Callan

CALLAN INSTITUTE

Capital Market Review

Second Quarter 2017

Why Is Inflation So Low?

ECONOMY

2 PAGE

Both price and wage inflation remain subdued, even after eight years of recovery, when inflationary pressures typically build. Why? There is no consensus on the cause, but both issues weigh heavily on the Fed as it charts future rate hikes and unwinds its balance sheet.

Many Funds 'Risk Up' for Returns

FUND SPONSOR

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Many fund sponsors feel compelled to take on substantial market risk to attempt to close a funding gap or meet spending needs without eroding the corpus. Fund sponsors are further focusing on diversification within each asset class to help mitigate their overall risk.

Many Shocks, but No Signs of Slowing

EQUITY

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U.S. stocks inched higher, despite turbulent events in the news, and the **S&P 500 Index** hit a record high during the second quarter. Non-U.S. developed equity outperformed its U.S. counterpart, helped by a weak U.S. dollar, while emerging markets outpaced developed markets.

On the Hunt for More Yield Globally

FIXED INCOME

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In their continued hunt for stable yields, investors gravitated to corporate bonds in the U.S., and favored municipal bonds over Treasuries. Unhedged non-U.S. bonds got help from the weak dollar, while emerging market fixed income saw strong demand from yield-hungry investors.

Some Positive Signs Emerging

REAL ESTATE

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The **NCREIF Property Index** rebounded from last quarter's seven-year low return while the **NCREIF Open End Diversified Core Equity Index** set a new seven-year low. U.S. REITs underperformed global REITs, but still managed to generate positive returns.

Happy Campers

PRIVATE EQUITY

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A bucolic summer has favored the private equity market, with moderate increases across transactional measures and liquidity remaining hearty. Fundraising finished the quarter ahead of last year, buyout investment showed large gains, and venture investment ticked up.

As the World Churns, Despacito

HEDGE FUNDS

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The **Credit Suisse Hedge Fund Index** rose 0.8%, while the median manager in the **Callan Hedge Fund-of-Funds Database** advanced 0.9%. Growth in Europe and Japan this quarter provided a friendly setting for hedge funds seeking alternative risks.

Best Return for DC Index Since 2013

DEFINED CONTRIBUTION

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The Callan DC Index™ climbed 4.7% in the first quarter, its highest quarterly return since the end of 2013, after an 8.0% gain in 2016. But the DC Index did markedly lag the Age 45 Target Date Fund (+5.6%). Plan balances grew 4.74%, primarily driven by investment returns.

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
+3.0%	+5.8%	+1.4%	+3.5%

Sources: Bloomberg Barclays, MSCI, Russell Investment Group

Why Is Inflation So Low?

ECONOMY | Jay Kloepfer

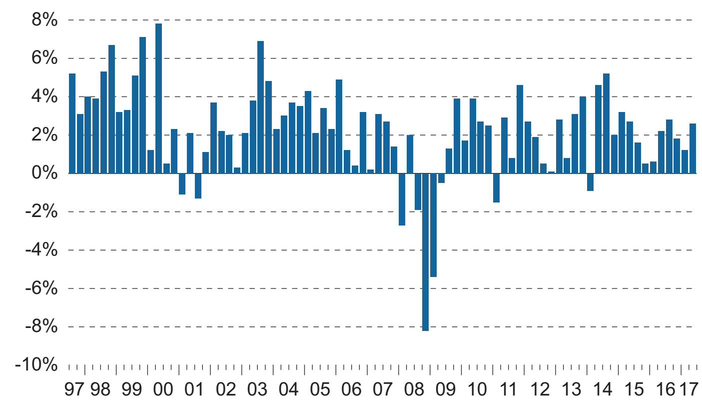
We are now eight years into the economic recovery in the U.S., arguably the latter stages of a mature expansion and at a point where inflationary pressures typically begin to build. Yet price and wage inflation remain stubbornly subdued. Headline and particularly core inflation have drifted down over the past several months. Headline inflation (the CPI – All Urban) climbed above 2% in December 2016 and stayed near 2.5% until May 2017, when it began to ebb. The Index was unchanged in June, meaning zero inflation month to month; the year-over-year change is now 1.6%. The Fed's targeted measure of core inflation (personal consumption expenditures (PCE) less food and energy) slipped to a year-over-year gain of just 1.4% in May and will likely show a flattening similar to the CPI-U in June. This decline in core inflation is both baffling and frustrating to the Fed, and it provides a headwind to its efforts to bring interest rates back to "normal."

Low wage growth is also a mystery in the U.S., where it has remained below 3% for years while the unemployment rate has fallen to a 16-year low of 4.4% in June, and stories of tight labor markets abound in industries around the country.

The explanations for persistent low inflation are varied, but there is no consensus on the cause. The most plausible reasons include: 1) lackluster global growth; 2) excess industrial capacity, much of it in China, pushing down goods prices; and 3) technology, specifically product and process innovations that slash production costs.

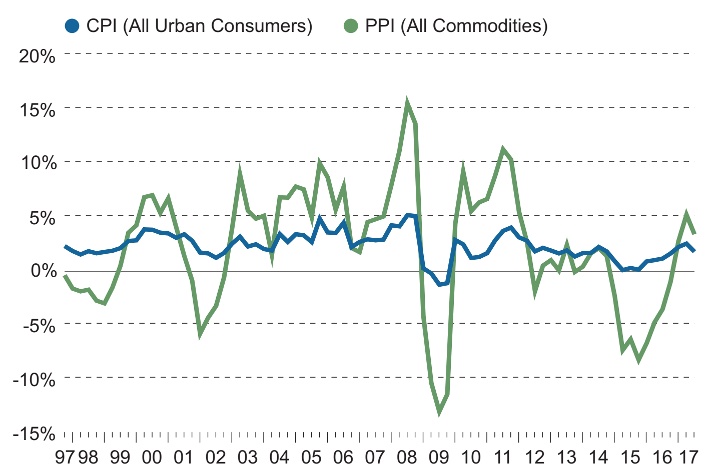
Weak wage growth is more of a conundrum, especially in economies such as the U.S. that appear to be at full employment. Why hasn't the job market pressure pushed up overall wages? More plausible explanations include: 1) a large pool remains of workers not properly captured in the official unemployment data (discouraged workers, the long-term unemployed); 2) the replacement of retiring higher-wage baby boomers with lower-wage young workers, skewing the average wage downward; 3) poor productivity growth, paired with 4) use of technology to replace workers with capital, particularly in low-wage, low-skilled jobs; and 5) a related shift in market power from labor to capital. None of these factors alone explain the persistence of low inflation and low wage growth, but the interaction of these factors tells a believable story.

Quarterly Real GDP Growth (20 Years)



Source: Bureau of Economic Analysis

Inflation Year-Over-Year



Source: Bureau of Labor Statistics

In addition to the conundrum of low inflation, the state of growth weighs heavily on the Fed's deliberations on the path to future interest rate hikes and the size of its balance sheet. Second quarter GDP growth came in at 2.6%, roughly in line with expectations. The solid (if unspectacular) figure built on the upward revision to disappointing data in the first quarter, which was adjusted up from 0.7% to 1.2%. Consumer spending, job growth, and capital spending have been strong enough to enable the U.S. economy to amble on at a reasonable if unspectacular (although sometimes halting) pace for eight years. Consumer spending has been the engine for growth, increasing faster than GDP (2.8% in the second quarter), and supported by gains in employment, disposable income, and household wealth. The combination of a strong job market, continued stock market gains, and the expectation for tax cuts coming from the Trump administration and the Republican Congress has fueled consumer confidence, and with it spending, since the start of 2017—although confidence did take a breather in the second quarter.

Business fixed investment enjoyed a strong first quarter with a 7.2% gain, driven by close to 15% growth in structures (including oil and gas mining), and followed with another 5% gain in the second quarter. The rebound in the oil and gas sector suggests the spending on capital has built some momentum.

Residential housing spending took a hit in the second quarter, falling by 6.8%, somewhat in defiance of the laws of economics as the supply of homes for sale is not keeping up with demand. The nation-wide average price for a new home reached an all-time high in May, topping $400,000. High prices should be driving builders to build, but the permits and starts for both single-family and multi-family homes declined in May before recovering somewhat in June. The restraint on construction activity may stem from tightened standards on commercial real estate loans, particularly on multi-family homes, and rising interest rates.

The Long-Term View

Index	2017 2nd Qtr	Periods ended Dec. 31, 2016 Year	5 Yrs	10 Yrs	25 Yrs
U.S. Equity					
Russell 3000	3.02	12.74	14.67	7.07	9.29
S&P 500	3.09	11.96	14.66	6.95	9.15
Russell 2000	2.46	21.31	14.46	7.07	9.69
Non-U.S. Equity					
MSCI ACWI ex USA	5.78	4.50	5.00	0.96	–
MSCI Emerging Markets	6.27	11.19	1.28	1.84	–
MSCI ACWI ex USA Small Cap	8.07	3.78	9.67	3.03	6.70
Fixed Income					
Bloomberg Barclays Agg	1.45	2.65	2.23	4.34	5.63
90-Day T-Bill	0.20	0.33	0.12	0.80	2.71
Bloomberg Barclays Long G/C	4.39	6.67	4.07	6.85	7.58
Bloomberg Barclays Gl Agg ex US	3.55	1.49	-1.39	2.44	4.73
Real Estate					
NCREIF Property	1.75	7.97	10.91	6.93	8.63
FTSE NAREIT Equity	1.52	8.52	12.01	5.08	11.13
Alternatives					
CS Hedge Fund	0.76	1.25	4.34	3.75	–
Cambridge PE*	–	9.20	12.78	9.40	15.39
Bloomberg Commodity	-3.00	11.77	-8.95	-5.57	2.55
Gold Spot Price	-0.71	8.63	-5.97	6.08	4.82
Inflation – CPI-U	0.47	2.07	1.36	1.81	2.26

*Most recent quarterly data not available.
Sources: Bloomberg Barclays, Bloomberg, Credit Suisse, FTSE, MSCI, NCREIF, Russell Investment Group, Standard & Poor's, Thomson Reuters/Cambridge, Bureau of Economic Analysis.

Recent Quarterly Economic Indicators

	2Q17	1Q17	4Q16	3Q16	2Q16	1Q16	4Q15	3Q15
Employment Cost–Total Compensation Growth	2.4%	2.4%	2.2%	2.3%	2.3%	1.9%	2.0%	2.0%
Nonfarm Business–Productivity Growth	1.3%*	0.0%	1.8%	3.3%	-0.1%	-0.7%	-2.0%	1.8%
GDP Growth	2.6%	1.2%	1.8%	2.8%	2.2%	0.6%	0.5%	1.6%
Manufacturing Capacity Utilization	75.5%	75.3%	75.1%	74.9%	75.1%	75.4%	75.4%	75.7%
Consumer Sentiment Index (1966=100)	96.4	97.2	93.2	90.3	92.4	91.5	91.3	90.8

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

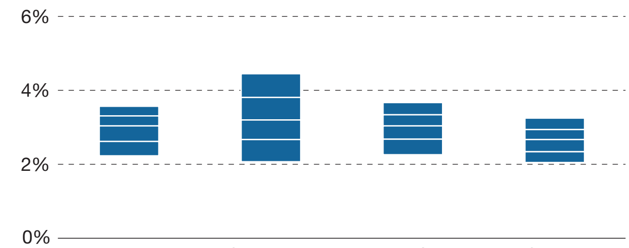
Many Funds 'Risk Up' for Returns

FUND SPONSOR | Todd Carabasi, Tom Shingler

Fund sponsors are beginning to come to grips with lower capital market return expectations. Pension funds are reducing actuarial return assumptions, and endowments and foundations are discussing and making adjustments to spending rules. Some funds are addressing this issue by taking on substantial market risk (80%-85% in risky assets) to attempt to close a funding gap or meet spending needs without eroding the corpus. Fund sponsors are further focusing on diversification within each asset class to help mitigate their overall risk.

Fund sponsors face the challenge of looking for investments with attractive real return expectations while seeking at least some diversification to the beta of equities to smooth the ride within the growth allocation. By focusing on diversifiers, funds can consider adding investments like high yield, low-volatility equity, hedge funds, multi-asset class funds, and options-based strategies. This also allows for new strategies to be brought into the fold, based on anticipated diversification benefits or return enhancement. This broadening of growth assets can lead to a sharper focus on refining fixed income exposure to gain a "purer" exposure to interest rate sensitivity and to serve as an anchor to the portfolio in a bear market (e.g., allocating the fixed income portfolio to long-duration Treasuries).

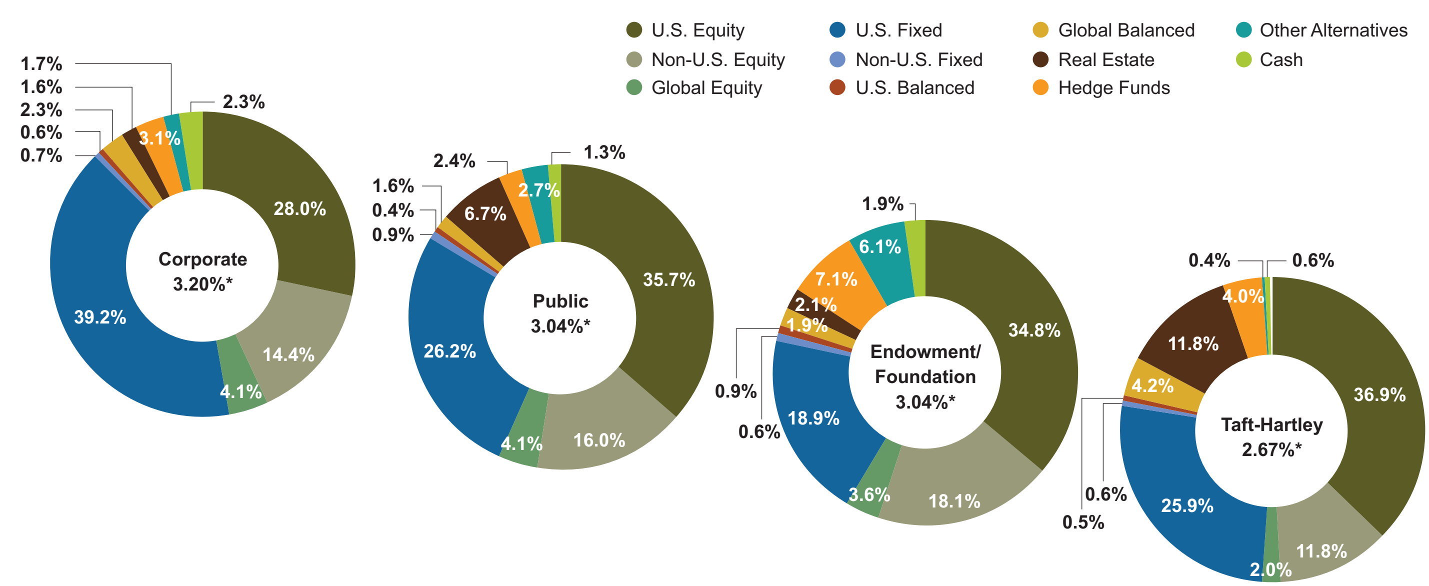
Callan Fund Sponsor Returns for the Quarter



	Public Database	Corporate Database	Endow/Fndn Database	Taft-Hartley Database
10th Percentile	3.57	4.45	3.67	3.25
25th Percentile	3.31	3.81	3.34	2.94
Median	3.04	3.20	3.04	2.67
75th Percentile	2.62	2.67	2.68	2.34
90th Percentile	2.23	2.07	2.26	2.05

Source: Callan

Callan Fund Sponsor Average Asset Allocation



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

At the same time, with U.S. equities continuing their unprecedented positive run, fund sponsors are asking the question "Why diversify?" The answer: While results in non-U.S. equity, real assets, and alternatives have lagged U.S. equities in the last five years, their longer-term diversifying characteristics warrant consideration.

The active/passive discussion continues to loom large. The argument to retain active managers to protect in a down market and be nimble in a volatile, low-return environment is compelling to some, but many fund sponsors are weary of historical underperformance by active equity managers. Additionally, the use of passive management helps control costs.

Callan has observed the following trends over the last five years:

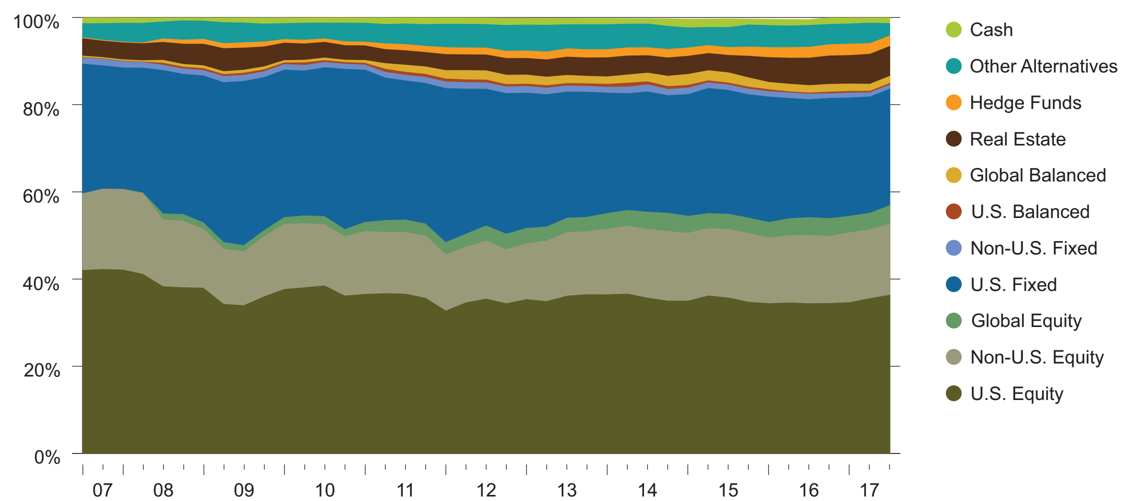
– The U.S. fixed income allocations for corporate plan sponsors has increased overall and has become more widely dispersed as plans take different steps to de-risk plan assets.
– Many public funds have increased their allocation to non-U.S. equity, real estate, and other alternatives at the expense of fixed income and U.S. equity. Simultaneously, some of the fixed income exposure has become more equity-like in nature, with allocations to areas like high yield.
– Endowments and foundations have continued to move assets from fixed income to asset classes with expectations for higher returns, such as global equity and real estate.

A 60% S&P 500/40% Bloomberg Barclays U.S. Aggregate Bond Index portfolio returned 10.4% over the year ended June 30, 2017. All of the broad fund sponsor groups tracked in Callan's database topped the 60/40 portfolio over that period.

Endowments and foundations underperformed other fund sponsor groups over the past three, five, and ten years. But they did have the best performance over the last year.

Taft-Hartley plans were the best-performing group over the past three and five years. Corporate plans beat other groups over the last 10 years.

Callan Public Fund Database Average Asset Allocation (10 Years)



Source: Callan. Callan's database includes the following groups: public defined benefit, corporate defined benefit, endowments/foundations, 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. Stocks: Shocks, but No Slowing

+3.0%
RUSSELL 3000

Despite an increase in interest rates and turbulent events in the news, including disruptions within the Trump administration and terrorist attacks in the U.K., U.S. stocks continued to inch higher during the second quarter. Amid this volatile macro backdrop, S&P 500 companies reported the strongest quarterly earnings growth rate in six years (70% reported profits above expectations), and the **S&P 500 Index** hit a record high during the quarter.

Large cap stocks outperformed mid and small caps (S&P 500 Index: +3.1%; **Russell 2000 Index:** +2.5%). Strong earnings reports out of large cap stocks contributed to their leg up over small cap. Large cap was also buoyed by the continued flow of assets into passively managed strategies, especially ETF vehicles.

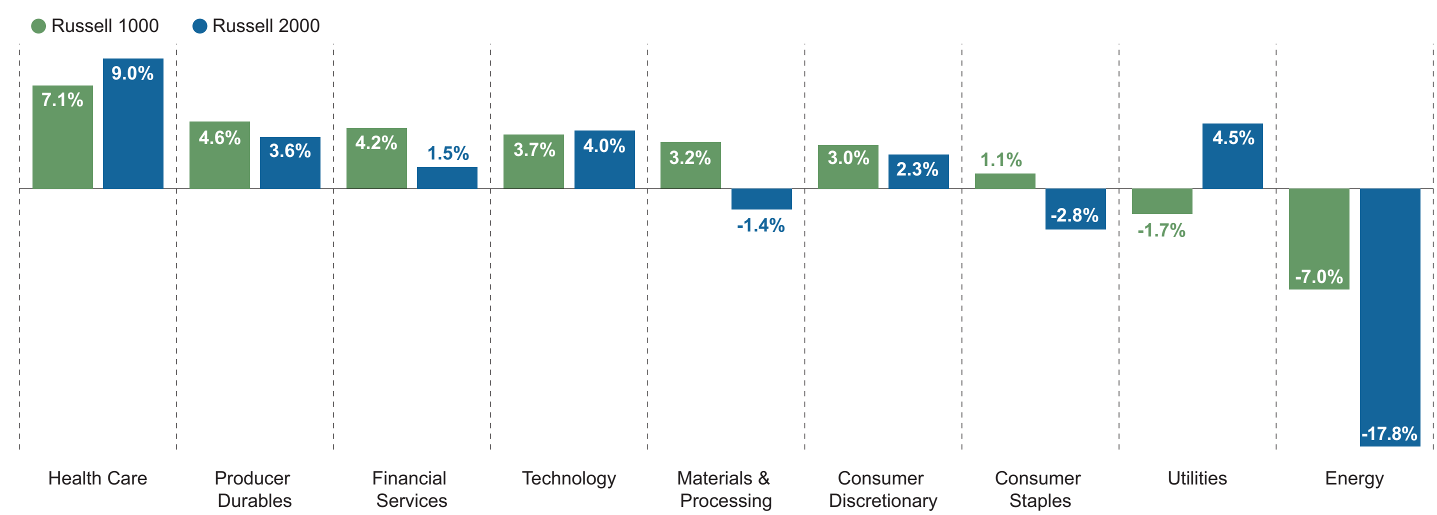
Small cap valuations kept stretching higher and, as a result, investors continued to take profits following a boon year in 2016. The continued expansion in small cap multiples may be giving some investors pause, particularly as the current economic upturn is nearing nine years.

Growth outperformed value across large and small caps (**Russell 1000 Growth:** +4.7% vs. **Russell 1000 Value:** +1.3%; **Russell 2000 Growth:** +4.4% vs. **Russell 2000 Value:** +0.7%). The strong-performing "FAAMG" stocks (Facebook, Amazon, Apple, Microsoft, and Google) comprised 22% of the S&P 500's return in the second quarter versus 32% in the first. Investors continued to be drawn to the top-line growth prospects and market share gains at these large, established firms.

Investor sentiment broadened across sectors in the second quarter compared to the first, as a wider range of firms reported positive results. Top sectors in the S&P 500 included Health Care (+7.1%), which rallied on the Trump administration's prospect of change to the Affordable Care Act; Industrials (+4.7%), which benefited from declining commodity prices; Financials (+4.2%), spurred by the Fed's announcement that 34 of the largest banks passed their stress tests, the largest cohort to do so since the tests began; and Tech (+4.1%), on the continued rise of those FAAMG stocks.

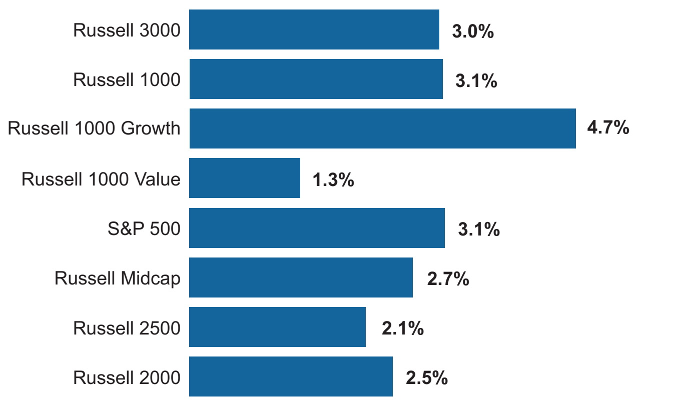
Energy (-6.4%) and Telecom (-7.0%) were the laggards. Crude oil prices fell due to an increase in supply, the result of a milder winter. In addition, improving efficiency within the U.S. fracking

Quarterly Performance of Select Sectors



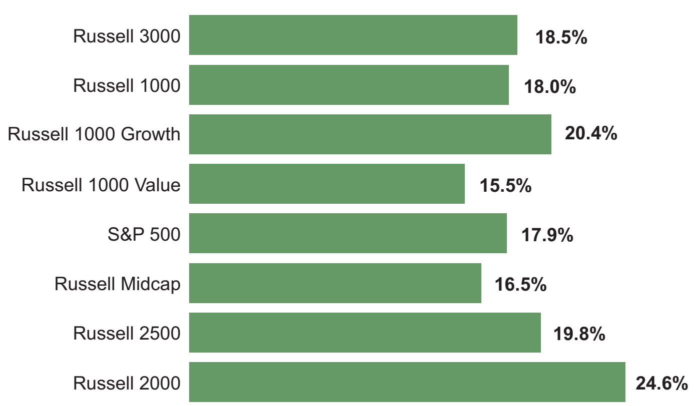
Source: Russell Investment Group

U.S. Equity: Quarterly Returns



Sources: Russell Investment Group and Standard & Poor's

U.S. Equity: One-Year Returns



Sources: Russell Investment Group and Standard & Poor's

industry impacted prices. Within Telecom, competition for market share intensified in the increasingly commoditized (and consolidated) space.

Value stocks were hurt by Consumer Staples companies resetting to more sensible valuations following the strong rally in 2016 that resulted from the "yield trade," as investors sought the safety of strong dividends and lower-volatility stocks.

From a factor perspective, Momentum (+7.9%) was the top-performing factor while Enhanced Value (weighted to the forward price-earnings ratio, enterprise value/cash flow from operations, and price-to-book value of stocks in the factor) fared worst (+1.3%). Momentum was favored as investors sought stocks with demonstrated earnings growth.

Non-U.S. Stocks: Europe's Recovery a Boost

+5.8%
MSCI ACWI ex USA

Non-U.S. developed equity outperformed the U.S. for the second consecutive quarter, fueled by economic recovery in Europe and market-friendly outcomes in European elections. The **MSCI Europe Index** jumped 7.4% and the **MSCI World ex USA Index** notched a 5.6% gain, compared to the 3.1% rise in the S&P 500.

Gains were broad-based and helped by weakness in the U.S. dollar, which lost about 7% versus the euro and 5% versus a broad basket of currencies.

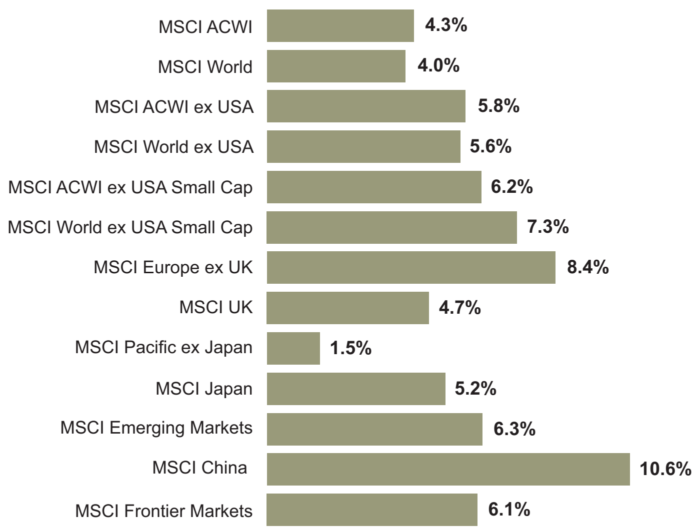
The euro rallied as a result of hawkish comments from the European Central Bank, coupled with improving European economic and sentiment indicators. European Financials benefited from expectations of higher rates, and European Industrials were propped up by stronger economic expectations.

Energy and Telecom Services were the only sectors in developed markets with negative second quarter returns. Energy fell as oil prices continued to languish due to an imbalance between supply and demand—despite OPEC's efforts to cut production. Telecom Services were buffeted by pricing pressure.

Within the MSCI indices, Europe ex-U.K. was up 8.4%, the U.K gained 4.7%, and Japan returned 5.2%. Small caps outperformed; the **MSCI EAFE Small Cap Index** rose 8.1%.

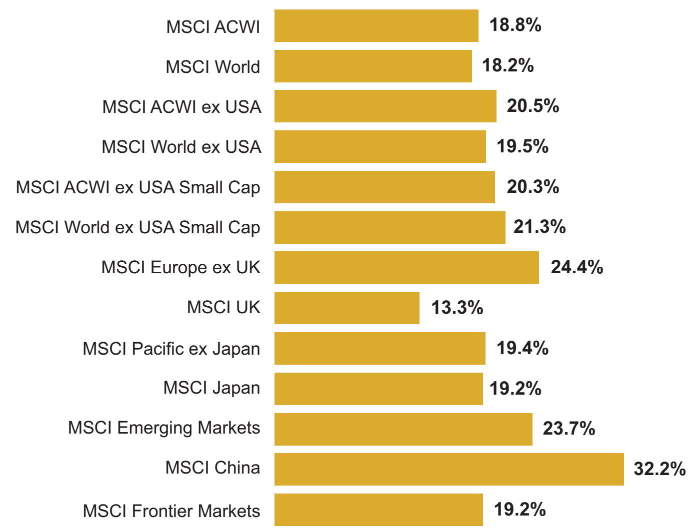
Looking at the global picture for stocks, the **MSCI ACWI Index** gained 4.3%, and developed and emerging markets outperformed the U.S. (**MSCI ACWI ex USA Index:** +5.8%), due largely to broad-based weakness in the U.S. dollar.

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



Source: MSCI

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



Source: MSCI

Emerging Markets: Tech Triumphs

+6.3%
MSCI EM

Emerging markets outpaced the developed markets for the second straight quarter, propelled by Technology companies in China, South Korea, and Taiwan. The **MSCI Emerging Markets Index** gained 6.3%. Industry leaders in online and mobile commerce, payments, digital media, cloud computing, and smartphones are monopolizing the markets. That includes Tencent and Alibaba in China; Samsung in South Korea; and Taiwan Semiconductor Manufacturing in Taiwan.

Positive economic momentum and European election results placed Greece (+33.8%) and Hungary (+19.4%) as the top two performing countries in emerging markets. China rose 10.6%, while India's gain was muted at +2.9%, though it remains a top performer year-to-date (+21%). The three worst-performing countries were Qatar (-10.9%), Russia (-10.0%), and Brazil (-6.7%). Qatar was hit after four Arab nations (Saudi Arabia, the United Arab Emirates, Egypt, and Bahrain) imposed an embargo, accusing the country of backing terrorism. Russia slumped because of declining oil prices and looming new sanctions. And continuing political instability in Brazil (including President Michel Temer's bribery scandal) and commodity prices weighed on the country.

Quality, growth, and momentum factors dominated the market given the returns of large cap technology companies.

Non-U.S. Small Cap: All Over the Map

+6.2%
MSCI ACWI ex US SC

Developed non-U.S. small cap stocks outperformed large cap equity, as they were better positioned for the local economic recovery in Europe. But small cap equity lagged large cap in emerging markets, due to the performance of the large cap tech companies. The **MSCI World ex USA Small Cap Index** climbed 7.3% while the **MSCI Emerging Markets Small Cap Index** increased 2.6%.

Energy was the worst-performing sector in developed and emerging markets due to declining oil prices, which also caused growth to outperform value in developed small cap. Financials, the top performing sector for the quarter, offset Energy; on the heels of positive economic data and election results, Eastern European Financials rallied.

Global Fixed Income

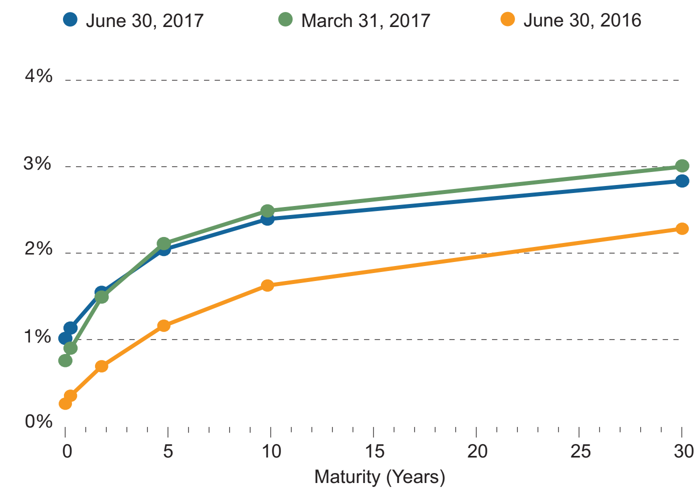
U.S. Bonds: On the Hunt for Yield

+1.4%

BB AGGREGATE

Corporate bonds performed best in the second quarter on strong demand. Investors continued their hunt for stable yields that are higher than what is available for like-duration government bonds. The **Bloomberg Barclays US Corporate Bond Index** was up 2.5% (+3.8% year to date), while the **Bloomberg Barclays US Aggregate Bond Index** rose 1.4% (+2.3% YTD). Credit fundamentals remained strong with solid earnings growth and a modest (but acceptable) economic growth environment; corporate balance sheets appeared to be in good shape. And although rates have moved higher on the front end, overall the curve has flattened; the demand for yield is providing support for spread sectors broadly.

U.S. Treasury Yield Curves

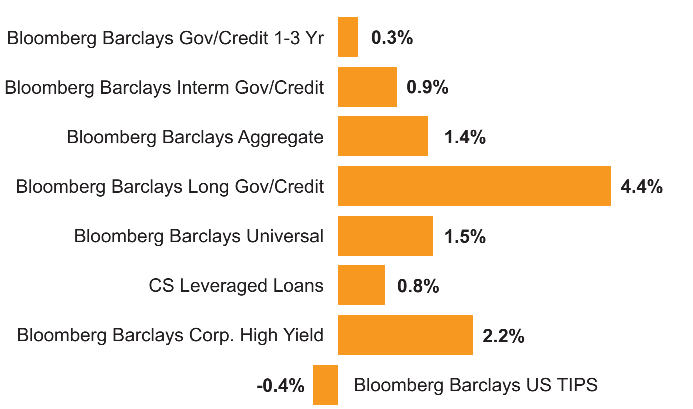


Source: Bloomberg

The **Bloomberg Barclays Corporate High Yield Index** increased 2.2%. Low interest rates continued to be a catalyst pushing investors out the risk spectrum in search of higher yields. Default expectations are low across most sectors, providing some comfort to investors. Energy was the only high-yield sector to decline (-0.66%). Rising inventories and concern over OPEC policy put pressure on oil prices, which have fallen approximately 17% so far this year.

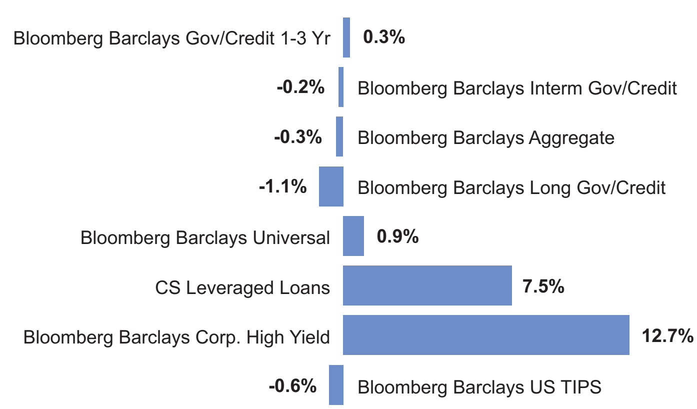
In the government market, municipal bonds outperformed Treasuries. The **Bloomberg Barclays Municipal Bond Index** was up 2.0%, compared to the **Bloomberg Barclays US Treasury Index** (+1.2%). Results were bolstered by lowered expectations for tax reform and favorable supply/demand technicals. The Fed, viewing inflation weakness as temporary, raised rates by 25 basis points, as expected. The yield curve flattened over the quarter, with short rates rising and longer

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 rates falling. The 10-year U.S. Treasury yield closed the quarter at 2.31%, down from 2.40% as of March 31, though it hit a 2017 low of 2.12% earlier in June. The 2-year U.S. Treasury yield climbed 11 bps to close at 1.38%.

TIPS underperformed as expectations for inflation sank, a reversal from the previous quarter; the **Bloomberg Barclays US TIPS Index** fell 0.4%. The 10-year breakeven spread (the difference between nominal and real yields) was 1.73% as of quarter-end, down from 1.97% at the end of the first quarter, as inflation came in below expectations for the third consecutive month.

Non-U.S. Bonds: Our Pain, Their Gain

+3.5%

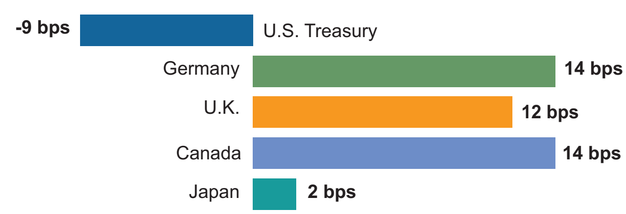
BB GBL AGG ex US

A weaker U.S. dollar helped unhedged non-U.S. bonds and hindered hedged bonds. The **Bloomberg Barclays Global Aggregate ex-US Bond Index** (unhedged) jumped 3.5%, while the hedged Index rose only 0.6%. The U.S. dollar lost nearly 7% versus the euro and almost 5% versus a broad basket of developed market currencies. Positive economic growth and hawkish rhetoric from the European Central Bank (ECB) and the Bank of England drove strong results in the euro and the British pound compared to the U.S. dollar. The quarter closed with an upbeat assessment of the euro zone's recovery from the president of the ECB, Mario Draghi, fueling speculation that the tapering of ECB asset purchases may be on the horizon. This change in tone spooked investors and sent global yields higher and stocks lower going into quarter-end.

Despite growing geopolitical tension and pressure on energy and commodity prices, the demand for yield drove returns in emerging market (EM) debt amid a strong technical climate supported by robust investor flows. The dollar-denominated **JPM EMBI Global Diversified Index** was up 2.2%, and the local currency-denominated **JPM GBI-EM Global Diversified Index** jumped even more sharply, rising 3.6%. The weaker U.S. dollar and relatively higher local yields pushed EM local debt returns higher for the quarter and the year, continuing the post-election rebound.

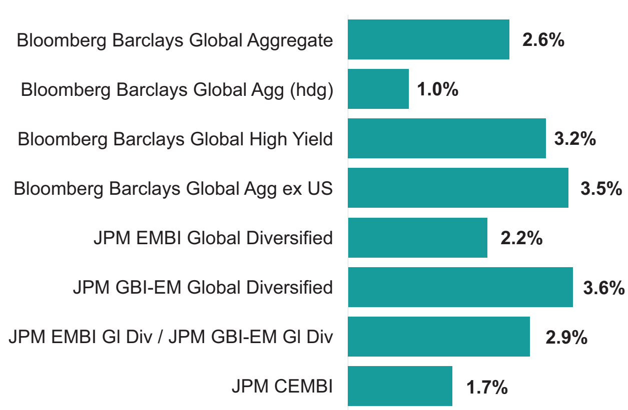
Change in 10-year Global Government Bond Yields

1Q17 to 2Q17



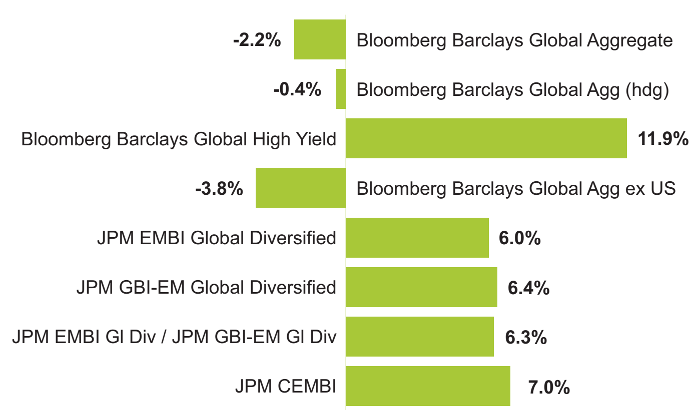
Source: Bloomberg Barclays

Non-U.S. Fixed Income: Quarterly Returns



Sources: Bloomberg Barclays and JP Morgan

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



Sources: Bloomberg Barclays and JP Morgan

Some Positive Signs Emerging

REAL ESTATE | Kevin Nagy

The **NCREIF Property Index** advanced 1.8% during the second quarter (1.2% from income and 0.6% from appreciation). This marked the 34th consecutive quarter of positive returns for the Index. Appreciation return increased from the previous quarter, the first such gain since the first quarter of 2015.

Industrial (+3.1%) was the best-performing sector for the fifth consecutive quarter with Hotel (+1.8%), Office (+1.6%), Retail (+1.5%), and Apartments (+1.5%) also gaining. The West region was the strongest performer for the third quarter in a row, returning 2.2%, and the Midwest lagged with a 1.3% return. Transaction volume increased to $7.7 billion, up 11% from the first quarter but down 14.5% from the second quarter of 2016. Appraisal capitalization rates increased to 4.5%, slightly up from last quarter. Transaction capitalization rates fell to 6.1% from last quarter's 12-quarter high of 6.3%. The spread between appraisal and transaction rates decreased to 1.6 percentage points.

Occupancy rates fell for the second consecutive quarter to 92.8%. Apartment and Retail occupancy rates increased slightly while Industrial and Office rates decreased.

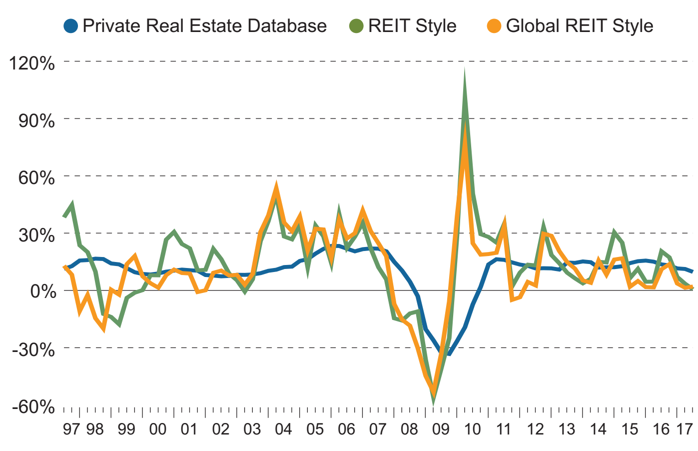
The **NCREIF Open End Diversified Core Equity Index** rose 1.7% (1.1% from income and 0.6% from appreciation), a decline from the first quarter and the lowest since 2010. Income returns increased slightly and appreciation fell to a new seven-year low.

Global real estate investment trusts (REITs), tracked by the **FTSE EPRA/NAREIT Developed REIT Index** (USD), posted a 3.1% return, outpacing U.S. REITs, which gained 1.5% as measured by the **FTSE NAREIT Equity REITs Index**.

In the U.S., REITs rebounded in June after being relatively flat in April and negative in May. Retail (-7.6%) was again the worst performer, depressed by weak earnings results from large retailers and the growing market share of e-commerce. Self-Storage (-2.7%), Specialty (-0.6%), and Timber (-0.1%) also fell. Health Care (+5.3%) remained strong as efforts to overturn the Affordable Care Act faltered. Industrial (+12.0%), Data Centers (+9.2%), Infrastructure (+8.8%), and Residential (+6.0%) all experienced strong gains.

Europe, as represented by the **FTSE EPRA/NAREIT Europe Index**, was the strongest performing region, returning 10.6% in U.S. dollar terms. The euro's appreciation against the dollar was a major driver of returns, as was strong, diversified growth across the majority of the region's economies. The successful takeover of several Spanish and Italian banks boosted continental European stocks and helped them outperform their U.K. peers.

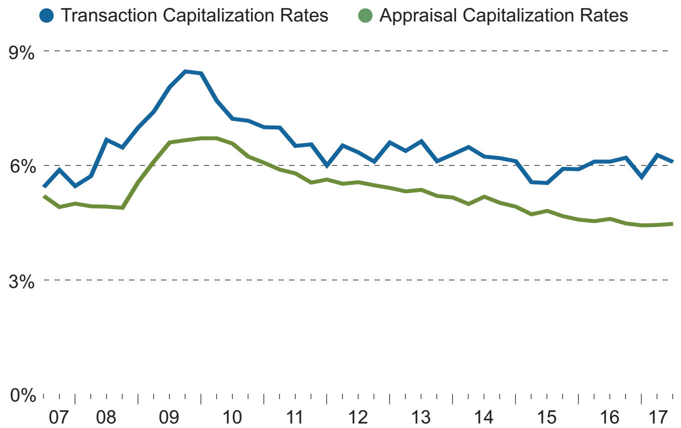
Rolling One-Year Returns



Source: Callan

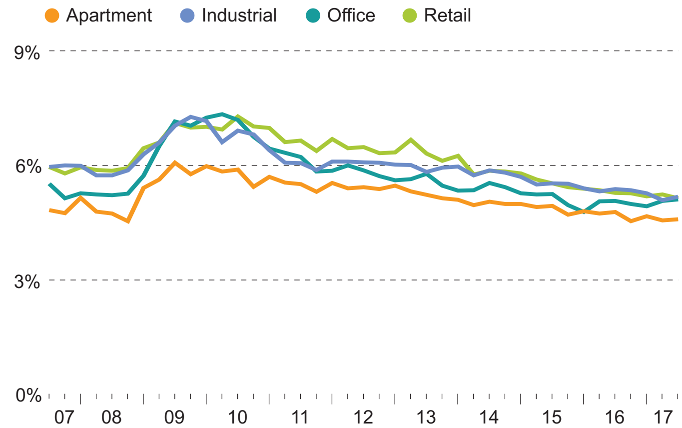
*Index subreturns are calculated separately from index return and may not total.

NCREIF Transaction and Appraisal Capitalization Rates



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

NCREIF Capitalization Rates by Property Type



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

The Asia-Pacific region outperformed the U.S. but lagged Europe. Singapore and Hong Kong again provided the strongest regional performance while Australia lagged behind, hurt by a weak retail sector. Japanese REITs suffered negative returns this quarter, but strong results from Japanese developers were enough to push the aggregate real estate index to a positive return.

Commercial mortgage-backed securities (CMBS) issuance for the quarter increased to $20.2 billion, a 45% increase over $13.9 billion in the first quarter. This also represented a 79% increase over the second quarter of 2016 ($11.3 billion).

Happy Campers

PRIVATE EQUITY | Gary Robertson

New private equity partnership commitments totaled $85.5 billion in the second quarter, with 319 new partnerships formed, according to *Private Equity Analyst.* The number of funds increased 3% from 310 in the first quarter, and the dollar volume rose 7% from $80.0 billion. Apollo IX raised the most capital in the quarter, $23.5 billion, and subsequently topped up to $24.6 billion for the final close—the largest buyout fund ever raised. The largest European (CVC VII: $19 billion) and Asian (KKR Asia III: $9.3 billion) funds were also closed this quarter.

Funds Closed January 1 to June 30, 2017

Strategy	No. of Funds	Amt ($mm)	Percent
Venture Capital	282	16,421	10%
Buyouts	220	120,352	73%
Subordinated Debt	26	7,326	4%
Distressed Debt	13	7,189	4%
Secondary and Other	23	5,249	3%
Fund-of-funds	65	8,945	5%
Totals	**629**	**165,481**	**100%**

Source: Private Equity Analyst
Figures may not total due to rounding.

Investments by funds into companies totaled 127 deals, up 69% from 75 in the prior quarter, according to *Buyouts* newsletter. The announced total volume was $72 billion, up 177% from $26 billion in the first quarter. Fifteen deals with announced values of $1 billion or more closed in the quarter.

New investments in venture capital companies totaled 1,963 rounds of financing with $21.8 billion of announced value, according to the National Venture Capital Association. The number of rounds closely mirrored the 1,954 in the first quarter, but announced dollar value increased 36% from $16.0 billion.

Buyouts reports there were 161 private M&A exits of buyout-backed companies, with 41 deals disclosing values totaling $18.3 billion. The M&A exit count was flat with the prior quarter's 162, but the announced value increased 15% from $15.9 billion. There were seven buyout-backed IPOs in the second quarter (a two-year high), raising an aggregate $2.0 billion. The number increased from five the prior quarter, but the total proceeds decreased from $3.1 billion.

Venture-backed exits (both private sales and IPOs) totaled 156 transactions, and disclosed value totaled $10.5 billion. Exits declined 19% from the first quarter's 192, and the dollar volume declined 28% from $14.6 billion.

Please see our upcoming issue of Private Markets Trends for more in-depth coverage.

Private Equity Performance Database (%) (Pooled Horizon IRRs through March 31, 2017*)

Strategy	3 Months	Year	3 Years	5 Years	10 Years	15 Years	20 Years
All Venture	3.17	6.77	12.30	14.35	9.71	7.66	21.22
Growth Equity	4.16	12.02	9.70	11.51	10.34	11.37	13.60
All Buyouts	4.34	14.55	10.29	12.76	9.19	13.54	12.56
Mezzanine	2.83	9.47	8.13	9.70	8.83	9.52	9.06
Distressed	3.37	14.72	6.83	10.55	9.29	10.83	10.70
All Private Equity	**3.95**	**12.61**	**10.07**	**12.52**	**9.39**	**11.70**	**13.15**
S&P 500	6.07	17.17	10.37	13.30	7.51	7.09	7.86
Russell 3000	5.74	18.07	9.76	13.18	7.54	7.44	8.11

Private equity returns are net of fees.
Sources: Standard & Poor's and Thomson Reuters/Cambridge
*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.

As the World Churns, Despacito

HEDGE FUNDS | Jim McKee

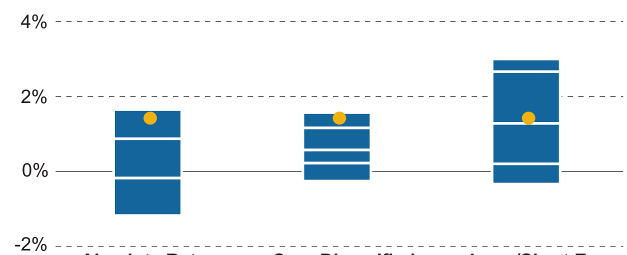
Stock lovers embraced the slowly shifting narrative of global growth appearing in Europe and Japan in the second quarter. Fixed income markets were unsettled when the European Central Bank hinted at potentially tapering its bond purchase program.

The quarter's market conditions provided a friendly setting for hedge funds seeking alternative risks. Illustrating raw hedge fund performance without implementation costs, though net of underlying hedge fund fees, the **Credit Suisse Hedge Fund Index** (CS HFI) rose 0.8%. As a live hedge fund portfolio, net of all fees and expenses, the median manager in the **Callan Hedge Fund-of-Funds Database** advanced 0.9%.

Within the CS HFI, *Long/Short Equity* (+3.1%) repeated as the best-performing strategy for the second straight quarter. *Risk Arbitrage* rallied 2.7% while *Distressed* appreciated 1.6%. *Convertible Arb* (+0.2%) and *Equity Market Neutral* (+0.4%) experienced more modest gains. In last place for the second straight quarter, *Managed Futures* lost 3.4%. Even the more discretionary *Global Macro* (-1.8%) lost its footing with the unexpected turn of top-down themes.

Within Callan's **Hedge Fund-of-Funds Database,** the median *Callan Long/Short Equity FOF* (+1.3%) outpaced the *Callan Absolute Return FOF* (+0.9%). With diversifying exposures to both non-directional and directional styles, the *Core Diversified FOF* gained 0.6%.

Callan Style Group Quarterly Returns



	Absolute Return FOF Style	Core Diversified FOF Style	Long/Short Eq FOF Style
10th Percentile	1.70	1.57	3.00
25th Percentile	1.65	1.16	2.66
Median	0.87	0.57	1.28
75th Percentile	-0.18	0.22	0.20
90th Percentile	-1.18	-0.26	-0.34
T-Bill + 5% ●	1.42	1.42	1.42

Sources: Callan and Merrill Lynch

Callan Database Median and Index Returns* for Periods ended June 30, 2017

	Quarter	YTD	Year	3 Years	5 Years	10 Years	15 Years
Hedge Fund-of-Funds Database	**0.94**	**3.26**	**8.12**	**1.78**	**5.39**	**2.90**	**4.88**
CS Hedge Fund Index	0.76	2.85	5.84	1.54	4.47	3.18	5.84
CS Equity Market Neutral	0.36	2.50	1.38	-0.40	1.89	-3.18	0.42
CS Convertible Arbitrage	0.21	2.46	6.82	1.90	3.53	3.42	4.67
CS Fixed Income Arbitrage	1.62	3.97	8.66	3.26	4.62	3.44	4.11
CS Multi-Strategy	2.29	5.11	9.05	5.53	7.41	4.88	7.02
CS Distressed	1.64	3.90	10.58	0.28	5.90	3.45	7.25
CS Risk Arbitrage	2.73	3.97	7.19	1.89	3.18	3.23	3.95
CS Event-Driven Multi-Strategy	0.76	3.67	8.73	-2.05	4.09	2.83	6.30
CS Long/Short Equity	3.06	6.62	8.40	2.97	7.00	3.73	6.49
CS Global Macro	-1.77	-1.54	3.58	1.43	2.79	4.85	7.47
CS Managed Futures	-3.40	-4.38	-12.70	1.26	0.06	1.49	4.07
CS Emerging Markets	2.67	7.05	11.25	4.30	5.91	3.47	8.10

*Returns less than one year are not annualized. Sources: Callan and Credit Suisse.

Best Return for DC Index Since 2013

DEFINED CONTRIBUTION | Tom Szkwarla

The Callan DC Index™ climbed 4.7% in the first quarter, its highest quarterly return since the end of 2013. This performance builds on results for 2016, when the Index rose 8.0%. But the DC Index did markedly lag the Age 45 Target Date Fund (+5.6%). In rising markets target date funds (TDFs) tend to outperform the DC Index because the average TDF has a higher allocation to equities than the average defined contribution (DC) plan.

During the quarter, plan balances grew 4.74%; investment returns accounted for the vast majority (4.67% vs. 0.07% for contributions). Since inception of the Index, plan sponsor and participant contributions have accounted for about a quarter of its growth.

Emerging market stocks, while a small part of DC plans, represented the sole equity asset class to witness inflows. This is not surprising given their strong showing during the period—DC flows often chase performance. Most other asset classes saw outflows in the first quarter, with the exception of TDFs, which dominated inflows as usual. In the first quarter, TDFs attracted over 88 cents of every dollar that moved within DC plans.

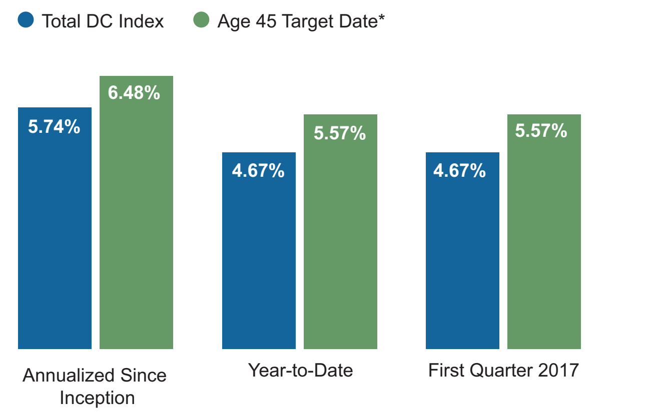
Turnover (i.e., net transfer activity within DC plans) was low this quarter (0.42%) compared to the historical average (0.64%).

The Callan DC Index's equity allocation ended the quarter at 69%, well below the average equity allocation of the Age 45 Target Date Fund (76%) but above the Index's historical average (67%).

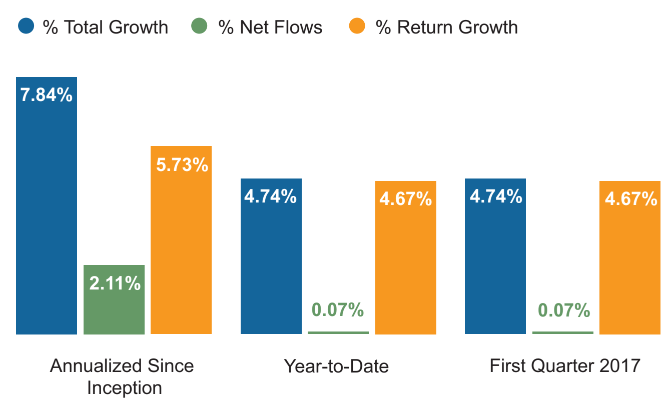
When TDFs are held within a DC plan, they now account for 32% of plan assets. The next largest plan holding, U.S. large cap equity funds, account for less than 23% of plan assets.

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 $135 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 2017)

(Top Two and Bottom Two Asset Gatherers)

Asset Class	Flows as % of Total Net Flows
Target Date Funds	88.69%
U.S. Fixed Income	7.25%
Company Stock	-15.92%
Stable Value	-36.49%
Total Turnover**	**0.42%**

Data provided here is the most recent available at time of publication.

Source: Callan DC Index

Note: DC Index inception date is January 2006.

* The Age 45 Fund transitioned from the average 2030 TDF to the 2035 TDF in June 2013.

** 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, international, real estate, and other capital markets.

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