

November 2017 Observations on Markets & Volatility

Equities continue their positive momentum

November 2017 in review

Global equities continued to find favor among investors as many indexes extended their YTD gains and reached new highs during the month. Solid corporate earnings, improving economic data prints and low volatility are assuaging any fears of an aging bull market.

- U.S. equity markets continued their march higher:
 - The S&P 500 Index and DJIA indices added to their YTD gains, posting robust returns of 3.07% and 4.24%, respectively.
 - Large cap value stocks rebounded from the prior month (Russell 1000 Value: 3.06%; Russell 1000: 3.05%; Russell 1000 Growth: 3.04%).
 - Small capitalization stocks appealed to risk seeking investors as the Russell 2000 Index gained 2.88%.
- While all U.S. equity sectors were positive on the month, some fared better than others:
 - Telecom and Consumer Staples rallied 6.03% and 5.67%, respectively.
 - Materials and Information Technology lagged on a relative basis during November, increasing 0.99% and 1.15%, respectively.
- International markets advanced marginally during November:
 - The EURO STOXX gained 0.32% while the MSCI EAFE Index advanced 1.05%.
 - Emerging equity markets were generally flat while their fixed income counterparts dropped considerably (MSCI EM Equity: 0.20%, JPM EMBI Plus: -0.81%).
- The U.S. Treasury yield curve flattened slightly during the month as short-term rates moved higher (BofAML US Treasuries 1-3 yr Index: -0.20%; BofAML US Treasuries 10+yr Index: 0.61%).
 - The 10 Yr. Treasury yield edged slightly higher during the month, ending at 2.41% from October's 2.38% finish.
 - The Bloomberg Barclays US Agg Bond Index declined slightly as it fell -0.13%.
 - High yield bonds gave back some of their YTD gains as the Bloomberg US HY 2% Issuer Cap Index fell -0.25%.
- Both domestic and global real estate posted respectable gains during the month (FTSE NAREIT Equity REITs: 2.65%; FTSE EPRA/NAREIT Developed: 2.83%).
- In spite of the global equity rally, investors bid up gold prices during the month, closing at \$1,277/oz.

* Source: MarketWatch

Other big news

Positive market developments included:

- The second estimate of 3Q GDP was increased to 3.3%, the highest reading in 3 years
- Global growth buoyed oil prices to 2-year highs due to increased industrial and shipping activities.
- Material steps taken in our nation's capital towards tax reform closer to becoming a reality.
- Robust new & existing home sales data.

Topics that stoked investors' concerns included:

- Ongoing geopolitical risk with North Korea.
- Spike in 10-year Chinese government bond yields to highest level in 3 years driven by expectations of higher U.S. interest rates and concerns around the nation's complex financial system.
- Impact of Fed's plan for balance sheet reduction combined with potential rising rates.

Volatility perspective

- Despite the U.S. equity market rally, the CBOE's Market Volatility Index (VIX) rose 10.8%.
- Despite the positive momentum in stocks, macro risks still remain, including:
 - North Korean conflict
 - Fragmentation in Europe
 - Turmoil in the Middle East
 - Frothy equity and bond valuations

November 2017 Market Performance*

Name	1 Month	3 Month	Year-to-date	1 Year	3 Year	5 Year	10 Year	1-Year Standard Deviation	3-Year Standard Deviation	5-Year Standard Deviation	10-Year Standard Deviation
Domestic Equity - Common Broad Based											
DJ Industrial Average PR USD	4.24	11.22	25.69	30.02	13.68	16.11	9.00	6.22	10.99	10.19	14.20
S&P 500 TR USD	3.07	7.65	20.49	22.87	10.91	15.74	8.30	3.90	10.09	9.50	15.08
Russell 1000 TR USD	3.05	7.66	20.35	22.61	10.73	15.69	8.40	3.83	10.13	9.60	15.36
Russell 1000 Growth TR USD	3.04	8.42	29.21	30.81	13.10	17.14	9.87	4.44	10.76	9.99	15.41
Russell 1000 Value TR USD	3.06	6.89	12.03	14.83	8.35	14.17	6.84	5.60	10.34	9.93	15.92
Russell 2000 TR USD	2.88	10.23	15.11	18.34	11.14	15.02	8.75	7.71	14.14	13.93	19.90
Russell 2000 Growth TR USD	2.87	10.15	22.03	23.69	11.32	15.84	9.25	5.73	14.84	14.58	20.31
Russell 2000 Value TR USD	2.89	10.32	8.88	13.37	10.89	14.16	8.18	10.08	14.17	13.91	20.04
Russell 2500 TR USD	3.29	9.64	16.42	18.68	10.45	14.84	9.12	5.71	12.31	12.20	18.78
Russell 2500 Growth TR USD	3.30	10.50	24.12	25.23	11.24	15.85	9.58	4.49	13.22	12.97	19.41
Russell 2500 Value TR USD	3.27	8.87	9.92	13.06	9.68	13.89	8.64	7.33	11.98	11.96	18.64
Russell 3000 TR USD	3.04	7.85	19.93	22.27	10.75	15.63	8.43	3.80	10.25	9.75	15.61
Russell 3000 Growth TR USD	3.03	8.56	28.65	30.25	12.95	17.03	9.82	4.02	10.83	10.11	15.65
Russell 3000 Value TR USD	3.05	7.14	11.76	14.70	8.53	14.16	6.95	5.79	10.48	10.08	16.14
Russell Mid Cap TR USD	3.36	8.00	17.43	18.76	9.32	15.26	8.98	4.29	10.52	10.41	17.77
Russell Mid Cap Growth TR USD	3.34	9.24	24.60	25.03	10.00	15.59	9.07	4.10	11.06	10.82	18.02
Russell Mid Cap Value TR USD	3.38	7.06	11.96	13.95	8.83	14.99	8.84	5.41	10.47	10.43	17.95
Other Domestic Equity											
NASDAQ 100 TR USD	2.06	6.59	32.30	33.82	15.02	20.43	12.97	7.62	13.60	12.03	17.90
MSCI US Prime Market 750 GR USD	3.06	7.60	20.60	22.87	10.80	15.75	8.45	3.87	10.14	9.58	15.20
MSCI US Small Cap 1750 GR USD	2.95	9.72	15.11	17.67	10.57	15.13	9.54	6.78	13.02	12.85	19.80
International Equity											
MSCI EAFE NR USD	1.05	5.14	23.06	27.27	5.97	8.24	1.55	4.41	12.22	11.72	18.52
MSCI EAFE Value NR USD	0.90	4.81	19.61	25.08	4.59	7.47	0.75	5.19	13.04	12.67	19.69
MSCI EAFE Growth NR USD	1.20	5.46	26.74	29.54	7.27	8.93	2.28	4.95	12.08	11.30	17.83
EURO STOXX NR USD	0.32	5.12	28.50	36.79	6.87	9.59	-0.01	8.73	14.41	14.68	23.50
EM Equity & Fixed											
MSCI EM NR USD	0.20	3.30	32.53	32.82	6.15	4.61	1.36	6.89	15.79	14.46	22.80
JPM EMBI Plus TR USD	-0.81	-1.05	7.61	9.03	5.42	3.35	6.78	3.49	6.07	7.11	8.97
US Treasuries / TIPS											
BofAML US Treasuries 1-3 Yr TR USD	-0.20	-0.43	0.41	0.44	0.53	0.57	1.46	0.47	0.77	0.65	1.14
BofAML US Treasuries 3-5 Yr TR USD	-0.40	-1.11	0.98	1.00	1.15	0.99	2.98	1.27	2.29	2.17	3.00
BofAML US Treasuries 5-10 Yr TR USD	-0.35	-1.66	1.98	1.86	1.62	1.17	4.21	2.31	4.19	4.17	5.52
BofAML US Treasuries 10+Y TR USD	0.61	-1.58	6.46	5.89	3.13	2.67	6.25	4.96	10.33	9.91	11.77
Bloomberg Barclays US Treasury US TIPS TR USD	0.13	-0.30	2.07	1.97	1.36	-0.18	3.42	2.00	3.56	4.45	6.11
Investment Grade Credit											
Bloomberg Barclays US Agg Bond TR USD	-0.13	-0.55	3.07	3.21	2.11	1.98	3.99	1.52	2.81	2.85	3.24
Bloomberg Barclays US Govt/Credit TR USD	-0.12	-0.60	3.46	3.68	2.23	1.96	4.04	1.63	3.32	3.25	3.92
Bloomberg Barclays US Govt/Credit Long TR USD	0.53	-0.04	8.66	9.45	4.44	3.83	7.05	3.45	8.08	8.16	9.64
Citi USBIG	-0.12	-0.55	3.11	3.24	2.12	1.98	4.04	1.52	2.81	2.84	3.37
Citi USBIG Long Term 10+ Yr	0.49	-0.08	8.75	9.36	4.37	3.79	7.15	3.44	8.23	8.30	9.83
High-Yield Bond											
BofAML US HY Master II Constnd TR USD	-0.25	1.07	7.18	9.16	5.74	6.05	8.10	2.47	5.76	5.24	10.46
Cash											
Citi Treasury Bill 3 Mon USD	0.09	0.27	0.74	0.77	0.35	0.23	0.37	0.08	0.10	0.09	0.19
Global Fixed Income											
Citi WGBI NonUSD USD	2.25	0.08	10.24	9.17	1.62	-0.54	2.36	4.79	7.78	7.13	8.31
Citi WGBI USD	1.42	-0.34	7.32	6.59	1.46	-0.10	2.60	3.52	5.85	5.43	6.69
Bloomberg Barclays Gbl Agg Ex USD TR USD	2.12	0.08	10.22	9.16	1.27	-0.35	2.30	4.65	7.45	6.85	8.35
Bloomberg Barclays Global Aggregate TR USD	1.11	-0.18	7.02	6.53	1.67	0.66	3.02	2.95	4.91	4.67	5.81
JPM GBI Global Traded TR USD	1.28	-0.32	6.67	5.99	1.68	0.08	2.90	3.27	5.53	5.18	6.45
US Equity Sector Level											
S&P 500 Sec/Utilities TR	2.75	3.84	19.44	25.34	11.01	14.06	7.01	9.45	12.87	13.40	13.96
S&P 500 Sec/Cons Disc TR	5.06	8.18	20.08	20.16	12.28	17.20	12.70	6.86	11.69	11.59	18.18
S&P 500 Sec/Cons Staples TR	5.67	3.29	11.03	14.55	7.27	12.29	9.72	8.84	9.90	10.47	11.43
S&P 500 Sec/Energy TR	1.76	11.13	-5.62	-3.80	-1.59	1.93	1.39	13.90	17.84	16.48	20.56
S&P 500 Sec/Financials TR	3.50	12.02	19.84	24.51	13.84	18.85	3.00	10.64	15.46	13.58	24.84
S&P 500 Sec/Real Estate TR USD	2.97	2.31	11.41	16.26	6.75	10.61	6.86	6.65	12.98	13.05	25.80
S&P 500 Sec/Health Care TR	2.92	3.14	22.87	23.77	8.04	17.73	10.75	7.10	12.29	11.76	13.86
S&P 500 Sec/Industrials TR	3.86	8.24	18.78	19.38	11.18	16.87	8.36	5.59	11.70	11.28	19.28
S&P 500 Sec/Information Technology TR	1.15	9.69	38.82	40.99	18.06	20.89	12.06	9.17	14.79	12.53	18.35
S&P 500 Sec/Materials TR	0.99	8.58	21.48	21.63	8.86	12.46	6.08	5.34	16.51	14.34	21.60
S&P 500 Sec/Telecom Services TR	6.03	1.40	-6.64	0.94	3.82	6.28	4.80	16.52	15.89	14.40	16.20
Dom & Global Real Estate											
FTSE NAREIT All Equity REITs TR USD	2.65	1.97	8.99	13.86	7.22	10.69	7.24	6.41	12.69	12.99	24.70
FTSE EPRA/NAREIT Developed TR USD	2.83	2.14	9.86	13.21	5.05	7.71	3.39	5.04	11.05	11.80	21.05
Commodities / Materials, etc.											
Bloomberg Commodity TR USD	-0.46	1.52	-1.24	0.54	-8.42	-9.47	-6.68	5.17	13.00	11.91	17.67

*Returns (total returns, base currency) and standard deviation values (risk currency).

Index definitions

Indices are unmanaged and unavailable for direct investment. **Past performance does not indicate future results.** Standard deviation is a statistical measure of the historical volatility of an investment.

Bank of America Merrill Lynch 1-3 Year Treasury Index generally tracks the market for U.S. Treasury securities with maturities of one to three years. **Bank of America Merrill Lynch 3-5 Year Treasury Index** generally tracks the market for U.S. Treasury securities with maturities of three to five years. **Bank of America Merrill Lynch 5-10 Year Treasury Index** generally tracks the market for U.S. Treasury securities with maturities of five to 10 years.

Bank of America Merrill Lynch 10+ Year Treasury Index generally tracks the market for U.S. Treasury securities with maturities of 10 or more years. **Bank of America Merrill Lynch U.S. High Yield Master II Constrained Index** is an unmanaged market value-weighted index of high yield bonds, including deferred interest bonds and payment-in-kind securities. Issues included in the index have maturities of one year or more and have a credit rating lower than BBB-/Baa3, but are not in default. **Bloomberg Barclays Capital Global Aggregate Bond Index** covers the most liquid portion of the global investment-grade fixed-rate bond market, including government, credit and collateralized securities

Bloomberg Barclays Capital U.S. Aggregate Bond Index measures the performance of high-quality, fixed-income securities across the government, corporate, mortgage-backed, asset-backed, and commercial mortgage-backed markets.

Bloomberg Barclays Capital U.S. Government/Credit Index measures the performance of U.S. Treasuries, government-related and investment grade U.S. corporate securities that have a remaining maturity of greater than one year.

Bloomberg Barclays Capital U.S. Long Government/Credit Bond Index measures the performance of all medium and larger public issues of U.S. Treasury, agency, investment-grade corporate, and investment-grade international dollar-denominated bonds with maturities longer than 10 years. **Bloomberg Barclays Capital U.S. Treasury Inflation-Protected Securities (TIPS) Index** measures the total return performance of the market for inflation-protected securities issued by the U.S. Treasury. **Bloomberg Commodity Index** is a broadly diversified index composed of futures contracts on physical commodities. **Chicago Purchasing Managers Index (PMI)** is released monthly and indicates the level of regional manufacturing activity. The index includes data on production, new orders, order backlog, inventories, prices paid, employment, and supplier deliveries. **Citigroup Treasury Bill 3-month Index** is an unmanaged index of three-month Treasury bills.

Citigroup U.S. Broad Investment Grade Bond Index measures the performance of U.S. dollar-denominated bonds issued in the U.S. investment-grade bond market. The USBIG includes institutionally traded U.S. Treasury, government-sponsored (U.S. agency and supranational), mortgage, asset-backed, and investment-grade securities.

Citigroup U.S. Broad Investment Grade Bond Index, 10+ Years measures the performance of U.S. dollar-denominated bonds issued in the U.S. investment-grade bond market. The USBIG includes institutionally traded U.S. Treasury, government-sponsored (U.S. agency and supranational), mortgage, asset-backed, and investment-grade securities with at least 10 years to maturity. **Citigroup World Government Bond Non-U.S. Dollar Index** is a market capitalization weighted benchmark that tracks the performance of 23 world government bond markets.

Dow Jones EURO STOXX® Index represents large, mid, and small capitalization companies of 12 Eurozone countries: Austria, Belgium, Finland, France, Germany, Greece, Ireland, Italy, Luxembourg, the Netherlands, Portugal, and Spain. **Dow Jones Industrial Average** is a price-weighted average of 30 significant stocks traded on the New York Stock Exchange. **Empire State Manufacturing Index** is based on the monthly survey conducted by the Federal Reserve Bank of New York of about 200 manufacturers and summarizes general business conditions in New York state. **FTSE EPRA/NAREIT Developed Index** (formerly named FTSE EPRA/NAREIT Global Real Estate Index) is a global market capitalization-weighted index composed of listed real estate securities in the North American, European, and Asian real estate markets. **FTSE NAREIT Equity REITs Index** measures the performance of all publicly traded equity real estate investment trusts traded on U.S. exchanges. HSBC Flash Manufacturing PMI is an estimate of the Manufacturing Purchasing Managers' Index for a country based on a monthly survey of variables such as output, new orders and prices across the manufacturing, construction, retail and service sectors. **J.P. Morgan Emerging Markets Bond Index Plus** tracks total returns for traded external debt instruments in the emerging markets. The instruments include external currency denominated Brady bonds, loans, and Eurobonds, as well as U.S. dollar local markets instruments.

J.P. Morgan Government Bond Index (GBI) Global Traded measures the total return from investing in 13 developed government bond markets: Australia, Belgium, Canada, Denmark, France, Germany, Italy, Japan, the Netherlands, Spain, Sweden, UK, and the U.S. **Michigan Consumer Sentiment Index (MCSI)** is a monthly survey of consumer confidence in the overall economy conducted by the University of Michigan.

MSCI EAFE Index measures the equity market performance of 21 developed market country indices located in Europe, Australasia, and the Far East. **MSCI EAFE Value Index** measures the equity market performance of 21 developed market country indices located in Europe, Australasia, and the Far East. The companies included in these indices have lower price-to-book ratios and lower forecasted growth values. **MSCI EAFE Growth Index** measures the equity market performance of 21 developed market country indices located in Europe, Australasia, and the Far East. The companies included in these indices have higher price-to-book ratios and higher forecasted growth values.

MSCI Emerging Markets Index measures the equity market performance of 23 emerging market country indices located around the world. **MSCI U.S. Prime Market 750 Index** represents the universe of large and medium capitalization companies in the U.S. equity market. **MSCI U.S. Small Cap 1750 Index** represents the universe of small capitalization companies in the U.S. equity market. **NASDAQ-100 Index** includes 100 of the largest domestic and international on financial securities listed on The NASDAQ Stock Market based on market capitalization.

Philly Fed Survey is a monthly index that tracks manufacturing conditions in the Philadelphia Federal Reserve district and is correlated with the Institute for Supply Management (ISM) manufacturing index, as well as industrial production index.

Russell 1000® Index measures the performance of the 1,000 largest companies in the Russell 3000 Index. Russell 1000 Growth Index measures the performance of those Russell 1000 companies with higher price-to-book ratios and higher forecasted growth values. Russell 1000 Value Index measures the performance of those Russell 1000 companies with lower price-to-book ratios and lower forecasted growth values.

Russell 2000® Index measures the performance of the 2,000 smallest companies in the Russell 3000 Index, which represents approximately 10% of the total market capitalization of the Russell 3000 Index. Russell 2000 Growth Index measures the performance of those Russell 2000 companies with higher price-to-book ratios and higher forecasted growth values. Russell 2000 Value Index measures the performance of those Russell 2000 companies with lower price-to-book ratios and lower forecasted growth values.

Russell 2500™ Index measures the performance of the small- to mid-cap segment of the U.S. equity universe, commonly referred to as "smid" cap. Russell 2500 Index is a subset of the Russell 3000 Index. Russell 2500 Growth Index measures the performance of the small- to mid-cap growth segment of the U.S. equity universe. It includes those Russell 2500 companies with higher price-to-book ratios and higher forecasted growth values. Russell 2500 Value Index measures the performance of the small- to mid-cap value segment of the U.S. equity universe. It includes those Russell 2500 companies with lower price-to-book ratios and lower forecasted growth values.

Russell 3000® Index measures the performance of the largest 3,000 U.S. companies representing approximately 98% of the investable U.S. equity market. Russell 3000 Growth Index measures the performance of those Russell 3000 companies with higher price-to-book ratios and higher forecasted growth values. Russell 3000 Value Index measures the performance of those Russell 3000 companies with lower price-to-book ratios and lower forecasted growth values. **Russell Midcap® Index** measures the performance of the mid-cap segment of the U.S. equity universe, which represents approximately 31% of the total market capitalization of the Russell 1000 companies. Russell Midcap Growth Index measures the performance of those Russell mid-cap companies with higher price-to-book ratios and higher forecasted growth values.

Russell Midcap Value Index measures the performance of those Russell mid-cap companies with lower price-to-book ratios and lower forecasted growth values. **S&P 500 Index** measures the performance of 500 widely held, mostly large-cap common stocks weighted by market value. **S&P/Case-Shiller Home Price Index** measures the U.S. residential housing market, tracking changes in the value of residential real estate both nationally and in 20 metropolitan regions. **S&P/TSX Global Gold Index** is an investable index of global gold securities including producers of gold and related products, including companies that mine or process gold and the South African finance houses, which primarily invest in, but do not operate, gold mines. **VIX-CBOE Volatility Index** shows the market's expectation of 30-day volatility. It is constructed using the implied volatilities of a wide range of S&P 500 Index options. This volatility is meant to be forward looking and is calculated from both calls and puts.

While diversification may help reduce the investment risk, it does not ensure a profit or guarantee against a loss. **Total Return — Base Currency:** All calculations are made using the base currency, or primary currency for the underlying securities, which in this case is in USD. expressed in percentage terms, Morningstar's calculation of total return is determined by taking the change in price, reinvesting, if applicable, all income and capital-gains distributions during that month, and dividing by the starting price.

Reinvestments are made using the actual reinvestment price, and daily payoffs are reinvested monthly. Unless otherwise noted, Morningstar does not adjust total returns for sales charges (such as front-end loads, deferred loads and redemption fees), preferring to give a clearer picture of performance. The total returns do account for management, administrative, 12b-1 fees and other costs taken out of assets. Total returns for periods longer than one year are expressed in terms of compounded average annual returns (also known as geometric total returns), affording a more meaningful picture of fund performance than non-annualized figures. **Standard Deviation —**

Risk Currency: All calculations are made using the risk currency, or currency that risk statistics are calculated in, which in this case is USD. The statistical measurement of dispersion about an average, which depicts how widely a stock's or portfolio's returns varied over a certain period of time. Investors use the standard deviation of historical performance to try to predict the range of returns that is most likely for a given investment. When a stock or portfolio has a high standard deviation, the predicted range of performance is wide, implying greater volatility. If the returns for a stock or portfolio follow a normal distribution, then approximately 68 percent of the time they will fall within one standard deviation of the mean return, and 95 percent of the time within two standard deviations. For example, if the mean annual return is 10 percent and the standard deviation is 2 percent, you would expect the return to be between 8 and 12 percent about 68 percent of the time, and between 6 and 14 percent about 95 percent of the time.

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