Callan Institute

Fourth Quarter 2021

Capital Markets Review

What's Next for the Recovery in the U.S.?

ECONOMY

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The fourth quarter of 2021 closed out another remarkable year following the wild ride through the pandemic and the recovery. U.S. GDP notched an incredibly strong 6.9% quarterly gain (4Q over 4Q), which translates to annual growth of 5.7% over 2020. So what's next?

Another Year of Gains but New Threats Rise

INSTITUTIONAL INVESTORS

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In 2021 all institutional investor types had strong gains but lagged a benchmark composed of 60% S&P 500/40% Bloomberg US Aggregate Index. For many, the question they face now is what to do in a low-yield environment with growing concerns over inflation.

S&P 500 Up Again; Global Stocks Falter

EQUITY

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The S&P 500 posted a strong 11.0% gain in 4Q21; large cap growth was the top performer, small cap growth the worst. Globally, emerging markets struggled relative to developed markets due to the economic slowdown and regulatory crackdown in China.

Agg Is Flat as Real Yields Stay Negative

FIXED INCOME

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The Bloomberg Aggregate was flat in 4Q21, and real yields remain solidly in negative territory. Global returns were muted for unhedged U.S. investors in both 4Q and 2021. Emerging market debt indices underperformed most other fixed income sectors in 2021.

ODCE's Best Quarter; U.S. REITs Top Stocks

REAL ESTATE/REAL ASSETS

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The NCREIF ODCE Index had its best performance ever in 4Q21, up 7.7%. Net operating income fell for Office as Omicron delayed office returns. Global REITs rose 10.4% compared to 7.8% for MSCI World; U.S. REITs rose 16.3%, beating the S&P 500 Index, which rose 11.0%.

Big Bounce Back in 2021 After 2020 Drop

PRIVATE EQUITY

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Private equity fared exceedingly well in 2021, after 2020's big dip. Company investment and exit activity is up across the board, and IPO markets had another gangbuster year. On average, year-over-year transaction activity rose by 30% and dollar volumes by 70%.

Strong Demand Due to Focus on Yield

PRIVATE CREDIT

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Private credit remains attractive to institutional investors due to its yield and income-generating characteristics. Private credit has, on average, generated net IRRs of 8% to 10% for most trailing periods ended 4Q20. Fundraising significantly rebounded in the first half of 2021.

Ending the Year on a Positive Note

HEDGE FUNDS/MACs

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Hedge funds ended higher, despite inflation and Omicron concerns growing in 4Q21; the HFRI Fund Weighted Composite Index gained 0.4%. Event-driven strategies finished on a strong note. Equity hedge finished in positive territory; macro strategies ended slightly lower.

Index Falls in 3Q21, First Time Since 1Q20

DEFINED CONTRIBUTION

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The Callan DC Index™ declined 0.4% in 3Q21. The Age 45 Target Date Fund had a slightly lower return (-0.8%), attributable to its higher allocation to equity, which underperformed fixed income. Balances also fell, by 0.7%. Target date funds received the largest net inflows.

Broad Market Quarterly Returns

U.S. Equity
Russell 3000

9.3%

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

1.8%

U.S. Fixed Income
Bloomberg Agg

0.0%

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

-1.2%

Sources: Bloomberg, FTSE Russell, MSCI

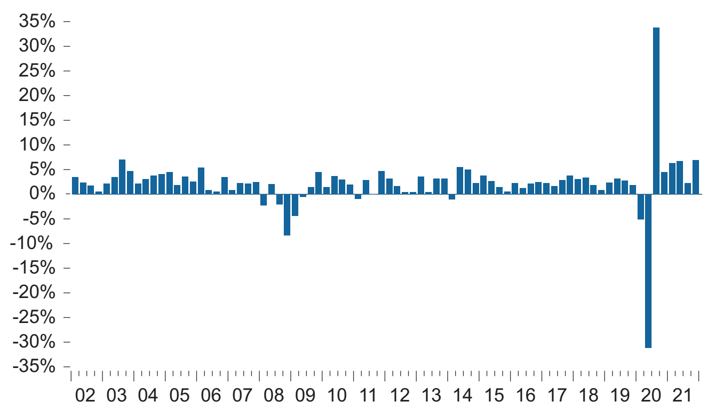
What's Next for the Post-Pandemic Economy?

ECONOMY | Jay Kloepfer

The fourth quarter of 2021 closed out another remarkable year following the wild ride through the pandemic and the recovery, a cycle that began in earnest in February 2020. U.S. GDP notched an incredibly strong 6.9% quarterly gain (4Q over 4Q), which translates to annual growth of 5.7% over 2020. We have not seen such growth since the Ronald Reagan administration, following the consecutive recessions of 1980 and 1982 induced in part to wring double-digit inflation out of the economy.

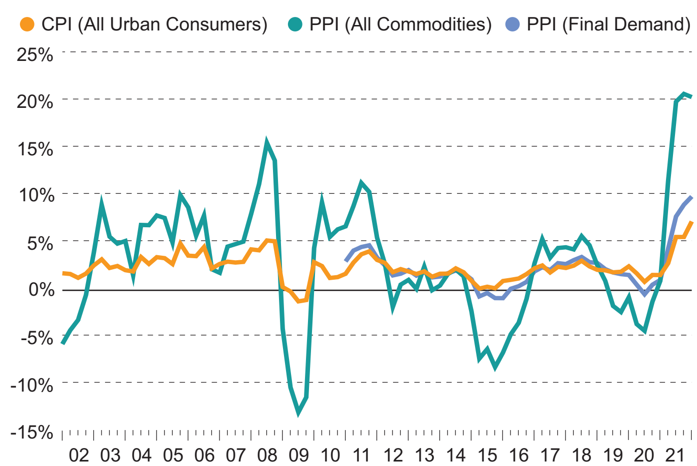
A short detour into monetary policy history is relevant here. The advent of current monetary policy began during the Reagan administration under Fed Chair Paul Volcker, although he was appointed by Jimmy Carter. Alan Greenspan took on the mantel of "monetarist" from Volcker and enshrined the discipline into Fed policy. That monetarist bent was then modified seriously by Ben Bernanke to address the Global Financial Crisis, where a zero interest rate policy was employed both in the U.S. and by most central banks around the world to rescue the global economy from collapse. Zero rates were combined with massive monetary intervention through the purchase of bonds to keep rates low and infuse liquidity into the system. Emboldened by what we learned in the GFC and the innovation in monetary intervention tools we developed, we applied zero rates with substantial monetary intervention to rescue the global economy again at the onset of the pandemic. After two years and a complete recovery to pre-pandemic GDP levels, the question now is what is next for the post-pandemic economy.

Quarterly Real GDP Growth (20 Years)



Source: Bureau of Economic Analysis

Inflation Year-Over-Year



Source: Bureau of Labor Statistics

At the risk of *not* sounding an alarm, we believe supply chains will untangle, labor markets will slowly equilibrate, and supply and demand will line up the economy's production function and the consumer's normalizing demand for goods, services, food, and shelter. The Fed has begun tapering its asset purchases intended to supply liquidity to capital markets, and it is strongly signaling that interest rates will rise, with three hikes in the Fed Funds rate in 2022 articulated in the last FOMC meeting in January (the market is discounting four hikes). As policy is withdrawn, the global economy will move to stand on its own two feet, complete with the cycles of growth and recession fully expected in a market system. Top of mind for many is inflation, which hit a peak of 7% in 4Q21. There is now an entire generation of market participants who have never experienced sustained inflation, which was last seen in the early 1980s.

After starting 2021 in the shadow of renewed lockdowns in 4Q20 following then-record spikes in pandemic infections and hospitalizations, the global economy and the U.S. in particular began a spurt of optimistic growth in the spring, and many measures of economic growth took off: consumption, business spending, production, travel, home-buying (which had started surging in 2020), and the opening of retail trade, dining, hospitality, and recreation. U.S. GDP surged in the second and fourth quarters, and the increase of 5.7% for 2021 compares to the 3.6% decline in 2020. Much has been made of the supply chain issues that have restricted output and the supply of goods, the fundamental mismatch between job seekers and available jobs, and the impact of both on potential growth and inflation. We believe the remaining supply chain issues will be ironed out over the course of 2022, increasing the supply of goods and relieving the pressure on prices. We also believe that the labor market will adjust, but that the process may be slower than that for goods and services, and that higher wages may be a feature of the U.S. economy for at least another year and perhaps in to 2023. The job segments most disrupted by the pandemic—retail, wholesale trade, transportation services, hospitality, education, state and local government—are those facing the most obstacles to rehiring at prevailing wages.

A couple of key metrics point toward a slowdown from the manic growth of 2021. First, within GDP, the building of inventory accounted for 4.9% of the 6.9% growth for 4Q21. Inventories built now boost current GDP, but suggest downward pressure on prices of those inventoried goods and slower growth from future production. Second, one of the key forward-looking indicators is the Purchasing Managers' Index (PMI), which surveys planned activity by market participants—new orders, output, input prices, employment—and covers both goods and services. The PMI for new orders around the globe went flat in August 2021 and stayed flat through December, as first the Delta then the Omicron variants spooked consumers and businesses. Third, at the start of 2022, the PMI for new orders has fallen sharply, driven by weakness emerging in the order data in China and the U.S., two of the biggest global economies.

The Long-Term View

Index	4Q21	Periods Ended 12/31/21 1 Yr	5 Yrs	10 Yrs	25 Yrs
U.S. Equity					
Russell 3000	9.3	25.7	18.0	16.3	9.8
S&P 500	11.0	28.7	18.5	16.6	9.8
Russell 2000	2.1	14.8	12.0	13.2	9.0
Global ex-U.S. Equity					
MSCI EAFE	2.7	11.3	9.5	8.0	5.2
MSCI ACWI ex USA	1.8	7.8	9.6	7.3	--
MSCI Emerging Markets	-1.3	-2.5	9.9	5.5	--
MSCI ACWI ex USA Small Cap	0.6	12.9	11.2	9.5	6.9
Fixed Income					
Bloomberg Agg	0.0	-1.5	3.6	2.9	4.9
90-Day T-Bill	0.0	0.0	1.1	0.6	2.1
Bloomberg Long G/C	2.2	-2.5	7.4	5.7	7.3
Bloomberg Gl Agg ex US	-1.2	-7.0	3.1	0.8	3.4
Real Estate					
NCREIF Property	6.1	17.7	7.8	9.3	9.4
FTSE Nareit Equity	16.3	43.2	10.8	11.4	9.9
Alternatives					
CS Hedge Fund	0.9	8.2	5.5	4.9	6.7
Cambridge PE*	4.8	49.5	21.2	17.2	15.7
Bloomberg Commodity	-1.6	27.1	3.7	-2.9	1.1
Gold Spot Price	4.1	-3.5	9.7	1.6	6.6
Inflation – CPI-U	1.6	7.0	2.9	2.1	2.3

*Data for most recent period lags by a quarter. Data as of 9/30/21.
Sources: Bloomberg, Bureau of Economic Analysis, Credit Suisse, FTSE Russell, MSCI, NCREIF, Refinitiv/Cambridge, S&P Dow Jones Indices

Recent Quarterly Economic Indicators

	4Q21	3Q21	2Q21	1Q21	4Q20	3Q20	2Q20	1Q20
Employment Cost–Total Compensation Growth	4.0%	3.7%	2.9%	2.6%	2.5%	2.4%	2.7%	2.8%
Nonfarm Business–Productivity Growth	6.6%	-5.0%	2.4%	4.3%	-3.4%	4.6%	11.2%	-0.8%
GDP Growth	6.9%	2.3%	6.7%	6.3%	4.5%	33.8%	-31.2%	-5.1%
Manufacturing Capacity Utilization	77.0%	76.1%	75.4%	74.5%	74.0%	71.9%	64.3%	74.4%
Consumer Sentiment Index (1966=100)	69.9	74.8	85.6	80.2	79.8	75.6	74.0	96.4

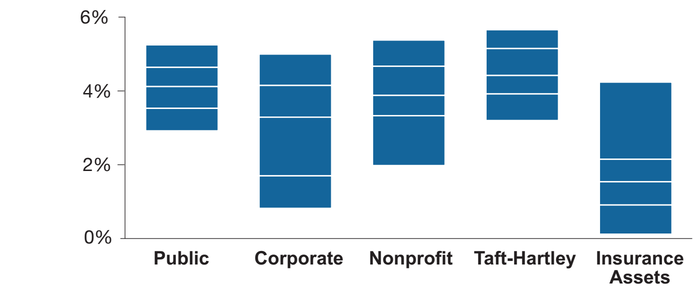
Sources: Bureau of Economic Analysis, Bureau of Labor Statistics, Federal Reserve, IHS Economics, Reuters/University of Michigan

Most Investors Saw Double-Digit Gains in 2021

INSTITUTIONAL INVESTORS

- In 2021 all institutional investor types had strong gains but lagged a benchmark composed of 60% S&P 500/40% Bloomberg US Aggregate.
- Taft Hartley plans (+15.0%) topped the list while corporate defined benefit (DB) plans (+9.5%) had the lowest returns.
- Almost all investor types have seen double-digit returns for four of the last five calendar years, with single-digit losses in 2018 being the exception.
- Their returns more closely track the 60%/40% benchmark over longer time periods, with results over the last 20 years roughly comparable.
- Strategic conversations among investors remain focused on where to go from here. Many just enjoyed the best annual returns, calendar or fiscal year, in a generation, but their elation is tempered by sobering capital markets assumptions.
- Inflation is one major topic of conversation.
- But for all the concern about inflation, few investors have taken action to address it in portfolios.
- Another, related topic is what to do with fixed income:
  - How low can the fixed income allocation go?
  - Should portfolios have bonds at all?
  - Should investors migrate out of an anchor to the Aggregate?
- Fixed income structures focus on the role of the asset class—to diversify equity, to serve as a flight to quality, to act as a source of liquidity, to provide interest rate exposure—balanced against the desire for return in a very low-yield environment. Investors are evaluating how they can avoid undue risk.
- Some investors have looked at creative reconstruction of "core" fixed income, away from lower-returning segments of the Aggregate anchor position:
  - Private credit
  - Securitized debt
  - High yield

Quarterly Returns, Callan Database Groups



	Public	Corporate	Nonprofit	Taft-Hartley	Insurance Assets
10th Percentile	5.3	5.0	5.4	5.7	4.2
25th Percentile	4.6	4.2	4.7	5.2	2.2
Median	4.1	3.3	3.9	4.4	1.5
75th Percentile	3.5	1.7	3.3	3.9	0.9
90th Percentile	2.9	0.8	2.0	3.2	0.1

Source: Callan

Callan Database Median and Index Returns* for Periods Ended 12/31/21

Database Group	Quarter	1 Year	3 Years	5 Years	10 Years	20 Years
Public Database	**4.1**	**13.7**	**14.8**	**10.9**	**9.6**	**7.5**
Corporate Database	**3.3**	**9.5**	**14.1**	**10.2**	**9.0**	**7.3**
Nonprofit Database	**3.9**	**14.0**	**15.1**	**11.0**	**9.5**	**7.4**
Taft-Hartley Database	**4.4**	**15.0**	**14.8**	**11.0**	**10.0**	**7.2**
Insurance Assets Database	**1.5**	**5.1**	**8.4**	**6.1**	**5.3**	**5.6**
All Institutional Investors	**4.0**	**13.4**	**14.7**	**10.8**	**9.5**	**7.4**
Large (>$1 billion)	**3.8**	**14.4**	**15.0**	**11.1**	**9.9**	**7.7**
Medium ($100mm - $1bn)	**4.0**	**12.9**	**14.7**	**10.9**	**9.5**	**7.3**
Small (<$100 million)	**4.2**	**13.3**	**14.4**	**10.3**	**9.2**	**7.0**
60% S&P 500/40% Bloomberg Agg	6.6	15.9	15.9	17.5	11.1	7.7

*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.

  - Bank loans
  - Private placements
  - Global fixed income
  - TIPS
- Risk-seeking in fixed income is not for all; some investors want to dial down the amount of risk their managers are taking, specifically credit.
- There is growing concern among investors about a market drawdown, given high valuations relative to historical averages.
- Hedge funds and other absolute return strategies may gain a new appreciation when compared to low fixed income expectations as a way to diversify growth risk with less of a return penalty.
- Real assets are under review with the growing concerns over inflation.
  - Will the inflation of the future come from the same sources as the global energy complex evolves?
  - Are investors hedging inflation or outperforming it?
- Investors are questioning the inclusion of past real assets stalwarts: natural resources, energy, MLPs, and commodities.

Corporate DB Plans

- Many are conducting asset/liability (A/L) studies.
- Lower return expectations stress their EROA assumptions, but the American Rescue Plan Act (ARPA) provides a shot in the arm to them: lower liabilities, higher funded status, and lower required contributions.

Public DB Plans

- These investors are also in the midst of numerous A/L studies.
- Low projected returns mean downward pressure on EROA assumptions. Weaker returns may derail the expressed desire to bring in risk, spurring further demand for alternatives exposures and leading to discussions of total fund leverage.

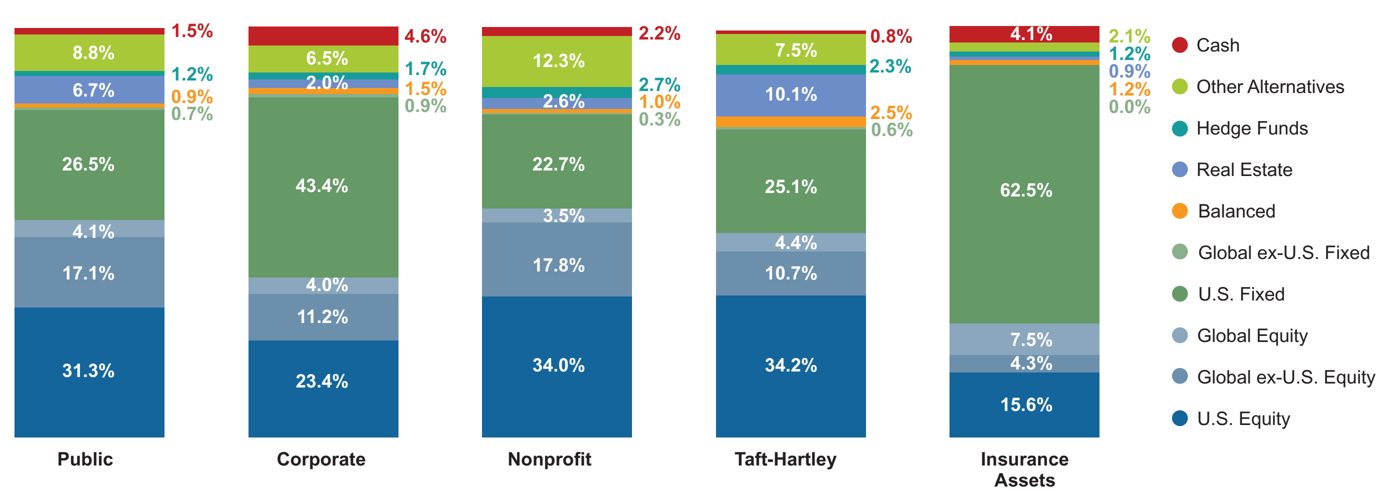
Defined Contribution Plans

- DC glidepaths are being reassessed due to lower short-term capital markets assumptions, with some glidepath managers risking up. The long-term equilibrium did not change, but it is coming from a lower starting point.
- Sponsors are starting to discuss retirement income as their plans mature.

Nonprofits

- Subdued expectations for capital markets returns are challenging both their risk tolerance and the sustainability of established spending rates.
- They are dissatisfied with private real assets, hedge funds, and fixed income; portfolio reconstruction is on the table.

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

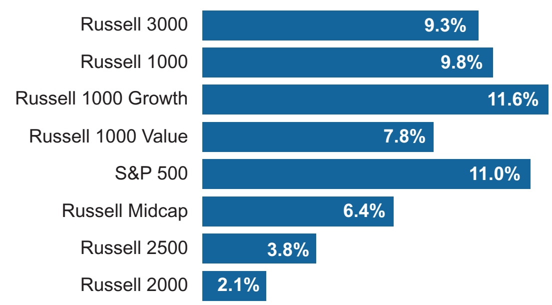
Returns grind higher despite mounting concerns

- S&P 500 posted a strong 11.0% gain in 4Q21; large cap growth (Russell 1000 Growth) was the top performer, which contrasted with the worst-performing asset class, small cap growth (Russell 2000 Growth: 0.0%).
- The new Omicron variant, continued supply chain disruptions, and renewed fears of persistent inflation pushed investors into the perceived safety of the largest stocks.
- S&P 500 sector results were mixed, with Real Estate (+17.5%) posting the top returns alongside Technology (+16.7%) and Materials (+15.2%); Communication Services (0.0%) and Financials (+4.6%) lagged broad returns.
- In 2021, small value outperformed small growth by over 2,500 bps (Russell 2000 Value: 28.3% vs. Russell 2000 Growth: 2.8%), a stark reversal from 2020 and a pattern consistent with periods of robust GDP growth.

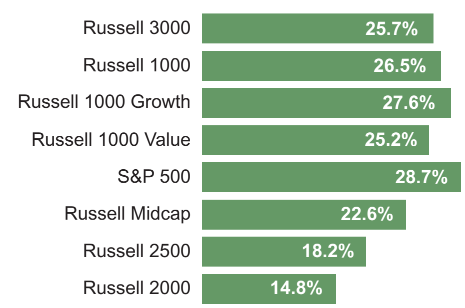
Index concentration driving positive returns…

- The 10 largest stocks in the S&P 500 comprised 30.5% of the index but accounted for 65% of the 2021 return.
- During 4Q21, top 10 weights accounted for ~40% of return.

U.S. Equity: Quarterly Returns



U.S. Equity: One-Year Returns



Sources: FTSE Russell and S&P Dow Jones Indices

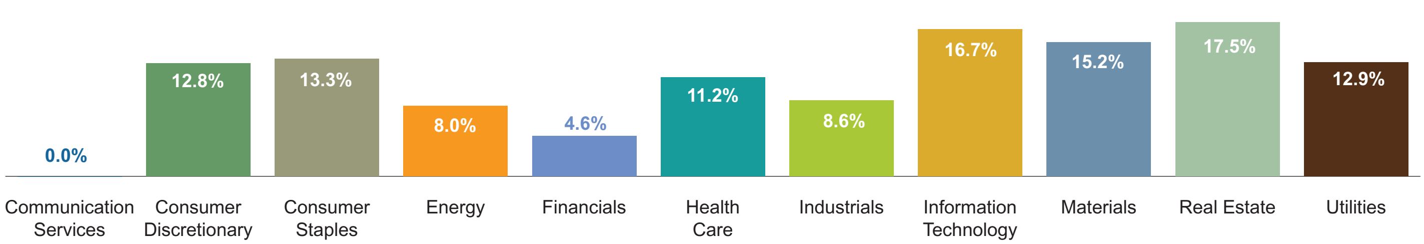
…but may be hiding underlying weakness

- Nearly 10% of Russell 3000 stocks fell by 35% or more in 2021, which is unusual for a year when market returns were in excess of 25%.

Market capitalization, style driving divergence in returns

- Mega-cap growth (Russell Top 200 Growth) was the strongest performer in both 4Q21 and 2021.
- Growth style returns highly correlated with market capitalization in both 4Q21 and 2021 (higher market capitalization = high return).
- Within micro-, small-, and smid-cap growth, Health Care (especially biotech/pharma) was biggest detractor to returns.
- Value returns correlated with market capitalization in 4Q21; for 2021, value returns did not experience much divergence.

Quarterly Performance of Industry Sectors



Source: S&P Dow Jones Indices

Global Equity

Omicron takes center stage

- A recovery-driven market shifted back to COVID favorites, boosting Information Technology stocks.
- Small cap underperformed large amid global growth concerns.
- Emerging markets struggled relative to developed markets as China experienced significant pressure from an economic slowdown and its regulatory crackdown.

Stalled recovery

- As the new variant took hold, Energy and Communication Services lagged on fear of restrained growth.
- Japan suffered from both supply chain issues and economic constraints from COVID-19.
- Growth and momentum factors outperformed in developed markets but not in emerging markets.

U.S. dollar vs. other currencies

- The U.S. dollar rose against other major currencies as tapering accelerated alongside the expectation for 2022 rate hikes, which notably detracted from global ex-U.S. results.

Growth vs. value

- Inflationary pressures and the ultimate rebound from COVID-19 supported value's leadership for the full year, despite the shift to growth in 4Q21.

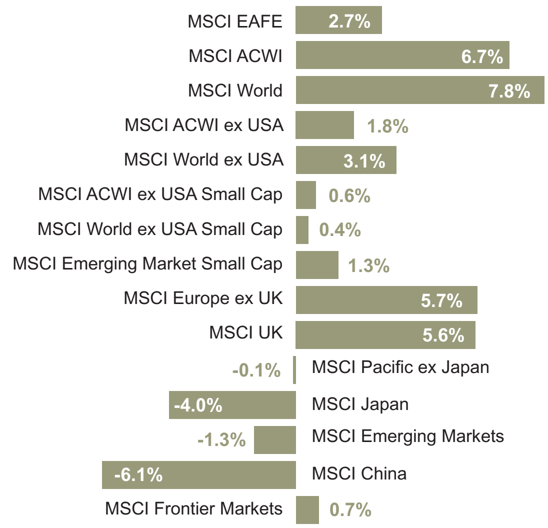
Regulation has spooked Chinese market

- Although regulation is not new in China, the duration, scope, and intensity of the current regime are unprecedented.
- Regulations have been centered on antitrust, financial markets, data/national security, and social welfare to enhance the sustainability of its economy.
- Regulatory uncertainty should subside as China focuses on implementation.

Inflation is expected to normalize in a few years

- Forecasted year-over-year core CPI is expected to reach its peak between 1Q22 and 2Q22.
- Inflationary environment by and large has shifted central banks to contractionary policy.

Global ex-U.S. Equity: Quarterly Returns (U.S. Dollar)



Global ex-U.S. Equity: One-Year Returns (U.S. Dollar)

Source: MSCI

Rise in inflation expectations tends to stoke value

- Correlation between cyclical sectors and inflation/interest rate expectations generally has been positive.
- Growth relative to value is more vulnerable as interest rates normalize.
- Global recovery from COVID and deficit in Energy should support value.

Fixed Income

U.S. Fixed Income

Treasury yields again unchanged

- 10-year at 1.52% at 9/30 and 12/31, up slightly from 1.45% on 6/30.
- TIPS outperformed nominal Treasuries and 10-year break-even spreads widened to 2.56%.
- Real yields remain solidly in negative territory.

Bloomberg Aggregate was flat, literally

- Spread sectors (Agencies, ABS, CMBS, MBS, and Credit) all underperformed UST by a modest amount (but positive YTD).
- Yield curve flattened; curve positioning had a meaningful impact on returns in 4Q.

High yield and leveraged performed relatively well

- Spreads remain near historic tights.
- High yield issuers' default rate declined to a record low in December (J.P. Morgan).
- New issuance hit a record for the second year in a row as issuers looked to finance at relatively low rates.

Munis outperformed Treasuries

- Lower-quality bonds continued their trend of outperformance as investors sought yield.

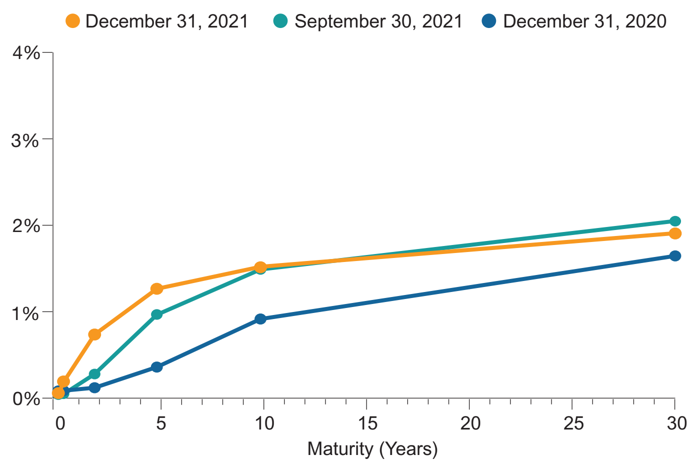
Inflation is being felt, indicated by several measures

- Annual CPI jumped to 7.0% in December—its eighth consecutive reading above 5% and the largest 12-month increase since the period ending June 1982.
- Increases for shelter and for used cars/trucks were the largest contributors to the seasonally adjusted all-items increase.
- Even service inflation, which had declined initially, has since recovered and is on an upward trend.

Fed has turned more hawkish than expected

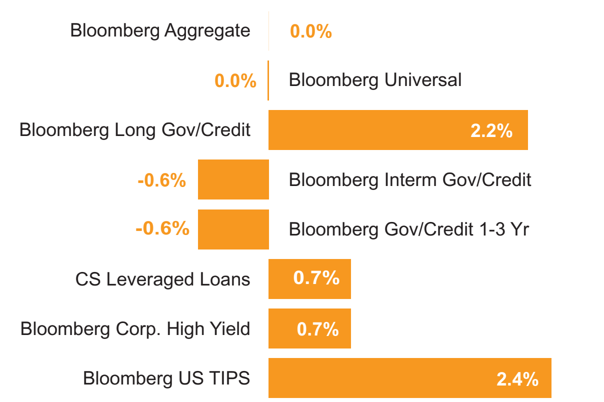
- Fed announced a doubling of the pace of tapering and an upward revision to the anticipated path of rate hikes.
- FOMC participants now expect three rate hikes in 2022 to bring the targeted range to 0.75%-1.0% by year-end.

U.S. Treasury Yield Curves



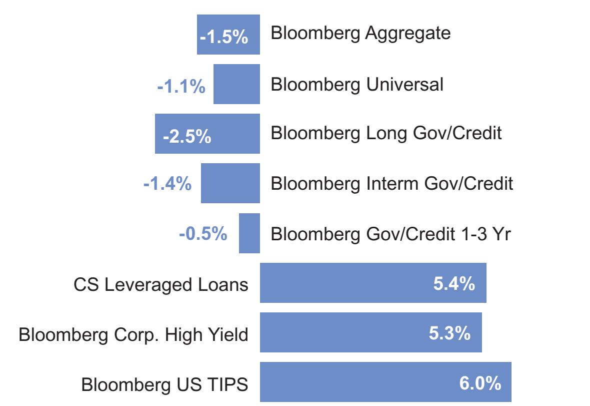
Source: Bloomberg

U.S. Fixed Income: Quarterly Returns



Sources: Bloomberg and Credit Suisse

U.S. Fixed Income: One-Year Returns



Sources: Bloomberg and Credit Suisse

Spreads have returned to tights

- Fundamentals remain strong and default expectations low.
- Revenue, profits, and free cash flow at or near cycle highs.
- Gross and net leverage trending lower while interest coverage trends higher.

Global Fixed Income

Flat on a hedged basis

- Returns were muted and U.S. dollar strength eroded returns for unhedged U.S. investors in both 4Q and 2021.
- Yen was a notable underperformer in developed markets, falling 10% for the year.

Emerging market debt posted negative returns

- Emerging market debt indices underperformed most other fixed income sectors in 2021.
- Currencies fared the worst vs. the U.S. dollar; the Turkish lira sank 44% on spiking inflation.

Global outlook may shift lower with regional variance

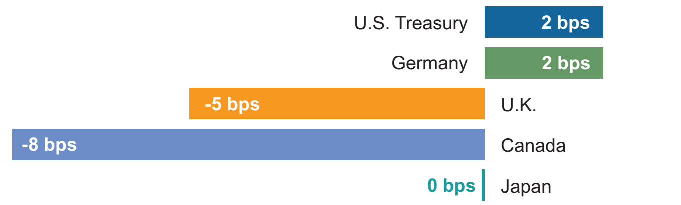
- Moderating and differentiated outlook for various regions reflects certain DM and EM economies shifting to tightening balanced by others managing legacy issues.

Central bank policy is mixed

- The U.K. has led the way with interest rate hikes as the BOE expects inflation to peak in April 2022.
- Europe and Japan continue to have below-target inflation and are expected to maintain relatively accommodating monetary policy.
- EM central banks, having moved early to battle inflation, may be moving to a more late-cycle posture.

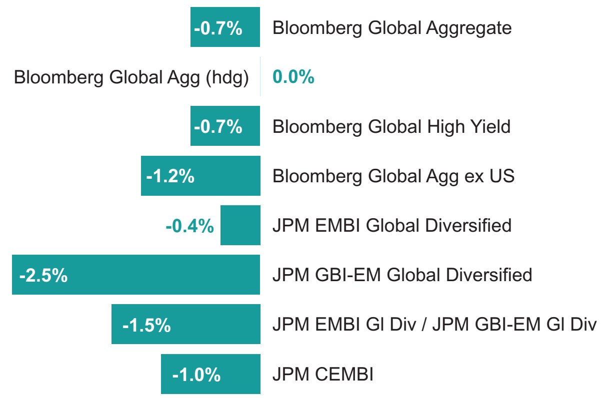
Change in 10-Year Global Government Bond Yields

3Q21 to 4Q21



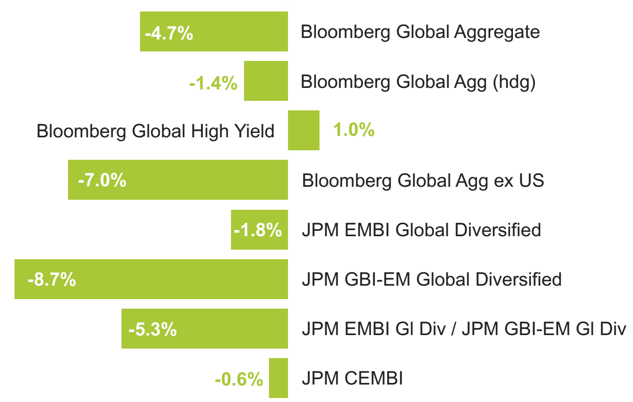
Source: Bloomberg

Global Fixed Income: Quarterly Returns



Sources: Bloomberg and JPMorgan Chase

Global Fixed Income: One-Year Returns



Sources: Bloomberg and JPMorgan Chase

Best Gain Ever for ODCE; U.S. REITs Top Stocks

REAL ESTATE/REAL ASSETS | Munir Iman

Strongest gains for ODCE ever

- The NCREIF Open End Diversified Core Equity (ODCE) Index posted its best return ever in 4Q21 (7.7%); Industrial was the best performer.
- Income returns were positive across sectors.
- Appraisers are pricing in a recovery due to strong fundamentals in Industrial and Multifamily.
- Return dispersion by manager within the ODCE Index was due to the composition of underlying portfolios.
- Niche sectors such as self-storage and life sciences continued to be accretive.

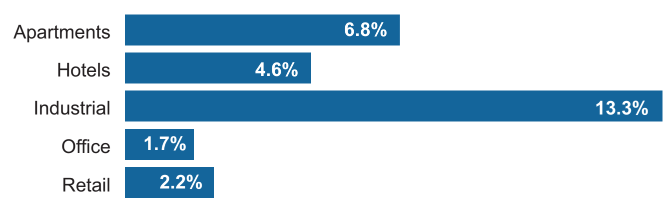
Compression in vacancy rates

- Vacancy rates kept compressing in Industrial and Multifamily as demand continued.
- Net operating income turned negative for Office as the Omicron variant delayed many return-to-work plans.
- 4Q21 rent collections were stable across all sectors.
- Demand outpaced supply as new construction of preleased Industrial and Multifamily occurred.

Global REITs and U.S. REITs outperform

- Global REITs outperformed in 4Q21, increasing 10.4% compared to 7.8% for global equities (MSCI World).
- U.S. REITs rose 16.3% in 4Q21, beating the S&P 500 Index, which gained 11.0%.
- Global REITs were trading below NAV, except for those in Australia, Japan, the United States, and Canada.
- Property sectors were mixed as out-of-favor sectors such as Office, Hotels, and Retail traded below NAV.
- Ongoing volatility in REIT share prices offers opportunities to purchase mispriced securities, individual assets from REIT owners, and discounted debt, as well as lend to companies and/or execute take-privates of public companies.

Sector Quarterly Returns by Property Type



Source: NCREIF

Callan Database Median and Index Returns* for Periods Ended 12/31/21

Private Real Assets	Quarter	Year to Date	1 Year	3 Years	5 Years	10 Years	15 Years
Real Estate ODCE Style	**4.5**	**18.5**	**18.5**	**7.9**	**7.8**	**9.4**	**5.8**
NFI-ODCE (value wt net)	7.7	21.1	21.1	8.2	7.7	9.4	5.8
NCREIF Property	6.1	17.7	17.7	8.4	7.8	9.3	7.2
NCREIF Farmland	3.8	7.8	7.8	5.2	5.7	9.7	10.6
NCREIF Timberland	4.6	9.2	9.2	3.7	3.6	5.3	5.1
Public Real Estate							
Global Real Estate Style	**10.5**	**28.5**	**28.5**	**16.1**	**11.0**	**11.0**	**5.5**
FTSE EPRA Nareit Developed	10.2	26.1	26.1	11.8	7.8	8.6	3.5
Global ex-U.S. Real Estate Style	**3.2**	**10.8**	**10.8**	**10.8**	**9.7**	**10.1**	**3.9**
FTSE EPRA Nareit Dev ex US	2.0	8.1	8.1	6.7	6.4	7.2	1.9
U.S. REIT Style	**15.9**	**42.8**	**42.8**	**20.9**	**12.4**	**12.4**	**7.9**
EPRA Nareit Equity REITs	16.3	43.2	43.2	18.4	10.8	11.4	6.9

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

A Big Bounce Back in 2021

PRIVATE EQUITY | Gary Robertson

Private equity has adapted well to the COVID environment with tremendous growth last year. On average, year-over-year transaction activity increased by 30% and dollar volumes by 70%.

Fundraising ▶ Based on preliminary data, in 2021 private equity partnerships holding final closes raised $815 billion across 2,368 partnerships (unless otherwise noted, all data is from PitchBook and 4Q numbers are very preliminary). The dollar amount is only 5% away from 2020's total, while the number of partnerships trails by 22%; both will exceed 2020 when final tallies are concluded. 4Q21 had final closes totaling $162 billion, up 5% from 3Q. The number of funds totaled 479, down 6%.

Buyouts ▶ New buyout investments for 2021 totaled 12,410, up 32% from 2020. Dollar volume increased 52% to $797 billion. 4Q saw 3,022 new investments, a 1% decrease from 3Q, and dollar volume fell 20% to $204 billion.

VC Investments ▶ The year produced 45,665 rounds of new investment in venture capital (VC) companies, up 13% from 2020. Announced volume of $710 billion was up a stunning 99%. 4Q saw 10,196 new rounds, an 11% decline from 3Q, and dollar volume rose 11% to $204 billion.

Exits ▶ Last year also saw 3,001 buyout-backed private M&A exits, up 31% from 2020, with proceeds of $692 billion, up 66%. 4Q had 755 private exits, down 3% from 3Q, with proceeds of $188 billion, down 11%. The year's 427 buyout-backed IPOs rose 150% from 2020, with proceeds of $132 billion, up 76%. 4Q IPOs numbered 112, unchanged from 3Q, but proceeds of $27 billion declined 16%.

Venture-backed M&A exits for the year totaled 3,080, up 40% from 2020. Announced dollar volume of $218 billion was up 63%. The final quarter had 739 exits, down 10% from 3Q, and value of $48 billion, down 24%. The year's 636 venture-backed IPOs rose 49% from 2020, with proceeds of $201 billion, up 179%. There were 162 in 4Q, a 16% jump from 3Q, and the $39 billion of proceeds rose 18%.

Funds Closed 1/1/21 to 12/31/21

Strategy	No. of Funds	Amt ($mm)	Share
Venture Capital	1,536	230,022	28%
Growth Equity	176	103,648	13%
Buyouts	463	354,739	44%
Mezzanine Debt	20	14,163	2%
Distressed	32	48,573	6%
Energy	5	2,129	0%
Secondary and Other	99	52,651	6%
Fund-of-Funds	37	8,691	1%
Totals	**2,368**	**814,616**	**100%**

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

Private Equity Performance (%) (Pooled Horizon IRRs through 9/30/21*)

Strategy	Quarter	1 Year	3 Years	5 Years	10 Years	15 Years	20 Years	25 Years
All Venture	7.2	76.0	36.3	27.5	20.6	15.6	11.5	23.8
Growth Equity	4.4	52.3	29.0	24.3	18.1	15.6	14.7	16.4
All Buyouts	4.4	42.8	21.8	20.2	16.1	12.6	14.2	13.7
Mezzanine	3.0	22.2	11.8	12.4	12.2	11.0	10.5	10.4
Credit Opportunities	2.1	21.7	7.0	8.8	9.9	9.0	9.9	9.9
Control Distressed	7.2	42.6	16.6	14.3	13.5	10.8	11.7	11.9
All Private Equity	**5.1**	**49.8**	**24.8**	**21.4**	**16.7**	**13.3**	**13.2**	**14.8**
S&P 500	0.6	30.0	16.0	16.9	16.6	10.4	9.5	9.7
Russell 3000	-0.1	31.9	16.0	16.9	16.6	10.4	9.8	9.7

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

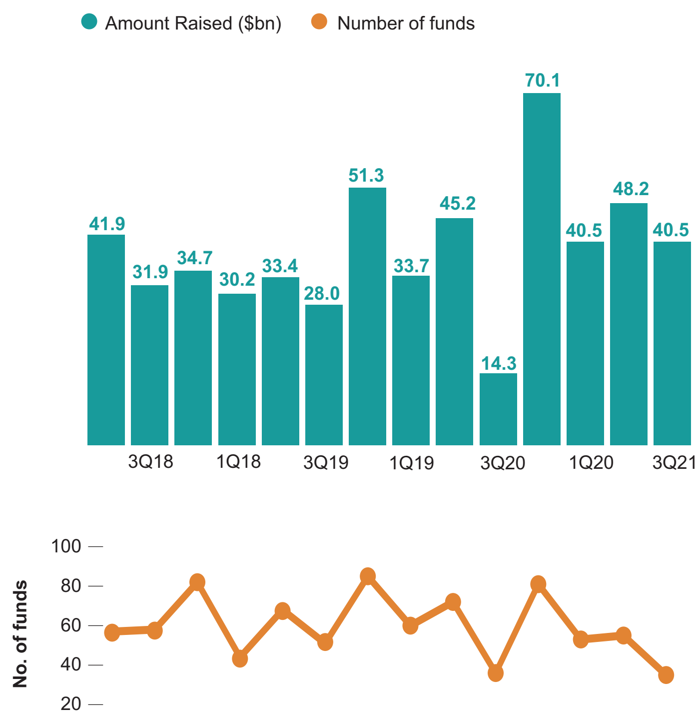
Note: Transaction count and dollar volume figures across all private equity measures are preliminary figures and are subject to update in subsequent versions of the *Capital Markets Review* and other Callan publications.

Strong Demand Due to Focus on Yield/Income

PRIVATE CREDIT | Catherine Beard

- The yield and income-generating characteristics of private credit remain attractive in a low-rate environment.
- In addition, many direct lending assets employ a floating rate, which can add protection against rising rates.
- Direct lending pricing is back to pre-COVID levels; portfolios were resilient during the COVID dislocation due to liquidity injected into the U.S. economy.
- That liquidity has also limited U.S. corporate stress and has muted the corporate distressed opportunity set.
- Opportunities within private credit include those that offer diversification through differentiated collateral and/or low correlation to public markets, including specialty finance, asset-backed lending, and niche areas (life science lending and intellectual property).
- Private credit performance varies across sub-asset class and underlying return drivers. On average, the asset class has generated net IRRs of 8% to 10% for trailing periods ended Dec. 31, 2020. Higher-risk strategies performed better than lower-risk strategies.
- Private credit fundraising tapered off in 3Q20 due to COVID-related disruption; it significantly rebounded in 4Q20 and the first half of 2021.
- There was strong fundraising activity in 2021 for senior debt and mezzanine capital, with a ramp-up in specialty finance, asset-backed lending, and venture debt.
- There has also been continued strong PC fundraising activity from large credit shops as well as new offerings from traditional fixed income managers.
- Consolidation is ramping up, with large traditional firms acquiring alternative credit managers, such as T. Rowe Price buying Oak Hill Advisors.

Private Credit Fundraising ($bn)



Source: Preqin

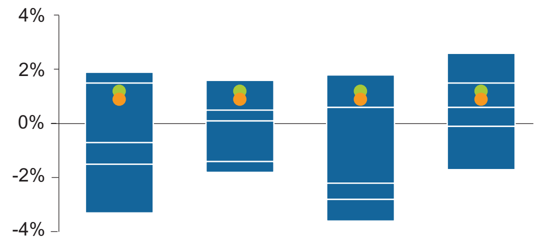
Hedge Funds Ended the Year on a Positive Note

HEDGE FUNDS/MACs | Joe McGuane

The fourth quarter saw a resurgence of COVID as the highly transmissible Omicron variant produced another wave of infections around the world, disrupting the positive momentum markets had experienced up to that point. Supply chain constraints continued, as service sectors were impacted by the new variant, and rising input prices persisted throughout the quarter. Further exacerbating markets were the hawkish comments made by Fed Chair Powell, opening the door to more aggressive tapering and rate increases next year. The confluence of a spike in COVID and the Fed now worried about curbing high inflation called into question the strength of economic growth moving forward. Investors grew concerned as they reassessed the probability of tighter monetary policy.

Despite increased market volatility during the final two months of the year, the S&P 500 (+11%) ended the quarter positive, with investors showing no sign of distress. This

Hedge Fund Style Group Returns



	Absolute Return FOF	Core Div. FOF	Long/Short Equity FOF	Institutional Hedge Funds
10th Percentile	1.90	1.60	1.80	2.60
25th Percentile	1.50	0.50	0.60	1.50
Median	-0.70	0.10	-2.20	0.60
75th Percentile	-1.50	-1.40	-2.80	-0.10
90th Percentile	-3.30	-1.80	-3.60	-1.70
CS Hedge Fund	0.9	0.9	0.9	0.9
90-Day T-Bill +5%	1.2	1.2	1.2	1.2

Sources: Callan, Credit Suisse, Federal Reserve

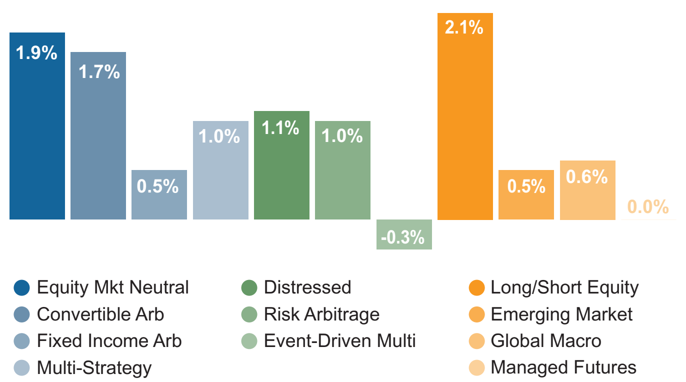
Callan Peer Group Median and Index Returns* for Periods Ended 12/31/21

Hedge Fund Universe	Quarter	1 Year	3 Years	5 Years	10 Years	15 Years
Callan Institutional Hedge Fund Peer Group	**0.6**	**9.3**	**6.4**	**5.4**	**6.1**	**7.0**
Callan Fund-of-Funds Peer Group	**-0.6**	**5.2**	**8.9**	**5.9**	**5.7**	**4.8**
Callan Absolute Return FOF Style	**-0.7**	**5.6**	**7.1**	**4.8**	**4.7**	**3.9**
Callan Core Diversified FOF Style	**0.1**	**6.2**	**8.5**	**5.7**	**5.5**	**4.4**
Callan Long/Short Equity FOF Style	**-2.2**	**3.3**	**12.6**	**8.3**	**7.1**	**5.5**
BB GS Cross Asset Risk Premia 6% Vol Idx	-2.7	-0.5	1.4	1.9	3.7	5.2
Credit Suisse Hedge Fund	0.9	8.2	8.0	5.5	4.9	4.3
CS Convertible Arbitrage	1.7	6.3	8.2	5.4	4.6	4.3
CS Distressed	1.1	12.5	5.8	4.6	5.3	4.2
CS Emerging Markets	0.5	5.2	10.2	7.1	6.0	4.8
CS Equity Market Neutral	1.9	6.2	3.1	2.5	1.8	-1.2
CS Event-Driven Multi	-0.3	13.9	10.7	6.4	5.2	4.6
CS Fixed Income Arb	0.5	5.2	5.0	4.5	4.6	3.8
CS Global Macro	0.6	9.6	8.8	5.6	4.4	5.8
CS Long/Short Equity	2.1	8.4	9.4	7.2	6.7	5.1
CS Managed Futures	0.0	8.2	6.3	3.0	1.8	2.8
CS Multi-Strategy	1.0	7.0	6.6	5.1	6.2	5.2
CS Risk Arbitrage	1.0	5.3	8.6	6.3	4.4	4.3
HFRI Asset Wtd Composite	1.3	7.5	5.7	4.6	4.6	--
90-Day T-Bill + 5%	1.2	5.1	6.0	6.1	5.6	5.9

*Net of fees. Sources: Bloomberg GSAM, Callan, Credit Suisse, Hedge Fund Research equity market surge was aided by strength in U.S. mega caps, while risker equities underperformed in December, particularly within areas of technology such as software, fintech, and electric vehicles, all of which cooled off dramatically. U.S. small cap equities underperformed large cap due to worries around future growth. The Bloomberg High Yield Index ended the quarter higher (+0.7%), as the U.S. yield curve flattened throughout the quarter, driven by concerns for future growth amid expected tightening policies from central banks.

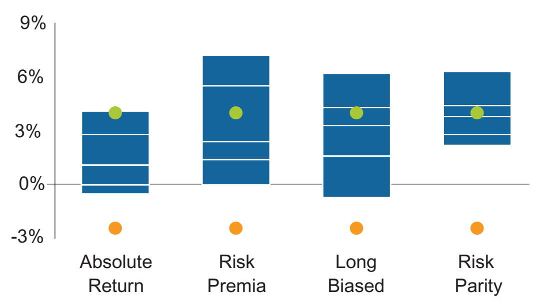
Representing hedge funds reporting performance without implementation costs, the HFRI Fund Weighted Composite

Credit Suisse Hedge Fund Strategy Returns



Source: Credit Suisse

MAC Style Group Returns



	Absolute Return	Risk Premia	Long Biased	Risk Parity
10th Percentile	4.10	7.20	6.20	6.30
25th Percentile	2.80	5.50	4.30	4.40
Median	1.10	2.40	3.30	3.80
75th Percentile	0.00	1.40	1.60	2.80
90th Percentile	-0.50	0.00	-0.70	2.20
BB GS Cross Asset Risk Premia (6%v)	-2.7	-2.7	-2.7	-2.7
60% MSCI ACWI/ 40% Bloomberg Agg	4.0	4.0	4.0	4.0

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

Index gained 0.4% in 4Q. Within the HFRI indices, the best-performing strategy was Event Driven (+1.5%), as an abundance of corporate activity created alpha opportunities. Equity hedge ended higher (+0.8%), when value positioning paid off. Macro strategies had a difficult quarter (-0.5%), after interest rate volatility went against some manager positions.

Across the Callan Hedge FOF Database, the median Absolute Return FOF lost 0.7%. With exposures to non-directional and directional styles, the Core Diversified FOF rose 0.7%. Long/Short Equity FOF was negative at 2.2%, after a difficult December where growth equities sold off aggressively. Serving as a proxy for large, broadly diversified hedge funds with low-beta exposure to equity markets, the median Callan Institutional Hedge Fund Peer Group added 0.6%.

Since the Global Financial Crisis, liquid alternatives to hedge funds have become popular for their attractive risk-adjusted returns uncorrelated with stock and bond investments but offered at a lower cost. Much of that interest is focused on rules-based, long-short strategies that isolate risk premia such as value, momentum, and carry. These alternative risk premia are often embedded in hedge funds as well as other actively managed investment products.

In 4Q, the Bloomberg GSAM Risk Premia Index decreased 2.7% based upon a 6% volatility target. Within the underlying styles of the index, Equity Low Risk L/S (+5.9%) and Equity Trend (+1.6%) ended the quarter in positive territory as growth sold off relative to value in December. Equity Momentum (-4.8%) and FX Carry (-3.0%) had a difficult quarter as market volatility was elevated throughout the final month of the year.

The median managers of the Callan Multi-Asset Class (MAC) Style Groups generated gains gross of fees. The Callan Risk Premia MAC rose 2.4% based on its exposures to uncorrelated style premia targeting 5% to 15% portfolio volatility. The Callan Risk Parity MAC, which typically targets an equal risk-weighted allocation to the major asset classes with leverage, was up 3.8%. As the most conservative MAC style focused on non-directional strategies of long and short asset class exposures, the Callan Absolute Return MAC gained 1.1%.

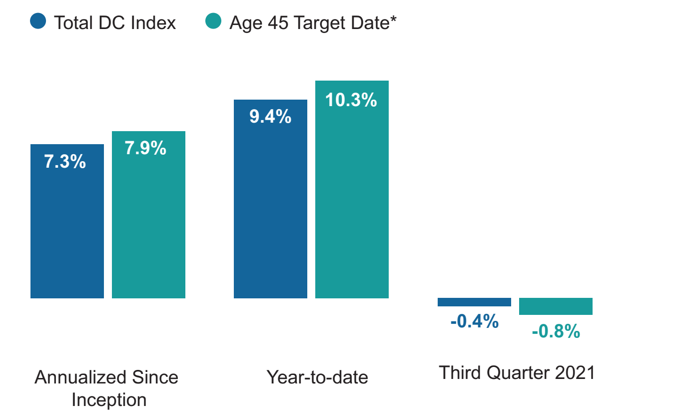
Index Declines Slightly in 3Q21, First Time Since 1Q20

DEFINED CONTRIBUTION | Patrick Wisdom

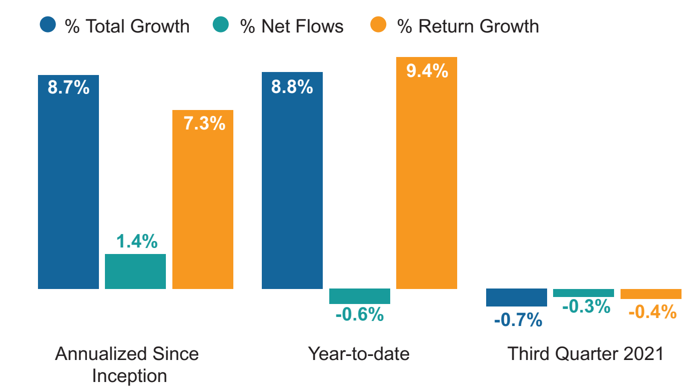
- The Callan DC Index™ fell 0.4% in 3Q21, the first decline since the pandemic-induced 15.0% 1Q20 plunge.
- The Age 45 Target Date Fund (analogous to the 2040 vintage) had a slightly lower return (-0.8%), attributable to its higher allocation to equity, which underperformed fixed income during the quarter.
- Balances within the DC Index declined by 0.7%. Investment returns (-0.4%) and net flows (-0.3%) both contributed to the lower aggregate balances.
- For the third straight quarter, target date funds received the largest net inflows, at 75.6% for the quarter.
- In a reversal from 2Q21, investors transferred assets into money market funds (13.1%). U.S. fixed income (-2.4%) had net outflows, albeit to a much smaller degree than the previous quarter (-17.7%).
- U.S. equity saw material net outflows, as U.S. large cap (-54.2%) and U.S. small/mid cap (-21.8%) drained assets. Global ex-U.S. equity (-1.0%) had smaller net outflows.
- Real return/TIPS also had larger-than-typical net inflows (4.8%), perhaps an indication that more participants are looking to hedge potential inflation.
- Turnover (i.e., net transfer activity levels within DC plans) decreased in 3Q to 0.19% from 2Q's measure of 0.37%.
- The Index's overall allocation to equity (72.23%) increased by 3 basis points.
- In a reversal from the previous quarter, U.S. small/mid cap (8.3%) had the largest percentage decrease in allocation.
- Company stock (2.5%) had the largest percentage increase in allocation.
- For plans with more than $1 billion in assets, the average asset-weighted investment management fee decreased by 1 basis point. Plans with assets between $500 million and $1 billion also saw a fee decrease of 1 basis point, while the fee for plans with assets less than $500 million had the largest decrease of 3 basis points.

The Callan DC Index is an equally weighted index tracking the cash flows and performance of over 100 plans, representing nearly $300 billion in assets. The Index is updated quarterly and is available on Callan's website.

Investment Performance



Growth Sources



Net Cash Flow Analysis (3Q21)
(Top Two and Bottom Two Asset Gatherers)

Asset Class	Flows as % of Total Net Flows
Target Date Funds	75.56%
Money Market	13.14%
U.S. Small/Mid Cap	-21.76%
U.S. Large Cap	-54.20%
Total Turnover**	**0.19%**

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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