It was nearly three years ago that then Federal Reserve Chair Janet Yellen said she did not believe there would likely be another financial crisis in her lifetime due to banking reforms and actions taken by the Federal Reserve to enhance financial stability. Unfortunately, that statement seems a touch hubristic given recent events. The first quarter of 2020 was a jarring experience for several generations of investors. What began as a continuation of the longest bull market in U.S. history, ended with the fastest descent into a bear market ever. The catalyst was the now infamous COVID-19 coronavirus pandemic. As markets frayed, the Federal Reserve's balance sheet exploded (see Figure 1). There were a multitude of unprecedented events firing off in succession. The opening salvo was a preemptive rate cut on March 3 of 50 basis points (bps) prior to the scheduled Federal Open Market Committee (FOMC) meeting on March 17-18. On March 15, the Federal Reserve (Fed) dropped rates 100 bps to near zero and cancelled the regularly scheduled meeting. Congress initiated multiple stimulus packages including the largest ever passed. There were liquidity blowouts requiring Federal Reserve intervention in high-yield bonds, municipal bonds, and mortgages. Liquidity injections of never seen before levels by the Fed included buying corporate bond ETFs, and widespread talk of a $2 trillion infrastructure package with more possibly to come.

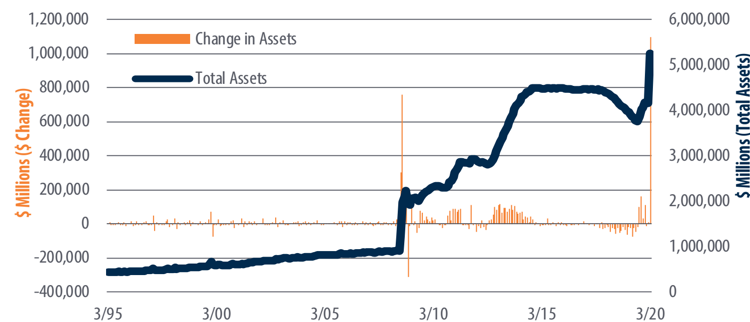
Critics of the Fed have been arguing that once unemployment remained steadily below 6% (see Figure 2), the Fed needed to aggressively reduce its balance sheet, normalize interest rates and shrink its footprint in capital markets. Keeping rates so low was not only inhibiting price discovery, it might even be deflationary based upon Central Bank experiences in Japan and Europe. For several years, corporate earnings and economic data pointed to a very healthy U.S. economy. Recent data indicated continuing positive trends. In hindsight, the unwanted side effects of excessive liquidity and accommodation may have already been brewing in the financial infrastructure prior to the pandemic. The very gradual attempt by the Federal Reserve to normalize rates and marginally reduce its balance sheet culminated in a sharp selloff in equities in the fourth quarter of 2018. More recently, there were a series of hiccups in the repo market requiring intervention.

The economic toll of a global shutdown is certain to be significant. How bad is anyone's guess, but as with all volatile markets, we believe very attractive investment opportunities will present themselves. Global Central banks have now all but solidified that they are "financial put sellers" which, for better or worse, might attenuate downside to risk assets in the near-term. Longer-term questions are: how fast will economies restart, what consumer behaviors have been permanently altered, will cracks in the credit markets be contained, will the trillions of dollars of stimulus and concurrent trillions of dollars of deficits spark inflation (this is now a real world test of Modern Monetary Theory), will nations rethink the soundness of running critical supply chains through China, and will central banks and governments be willing to step back and relinquish control of powers they have acquired during the global crisis?

Returns for traditional asset classes were generally dismal in the first quarter of 2020. Equity markets crashed as the COVID-19 pandemic froze economic activity across the globe. The S&P 500 Index was down -19.60% posting the fastest move from peak to bear market territory ever. The MSCI EAFE Index was down -22.83% and the MSCI Emerging Markets Index was down -23.60%. Commodities fell -23.29% in sympathy. West Texas Intermediate crude oil was down -66.53% for the quarter and Brent crude oil was down -56.26% as demand collapsed due to the global shutdown. Saudi Arabia upped output when an agreement to cut production with Russia failed to materialize. Likely, Saudi Arabia also sought to use this as an opportunity to pummel U.S. shale producers. Long dated U.S. Treasuries were the premier flight to quality assets, up 22.49%, along with the U.S. Dollar (see Figure 3).

Alternative Investment ("alternatives") returns had a wide dispersion ranging from excellent to no better than general equities. Low correlation strategies were a beacon in an investment

Figure 1 Federal Reserve Balance Sheet



Source: Bloomberg, Data from 3/31/95 - 03/31/20.

Figure 2 U.S. Unemployment Rate (U-3) vs. Fed Funds Rate

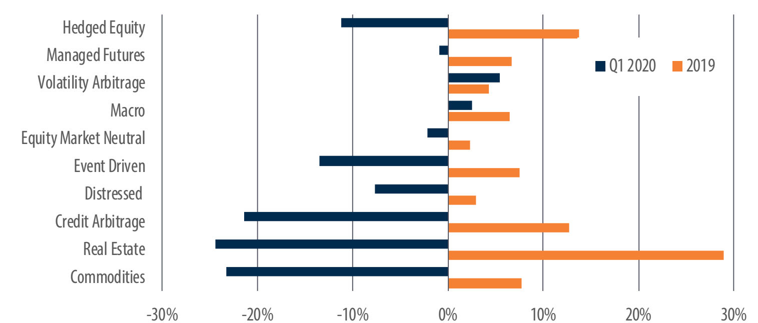
Source:Bloomberg, Data from 3/31/91 - 03/31/20.

Figure 3 Asset Class Returns

	Q1 2020	2019
U.S. Equities	-19.60%	31.49%
International Developed	-22.83%	22.01%
Emerging Markets	-23.60%	18.42%
U.S. Treasury	22.49%	15.09%
Real Estate	-24.39%	28.92%
Commodities	-23.29%	7.69%
High Yield Bonds	-12.32%	15.28%
U.S Aggregate Bonds	3.15%	8.72%
Bitcoin	-9.46%	94.83%
U.S. Dollar	2.76%	0.22%

Source: Bloomberg, 3/31/20.

Figure 4 Alternative Category Performance



Source: Bloomberg, 3/31/20.

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. See last page for definitions of asset class indexes and other terms discussed herein.

world turned upside down and buffeted by failing liquidity. In the historically rapid drawdown, two of the ten alternative categories achieved positive returns (see Figure 4) with another two down less than 5%. Volatility arbitrage was the best performing category (+5.42%) followed by macro (+2.55%) and managed futures (-0.86%). Real estate (-24.39%), commodities, heavily influenced by the collapse in oil prices (-23.29%) and credit arbitrage (-21.42%) were the worst performing categories. In general, most alternatives outpaced the equity markets (see Figure 5).

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 short-selling as part of their approach. Strategies that had higher 2-year correlations to U.S. equities (greater than 0.60), on average, significantly underperformed those strategies that had a lower correlation with U.S. equities. The spread was an astounding 1717 basis points (see Figure 6). Two of the three real asset categories, commodities and real estate, were hard hit as their total returns reflected the outlook for financial assets and those linked to economic growth (see Figure 7). Gold was the best performing real asset (+3.95%). While positive, many investors were likely expecting performance a bit closer to long treasuries as gold is similarly considered a flight to quality asset. It has been speculated that gold was held back as selling of gold positions was necessary to cover margin calls in other exposures such as equities and credit.

Managed futures, commodities, and macro strategies have historically 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.

Returns for "Risk On" assets (-11.40% average return) far underperformed the returns for "Risk Off" assets (+6.94% average return). U.S. Treasuries had the best return in the fourth quarter and U.S stocks the most negative return (see Figure 8). Focusing on non-currencies, Gold and long-dated (20 yr. +) U.S. Treasuries outperformed equities and high-yield bonds by an average of over 2900 bps. Alternatives have historically provided significant diversification benefits when paired

Figure 5 Excess Return vs. S&P 500

Category	Q1 2020
Hedged Equity	8.38%
Macro	22.15%
Event Driven	6.14%
Managed Futures	18.73%
Equity Market Neutral	17.39%
Volatility Arbitrage	25.02%
Distressed	11.96%
Real Estate	-4.79%
Credit Arbitrage	-1.82%
Commodities	-3.70%

Source: Bloomberg, 3/31/20.

Figure 6 Correlations (2yr) & Returns

	S&P 500	Q1 2020
Hedged Equity	0.95	-11.11%
Event Driven	0.81	-13.82%
Real Estate	0.80	-24.39%
Commodities	0.77	-23.29%
Distressed	0.70	-12.86%
Credit Arbitrage	0.67	-16.99%
Equity Market Neutral	0.64	-2.06%
Volatility Arbitrage	0.30	6.24%
Managed Futures	0.23	-0.86%
Macro	0.28	1.41%
Lower Correlation Avg TR (<=0.60)		2.26%
Higher Correlation Avg TR (>0.60)		-14.93%

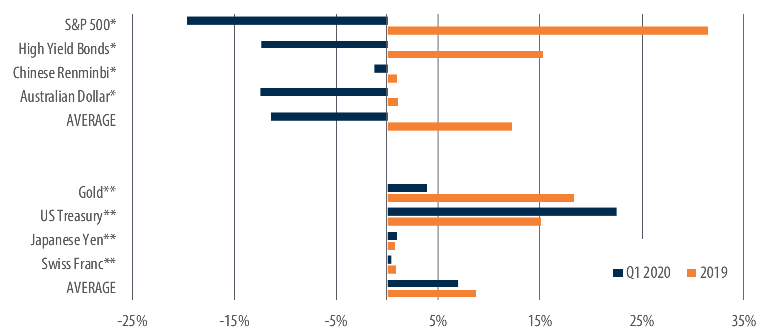
Source: Bloomberg, 03/31/20. Monthly returns over 24 months.

Figure 7 Real Assets

	Q1 2020	2019
Real Estate	-24.39%	28.92%
Commodities	-23.29%	7.69%
Gold	3.95%	18.31%
Average	-14.58%	18.31%

Source: Bloomberg, 03/31/20.

Figure 8 Risk On vs. Risk Off Assets



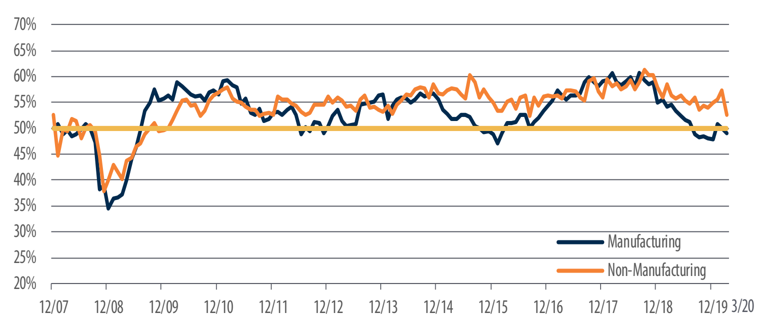
Source: Bloomberg, 03/31/20. *Considered to be "Risk On" asset class. **Considered to be "Risk Off" asset class.

Figure 9 Cryptocurrency Returns

	Q1 2020	2019
BB Galaxy Crypto Index	-1.49%	7.08%
Bitcoin	-9.46%	94.83%
Ethereum	4.93%	-1.25%
Ripple	-6.72%	-44.88%
Litecoin	-4.90%	39.86%

Source: Bloomberg, 3/31/20.

Figure 10 Institute for Supply Management (ISM) Data



Source: Bloomberg, Data from 12/31/07 - 03/31/20. Seasonally adjusted (SA). Numbers above 50% indicate an expansion, below 50% indicates a contraction.

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.

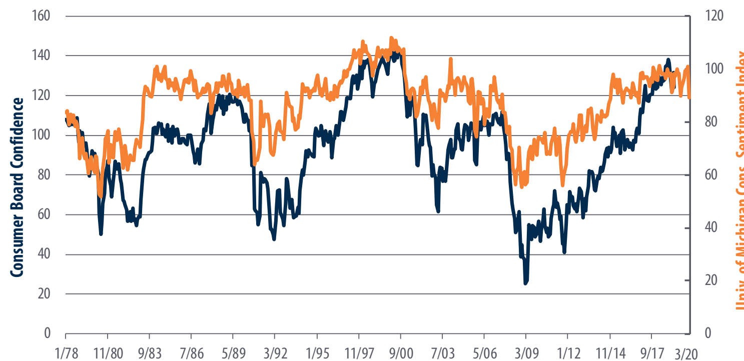
Cryptocurrencies, which historically have been noted for their extreme volatility, had somewhat muted returns compared to the wider capital markets (see Figure 9). Bitcoin, the flagship cryptocurrency, fell -9.46%, while the wider universe of cryptocurrencies, as measured by the Bloomberg Galaxy Crypto Index, fell -1.49%. Ethereum rose +4.93%, Litecoin fell -4.90% and Ripple fell -6.72%. While normally the cryptocurrency sector is replete with market grabbing headlines and intrigue, the COVID-19 crisis more or less dominated the news cycle. The evolutionary path of digital assets continues to be obscured by their limbo status from a regulatory perspective. Given the current market dislocations in more traditional markets and the unprecedented interventions by the Federal Reserve with more likely to come, cryptocurrencies are likely to move to the background for most investors and regulators for at least a couple of quarters.

Prior to the global pandemic, most of the economic data released in the first quarter of 2020 was positive and pointed towards a continuing strong economic picture. The ISM manufacturing indicator rose slightly during the quarter, reversing a trend seen throughout the prior year. The ISM non-manufacturing indicator (services) ended the quarter at 52.5 down marginally for the quarter and off a high reading of 57.3 in February (see Figure 10). For both indicators, levels below 50 represent a contraction. Unemployment, as measured by the U-3 seasonally adjusted rate, ended the quarter at 4.4% an uptick likely foreshadowing bleak numbers in the future (see Figure 11). Consumer sentiment, as measured by the University of Michigan Consumer Sentiment Index, ended the quarter at 89.1, down sharply from the fourth quarter of 2019. Another sentiment indicator, the Conference Board Consumer Confidence Index, moved lower to 120.0 (see Figure 12). The year-over-year consumer price index (CPI) ticked up slightly, ending at 2.3% (see Figure 13). That said, almost all economic indicators have not yet fully incorporated the impact of the global pandemic forcing all major economies into shutdown and likely triggered contracting GDPs. One series of economic data that likely reflects the economic reality to come was the U.S Initial jobless claims. Prior to the March 20 and 27 releases, the highest number recorded was 695K in 1982. During the 2008/2009 financial crisis, the highest number was 665K. On March 20, 2020, 3.3MM claims were reported and on March 27, 6.6MM. Perhaps anticipating horrific, never of this magnitude numbers, with more to come, The Federal Open Market

Figure 11 U.S. Unemployment Rate (U-3)

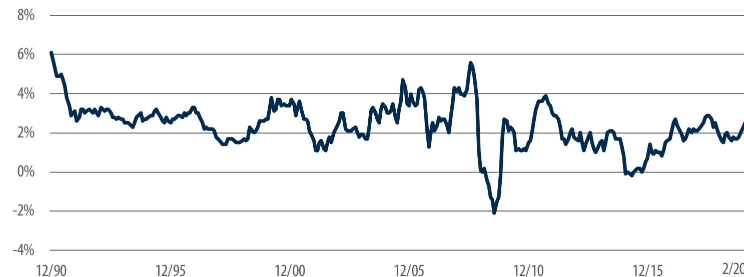
Source: Bloomberg, Data from 12/31/60 - 03/31/20. Seasonally adjusted (SA).

Figure 12 Economic Measures of Sentiment



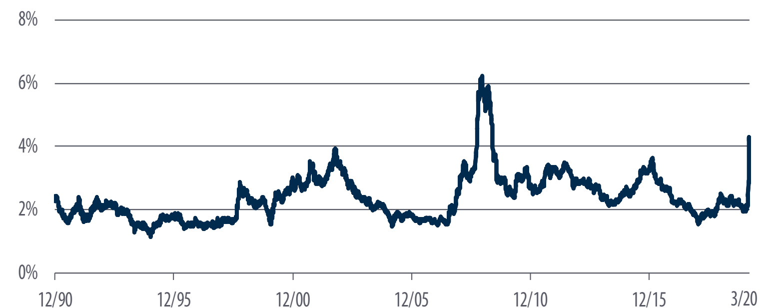
Source: Bloomberg, 1/31/78 - 03/31/20.

Figure 13 U.S. CPI Y Urban Consumers YoY NSA



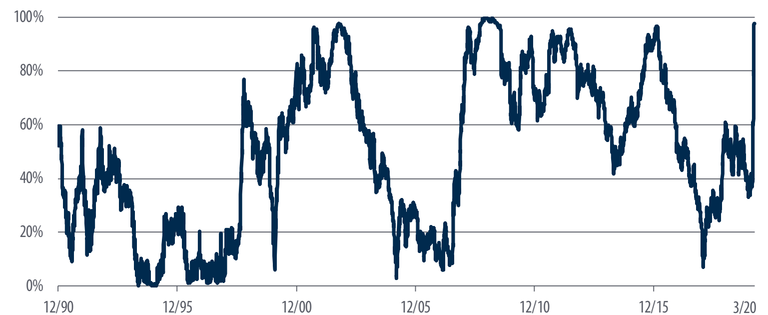
Source: Bloomberg, 12/31/90 - 02/29/20 (most recent data available), not seasonally adjusted (NSA).

Figure 14 BAA Corp Credit Spread over 10-Yr U.S. Treasury (%)



Source: Bloomberg, 12/31/90 - 03/31/20.

Figure 15 Credit Spread Percentile Rank (%)



Source: Bloomberg, 12/31/90 - 03/31/20.

Figure 16 B/CA Credit Spread over BBB (US Corp) (%)

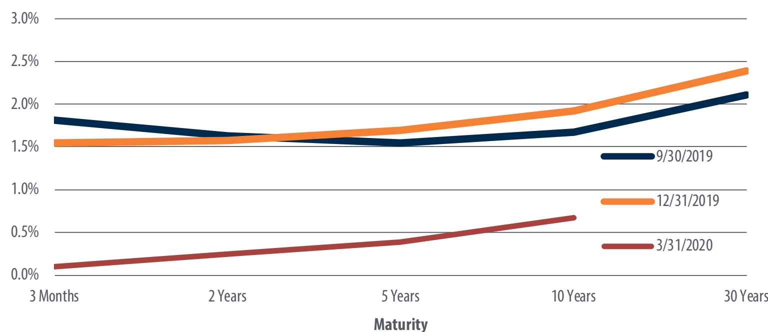
Source: Bloomberg, Data from 12/31/10 - 03/31/20.

Committee (FOMC) cut the target Fed Funds rate 50 bps and 100 bps prior to a scheduled March 17-18 meeting, underscoring their concern with the economic events unfolding across the world.

Yields in the corporate and Treasury bond sectors took starkly different paths during the first quarter. Baa/BBB rated corporate bonds underperformed 10-year U.S. Treasuries by a wide margin. Baa/BBB over 10-year U.S. Treasuries yields widened 198 basis points (bps) during the quarter (see Figure 14). The collapse in Treasury yields and spike in corporate yields sent spreads soaring into the 98th percentile of historical rankings (see Figure 15). The spread between below investment grade corporate bonds (B/CA rated) and BBB rated corporate bonds (investment grade) widened over 400 bps during the quarter to a spread of 647 basis points representing the 99th percentile. While BBB yields rose 73 bps B/CA rated bonds yields rose 481 bps reflecting a strong desire by investors to shed riskier assets (see Figure 16).

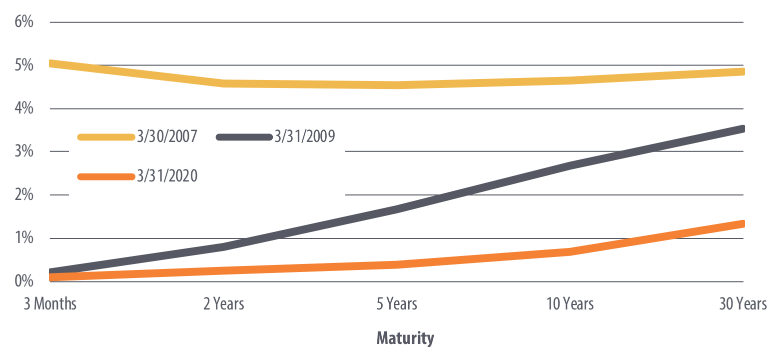
Given a very clear message from the Federal Reserve that it would do whatever it would take, two dramatic rate cuts, and more follow on language by Jerome Powell that such moves were only the beginning, it was not much of a surprise that U.S. Treasury 10-year yields fell an astounding 125 bps to 0.67%, the lowest quarter-end value ever. The long-end of the U.S. Treasury curve (30 yr. maturity) fell 107 bps to a yield of 1.32%, also the lowest quarter-end yield ever. The yield spread between 30-yr. to 10-yr. U.S. Treasuries widen 18 bps to a spread of just over 65 bps. Overall, the Treasury yield curve has steepened as the yield spread between 30-yr. Treasuries and T-bills (3 mo. maturity) widened out sharply and ended the quarter at 123 bps (see Figure 17). The most recent upheaval and Fed actions have caused yields to fall dramatically on an absolute basis. The entire yield curve is now appreciably lower than at the height of the 2008/2009 financial crisis. The stark contrast to the yield curve in 2007 before the financial crisis is somewhat surreal. All Treasuries have a significant negative real yield (nominal yield lower than year-over-year CPI). We believe part of this is certainly due to the heavy involvement of the Federal Reserve on both the long and short end of the curve, the tremendous flight to quality as well as the market's anticipation of what is likely to be strong deflationary forces that we expect will come to the fore in the next few quarters. (see Figures 18 & 19).

Figure 17 U.S. Treasury Yield Curve



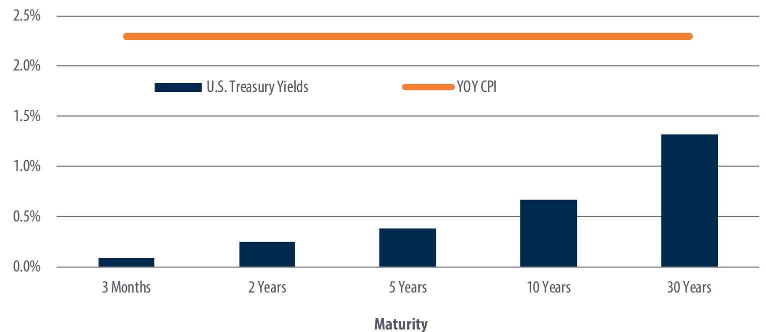
Source: Bloomberg, 3/31/20.

Figure 18 U.S. Treasury Yield Curve



Source: Bloomberg, 3/31/20.

Figure 19 U.S. Treasury Yield Curve and CPI



Source: Bloomberg, Data from 3/31/20.

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.

Consumer Price Index (CPI): A measure that examines the weighted average of prices of a basket of consumer goods and services, such as transportation, food, and medical care. It is calculated by taking price changes for each item in the predetermined basket of goods and averaging them. Changes in the CPI are used to assess price changes associated with the cost of living.

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.

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.

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.

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.

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. A put gives the holder the right to sell the underlying asset at a specified price on or before expiration.

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.

Overnight Repurchase Agreements: A repurchase agreement (repo) is a form of short-term borrowing for dealers in government securities. In the case of a repo, a dealer sells government securities to investors, usually on an overnight basis, and buys them back the following day at a slightly higher price. That small difference in price is the implicit overnight interest rate.

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.

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

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.

Alternative investments may employ complex strategies, have unique investment and risk characteristics that may not be suitable for all investors.

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