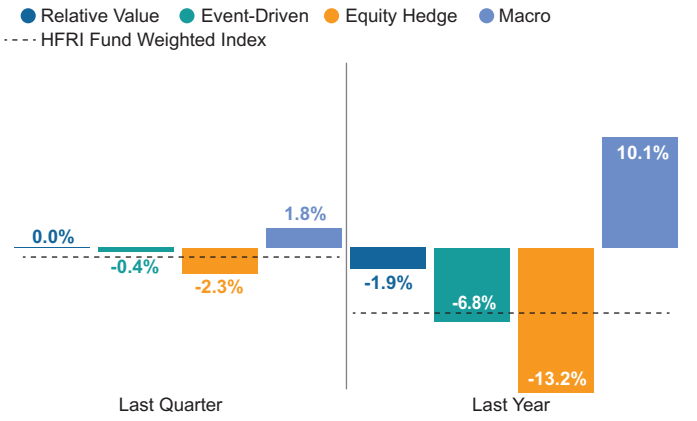
MAC Style Group Returns (9/30/22)



	Absolute Return	Risk Premia	Long Biased	Risk Parity
10th Percentile	0.5	1.8	-0.5	-2.5
25th Percentile	-0.3	-0.4	-2.8	-4.9
Median	-2.2	-4.6	-4.6	-6.6
75th Percentile	-3.3	-9.8	-5.9	-10.4
90th Percentile	-3.6	-12.8	-7.2	-11.3
60% MSCI ACWI/ 40% Bloomberg Agg	-5.9	-5.9	-5.9	-5.9

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

HFRI Hedge Fund-Weighted Strategy Returns (9/30/22)



Source: HFRI

DC Index Sees Third-Worst Decline Ever

DEFINED CONTRIBUTION | Patrick Wisdom

Performance: Index dips again

- The Callan DC Index™ fell 12.2% in 2Q22, its third-largest quarterly decline ever.
- The Age 45 Target Date Fund fell 13.4%.

Growth Sources: Balances take a hit

- Balances within the DC Index declined by 12.3% after a 5.4% decrease the previous quarter.

Turnover: Net transfers fall

- Turnover (i.e., net transfer activity levels within DC plans) decreased to 0.37% from the previous quarter's 0.42%.

Net Cash Flow Analysis: Stable value takes top spot

- Bucking the trend of the last five quarters, TDFs (29.1% of net flows) took a back seat to stable value, which received 47.7% of net flows in perhaps a signal that some participants sought a flight to safety.
- Also of note, real return/TIPS (0.6%) did not attract a large share of flows, even as inflation has remained elevated.

Equity Allocation: Exposure drops sharply

- The Index's overall allocation to equity (69.8%) fell meaningfully from the previous quarter's level (72.0%), which had been within reach of the Index's high mark of 4Q07 (72.9%). The decrease was driven by a combination of investor outflows and declines in equity markets.

Asset Allocation: U.S. large cap equity falls

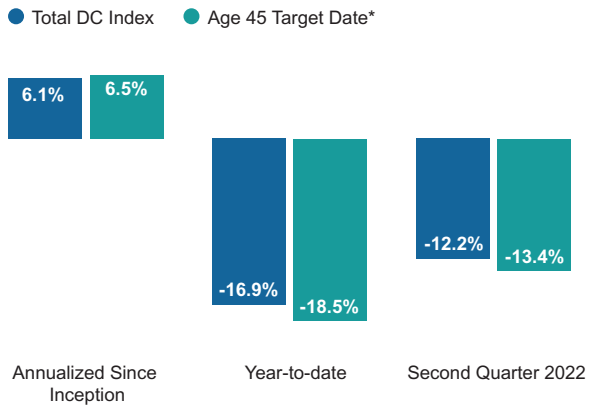
- U.S. large cap (25.1%) had the largest percentage decrease in allocation.
- Stable value (10.0%) had the largest percentage increase.

Prevalence of Asset Class: Balanced funds dip again

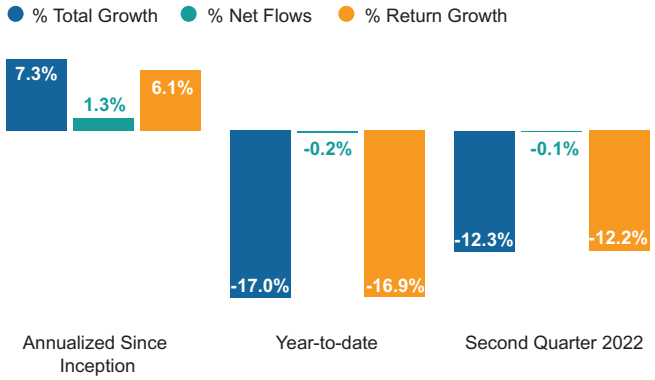
- The prevalence of a balanced fund (41.4%) decreased again to its lowest level since the inception of the Index in 2006.
- Other notable movements included a 1.1 percentage point decrease in the prevalence of a money market offering (49.6%); on the other hand, the prevalence of a real estate offering (21.8%) increased by 0.6 percentage points.

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 (6/30/22)



Growth Sources (6/30/22)



Net Cash Flow Analysis (2Q22)
(Top Two and Bottom Two Asset Gatherers)

Asset Class	Flows as % of Total Net Flows
Stable Value	47.7%
Target Date Funds	29.1%
U.S. Fixed Income	-19.5%
U.S. Large Cap	-48.1%
Total Turnover**	**0.37%**

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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The *Capital Markets Review* is a quarterly macroeconomic indicator newsletter that provides thoughtful insights on the economy and recent performance in the equity, fixed income, alternatives, real estate, and other capital markets.

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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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