Alternatives Update
1st Quarter 2019

When Jerome Powell assumed the position of Chair of the Federal Reserve (Fed) in February of 2018, several questions lingered as to how he would guide the venerable institution. Would he be more of a hawk than his predecessor? Would he increase the independence of the Federal Open Market Committee (FOMC)? Would his investment banking background lead him to reduce the FOMC's market interventions in favor of a more "free market" approach? Would he accelerate balance sheet normalization? Would he dispel the notion of the "FED put" in the face of market volatility? Initially, it seemed that the answer to all the above questions was pointing towards, "yes."

However, when the markets stumbled in the 4th quarter of 2018 and President Trump started calling for Jerome Powell's head on a pike, all those "yes" answers became "no." Powell did a complete 180 on rates, balance sheet reduction, future QE action (quantitative easing/market intervention) and by his actions, offered up a strike price of down 12-13% for the "Powell Put" (how much the stock market could fall before the FOMC considered stepping in with stimulative action, or at least a strong hint of action, to support the capital markets). The worries of an overly hawkish Federal Reserve went right out the window. Mary Daly, President of the San Francisco Federal Reserve, offered up that the central bank may decide to use its balance sheet more routinely, not just in emergencies. Other central banks joined in the dovish narrative. Mario Draghi announced a new round of stimulative measures from the European Central Bank (ECB) and the Peoples Central Bank of China (PBOC) announced its own measures designed to support its slowing economy. The markets rejoiced, posting a first quarter rally that all but eradicated loses from the previous quarter in many asset classes (see Figure 1). Perhaps the neck-snapping change of direction was a touch influenced by the New York Federal Reserve's recession model which continued to move higher in the quarter, putting the probability of a recession in the next 12 months at over 25% (see Figure 2).

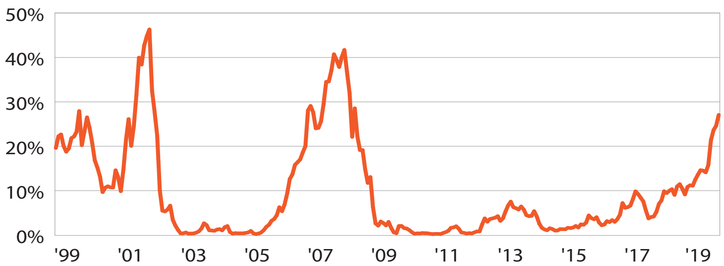
The cryptocurrency sector experienced a slight rebound in most values (Ripple being an exception) in Q1 2019. It's not clear whether the rally was part of the "risk on" rally, a vote of currency no confidence as a result of FOMC/Central Bank capitulation, short covering or some other nuanced technical buying. Bitcoin, the flagship cryptocurrency, gained 10.83%. The wider universe of cryptocurrencies, as measured by the Bloomberg Galaxy Crytpo Index, rose 7.96%, with Litecoin rocketing 106.69% (see Figure 3). The sector continues to struggle with exchange and trading security as once again, several coin exchanges disclosed hacks in the first quarter of 2019. The Security and Exchange Commission's (SEC) FinHub branch released a framework to help determine whether a digital asset is a security. Consider this a small, but definitive step in the ongoing desire by the SEC to regulate the sector, encourage prudent participation and tame its wild west nature.

Figure 1: **Asset Class Returns**

	1Q19	4Q18
U.S. Equities	13.65%	-13.52%
International Developed	9.98%	-12.54%
Emerging Markets	9.91%	-7.46%
U.S. Treasury	4.72%	4.18%
Real Estate	17.08%	-5.97%
Commodities	6.32%	-9.41%
High Yield Bonds	8.08%	-4.72%
U.S Aggregate Bonds	2.94%	1.64%
Bitcoin	10.83%	-44.69%
U.S. Dollar	1.16%	1.09%

Source: Bloomberg, 3/29/19.

Figure 2: **Federal Reserve Bank of New York Probability of Recession in U.S. 12 Months Ahead**



Source: Bloomberg. Data from 12/31/98 - 3/31/20. Recession indicator based upon 10y - 3mo spread.

Figure 3: **Cryptocurrency Returns**

	1Q19	4Q18
BB Galaxy Crypto Index	7.96%	-45.47%
Bitcoin	10.83%	-44.69%
Ethereum	8.03%	-41.03%
Ripple	-11.57%	-35.18%
Litecoin	106.69%	-52.21%

Source: Bloomberg, 3/29/19.

Figure 4: **U.S. Unemployment (U-3)**

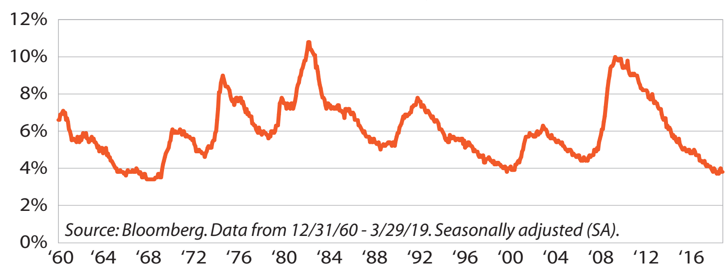
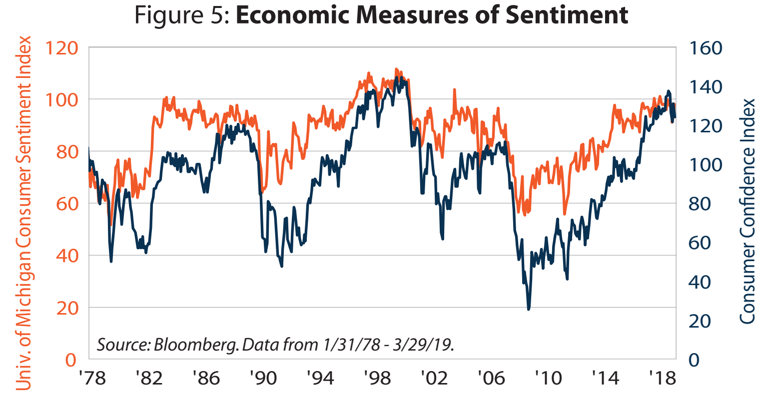


Figure 5: **Economic Measures of Sentiment**



Global economic news continued the pattern of slowing global economies with mixed domestic economic news tilted towards the positive side. The FOMC did not raise rates at either its January or March meetings, citing a focus on slowing growth and tame inflation. Unemployment, as measured by the U-3 seasonally adjusted rate, ended the quarter at 3.8%, (see Figure 4) which puts the reading in the lowest ventile for data going back to 1961. Consumer sentiment, as measured by the University of Michigan Consumer Sentiment Index, fell sharply in the first two months of the quarter but rallied to end the quarter at a solid 98.4. Another sentiment indicator, the Consumer Board Confidence Index, trailed off from the multi-year highs in the 4th quarter of 2018, but still remained reasonably elevated, ending the quarter at 124.1 (see Figure 5). The year-over-year consumer price index (CPI) trended downward during the quarter, settling at 1.5% in February, sharply lower than last year's high reading of 2.9% (see Figure 6).

The S&P 500 Index (SPX) was up 13.65% for the first quarter of 2019, its best quarterly return since 2009. The MSCI EAFE Index rose 9.98%. Long-term 20+ year U.S. Treasuries gained 4.72% as investors likely considered no foreseeable hikes in the Fed funds rate and the tailwind of synchronized dovish central banks from the largest economies. Alternative Investment ("alternatives") returns were positive across all 10 categories (see Figure 7). Real estate was the best performing category (+17.08%) by a wide margin with hedged equity (+7.92%) and commodities (+6.32%) also having a strong quarter. Equity market neutral (+1.11%), and managed futures (+1.67%) were the laggards, though still positive. Correlation with the S&P 500 Index had some influence on the magnitude of returns (see Figure 8).

Traditionally, managed futures and macro strategies are viewed as having lower correlations to equities because they are generally diversified across a variety of markets and often employ shorting as part of their approach. Two-year correlations vs. the S&P 500 Index at quarter-end have risen compared to two-year correlations as measured a year ago for those alternative categories that tend to have some equity beta (hedged equity, distressed, credit arbitrage). In contrast correlations have fallen for managed futures and macro strategies (see Figure 9). Real assets (commodities, real estate, gold) were all positive in the 1st quarter of 2019 (see Figure 10). Real estate was the highest returning category (+17.08%), while gold barely eked out a positive return (+0.77%) as its flight to quality status was not in high demand.

Managed futures, commodities, and macro strategies have historically

Figure 6: **U.S. CPI Urban Consumers YoY NSA**

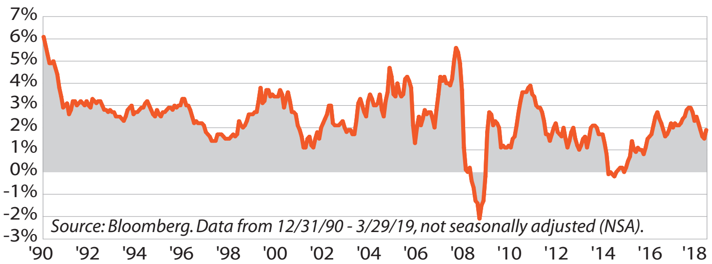
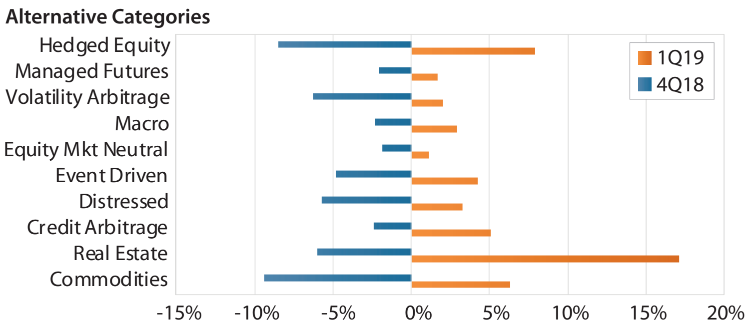


Figure 7: **Performance**



Source: Bloomberg, 3/29/19.

Figure 8: **Correlations (2-Year) & Returns**

	S&P 500	Q1 19
Hedged Equity	0.93	7.92%
Volatility Arbitrage	0.89	2.01%
Event Driven	0.86	4.25%
Distressed	0.73	3.28%
Credit Arbitrage	0.71	5.10%
Commodities	0.67	6.32%
Real Estate	0.66	17.08%
Macro	0.50	2.90%
Equity Market Neutral	0.42	1.11%
Managed Futures	0.26	1.67%

Source: Bloomberg, 3/29/19.

Figure 9: **Correlations with the S&P 500 Index**

	3/29/19	3/30/18
Hedged Equity	0.93	0.85
Macro	0.50	0.64
Event Driven	0.86	0.58
Managed Futures	0.26	0.57
Equity Market Neutral	0.42	0.59
Volatility Arbitrage	0.89	0.44
Distressed	0.73	0.33
Real Estate	0.66	0.31
Credit Arbitrage	0.71	0.14
Commodities	0.67	0.05

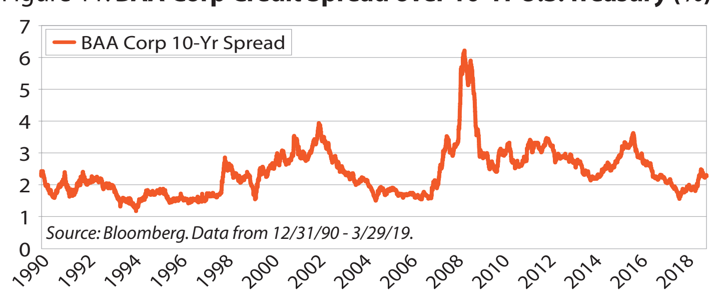
Source: Bloomberg, 3/29/19. Monthly returns over 24 months.

Figure 10: **Real Assets**

	Q1 2019	Q4 2018
Real Estate	17.08%	-5.97%
Commodities	6.32%	-9.41%
Gold	0.77%	7.54%
Average	***8.06%***	***-2.61%***

Source: Bloomberg, 3/29/19.

Figure 11: **BAA Corp Credit Spread over 10-Yr U.S. Treasury (%)**



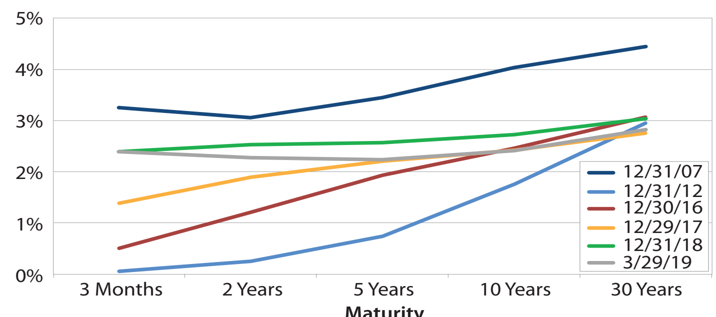
shown low correlation and beta to stocks and bonds over the course of a market cycle, thus they may serve as potentially strong portfolio diversifiers. Strategies such as credit arbitrage, event driven, hedged equity, et al., which have historically had higher correlations with equities and bonds, may provide attractive risk/return profiles through lower volatility. These characteristics may allow investors to broaden their investment choices and create more efficient portfolios.

While yields in both the corporate and treasury bond sectors fell, Baa/BBB rated corporate bonds outperformed 10-year U.S. Treasuries as investors sought more risk. Baa/BBB over 10-year U.S. Treasuries yields narrowed 19 basis points (bps) during the first quarter (see Figure 11). Spreads are now in the 51st percentile of historical rankings (see Figure 12). The spread between below investment grade corporate bonds (B/CA rated) and BBB rated corporate bonds (investment grade) narrowed 126 bps during the quarter. Most of the spread compression was due to declining yields in the B/CA rated bond category and is consistent with the theme of investors seeking to take on more risk.

The Federal Reserve did not raise rates at either the January or March FOMC meeting. With a focus on weakness in economic growth, and talk of patience with regards to further rate moves, the markets revised their estimates of rate hikes in 2019 to zero and started to price in rate cuts. U.S. Treasury 10-year yields fell nearly 28 bps to 2.41%. The long-end of the U.S. Treasury curve (30 yr. maturity) fell 20 bps to a yield of 2.82%. The yield spread between 30-yr. to 10-yr. U.S. Treasuries therefore widened 8 bps to a spread of just under 41bps. The yield spread between 30-yr. Treasuries and T-bills (3mo maturity) narrowed 23 bps reflecting a continued flattening of the curve. Over the past 2 years, this spread has narrowed 183 bps (see Figure 14). The last time the treasury yield curve was this flat was in April of 2006 (see Figure 15).

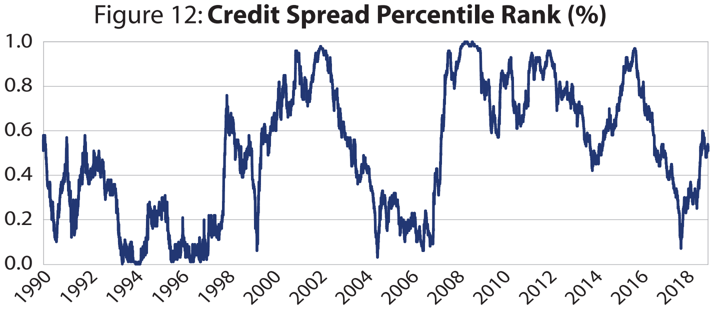
Returns for "Risk On" assets (+6.45% average return) substantially outperformed the returns for "Risk Off" assets (+0.73% average return) with the S&P 500 Index posting the largest gain in the third quarter and the Swiss Franc the most negative return (see Figure 16). Focusing on non-currencies, U.S. equities and high yield bonds outperformed gold and long-dated (20 yr. +) U.S. Treasuries by an average of nearly 800 bps. 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. Please Note: Alternative investments may employ complex strategies, have unique investment and risk characteristics that may not be suitable for all investors.

Figure 14: **U.S. Treasury Yield Curve**



Source: Bloomberg.

Figure 12: **Credit Spread Percentile Rank (%)**



Source: Bloomberg. Data from 12/31/90 - 3/29/19.

Figure 15: **Yield Spread between 30-Yr U.S Treasury and 3-Mo U.S Treasury Bill (%)**

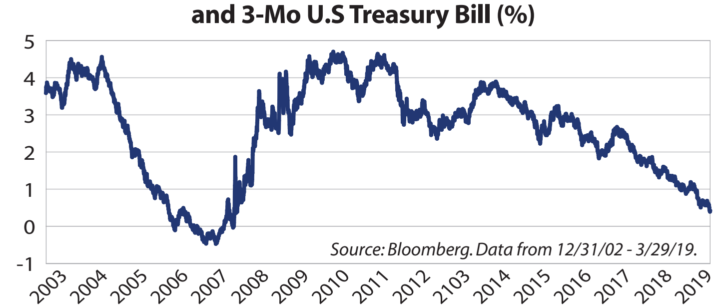
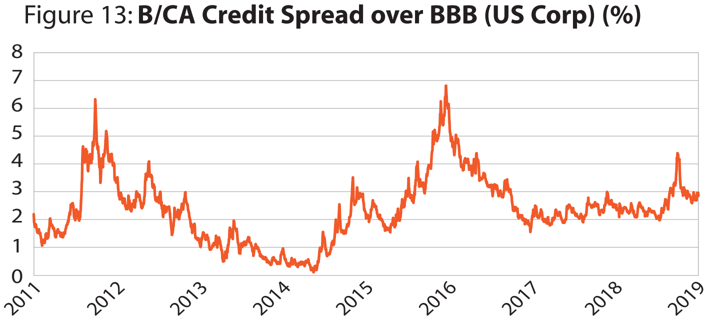
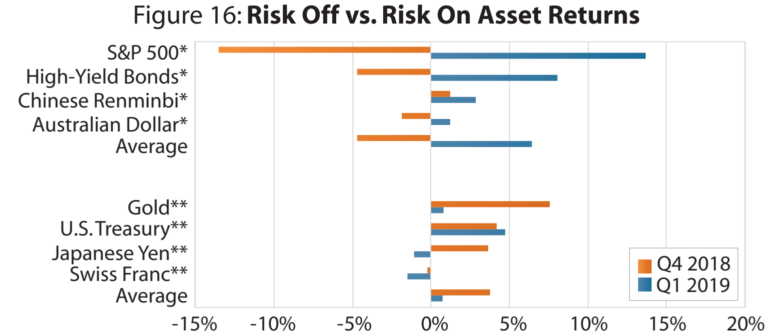


Figure 13: **B/CA Credit Spread over BBB (US Corp) (%)**



Source: Bloomberg. Data from 12/31/10-3/29/19.

Figure 16: **Risk Off vs. Risk On Asset Returns**



Source: Bloomberg, 3/29/19.
** Considered to be "Risk On" asset class. ** Considered to be "Risk Off" asset class.*

Definitions

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

Aggregate Bonds: 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.

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.

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.

Beta: A measure of price variability relative to the market.

Bitcoin: A digital currency using encryption techniques created for use in peer-to-peer online transactions Introduced in 2008 by a person or group using the name Satoshi Nakamoto.

Bloomberg Barclays US Corp B-Ca Capped Index: The Bloomberg Barclays index measures the performance of the taxable B1 – Ca rated range of the fixed-rate U.S. dollar-denominated corporate bond market. The index is market capitalization weighted and caps individual issuers at 3% of the total market value.

Bloomberg Galaxy Crypto Index (BGCI): The BGCI is designed to measure the performance of the largest cryptocurrencies traded in USD.

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.

Commodities: The Bloomberg Commodity Index is made up of exchange-traded futures on physical commodities and represents 20 commodities, which are weighted to account for economic significance and market liquidity.

Correlation: A statistical measure that quantifies the extent to which two or more data series fluctuate together. Values run from -1.0 to +1.0.

Credit Arbitrage: Hedge Fund Research HFRI Event-Driven 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 of 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.

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

Distressed: Hedge Fund Research HFRI Event-Driven 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.

Equity Market Neutral: Hedge Fund Research HFRI Equity Hedge 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.

Ethereum: Ethereum is a platform that offers programming code of any decentralized application. It has been linked to payment style transactions. Ether is the cryptocurrency issued through open-source code executed on thousands of nodes.

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.

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

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.

High-Yield Bonds: The Bloomberg Barclays US High Yield Very Liquid Index (VLI) is a component of the US Corporate 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 Corporate 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.

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.

Litecoin: A peer-to-peer cryptocurrency and open source software project similar to Bitcoin, Litecoin uses blockchain technology to process transactions. Litecoin, referred to as an alt-coin can process blocks faster than Bitcoin, uses a different mining algorithm and has larger supply.

Long/Short: "Long" and "short" are investment terms used to describe ownership of securities. To buy securities is to "go long." The opposite of going long is "selling short." Short selling is an advanced trading strategy that involves selling a borrowed security. Short sellers make a profit if the price of the security goes down and they are able to buy the security at a lower amount than the price at which they sold the security short.

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.

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.

International Developed: The MSCI EAFE Index is designed to represent the performance of large and mid-cap securities across 21 developed markets, including countries in Europe, Australasia and the Far East, excluding the U.S. and Canada. The index is a free-float weighted equity index.

Emerging Markets: The MSCI Emerging Markets Index captures large and mid cap representation across Emerging Markets (EM) countries. The index covers 85% of the free float-adjusted market capitalization in each country.

Real Estate: The Dow Jones US Real Estate Index is designed to track the performance of real estate investment trusts (REITs) & other companies that invest directly or indirectly in real estate through development, management or ownership, including property agencies.

Ripple: Known as XRP, Ripple is a cryptocurrency that can be used on open source distributed ledger created by the company Ripple. It is built upon the principles of blockchain as an on-demand option for faster cross border payments.

U.S. Equities: The S&P 500 Index. An unmanaged index of 500 stocks (currently 505) used to measure large-cap U.S. stock market performance.

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.

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

U.S. Dollar: The U.S. Dollar Index (USDX) indicates the general international value of the U.S. dollar. The USDX does this by averaging the exchange rates between the USD and major world currencies. The ICE US computes this by using the rates supplied by some 500 banks.

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.

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.