First Quarter 2019

Capital Market Review

Callan Institute

Resilience in the Face of Uncertainty

ECONOMY

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Investor confidence has shifted wildly over the past six months. Markets swooned in the fourth quarter but rebounded in the first. GDP growth bounced back as well. Is everything fine again? Underneath the good news, there are signs we may be at the peak of the current cycle.

Equity Rebound Fuels Strong Returns

FUND SPONSOR

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After the drop in 2018, equity markets rebounded during the first quarter. Fund sponsors echoed that theme, producing strong results across the board. Funds continue to retain a strong tilt toward growth assets, with many citing the need to meet funding requirements.

U.S., Global Stocks See Big Bounce Back

EQUITY

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U.S. equity markets dramatically snapped back in the first quarter, driven by the Fed's unexpected dovish comments in January, solid corporate fundamentals, and low unemployment. Global equity markets were up in the first quarter following a sharp sell-off to end 2018.

Bonds Join the Rally in Global Markets

FIXED INCOME

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The first quarter's strong results recaptured most of the loss in the prior quarter for riskier U.S. fixed income. Developed market sovereign bonds rallied in tandem with Treasuries. Emerging market bonds also rebounded. Positive net inflows into the EM universe continued.

Real Estate Healthy; Real Assets Rebound

REAL ESTATE/REAL ASSETS

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The NCREIF Property Index, a measure of U.S. institutional real estate assets, gained 1.8% during the first quarter. REITs across the globe bounced back. Real assets of all varieties enjoyed a strong first quarter, with energy an especially big gainer.

Down for Now, but It's Just a 'Gully'

PRIVATE EQUITY

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Almost every private equity transaction measure in the first quarter was down substantially, with only fundraising dollar volume increasing. With the recovery in first quarter equity markets, we expect private equity to also shrug-off the "gully" as the year progresses.

Hedge Funds Mixed; Some MACs Thrive

HEDGE FUNDS/MACs

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The Credit Suisse Hedge Fund Index gained 4.0% in the first quarter, and the Callan Hedge Fund-of-Funds Database Group rose 3.6%. The Callan Multi-Asset Class (MAC) Style Groups showed positive but widely diverging results, with the overall group up 6.7%.

DC Index Limps to the Finish Line

DEFINED CONTRIBUTION

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The Callan DC Index™ fell 4.9% in 2018, but it outperformed the typical Age 45 Target Date Fund for the year by over 2 percentage points. For the first time in the history of the DC Index, target date funds did not experience the largest inflows; instead, stable value funds did.

Broad Market Quarterly Returns

U.S. Equity Russell 3000	Non-U.S. Equity MSCI ACWI ex USA	U.S. Fixed Income Bloomberg Barclays Agg	Non-U.S. Fixed Income Bloomberg Barclays Gbl ex US
14.0%	10.3%	2.9%	1.5%

Sources: Bloomberg Barclays, FTSE Russell, MSCI

Resilience in the Face of Uncertainty

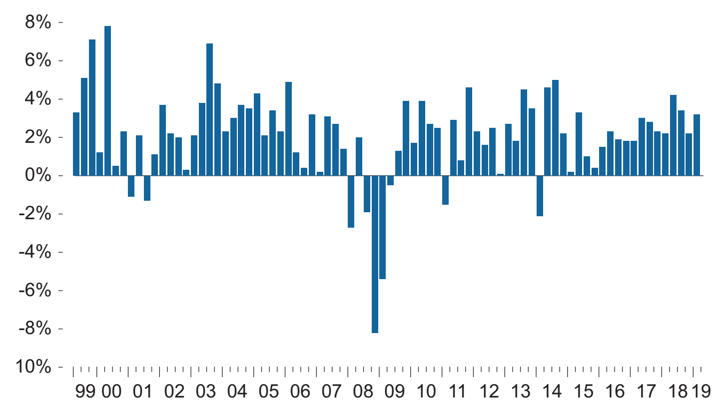
ECONOMY | Jay Kloepfer

Investor confidence has shifted wildly over the past six months. Anxiety, panic, and gloom pushed equity markets down around the globe through the last three months of 2018, culminating in one of the worst Decembers in decades. The pessimism derailed global interest rate policy. The central banks in the euro zone had yet to join the U.S. in reversing years of monetary easing, and they may now skip this cycle of tightening altogether. The Fed pressed "pause" on its own tightening plan in January after nine rate hikes. The equity markets then surged during the first quarter of 2019, moving back toward the all-time high set last October, and volatility evaporated.

What changed in the fall of 2018 and then in the first quarter of 2019 to cause this whipsaw of sentiment? U.S. GDP growth softened in the fourth quarter to a still healthy 2.2%, but then notched a surprisingly strong 3.2% increase in the first quarter. This robust gain is a sign of resilience in the face of the fourth quarter market swoon and the uncertainty generated by the government shutdown in January of this year. The increase also reversed a pattern in recent years of inexplicably slower growth in first quarter GDP. The solid GDP report was accompanied by a surge in durable goods orders reported in March, strong exports, sustained job growth, and of course the reversal of the fourth quarter stock market slump.

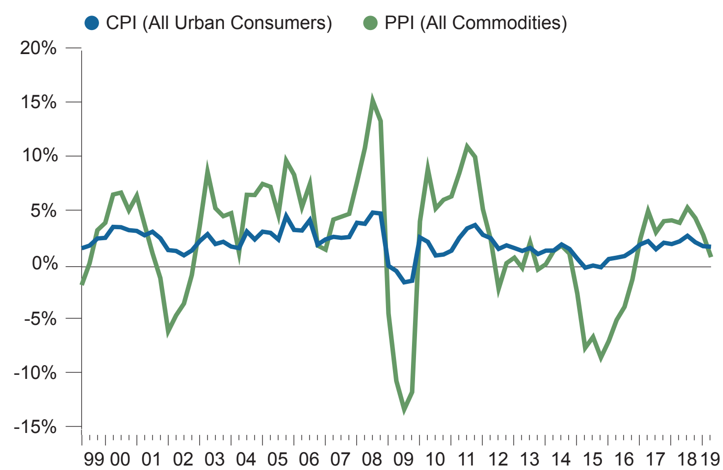
All of the sudden, everything is fine again. Or is it? Underneath all the good news, there are signs that we may be at the peak of the current economic cycle. More than half of the robust first quarter GDP gain came from net exports and inventory accumulation. Greater investment in inventories now, which adds to GDP, means less investment in the future. Exports rose and imports slumped; both are positive contributions to GDP but neither may be sustainable. Final sales to domestic purchasers, which excludes both trade and inventory building, rose at a more modest 1.4% rate, down from a 2.1% gain in the fourth quarter. Personal consumption inched up 1.2%, less than half the growth rate enjoyed over the year in 2018. To be fair, the weakness in these quarterly data appears to have been concentrated at the start of the year, and the reports for many indicators showed a big bounce in March.

Quarterly Real GDP Growth (20 Years)



Source: Bureau of Economic Analysis

Inflation Year-Over-Year



Source: Bureau of Labor Statistics

On the positive side of the ledger, the government shutdown in January had a temporary effect, shifting the timing of activity and employment, but the net impact should be minimal. The job market saw a sharp drop in February, to just 33,000 new jobs, only to see a snap back to 196,000 in March. The average gain for the first three months was 180,000, lower than the average for last year but substantially above the bellwether mark of 100,000 per month required to keep the economy growing. Manufacturing employment in the U.S. declined in the first quarter, despite the residual strength in capital goods orders. While both the Markit manufacturing and services PMIs slipped in the first quarter, they remain above readings of 50, the dividing line between expansion and contraction. Of particular interest is the eye-catching rebound in China's manufacturing PMI, which jumped from a borderline reading of 50 to 58 in March.

The narrative has changed sharply since the nadir of December 2018. The stock market slump reversed, credit spreads have narrowed, and the potential for the yield curve to steepen has returned. The rebound in GDP and durable goods orders in March, the resilience of the job market, and the gain in net exports reinforce the perception that we are poised to see economic growth reaccelerate in the second quarter. Not all the indicators suggest good news, however. Oil prices have rebounded, driving up gasoline prices and crimping household disposable income. Home price gains, which have an attendant wealth effect typically more widespread and powerful than the wealth effect from the equity market, are slowing. Finally, the continuing strength of the dollar adds to the headwinds facing manufacturing.

Trade and trade policy dominates headlines, but it is worth noting that the impact of trade in the U.S. is far lower than in most of our trading partners, both developed and emerging. One measure is the trade-to-GDP ratio, the sum of exports and imports as a percentage of GDP. (Note that exports add to GDP while imports subtract from GDP, but the sum of their share of GDP is a reasonable measure of the impact of total trade activity on an economy.) Exports and imports include both goods and services. Trade has certainly become a larger component of U.S. GDP over time, with exports rising from 7% in 1985 to 12.3% in 2018 while imports rose from 9% to 15.5%. Trade activity now involves 27.8% of U.S. GDP. By comparison, the World Bank calculates that trade accounts for 37.8% of China GDP, 62.5% for the U.K., 77.6% for Mexico, and 87% for Germany.

The Long-Term View

Index	2019 1st Qtr	Periods ended Dec. 31, 2018 Year	5 Yrs	10 Yrs	25 Yrs
U.S. Equity					
Russell 3000	14.04	-5.24	7.91	13.18	9.04
S&P 500	13.65	-4.38	8.49	13.12	9.07
Russell 2000	14.58	-11.01	4.41	11.97	8.28
Non-U.S. Equity					
MSCI EAFE	9.98	-13.79	0.53	6.32	4.63
MSCI ACWI ex USA	10.31	-14.20	0.68	6.57	--
MSCI Emerging Markets	9.93	-14.57	1.65	8.02	--
MSCI ACWI ex USA Small Cap	10.26	-18.20	1.96	10.02	--
Fixed Income					
Bloomberg Barclays Agg	2.94	0.01	2.52	3.48	5.09
90-Day T-Bill	0.60	1.87	0.63	0.37	2.55
Bloomberg Barclays Long G/C	6.45	-4.68	5.37	5.88	6.82
Bloomberg Barclays Gl Agg ex US	1.52	-2.15	-0.01	1.73	4.39
Real Estate					
NCREIF Property	1.80	6.72	9.33	7.49	9.34
FTSE Nareit Equity	16.33	-4.62	7.90	12.12	9.76
Alternatives					
CS Hedge Fund	3.99	-3.19	1.66	5.10	7.27
Cambridge PE*	-0.53	10.61	11.94	13.76	15.20
Bloomberg Commodity	6.32	-11.25	-8.80	-3.78	2.03
Gold Spot Price	1.34	-2.14	1.28	3.78	4.85
Inflation – CPI-U	1.18	1.91	1.51	1.80	2.20

*Data for most recent period lags by a quarter. Data as of December 31, 2018.
Sources: Bloomberg, Bloomberg Barclays, Bureau of Economic Analysis, Credit Suisse, FTSE Russell, MSCI, NCREIF, Standard & Poor's, Refinitiv/Cambridge

Recent Quarterly Economic Indicators

	1Q19	4Q18	3Q18	2Q18	1Q18	4Q17	3Q17	2Q17
Employment Cost–Total Compensation Growth	2.8%	2.9%	2.8%	2.8%	2.7%	2.6%	2.5%	2.4%
Nonfarm Business–Productivity Growth	3.6%	1.3%	1.9%	2.9%	0.7%	-0.3%	2.3%	1.7%
GDP Growth	3.2%	2.2%	3.4%	4.2%	2.2%	2.3%	2.8%	3.0%
Manufacturing Capacity Utilization	76.6%	77.0%	76.9%	76.4%	76.1%	75.8%	74.9%	75.2%
Consumer Sentiment Index (1966=100)	94.5	98.2	98.1	98.3	98.9	98.4	95.1	96.4

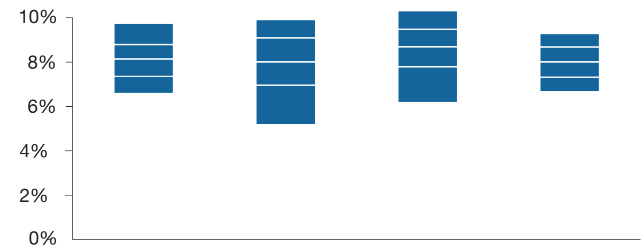
Sources: Bureau of Economic Analysis, Bureau of Labor Statistics, Federal Reserve, IHS Economics, Reuters/University of Michigan

Equity Rebound Fuels Returns

FUND SPONSOR

- A quarterly rebalanced 60% S&P 500/40% Bloomberg Barclays Aggregate portfolio rose 7.5% over the one-year period ending March 31, topping all major fund sponsor categories. The Callan Total Fund Sponsor Database Group rose 3.8% over that same period.
- Both U.S. and non-U.S. equity markets fell during 2018 but rebounded during the first quarter of 2019. Fund sponsors echoed that theme, producing strong results across the board, topped by nonprofits (+8.7%).
- Over longer periods, fund sponsor returns were roughly in line with the equity-fixed income mix, with the Total Fund Sponsor Group gaining 6.5% over the last 15 years compared to 6.9% for the 60-40 index.
- Current equity exposure levels may cause concern among sponsors, leading some to seek further diversification opportunities, including diversifying cap-weighted equity with factor strategies and employing more conservative equity.
- Many sponsors' current strategic positioning remains unchanged but is actively monitored. Key questions being considered include:
  - What is the role of fixed income in a total return portfolio?
  - As cost pressure continues to drive passive implementation, how should passive strategies be employed across asset classes?

Callan Fund Sponsor Returns for the Quarter

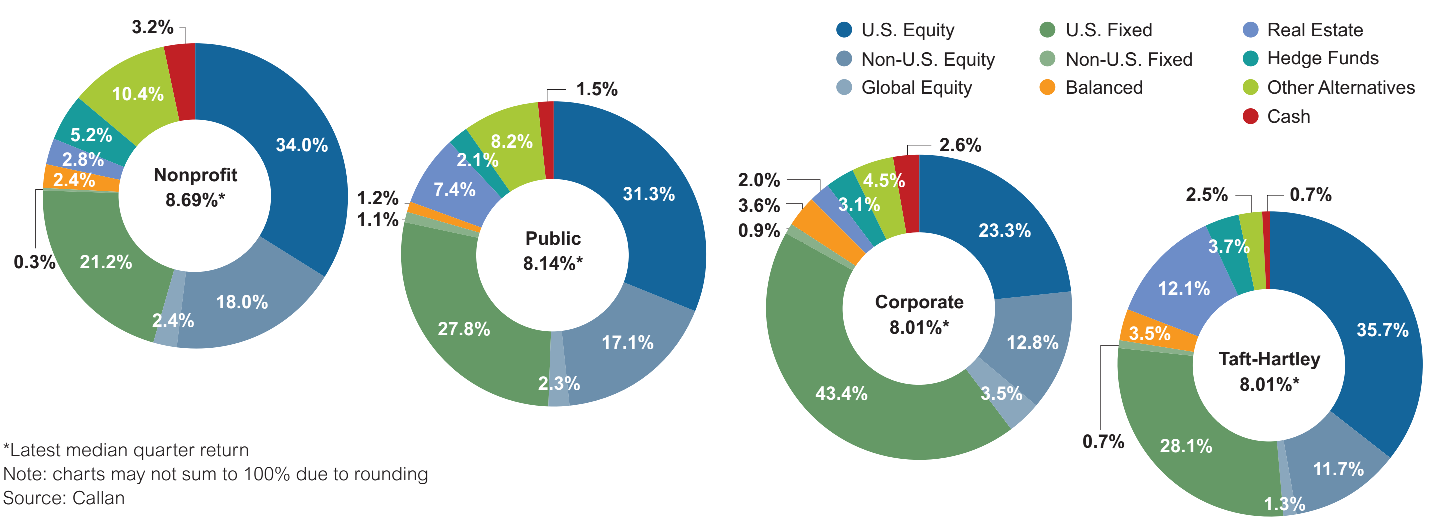


	Public Database	Corporate Database	Nonprofit Database	Taft-Hartley Database
10th Percentile	9.8	9.9	10.3	9.3
25th Percentile	8.8	9.1	9.5	8.7
Median	8.1	8.0	8.7	8.0
75th Percentile	7.4	7.0	7.8	7.3
90th Percentile	6.6	5.2	6.2	6.7

Source: Callan

- Plans continue to retain a strong tilt toward growth assets (at least 70% in some cases and as high as 90% in others), with many plans citing the need to meet funding requirements. This has coincided with a refined definition of growth to include high yield, convertibles, low-volatility equity, hedge funds, multi-asset class strategies, and option-based strategies.

Callan Fund Sponsor Average Asset Allocation



*Latest median quarter return
Note: charts may not sum to 100% due to rounding
Source: Callan

- Sponsors face continued fee pressure. Fund sponsor clients are focusing on fee studies, reviews of institutional vehicles, the addition of advisory services and/or vendor reviews, and evaluations of the fund structure lineup.
- Sponsors face challenges in setting capital market expectations in a volatile market environment. Where should they start? What is the time horizon? Does valuation matter? At what interest rate? Discipline in the face of uncertainty is difficult. In addition, interest rate volatility wreaks havoc with liability-driven investing glidepaths.
- The first quarter is the season for asset-liability reviews. Among the subjects being discussed:
  - Proper time horizon for the return on assets (ROA) for a public plan
  - Tension between 10-year assumptions and “equilibrium” assumptions
  - Concern about high risk exposure but resistance to de-risking when a shorter horizon ROA is less than the public plan’s ROA
- Corporate plans moving down de-risking glidepaths are reconsidering their equity structures. Growth exposure is typically concentrated in public equity. The focus is often on cost, full diversification to equity beta in the context of liability-driven investing, implementation, and whether equity is the place to spend any active management budget.
- These same corporate plans are examining their fixed income structures at both the current point in time and as they prepare to further de-risk once they move down their glidepaths. Plans expect to move from off-the-shelf, long government/credit exposures to custom portfolios that match their interest rate and credit spread exposures.

Callan Database Median and Index Returns* for Periods ended March 31, 2019

Fund Sponsor	Quarter	Year	3 Years	5 Years	10 Years	15 Years
Public Database	8.14	3.97	8.60	6.14	9.99	6.54
Corporate Database	8.01	3.83	7.82	5.79	9.92	6.56
Nonprofit Database	8.69	3.28	8.51	5.68	9.89	6.56
Taft-Hartley Database	8.01	4.52	8.54	6.62	10.05	6.49
All Funds	8.26	3.83	8.39	5.99	9.95	6.54
Large (>$1 billion)	7.50	4.06	8.57	6.27	10.13	6.79
Medium ($100mm - $1bn)	8.26	3.85	8.40	6.01	9.92	6.44
Small (<$100 million)	8.55	3.68	8.24	5.77	9.76	6.37

*Returns less than one year are not annualized.

Source: Callan. Callan’s database includes the following groups: public defined benefit, corporate defined benefit, nonprofits, 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.

Global Equity

U.S. Equities

Equity markets dramatically snapped back in the first quarter, driven by the Fed's unexpected dovish comments in January, solid corporate fundamentals, and low unemployment.

Large Cap ► *S&P 500: +13.6% | Russell 1000: +14.0%*

- All sectors delivered double-digit gains with the exception of Financials (+8.6%) and Health Care (+6.6%).
- Consumers remain in good shape, with household debt service as a percentage of disposable income at the lowest level in decades.
- The risk-on market was highlighted by low quality (S&P ratings B or lower) outperforming high quality (B+ or higher) by 440 basis points.
- Surprisingly, Utilities and REITs produced double-digit returns; investors sought yield in the face of a flattening yield curve and the end to rate hikes in the first quarter.

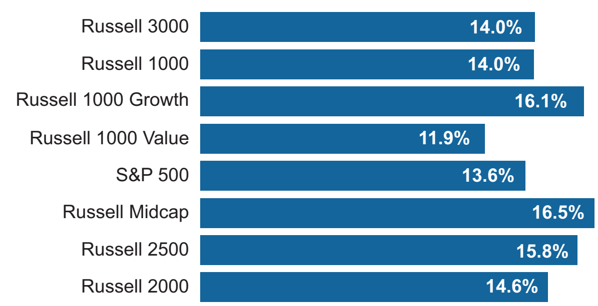
Small Cap ► *Russell 2000: +14.6% | Russell 2000 Growth: +17.1% | Russell 2000 Value: +11.9%*

- Within the **Russell 2000 Growth Index,** the three largest sectors (Health Care, Consumer Discretionary, and Technology) surged 19%, 17%, and 23%, respectively. Software and biotechnology both posted 25% gains in the quarter; combined they are more than 23% of the benchmark weight.
- Influenced by excessive fourth quarter tax-loss selling, the market experienced a strong "January effect"—where last year's losers became January 2019's winners.

Growth vs. Value ► *Russell 1000 Growth: +16.1% | Russell 1000 Value: +11.9%*

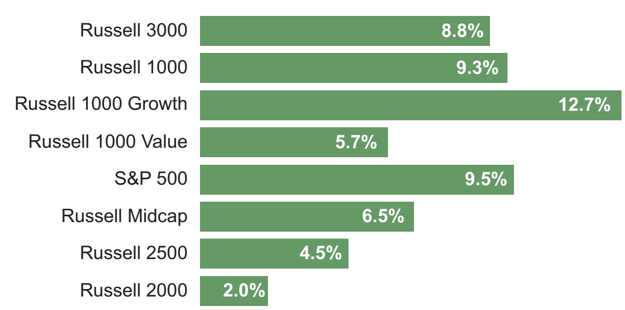
- The sharp change in Fed rhetoric influenced the stronger performance of growth stocks over value stocks during the quarter. Investors favored companies with stronger earnings prospects to counter a softer economic environment.
- Technology produced strong results, while the outlook for Financials weakened as the yield curve flattened.

U.S. Equity: Quarterly Returns



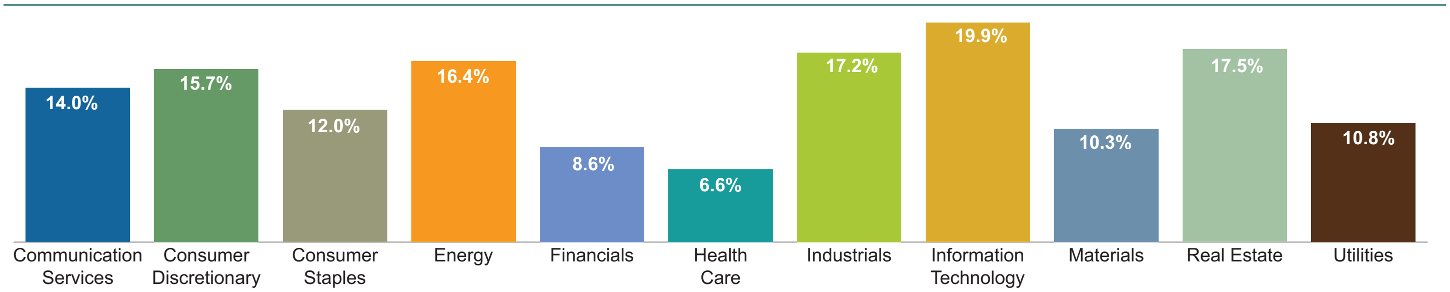
Sources: FTSE Russell and Standard & Poor's

U.S. Equity: One-Year Returns



Sources: FTSE Russell and Standard & Poor's

Quarterly Performance of Industry Sectors



Source: Standard & Poor's

Non-U.S./Global Equity

Global equity markets were positive in the first quarter following a sharp sell-off to end 2018. Investors resumed a risk-on outlook as central banks telegraphed more accommodative positioning. Delayed outcomes regarding U.S./China trade talks and Brexit negotiations allowed markets to stabilize, although uncertain outcomes remain a future risk.

Developed ► *MSCI EAFE: +10.0% | MSCI Europe: +10.8% | MSCI World ex USA: +10.4% | MSCI Japan: +6.7%*

- Developed markets rallied as central banks around the world expressed more accommodative paths with interest rates and quantitative easing.
- Brexit negotiations continue and a "no-deal" Brexit remains a possibility, but with an extended deadline. The potential for investment paralysis drags on.
- European PMI continued to deteriorate, falling to 47.7 in March from 49.4.
- The currency effect was mixed as the U.S. dollar rose against the euro and yen, by 1.8% and 0.9%, but fell against the British pound by 2.3% as a delay in Brexit allowed for a temporary bounce.
- EAFE sector performance was mixed. Information Technology (+15.3%) and Materials (+13.2%) led economically sensitive sectors; Consumer Staples (+12.4%) led defensive sectors. Interest rate-sensitive Financials (+6.9%) and Utilities (+9.0%) trailed the broad index.
- Factor performance favored growth (historical and projected) while value factors were generally negative.

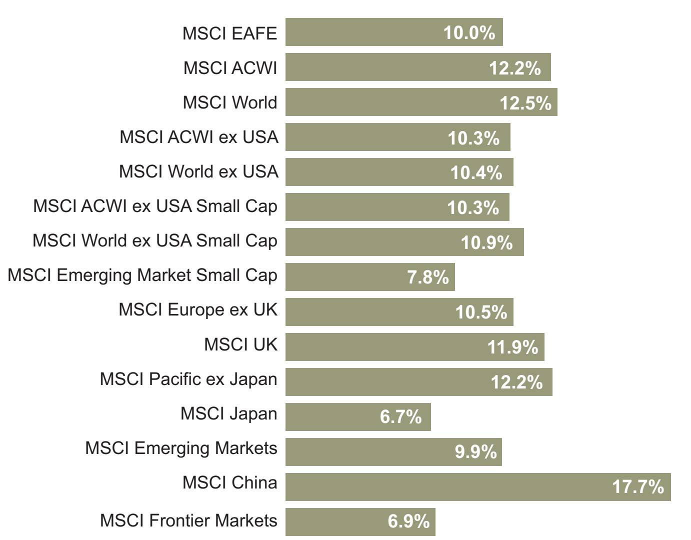
Emerging Markets ► *MSCI Emerging Markets Index: +9.9%*

- In a big reversal from the fourth quarter, China led emerging markets with **MSCI China** gaining 17.7% and **MSCI China A** up 30.9%.
- Trade talks continue but positive indications for a deal buoyed markets; uncertainty on the outcome remains.
- Asian Information Technology rebounded nicely with Chinese IT (+27.6%) leading the sector. An improving outlook on Chinese consumption positively influenced EM Consumer Discretionary (+20.8%), which was the top-performing sector.
- Growth led value with **MSCI Emerging Markets Growth** gaining 12.0% and EM Value up 7.8%.

Non-U.S. Small Cap ► *MSCI World ex USA Small Cap: +10.9% | MSCI EM Small Cap: +7.8%*

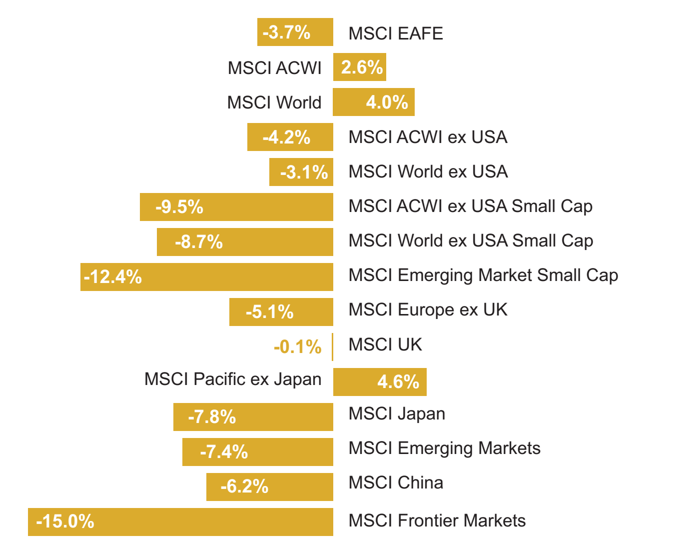
- Within developed markets, small cap performed in line with large cap.
- EM Small Cap trailed EM as **MSCI China Small Cap** has less exposure to IT, which led the risk-on rally.

Non-U.S. Equity: Quarterly Returns (U.S. Dollar)



Source: MSCI

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



Source: MSCI

Global Fixed Income

U.S. Fixed Income

Risk markets sharply reversed from the fourth quarter sell-off supported by the Fed's unexpected dovish comments, solid U.S. economic growth data, and tempered concern over a slowing China. This quarter's strong results recaptured most of the loss experienced in the prior quarter by riskier bonds.

U.S. Fixed Income ► *Bloomberg Barclays US Agg: +2.9%*

- U.S. Treasuries rose 2.1% as the yield curve shifted lower across maturities as growth and inflation expectations declined.
- The shape of the yield curve did not materially change during the quarter. The yield differential between the 10-year and 2-year key rates remained positive and traded around a range of +12 to +20 bps. However, the front-end of the curve inverted, with the 5-year offering less yield than the 2-year.
- TIPS outperformed nominal Treasuries as the Fed's balanced stance and unexpected wage pressures stoked higher inflation expectation.

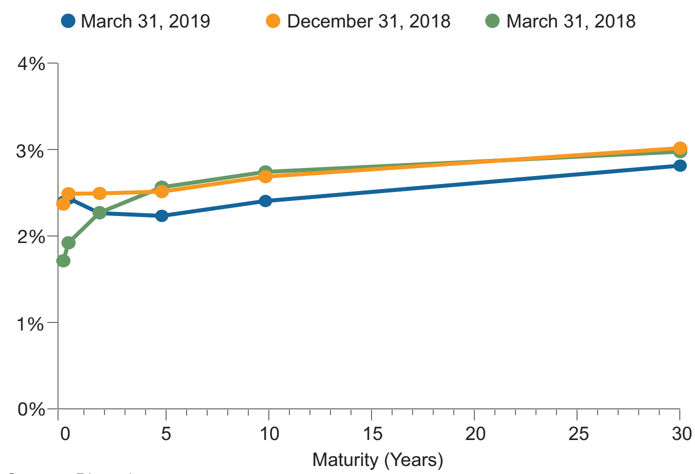
Investment-Grade Corporates ► *Bloomberg Barclays Corporate (Inv. Grade): +5.1%*

- Credit spreads rallied on the back of a softer Fed stance, positive economic news, and better than expected corporate earnings.
- Net new corporate issuance during the first quarter of $117 billion was roughly on par with a year ago.
- Surprisingly, Aaa-rated corporates (+5.0%) outperformed Aa- (+3.7%) and single A-rated issuers (+4.7%). BBB-rated issuers were the best performers (+5.7%).

High Yield ► *Bloomberg Barclays Corporate HY: +7.3%*

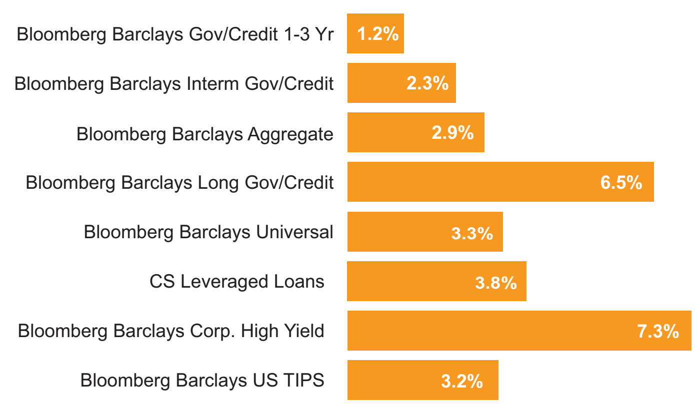
- Given the risk-on environment, below-investment grade issuers were the best performers, aided by strong asset inflows.
- Ba/B sectors (+7.2%) marginally outpaced CCC by 6 bps; this was an unusual occurrence given that the dispersion between high-quality and low-quality is typically wide during these periods of absolute returns.

U.S. Treasury Yield Curves



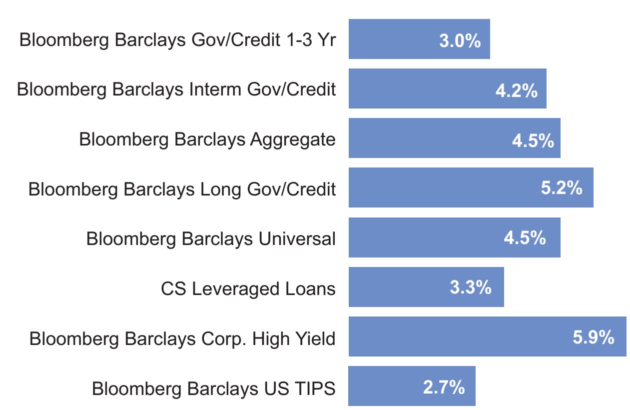
Source: Bloomberg

U.S. Fixed Income: Quarterly Returns



Sources: Bloomberg Barclays and Credit Suisse

U.S. Fixed Income: One-Year Returns



Sources: Bloomberg Barclays and Credit Suisse

Leveraged Loans ► *CS Leveraged Loans: +3.8%*

- Leveraged loans participated in the rally but lagged both longer duration investment grade and high yield corporates. The sector was negatively impacted by the Fed's pause, retail outflows, and a slow-developing CLO pipeline.
- Bank loans have less sensitivity to interest rates but may have a similar spread duration profile to that of their high yield bond counterparts.

Non-U.S. Fixed Income

Global Fixed Income ► *Bloomberg Barclays Global Aggregate: +2.2% | Global Aggregate (hdg): +3.0%*

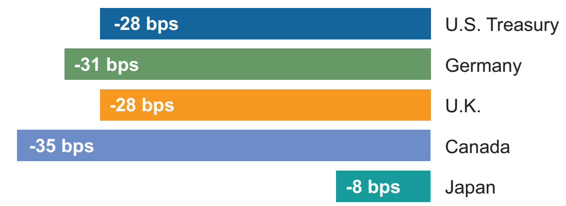
- Developed market sovereign bonds rallied in tandem with Treasuries. The U.S. dollar appreciated modestly versus the euro and yen, but lost ground versus the British pound and Canadian dollar.

Emerging market debt ($US) ► *JPM EMBI Global Diversified: +7.0%* | (Local currency) ► *JPM GBI-EM Global Diversified: +2.9%*

- Country returns within the EMBI Global Diversified Index were nearly all positive for the quarter.
- Turkey (-10.2%) and Argentina (-10.5%) were notable underperformers in the local currency index.
- Positive net inflows into the EM universe continued through quarter-end.

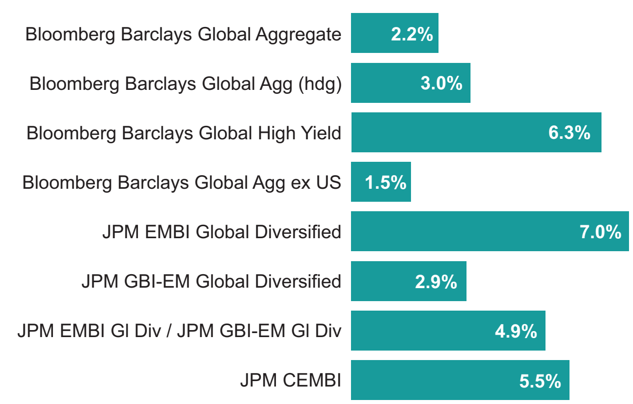
Change in 10-Year Global Government Bond Yields

4Q18 to 1Q19



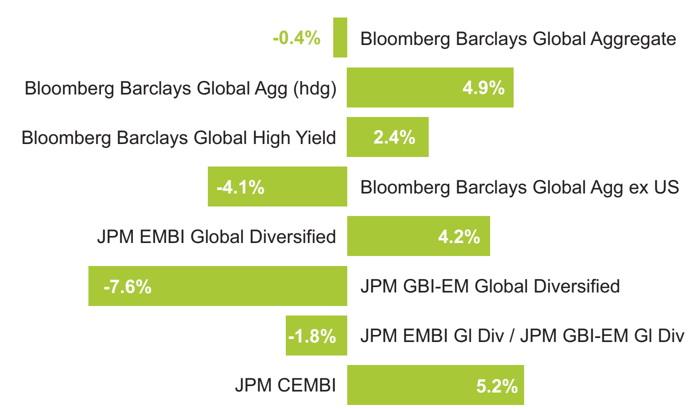
Source: Bloomberg Barclays

Non-U.S. Fixed Income: Quarterly Returns



Sources: Bloomberg Barclays and JPMorgan Chase

Non-U.S. Fixed Income: One-Year Returns



Sources: Bloomberg Barclays and JPMorgan Chase

Real Estate Stays Strong; Real Assets Show Big Gains

REAL ESTATE/REAL ASSETS | Munir Iman and David Welsch, CFA

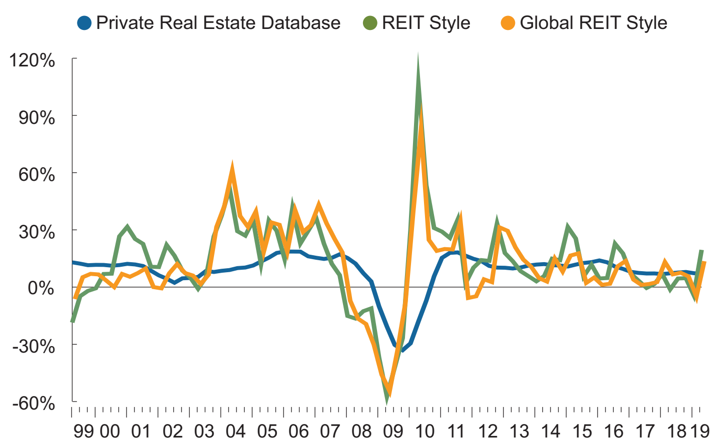
Core Returns Driven by Income

- The **NCREIF Property Index,** a measure of U.S. institutional real estate assets, gained 1.8% during the first quarter. The income return was 1.1%, while appreciation contributed 0.7%.
- Industrial led property sector performance with a gain of 3.0%. Hotels finished last with a 0.4% increase.
- Regionally, the West led with a 2.2% return, while the Midwest was the worst performer at 1.0%.
- The **NCREIF Open-End Diversified Core Equity Index,** representing equity ownership positions in U.S. core real estate, rose 1.2% during the first quarter, with income providing 0.8% and appreciation 0.4%.
- U.S. core real estate returns are being driven by income with limited appreciation this late in the cycle.
- Appraisal capitalization rates decreased slightly from 4.34% to 4.31% during the first quarter, and capitalization rates measured in active trades ticked up to 5.60% from 5.20%.
- At quarter end, the 10-year average appraisal capitalization rate was 5.20%, and the 10-year average transactions capitalization rate was 6.34%. The spread between the two measures, which reflects pricing expectations between buyers and holders of real estate, stood at 114 basis points.
- Within the **NCREIF Property Index,** the vacancy rate for U.S. Retail was 7.5% in the first quarter, the highest in nearly two years.

REITs Outperformed Global Equities

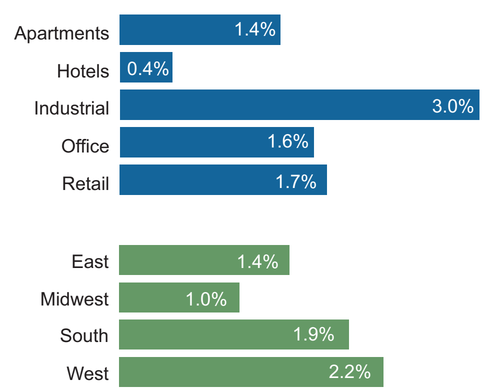
- The **FTSE EPRA/Nareit Developed REIT Index,** a measure of global real estate securities, rose 14.6% during the first quarter, compared to 12.2% for global equities (**MSCI ACWI**).
- European REITs returned 11.5% (USD). The **FTSE EPRA/Nareit Asia Index (USD),** representing the Asia/Pacific region, increased 14.4%.

Rolling One-Year Returns



Source: Callan

Sector Quarterly Returns by Property Type and Region



Source: NCREIF

U.S. Real Estate Securities Bounced Back

- U.S. REITs, as measured by the **EPRA Nareit Equity REITs Index,** bounced back and gained 16.3%.
- Infrastructure (+21.4%), Industrial (+21.3%), Timber (+21.1%), and Office (+20.3%) all led the surge.
- Self Storage (+9.9%), Health Care (+13.0%), and Retail (+14.4%) were the worst-performing sectors yet posted positive returns.

– U.S. REITs raised $19.6 billion during the quarter, including 23 secondary equity offerings raising $7.3 billion, 6 preferred equity offering raising $849 million, 28 unsecured debt offerings raising $11.4 billion, and zero IPOs. Both U.S. and non-U.S. REITs are trading at net asset value.

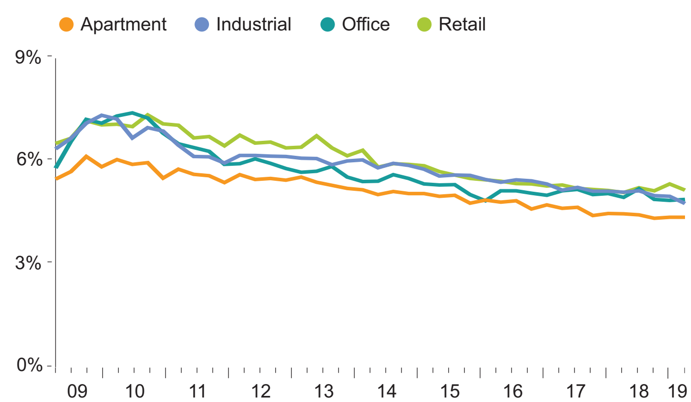
Real Assets Driven Up, With Energy a Big Gainer

– Real assets of all varieties enjoyed a strong first quarter of the year, perhaps none more than crude oil as the price of West Texas Intermediate rose +30% through the end of March.

– Energy as a whole (measured by the **Bloomberg Commodity Energy** subindex) was up nearly 16%, while commodities broadly produced a more modest positive return in the first quarter (**Bloomberg Commodity TR Index:** +6.3%) as gains in energy and metals were offset by negative returns for natural gas and the agriculture complex as a whole (**Bloomberg Commodity Agriculture** subindex: -3.2%).

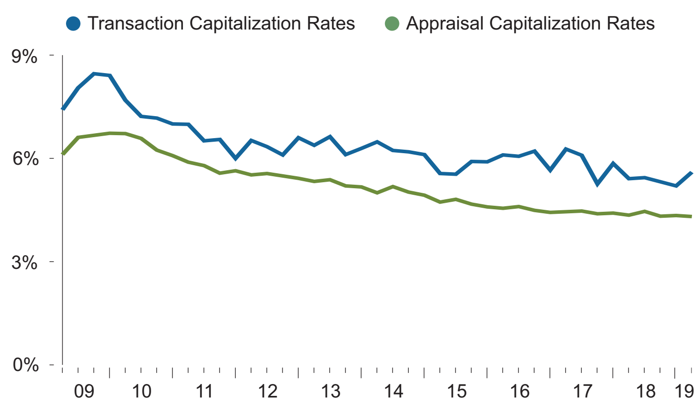
– MLPs (**Alerian MLP Index:** +16.8%) also enjoyed a strong start to the year with the yield spread between the Alerian Index and the 10-year Treasury remaining fairly wide at +500 bps.

NCREIF Capitalization Rates by Property Type



Source: NCREIF
Note: Capitalization rates are appraisal-based.

NCREIF Transaction and Appraisal Capitalization Rates



Source: NCREIF
Note: Transaction capitalization rate is equal weighted.

Callan Database Median and Index Returns* for Periods ended March 31, 2019

Private Real Assets	Quarter	Year to Date	Year	3 Years	5 Years	10 Years	15 Years
Real Estate ODCE Style	1.39	1.39	6.93	7.32	9.67	7.88	7.01
NFI-ODCE (value wt net)	1.20	1.20	6.55	7.01	9.17	7.73	7.17
NCREIF Property	1.80	1.80	6.83	7.07	9.13	8.50	8.81
NCREIF Farmland	0.70	0.70	6.08	6.43	8.20	11.10	14.37
NCREIF Timberland	0.11	0.11	2.61	3.35	4.68	3.76	7.09
Public Real Estate							
Global Real Estate Style	15.25	15.25	13.58	6.90	8.19	15.48	8.30
FTSE EPRA Nareit Developed	14.59	14.59	13.27	5.68	6.42	14.00	--
Global ex-U.S. Real Estate Style	13.92	13.92	7.54	8.27	6.47	12.96	8.12
FTSE EPRA Nareit Dev ex US	13.72	13.72	7.69	7.86	5.94	12.46	7.17
U.S. REIT Style	16.75	16.75	19.51	6.60	9.59	19.11	9.35
EPRA Nareit Equity REITs	16.33	16.33	20.86	6.13	9.12	18.28	8.52

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

It's Just a 'Gully'

PRIVATE EQUITY | Gary Robertson

The fourth quarter's public equity bear market clawed through private equity transaction activity in the first quarter. Almost every private equity transaction measure in the first quarter was down substantially, with fundraising dollar volume showing the only increase. With the dramatic recovery in first quarter equity markets, we expect private equity to also shrug-off the "gully" as the year progresses.

– **Fundraising** ▶ Based on preliminary data, first quarter private equity partnerships holding final closes totaled $129 billion, with 142 new partnerships formed (unless otherwise noted, all data in this commentary comes from PitchBook). Compared to the fourth quarter, the number of funds fell 10% but the dollar volume increased by 19%. The absolute pace of fundraising remains heated.
– **Buyouts** ▶ New buyout transactions declined notably, albeit from high levels. Funds closed 1,252 investments with $67 billion in disclosed deal value, representing a 33% decline in count and a 65% dip in dollar value from the fourth quarter. The largest investment was the $6.9 billion take-private of Dun & Bradstreet by Cannae Holdings, CC Capital, Thomas H. Lee Partners, and three additional firms.
– **VC Investments** ▶ New investments in venture capital companies totaled 3,332 rounds of financing with $44 billion of announced value. The number of investments was down 23% and announced value fell 24%.

Funds Closed January 1 to March 31, 2019

Strategy	No. of Funds	Amt ($mm)	Share
Venture Capital	56	13,809	11%
Growth Equity	18	13,727	11%
Buyouts	49	79,895	62%
Mezzanine Debt	5	15,372	12%
Distressed	1	825	1%
Energy	1	1,200	1%
Secondary and Other	5	1,628	1%
Fund-of-funds	7	2,435	2%
Totals	**142**	**128,891**	**100%**

Source: PitchBook
Figures may not total due to rounding.

– **Exits** ▶ There were 369 private M&A exits of private equity-backed companies, with disclosed values totaling $71 billion. Both private sale count and announced dollar volume were down significantly from the prior quarter by 39% and 50%, respectively. There were 8 private equity-backed IPOs in the first quarter raising an aggregate $2 billion, down 70% and 80%, respectively, from the fourth quarter.
– Venture-backed M&A exits totaled 264 transactions with disclosed value of $38 billion. The number of sales declined 22% from the fourth quarter, and announced value fell 7%. There were 23 VC-backed IPOs in the first quarter with a combined float of $4 billion; the count fell 34% but the issuance remained unchanged from the fourth quarter.

Private Equity Performance Database (%) (Pooled Horizon IRRs through September 30, 2018*)

Strategy	3 Months	Year	3 Years	5 Years	10 Years	15 Years	20 Years
All Venture	4.83	21.65	10.97	16.85	11.79	11.09	19.08
Growth Equity	3.65	20.89	15.16	14.39	12.56	13.54	14.14
All Buyouts	3.18	15.95	15.61	14.00	11.42	14.45	12.46
Mezzanine	2.56	11.38	10.99	10.31	9.79	9.72	8.63
Credit Opportunities	2.11	9.64	9.29	7.99	11.52	10.21	10.42
Control Distressed	0.85	7.03	10.75	9.31	10.55	10.96	10.85
All Private Equity	**3.37**	**16.80**	**13.87**	**13.79**	**11.54**	**13.16**	**12.96**
S&P 500	7.71	17.91	17.31	13.95	11.97	9.65	7.42
Russell 3000	7.12	17.58	17.07	13.46	12.01	9.86	7.82

Note: Private equity returns are net of fees. Sources: Refinitiv/Cambridge and Standard & Poor's
*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 *Capital Market Review* and other Callan publications.

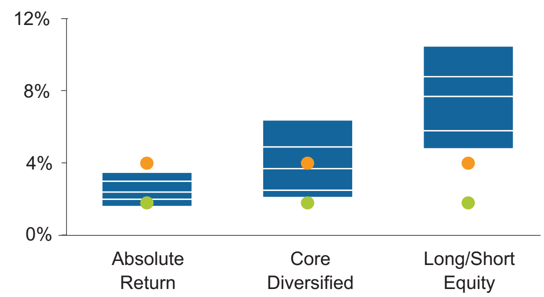
Mixed Bag for Hedge Funds; Long-Biased MACs Thrive

HEDGE FUNDS/MACs | Jim McKee

Hedge Funds Caught Flat-Footed

- Defensive positioning caught hedge funds flat-footed in the first quarter, but most strategies recovered the prior quarter's loss. The **Credit Suisse Hedge Fund Index** gained 4.0%.
- Among CS hedge fund strategies, *Long/Short Equity* (+5.4%) suffered from negative alpha due to poor market timing calls as equity indices rebounded faster than expected. *Event-Driven Multi* (+6.4%) recovered as soft catalyst-driven stocks bounced back. Relative value strategies, like *Convertible Arb* (+3.8%) and *Fixed-Income Arb* (+2.2%), performed well; *Equity Market Neutral* (+2.5%) recovered half of its fourth quarter loss from mean-reversion effects.
- Long-biased hedge funds beat absolute return funds in the first quarter, but trail over the last year.
- The **Callan Hedge Fund-of-Funds Database Group** rose 3.6% in the quarter. The *Long/Short Equity FOF Group* jumped 7.7%, trailed by *Core Diversified* (+3.7%) and *Absolute Return* (+2.4%).

Hedge Fund-of-Funds Style Group Returns



	Absolute Return	Core Diversified	Long/Short Equity
10th Percentile	3.5	6.4	10.5
25th Percentile	3.0	4.9	8.8
Median	2.4	3.7	7.7
75th Percentile	2.0	2.5	5.8
90th Percentile	1.6	2.1	4.8
CS Hedge Fund	4.0	4.0	4.0
90-Day T-Bill +5%	1.8	1.8	1.8

Sources: Callan, Credit Suisse, and Federal Reserve

Callan Database Median and Index Returns* for Periods ended March 31, 2019

Hedge Fund Universe	Quarter	Year	3 Years	5 Years	10 Years	15 Years
Callan Fund-of-Funds Database	**3.64**	**1.59**	**5.00**	**2.82**	**5.62**	**4.56**
Callan Absolute Return FOF Style	**2.44**	**1.46**	**4.62**	**2.82**	**5.58**	**3.97**
Callan Core Diversified FOF Style	**3.73**	**1.59**	**4.70**	**2.45**	**5.57**	**4.50**
Callan Long/Short Equity FOF Style	**7.68**	**0.89**	**6.45**	**3.56**	**6.02**	**5.71**
Credit Suisse Hedge Fund	3.99	0.20	3.74	2.26	5.42	4.81
CS Convertible Arbitrage	3.78	0.59	4.46	1.90	7.04	3.61
CS Distressed	2.15	0.17	5.38	1.57	6.44	5.66
CS Emerging Markets	8.21	-3.94	6.32	4.18	6.91	6.16
CS Equity Market Neutral	2.54	-3.29	0.39	0.31	2.23	-0.19
CS Event-Driven Multi	6.36	1.31	4.61	-0.16	4.54	5.09
CS Fixed Income Arb	2.19	1.54	5.13	3.37	7.27	3.88
CS Global Macro	2.61	1.92	3.51	2.42	4.84	5.99
CS Long/Short Equity	5.35	-0.52	4.60	3.44	6.34	5.64
CS Managed Futures	3.21	-0.23	-3.87	2.58	0.62	2.19
CS Multi-Strategy	3.01	0.27	4.57	4.20	7.56	5.82
CS Risk Arbitrage	1.91	2.68	3.85	2.38	3.32	3.70
HFRI Asset Wtd Composite	3.08	1.90	4.70	3.03	5.59	--
90-Day T-Bill + 5%	1.81	7.12	6.19	5.75	5.43	6.35

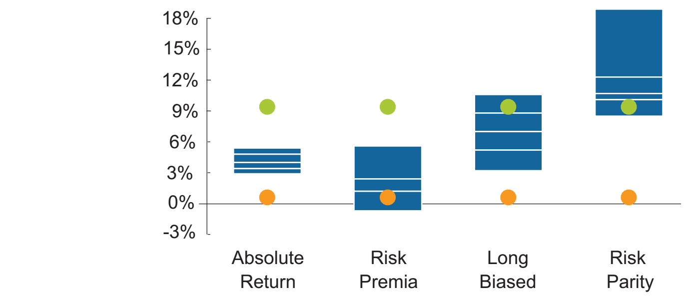
*Gross of fees. Sources: Bloomberg Barclays, Callan, Credit Suisse, Hedge Fund Research, Societe Generale, and Standard & Poor's

- With volatility settling down with the risk-on sentiment and returning to more normalized levels, hedge funds are likely to lag without a market dislocation. But if hard economic data does not confirm this market sentiment, hedge funds are well positioned defensively for a downturn.
- The flat yield curve levels the playing field. Today's short-term rates provide support to hedge funds with positive returns on cash holdings and short interest rebates.
- Global economic tension is creating fundamental imbalances that may lead to more macro trading opportunities like those of 2018, especially if the trade war is not soon resolved positively.

Rebound Boosts Long-Biased MACs

- The rebounding markets boosted long-biased multi-asset class (MAC) strategies in the first quarter. The **HFR Risk Parity Index** targeting 12% volatility was propelled by rising equity, commodity, and fixed income markets, amplified by portfolio leverage.
- Within the **CSNB Multi-Asset Risk Parity Index**, *Equity Momentum* (-22.2%) was an outsized setback, largely due to a 15.7% January loss from a violent market reversal over the prior month. Positive returns from *Currency Carry* (+4.8%) and *Fixed Momentum* (+3.7%) helped this risk premia proxy finish the quarter with a modestly positive gain.

MAC Style Group Returns

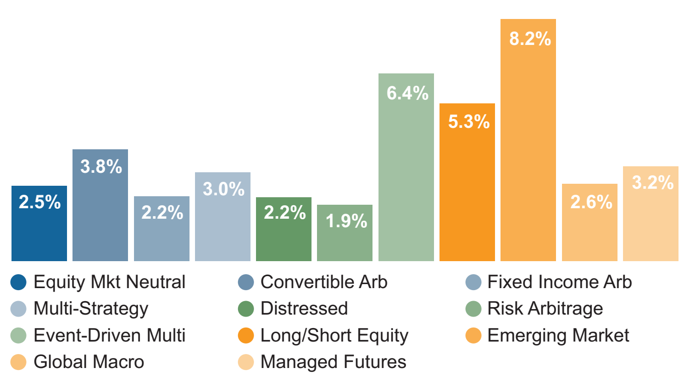


	Absolute Return	Risk Premia	Long Biased	Risk Parity
10th Percentile	5.4	5.6	10.6	18.9
25th Percentile	4.8	2.4	8.8	12.3
Median	4.0	2.4	7.0	10.7
75th Percentile	3.4	1.2	5.2	10.1
90th Percentile	2.9	-0.7	3.2	8.5
CSNB MARP (5%v)	0.6	0.6	0.6	0.6
60% S&P 500/ 40% BB Barclays Agg	9.4	9.4	9.4	9.4

Sources: Bloomberg Barclays, Callan, Credit Suisse, Neuberger Berman, Standard & Poor's

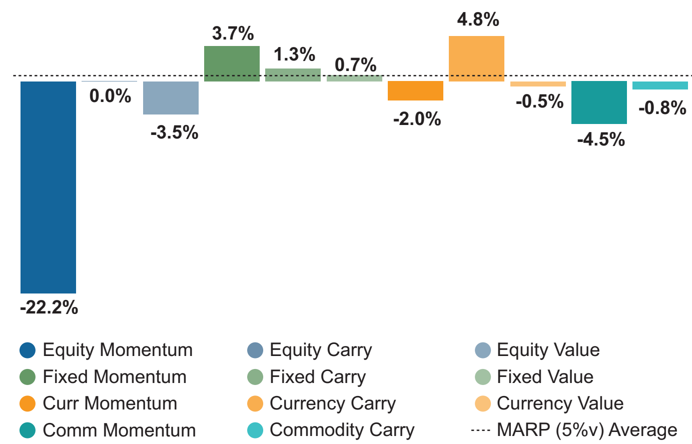
- The **Callan Multi-Asset Class Style Groups** showed positive but widely diverging results, with the overall group up 6.7%. *Risk Parity* jumped 10.7%, while *Risk Premia* only gained 2.4%.

Credit Suisse Hedge Fund Strategy Returns



Source: Credit Suisse

Alternative Risk Factor Breakdown



Source: Credit Suisse Neuberger Berman

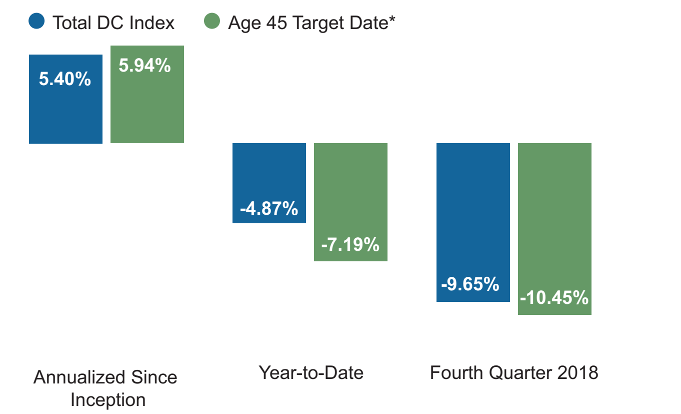
Limping to the Finish Line

DEFINED CONTRIBUTION | James Veneruso, CFA, CAIA

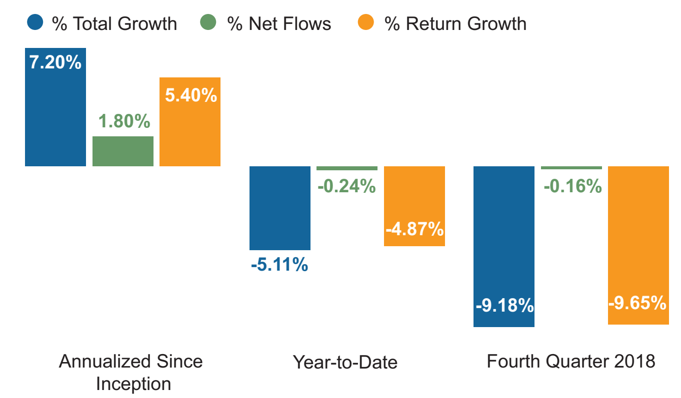
- The Callan DC Index™ was dragged down by a weak equity market in the fourth quarter and finished off 9.7%. The DC Index did outperform the typical Age 45 Target Date Fund over the quarter and the full year, largely attributable to the DC Index's lower equity allocation.
- As with the third quarter, flows for the fourth quarter were negative (-0.17%). Net flows will provide a critical measure for how effectively plans retain the balances of retiring workers.
- For the first time in the history of the DC Index, the story surrounding flows does not involve the inexorable rise of target date funds (TDFs). Although TDFs continued to gain net inflows, it was stable value that experienced the largest inflows. Sharp reversals in the broad equity markets may explain some of this presumed flight to safety.
- Fourth quarter turnover (i.e., net transfer activity levels within DC plans) in the DC Index increased to 0.41% from the previous quarter's 0.13%, well below the historical average at 0.61%.
- Given the flight to safety of flows as well as market performance, the overall share of equity dipped from 71% to 69%, modestly above the Index's historical average (68%).
- TDFs ended the year with a 33% share of assets, up from 31% a year ago. Stable value also increased its share (10.7% vs. 9.1%) while both small/mid cap and international equity dipped.
- Fewer plans offered company stock relative to a year ago (21% vs. 28%), while stable value rose in overall prevalence from 71% to 75% for the year.

The Callan DC Index is an equally weighted index tracking the cash flows and performance of nearly 90 plans, representing more than one million DC participants and over $150 billion in assets. The Index is updated quarterly and is available on Callan's website, as is the quarterly DC Observer newsletter.

Investment Performance



Growth Sources



Net Cash Flow Analysis (Fourth Quarter 2018)
(Top Two and Bottom Two Asset Gatherers)

Asset Class	Flows as % of Total Net Flows
Stable Value	65.46%
Money Market	11.27%
U.S. Smid Cap	-21.49%
U.S. Large Cap	-45.64%
Total Turnover**	**0.41%**

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 Market 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.

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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 $2 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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