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Dr. Michaud earned a Ph.D. in Mathematics from Boston University and has taught investment management at Columbia University. He is the co-holder of four U.S. patents and is the author of *Efficient Asset Management* and many professional and academic articles.

Rollercoaster Rides

Markets

The fourth quarter of 2016 was a profitable period for globally diversified multi asset managers. All major domestic large cap indices were up for both the quarter and the year. The S&P 500 was up 3.3% for the quarter and 9.5% year-to-date. The Dow Jones gained 7.9% this quarter and 13.4% for the year, while the NASDAQ was up 1.3% in the quarter and 7.5% for the year. Domestic small cap continued to outperform large cap with the Russell 2000 gaining 8.4% for the quarter and an impressive 19.5% for the year. Diversified global equity was also profitable with the ACWI gaining 1.3% this quarter and 8.5% for the year. Most of this growth has come from the USA, and recent quarterly gains from developed markets. On the other hand, the ACWI ex US was down 1.2% in the quarter but up 5.0% for the year. Developed markets were mixed, positive for the quarter, but less so for the year. The STOXX 50, representing developed European markets, increased 9.6% in the quarter and was up 0.9% for the year. It is impressive how Nikkei managed to erase its yearly loss in one quarter. The Japanese Nikkei 225 gained 16.2% quarterly and is now up 0.4% for the year – very different numbers compared to previous quarter's results. The SSE Composite was up 3.3% in the quarter but down 12.3% for the year. On the other hand, the Hang Seng was down 5.6% for the quarter and is up 1.1% for the year. The MSCI Emerging markets index was down 4.1% for the quarter but up 11.6% for the year.

Fixed income and equity alternatives were mixed, with major indices down for the quarter though typically up for the year. Some of the changes can be attributed to an increase in interest rates, as well as the changing domestic political climate. REITs were down 4.0% for the quarter, but up 4.3% for the year. The US Aggregate Bond Index, commonly known as AGG, lost 3.0% in the quarter but is up 2.7% for the year. The US dollar gained 14.9% for the quarter but is down 3.3% for the year against the yen. On the other hand, the US Dollar gained 5.2% in the quarter and 19.9% for the year against the pound. Against the euro the US Dollar gained 6.2% for the quarter and is up 2.7% for the year. Although the exchange rate between Chinese Yuan and Dollar is fixed within a narrow band, the US Dollar still managed to gain 7.5% for the year relative to the Yuan with most of the gain coming in the fourth quarter. Gold lost 12.8% for the quarter, but is still up 8.0% for the year. The VIX is at about normal volatility at 14.04 while the 10-year T-bill is at 2.45%, up from 2.24% at the beginning of the year. The WSJ Dollar Index is at a fourteen year high. Given their diversification, New Frontier portfolios' performance has been reflective of appropriate global benchmarks on both yearly and quarterly basis. All our global multi-asset strategies met or exceeded their fee-unadjusted benchmarks even after fees, often very significantly.

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About New Frontier

New Frontier is a Boston-based institutional research and investment advisory firm specializing in the development and application of state-of-the-art investment technology. Founded in 1998 by the inventors of the world's first broad spectrum, patented, provably effective portfolio optimization process, the firm continues to pioneer new developments in asset allocation and portfolio selection. Based on practical investment theory, New Frontier's services help institutional investors across the globe to select and maintain more effective portfolios.

More information is available at www.newfrontieradvisors.com.

Perspectives

The year began with a sharp plunge in the Chinese Shanghai index, with circuit breakers shutting down trading after thirty minutes of the open during the first week of 2016. The trading halt resumed after China's central bank injected $22B in the short term market. China struggled to control a falling renminbi with an economy burdened with debt and immature financial institutions. By the end of January, the Shanghai Composite was down 25%. Global market contagion resulted in severe downturns in most major equity market and commodity indices at the beginning of the year. Nymex crude prices fell below $30 a barrel in January and reached bottom in the mid-20s for the year in February. Fear pervaded global capital markets for much of the first half of the year. In response, Gold rose sharply until early summer. Negative long-term government bond interest rates in the eurozone and Japan raised doubts on the effectiveness of monetary policy in their economies. The Fed had raised short-term rates in December anticipating two to three additional interest rate increases in 2016. However, the sense of sustainable global economic growth and stable domestic capital markets evaporated and further rate normalization in 2017 is unlikely.

While global economic concerns began to abate in the second half of 2016, there were more shocks to come. The Brexit vote in June instantly devalued the UK economy, with the pound declining by 25%, and the future of London as a world center of finance and the viability of the eurozone experiment questioned. In November, Donald Trump was elected U.S. President defying consensus forecasts and requiring major political and economic resets globally.

Perhaps the most shocking surprise of 2016 was that, by the end of the year, many capital markets indices had shrugged off political and economic turmoil and were either in positive or neutral territory. Japan equities managed to wipe out a 20% decline and post a small gain for 2016. Beginning roughly early February, there was little deviation from a long gradual rise in US equity indices. The Dow gained 8% since the election, the biggest surge following any US presidential election. US investor sentiment on the economic recovery changed quickly once election uncertainty cognitive dissonance was resolved.

The year saw the end of the long-term bull market in bonds. Bonds experienced large returns in the first half year and give backs in the second. In the UK, the October real yield on 2068 gilts dropped to negative 1.95%, a 68% gain up until that point. Even with that reversal, the gilt is still worth 50% more than a year ago. US ten year treasuries reached an astonishingly low yield of 1.36% in the summer. Though positive for the year, gold declined steadily from a peak of 1350 in June.

The strength of the dollar has been a major factor in global markets and particularly on dollar peg currency economies such as China and Hong Kong. The day after the Fed announced a rate rise in December 2015, the Chinese 10 year government bond

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rate hit a 16 month high of 3.4%. China, the second largest economy, relies on a rickety financial system mired in debt, with reports of slowing growth, capital flight, and concerns of asset bubbles. State run banks are the main source of capital. Defending the renminbi has become very costly. As a consequence of dollar reserve spending, Japan, not China, is now the largest US creditor.

While negative yield investing doubled from 5.6T dollars at the start of the year to a peak of 13.3T dollars, it remains roughly 10T in total. German yields are still negative out to 2024. Negative rates are uncharted waters for modern monetary macroeconomic theory, a kind of black hole for economics. The impact of unforecastable global economic or political stresses is largely unknown and unknowable. It is one of the many issues that bond investors must parse in the new year.

The Fed is in the process of normalizing bond yields. This will limit the economic disequilibrium and capital misallocation that are the natural consequences of quantitative easing (QE) policies and of the social dysfunction resulting by widening the gap between haves and have nots. The process of yield normalization may have minimal impact on the stock/bond return premium if the economy continues to grow. Fixed income markets may reflect historically low rates for extended periods into the future. It is worth noting that treasuries recently rallied after a six week selloff. The 10 year yield, currently at 2.5%, may represent a level where selling treasuries and buying US equities are in a local equilibrium range for the near term.

Look Ahead

The year 2016 teaches a valuable, though familiar, lesson for serious investors. Avoid business media hype: don't mix trading with politics. The two major political upsets – Brexit and the Trump victory – had arguably little effect on underlying capital market trends, beyond the direct consequences for the UK economy. Those who called the politics right may often have lost money. No major flight to safety resulted. Bearish bets were often overdone with significant losses in some cases. What mattered most were long term trends in economic recovery and dovish central bank policies.

China remains an economy and society in major transition. How China can manage its twin objectives of rooting out corruption while instituting economic reform matters greatly to global economic growth. The challenges are many including crony capitalism, immature financial institutions, unsophisticated investors, and a weakening currency.

With the Fed raising rates in December, only the second time in ten years, policy continues to be accommodative. With employment at a natural rate, guidance is for gradual increases. But campaign economic policies pose a serious dilemma. Fiscal

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stimulus in a full employment economy and inflation close to target may necessitate a faster pace of interest rate increases in order to get ahead of a possibly overheating economy.

Investors need to calibrate the impact of Trump economic and political proposals on capital markets. Immigration policy could limit the supply of labor, trade policy could ignite a trade war with China and Mexico, and fiscal stimulus could further drive an expensive dollar, increase US debt, and tilt the US into recession within a year or two. Interventions in disputes in the Middle East have many ways to backfire. While some Trump proposals, including lowering corporate taxes, eliminating interest expense deductions, and even Russian rapprochement may have bipartisan support, nevertheless hacking issues need to be addressed and others such as a destination tax remain very controversial.

No administration completely controls an economic and political agenda. There are major political divisions in the U.S. Congress and abroad. There are serious political policy divisions even within the President's own party. Eight years of QE later, the U.S. economy still has weaknesses. Productivity gains, labor force participation, income inequality, and economic sustainability remain challenges. Fiscal sugar highs will not provide sustainable growth. But implications of the new administration's policies are, at this point in time, highly speculative. Presidential responsibility may foster significant reconsiderations. Wariness may be indicated but, as the new year begins, simply wait and see may be the order of the day. Note that the VIX, which has been a valuable "fear" index for capital markets, has been at historic lows. It is generally indicative that the cost of stock-market protection, at the beginning of the New Year, has fallen significantly. Is the market complacent or is everyone simply on standby mode?

Some Long-Term Issues

A substantial case can be made that index-fund ETFs are the most successful financial innovation of the last twenty-five years. However, widely revered thought leaders have recently raised important critiques of ETFs. ETFs are said to encourage excessive trading, may have complex and illiquid structures, can be costly, and are far too varied for most investment purposes. But are these issues limitations of ETFs per se or of how they are managed and sold? Excessive trading is not an inherent fault of ETFs. While some ETFs are complex, illiquid, risky, and costly, many are not. The wide spectrum of available ETFs is an artifact of marketing imperatives and has nothing to do with the characteristics of the investment class.

New Frontier has been a world pioneer in multi-asset ETF portfolio management for more than twelve years, with one of the longest track records in the investment community globally. New Frontier is well aware of the investment limitations of many ETFs. We invest only in U.S. based highly liquid generally low cost index-fund ETFs.

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US ETFs trade more tax efficiently than mutual funds. Index-fund ETFs are generally very low cost, highly transparent investments that avoid illiquidity and complexity. New Frontier avoids excessive trading with its patented Michaud-Esch rebalancing rule. While valid critiques of ETFs have been raised, none apply to New Frontier.

There has been much interest in what are called "smart beta" or, generically, factor-based ETFs. Factor-based ETFs are often viewed as lower cost hedge and active quant funds. As studies often confirm, many hedge and active quant funds have performed as expensive factor funds. There is a persistent trend of active mutual funds losing ground to index- and factor-based ETFs. The mantra is that "smart beta" ETFs represent the technology of factor based hedge and quant funds at much lower fees.

There are now many smart beta funds that vary widely in quality and reliability. Claims of out-performance are often more back test than actual. The problem of which factor or set of factors to use and their proper definition remain open issues. Also importantly, unlike index-funds, ETF factor-funds are inherently not price neutral and require sophisticated trading strategies. The usual caution of caveat emptor applies. A shake out is likely near term.

2016 was another year where active investors were often whipsawed by political and economic events. It was another year of asset drawdowns and large negative returns for many active quant and hedge fund managers. Many bearish wagers backfired badly. As an institutional quality manager, New Frontier pays close attention to the state of global capital markets and economic and political events. All our strategies are evaluated for statistical optimality relative to new information on a daily basis. However, New Frontier's patented Michaud-Esch rebalancing technology mandates trading only when statistical criteria are confirmed. The result is far less need to trade. It is an investment process largely immune to the hype characterized by business channels and media. It is a process consistent with the advice of many of the sages of investment and of theoretical principles of reliable effective long-term investing.

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