



Global Beta Advisors

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Outline

- Current Market Conditions
- The Federal Open Market Committee
- Understanding Past Economic Recessions
- State of Economy
- Your Portfolio



Current Market Conditions

- Intraday market volatility
- Federal Open Market Committee (“FOMC”) decision on interest rate hikes
- FOMC rolling of 50 billion in debt a month from the Federal Reserve Balance Sheet
- Pending trade war with China
- Algorithm-based trading hedge funds
- Government shut down



Current Market Conditions

- Volatility
- Intraday volatility
 - Volatility is simply the degree to which prices in the stock market move and one of the most commonly used barometers is the Chicago Board Options Exchange Volatility Index, commonly referred to as “the VIX”. When the price of the VIX moves up, that indicates that volatility is high in the market place. When the price of the VIX moves down, that indicates that volatility has receded in the market.



December 2019 FOMC Meeting

- 25 basis point rate hike (4th hike of 2018)
 - At the September 2018 meeting, the FOMC “dot plot”, which is a survey of each of the FOMC’s 12 members’ projections for the federal funds rate for the calendar year, revealed a projected median rate of 2.4% for 2018. Currently, the federal funds rate is 2.25%, so the 25-basis point rate increase places the funds rate on the target projected in September. Current FOMC chairman, Jerome Powell, announced that the FOMC is now targeting two rate hikes in 2019, instead of three. As of the end of January, he took a more dovish view and would not commit to a nominal rate hike target. This comes on the heels of the FOMC recognizing that global growth is slowing, and as a result, their outlook for the funds rate for 2019 has now been adjusted to 2.8%, which is down from their 3% outlook in September.
- Many investors are wondering, “is that enough?”
- Unwinding of the Fed’s 4.5 Trillion balance sheet
 - In 2009, the Fed’s balance sheet mushroomed during the crisis as the Fed created money to buy certain bonds on the open market. This program was named Quantitative Easing and was a program created by then FOMC Chairman, Ben Bernanke, to increase liquidity in the market by purchasing treasury bonds and mortgage backed securities from the open market place.



December 2019 FOMC Meeting

- Unwinding of the Fed's 4.5 Trillion balance sheet (cont.)
 - In recent months, the FOMC has rolled off portions of this debt off the balance sheet



Bank Act of 1935

- Created the FOMC (Federal Open Market Committee)
- Stemmed from the Great Depression
- Reason for the FOMC is to maintain price stability of goods and services in the economy
- The intention of creating the Fed was a noble one; their track record has some glaring errors
 - For example, In the late 1920s and early 1930s, The Fed strangled the economy with overly tight money supply, which helped cause the Great Depression. In the early 1970s, the Fed responded too slowly to inflation and it resulted in stagflation.



FOMC's Current Situation

- Fed has prescribed rate increases nearly a year in advance of data & placed monetary withdrawal on auto pilot with bond selling from the Fed balance sheet
 - This is problematic because, as history has shown, measurements such as GDP, inflation, and unemployment can be lagging indicators.
- The bond market is evolving into an inverted yield curve
- Investors are seeing price signals indicating a slowing economy while the Fed seems unnaturally aggressive in light of tame inflation and price stability. Many investors are beginning to perceive that the Fed is expanding its mission. In each and every case where the Fed has departed from its core mission, the result has been a severe correction in equities. As such, it's hard to defend a Fed that announces a target interest rate without supporting data and a Fed that puts monetary tightening on auto pilot (see the market in December vs YTD)



What is the FOMC Thinking?

- The general thought process from the FOMC to raise rates is to tighten liquidity in the market (i.e.: making it more expensive to borrow money), and thus curb potential inflation in the economy, given the recent strength in the job market as well as overall Gross Domestic Product (“GDP) growth.
- Raising rates too quickly can be as damaging as inflation
- If the FOMC gets too far ahead of inflation with raising rates, that’s when the pattern of an inverted yield curve develops. If the market believes a recession is near, they sell short term assets (such as the 2-year treasury bond) and purchase longer term assets (such as the 10-year treasury bond). The past four recessions (1981, 1991, 2000, and 2008) occurred within 1-2 years after the yield curve first inverted. An inverted yield curve is not the cause of a recession but simply a correlated event with an eventual recession.



The Recession of the 1980s

- In the case of the recession in the early 1980s, severe inflation began to hit worldwide because strife in the Middle East significantly curbed oil production. Inflation was as high as 14.6% year-over-year in April of 1980. In a misguided attempt to cool down inflation, the FOMC began to raise short term rates but that only contributed to unemployment beginning to rise and GDP beginning to recede. At the beginning of 1980, the 10-year yield vs the 2-year yield was already inverted by over 90 basis points and still the FOMC ignored what the market was signaling. The rate hikes they pushed through ended up exacerbating the inversion to the tune of over 200 basis points. We then saw the U.S. spiral into a recession in the early part of the decade.



The Recession of the 1990s

- The case of 1991, there were a couple of factors. Middle East tensions ballooned into what ended up being the Gulf War and oil prices pushed higher. In the early part of 1991, inflation hovered around 5% on a year over year basis. The other factor was grossly high interest rates that resulted from the housing boom in the 1980s. The 10-year note was hovering around 8% in the early part of that calendar year, however, the 10-year yield never ended up inverting with the 2-year yield. A previously hot economy began to slow down and these 2 factors parlayed a cooling economy into recession.



The “Tech Bubble” Recession

- In 1997, Fed Chairman Alan Greenspan responded to a major bull market in technology stocks by commenting it was being driven by “irrational exuberance “. The 10-year yield first inverted with the 2-year yield in June 1998; however, the FOMC had yet to raise interest rates. In August of that year, we experienced the Asian crisis and Long-Term Capital Management – a highly levered, multi-billion-dollar hedge fund -- became the first too big to fail financial firm to be bailed out. Part of the issue was that the asset bubble that technology created didn’t generate inflation in the same manner as previous recessions. However, inflation had reached 3.8% in March 2000, despite monetary tightening during 1999. The bubble in technology was a clear mispricing by market participants belief that the retooling globally of both computer software and hardware to avoid the Y2K problem (a software glitch that could not calculate the new century) would last beyond 2000.



The “Tech Bubble” Recession

- But growth stalled once the demand for Y2K proof computer systems was met. This bubble apparently created a wealth effect that disrupted prices. The Fed seemed to believe this required tightening. It is not quite clear how effective the Fed was during this time frame. We did end up with a crisis in equities subsequent to 9/11 and repricing of technology. The Fed was required to reverse itself once again as tightening overshot what was necessary.



The Financial Crisis

- Most recently was the infamous financial crisis of 2008, which ended up being the worst recession since The Great Depression. Coming out of the “tech bubble” recession, the economy began to expand in the mid 2000’s and interest rates slowly began to rise. In the expanding economy, home prices began to rise as demand began to hit a fever pitch. This contributed to inflation rising to over 4% for most of the mid 2000s period. However, unlike previous recessions, the asset class that began to balloon became more systematic as they were being leveraged in investment vehicles. Loose standards for mortgages led to “subprime mortgages”, which were simply high-risk mortgages. Similar to high yield bonds, subprime mortgages provided more attractive yields; however, just like high yield bonds, carried higher default risk.



The Financial Crisis

- As a result, banks began to bundle these subprime mortgages into Mortgage Backed Securities (“MBS”) with lower risk mortgages and they were vastly sold into the market as a low risk investment with an attractive yield. On the other side of the equation, banks purchased Credit Default Swaps (“CDS”) to protect themselves against default risk on the MBS’ they sold to the market. CDS were simply insurance against mortgage defaults. Banks would pay a premium to the seller of the swaps to insure them in the event there was a default on the mortgage. Thus, the market was flooded on both sides: the market owned several high risk securitized mortgages, and the market also was insuring against the default of those mortgages. The thought process among banks, and even the Market, was that MBS were about as safe as a bet you could make. However, the economy began to start slowing in 2007. In fact, at the end of 2005, the yield curve began to mildly invert.



The Financial Crisis

- By the 4th quarter of 2006 and through the first quarter of 2007, the yield curve was inverted by an average of nearly 10 basis points. As the economy began to slow by that time period, demand for housing inevitably began to decrease as inflation began to recede. Moreover, with unemployment beginning to rise, not only did that suppress demand in the housing market but it also began to increase mortgage delinquency. The result was default rates going from roughly 2% to 12%. As the defaults came in, it began to trigger the several outstanding CDS'. The 2 largest institutions that underwrote those CDS' were Lehman Brothers and AIG. Of course, neither institution had the capital to satisfy those obligations, so they had to default. In the case of Lehman, they ended up in Bankruptcy court after the Fed refused to step in to back their liabilities. The domino effect left the counter parties of the MBS' unable to satisfy their MBS obligations, which then led to asset managers accumulating large losses.



The Financial Crisis

- This unraveling whipped across the entire financial structure, which led to the Fed introducing the aforementioned Quantitative Easing program to purchase troubled assets, such as MBS' with subprime mortgages, to provide adequate liquidity to the market and stop the bleeding. In addition to the Quantitative Easing program, the FOMC also reduced the fed funds rate to 0, which represented the most accommodative monetary policy since the great depression. The Quantitative Easing program lasted until the 4th quarter of 2014 and the FOMC did not begin to raise rates from 0 until the 4th quarter of 2015. The result has been the longest running bull market as well as the longest gap without a recession in U.S. history. FOMC critics would say that with the Fed largely sitting on their hands for the better part of the last 10 years, the economy and markets have been stable.



Do the Recent Monetary Policies and Yield Curve Trends Mean Recession in 2019?

- While the yield curve itself and the hawkish monetary policies set forth by the FOMC strongly suggest we are facing a recession in the next 12 months, this time does feel different. Unlike the aforementioned previous recessions, there are missing ingredients in the current environment: inflation, high unemployment, lack of wage growth, and slowing GDP. That said, it is imperative that the FOMC does take its foot off the gas pedal in regard to raising rates. While the economy has gained momentum over the past year, there is little evidence of inflation and still a looming trade war with China, which we will breakdown. The FOMC's more dovish tone recently has certainly supported our base case of no economic recession in the foreseeable.



China Trade War

- Ongoing trade war with China.
- Recent rhetoric by both the U.S. and China have pointed towards optimism of both tempering tariffs and potentially working towards a deal
- The most significant point for the U.S. is China's theft of intellectual property from U.S. companies that run commerce in the communist state. While free enterprise is a concept that we take for granted in this country, it is not a principle adopted by the Chinese government.
- At this point, it would seem both sides want an agreement, but it's very difficult given they are two very different economies.
- One thing is certain: much of the trade war is priced into the market, so, any agreement that is made between both sides would almost certainly rally the market.



Algorithm-Based Trading

- Companies are constantly looking for ways to commoditize products.
- The industry has tried to commoditize active management by writing algorithms to run mutual funds and exchange traded funds. While these strategies have revolutionized the investment industry, they've also created a warped market. Market volume is now less controlled by investors buying and selling individual names based on fundamentals or news. Large institutional and retail money is heavily invested in many of those algorithm-based strategies. Therefore, when a technical indicator triggers these algorithms, the momentum of trading in that direction goes with it. When volatility increases in the market, the algorithm-based trading exacerbates it now, which is why we not only see day-to-day volatility but also heavy volatility intraday.



What Does it Mean for Your Portfolio

- There are clearly a lot of moving pieces, both in the stock market and the global economy. What's important for investors to know is to be prudent with their investments. It's not wise to sell into panic, and it helps to take advantage of opportunities when they present themselves. Global Beta has developed an array of strategies that identify stocks that have attractive valuations relative to their long-term averages and we manage our portfolios to take advantage of those moments in the market. We also screen our portfolios for liquidity. Identifying quality companies is critical to improving your overall return but investors also have to make sure those companies have strong liquidity. While we believe that “recession” calls are a bit premature, there is still global risk; however, identifying the right opportunities is what can set you apart from the general market return in 2019.



Solutions

- The Global Beta All World ETF Rotation Model
- Single Factor Index Strategies
 - The Global Beta Value/Quality Index Strategy
 - The Global Beta Growth/Momentum Index Strategy
 - The Global Beta Low Beta Index Strategy
 - The Global Beta Size Index Strategy
- Multi Factor Index Strategies
 - The Global Beta All Cap Multi-Factor Index Strategy
 - The Global Beta Large Cap Multi-Factor Index Strategy



The Global Beta All World ETF Rotation Model

- Global Beta manages and advises a multi asset class rotation model comprised of exchange traded funds and passively managed index funds.
- Process: Global Beta begins with a top down evaluation of global asset classes, which are represented by known indexes or ETF strategies representing indexes. The evaluation determines short term returns of the asset class versus intermediate and long term returns of the asset class. The next step is to determine the effect that valuation of recent returns have on the asset class. We use a proprietary valuation process to determine if the asset class is overvalued or undervalued.
- Global Beta believes valuation metrics are generally a leading indicator of an asset class for long-term forward looking return potential.



The Global Beta All World ETF Rotation Model

- In terms of equities, Global Beta recognizes several factors within an equity index or ETF to measure valuation. Those factors include size, value, quality, growth, momentum and volatility. In terms of fixed income, Global beta recognizes risk category, credit spreads, duration risk, and negative convexity risks.
- Once our proprietary valuation analysis is complete, we select the optimal ETFs to represent the global asset allocation exposure for a client's portfolio. Finally, we select the weighting of each ETF within the total portfolio. We monitor the efficacy of the portfolio daily and make rebalance decisions on circumstances that arise from the market. This strategy has over a 10 year live GIPS compliant track record with roughly \$450 million in assets tracking the model from the Pennsylvania Treasury Department.



Single Factor Index Strategies

- **The Global Beta Value/Quality Index Strategy:** takes the 100 securities with price-to-sales ratios that fall into the lowest quintile in the S&P 500. We use their 12-month trailing revenue, relative to each other, to weight the 100 securities. To manage concentration risk, Global Beta Advisors imposes a 5% security issuer cap on the portfolio.
- **The Global Beta Growth/Momentum Index Strategy:** takes the 100 securities with Sharpe Ratios (i.e.: risk adjusted return) that rank in the highest quintile in the S&P 500. We use their market cap float, relative to each other, to weight the 100 securities. To manage concentration risk, Global Beta Advisors imposes a 5% security issuer cap on the portfolio.
- **The Global Beta Low Beta Index Strategy:** takes the 100 securities with betas that rank in the lowest quintile in the S&P 500. We use their 12-month trailing revenue, relative to each other, to weight the 100 securities. To manage concentration risk, Global Beta Advisor imposes a 5% security issuer cap on the portfolio.
- **The Global Beta Size Index Strategy:** strategy takes the 100 securities with 12-month trailing revenue growth rates that rank in the highest quintile in the S&P 600. We use their 12-month trailing revenue, relative to each other, to weight those 100 securities. To manage concentration risk, Global Beta Advisors imposes a 5% security issuer cap on the portfolio.



Multi Factor Index Strategies

- **The Global Beta All Cap Multi-Factor Index Strategy:** rotates the Global Beta Value/Quality index, the Global Beta Growth/Momentum index, the Global Beta Low Beta index, and the Global Beta Size index tactically. The rotation is based on each indexes' current price to sales relative to its historical moving average. If the current price to sales is one standard deviation above the historical average, that index is assigned as underweight. If the current price to sales is one standard deviation below the historical average, that index is assigned as overweight. If the current price to sales falls within the mean (i.e.: between 1 standard deviation below and above the historical average), then it is assigned an equal weight. The strategy is a fully invested strategy; therefore, any excess weight that is not invested based on the aforementioned parameters are then prorated amongst the 4 indexes.
- **The Global Beta Large Cap Multi-Factor Index Strategy:** rotates the Global Beta Value/Quality index, the Global Beta Growth/Momentum index, and the Global Beta Low Beta index tactically. The rotation is based on each indexes' current price to sales relative to its historical moving average. If the current price to sales is one standard deviation above the historical average, that index is assigned as underweight. If the current price to sales is one standard deviation below the historical average, that index is assigned as overweight. If the current price to sales falls within the mean (i.e.: between 1 standard deviation below and above the historical average), then it is assigned an equal weight. The strategy is a fully invested strategy; therefore, any excess weight that is not invested based on the aforementioned parameters are then prorated amongst the 3 indexes.



Disclosures

In Global Equity Composite includes all institutional balanced portfolios that invest in a multi-asset class strategy with the goal of providing long-term capital growth from a well-diversified strategy. Although the strategy allows for international equity exposure of around 30%, the typical allocation is between 17-20%. For comparison purposes is measured against a blended benchmark. The blend consists of 80% of the iShares MSCI ACWI ETF and 20% of the iShares core U.S. bond ETF. The blend is rebalanced monthly. The benchmark includes global stocks and domestic bonds representing all major industries of the global economy. The minimum account size for this composite is \$5 million. The Global Equity Composite was created December 31st, 2017.

Global Beta Advisors LLC (“GBA”) claims compliance with the Global Investment Performance Standards (GIPS®) and has prepared and presented this report in compliance with the GIPS standards. GBA has been independently verified for the periods 3/16/2016 through 12/31/2017. The verification reports are available upon request.

Verification assesses whether (1) the firm has complied with all the composite construction requirements of the GIPS standards on a firm-wide basis and (2) the firm’s policies and procedures are designed to calculate and present performance in compliance with the GIPS standards. Verification does not ensure the accuracy of any specific composite presentation.

Performance presented prior to 03/16/2016 occurred while the Portfolio Management Team was affiliated with a prior firm and the Portfolio Management Team was the only individuals responsible for selecting the securities to buy and sell.

Results are based on fully discretionary accounts under management, including those accounts no longer with the firm. Past performance is not indicative of future results.

The U.S. Dollar is the currency used to express performance. Returns are presented gross and net of management fees and include the reinvestment of all income. Net of fee performance was calculated using actual management fees. Policies for valuing portfolios, calculating performance, and preparing compliant presentations are available upon request.

Global Beta charges an annual base fee of 0.20% of assets managed to this strategy. Actual investment advisory fees incurred by clients may vary.

