Callan Institute

Second Quarter 2019

Capital Market Review

The Fed: 'A Mid-Cycle Adjustment to Policy'

ECONOMY

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The economic news for the U.S. during the second quarter was largely good, and better than the headlines would lead us to believe. Yet the Fed proceeded with a widely anticipated (and clearly signaled) interest rate cut in July, describing it as "a mid-cycle adjustment to policy."

Big Focus on Fed, Possible Correction

INSTITUTIONAL INVESTORS

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Institutional investors, as measured by the Callan Total Fund Sponsor Database Group, gained 3.3% in the second quarter. That compares to the 4.0% increase generated by a benchmark composed of 60% S&P 500/40% Bloomberg Barclays US Aggregate.

U.S. Stocks Hit Highs; Global Gains Muted

EQUITY

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U.S. equities neared record highs in the second quarter on expectations of easing from the Fed. Global equity markets were largely positive although investor sentiment was fairly muted as both U.S./China tariff fatigue and Brexit uncertainty continued.

Rally for Treasuries Lifts Sovereign Bonds

FIXED INCOME

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The Federal Reserve's dovish statements and announced policy objective to "sustain the expansion" caused risk assets and U.S. Treasury yields to rally. Non-U.S. developed market sovereign bonds rose in tandem with the rally in Treasuries.

Real Estate Gains; Real Assets Fall

REAL ESTATE/REAL ASSETS

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The NCREIF Property Index gained 1.5% during the second quarter. The NCREIF Open-End Diversified Core Equity Index rose 0.8%. U.S. REITs and global REITs both gained, but lagged broad equity indices. The Bloomberg Commodity Index fell 1.2%.

Value Is in the Eye of the Beholder

PRIVATE EQUITY

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Fundraising, company purchase prices, and IPOs increased in the second quarter. But private M&A investment and exit measures were flat to markedly down. Private equity returns remained positive, despite the fourth quarter public equity sell-off.

Continuing Rally Aids Most Strategies

HEDGE FUNDS/MACs

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Risk-on sentiment supported virtually all hedge fund strategies. The continuing rally also lifted long-biased MACs, but risk premia languished again. Hedge funds are well positioned defensively for a downturn. But without a sustained pick-up in volatility, they are likely to lag.

Returns, Inflows Both Rebound for DC Index

DEFINED CONTRIBUTION

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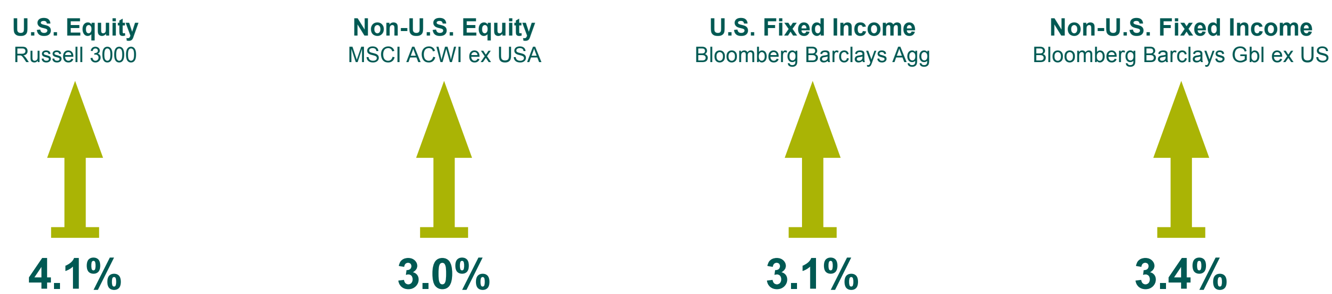
The Callan DC Index™ rebounded in the first quarter, gaining 9.6%, and the Age 45 Target Date Fund did even better. After two quarters of negative flows, balances saw sizable growth. And TDFs retook their spot as the top destination for inflows.

Broad Market Quarterly Returns



Sources: Bloomberg Barclays, FTSE Russell, MSCI

The Fed Speaks: 'A Mid-Cycle Adjustment to Policy'

ECONOMY | Jay Kloepfer

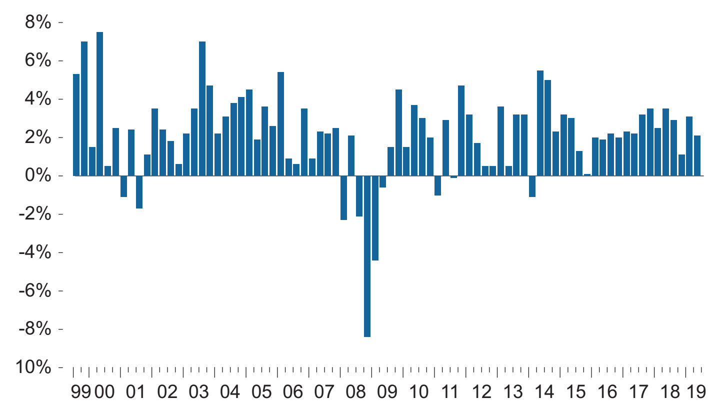
The U.S. economy continued its now-record expansion in the second quarter with a 2.1% gain in GDP, slower than the robust 3.1% in the first quarter but well ahead of expectations. Consumer spending rose 4.3% in the quarter, supported by solid gains in the job market and disposable income growth of 5% in each of the first two quarters of 2019. Offsetting the gains in consumption were hits to GDP from exports, nonresidential business investment, residential investment, and a drawdown in inventories. The economic news for the U.S. during the quarter was largely good, and better than the headlines would lead us to believe. Yet the Fed proceeded with a widely anticipated (and clearly signaled) interest rate cut in July, lowering the Federal Funds rate target by 25 basis points.

How did we get to a situation where the expansion continues but the Fed acts to cut rates? In classic Fed-speak, the announced reasoning is "a mid-cycle adjustment to policy." To be fair, while the job market and overall GDP data are coming in solid for the U.S., the global economy is clearly showing signs of slowing, and the uncertainty stemming from trade tensions is top of mind. Chairman Jerome Powell noted three reasons for the rate cut: (1) to insure against downside risks from slowing global growth and trade tensions; (2) to mitigate the effects those factors are already having on the U.S. outlook, even if they haven't shown up in the data; and (3) to enable a faster return to the Federal Reserve's symmetric 2% inflation target.

It is important to note that the Fed made clear this July rate cut is not likely to be the first in a series. After initial confusion, the markets simply interpreted this Fed comment as fewer rate cuts this year than were previously priced into bond yields.

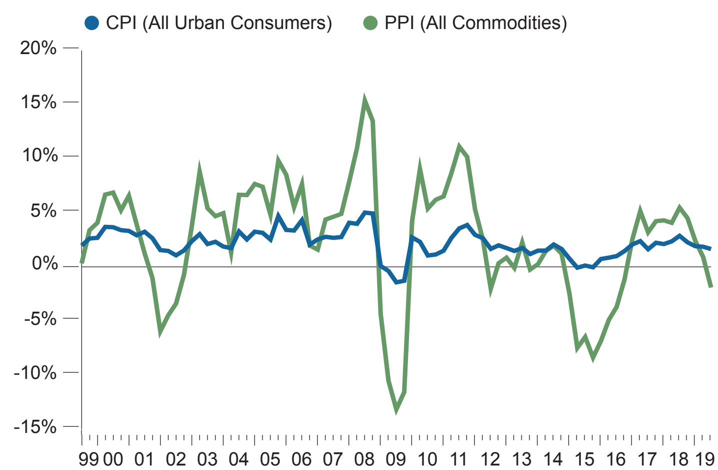
Key to the Fed's perceived latitude to lower rates is the persistent surprise of low inflation. After breaking through the Fed's 2% target in 2018, inflation has once again subsided. Headline CPI rose 1.6% in June (year-over-year), dragged down by a 3.4% decline in energy costs. In fact, core CPI (less food and energy) rose 2.1% over the past 12 months, pushed up by the

Quarterly Real GDP Growth (20 Years)



Source: Bureau of Economic Analysis

Inflation Year-Over-Year



Source: Bureau of Labor Statistics

rising cost of shelter, apparel, and used vehicles. While annual wage gains have moved above 3% for the first time since the Global Financial Crisis (GFC), wage pressures have yet to show up in headline inflation. The impact of tariffs on consumer prices has not affected the broad CPI data, as the tariffs to date have been narrowly targeted.

Foreshadowing the expected slowdown in the U.S. economy is the Purchasing Managers' Index (PMI), a forward-looking measure of business expectations for manufacturing demand and production. The mid-year 2019 reading of the PMI hit 50.6, very close to the line dividing expansion from contraction (50), and the lowest reading since 2009. Producers cite the twin worries of slowing global growth and trade tensions; the 5% drop in exports and the softening of business spending in the second quarter data certainly support these concerns. Other concerns about a material slowdown to GDP growth include the waning impact on domestic spending that has come from rising stock prices and fiscal stimulus since the GFC. Further concerns include the effects of potential new tariffs, and the slowdown in inventory accumulation. The U.S. economy is also approaching capacity constraints as the expansion reaches into record territory. Unemployment has hit a generational low of 3.6%; at some point firms' difficulties in finding new and replacement staff will weigh on overall workforce growth.

The nine interest rate hikes enacted by the Fed through 2018 raised the cost of borrowing for both businesses and consumers, and while the reversal of Fed policy since January halted the trajectory of rates, the impact of the increases since 2016 is still working its way through the economy. Higher mortgage rates slowed housing markets, pulling existing home sales down by more than 10% over the course of 2018. Rates for 30-year mortgages have fallen by more than 110 bps since November 2018, and home sales have bounced back since the start of the year, but the recovery has been uneven, concentrated in the South and the West. Investment in new homes, as measured by permits, began slipping in 2018 and is still down more than 10% (year over year) through June. New residential construction, restricted in many locations by supply and cost factors, has lagged the pace set in typical expansions since the GFC.

The Long-Term View

Index	2019 2nd Qtr	Periods ended Dec. 31, 2018 Year	5 Yrs	10 Yrs	25 Yrs
U.S. Equity					
Russell 3000	4.1	-5.2	7.9	13.2	9.0
S&P 500	4.3	-4.4	8.5	13.1	9.1
Russell 2000	2.1	-11.0	4.4	12.0	8.3
Non-U.S. Equity					
MSCI EAFE	3.7	-13.8	0.5	6.3	4.6
MSCI ACWI ex USA	3.0	-14.2	0.7	6.6	--
MSCI Emerging Markets	0.6	-14.6	1.6	8.0	--
MSCI ACWI ex USA Small Cap	1.2	-18.2	2.0	10.0	--
Fixed Income					
Bloomberg Barclays Agg	3.1	0.0	2.5	3.5	5.1
90-Day T-Bill	0.6	1.9	0.6	0.4	2.5
Bloomberg Barclays Long G/C	6.6	-4.7	5.4	5.9	6.8
Bloomberg Barclays Gl Agg ex US	3.4	-2.1	0.0	1.7	4.4
Real Estate					
NCREIF Property	1.5	6.7	9.3	7.5	9.3
FTSE Nareit Equity	1.2	-4.6	7.9	12.1	9.8
Alternatives					
CS Hedge Fund	2.3	-3.2	1.7	5.1	7.3
Cambridge PE*	4.9	10.6	11.9	13.8	15.2
Bloomberg Commodity	-1.2	-11.2	-8.8	-3.8	2.0
Gold Spot Price	8.9	-2.1	1.3	3.8	4.9
Inflation – CPI-U	0.8	1.9	1.5	1.8	2.2

*Data for most recent period lags by a quarter. Data as of March 31, 2019.
Sources: Bloomberg, Bloomberg Barclays, Bureau of Economic Analysis, Credit Suisse, FTSE Russell, MSCI, NCREIF, Standard & Poor's, Refinitiv/Cambridge

Recent Quarterly Economic Indicators

	2Q19	1Q19	4Q18	3Q18	2Q18	1Q18	4Q17	3Q17
Employment Cost–Total Compensation Growth	2.7%	2.8%	2.9%	2.8%	2.8%	2.7%	2.6%	2.5%
Nonfarm Business–Productivity Growth	1.8%*	3.4%	1.3%	1.9%	2.9%	0.7%	-0.3%	2.3%
GDP Growth	2.1%	3.1%	1.1%	2.9%	3.5%	2.5%	3.5%	3.2%
Manufacturing Capacity Utilization	75.7%	76.4%	77.0%	76.9%	76.4%	76.1%	75.8%	74.9%
Consumer Sentiment Index (1966=100)	98.4	94.5	98.2	98.1	98.3	98.9	98.4	95.1

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

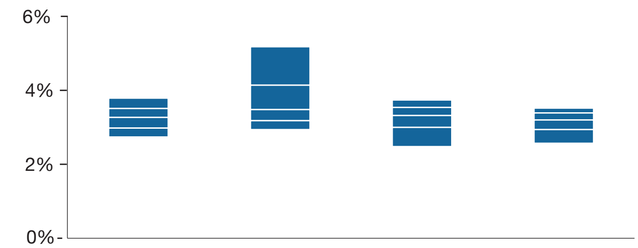
* Estimated figure provided by IHS Markit

Big Focus on Possible Correction, Future Action by Fed

INSTITUTIONAL INVESTORS

- Institutional investors, as measured by the **Callan Total Fund Sponsor Database Group,** gained 3.3% in the second quarter, with corporate plans faring best (+3.5%). Those results compare to the 4.0% gain of a quarterly rebalanced benchmark composed of 60% S&P 500/40% Bloomberg Barclays US Aggregate.
- Over the last 15 years, corporate plans (+6.9%) have fared the best, followed by nonprofits, public plans, and Taft-Hartley plans. Over that same period, the 60-40 index has seen a gain of 7.2%, annualized. Larger institutional investors have tended to do better than smaller ones over that time period, with the exception of Taft-Hartley plans; investors with more than $1 billion in assets gained 7.0% over the 15-year period, followed by 6.7% for medium investors ($100 million-$1 billion), and 6.6% for small plans (under $100 million).
- For institutional investors, strategic allocation decisions are focused on the anticipation of a market correction, volatility, and their desires to seek additional diversification opportunities. As a result, investors are re-evaluating the purpose and implementation of asset classes including real assets, hedge funds and liquid alternatives, fixed income, and equity.

Quarterly Returns, Callan Database Groups



	Public Database	Corporate Database	Nonprofit Database	Taft-Hartley Database
10th Percentile	3.8	5.2	3.7	3.5
25th Percentile	3.5	4.1	3.5	3.4
Median	3.3	3.5	3.3	3.2
75th Percentile	3.0	3.2	3.0	2.9
90th Percentile	2.7	2.9	2.5	2.6

Source: Callan

- Increasingly, investors are focused on the disparity of performance between growth and value. As value continues to underperform, investors are wondering if "value is dead." They are also questioning whether there is any hope for active management. Will its promise to protect in a downturn be fulfilled?

Callan Database Median and Index Returns* for Periods ended June 30, 2019

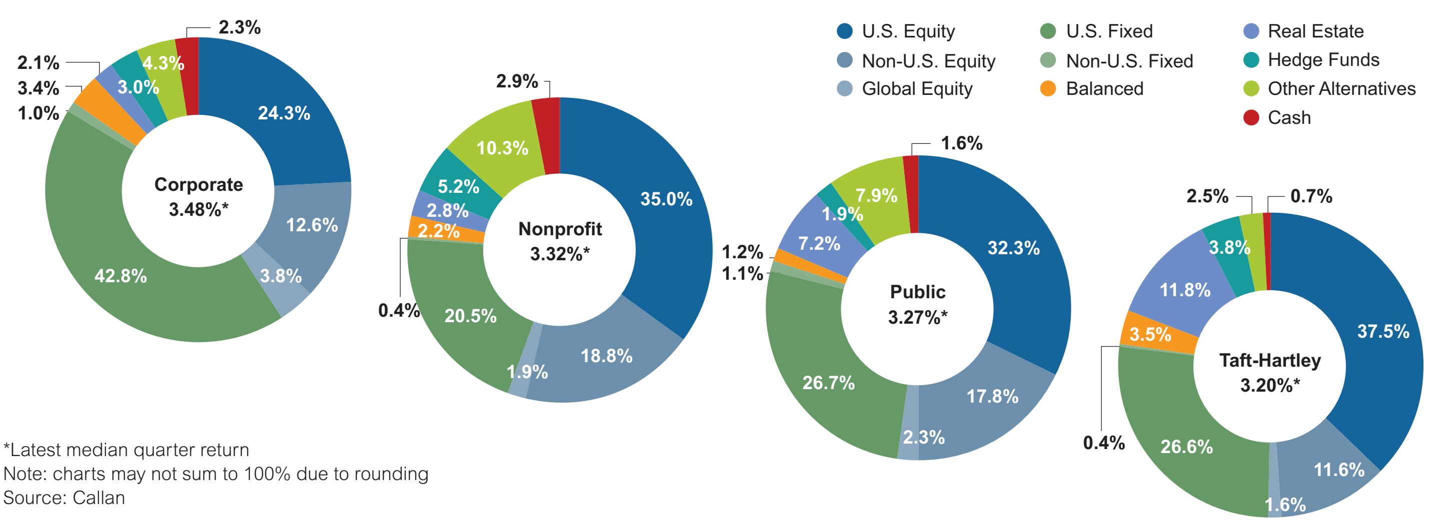
Database Group	Quarter	Year	3 Years	5 Years	10 Years	15 Years
Public Database	**3.27**	**6.19**	**8.91**	**5.96**	**9.20**	**6.74**
Corporate Database	**3.48**	**7.26**	**8.21**	**5.96**	**9.24**	**6.85**
Nonprofit Database	**3.32**	**5.78**	**9.11**	**5.62**	**9.06**	**6.76**
Taft-Hartley Database	**3.20**	**6.34**	**9.03**	**6.54**	**9.42**	**6.67**
All Institutional Investors	**3.32**	**6.31**	**8.85**	**5.97**	**9.24**	**6.75**
Large (>$1 billion)	**3.24**	**6.35**	**9.03**	**6.17**	**9.39**	**7.04**
Medium ($100mm - $1bn)	**3.31**	**6.43**	**8.84**	**6.04**	**9.28**	**6.71**
Small (<$100 million)	**3.34**	**6.20**	**8.76**	**5.73**	**9.03**	**6.59**

*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.

– Plans continue to retain a strong tilt toward growth assets (at least 70% and as high as 90%). Many investors said they employ such a tilt to meet funding requirements. This has coincided with a refined definition of growth to include high yield, convertibles, low-volatility equity, hedge funds, MACs, and option-based strategies.
– Callan has consulted on a surge in asset-liability studies, with substantial changes to many policy portfolios. The focus is on de-risking (less equity) and risk mitigation (diversification and implementation), but dissatisfaction remains with hedge funds, risk premia, and absolute return products.
– In the current capital market environment, investors are focused on how long the expansion will continue. They are also examining how the reversal in Fed policy changes the landscape. Equity markets cheered, but doesn't accommodation imply leaner times ahead? And while LDI pays off when rates fall, lower rates can wreak havoc with liability-driven investing glidepaths.
– In discussions of asset class structures, investors are examining the role of fixed income in a total return portfolio: Is pursuit of return a goal?
– The relentless cost pressure is driving passive implementation in all asset classes, particularly equity.
– Public plans are focused on the return from private markets, but they face mounting pressure to control costs. One approach is the "bar-belled" pursuit of active in private markets and alternatives, and all passive in equity, more passive in fixed, and cheaper liquid alternatives with "passive" exposures to betas and factors.
– Liquidity needs are top of mind for public plans looking to increase private investments in pursuit of a growth engine aside from public equity.
– Corporate plans moving down de-risking glidepaths continue to reconsider their equity structures, moving to passive to control costs and attain broad beta exposure in the declining growth allocation.

Average Asset Allocation, Callan Database Groups



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

Equity

U.S. Equities

Markets continued to march upward, and U.S. equities neared record highs. Growth outpaced value, as the dovish stance of the Fed was a headwind for valuation-sensitive stocks. Small cap stocks lagged large caps, possibly from economic weakness.

Large Cap ► *S&P 500: +4.3% | Russell 1000: +4.2%*

– U.S. equity showed strong gains as market participants anticipated another round of monetary easing from the Fed.
– Financials (+8.0%) was the best-performing sector; Energy (-2.8%) was the only sector to experience negative returns over the quarter.
– Trade rhetoric weighed on U.S. stocks in May followed by a June rebound.
– Given the increase in risk appetite, cyclicals outperformed while defensive sectors such as Utilities underperformed.

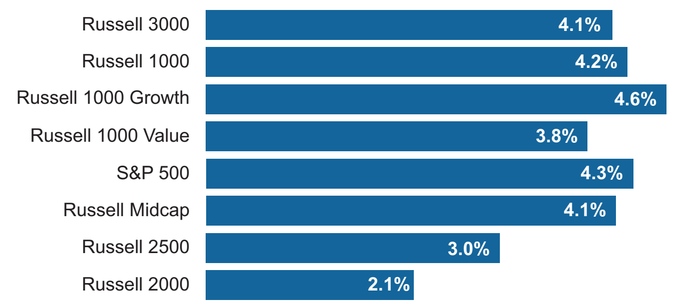
Small Cap ► *Russell 2000: +2.1%*

– Market conditions (e.g., more dovish Fed, strong U.S. dollar, trade tensions) should have benefited small cap companies, but did not.
– A slowing economy may explain weakness for small caps. Large caps tend to have stronger balance sheets and are more capable of weathering downturns.

Growth vs. Value ► *Russell 1000 Growth: +4.6% | Russell 1000 Value: +3.8%*

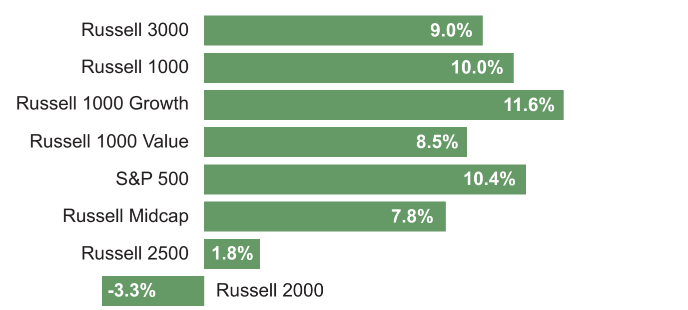
– Value factors (P/B, P/E trailing, yield) were mixed; growth factors (EPS growth, sales growth) were positive.

U.S. Equity: Quarterly Returns



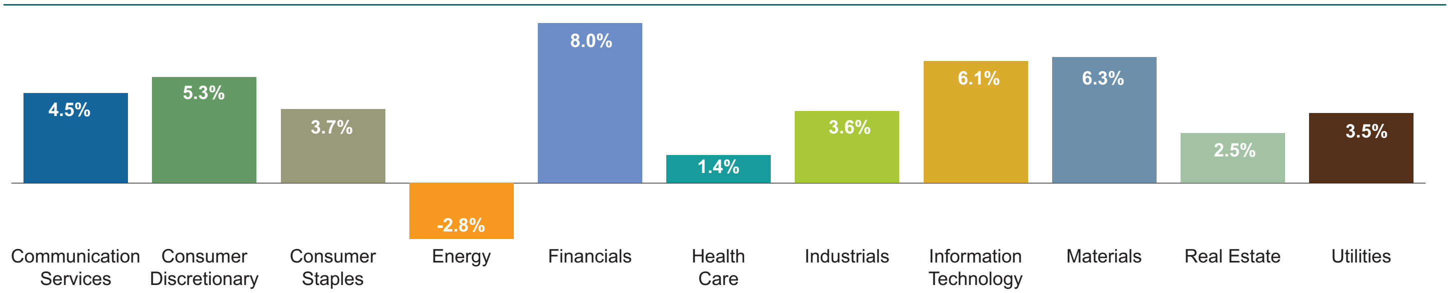
Sources: FTSE Russell and Standard & Poor's

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 Equities

Global equity markets were largely positive in the second quarter although investor sentiment was fairly muted as both U.S./China tariff fatigue and Brexit uncertainty continued. Some non-U.S. markets benefited from a weakening U.S. dollar relative to local currencies. Global equities were boosted by dovish central bank commentary that led to lower interest rates around the globe.

Developed ► *MSCI EAFE: +3.7% | MSCI ACWI ex USA: +3.0% | MSCI Europe: +4.5% | MSCI Japan: +1.0%*

- Developed markets rallied as central banks around the world expressed more accommodative paths with interest rates and quantitative easing.
- U.K. equities finished the quarter slightly up (+0.9%) as Brexit uncertainty continues. Prime Minister Theresa May announced her resignation during the quarter.
- Relative to other non-U.S. developed markets, Europe had a strong quarter fueled by robust returns from Germany, France, and Switzerland (30% combined weight), which benefited from declining bond yields.
- EAFE sector performance was positive across the board with the exception of real estate. Cyclicals drove the majority of returns as these are highly correlated with U.S. cyclicals, which benefited from declining interest rates.
- Factor performance in non-U.S. developed markets favored growth over value, large caps over small caps, and cyclicals over defensives.

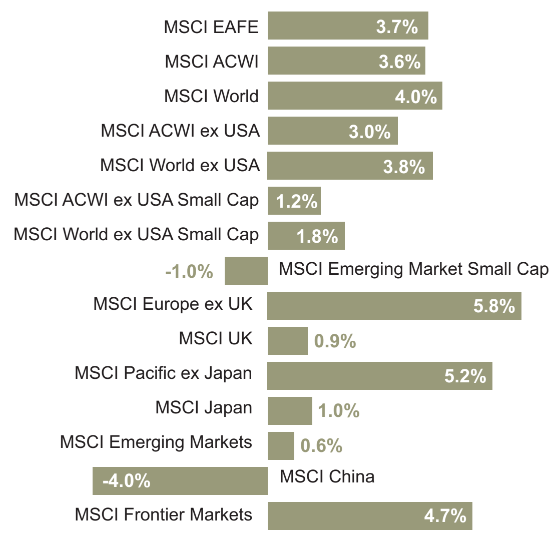
Emerging Markets ► *MSCI Emerging Markets Index: +0.6%*

- Emerging market returns were lackluster although, regionally, returns were bar-belled as many Asian countries were held back by trade concerns while EM ex-Asia tended to perform well. Russia (+16.9%) performed strongly with the help of the ruble appreciating by 4.2% relative to the U.S. dollar. Brazil (+7.2%) was also a top contributor due to the initial success of keeping pension reforms on track. China (-4.0%) faltered on tariff concerns.
- Argentina (+31.7%) was the top country performer, aided by the announcement of its inclusion in the **MSCI Emerging Markets Index** at the end of May (eight stocks in total).
- The **MSCI EM Value Index** outperformed the **MSCI EM Growth Index** as many growth-oriented sector and country returns were impacted by trade disputes.

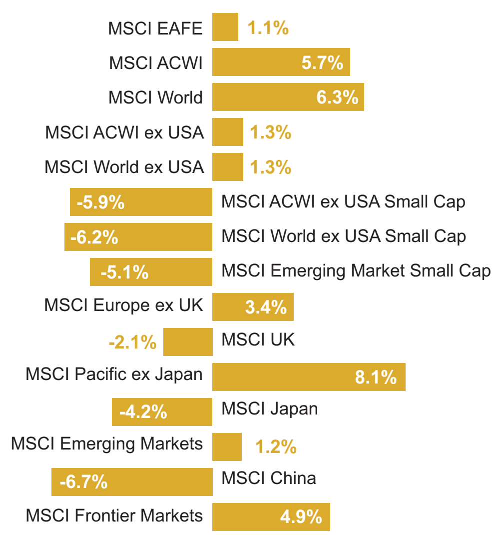
Non-U.S. Small Cap ► *MSCI World ex USA Small Cap: +1.8% | MSCI EM Small Cap: +1.0%*

- Non-U.S. small caps lagged large caps as investors preferred lower earnings risk and higher earnings momentum. Emerging market small caps lagged large caps as investors searched for a combination of lower volatility and higher growth that was absent in smaller companies as tariff uncertainty persisted.

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



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



Source: MSCI

Fixed Income

U.S. Fixed Income

U.S. economic data continued to be mixed as a strong labor market and rising personal income offset waning business confidence and declining industrial production. The Federal Reserve's dovish statements and announced policy objective to "sustain the expansion" caused risk assets and U.S. Treasury yields to rally. Uncertainty surrounding trade policy and muted inflation data provided the Fed with additional cover for its rationale to potentially cut rates later this year.

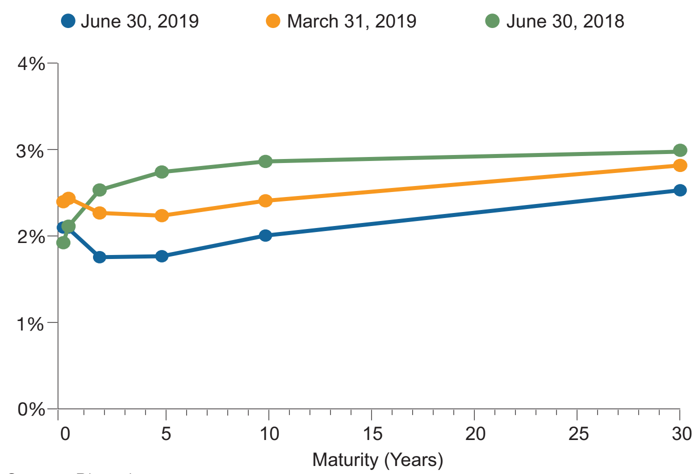
Core Fixed Income ► *Bloomberg Barclays US Agg: +3.1%*

- U.S. Treasuries gained 3.0% as the U.S. Treasury yield curve shifted lower across maturities, most dramatically at the 2-year key rate, as traders priced in expectations for the Fed to pre-emptively ease in order to boost domestic economic growth.
- The overall 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 widened 11 basis points during the quarter to close at 25 bps. However, the front-end of the curve remained inverted, with the 5-year offering roughly the same yield as the 2-year key rate.
- Nominal Treasuries outperformed TIPS as inflation expectations fell; the 10-year breakeven spread was only 1.69% as of quarter-end versus 1.88% at the end of the first quarter.

Investment-Grade Corporates ► *Bloomberg Barclays Corporate (Inv. Grade): +4.5%*

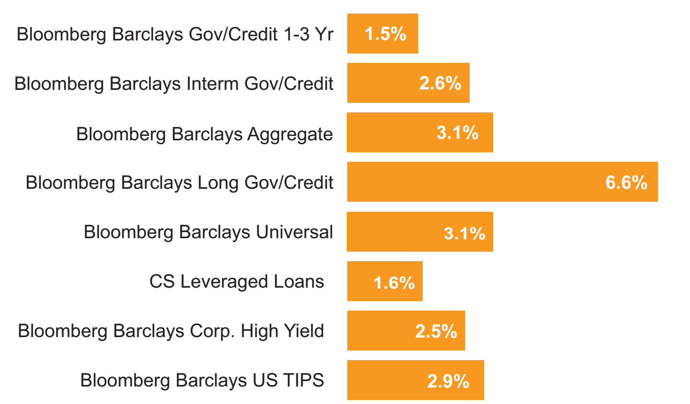
- Credit spreads rallied on the back of dovish Fed policy.
- Gross new corporate supply this quarter was $290.5 billion, which was 14% lower than a year ago. Year-to-date supply was 18% lower than in the first half of 2018. New issuance favored the 6-12 year maturities relative to last year.
- AAA-rated corporates (+5.0%) were the best performers in absolute return terms. BBB-rated lagged AAA by 18 bps, but posted a positive excess return over the index (+1.4%).

U.S. Treasury Yield Curves



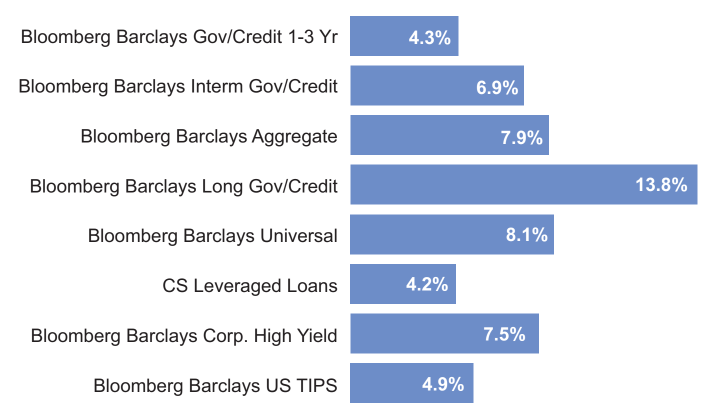
Source: Bloomberg

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

High Yield ► *Bloomberg Barclays Corporate HY: +2.5%*

- High yield corporates posted positive results for the quarter, but lagged investment grade corporates on both absolute and excess returns. High yield gained 9.9% for the first half of 2019.
- Interest rate-sensitive BB-rated issues posted the highest return (+3.1%) while CCC-rated issues rose 0.3%.

Leveraged Loans ► *CS Leveraged Loans: +1.6%*

- Bank loans participated in the risk-on rally, but lagged both longer duration IG and HY corporates as interest rates declined.
- Retail outflows remain unabated as the Fed's dovish tone dampened enthusiasm for floating rate assets. New CLO issuance running ahead of expectations has also put technical pressure on the sector as investors absorbed the new float.
- Bank loans have less sensitivity to interest rates, but may have a similar spread duration profile to that of high yield bonds.

Non-U.S. Fixed Income

Global Fixed Income ► *Bloomberg Barclays Global Aggregate: +3.3%*

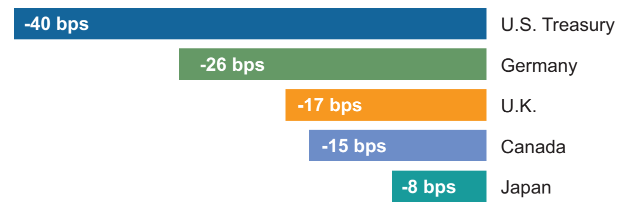
- Other developed market sovereign bonds rose in tandem with the rally in Treasuries and have pushed European sovereigns further into negative yields. The U.S. dollar depreciated modestly versus the euro and yen, but gained versus the U.K. pound.

Emerging Market Debt ($US) ► *JPM EMBI Global Diversified: +4.1%* | **(Local currency)** ► *JPM GBI-EM Global Diversified: +5.6%*

- Most emerging market currencies appreciated against the U.S. dollar.
- Top performers included Russia (+10.4%) and Turkey (+10.1%), while Argentina was the worst performer (-5.0%), and one of the few countries to post a negative result this quarter.

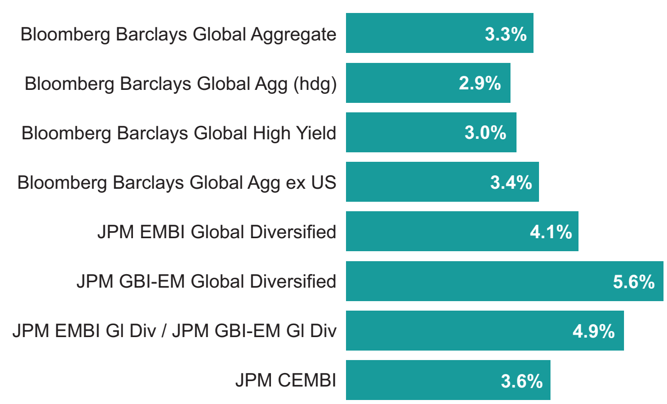
Change in 10-Year Global Government Bond Yields

1Q19 to 2Q19



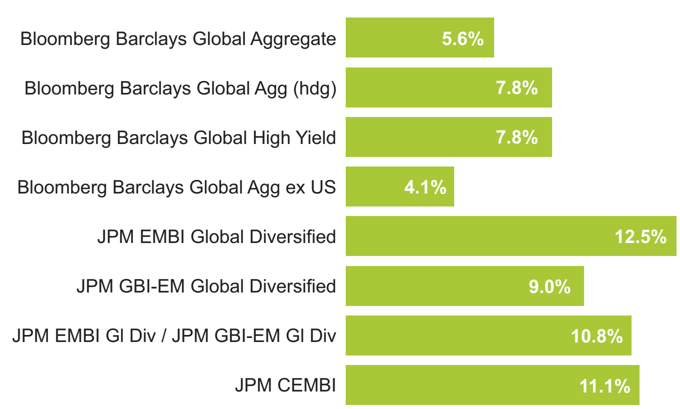
Source: Bloomberg Barclays

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 Gains; Real Assets Mostly Fall

REAL ESTATE/REAL ASSETS | Munir Iman and Kristin Bradbury

Income Produces Bulk of Returns

- U.S. core real estate returns continue to be driven by income, with limited appreciation this late in the cycle.
- The **NCREIF Property Index (NPI),** a measure of U.S. institutional real estate assets, gained 1.5% during the second quarter. The income return was 1.1%, while appreciation contributed 0.4%.
- Industrial led property sector performance with a return of 3.4%. Retail finished last, falling 0.1%.
- Regionally, the West led with a 1.9% return, while the Midwest was the worst performer at 0.7%.
- The **NCREIF Open-End Diversified Core Equity Index** (value-weighted, net of fees), representing equity ownership positions in U.S. core real estate, generated a 0.8% total return during the second quarter, with income providing 0.8% and appreciation 0.0%.
- Defensive posturing is becoming more prevalent.

U.S. Real Estate Fundamentals Remain Healthy

- Steady returns continued, driven by above inflation-level rent growth in many metro areas.
- Within the NPI, the vacancy rate for U.S. offices was 9.8% in the second quarter, the lowest in over 12 years.
- Net operating income has been growing annually and is expected to be the primary return driver.

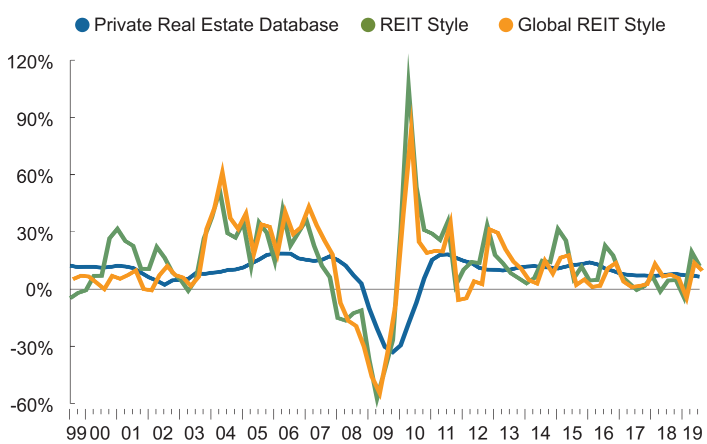
Pricing remains expensive in the U.S.

- Transaction volumes increased and remain robust.
- Cap rates fell slightly; market remains near full valuations

REITs underperformed global equities

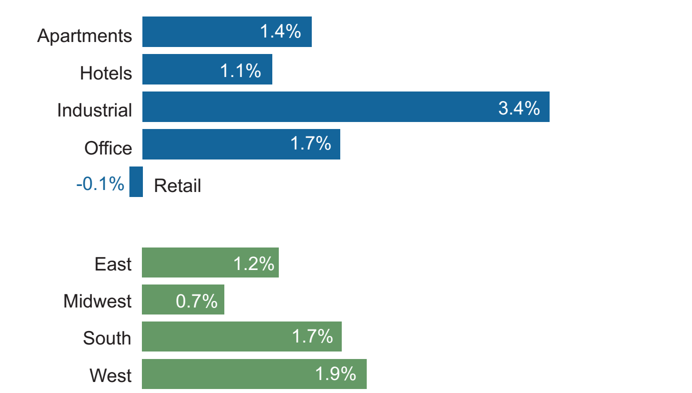
- U.S. REITs advanced 1.2% in the second quarter, underperforming the S&P 500 Index, which rose 4.3%.
- Global REITs fell 0.1% in the second quarter compared to a 3.4% gain for global equities (MSCI ACWI IMI).
- Both U.S. and non-U.S. REITs are trading at NAV.
- Large cap REITs, especially those with lower debt levels, modestly underperformed.

Rolling One-Year Returns



Source: Callan

Sector Quarterly Returns by Property Type and Region



Source: NCREIF

Non-U.S. Real Estate

Asia

- The growth of the middle class in Asia is steady and the demand for institutional quality real estate is commensurate.
- The number of open-end core funds focused on the Asia Pacific market has increased over recent years and includes both sector-diversified and sector-specific (e.g., logistics) funds, supporting the development of the institutional real estate market in the region. In the first half of the year, India had the first successful IPO for a REIT, which substantiates the institutionalization of the asset class in that country.

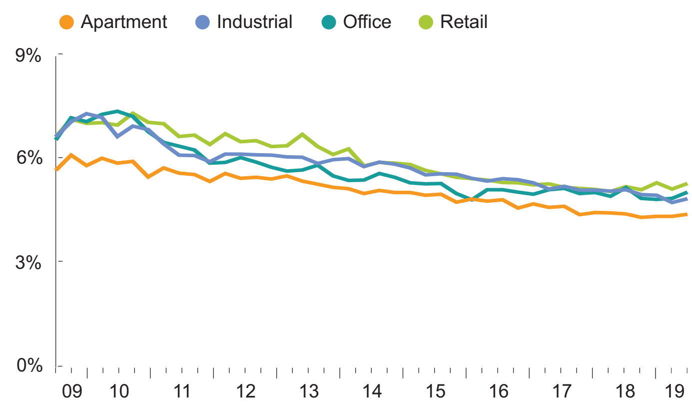
Europe

– Political uncertainty continues to weigh on overall growth throughout Europe, but real estate fundamentals remain strong in key gateway markets given the continued lack of new supply. Cap rates for prime real estate remain low, as real estate continues to be an attractive asset class as a result of low interest rates throughout the region.
– Institutional interest and investment in multifamily properties keeps expanding, as housing prices continue to grow faster than incomes in major markets across Europe, and demand is supported by continued urbanization and migration to major cities in Europe.

Real Assets

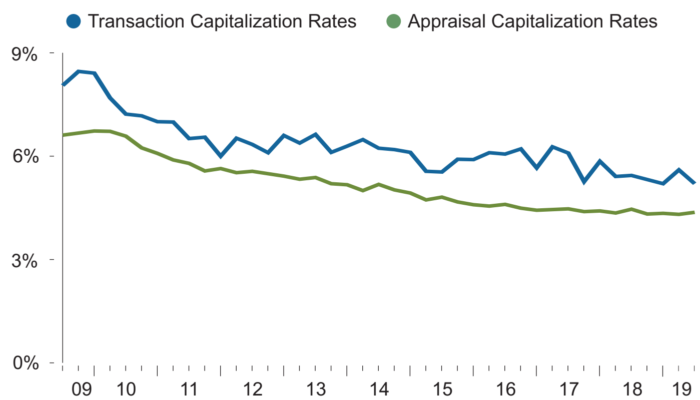
– The **Bloomberg Commodity Index** fell 1.2% in the quarter.
– Both the Precious Metals and Agriculture commodity sectors were positive performers, driven by strong individual returns for gold as well as corn, wheat, and coffee.
– Meanwhile, the Livestock, Energy, and Industrial Metals commodity sectors all posted negative quarterly results.
– Oil pulled back but was roughly flat for the quarter, ending at $58/barrel (West Texas intermediate).
– Natural gas within the **Bloomberg Energy Sub-Index** declined a precipitous 16.2%.
– MLPs (**Alerian MLP Index:** +0.1%) were flat.

NCREIF Capitalization Rates by Property Type



Source: NCREIF. Capitalization rates (net operating income / current market value (or sale price)) 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 June 30, 2019

Private Real Assets	Quarter	Year to Date	Year	3 Years	5 Years	10 Years	15 Years
Real Estate ODCE Style	**1.55**	**3.12**	**6.53**	**7.15**	**9.51**	**9.07**	**6.79**
NFI-ODCE (value wt net)	0.77	1.98	5.46	6.61	8.76	8.87	7.01
NCREIF Property	1.51	3.34	6.51	6.89	8.83	9.25	8.70
NCREIF Farmland	0.70	1.40	5.63	6.24	7.98	11.05	14.22
NCREIF Timberland	0.11	0.22	2.23	3.05	4.47	3.90	7.04
Public Real Estate							
Global Real Estate Style	**1.20**	**16.17**	**9.66**	**6.17**	**6.54**	**12.22**	**8.56**
FTSE EPRA Nareit Developed	-0.07	14.51	7.68	4.46	4.85	10.57	--
Global ex-U.S. Real Estate Style	**0.35**	**13.95**	**7.84**	**8.97**	**5.45**	**9.97**	**8.10**
FTSE EPRA Nareit Dev ex US	-0.58	12.89	6.09	6.79	3.47	8.26	--
U.S. REIT Style	**2.06**	**19.28**	**12.11**	**5.17**	**8.60**	**16.15**	**9.90**
EPRA Nareit Equity REITs	1.24	17.78	11.21	4.20	7.92	15.46	9.05

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

Value Is in the Eye of the Beholder

PRIVATE EQUITY | Gary Robertson

Fundraising, company purchase prices, and IPOs increased in the second quarter. However, private M&A investment and exit measures were flat to markedly down. Average buyout company prices and leverage levels hit a record in 2019, tempering transaction activity. Private equity returns remained positive, despite the fourth quarter public equity sell-off.

- **Fundraising** ► Based on preliminary data, final closes for private equity partnerships in the second quarter totaled $143 billion of commitments in 203 partnerships. (Unless otherwise noted, all data in this commentary come from PitchBook.) The dollar volumes rose 8% and the number of funds rose 25% from the first quarter. For the first half, 2019 is running $99 billion or 21% behind a year ago. We expect that the second half of 2019 will be larger than the first half, as some large fundraises are slated to start in the fourth quarter, and sought-after general partners are closing new funds quickly.
- **Buyouts** ► New buyout transactions continued declining in the quarter. Funds closed 1,424 investments with $97 billion in disclosed deal value, representing a 12% decline in count and a 9% dip in dollar value from the first quarter. Average buyout prices leaped to 11.2x EBITDA in 2019 versus 10.6x in 2018, providing a headwind for investment volume.
- **VC Investments** ► New rounds of financing in venture capital companies totaled 4,656, with $55 billion of announced value. The number of investments was down 15% but announced value rose 10%. Venture prices generally rose during the quarter, particularly for larger later-stage investments.
- **Exits** ► There were 336 private M&A exits of private equity-backed companies, with disclosed values totaling $80 billion. The private sale count fell 28% but the announced dollar volume rose 4%. There were 35 private equity-backed IPOs in the second quarter raising an aggregate $15 billion, up 250% and 650%, respectively, from the first quarter.
- Venture-backed M&A exits totaled 290 transactions with disclosed value of $20 billion. The number of sales declined 14% from the first quarter, and announced value fell 62%. There were 54 VC-backed IPOs in the second quarter with a combined float of $54 billion; the count jumped 116% and the issuance ballooned 340% as unicorns such as Uber, Slack, and Pinterest made their public debuts.

Funds Closed January 1 to June 30, 2019

Strategy	No. of Funds	Amt ($mm)	Share
Venture Capital	159	30,984	11%
Growth Equity	95	142,750	52%
Buyouts	37	26,682	10%
Mezzanine Debt	25	41,150	15%
Distressed	6	9,840	4%
Energy	6	12,266	4%
Secondary and Other	23	8,690	3%
Fund-of-funds	14	4,371	2%
Totals	**365**	**276,733**	**100%**

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

Private Equity Performance Database (%) (Pooled Horizon IRRs through March 31, 2019*)

Strategy	3 Months	Year	3 Years	5 Years	10 Years	15 Years	20 Years
All Venture	5.71	19.54	13.70	14.32	14.38	11.37	15.71
Growth Equity	6.14	16.87	16.41	13.05	15.05	13.23	13.76
All Buyouts	4.52	10.65	15.56	12.25	15.63	13.78	12.23
Mezzanine	2.25	7.56	11.67	10.30	11.09	10.47	8.83
Distressed	2.28	4.65	9.89	6.31	16.26	9.70	10.24
All Private Equity	**4.13**	**4.60**	**10.73**	**7.71**	**13.11**	**10.60**	**10.66**
S&P 500	4.86	12.66	14.66	12.08	15.15	12.79	12.55

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.

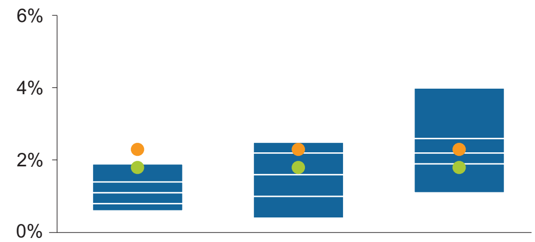
Continuing Rally Boosts Most Strategies

HEDGE FUNDS/MACs | Jim McKee

Top-Down Jumps Ahead; Bottom-Up Plods Forward

- Risk-on sentiment in equities and rates supported virtually all hedge fund strategies.
- *Global Macro* (+4.6%) and *Managed Futures* (+4.7%) led, supported by continuing trends/bets in the rates markets.
- Most relative value strategies slogged forward; *Equity Market Neutral* (-0.3%) slipped, indicating challenges with stock-specific risk factors.
- *Long/Short Equity* (+1.3%) lagged equities; *Event-Driven Multi-Strategy* (+2.9%) performed better with soft catalyst-driven stocks continuing to rebound from the fourth quarter sell-off.
- *Risk Arb* (+0.7%) and *Distressed* (+1.5%) edged ahead with their process-driven or hard-catalyst trades.
- Hedge fund portfolios with more exposure to macro or long-biased strategies beat absolute return, particularly those trading equity fundamentals without beta exposure.
- The median manager in the **Callan Hedge Fund-of-Funds Database Group,** net of fees, gained 1.9% in the second quarter. Within that broad grouping, the *Long/Short Equity FOF Style Group* (+2.2%) saw the biggest increase, followed by *Core Diversified* (+1.6%) and *Absolute Return* (+1.1%).

Hedge Fund-of-Funds Style Group Returns



	Absolute Return	Core Diversified	Long/Short Equity
10th Percentile	1.9	2.5	4.0
25th Percentile	1.4	2.2	2.6
Median	1.1	1.6	2.2
75th Percentile	0.8	1.0	1.9
90th Percentile	0.6	0.4	1.1
CS Hedge Fund ●	2.3	2.3	2.3
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 June 30, 2019

Hedge Fund Universe	Quarter	Year	3 Years	5 Years	10 Years	15 Years
Callan Fund-of-Funds Database	**1.85**	**5.06**	**2.69**	**5.14**	**4.59**	**4.59**
Callan Absolute Return FOF Style	**1.13**	**4.42**	**2.84**	**5.00**	**4.00**	**4.00**
Callan Core Diversified FOF Style	**1.56**	**4.52**	**2.16**	**4.95**	**4.61**	**4.61**
Callan Long/Short Equity FOF Style	**2.17**	**6.76**	**3.46**	**5.52**	**5.47**	**5.47**
Credit Suisse Hedge Fund	2.35	4.34	2.36	5.03	5.01	5.01
CS Convertible Arbitrage	1.25	3.99	2.18	5.68	3.81	3.81
CS Distressed	1.52	5.23	1.22	5.82	5.63	5.63
CS Emerging Markets	1.41	6.19	4.08	5.73	6.57	6.57
CS Equity Market Neutral	-0.25	1.39	0.31	1.73	-0.26	-0.26
CS Event-Driven Multi	2.86	4.82	-0.09	4.19	5.20	5.20
CS Fixed Income Arb	1.21	5.19	3.36	6.55	3.78	3.78
CS Global Macro	4.55	4.81	3.01	5.23	6.26	6.26
CS Long/Short Equity	1.25	5.46	3.39	5.66	5.80	5.80
CS Managed Futures	4.73	-1.65	2.50	1.57	3.23	3.23
CS Multi-Strategy	2.11	4.87	4.45	6.93	5.95	5.95
CS Risk Arbitrage	0.70	3.89	2.04	3.03	3.74	3.74
HFRI Asset Wtd Composite	2.12	5.15	3.00	5.15	--	--
90-Day T-Bill + 5%	1.84	6.38	5.87	5.49	6.38	6.38

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

Continuing Rally Lifts Long-Biased MACs; Risk Premia Languished Again

- **HFR Risk Parity Index** targeting 12% volatility gained 4.9%, propelled by rising stock and bond markets, amplified by portfolio leverage.
- Across these risk premia represented by HFR's Risk Premia indexes, *Rates Momentum* (+18.6%) benefited from global yields continuing their slide. Negative effects from other risk premia, especially in equities and commodities, dragged down overall performance.
- The **Callan Multi-Asset Class (MAC) Database Group** increased 2.3% in the quarter. Within that group, the *Risk Parity MAC Style Group* rose 4.6%, followed by *Long Biased* (+2.6%) and *Absolute Return* (+1.8%). *Risk Premia* fell 1.3%.

Volatility Settles Down Again with Risk-On Sentiment

- Markets are discounting continued growth with lower expected rates priced into valuations.
- If hard economic data does not confirm the market's buoyant sentiment, hedge funds are well positioned defensively for a downturn.
- Without a sustained pick-up in volatility, hedge funds are likely to lag.

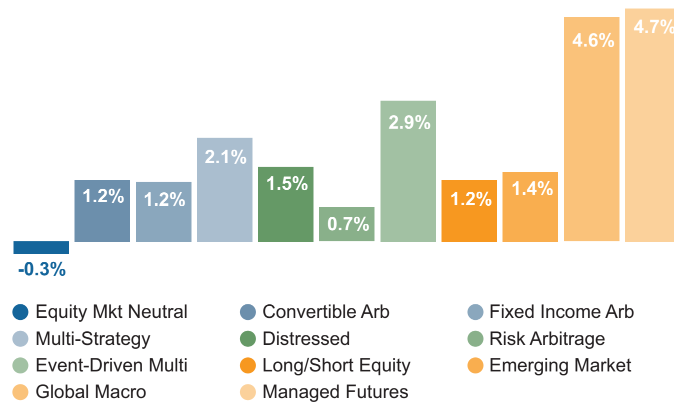
Flat Yield Curve Continues to Level Playing Field

- While both long and short rates settled to lower levels, today's positive short-term rates are still providing support to hedge funds on cash holdings and short interest rebates.
- If the Fed lowers rates aggressively from here due to weakening economic growth, fixed income and diversifying strategies of "hedged" funds will likely benefit at the expense of equities suffering from lowered earnings expectations.

Economic Divergence Creates More Opportunity

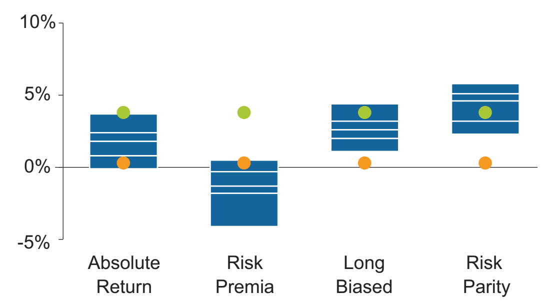
- Global macro tensions can lead to more fundamental and technical imbalances for hedge funds to trade.

Credit Suisse Hedge Fund Strategy Returns



Source: Credit Suisse

MAC Style Group Returns



	Absolute Return	Risk Premia	Long Biased	Risk Parity
10th Percentile	3.7	0.5	4.4	5.8
25th Percentile	2.4	-0.3	3.2	5.1
Median	1.8	-1.3	2.6	4.6
75th Percentile	0.8	-1.8	2.0	3.2
90th Percentile	-0.1	-4.1	1.1	2.3
Eurekahedge MFRP (5%v) ●	0.3	0.3	0.3	0.3
60% S&P 500/ 40% BB Barclays Agg ●	3.8	3.8	3.8	3.8

Sources: Bloomberg Barclays, Callan, Euredahedge, Standard & Poor's

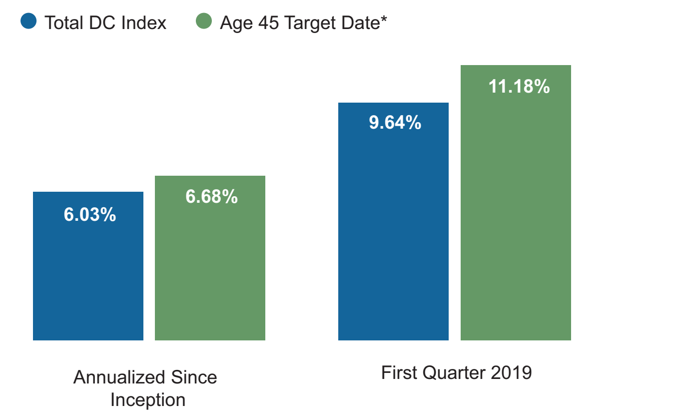
Returns, Inflows Both Rebound for DC Index

DEFINED CONTRIBUTION | Patrick Wisdom

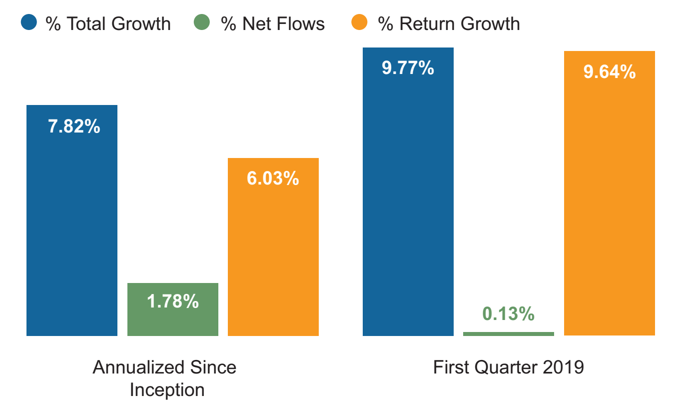
– After a rough finish to 2018, the Callan DC Index™ rebounded in the first quarter of 2019, gaining 9.6%. The Age 45 Target Date Fund posted even stronger results, gaining 11.2%, largely attributable to the Age 45 TDF's higher equity allocation (78% vs. 69%).
– After two quarters of negative flows, strong investment results and cash flows led to sizeable growth in balances in the first quarter, a reversal from two consecutive quarters of negative flows. The 9.8% total gain in market value for the quarter marked the highest since the first quarter of 2012 (9.9%).
– After an aberration in the fourth quarter, target date funds saw the largest inflows in the first quarter. Moreover, stable value experienced relatively large outflows after having the largest inflows the previous quarter. Despite strong equity gains in the first quarter, both U.S. and non-U.S. equity saw large outflows. At the same time, U.S. fixed and money market funds experienced relatively large inflows, perhaps indicating a shift toward safer securities within the core lineup.
– First quarter turnover (i.e., net transfer activity levels within DC plans) increased slightly to 0.48% from the previous quarter's 0.41%.
– After equities rebounded in the first quarter, the share of equity rose to 69.5% from 68.8% the previous quarter.
– Target date funds ended the quarter with 30% of assets, down from 33% the previous quarter. Among asset classes that increased, U.S. large cap (25%) and U.S./global balanced (7%) were up roughly 1 percentage point.
– Stable value's prevalence within DC plans rose for the sixth consecutive quarter and is now at 76%. Additionally, more plans are now offering emerging market equity (18%) as an option compared to the previous quarter.

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 (First Quarter 2019)
(Top Two and Bottom Two Asset Gatherers)

Asset Class	Flows as % of Total Net Flows
Target Date Funds	73.22%
U.S. Fixed Income	21.27%
U.S./Global Balanced	-16.65%
U.S. Large Cap	-24.86%
Total Turnover**	**0.48%**

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.

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About Callan

Callan was founded as an employee-owned investment consulting firm in 1973. Ever since, we have empowered institutional clients with creative, customized investment solutions that are backed by proprietary research, exclusive data, and ongoing education. Today, Callan advises on more than $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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