Callan

Fourth Quarter 2017

Sentiment Restored. Is It Time to Worry?

ECONOMY

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The U.S. economy ended 2017 with a 2.6% gain in GDP in the fourth quarter, averaging 2.3% for the year, up from 1.5% in 2016. That is especially impressive given the damage from severe hurricanes in the third quarter. Enthusiasm for growth is apparent, but is now the time to worry?

Non-U.S. Bias Rewarded Plans

FUND SPONSOR

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Endowments and foundations (+3.8%) performed best last quarter, followed by public plans (+3.7%), Taft-Hartley plans (+3.6%), and corporate plans (+3.5%). By fund size, plans with assets under $100 million performed best, thanks to larger allocations to non-U.S. equity.

Synchronicity Powers Global Markets

EQUITY

6 PAGE

A strong quarter closed out a strong year for markets around the world, powered by synchronized global economic growth, a new tax law in the U.S., and low interest rates and inflation. Emerging markets outpaced developed markets for the fourth straight quarter.

Tight Spreads in U.S.; Developed Returns Flat

FIXED INCOME

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In the U.S., longer-term bonds topped short-term and intermediate-maturity bonds. Investment-grade corporate debt was the best-performing fixed income sector. Returns were mostly flat in developed markets; emerging market debt delivered more muted returns than in earlier quarters.

Europe Best Region for REITs

REAL ESTATE

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The **NCREIF Property Index** notched its 36th straight quarter of positive returns, rising 1.8%, while the **NCREIF Open End Diversified Core Equity Index** was up 2.1%. European REITs were the best performers; U.S. REITs generated positive returns.

2017 Fundraising Sets New Record

PRIVATE EQUITY

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Investor enthusiasm abounds for private equity as evidenced by record fundraising. However, rising valuations, increasing borrowing costs, and the yet-to-be-determined impact of tax reform on borrowing levels and valuations bear vigilance moving forward.

Risk Takers See Less as More

HEDGE FUNDS/MACs

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The **Credit Suisse Hedge Fund Index** rose 2.3%, while the **Callan Hedge Fund-of-Funds Database** advanced 1.8%. The **Callan Multi-Asset Class Database** was up 3.6%. In general, hedge funds experienced positive but more modest results than market indices.

DC Plans on Track to Win Big in 2017

DEFINED CONTRIBUTION

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The Callan DC Index™ recorded a solid 3.8% gain during the third quarter, its eighth straight quarter of positive performance. And the Index is up 11.9% year to date, which marks its best showing for the first three quarters of a year since 2013.

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
+6.3%	+5.0%	+0.4%	+1.6%

Sources: Bloomberg Barclays, MSCI, Russell Investment Group

Knowledge. Experience. Integrity.

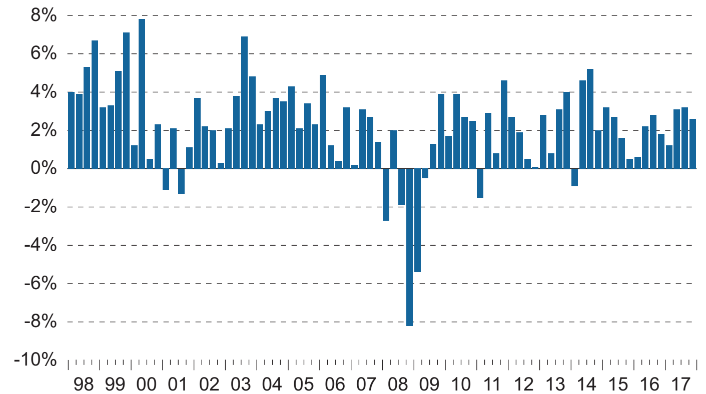
Sentiment Restored. Is It Time to Worry?

ECONOMY | Jay Kloepfer

The U.S. economy closed out 2017 with decent momentum, recording a solid 2.6% gain in GDP in the fourth quarter after growth above 3% in each of the prior two quarters. Investor sentiment felt disconnected as the year unfolded; the underlying global economy appeared to be steadily improving and capital markets reported robust results, while unease around geopolitics and the impact of multiple natural disasters stoked anxiety about the future. By midyear, 2017 felt like the culmination of the unhappiest bull market we'd ever seen. Stock markets then proceeded to hit a number of record highs as the year concluded, the job market continued to improve, unemployment reached a generational low in the U.S., and retail sales rose. A historic revision to the tax code became law at the end of the year, which included a substantial corporate tax cut. After perhaps jumping the gun in the first part of the year, then held back by frustration after not getting expected tax and regulatory changes enacted during the middle quarters, the "animal spirits" of the economy and the capital markets appear to have been unleashed once again. Enthusiasm for growth and risk-taking seem apparent. Is now the time to worry, as phrases like a market "melt-up" enter the popular lexicon?

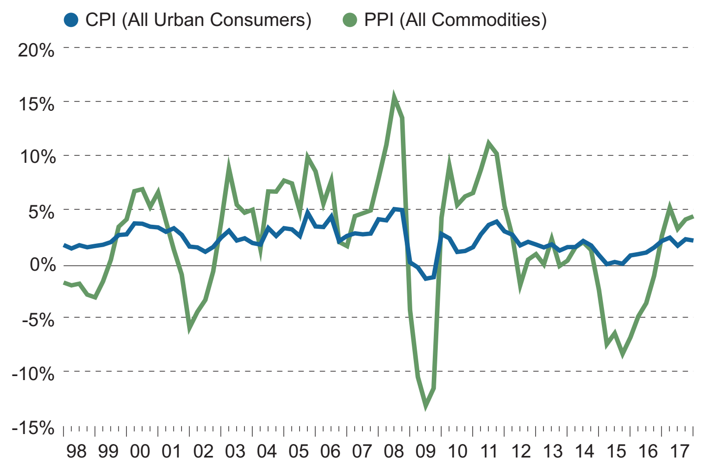
GDP growth averaged 2.3% for the year, up from 1.5% in 2016. The result for 2017 was impressive given the damage caused by severe hurricanes in the third quarter. Since the Global Financial Crisis (GFC), GDP has increased at a very modest 2.2% annual average, far below the growth typically seen following a recession and below the 3% long-term average since the early 1960s. While gains have been slow and steady, they have gone on now for a sustained period of time, one of the longest expansions on record, and as a result the unemployment rate has been pushed to a generational low of 4.1%. The job market keeps chugging along, creating over 2.1 million new jobs in 2017, or 183,000 per month. The peak years of job creation in the current cycle were 2014 (3 million) and 2015 (2.7 million). While the monthly rate of 183,000 is still robust, and well in excess of the 100,000 needed to keep the market at

Quarterly Real GDP Growth (20 Years)



Source: Bureau of Economic Analysis

Inflation Year-Over-Year



Source: Bureau of Labor Statistics

a steady state, the rate of job creation is tailing off, suggesting we might be reaching the limits of full employment. Despite this tight labor market, wage gains remain remarkably subdued, with annual gains in hourly earnings in the 2%-2.5% range for each of the last four years. The rate of growth in total compensation has begun to rise; the employment cost index has inched up from 2% growth to hit 3% in several quarters during 2017.

Confidence in the sustainability of the current spate of growth rose with the release of the aforementioned animal spirits. The impact of the tax cut is expected to be modest, perhaps adding 0.2 to 0.3 percentage points to GDP growth in 2018, and most if not all of the investment gains are already built into the stock market. The wild card is how corporations plan to "spend" the tax cut. The optimistic outcome is that the extra money goes into capital expansion and job growth. Other outcomes include returning the capital to owners through dividends and share buybacks, to existing workers through wage gains, or to consumers in the form of price cuts. Longer term, the $1.5 trillion increase in the deficit is viewed as a potential drag on growth.

One other potential stimulus still to take shape is the proposed program of substantial infrastructure spending. This spending could spur further growth when the economy is already running hot, and therefore stimulate inflation beyond the current benign levels. The tight labor market suggests we might already be facing limitations on growth from the existing set of labor and capital inputs available in the U.S. economy.

Inflation remains remarkably benign, clipping along at 2.1% in December (year-over-year). Oil prices have recovered from the sharp decline of several years ago, which spurred top-line inflation, but core inflation (net of food and energy) remains below the Fed's target of 2%. The tight labor market, the impact of the corporate tax cut, and the potential for substantial infrastructure spending all suggest that inflation could finally be poised to move. Another potential impetus for inflation is the improving outlook for the global economy, which appears to be moving into synchronized growth across disparate regions.

The Long-Term View

Index	2017 4th Qtr	Periods ended Dec. 31, 2017			
		Year	5 Yrs	10 Yrs	25 Yrs
U.S. Equity					
Russell 3000	6.34	21.13	15.58	8.60	9.72
S&P 500	6.64	21.83	15.79	8.50	9.69
Russell 2000	3.34	14.65	14.12	8.71	9.54
Non-U.S. Equity					
MSCI ACWI ex USA	5.00	27.19	6.80	1.84	--
MSCI Emerging Markets	7.44	37.28	4.35	1.68	7.76
MSCI ACWI ex USA Small Cap	6.56	31.65	10.03	4.69	--
Fixed Income					
Bloomberg Barclays Agg	0.39	3.54	2.10	4.01	5.48
90-Day T-Bill	0.28	0.86	0.27	0.39	2.60
Bloomberg Barclays Long G/C	2.84	10.71	4.43	7.26	7.67
Bloomberg Barclays Gl Agg ex US	1.63	10.51	-0.20	2.40	5.02
Real Estate					
NCREIF Property	1.70	6.85	10.16	6.07	9.11
FTSE NAREIT Equity	1.51	5.23	9.46	7.44	10.76
Alternatives					
CS Hedge Fund	2.30	7.12	4.23	3.24	--
Cambridge PE*	--	9.25	12.76	9.39	15.38
Bloomberg Commodity	4.71	1.70	-8.45	-6.83	2.47
Gold Spot Price	1.91	13.68	-4.82	4.56	5.63
Inflation – CPI-U	-0.12	2.11	1.43	1.61	2.23

*Most recent quarterly data not available, annual returns as of 9/30/2017
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

	4Q17	3Q17	2Q17	1Q17	4Q16	3Q16	2Q16	1Q16
Employment Cost–Total Compensation Growth	2.6%	2.5%	2.4%	2.4%	2.2%	2.3%	2.3%	1.9%
Nonfarm Business–Productivity Growth	-0.1%	2.7%	1.5%	0.1%	1.3%	2.5%	0.8%	-1.2%
GDP Growth	2.6%	3.2%	3.1%	1.2%	1.8%	2.8%	2.2%	0.6%
Manufacturing Capacity Utilization	76.4%	75.2%	75.7%	75.4%	75.1%	74.9%	75.1%	75.4%
Consumer Sentiment Index (1966=100)	98.4	95.1	96.4	97.2	93.2	90.3	92.4	91.5

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

Non-U.S. Bias Rewarded Plans in 2017

FUND SPONSOR

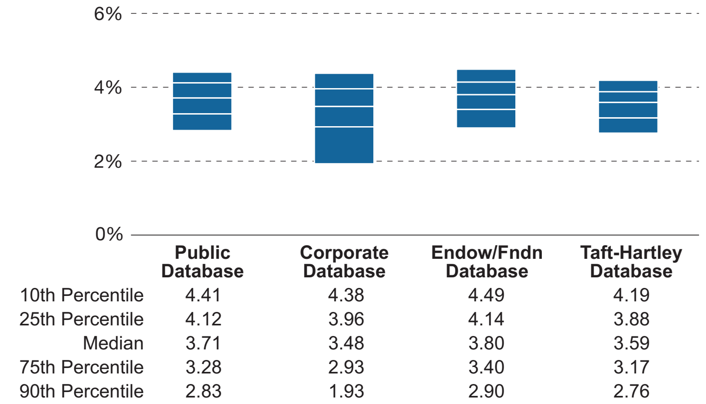
Endowments/foundations (+3.8%) performed best last quarter, followed by public plans (+3.7%), Taft-Hartley plans (+3.6%), and corporate plans (+3.5%). For all funds, the return was +3.7%, according to Callan's database. Plans with assets below $100 million performed best by fund size, up 3.7%, compared to 3.6% for both medium plans ($100 million-$1 billion) and large plans. A quarterly rebalanced 60% S&P 500/40% Bloomberg Barclays U.S. Aggregate Bond Index portfolio rose 4.1% during the quarter.

Marking a turn of events, the **MSCI ACWI ex USA Index** outperformed U.S. equity markets over the past year, rewarding funds that have taken steps to diversify away from a home-country bias. Over longer periods of time, Taft-Hartley plans did best over the last five years, up 9.3% annualized. Corporate plans (+5.9%) did best over the last 10 years.

Plans continue to focus on an environment marked by low interest rates, low return expectations, and frustration with the seemingly high cost of diversification while the public equity market has enjoyed such a strong run. Many fund sponsors feel compelled to take on substantial market risk to reach return targets, and are now focusing on finding sources of diversification within the growth bucket of their asset allocation. Sponsors are examining if there is anything more they can do to tamp down the risk within the growth allocation, short of actually reducing the allocation to growth assets.

Asset owners continue to be skeptical of the value of active management, particularly in U.S. large cap equity. Pressure

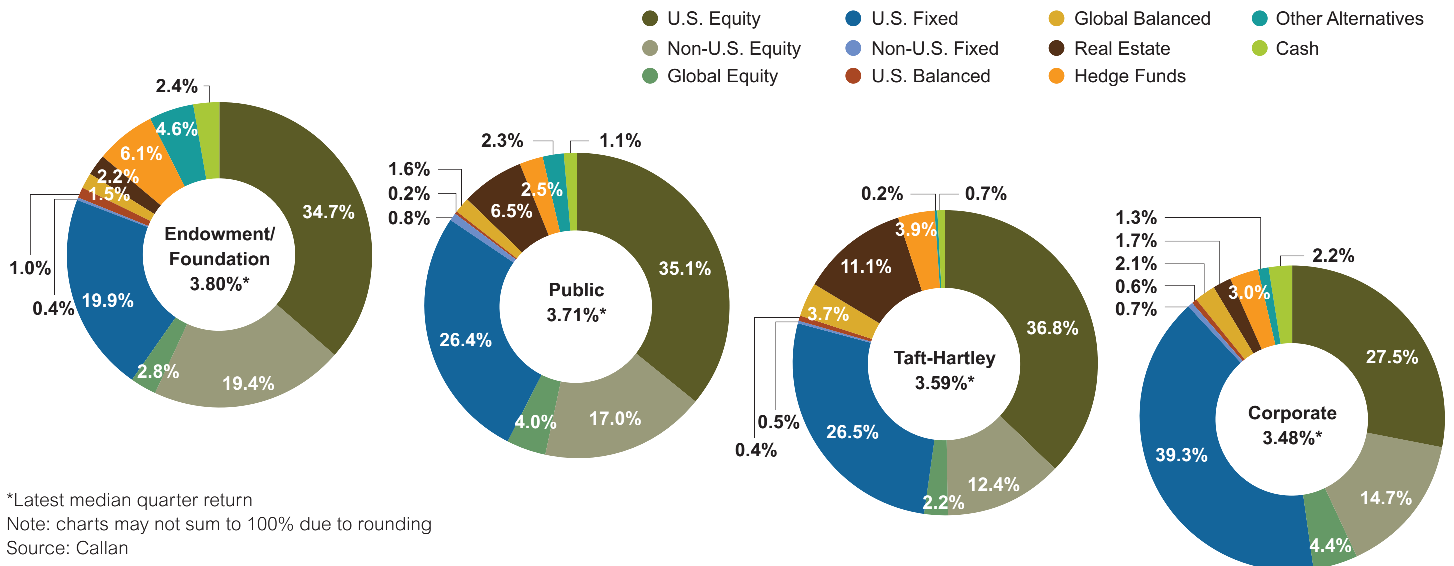
Callan Fund Sponsor Returns for the Quarter



	Public Database	Corporate Database	Endow/Fndn Database	Taft-Hartley Database
10th Percentile	4.41	4.38	4.49	4.19
25th Percentile	4.12	3.96	4.14	3.88
Median	3.71	3.48	3.80	3.59
75th Percentile	3.28	2.93	3.40	3.17
90th Percentile	2.83	1.93	2.90	2.76

Source: Callan

Callan Fund Sponsor Average Asset Allocation



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

to reduce fees or show the ability to generate consistent alpha has been building for quite some time. Some fund sponsors have undertaken structure work to consider the amount of active versus passive management and to see if there is a way to simplify their manager rosters to gain economies of scale in an effort to reduce costs.

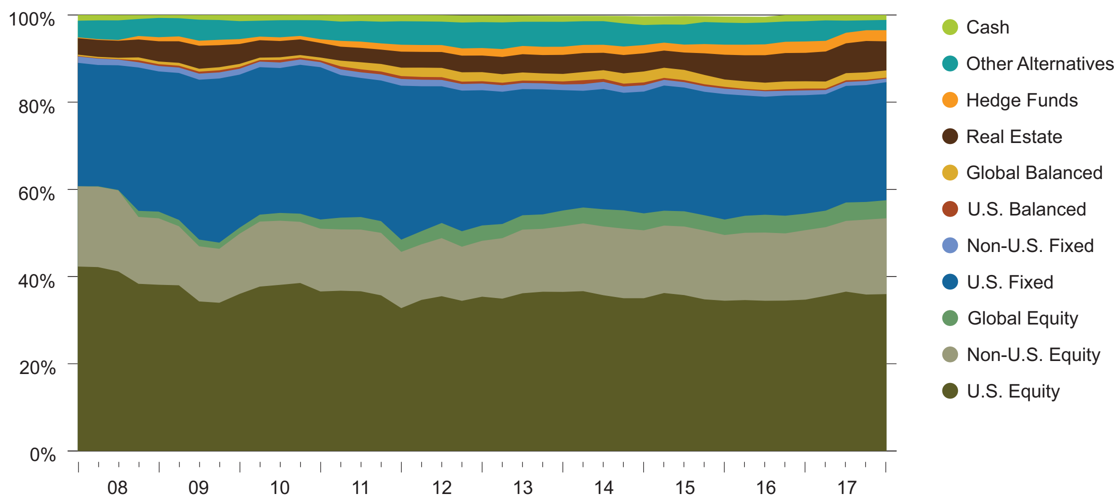
As in past quarters, funds have adjusted their allocations in these ways over the last five years:

- Corporate plans have widened their range of U.S. fixed income allocations, as they are in different stages of efforts to de-risk plan assets.
- Many public funds have increased their allocation to non-U.S. equity and real estate at the expense of fixed income. Simultaneously, some of the fixed income exposure has become more equity-like in nature.
- Endowments and foundations continue to shift from fixed income to asset classes with higher return expectations, such as global equity, non-U.S. equity, and real estate.

The regulatory environment continues to drive the decision-making process for defined contribution (DC) plan sponsors. Heightened fee sensitivity and litigation have resulted in little traction for non-traditional asset classes such as liquid alternatives. DC plans are also focused on the best ways to reduce/eliminate revenue sharing, as well as obtaining even lower fees from investment managers. They are also looking for opportunities to continue streamlining investment fund lineups to achieve sufficient diversification while minimizing participant confusion—including white label options.

Public plans continue to seek return enhancement and further diversification. Reduced capital market return expectations and funding challenges have created a difficult situation for many public DB plans, and some plans are simply constrained by their circumstances. Alternative beta, MACs, and other liquid strategies are being used in a wide range of capacities and are experiencing increased interest.

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: Accelerating Growth Spurs Equities

+6.3%
RUSSELL 3000

The U.S. equity market continued its upward trajectory in the fourth quarter, closing out a very strong year marked by continued low volatility despite a turbulent U.S. political landscape and a record year in terms of global catastrophes. Investors embraced accelerating global economic growth as well as low interest rates and inflation. Corporate earnings registered double-digit growth for the quarter, receiving a boost from the U.S. tax overhaul bill, which was signed into law in late December.

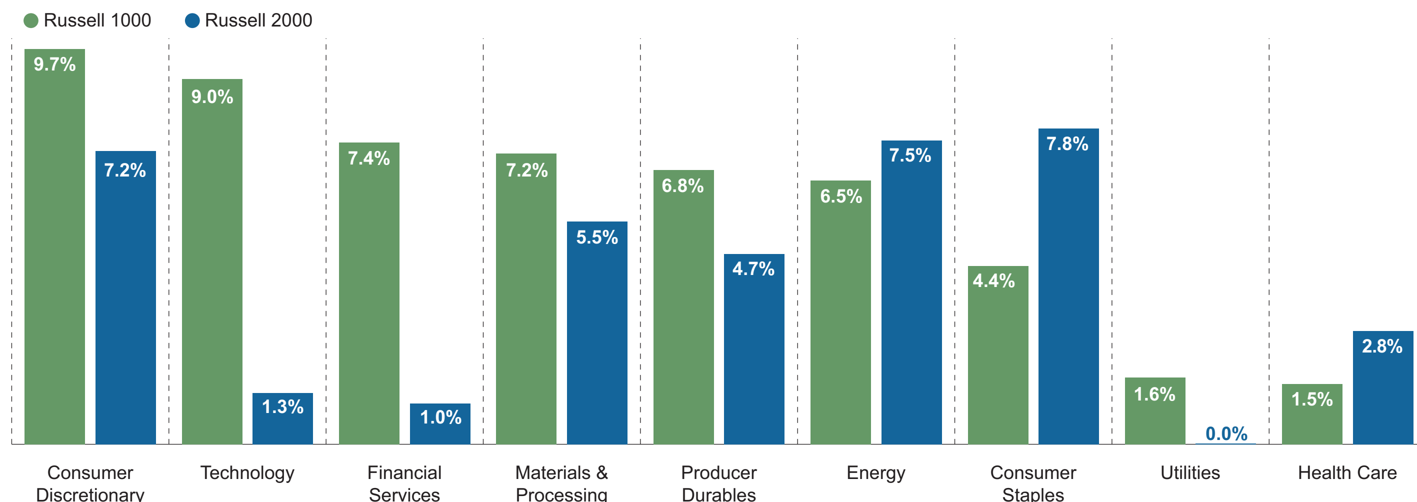
The **S&P 500 Index** rose 6.6% in the fourth quarter, and its 21.8% gain for the year was its best since 2013. The Index hit 62 record highs during the year and had only eight days of 1% or more fluctuations, the lowest number since 1964. The **S&P 500 Price Index** has nearly tripled (+295%) since its low in March 2009. Valuations are stretched by most measures, but estimates for future earnings are also strong. Large cap stocks (**Russell 1000:** +6.6%) outperformed small cap (**Russell 2000:** +3.3%) across styles for the quarter.

Riskier assets continued to lead the equity market. Consumer Discretionary (+9.9%) and Technology (+9.0%) were the strongest performers, with Apple, Amazon, and Microsoft posting 10%-20% returns due to ongoing exceptional cash flow generation and growth in global markets. The Tech sector now accounts for 24% of the S&P 500 and 38% of the **Russell 1000 Growth Index;** returns for the FAAMG stocks (Facebook, Apple, Amazon, Microsoft, Google) ranged from 36% to 56% for 2017.

Consumer Discretionary benefited from strong year-end retail sales as well as positive tax reform expectations as the retail industry carries the highest industry effective tax rate at 35%. The “Amazon Effect,” however, continues to threaten the sector as many large retailers have been forced to close stores or lower prices to unsustainable levels.

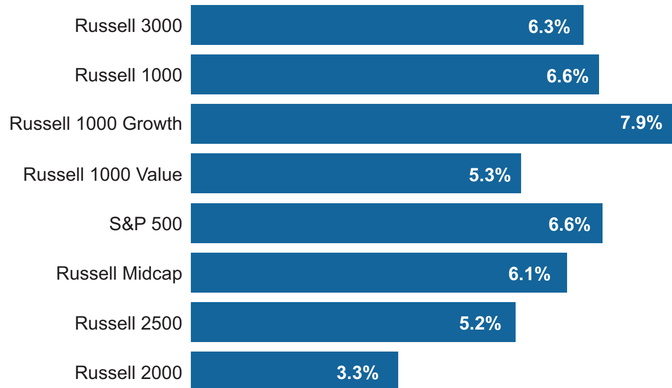
The Energy sector (+6.0%) continued to improve in the fourth quarter although it closed out the year among the worst performers (-1.0%). A combination of optimism and improvements in the global economy has spurred demand in recent months. More near-term volatility is anticipated in the price of oil as U.S.

Quarterly Performance of Select Sectors



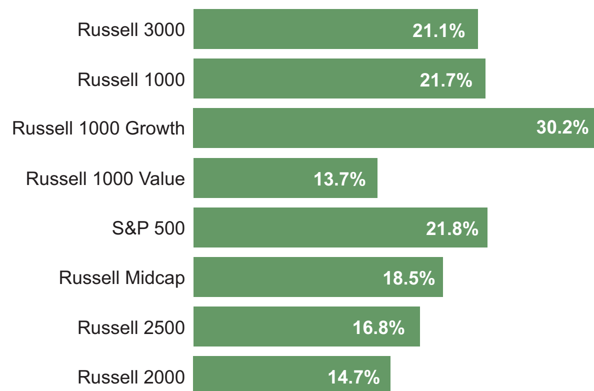
Source: Russell Investment Group

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

output is expected to surpass production out of Saudi Arabia for the first time since the early 1990s.

Growth outperformed value during the quarter across the market cap range (**Russell 1000 Growth:** +7.9% vs. **Russell 1000 Value:** +5.3%; **Russell 2000 Growth:** +4.6% vs. **Russell 2000 Value:** +2.0%). The overweight to Tech and Consumer Discretionary in the growth indices drove the outperformance. Investors favored the stronger earnings and top-line growth outlook in the Tech sector, which also benefited from positive investor sentiment following tax reform.

Momentum-oriented stocks (**MSCI Momentum Index**: +37.8%) posted their biggest annual gain since 1999, leaving valuations stretched; the **MSCI Defensive Index** rose 12.3% for 2017. Anecdotally, some momentum-oriented managers are finding their bench of ideas shrinking as they take profits on winners while defensively oriented managers continue to sit on cash waiting for more favorable opportunities.

Global Stocks: Markets in Sync Around the World

+5.0%
MSCI ACWI ex USA

Major non-U.S. markets performed largely in line with each other during the quarter, which saw a bit of an inflection point as investors were more willing to capitalize on synchronized global growth and began to rotate out of momentum winners into more cyclical areas such as Financials, Energy, and Materials. Cyclicals led as tax reform, improving commodity prices, and growth projections overcame Brexit fears and election uncertainty in Germany in a risk-on quarter.

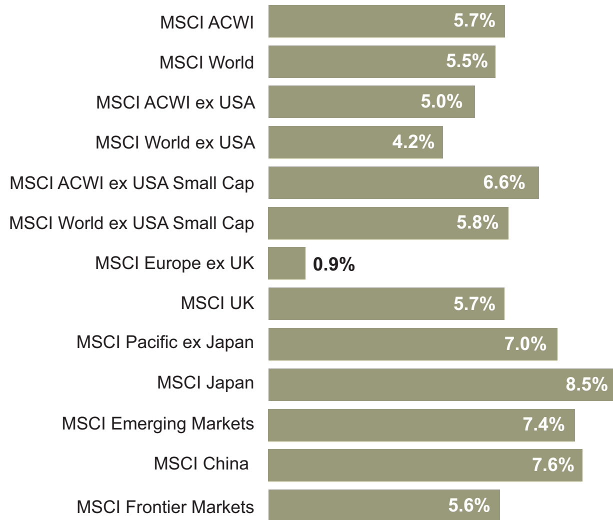
Non-U.S. developed (**MSCI EAFE** and **MSCI World ex USA:** +4.2%) trailed U.S. (**MSCI USA:** +6.4%) after beating it in the previous three quarters. Within MSCI EAFE, the U.K. notched a record high in the fourth quarter and was up 22.3% for the year.

Europe, which led markets in the third quarter on earnings growth and political stability, reverted and trailed other developed regions (**MSCI Europe:** +2.2%) on Brexit negotiation concerns and political uncertainty following German elections. The European Central Bank also announced plans to curb quantitative easing in January 2018. Japan (**MSCI Japan:** +8.6%) was the best performer on its election results and improved inflation expectations.

Markets favored economically sensitive sectors: IT (+8.3%), Materials (+7.8%), and Discretionary (+7.6%). Energy was also positive (6.8%) as commodity prices were supported by distribution disruptions and high liquid natural gas usage with winter's arrival. Defensive sectors lagged as markets continued to rise: Utilities (-0.4%), Health Care (+0.9%), and Telecom (+1.7%).

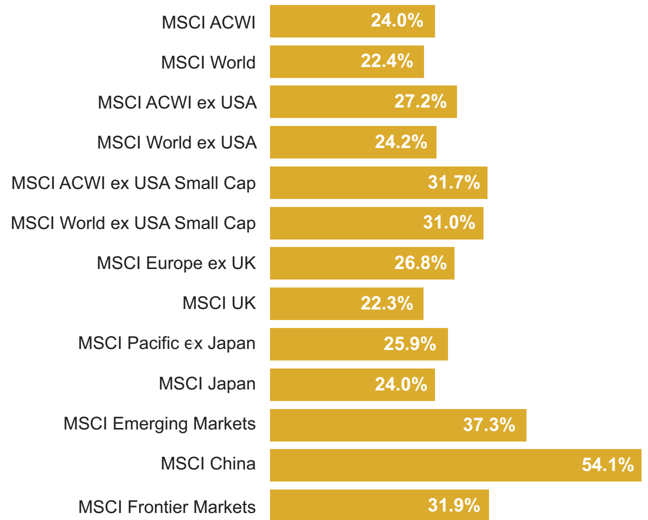
It was another difficult quarter for value; factor performance favored strong growth (forecasted), earnings and price momentum, high quality, and beta (**MSCI World Value**: +4.6% vs.

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



Source: MSCI

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



Source: MSCI

MSCI World Growth: +6.4%). Valuation factors were mixed with price-to-book ratios and yield detracting from performance, while earnings-based multiples contributed.

Emerging Markets: Asian Stocks Power Strong Quarter, Driven by China and Korea

+7.4%
MSCI EM

Emerging market equities outperformed developed in the quarter and for the year (**MSCI Emerging Markets (USD):** +7.4%; +37.3%). Latin America was the only weak spot in the quarter (-2.3%) but was up a robust 23.7% for the year. Emerging Asia performed the best for the quarter and the year (+8.4%; +42.8%) driven by strong results from China (+7.6%; +54.1%) and Korea (+11.4%; +47.3%).

Local China A shares did even better (**MSCI China A 50 Index:** +13.7%). October's 19th National Congress of the Communist Party solidified power around Xi Jinping, reconfirming key policy objectives. Chinese technology continued to perform well but was less of a performance outlier than in previous quarters. China's increasing and less-visible debt is a growing concern, while expectations for stronger growth are buoying the market.

South Africa (**MSCI South Africa:** +21.4%) was the best performer as commodity prices firmed and investors cheered a leadership change. Mexico (**MSCI Mexico:** -8.0%) was the worst-performing emerging market country as the peso sold off on NAFTA negotiation concerns.

Economically sensitive sectors sold off (Discretionary: -23.6%, Financials: -21.2%). Emerging market Health Care (+16.6%) saw very good performance with outsized contribution from China and South Korea as changing demographics continued to drive demand. Value factors struggled in emerging markets while growth, earnings momentum, price momentum, volatility, and beta were positive.

Non-U.S. Small Cap: Health Care Powers EM Gains

+6.6%
MSCI ACWI ex USA SC

Developed non-U.S. small cap (**MSCI World ex USA Small Cap:** +5.8%) outperformed its large/mid counterpart modestly, led by Asia. Australia (+11.6%) and Japan (+8.7%) led the segment.

Emerging market small cap (**MSCI Emerging Market Small Cap:** +9.2%) was the best-performing segment of the equity markets in the fourth quarter, led by Health Care (+28%); Real Estate (-0.1%) was the laggard.

Global Fixed Income

U.S. Bonds: Strong Fundamentals Tighten Spreads

+0.4%
BB AGGREGATE

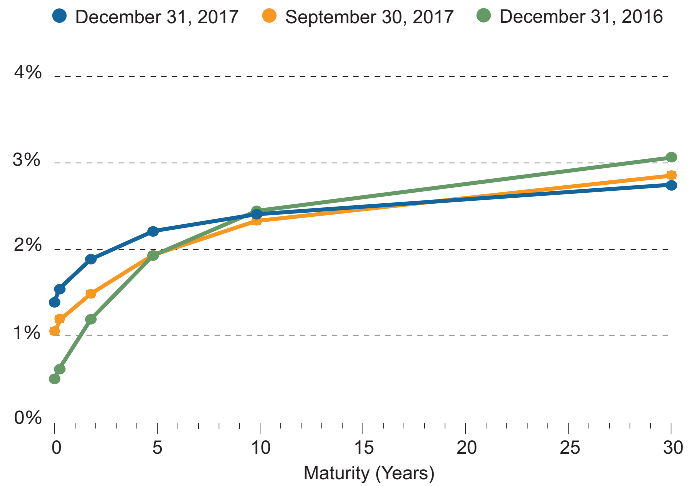
The U.S. yield curve continued its flattening trend in the fourth quarter. The 2-year U.S. Treasury yield climbed 42 basis points to close at 1.89%, up 69 bps from the end of 2016. At the long end of the yield curve, the 30-year U.S. Treasury yield fell 12 bps during the quarter, ending the year at 2.74%, 32 bps lower than its close in 2016. This trend reflects the Fed's bias to be less accommodative through monetary policy, as well as benign inflation in the face of a strong labor market. As a result, longer-term bonds sharply outperformed short-term and intermediate-maturity bonds for the quarter and the year.

Volatility in fixed income as well as equity markets sits near historical lows. The overall risk appetite remains elevated, driven in part by globally strong growth and loose monetary policy from central banks, as well as business and consumer confidence. The market is pricing in three Fed rate hikes for 2018, not far from the Fed's own expectation of where rates will end up in the longer run. Yields on 10-year Treasuries rose modestly from 2.33% at the end of the third quarter to 2.41%.

The Bloomberg Barclays Long U.S. Treasury Index gained 2.4% in the quarter and 8.5% in 2017 versus a -0.4% quarterly and +1.1% annual return for the **Bloomberg Barclays Intermediate Treasury Index.** Consistent with the low volatility theme evident in the equity markets, the U.S. Treasury 10-year traded in a narrow 60 bps band for the year, the lowest since 2000.

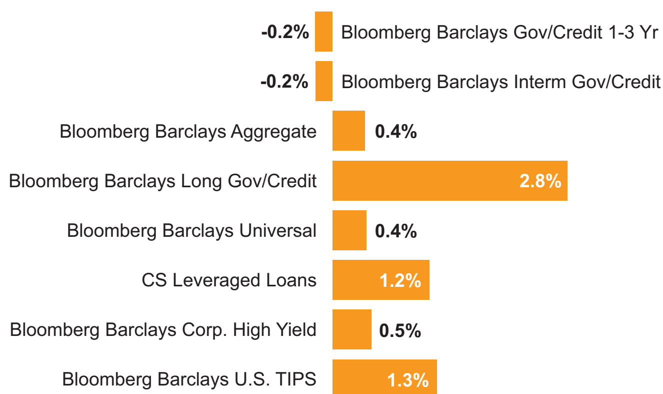
The **Bloomberg Barclays U.S. Aggregate Bond Index** rose 0.4% during the quarter. Corporate bonds outperformed for the quarter and the year, and yield spreads were the tightest since the Global Financial Crisis, hitting 93 bps over Treasuries.

U.S. Treasury Yield Curves



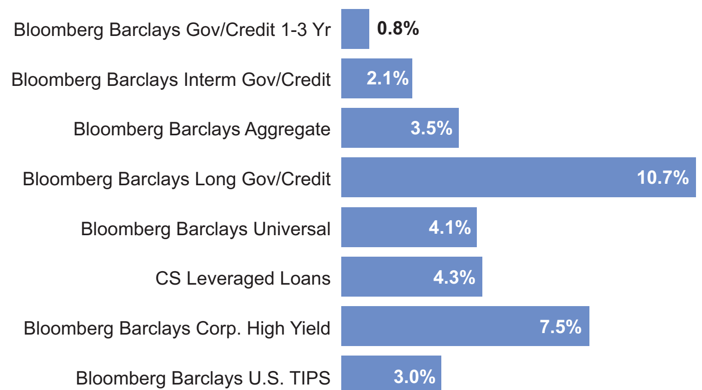
Source: Bloomberg

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

Investment-grade corporate credit was the strongest-performing fixed income sector; tax reform may boost the sector by improving profitability and reducing issuance.

High yield corporates also did well, with the **Bloomberg Barclays U.S. Corporate High Yield Index** up 0.5% for the quarter and 7.5% for the year. The annual default rate was the lowest since 2013. Issuance was robust in the fourth quarter at $68 billion, but tax reform could negatively impact issuance.

TIPS outperformed nominal U.S. Treasuries as expectations for inflation rose. The **Bloomberg Barclays U.S. TIPS Index** rose 1.3% for the quarter and 3.0% for the year, and the 10-year breakeven spread (the difference between nominal and real yields) rose to 1.96%.

The municipal bond market performed well in 2017 as rates were steady and demand remained strong. The tax overhaul package is expected to have mixed effects. The change in personal income rates is too small to have a meaningful impact, while the decrease in corporate tax rates is expected to reduce demand for munis from certain corporations. Limiting state and local tax deductions could increase demand for in-state munis in high tax states. Issuance spiked in anticipation of changing regulations, setting a record $62.5 billion for December supply, but the market absorbed it well. The **Bloomberg Barclays Municipal Bond Index** returned 0.7% for the quarter and 5.4% for the year.

Global Bonds: Flat Returns in Developed Markets; EM Returns Muted

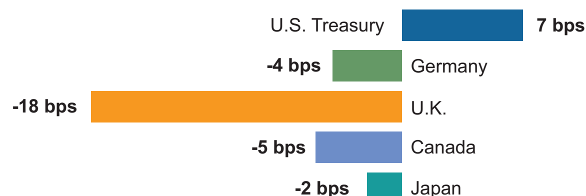
+2.5%
BB GBL AGG EX US

Quarterly returns were mostly flat in developed markets. The **Bloomberg Barclays Global Aggregate Bond Index** rose +1.1% (unhedged) and 0.8% (hedged).

Emerging market debt delivered more muted returns than in earlier quarters. Higher commodity prices and global growth supported the asset class broadly. The **JPM EMBI Global Diversified Index** ($ denominated) gained 1.2% in the quarter and 10.3% for the year. Returns were mixed, but beleaguered Venezuela was the outlier for the quarter (-29%) and the year (-34%). The local currency **JPM GBI-EM Global Diversified Index** increased +0.8% in the quarter and +15.2% for the year. In the quarter, Asian countries (+5%) performed best while Latin America sank nearly 5%.

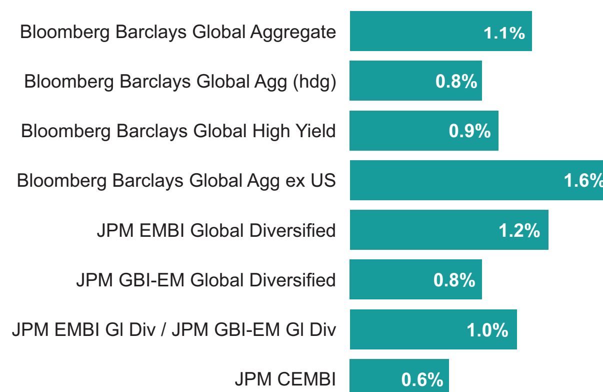
Change in 10-year Global Government Bond Yields

3Q17 to 4Q17



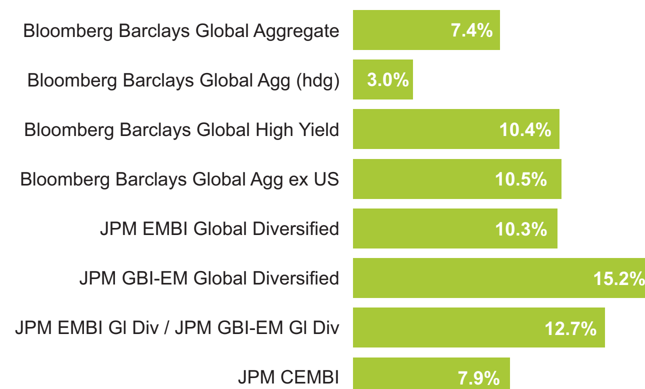
Source: Bloomberg Barclays

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

Steady Returns in U.S.; Europe Best Region for REITs

REAL ESTATE | Kevin Nagy

The **NCREIF Property Index** advanced 1.8% during the fourth quarter (1.2% from income and 0.6% from appreciation). This marked the 36th consecutive quarter of positive returns for the Index.

Industrial (+3.3%) was the best-performing sector for the seventh consecutive quarter. Office (+1.7%) and Apartments (+1.6%) also did well. Hotels (+1.0%) were the worst performer and the only property type to experience a negative appreciation return. Hotels only had one quarter of positive appreciation during 2017. The West region was the strongest performer for the fifth quarter in a row, returning 2.3%, and the Midwest lagged with a 1.3% return. The West also had the strongest appreciation return at 1.2%; all other regions had appreciation below 0.5%. Transaction volume fell slightly to $11.5 billion, a 3% decrease from the third quarter and an 18% decline from the fourth quarter of 2016. Appraisal capitalization rates rose 16 basis points to 4.55%. Transaction capitalization increased even more, rising 59 bps to 5.85%. The spread between appraisal and transactional rates increased to 130 bps.

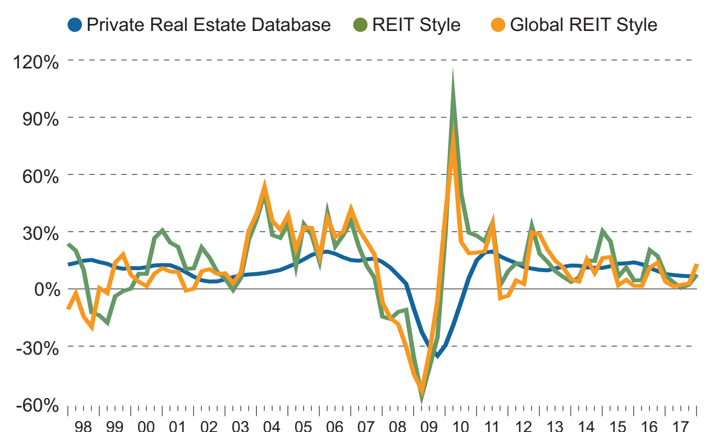
Occupancy rates increased to 93.6%, up 20 bps from the third quarter and 37 bps from the fourth quarter of 2016. Industrial and Retail occupancy rates increased slightly while Apartment and Office rates decreased.

The **NCREIF Open End Diversified Core Equity Index** rose 2.1% (1.1% from income and 1.0% from appreciation), a 20 bps increase from the third quarter. The appreciation return increased for the second quarter in a row. Leverage ticked up 1 basis point to 21.4%.

Global real estate investment trusts (REITs) tracked by the **FTSE EPRA/NAREIT Developed REIT Index (USD)** outperformed U.S. REITs and posted a 3.8% return. The median active global REIT manager, as measured by the **Callan Global REIT Style Group,** gained 4.6%, beating the Index. U.S. REITs, as measured by the **FTSE NAREIT Equity REITs Index**, advanced 1.5% for the quarter. The median active U.S. REIT manager, as measured by **Callan's U.S. REIT Style Group**, returned 2.4%, also beating the Index.

In the U.S., a strong November helped REITs overcome negative performance in October and December. Infrastructure (+8.8%), Hotels (+5.4%), and Timber (+4.9%) made solid gains, while Health Care (-5.3%), Diversified (-2.0%), Specialty (-1.9%), and Residential (-0.2%) were the worst performers. Retail (+6.8%) bounced back from a dismal second and third quarter on the back of high M&A activity and a strong holiday shopping season.

Rolling One-Year Returns

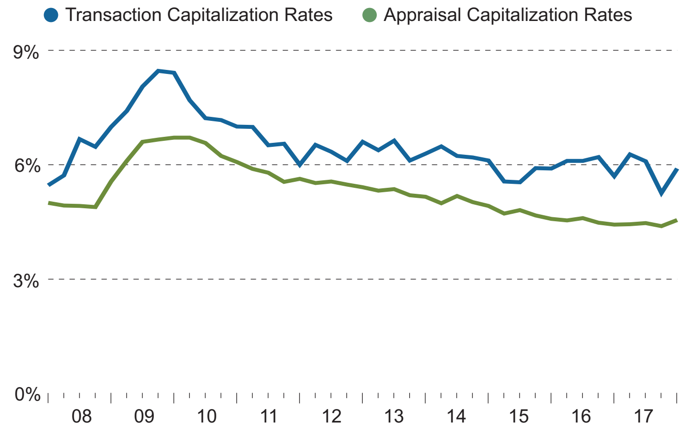


Source: Callan

Europe, as represented by the **FTSE EPRA/NAREIT Europe Index**, was the strongest-performing region for the third consecutive quarter, returning 7.6% in U.S. dollar terms. U.K. REITs outperformed their continental counterparts due to optimism over a "soft Brexit" and better than expected earnings from London-centric real estate proxies. Continental Europe continued to benefit from robust economic growth that was not fazed by the Catalonian election results, among other political surprises.

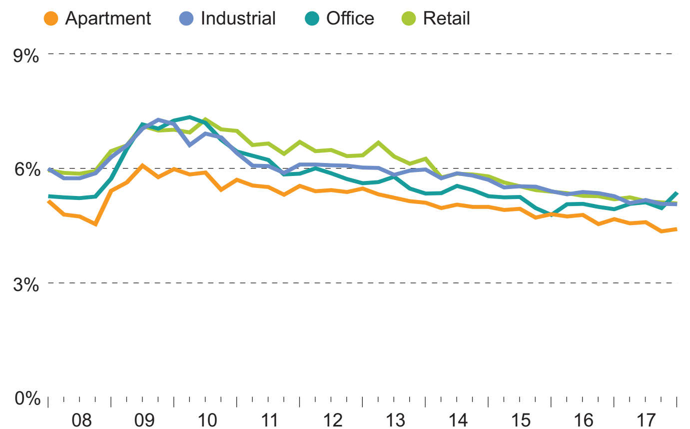
The Asia-Pacific region, represented by the **FTSE EPRA/NAREIT Asia Index**, jumped 5.5% in U.S. dollar terms, besting the U.S. but lagging Europe. Singapore was the strongest performer, helped by a rally in the broader Singaporean stock market. Hong Kong and Australia also had good quarters. Japan lagged behind, but was still positive.

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.

2017 Fundraising Sets New Record

PRIVATE EQUITY | Harshal Shah

The preliminary fundraising total and number of funds formed in 2017 set a record, according to *Private Equity Analyst,* up 20% and 32%, respectively, to $376 billion and 1,150. In the fourth quarter, new commitments hit $126 billion and 311 new partnerships were formed. Dollar volume rose by 51% over the third quarter; the number of new funds formed grew 37%.

According to *Buyouts* newsletter, there were 1,649 disclosed deals in 2017, an increase of 25% from 2016. The year's disclosed dollar volume was $184.2 billion, up 8% from $170.1 billion in 2016 and hitting a nine-year high. While the disclosed dollar volume has recovered from 2009's low of $37.3 billion, it is still well shy of the 2007 record high of $597.4 billion. However, while general partners may be more discerning in putting capital to work, according to Standard & Poor's LCD data, the median purchase and net debt multiples in 2017 remained elevated at 10.6x and 5.8x, respectively.

Regarding exits, *Buyouts* reports that 2017's 607 private M&A exits of buyout-backed companies is up 9% from the 557 in 2016. The year's aggregate disclosed M&A exit values of $106.7 billion is up 12.7% from 2016's $94.6 billion. In the fourth quarter, there were 124 M&A exits, and announced value totaled $38.1 billion. Ten M&A exits had values over $1 billion compared to only four in the fourth quarter of 2016. There were only four buyout-backed IPOs in the fourth quarter last year, with a total value of $860 million. However for the full year, there were 18 buyout-backed IPOs with a total value of $6.5 billion, an increase of 125% and 60%, respectively, over 2016.

Venture-backed M&A exits for the year totaled 711 with announced values totaling $41.2 billion, down from 816 exits and $50.0 billion in announced value in 2016. The fourth quarter had 144 exits with announced values totaling $6.7 billion, down from 173 exits and $11.5 billion of announced value in the third quarter. The year produced 58 venture-backed IPOs raising $9.9 billion, up from 41 IPOs in 2016 raising $2.9 billion. The fourth quarter had 23 IPOs, raising $3.1 billion, up significantly from the third quarter's nine IPOs raising $730 million.

Funds Closed January 1 to December 31, 2017

Strategy	No. of Funds	Amt ($mm)	Percent
Venture Capital	510	35,945	10%
Buyouts	392	249,747	67%
Subordinated Debt	77	34,174	9%
Distressed Debt	42	29,332	8%
Secondary and Other	35	13,075	3%
Fund-of-funds	94	13,244	4%
Totals	**1,150**	**375,516**	**100%**

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

Private Equity Performance Database (%) (Pooled Horizon IRRs through September 30, 2017*)

Strategy	3 Months	Year	3 Years	5 Years	10 Years	15 Years	20 Years
All Venture	3.52	8.82	12.30	15.51	9.47	9.00	17.94
Growth Equity	4.90	15.83	10.68	13.21	10.06	12.60	13.13
All Buyouts	4.63	19.33	12.61	14.35	8.78	14.39	12.53
Mezzanine	4.16	13.07	9.43	10.15	9.02	9.47	8.64
Distressed	2.39	14.92	9.03	11.35	9.13	11.33	11.34
All Private Equity	**4.31**	**16.19**	**11.93**	**14.08**	**9.06**	**12.75**	**13.01**
S&P 500	4.48	18.61	10.81	14.22	7.44	10.04	7.00

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.

Risk Takers See Less as More

HEDGE FUNDS/MACs | Jim McKee

Given the quarter's surge of raw equity beta, alpha-seeking hedge funds saw positive but more modest results. Representing a paper portfolio of hedge fund interests without implementation costs, the **Credit Suisse Hedge Fund Index** (CS HFI) rose 2.3% in the fourth quarter. Actual hedge fund portfolios represented by the median manager in the **Callan Hedge Fund-of-Funds Database** advanced 1.5%, net of all fees and expenses.

Within CS HFI, the best-performing strategy was *Managed Futures* (+6.6%), followed by *Emerging Markets* (+3.4%) and *Long/Short Equity* (+3.3%). Less fortunate was *Risk Arb* (+0.1%); some major pending deals met regulatory resistance, causing those deal spreads to widen significantly. Within Callan's Hedge FOF Database, market exposures marginally affected performance in the fourth quarter. With the added momentum from equity markets, the median *Callan Long/Short Equity FOF* (+1.8%) beat the *Callan Absolute Return FOF* (+1.5%). The *Core Diversified FOF* gained 1.5%.

The **Credit Suisse Neuberger Multi-Asset Risk Premia Index,** a proxy for liquid alternative beta, slipped 0.6% based upon a 5% volatility target. Within the Index's underlying styles, winners were *Equity Momentum* (+7.6%) and *Commodity Momentum* (+4.8%). The **Callan Multi-Asset Class Database** group's median manager rose 3.6%, gross of fees. Within this group, the median Callan *Risk Premia MAC* gained 4.0%, aided by equity and commodity momentum. Typically targeting equal risk-weighted allocations to major asset classes with leverage, the Callan *Risk Parity MAC* gained 4.7%, beating a 60% stock/40% bond benchmark (+4.1%). The Callan *Long-Biased MAC* (+3.4%) performed well, given its dynamic asset allocation mandate with a typically long equity bias, but trailed the 60/40 benchmark. Focused on non-directional strategies of long and short asset class exposures, the Callan *Absolute Return MAC* added 0.9%.

Callan Database Median and Index Returns* for Periods ended December 31, 2017

Hedge Fund Universe	Quarter	Year	3 Years	5 Years	10 Years	15 Years
Callan Fund-of-Funds Database	**1.53**	**6.98**	**2.90**	**5.01**	**3.04**	**5.22**
Callan Absolute Return FOF Style	**1.47**	**5.11**	**3.20**	**4.59**	**3.00**	**4.90**
Callan Core Diversified FOF Style	**1.51**	**6.42**	**2.36**	**4.79**	**2.77**	**5.18**
Callan Long/Short Equity FOF Style	**1.81**	**11.25**	**3.76**	**6.00**	**3.20**	**5.84**
Credit Suisse Hedge Fund Index	2.30	7.12	2.50	4.23	3.24	6.01
HFRI Asset Wtd Composite	1.99	6.52	3.06	4.60	3.34	--
HFRI Fund Wtd Comp	2.65	8.68	4.25	4.95	3.23	6.10
HFRI Equity Hedge (Total)	3.51	13.46	5.82	6.63	3.19	6.09
HFRI Event-Driven (Total)	2.04	7.73	4.73	5.49	4.17	7.26
HFRI Macro (Total) Index	2.42	2.21	0.65	1.40	1.95	4.65
HFRI Relative Value (Total)	1.05	5.11	4.11	4.68	4.81	6.02
90-Day T-Bill + 5%	1.50	5.86	5.41	5.27	5.39	6.28
Liquid Alternative Universe	**Quarter**	**Year**	**3 Years**	**5 Years**	**10 Years**	**15 Years**
Callan Absolute Return MAC	**0.90**	**5.07**	**3.27**	**4.46**	**5.16**	**--**
Callan Risk Premia MAC	**3.95**	**5.51**	**2.04**	**3.57**	**7.16**	**--**
Callan Long-Biased MAC	**3.35**	**13.87**	**5.46**	**6.39**	**5.76**	**8.70**
Callan Risk Parity MAC	**4.66**	**11.88**	**6.47**	**5.81**	**6.75**	**--**
60% S&P 500/40% BB Agg	4.14	14.26	7.76	10.25	7.09	7.90
CS NB MARP Index (5%v)	-0.63	-1.61	2.05	3.55	7.15	--
SG Trend Index	7.70	2.19	-1.36	3.35	3.15	4.21

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

DC Plans on Track to Win Big in 2017

DEFINED CONTRIBUTION | Tom Szkwarla

The Callan DC Index™ recorded a solid 3.8% gain during the third quarter, its eighth straight quarter of positive performance. And the Index is up 11.9% year to date—its best showing for the first three quarters of a year since 2013.

The Index benefited from strong U.S. equity performance, but a lack of diversification to non-U.S. equity markets continued to hinder DC plan performance. The typical DC participant has less than 6% in non-U.S. equity exposure, compared to 20.1% for the typical Age 45 target date fund (TDF).

Accordingly, the Age 45 TDF outpaced the DC Index by about 50 basis points for the third quarter and 200 bps year to date. Plan balances rose 3.78%, driven by return growth (3.76%) rather than inflows (plan sponsor and participant contributions), which contributed a meager 0.02%.

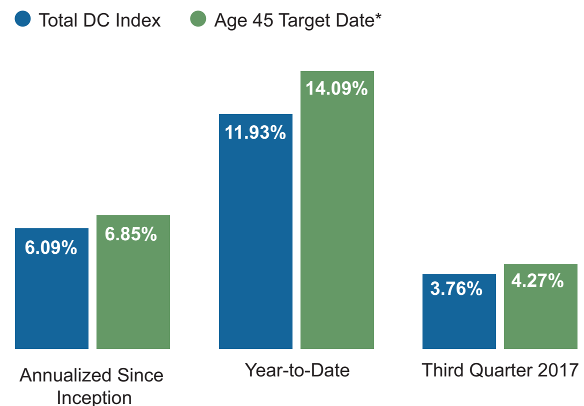
U.S. large cap and small/mid cap equities experienced significant outflows during the quarter. Non-U.S. and emerging market stocks represented the only equity asset classes to witness inflows. As usual, TDFs accounted for the majority of inflow activity during the third quarter, capturing 72 cents of every dollar moving within DC plans.

Turnover within the Index (i.e., net transfer activity) ticked up from last quarter to 0.58%, but remained below the historical average of 0.63%.

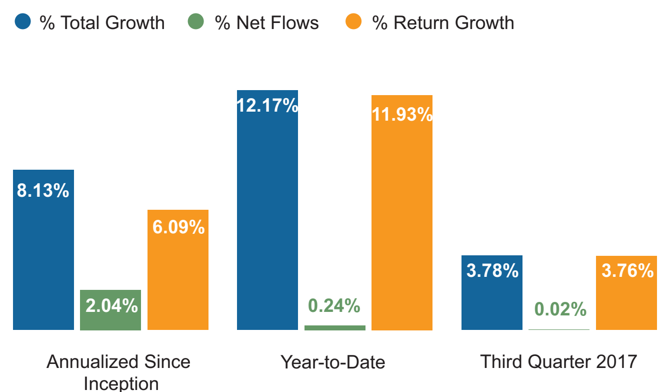
The DC Index's overall equity allocation increased to over 70% in the most recent period, but it remains below its 2007 peak of 73%. TDFs grew to their largest allocation yet, holding 30.8% of total DC assets in the third quarter. U.S. large cap equity commands the second-largest portion of participant assets (22.7%).

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 (Third Quarter 2017)
(Top Two and Bottom Two Asset Gatherers)

Asset Class	Flows as % of Total Net Flows
Target Date Funds	71.56%
Non-U.S. Equity	12.99%
U.S. Small/Mid Cap	-28.25%
U.S. Large Cap	-40.72%
Total Turnover**	**0.58%**

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.