Callan Institute

Second Quarter 2022

Capital Markets Review

Recession Call Waits For NBER Committee

ECONOMY

2 PAGE Despite two consecutive quarters of a decline in GDP, the United States is not officially in a recession—until a committee of the National Bureau of Economic Research determines that we are. The stock market, however, is not waiting and has already priced one in.

Challenges Galore As Stocks, Bonds Fall

INSTITUTIONAL INVESTORS

4 PAGE All investor types saw returns fall over the last year ending 2Q22, given the drops in both stocks and bonds. Uncertainty in 2022 creates challenges for planning. Investors have to factor in the invasion of Ukraine, inflation, market declines, higher rates, and recession concerns.

Most Major Indices Fall by Double Digits

EQUITY

6 PAGE The S&P 500 plunged 16.1% in 2Q22; all major U.S. indices across styles and market cap ranges also fell. Global indices followed suit; slowing global growth became clearer toward quarter-end, leading investors toward higher-quality and lower-volatility areas of the market.

Pain Is Widespread For Bond Investors

FIXED INCOME

8 PAGE The Bloomberg US Aggregate Bond Index posted its worst six-month return in its history. Market pricing reflects a Fed Funds rate of 3.4% at year-end. Double-digit negative returns were widespread across developed markets, and all EM indices saw losses as well.

Private RE Delivers; REITs Underperform

REAL ESTATE/REAL ASSETS

10 PAGE Core real estate delivered another robust quarter, although returns are expected to moderate for the rest of this year and into next. REITs both globally and in the United States lagged equities. Real assets saw widespread losses, with the notable exception of energy.

Persistence Amid Volatile Environment

PRIVATE EQUITY

11 PAGE First-half private equity fundraising and deal activity declined from last year's frenzied levels but volumes remained strong. With the public equity sell-off in 2Q, distributions have been the largest casualty as the strong seller's market has receded.

Illiquidity Premium Slowly Adjusting

PRIVATE CREDIT

12 PAGE The illiquidity premium between public and private credit had been whittled down close to zero, but we are seeing a slow adjustment. Fundraising slowed in the first half of 2022 as interest rate hikes and market volatility led to investor uncertainty.

Tough Environment Leads to Losses

HEDGE FUNDS/MACs

13 PAGE Hedge funds mostly fell in 2Q22 amid a confluence of major macroeconomic forces. Macro managers remained the best-performing strategy for the first half of 2022. Most of the managers in the Callan Multi-Asset Class (MAC) Style Groups generated negative returns, gross of fees.

DC Index Falls in 1Q22, After 4Q21 Gain

DEFINED CONTRIBUTION

15 PAGE The Callan DC Index™ fell 5.3% in 1Q22; the Age 45 Target Date Fund dropped 5.9%. Target date funds (TDFs) received the largest net inflows during the quarter. U.S. large cap had the largest percentage decrease in allocation; TDFs saw the largest increase.

Broad Market Quarterly Returns

U.S. Equity
Russell 3000

-16.7%

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

-13.7%

U.S. Fixed Income
Bloomberg Agg

-4.7%

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

-11.0%

Sources: Bloomberg, FTSE Russell, MSCI

Recession—Are We There Yet?

ECONOMY | Jay Kloepfer

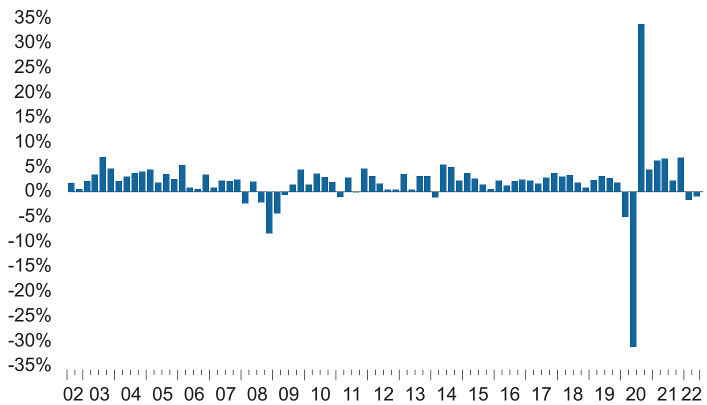
GDP in 2Q22 fell 0.9%, after declining 1.6% in 1Q—so are we already in a recession? If so, that was fast; growth in 4Q21 was a rockin' 6.9%. The stock market already thinks so; investors fully priced in a recession during the first half of 2022, with particularly large declines in April and June and a bear market by midyear. Over history, the stock market moves to price in a recession well before the economic data begin to show a decline.

It turns out two consecutive quarters of falling GDP is a nice rule of thumb, but it is not the official definition of recession. So what is, and who gets to decide? First, the decider: the rather grandly named National Bureau of Economic Research Business Cycle Dating Committee. Second, the definition: "a significant decline in economic activity that is spread across the country and lasts more than a few months." The committee uses a number of measures of economic activity, and leans particularly hard on real personal income and nonfarm payroll employment. Interestingly, GDP is used sparingly; the focus of recession dating is typically on a monthly determination of peaks and troughs, while GDP is reported only quarterly.

Data preferences from this arcane Dating Committee aside, two consecutive quarters of GDP decline is still news, even if it does not necessarily indicate recession. The sources of the decline in 2Q GDP included a large decrease in private inventory investment, which subtracted 2 percentage points from GDP. The inventory drop was led by a decrease in retail trade, mainly general merchandise stores, along with motor vehicle dealers. Other detractors to growth were both residential and non-residential fixed investment; and federal, state, and local government spending.

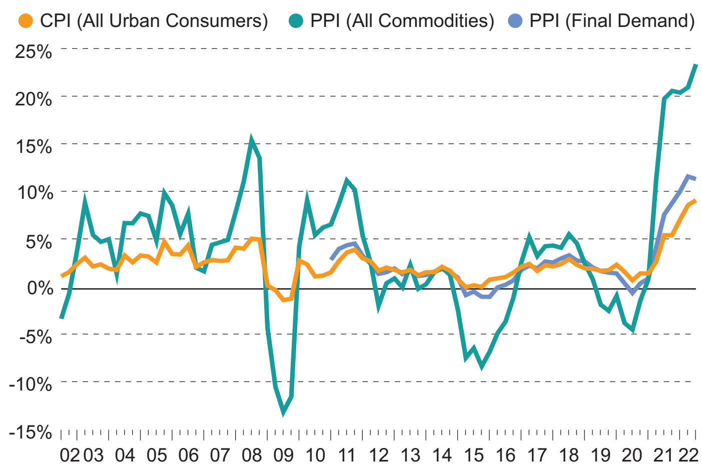
Offsetting the declines were increases in exports and personal consumption expenditures (PCE). The rise in PCE reflected an increase in services (food services, accommodations, and health care) that was partly offset by a decrease in spending on goods (led by food and beverages). So … more spending

Quarterly Real GDP Growth (20 Years)



Source: Bureau of Economic Analysis

Inflation Year-Over-Year



Source: Bureau of Labor Statistics

on restaurants and hotels and Airbnbs, and less food at home, even with the sharp rise in prices at the grocery store.

What is especially interesting is that the rise in the dollar helped imports and didn't seem to hurt exports, which is very weird, since that rise makes our exports more expensive and our imports cheaper. Exports fell sharply in 1Q as Russia invaded Ukraine, yet as the war intensified, exports shot back up in 2Q, growing by 18% and contributing almost 2 percentage points to GDP growth. Returning to the premise of the Dating Committee, that much more than GDP growth should define a recession, somewhat anomalous components of GDP accounted for the declines in 1Q and 2Q. Both quarters were driven by huge changes in exports and inventories, neither of which are usually so important to a given quarter's GDP growth, and do not often reverse the course of growth coming from the rest of the economy. Other data on the broad economy during the first half of 2022 do not necessarily point to a recession, at least not yet. The job market was very robust through both 1Q and 2Q, as the U.S. economy added more than 2.7 million new jobs; since the invasion of Ukraine in February, the job market averaged almost 400,000 new jobs per month, substantially above the 200,000-250,000 rate that indicates an expanding economy. We still have room to recover from the pandemic, however, as we are half a million jobs short of the level set in February 2020.

Disposable personal income increased 6.6% in 2Q, in contrast to a decline of 1.3% in 1Q. Despite this robust growth, incomes could not keep up with inflation, which began ramping up in April 2021. After kicking off the year at 7.5% in January, inflation as measured by the CPI-U index has only gone up each month, reaching 9.1% in the June report. As a result, real disposable personal income (take-home pay, adjusted for inflation) decreased 0.5% in 2Q; while disappointing, this report was substantially better than in 1Q, when real disposable income fell an alarming 7.8%.

The Long-Term View

Index	2Q22	Periods Ended 6/30/22 1 Yr	5 Yrs	10 Yrs	25 Yrs
U.S. Equity					
Russell 3000	-16.7	-13.9	10.6	12.6	8.1
S&P 500	-16.1	-10.6	11.3	13.0	8.0
Russell 2000	-17.2	-25.2	5.2	9.4	7.4
Global ex-U.S. Equity					
MSCI EAFE	-14.5	-17.8	2.2	5.4	3.9
MSCI ACWI ex USA	-13.7	-19.4	2.5	4.8	--
MSCI Emerging Markets	-11.4	-25.3	2.2	3.1	--
MSCI ACWI ex USA Small Cap	-17.5	-22.4	2.6	6.2	5.7
Fixed Income					
Bloomberg Agg	-4.7	-10.3	0.9	1.5	4.4
90-Day T-Bill	0.1	0.2	1.1	0.6	2.0
Bloomberg Long G/C	-12.3	-20.1	1.0	2.6	6.1
Bloomberg Gl Agg ex US	-11.0	-18.8	-1.8	-1.1	2.8
Real Estate					
NCREIF Property	3.2	21.5	8.9	9.7	9.5
FTSE Nareit Equity	-17.0	-6.3	5.3	7.4	8.7
Alternatives					
CS Hedge Fund	-2.3	1.9	4.8	4.7	6.3
Cambridge PE*	-1.5	22.0	20.7	16.5	15.4
Bloomberg Commodity	-5.7	24.3	8.4	-0.8	1.8
Gold Spot Price	-7.5	2.0	7.8	1.2	7.0
Inflation – CPI-U	3.1	9.1	3.9	2.6	2.5

*Data for most recent period lags. Data as of 3/31/22.
Sources: Bloomberg, Bureau of Economic Analysis, Credit Suisse, FTSE Russell, MSCI, NCREIF, Refinitiv/Cambridge, S&P Dow Jones Indices

The mayhem in the capital markets continued during 2Q, as both stocks and bonds responded to the Fed and the ECB aggressively raising interest rates, Russia's war in Ukraine, concerns about an incipient recession, another COVID surge, and global economic weakness. However, the U.S. economy is still growing robustly. There may be something to this Dating Committee's methodical approach. The caveat to its work is that calling turning points relies on government data reported with lags, so the Committee can only designate a recession after it starts. We may be "there," but we will not know until the Committee decides.

Recent Quarterly Economic Indicators

	2Q22	1Q22	4Q21	3Q21	2Q21	1Q21	4Q20	3Q20
Employment Cost–Total Compensation Growth	5.1%	4.5%	4.0%	3.7%	2.9%	2.6%	2.5%	2.4%
Nonfarm Business–Productivity Growth	-6.2%*	-7.3%	6.3%	-3.9%	3.2%	2.2%	-2.8%	6.2%
GDP Growth	-0.9%	-1.6%	6.9%	2.3%	6.7%	6.3%	4.5%	33.8%
Manufacturing Capacity Utilization	79.8%	79.2%	78.6%	77.5%	76.8%	75.7%	75.0%	73.3%
Consumer Sentiment Index (1966=100)	57.8	63.1	69.9	74.8	85.6	80.2	79.8	75.6

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

Returns Fall Amid Challenging Environment

INSTITUTIONAL INVESTORS

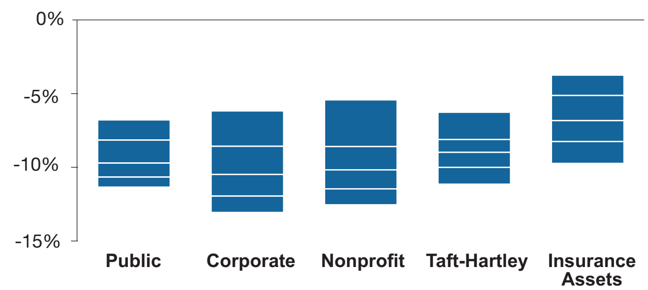
Investors' performance holds up relatively well

- All investor types saw returns decline over the last year ending 2Q22, given the drops in both stocks and bonds over the same period.
- Relatively, their returns held up well, with all investor types outperforming broad U.S. equities and most topping the Bloomberg US Aggregate Bond Index. The sole exception was corporate defined benefit (DB) plans, not surprising given their typically heavy allocations to fixed income.
- Over much longer periods, all institutional investor types have seen returns roughly in line with a 60% S&P 500/40% Aggregate mix.

Strategic planning focus alters

- Drops in both stocks and bonds YTD have changed discussions about asset allocation.
- The questions that investors are focused on now include:
  - How does a yield of 4% change the demand for yield substitutes: investment grade credit, bank loans, high yield, private credit—maybe even real estate and infrastructure?
  - How should investors handle rebalancing, which is a natural outcome of a market downturn, except when everything goes down?
  - What should they do about alternatives, which are now over target allocations?
- Uncertainty in the first half of 2022 creates new challenges for planning. Investors are trying to factor in the invasion of Ukraine, inflation, market declines, higher rates, and recession concerns into their decision-making.
- Geopolitical uncertainty has lessened the enthusiasm for emerging market overweights, and raised questions with a number of investors about the value of global ex-U.S. equity broadly to a U.S.-based investor.

Quarterly Returns, Callan Database Groups (6/30/22)



	Public	Corporate	Nonprofit	Taft-Hartley	Insurance Assets
10th Percentile	-6.8	-6.2	-5.4	-6.3	-3.7
25th Percentile	-8.2	-8.6	-8.6	-8.1	-5.1
Median	-9.7	-10.5	-10.2	-9.0	-6.8
75th Percentile	-10.7	-12.0	-11.5	-10.0	-8.3
90th Percentile	-11.3	-13.1	-12.5	-11.1	-9.7

Source: Callan

Callan Database Median and Index Returns* for Periods Ended 6/30/22

Database Group	Quarter	1 Year	3 Years	5 Years	10 Years	20 Years
Public Database	**-9.7**	**-9.4**	**5.9**	**6.4**	**7.8**	**7.1**
Corporate Database	**-10.5**	**-13.1**	**3.6**	**5.0**	**6.8**	**6.6**
Nonprofit Database	**-10.2**	**-10.6**	**5.2**	**5.9**	**7.3**	**6.9**
Taft-Hartley Database	**-9.0**	**-7.7**	**6.1**	**6.8**	**8.1**	**6.8**
Insurance Assets Database	**-6.8**	**-8.6**	**2.2**	**3.3**	**3.9**	**4.9**
All Institutional Investors	**-9.9**	**-10.1**	**5.2**	**6.0**	**7.5**	**6.9**
Large (>$1 billion)	**-8.8**	**-7.9**	**6.1**	**6.7**	**7.8**	**7.2**
Medium ($100mm - $1bn)	**-10.1**	**-10.4**	**5.2**	**6.0**	**7.5**	**6.8**
Small (<$100 million)	**-10.1**	**-10.7**	**4.8**	**5.6**	**7.1**	**6.6**
60% S&P 500/40% Bloomberg Agg	-11.5	-10.2	6.5	7.5	8.6	7.2

*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.

– Real assets are under review with growing inflation concerns.
  - Renewed interest in inflation-sensitive investments that many investors had grown weary of such as energy, commodities, and other natural resources
  - Steadily growing interest in infrastructure among public plans

Corporate DB plan priorities

– In general, strong interest in de-risking continues despite rise in yields. Higher yields make for a better entry point into long duration, but how much higher can long-term yields go? Plans on a glidepath tied to funded status are adhering to de-risking their portfolio as funded status improves.

– Total return-oriented plans enjoyed a strong 1Q22 as rates rose, but most of these plans gave back some funded status improvement as equities continued their decline in June.

– We are having some discussions about pension risk transfer.

Public DB plan priorities

– 2020-21 gains drove improvements in funded status.

– Low projected returns mean downward pressure on actuarial discount rates. Moving to lower discount rates has not typically led to substantial changes in asset allocation, but perhaps greater comfort that the current risk posture has a better chance of achieving the plan discount rate.

– How will inflation impact large public plans?

– U.S. equity studies in 2Q22 saw large public plans examining fewer active managers and increasing the allocation to passive in an effort to increase net-of-fee returns. Global ex-U.S. equity studies recognize that foreign markets continue to lag but active managers, especially style-focused managers, are beating the indices net of fees.

Defined contribution (DC) plan priorities

– House passed SECURE 2.0 Act; Senate has two versions moving through committees.

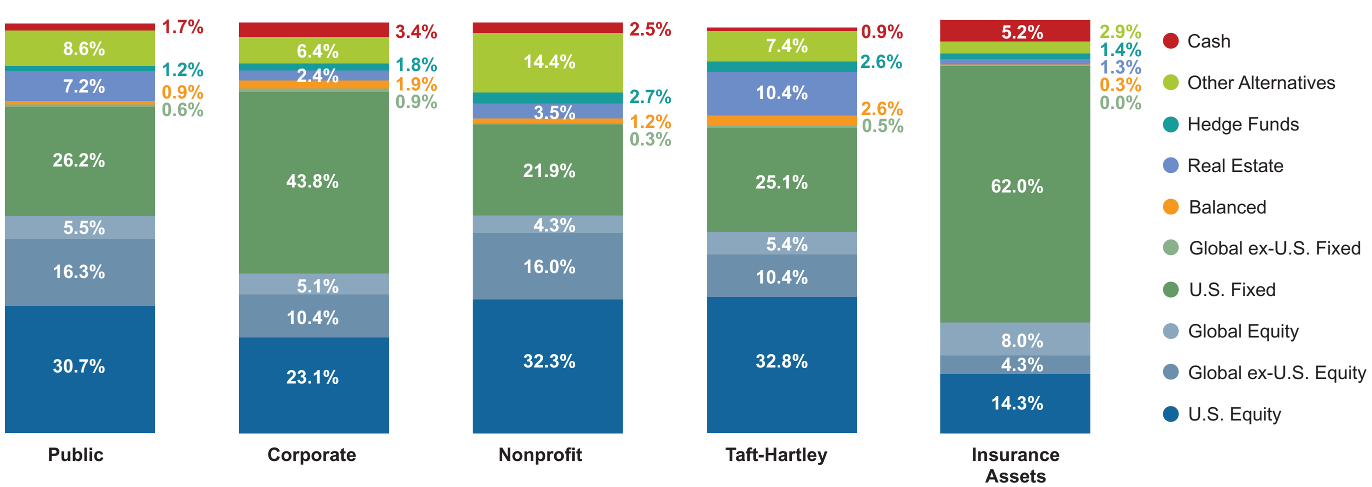
– Final version uncertain, but may include allowing CITs in 403(b) plans and pushing RMDs back to age 75

– Target date funds have been adding allocations to growth assets across the spectrum of retirement cohorts to increase income replacement ratios in light of low expected returns across asset classes. Fee sensitivity has led to more passive in large cap U.S. equity.

Nonprofit priorities

– They continue to expand the depth and breadth of their private markets investments in light of both high valuations in public markets growth assets and the potential for high inflation to erode the real values of their assets and distributions.

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

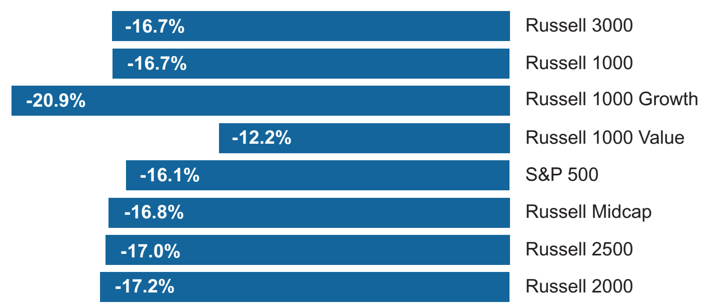
All major indices fall

- The S&P 500 plunged 16.1% in 2Q22; all major U.S. indices across styles and market cap ranges fell in the quarter.
- All sectors posted negative returns in the quarter. Energy continued to be the best-performing sector, and the only sector that has posted a gain year-to-date (YTD).
- Large cap stocks nominally outpaced smaller cap stocks. The performance spread between the Russell 1000 and the Russell 2000 Index was around 50 basis points.
- Value stocks have outperformed growth stocks across the market capitalization spectrum.
- Consumer Discretionary (-26%), Communication Services (-21%), and Information Technology (-20%) were the worst-performing sectors.

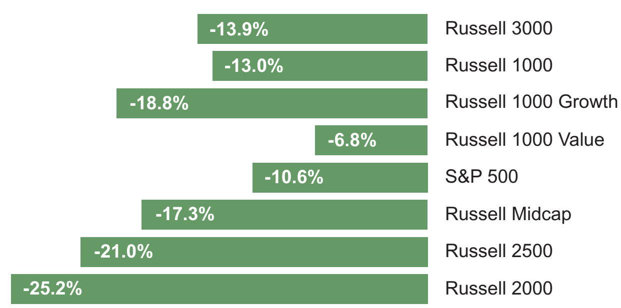
Volatile environment hits equity markets

- Rising interest rates and inflation along with geopolitical headlines all contributed to a volatile and risk-averse environment.
- Macroeconomic headlines and data releases will continue to impact equity markets.
- Inflation, rising interest rates, and supply-chain disruptions are all headwinds for equity markets.
- Active large cap growth managers have underperformed the Russell 1000 Growth Index meaningfully recently.
- Large tech firms that have sold-off (e.g., Meta) have become an increasingly large proportion of the value index.
- Federal Reserve interest rate hikes may derail the economy, resulting in lower corporate earnings in the near- to intermediate-term.
- With a potential economic slowdown, sell-side analysts have been cutting corporate earnings estimates.
- Longer-duration growth assets, such as growth stocks, are vulnerable during periods of high inflation because of higher interest rates discounting way-out future earnings.

U.S. Equity: Quarterly Returns (6/30/22)

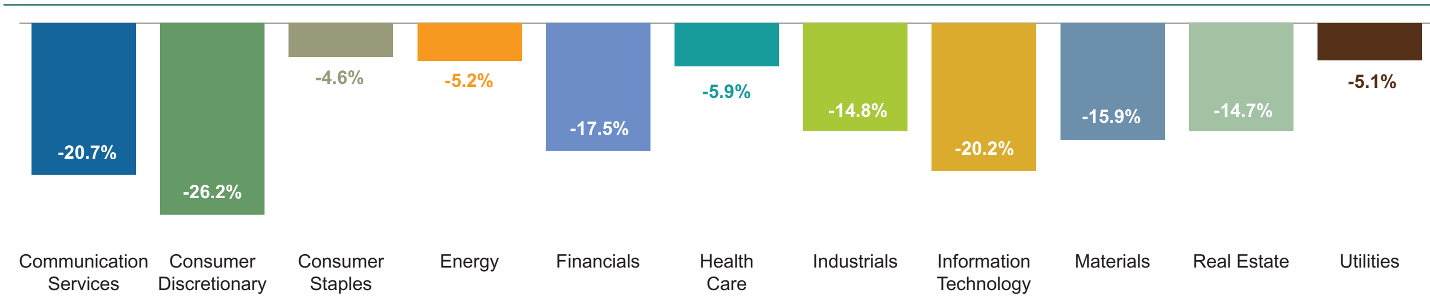


U.S. Equity: One-Year Returns (6/30/22)



Sources: FTSE Russell and S&P Dow Jones Indices

Quarterly Performance of Industry Sectors (6/30/22)



Source: S&P Dow Jones Indices

Global Equity

- The war in Ukraine tested an already fragile supply chain, led to energy demand/supply imbalances, and created an inflationary environment that sparked fears of a recession.
- Slowing global growth and recession risk became clearer toward quarter-end, leading investors toward higher-quality and lower-volatility areas of the market to offer protection.

Wide divergence in country returns

- Optimism that the worst is behind China's COVID-19 lockdown buoyed the country to the only gain in 2Q22.
- Japan suffered from a weak yen, slowing growth, and continued supply chain disruptions.

Growth vs. value

- Value continued to outperform growth as most monetary policies focus on tightening.
- Energy was the only sector with positive YTD results.
- Information Technology had the worst sector return as interest rate increases dampened long duration growth attractiveness.

U.S. dollar vs. other currencies

- The U.S. dollar strengthened further against other major currencies given its global dominance and perceived safety.

The rise of the dollar

- The dollar hit a 20-year high after rising roughly 10% YTD.
- The dollar hit parity with the euro; first time since 2002.
- The yen dipped to a 24-year low against the dollar.
- Strong dollar may burden global ex-U.S. markets.

Strong currency yields purchasing power

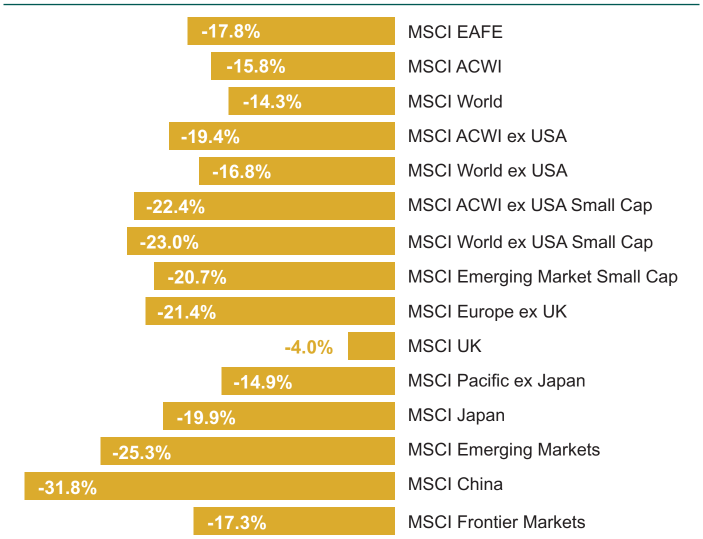
- Dollar-denominated debt compounded by depreciating local currencies weighed on the economy.
- The dollar and global ex-U.S. equity have exhibited negative correlation over the past four decades.

EM has fared better relative to prior downturns

- EM historically declined 26% during prior S&P 500 drawdowns greater than 10%.
- As of 2Q22, EM has corrected by 18% YTD.

Global ex-U.S. Equity: Quarterly Returns (U.S. Dollar, 6/30/22)

Global ex-U.S. Equity: One-Year Returns (U.S. Dollar, 6/30/22)



Source: MSCI

China presents upside opportunity

- Although divergence of China and EM ex-China is notable, China may support EM should fears of a U.S. recession fuel further drawdown.
- China offers favorable growth and valuation relative to other emerging markets.

Fixed Income

U.S. Fixed Income

Bonds hit hard as rates rise sharply (again)

- Bloomberg US Aggregate Bond Index posted its worst six-month return in its history.
- Yield curve flirted with inversion, but 2-year/10-year yield spread was slightly positive at quarter-end.
- TIPS underperformed nominal Treasuries, and 10-year breakeven spreads fell to 2.33% from 2.84% at 3/31/22.
- Fed raised rates by 75 bps, the largest increase since 1994, with further hikes expected.
- Market pricing reflects Fed Funds rate of 3.4% at year-end.

Spread sectors underperformed

- Investment grade corporates underperformed like-duration U.S. Treasuries by 205 bps; RMBS by 98 bps.
- High yield underperformed as spreads widened; excess return vs. U.S. Treasuries was -792 bps, hurt by equity market performance and worries over the impact of higher rates on the economy.
- Leveraged loans held up relatively well with lower-quality credits generally underperforming.

Securitized sectors continue to hang in

- Agency RMBS spreads widened in response to increased rate volatility.
- ABS spreads tightened, led by credit cards.

Municipal Bonds

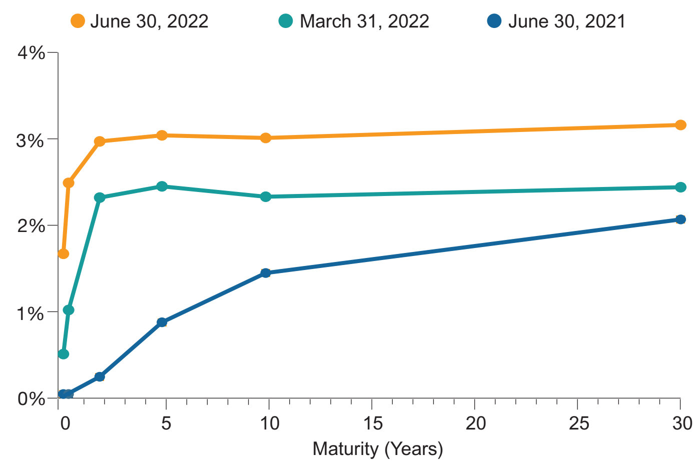
Returns hurt by rising rates

- Lower quality continued to underperform
- BBB: -4.5%; AAA: -2.5% (YTD BBB: -11.3%; AAA: -8.5%)
- Munis outperformed U.S. Treasuries (Bloomberg US Treasury: -3.8%)

Valuations relative to U.S. Treasuries at fair value

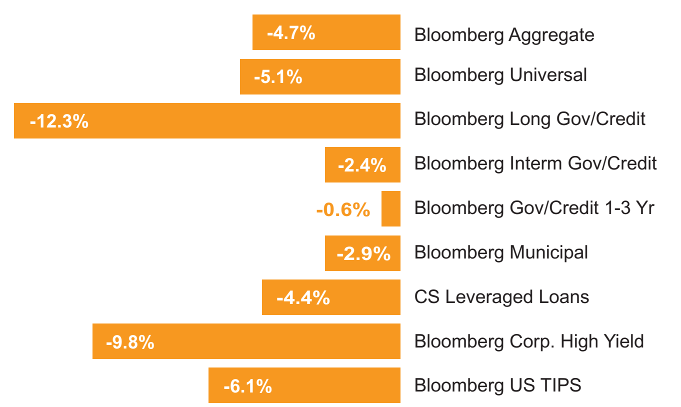
- 10-year AAA Muni/10-year U.S. Treasury yield ratio roughly 90%; in line with 10-year average
- Municipal Bond Index after-tax yield = 5.4% (source: Eaton Vance)

U.S. Treasury Yield Curves



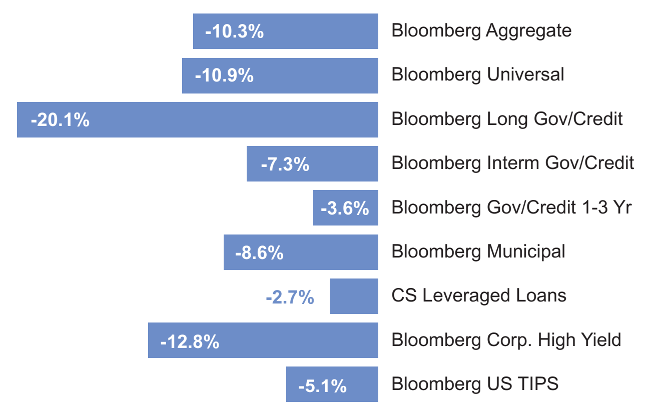
Source: Bloomberg

U.S. Fixed Income: Quarterly Returns (6/30/22)



Sources: Bloomberg and Credit Suisse

U.S. Fixed Income: One-Year Returns (6/30/22)



Sources: Bloomberg and Credit Suisse

Supply/demand

- Outflows of $76 billion YTD; highest cycle outflow since data series began in 1992
- YTD supply down 14% vs. last year

Global Fixed Income

Negative returns driven by broad interest rate increases

- U.S. dollar continued to appreciate vs. yen, euro, and pound.
- Double-digit negative returns were widespread across developed markets.

Inflation and global recession fears drag on EMD

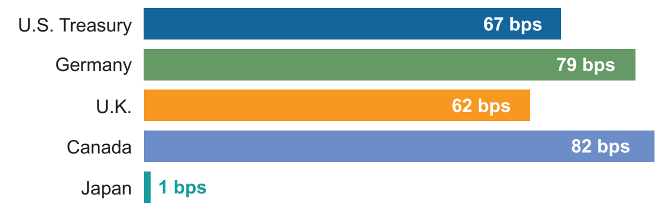
- All countries in the USD-denominated JPM EMBI Global Diversified Index posted negative returns, hurt by rising rates in the U.S.
- Local currency markets across the JPM GBI-EM Global Diversified were down only slightly, but USD strength eroded returns for U.S. investors.

Interest rates significantly increased

- First-half returns worst since inflation of 1970s
- Global phenomenon driven by recent inflationary pressure
- All fixed income asset classes negatively impacted
- Developed market duration becoming more compelling after broad repricing

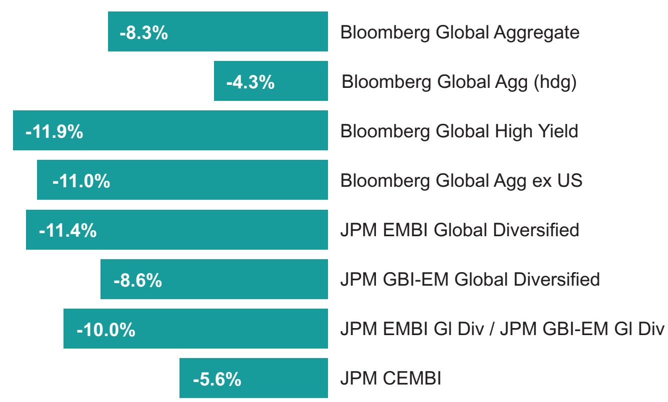
Change in 10-Year Global Government Bond Yields

1Q22 to 2Q22



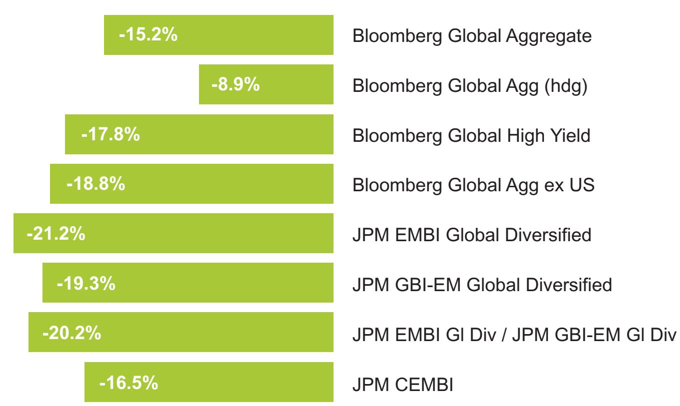
Source: Bloomberg

Global Fixed Income: Quarterly Returns (6/30/22)



Sources: Bloomberg and JPMorgan Chase

Global Fixed Income: One-Year Returns (6/30/22)



Sources: Bloomberg and JPMorgan Chase

Private RE Delivers; REITs Underperform

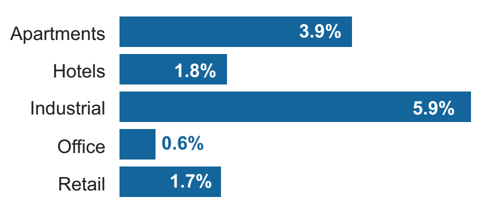
REAL ESTATE/REAL ASSETS | Munir Iman

Robust quarter for private real estate

Core real estate delivered another robust quarter, with strong fundamentals in the Industrial and Multifamily sectors; the NFI-ODCE Index (value-weighted, net of fees) gained 4.5% in 2Q22 and 12.0% year-to-date (YTD). Real estate returns are expected to moderate to 10% in 2022 and 8% in 2023.

- Income returns were positive across all sectors.
- Transaction volumes are slowing as interest rates rise and economic uncertainty increases.
- Industrial and Multifamily sectors are expected to see continued rent growth.
- Office vacancy is expected to stay above long-term averages for the near term.
- Property types with steady cash flows are experiencing cap rate compression due to the demand for logistics facilities coupled with the housing shortage.

Sector Quarterly Returns by Property Type (6/30/22)



Source: NCREIF

Public real estate lags

REITs, both in the United States and globally, underperformed in 2Q22.

- The FTSE EPRA Nareit Developed Index, a measure of global REITs, fell 17.4% in 2Q22 compared to a 15.8% drop for global equities (MSCI World).
- The FTSE Nareit Equity REITs index, measuring U.S. REITs, dropped 17.0%, in contrast with the S&P 500 Index, which lost 16.1%.
- REITs are now trading at a discount to NAV and offer relative value given the strength of underlying fundamentals

Real assets see widespread drops

Following very strong 1Q results, real assets as a group posted negative returns in 2Q as concerns over slowing global growth mounted.

- A lone exception was the energy-heavy S&P GSCI Index, which eked out a 2.0% gain during the quarter while the Bloomberg Commodity TR Index fell 5.7%.
- WTI Crude closed the quarter at $106/barrel, up from $100 on 3/31/22 and $76 at year-end. Gold (S&P Gold Spot Price Index: -7.5%), listed infrastructure (DJB Global Infrastructure: -7.1%), REITs (MSCI US REIT: -16.9%), and TIPS (Bloomberg TIPS: -6.1%) declined.

Callan Database Median and Index Returns* for Periods Ended 6/30/22

Private Real Assets	Quarter	Year to Date	1 Year	3 Years	5 Years	10 Years	15 Years
Real Estate ODCE Style	**5.0**	**12.2**	**27.9**	**12.3**	**10.2**	**10.6**	**6.2**
NFI-ODCE (value-weighted, net)	4.5	12.0	28.3	11.7	9.6	10.2	6.0
NCREIF Property	3.2	8.7	21.5	10.2	8.9	9.7	7.2
NCREIF Farmland	2.6	5.3	11.0	6.6	6.4	9.6	10.6
NCREIF Timberland	1.9	5.1	12.0	5.0	4.3	5.7	5.1
Public Real Estate							
Global Real Estate Style	**-17.2**	**-20.6**	**-12.2**	**1.9**	**5.0**	**6.9**	**3.9**
FTSE EPRA Nareit Developed	-17.4	-20.7	-13.5	-1.1	1.9	4.7	2.0
Global ex-U.S. Real Estate Style	**-18.5**	**-21.5**	**-20.6**	**-1.2**	**3.7**	**6.2**	**1.4**
FTSE EPRA Nareit Dev ex US	-17.7	-20.4	-21.1	-5.0	-0.2	3.3	0.1
U.S. REIT Style	**-16.7**	**-20.0**	**-6.3**	**6.0**	**7.0**	**8.4**	**6.8**
FTSE EPRA Nareit Equity REITs	-17.0	-20.2	-6.3	4.0	5.3	7.4	5.8

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

Persistence Amid Volatility

PRIVATE EQUITY | Gary Robertson

Fundraising ▶ Based on preliminary data, final closes for private equity partnerships in 2Q22 totaled $233 billion of commitments in 486 partnerships. (Unless otherwise noted, all data in this commentary come from PitchBook.) The dollar volume was up 3% from 1Q22, but the number of funds fell 11%. For the first half, 2022 commitments are running 13% behind those of a year ago, with the number of funds down by 39%. While the figures point to a decline from 2021, the first-half results are in fact tracking to match last year's total because the second half of 2021 weakened as public equity markets grew volatile.

Buyouts ▶ New buyout transactions by count fell 12% from 1Q22 to 2,668, and disclosed deal value dropped 42% to $125 billion. YTD numbers also saw declines of 16% in number of investments and 7% in disclosed value. Average buyout prices remained comparable to 2021, with a similar pattern in average leverage multiples.

VC Investments ▶ New rounds of financing in venture capital companies totaled 10,244, with $125 billion of announced value. The number of investments preliminarily fell 24% from 1Q22, and announced value fell 25%. YTD numbers held up stronger, down only 15% for rounds and 13% for disclosed value.

Exits ▶ There were 522 private M&A exits of private equity-backed companies, with disclosed values totaling $122 billion. The preliminary private sale count fell 18% and the announced dollar volume dropped 26%. There were 42 private equity-backed IPOs in 2Q22 raising an aggregate $7 billion, down 7% by count, with issuance being unchanged from 1Q22.

Venture-backed M&A exits totaled 680 transactions with disclosed value of $23 billion. The number of sales declined 12% from 1Q22, and announced value plunged 56%. There were 67 VC-backed IPOs in 2Q22 with a combined float of $10 billion; the count was down 9% and the issuance grew 25%.

Returns ▶ With the strong downturn in public equity markets, private equity outperformance has widened given private equity's more gradual quarterly mark-to-market valuation methodology.

Funds Closed 1/1/22 to 6/30/22

Strategy	No. of Funds	Amt ($mm)	Share
Venture Capital	650	156,559	34%
Growth Equity	79	61,601	13%
Buyouts	205	185,235	40%
Mezzanine Debt	7	11,021	2%
Distressed	18	26,353	6%
Energy	5	1,930	0%
Secondary and Other	58	11,743	3%
Fund-of-Funds	12	4,325	1%
Totals	**1,034**	**458,767**	**100%**

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

Private Equity Performance (%) (Pooled Horizon IRRs through 3/31/22*)

Strategy	Quarter	1 Year	3 Years	5 Years	10 Years	15 Years	20 Years	25 Years
All Venture	-3.6	22.2	35.0	27.5	20.3	14.9	12.1	24.6
Growth Equity	-3.9	17.9	26.5	22.5	16.8	14.3	14.5	15.9
All Buyouts	-0.5	24.6	22.9	20.1	15.7	11.7	14.7	13.6
Mezzanine	1.5	17.2	13.3	12.7	11.9	10.5	11.0	10.3
Credit Opportunities	2.0	12.4	8.4	8.0	8.9	8.8	9.8	9.8
Control Distressed	3.0	33.5	20.8	15.6	13.3	11.1	12.3	12.3
All Private Equity	**-1.5**	**22.6**	**24.9**	**21.0**	**16.1**	**12.4**	**13.6**	**14.6**
S&P 500	-4.6	15.7	18.9	16.0	14.6	10.3	9.3	9.4
Russell 3000	-5.3	11.9	18.2	15.4	14.3	10.1	9.4	9.5

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

- U.S. corporate yields rose dramatically at the end of 2021 and the first six months of 2022, due to higher interest rates from tighter Fed policy and a widening of high yield spreads. Spreads widened because of weaker credit conditions as the U.S. economic outlook worsened.
- The illiquidity premium between public and private credit had been whittled down close to zero, but we are seeing a slow adjustment with SOFR widening out 200 bps and new private loan pricing at a 75-100 bps wider spread. A full adjustment between the public and private markets may take several quarters.
- Private credit fundraising was robust leading into the COVID dislocation, with a particular focus on direct lending and distressed strategies.
- Fundraising slowed in the first half of 2022 as rate hikes and market volatility led to investor uncertainty.
- For mature private credit programs, demand for diversifying strategies is increasing to capture opportunities outside of traditional sponsor-backed direct lending.

A permanent part of portfolios

- Core yield and income-generating characteristics remain attractive in private credit portfolios, in spite of the shrinking illiquidity premium.
- Despite the shift from a low-yield environment, private credit has become a permanent asset class in many portfolios.

Attractive inflation-resistant characteristics

- Many direct lending assets are floating rate, which can add protection against rising rates.

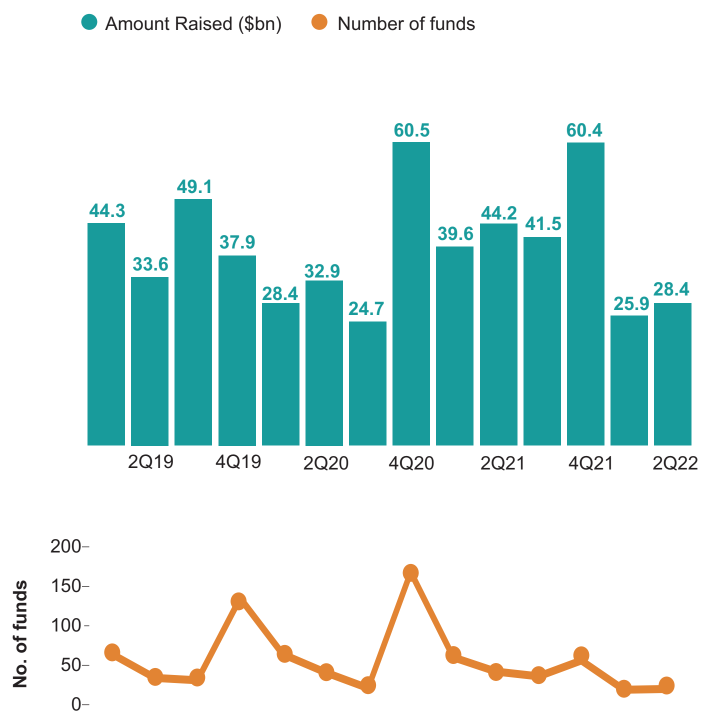
Distressed cycle on horizon a growing opportunity

- Distressed opportunities in U.S. and Europe are expected to increase across both corporate and non-corporate assets.
  - Enhances importance of seasoned workout talent across sub-strategy types
  - Brings the need for increased underwriting discipline

Continued evolution of pockets of opportunity

- Opportunities include those that offer diversification through differentiated collateral and/or low correlation to public markets, including specialty finance, asset-backed lending, and niche areas.

Private Credit Fundraising ($bn)



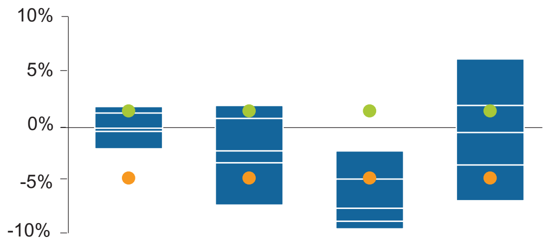
Source: Preqin

Tough Environment Leads to Losses

HEDGE FUNDS/MACs | Joe McGuane

Global markets sold off significantly in 2Q22 amid pressure from high inflation, rising interest rates, and Russia's invasion of Ukraine. In this challenging environment, hedge funds as a whole declined during 2Q, as equity hedge managers had a second quarter of disappointing returns. Event-driven strategies continued to struggle, as their deep value equity positions were the main detractor during the first half of the year while their credit positions held up fairly well. Relative value strategies remained in positive territory, as some managers continued to profit off a rising rate environment while others have been successful in capital structure arbitrage given the volatility in credit and equity markets. Macro managers remained the best-performing strategy for the first half of 2022, as commodity trading was the biggest driver of performance. Strong contributions also came from quantitative strategies.

Hedge Fund Style Group Returns (6/30/22)



	Absolute Return FOF	Core Div. FOF	Long/Short Equity FOF	Institutional Hedge Funds
10th Percentile	1.7	1.8	-2.4	6.1
25th Percentile	1.1	0.6	-5.0	1.8
Median	-0.3	-2.4	-7.7	-0.7
75th Percentile	-0.6	-3.5	-8.9	-3.7
90th Percentile	-2.2	-7.4	-9.6	-7.0
HFRI Fund Weighted ●	-4.9	-4.9	-4.9	-4.9
90-Day T-Bill +5% ●	1.3	1.3	1.3	1.3

Sources: Callan, Credit Suisse, Federal Reserve

Callan Peer Group Median and Index Returns* for Periods Ended 6/30/22

Hedge Fund Universe	Quarter	Year to Date	1 Year	3 Years	5 Years	10 Years
Callan Institutional Hedge Fund Peer Group	**-0.7**	**0.7**	**3.7**	**5.6**	**5.5**	**6.3**
Callan Fund-of-Funds Peer Group	**-2.8**	**-4.5**	**-4.5**	**4.8**	**4.4**	**5.0**
Callan Absolute Return FOF Style	**-0.3**	**1.1**	**3.4**	**5.4**	**4.9**	**5.0**
Callan Core Diversified FOF Style	**-2.4**	**-4.1**	**-3.9**	**4.8**	**4.0**	**4.7**
Callan Long/Short Equity FOF Style	**-7.7**	**-11.5**	**-12.3**	**3.2**	**3.9**	**5.2**
BB GS Cross Asset Risk Premia 6% Vol Idx	4.4	5.0	3.4	-0.1	2.6	4.2
HFRI Fund Weighted Index	-4.9	-5.8	-5.7	6.1	5.1	5.0
HFRI Fixed Convertible Arbitrage	-4.4	-5.0	-2.1	6.1	4.9	5.1
HFRI Distressed/Restructuring	-3.7	-2.5	-1.6	7.4	5.6	5.7
HFRI Emerging Markets	-6.7	-13.0	-15.3	2.6	2.6	3.8
HFRI Equity Market Neutral	0.7	0.2	2.1	2.6	2.5	3.1
HFRI Event-Driven	-6.4	-7.6	-7.1	5.0	4.3	5.2
HFRI Relative Value	-2.6	-1.9	-1.0	3.6	3.6	4.5
HFRI Macro	1.8	8.6	8.0	7.8	5.3	3.1
HFRI Equity Hedge	-8.0	-12.0	-12.2	6.5	5.5	5.9
HFRI Multi-Strategy	-7.0	-8.8	-12.1	4.3	2.0	3.5
HFRI Merger Arbitrage	-2.9	-1.6	0.5	5.8	5.0	4.3
90-Day T-Bill + 5%	1.3	2.6	5.2	5.6	6.1	5.6

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

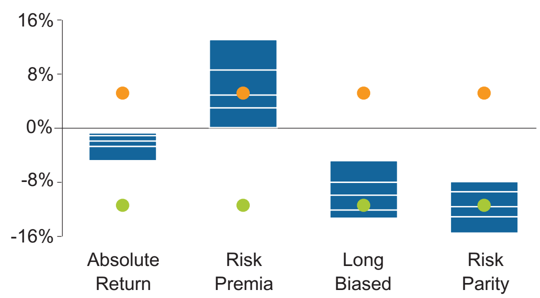
The median manager in the Callan Institutional Hedge Fund Peer Group fell 0.7%. Within this style group of 50 peers, the average rates manager gained 1.5%, driven by interest rate volatility. Meanwhile, hedged credit managers lost 4.6% from both performing and distressed credit.

Within the HFRI indices, the best-performing strategy last quarter was again macro (+1.8%), aided by its exposure to commodities and rates trading. Equity hedge strategies had another difficult quarter (-8.0%), as growth-heavy managers experienced a sell-off.

Across the Callan Hedge FOF Database, the median Absolute Return FOF fell 0.3%, as a focus on lower beta strategies held up during the quarter. Meanwhile, the median Callan Long-Short Equity FOF dropped 7.7%, as a growth bias among managers continued to be a drag on performance. The median Callan Core Diversified FOF declined 2.4%, as macro strategies were able to offset some of the negative performance from equity hedge and event-driven managers.

Measuring the quarter's performance of alternative risk premia, the Bloomberg GSAM Risk Premia Index increased 4.4% based upon a 6% volatility target. The median manager of the Callan Multi-Asset Class (MAC) Style Groups generated negative returns, gross of fees, consistent with their underlying risk exposures. For example, the median Callan Long Biased MAC manager fell 9.9%, as exposure to equity and fixed income continued to be a drag on performance. The Callan Risk Parity MAC index, which typically targets an equal risk-weighted allocation to the major asset classes with leverage, was down 11.6%. The Callan Risk Premia MAC held up the best during the quarter, up 4.9%.

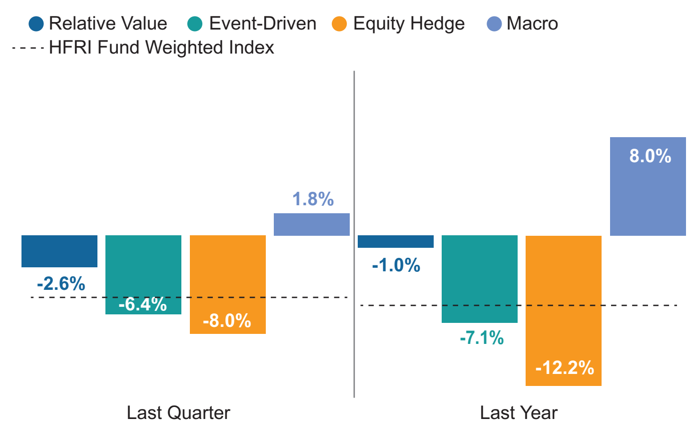
MAC Style Group Returns (6/30/22)



	Absolute Return	Risk Premia	Long Biased	Risk Parity
10th Percentile	-0.7	13.1	-4.8	-7.9
25th Percentile	-1.1	8.6	-8.0	-9.4
Median	-1.9	4.9	-9.9	-11.6
75th Percentile	-2.7	3.0	-12.1	-13.1
90th Percentile	-4.8	0.1	-13.3	-15.5
BB GS Cross Asset Risk Premia (6%v)	4.4	4.4	4.4	4.4
60% MSCI ACWI/ 40% Bloomberg Agg	-11.4	-11.4	-11.4	-11.4

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

HFRI Hedge Fund Strategy Returns (6/30/22)



Source: HFRI

DC Index Falls in 1Q22, Reversing 4Q21 Gain

DEFINED CONTRIBUTION | Patrick Wisdom

Performance: Index falls to begin year

- The Callan DC Index™ fell 5.3% in 1Q22, a reversal from its 4Q21 gain (5.0%).
- The Age 45 Target Date Fund dropped 5.9%.

Growth Sources: Losses drive decline in balances

- Balances within the DC Index declined by 5.4% after a 4.4% increase the previous quarter.
- Investment returns (-5.3%) primarily drove the decline.

Turnover: Net transfers rise

- Turnover (i.e., net transfer activity levels within DC plans) increased to 0.42% from the previous quarter's 0.19%.
- The Index's historical average (0.57%) remained unchanged and signaled that most participants have not drastically altered their allocations.

Net Cash Flow Analysis: TDFs stay atop leaderboard

- Target date funds (TDFs) received the largest net inflows in the Index, followed closely by stable value.
- Investors transferred assets out of U.S. large-cap equity (-47.4%), U.S. small/mid-cap equity (-16.5%), and global ex-U.S. equity (-3.1%).

Equity Allocation: Exposure falls slightly

- The Index's overall allocation to equity (72.0%) fell from the previous quarter's level (72.8%), driven by both investor outflows and declines in equity markets.

Asset Allocation: U.S. equity falls; target date funds gain

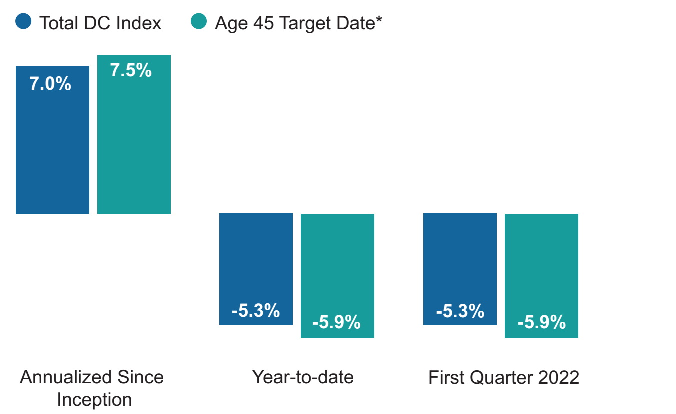
- U.S. large cap (26.9%) and U.S. small/mid cap (8.3%) had the largest percentage decreases in allocation.
- Target date funds (32.6%) and stable value (8.6%) had the largest percentage increases.

Prevalance of Asset Class: Balanced funds dip again

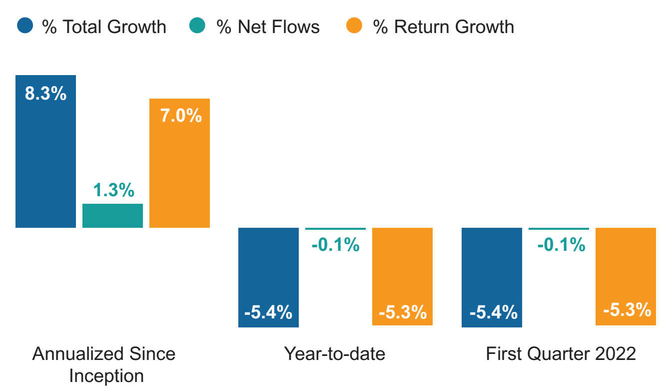
- The prevalence of a balanced fund (43.2%) decreased again to its lowest level since the inception of the Index in 2006.

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 (3/31/22)



Growth Sources (3/31/22)



Net Cash Flow Analysis (1Q22)
(Top Two and Bottom Two Asset Gatherers)

Asset Class	Flows as % of Total Net Flows
Target Date Funds	48.4%
Stable Value	42.2%
U.S. Fixed Income	-17.1%
U.S. Large Cap	-47.4%
Total Turnover**	**0.42%**

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.

Contributors

Catherine Beard, CFA, an investment consultant in Callan's Alternatives Consulting group, focuses on private credit and diversifying strategies.

Kristin Bradbury, CFA, of Callan's Independent Adviser Group, conducts investment manager research and due diligence with a focus on fixed income managers.

Ho Hwang is an investment consultant in Callan's Global Manager Research group, responsible for research and analysis of global ex-U.S. equity investment managers.

Munir Iman works in Callan's Real Assets Consulting group, collecting information on real assets products and tracking new real estate fund offerings.

Jay Kloepfer is director of the Capital Markets Research group, helping Callan's institutional investor clients with strategic planning and providing custom research.

Lauren Mathias, CFA, is an investment consultant in Callan's Global Manager Research group, responsible for research and analysis of global ex-U.S. equity investment managers.

Joe McGuane, CFA, leads Callan's hedge fund research, working with clients and consultants to implement diversifying assets portfolios.

Jan Mende is a senior vice president in Callan's Real Assets Consulting group covering global private infrastructure, as well as U.S. value add and Asian real estate.

Gary Robertson in the Private Equity Consulting group is responsible for alternative investments consulting services at Callan.

David Wang is a vice president in Callan's Global Manager Research group, responsible for research and analysis of U.S. equity investment managers.

Patrick Wisdom is an associate defined contribution consultant in Callan's Fund Sponsor Consulting group, providing analytical support to Callan's DC clients and consultants.

Nathan Wong, CFA, is a vice president and investment consultant in Callan's Global Manager Research group, specializing in fixed income and private credit.

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.

If you have any questions or comments, please email institute@callan.com.

Editor – Stephen R. Trousdale
Performance Data – Alpay Soyoguz, CFA; Matt Loster; Fionnuala Wright
Designer – Nicole Silva

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Corporate Headquarters

600 Montgomery Street
Suite 800
San Francisco, CA 94111
800.227.3288
415.974.5060

www.callan.com

Regional Offices

Atlanta
800.522.9782

Chicago
800.999.3536

Denver
855.864.3377

New Jersey
800.274.5878

Portland
800.227.5060

@CallanLLC

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