

# Alternatives Update

## 4th Quarter 2016

In the 4th quarter, Alternative Investment (“Alternatives”) returns were for the most part directionally the same as in the 3rd quarter with commodities being a notable exception by switching from negative to positive. The magnitude of returns were, however, generally more muted (see Figure 1). Year-to-date, ten of 11 categories had positive returns, though short biased was essentially flat for the year. The performance themes in the quarter were fairly clear cut. Equity beta (event driven, volatility arbitrage, hedged equity), credit (distressed, credit arbitrage), and inflation hedging exposures (commodities) did well, while low/negative beta (equity market neutral, macro, managed futures, short bias) and interest rate sensitive exposures (real estate) struggled. As in the 3rd quarter, returns mostly aligned with the rank order correlation to the S&P 500, with real estate and commodities being exceptions (see Figure 2). Real assets (commodities and real estate), which had both done very well in the first half of the year, diverged dramatically in the second half of the year due to their differing interest rate sensitivities amidst a rising rate outlook in the United States. Commodities rallied sharply during the fourth quarter, while real estate headed further into negative territory. Managed Futures continued its elegiac performance posting near bottom returns for the quarter and the poorest returns for the entire year. Managed futures, commodities, and macro have historically shown low correlations to stocks and bonds; thus, they serve as potentially strong portfolio diversifiers. Strategies such as credit arbitrage, event driven, hedged equity, et al., which have higher correlations with equities, provide attractive risk/return profiles through lower volatility. These characteristics may allow investors to broaden their investment choices and create more efficient portfolios. Correlations using monthly returns over the past two years shows these historic relationships remain intact. (Figure 3).

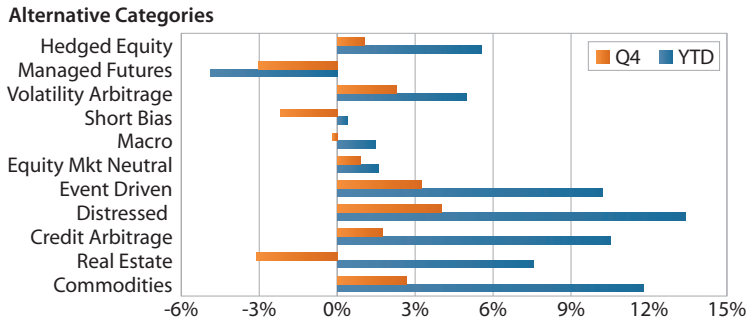
The conclusion of one of the more memorable election cycles led to an impressive turnaround in U.S. equities. The “Risk On” trade which had been

ushered in during the 2nd and 3rd quarters waned in currencies but continued for equities and high yield bonds during the 4th quarter. Depending upon your political leanings, one might attribute the capital market’s response to one or all of the following explanations: removal of uncertainty, ramped up expectations of pro-growth policies, departure of a business unfriendly/pro-regulation administration or just turning the page and a fresh mental start to the next four years. The S&P 500, up 3.82% for the quarter, posted a 7.77% gain by year-end from its quarterly low on November 4th. The long end of the fixed income curve continued its yield ascent, but risk indicators such as credit spreads remained benign (Figure 4/Figure 5). Equity volatility in the developed markets trended lower with a slight uptick the last week of the year (Figure 6).

The volatility markets offered a unique take on the Presidential election. While realized volatility moved sharply lower, implied turned sharply higher. As a result, there was a sharp spike in the implied/realized ratio coming into election week (as measured by the option forward curve and spot equity market movements – Figure 7). Once the uncertainty of the election was removed and the markets seemed to be on solid ground and trending higher, implied volatility shifted down. The last two weeks of the year, realized volatility collapsed so the ratio experienced a bit of a spike though likely not signaling much of anything.

Sentiment (the overall attitude of investors and their willingness to risk capital) in the 4th quarter was overall upbeat in tone. The ratio of New Highs to New Lows for the NYSE and for the NASDAQ declined but was still in decidedly positive territory (Figure 8). In December, the Federal Open Market Committee (FOMC) raised rates for the first time in 2016 and offered that they saw indications of solid job gains and wage inflation. One could argue that this was all old news to the markets as the long end of the U. S. Treasury curve had risen by almost 100 basis points since June (Figure 9).

Figure 1: 2016 Performance



Source: Bloomberg, 12/30/16. Past performance is no guarantee of future results. An investor cannot invest directly in an index.

Figure 2: Correlations (2-Year) & Returns

	S&P 500	4Q16 Returns
Distressed	0.66	4.02%
Event Driven	0.80	3.24%
Commodities	0.18	2.66%
Volatility Arbitrage	0.61	2.29%
Credit Arbitrage	0.58	1.74%
Hedged Equity	0.88	1.04%
Equity Market Neutral	0.55	0.89%
Macro	0.03	-0.19%
Short Bias	(0.70)	-2.19%
Managed Futures	(0.20)	-3.02%
Real Estate	0.51	-3.11%

Source: Bloomberg, 12/30/16. Past performance is no guarantee of future results. An investor cannot invest directly in an index.

Figure 3: Correlations (2-Year)

	S&P 500	BarCap Agg
Commodities	0.18	(0.16)
Real Estate	0.51	0.55
Credit Arbitrage	0.58	(0.11)
Distressed	0.66	(0.23)
Event Driven	0.80	(0.28)
Equity Market Neutral	0.55	0.00
Macro	0.03	0.61
Short Bias	(0.70)	0.31
Volatility Arbitrage	0.61	(0.13)
Managed Futures	(0.20)	0.60
Hedged Equity	0.88	(0.26)

Source: Bloomberg, 12/30/16.

Figure 4: Investment Grade CDX Spread



Source: Bloomberg, 12/30/16.

For the fourth quarter, non-currency "Risk On" assets provided dominant performance while all others swooned (Figure 10). The universal underperformance of currencies is directly a function of the sharp rally in the U.S. Dollar and the expectation of high relative rates compared to the rest of the developed global rate complex, in our view. We believe the data indicates a definitive shift in risk preferences and portfolio repositioning towards risk assets, particularly, U.S.-based risk assets. Given potential for

lower regulation, deficit spending, higher rates in the U.S. and continued sluggishness in other global economies, this seems reasonable. We continue to emphasize that Alternatives have historically provided significant diversification benefits when paired with a portfolio of traditional assets, in addition to both competitive absolute returns and attractive risk-adjusted returns.

Figure 5: Credit Spread vs. 10-Year U.S. Treasury

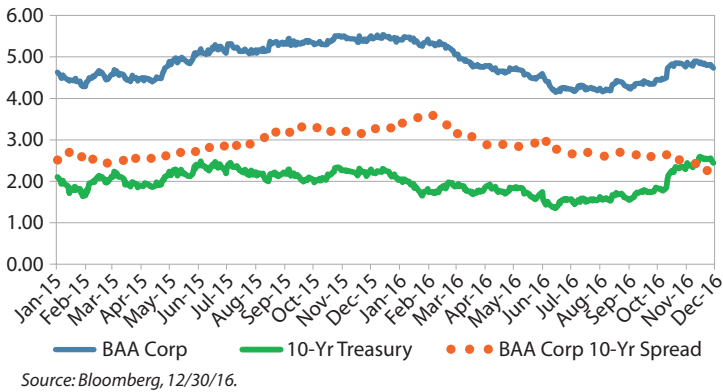


Figure 6: Volatility Benchmarks

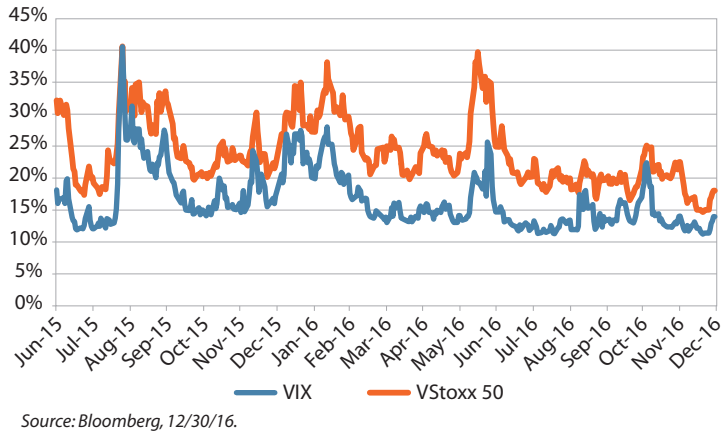


Figure 7: 30-Day Implied Volatility/Realized Volatility

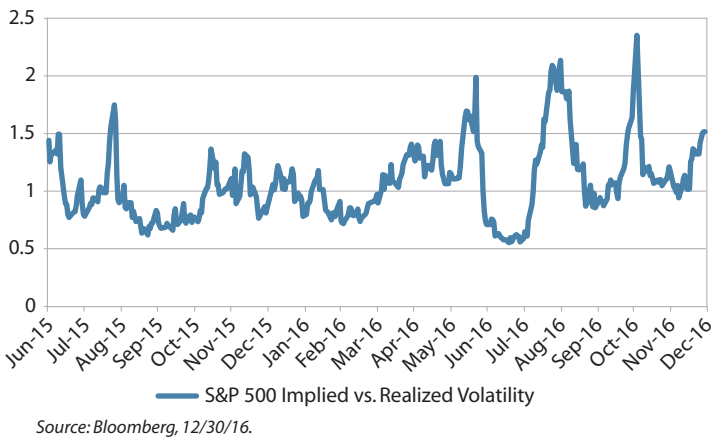


Figure 8: New Highs/New Lows (90-Day Rolling Average)

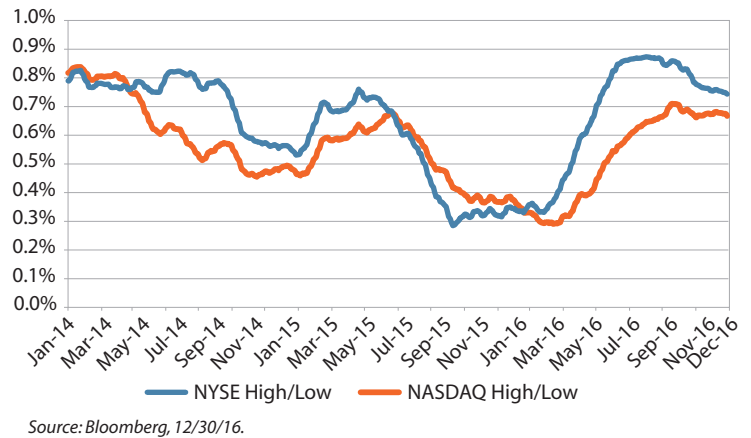
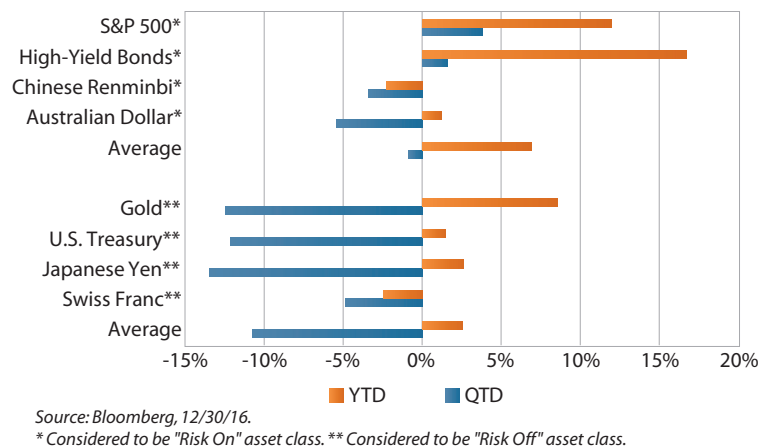


Figure 9: U.S. 30-Yr. Treasury Yield



Figure 10: Risk Off vs. Risk On Asset Returns



All charts shown herein are for illustrative purposes only and not indicative of any investment. The performance illustrations exclude the effects of taxes and brokerage commissions or other expenses incurred when investing. Past performance is not indicative of future results and there can be no assurance past trends will continue in the future. An investor cannot invest directly in an index. **Alternative investments may employ complex strategies, have unique investment and risk characteristics that may not be suitable for all investors.**

## Definitions

**Correlation:** Pearson Product Moment Correlation is a linear statistical measure that quantifies the extent to which two or more data series fluctuate together. Values run from -1.0 to +1.0.

**BarCap Agg:** The Bloomberg Barclays US Aggregate Bond Index is a broad-based benchmark that measures the investment grade, US dollar-denominated, fixed-rate taxable bond market.

**Hedged Equity:** Hedge Fund Research HFRI Equity Hedge Total Index. Investment Managers who maintain positions both long (positions that are owned) and short (positions that are owed) in primarily equity and equity derivative securities. Hedged Equity managers would typically maintain at least 50%, and may in some cases be substantially entirely invested in equities, both long and short.

**Managed Futures:** BarclayHedge US Managed Futures Industry Top 50 (BTop 50) Index. The Index seeks to replicate the overall composition of the managed futures industry with regard to trading style and overall market exposure.

**Volatility Arbitrage:** Hedge Fund Research HFRI Relative Value Volatility Index. Volatility strategies trade volatility as an asset class, employing arbitrage, directional, market neutral or a mix of types of strategies, and include exposures which can be long, short, neutral or variable to the direction of implied volatility, and can include both listed and unlisted instruments. Directional volatility strategies maintain exposure to the direction of implied volatility of a particular asset or, more generally, to the trend of implied volatility in broader asset classes. Arbitrage strategies employ an investment process designed to isolate opportunities between the price of multiple options or instruments. Volatility arbitrage positions typically maintain characteristic sensitivities to levels of implied and realized volatility, levels of interest rates and the valuation of the issuer's equity, among other more general market and idiosyncratic sensitivities.

**Short Bias:** Hedge Fund Research HFRI EH Short Bias Index. Short-Biased strategies employ analytical techniques in which the investment thesis is predicated on assessment of the valuation characteristics on the underlying companies with the goal of identifying overvalued companies.

**Macro:** Hedge Fund Research HFRI Macro Total Index. Investment Managers which trade a broad range of strategies in which the investment process is predicated on movements in underlying economic variables and the impact these have on equity, fixed-income, hard currency and commodity markets.

**Equity Market Neutral:** Hedge Fund Research HFRI EH Equity Market Neutral Index. Equity Market Neutral strategies employ sophisticated quantitative techniques of analyzing price data to ascertain information about future price movement and relationships between securities, select securities for purchase and sale. Equity Market Neutral Strategies typically maintain characteristic net equity market exposure no greater than 10% long or short.

**Event Driven:** Hedge Fund Research HFRI Event-Driven Total Index. Investment Managers who maintain positions in companies currently or prospectively involved in corporate transactions of a wide variety including but not limited to mergers, restructurings, financial distress, tender offers, shareholder buybacks, debt exchanges, security issuance or other capital structure adjustments.

**Distressed:** Hedge Fund Research HFRI ED Distressed/Restructuring Total Index. Distressed/Restructuring strategies employ an investment process focused on corporate fixed-income instruments, primarily on corporate credit instruments of companies trading at significant discounts to their value at issuance or obliged (par value) at maturity as a result of either formal bankruptcy proceeding or financial market perception of near term proceedings.

**Credit Arbitrage:** Hedge Fund Research HFRI ED Credit Arbitrage Index. Credit Arbitrage strategies employ an investment process designed to isolate attractive opportunities in corporate fixed-income securities; these include both senior and subordinated claims as well as bank debt and other outstanding obligations, structuring positions with little or no broad credit market exposure. These may also contain a limited exposure to government, sovereign, equity, convertible or other obligations but the focus of the strategy is primarily on fixed corporate obligations and other securities are held as component of positions within these structures.

**Real Estate:** Dow Jones US Real Estate Total Return Index. The DJ US Real Estate Index represents REITs & other companies that invest directly or indirectly in real estate through development, management or ownership, including property agencies.

**Commodities:** Bloomberg Commodity Total Return Index. The Bloomberg Commodity Total Return index is composed of futures contracts and reflects the returns on a fully collateralized investment in the Bloomberg Commodity Index. This combines the returns of the Bloomberg Commodity Index with the returns on cash collateral invested in 13 week (3 Month) U.S. Treasury Bills.

**Investment Grade CDX Spread:** Markit CDX North America Investment Grade Index. The Markit CDX North America Investment Grade Index is composed of 125 equally weighted credit default swaps on investment grade entities. A credit default swap is an agreement in which the buyer makes payments to the swap seller until maturity of the contract. In return the seller agrees that, in the event that the debt issuer has a credit event (missed payment or a default) the seller will pay the security's premium as well as interest.

**Credit Spread:** The difference in yield between two fixed-income instruments with differing credit profiles.

**VIX:** Chicago Board Options Exchange SPX Volatility Index. The Chicago Board Options Exchange Volatility Index reflects a market estimate of future volatility, based on the weighted average of the implied volatilities for a wide range of strike prices.

**VStoxx 50:** Euro Stoxx 50 Volatility Index VSTOXX. VSTOXX Index is based on a methodology jointly developed by Deutsche Borse and Goldman Sachs to measure volatility in the Eurozone. VSTOXX is based on the EURO STOXX 50 Index options traded on Eurex. It measures implied volatility on options with a rolling 30 day expiry.

**BAA Corp:** Moody's Bond Indices Corporate BAA. Moody's Long-Term Corporate Bond Yield Averages are derived from pricing data on a regularly replenished population of corporate bonds in the U.S. market, each with current outstandings over \$100 million. The bonds have maturities as close as possible to 30 years; they are dropped from the list if their remaining life falls below 20 years, if they are susceptible to redemption, or if their ratings change. All yields are yield-to-maturity calculated on a semi-annual basis.

**10-Yr Treasury:** Yield of U.S. Treasury securities maturing in approximately 10 years.

**S&P 500 Implied Volatility:** 30 day implied volatility of S&P 500 options at 100.0% moneyness from Bloomberg volatility model. Moneyness is the relationship between the strike price of an option and the current price of its underlying security. 100% moneyness means the strike price and underlying security price are equal.

**S&P 500 Realized Volatility:** A measure of the risk of price moves for a security calculated from the standard deviation of day to day logarithmic historical price changes. The 30-day price volatility equals the annualized standard deviation of the relative price change for the 30 most recent trading days closing price, expressed as a percentage.

**NYSE High/Low:** Bloomberg New Highs and New Lows Sentiment Index NYSE. The New Highs and New Lows indices represent the 52-week highs/lows for the securities on a specific exchange (NYSE) on a given day. New Highs divided by the sum of the new highs plus the new lows.

**NASDAQ High/Low:** Bloomberg New Highs and New Lows Sentiment Index NASDAQ Composite. The New Highs and New Lows indices represent the 52-week highs/lows for the securities on a specific exchange (NASDAQ Composite) on a given day. New Highs divided by the sum of the new highs plus the new lows.

**U.S. 30-Yr Treasury Yield:** Yield of U.S. Treasury securities maturing in approximately 30 years.

**S&P 500:** An unmanaged index of 500 stocks used to measure large-cap U.S. stock market performance.

**High-Yield Bonds:** A component of the US Corp High Yield Index that is designed to track a more liquid component of the USD-denominated, high yield, fixed-rate corporate bond market. The US High Yield VLI uses the same eligibility criteria as the US Corp High Yield Index, but includes only the three largest bonds from each issuer that have a min amount outstanding of USD500mn and less than five years from issue date.

**Chinese Renminbi:** The S&P Chinese Renminbi Index is designed as a tradable index that replicates the performance of the Chinese Renminbi versus the U.S. Dollar.

**Australian Dollar:** The return from selling the short currency (USD) to buy the long currency (AUD) and earning interest. The return is calculated by adding the spot return to the interest earned from the long currency position. It is designed to measure the performance of the Australian dollar vs. the U.S. dollar.

**Gold:** The return of the gold spot price as quoted as U.S. dollars per Troy Ounce.

**U.S. Treasury:** The ICE U.S. Treasury 20+ Years Bond Index is part of a series of indices intended to assess U.S. Treasury issued debt. Only U.S. dollar denominated, fixed-rate securities with minimum term to maturity greater than twenty years are included.

**Japanese Yen:** The return from selling the short currency (USD) to buy the long currency (JPY) and earning interest. The return is calculated by adding the spot return to the interest earned from the long currency position. It is designed to measure the performance of the Japanese yen vs. the U.S. dollar.

**Swiss Franc:** The return from selling the short currency (USD) to buy the long currency (CHF) and earning interest. The return is calculated by adding the spot return to the interest earned from the long currency position. It is designed to measure the performance of the Swiss franc vs. the U.S. dollar.