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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.

## Liftoff

### Markets

Domestic equities were positive for the quarter but mostly flat for the year. In the quarter the S&P 500 gained 4.8%, the Dow Jones Industrials 5.8% and the NASDAQ 6.4%. Year to date the S&P went down by 0.7%, Dow declined by 2.2% but the NASDAQ was up nearly 5.7%. U.S. small caps underperformed large caps; the Russell 2000 index gained 1.9% for the quarter and lost 5.7% for the year. Domestic bond markets were little changed for the quarter and year. The U.S. dollar rose 2.3% to the euro for the quarter and 10.6% for the year; the dollar was essentially flat to the yen for the quarter and year. The two year rout in oil prices and commodities continued to dominate economic news this year. The NYMEX-traded oil declined 21.6% in the quarter and 37.7% for the year.

Global markets posted mixed results. Most major international equity indices were positive. The Japanese Nikkei 225 increased by 9.5% in the quarter and 9.1% for the year. EURO STOXX 50 gained 6.0% in the quarter and 4.7% for the year. Many emerging markets had steep declines. The MSCI Emerging Markets Investable Market Index lost 4.1% in the quarter and was down 15.5% for the year. Two major drivers for the emerging markets “plunge” included Brazil and South Africa. Brazil is currently down 10.2% for the quarter and 41.6% for the year; South Africa is down 17.5% for the quarter and 26.5% for the year. Paradoxically, Russia lost only 6.9% for the quarter and 3.8% for the year in spite of sanctions, a steep decline in oil revenues, military involvement in Ukraine, and reduced value of the ruble. The Chinese SSE Composite Index posted a nice gain of 15.9% for the quarter and 9.4% for the year. However, the offshore Hang Seng China ENT Index was negative for the year. All our ETF-based portfolios are positive for the quarter and consistent with global diversified benchmarks.

### Perspectives

In December, the Federal Reserve raised short-term interest rates for the first time in almost a decade. It signaled an end to near-zero borrowing costs since the onset of the Great Recession in 2008. The Fed announcement of a quarter-point increase included the expectation that only gradual future increases are likely. The change in policy comes during signs of a steady U.S. recovery with consumer confidence and spending rising and unemployment at a near full employment rate of 5%. Fed economic projections indicated that the economy would expand by 2.4% in 2016, unemployment would drop to 4.7%, and inflation would rise gradually towards their 2% goal. The still low inflation rate was attributed to temporary factors such as low

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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](http://www.newfrontieradvisors.com).

oil and commodity prices that should rise as growth continues. A growing concern had been that the risks of being “too early” were nearly as great as those of being “too late.” The vote for raising rates was unanimous, a comforting indication of a well-functioning committee in the Yellen era.

The well telegraphed liftoff had little effect on credit markets. But low rates could persist for extended time periods. Financial history has many examples when low rates persisted for decades. Note that estimates of the long-term natural rate are little different from current. But shorter-term rates are likely to rise near term. The long era of nearly zero rates is likely to result in unexpected disruptions in liquidity for investors who have been attracted to risky investments and leveraged strategies in the hope of increasing return in a low return investment environment. In particular, the risks in distressed assets and strategies investing are likely to rise. So also is the end of the era of easy capital gains in credit securities. Rising domestic rates will be welcomed by savers and consumers benefitting gas pump, heating fuel, airline ticket and foreign travel prices. But, borrowing costs and a stronger dollar may reduce demand for exports and impact profitability.

The status of the Chinese economy and markets is the other major financial news for the year. China's economy is going in the opposite direction from the U.S. with interest rate cuts and efforts to make credit more widely available to spur growth. China has seen weakened trade, lowered industrial production, factory closings, declining property investment, and a rising wave of strife. The migrant worker's dream of entry into the Chinese middle class has largely failed. China's effort at spurring economic growth and reducing overvaluation of the yuan relative to the U.S. dollar is made more difficult with the Fed's decision to begin raising short-term interest rates. Credit availability in China is very tight for small and private companies in spite of looser bank reserve requirements. The situation is complex. Note that the PE valuations on the Shanghai composite peaked at 25 while the small and mid-cap weighted Shenzhen was 69 and the tech heavy ChiNext index reached 144. Further, the amazing disparity between onshore and offshore investing in Chinese equities is testimony to a continuing lack of regulatory, economic and financial maturity. The need to ban stock sales by large shareholders and state-owned financial institutions and crackdown on insider trading, market manipulation, and malicious short selling provide strong cautionary signals for would be investors in an economy of great potential.

The story is different for international developed markets. In Japan, the recovery spurred by an aggressive stimulus program has been reflected in encouraging signs in corporate profits, stock prices, and worker demand. But rising wages have yet to encourage consumer spending. The lack of progress for attaining a 2% inflation target has been blamed, as in the U.S, on lower energy prices. In Europe, the European Central Bank President Mario Draghi continues to insist that the QE stimulus package

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## New Frontier Portfolios

New Frontier develops and manages a broad range of ETF asset allocation portfolios for advisors and their clients, and currently oversees nearly \$2 billion in global ETF asset allocation portfolios.

is working. Positive modest growth rates are forecast for 2016 though inflation goals are unlikely to be met. Negative interest rates, Greece debt, political commitment, terrorism and the refugee crisis are evidence of the challenges that remain.

As an investment class, emerging markets have performed poorly. Many are commodity markets that borrowed heavily in cheap U.S. dollar denominated debt and have been afflicted with mismanagement and corruption. The rout in oil and commodity prices has had a devastating impact on emerging market debt and equity benchmarks in many cases. A rise in U.S. interest rates and continuing slowdown in demand imperil relief anytime soon.

## Look Ahead

It is the political season in the U.S. with a presidential election less than a year away. But the political dysfunction that has characterized U.S. politics since the onset of the Great Recession has largely abated with the recent election of Paul Ryan as the new Speaker of the House. A broad tax and spending agreement has been signed. The deal funds the government through most of 2016. It included extension of important business tax breaks with threats of government shutdowns and repeal of the Affordable Care Act postponed indefinitely. The fundamental change in the way the Federal Reserve now plans to manage the American economy has been smooth. Credit markets and equity benchmarks have exhibited little significant additional volatility. The economy continues to show signs of slow but positive sustainable growth.

Central banks in Japan, Europe, the U.K., and China are all engaged in their own versions of modern macroeconomic stimulus policies. However, China's situation is in a class of its own. It remains committed to market regularization and the transition to a modern information based economy. China is also very rich in dollar reserves. But the challenges are great; it must manage the legacy of a large poorly educated and mostly impoverished population with an immature market economy culture.

Star traders and market strategists had a rocky year with many forecasts far from the mark. Also, many hedge fund managers were caught on the wrong side of commodity, interest rate, currency, emerging markets, and stock bets; some well-known funds lost 20% or more. Though the reported average for the year was slightly positive, hedge funds as a class have underperformed the market for the last six years.

While ending flat, U.S. equity and bond market benchmarks exhibited much volatility during the year. The S&P had as many negative as positive months. The average of negative monthly returns, -2.7%, closely matched the positive month average. The Dow moved 1% or more on 70 trading days, nearly twice as many as last year. On August 24, within minutes of the open, the Dow plunged 1000 points while some

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major bank stocks fell more than 20%. It was wise to have been an effectively diversified multi-asset investor for the year.

## Topical Issues

New Frontier is a multi-asset manager that uses exchange traded funds (ETFs). ETFs are often compared to mutual funds, which are also portfolio based investment products. In most cases, ETFs function similarly to comparable mutual funds. However, a recent case highlighted an important difference. On December 10, 2015, the Third Avenue Focused Credit Fund, a mutual fund, suspended the right of investors to ask for their money back. In a run on a fund, the manager generally sells the least illiquid assets first. The implication is that those who cash out first get a better price than those who wait. Also, the wait for everything to settle after suspending the right to sell can take a considerable amount of time. This does not happen with ETFs. ETF sales result in a swap of a representative basket of assets with the fund company. No cash changes hands. An ETF investor may lose money in a fund but there will be no need to wait for the money.

Some observers have claimed that ETFs may disrupt the normal functioning of capital markets. This is because in some recent market stress periods ETF pricing was suspended. However, the issue was not the consequence of a critical flaw in the structure of ETFs but the often temporary illiquidity of some of the constituents of the index at a market stress point. As in mutual funds, ETF risk depends on the securities in the portfolio.

An ETF is a single stock representing a portfolio of securities. An ETF trade represents a trade of a portfolio of securities. While ETFs are a relatively recent investment product, portfolio trades are nothing new. Index fund managers are portfolio traders. When an index needs to change, there can be temporary illiquidity disruptions. For managers of ETF strategies, such as New Frontier, with relatively minimal impact on capital markets, portfolio trades may often be executed as swaps from an inventory at an institutional broker with minimal cost. However, in market stress periods, components of an ETF index may become illiquid and pricing suspended. ETF risk depends on the relative liquidity of its components. Investors should be aware of the risk that leveraged strategies and exotic securities imply in an ETF or mutual fund. New Frontier limits ETF risk by using only those based on the highest quality liquid index-weighted indices.

The bottom line of reliable long-term investing is the requirement of truly effectively diversified funds. Real diversification is the only known truly effective method for managing investment risk over time. This is because long-term risk is necessarily associated with totally unanticipatable events in global capital markets. There is no known measure of risk that specifically addresses unanticipatable risk that does not

also limit upside potential return. Downside risk policies, if effective, are necessarily insurance policies that often don't pay while limiting upside return. Alternative strategies also reflect insurance policies with generally unknown risk characteristics and correlations in stress periods. New Frontier global multi-asset strategies are optimized and rebalanced with the patented Michaud Efficient Frontier™ optimizer and the Michaud-Esch statistical rebalancing rule™ and trade advisor technologies. Our optimization process is the only known method with a mathematical proof of investment effectiveness. In 2015, our multi-asset equity positions balanced credit with equity investments during a rocky and volatile year. Unlike less sophisticated and less diversified multi-asset strategies, overall risk was minimal not only for the year but at each point in time, a necessary characteristic for reliable long-term risk management.

## New Frontier Research

Dr. Michaud has been invited to present New Frontier's increasingly acknowledged important new research paper: "The Fundamental Law of Mismanagement," authored by Richard Michaud, Robert Michaud, and David Esch, at the CFA Society of the UK in London on April 28. This will be the society's first research presentation to also be broadcast as a live webinar to all CFA members. Dr. Michaud has also been invited to present the paper to the Fi360 plenary conference in San Diego at the beginning of April. An abbreviated abstract makes the challenge clear: "Active managers often claim superior risk-adjusted performance because they invest in many securities, use many factors to forecast return, trade frequently and optimize without constraints. We show with simple examples why the four principles fail followed by a rigorous simulation proof to confirm that all four fundamental law characteristics are essentially invalid and self-defeating."

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