INVESTMENT OUTLOOK

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Strategic Frontier Management
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THAT SNEAKY SECOND DERIVATIVE

- Inevitable breakdown of spurious or transitory relationships are often cathartic and unpredictable. Valuation may not be sufficient in the short-run or by itself, but contributes to tactical asset allocation in a multifactor context. Valuations eventually normalize to equilibrium (mean reversion). Our focus is on anticipating inflection points and *That Sneaky Second Derivative*[1], also known as acceleration.
- Effects due to a shifting balance-of-power usually lag, but the economic consequences of this election are likely to be more immediate. Executive and Legislative political alignment is unusual, but can result in significant changes more quickly. Economic impact should be transformative and constructive for potential growth, productivity, competitiveness, fiscal balance, and exports.
- Shifting investment risks are increasing uncertainty. Anticipating fundamental changes requires adapting return forecasting, risk management, and many assumptions. Strategies that worked well when yields fell may disappoint as interest rates rise. Our warnings about evolving market risk and correlation between asset classes now appear perceptive, but there is still confusion about what to do. Many strategists still underappreciate interest rate sensitivity, currency risk, and secular change.
- Global interest rates are rising, led by U.S. rate hikes. International bond yields may not rise as fast, but they will rise too. Investors should be vigilant about interest rate sensitivity, even within private market and equity portfolios. Emergency monetary policy is no longer needed, so the consequences of monetary normalization are significant, including winding down bond holdings. Changing Federal Reserve policies have global effect, but also will be under new management within a year.
- Years of manipulating market interest rates have created imbalances, and we believe bonds are most at risk. Global bond valuations are stretched, and a *Great Inflection Point* is evident with rising bond yields. A three decade long bond bull market led investors to adopt unrealistic bond market risk and correlation measures. Rising interest rates will affect equity valuations, but global equity indices are not extended particularly relative to bonds. Fundamental economic expectations have improved, which justify recent re-rating of stocks and bonds.
- Economic divergences should continue to increase. Volatility and correlation are evolving, thus more uncertain. Bond and currency volatility have increased, but equity volatility declined dramatically in 2016, although many expected it to increase. S&P 500 volatility should average 10-12% and we continue to expect greater variance-of-volatility. International diversification should also increase.
- Exponential innovation is driving a manufacturing renaissance and new industrial revolution. Adaptive systems leveraging machine learning and additive manufacturing to ubiquitous sensors and Internet of Things are bolstering productivity beyond measure. Labor and energy intensity have collapsed.
- Expecting higher global bond or currency volatility should be intuitive, but we have also suggested that higher variance-of-volatility is more appropriate for global equities, rather than simply higher volatility. Average volatility fell further during Q4, but equity variance-of-volatility has risen. *That Sneaky Second Derivative* is important for risk measures too.
- Active management can be a novel alternative investment providing greater liquidity, holdings transparency, and diversification at lower cost. Ability to add value is a scarce resource. Various misconceptions can persist for extended periods, and may result in decisions that yield inferior portfolio performance. An overload of information may blind us with too much data, so we seek to filter the noise and highlight what matters most.

[1] In calculus, a second derivative of a function is a derivative of the derivative of that function or how the rate of change of a quantity is itself changing. For example, the first derivative of GDP (economic activity) is growth, and the second derivative is the change in the rate of growth or acceleration.

Waning Age of Anxiety

Looking out into next years' themes is always a fascinating exercise for investment strategists and economists, but 2017 is particularly intriguing given the vast number of new policy effects and global uncertainties, as well. We will discuss our key themes below, but a constructive and dynamic environment is emerging in the U.S., unlike any we've observed in 25 years. It offers hope for restoring 3% potential growth, greater productivity, and improved global competitiveness The *new normal* and *secular stagnation* were catchy phrases, but are overused and misleading—U.S. economic performance hasn't been consistent with either phrase. After interest rates were pinned down near 0% for eight years, a visible inflection point in interest rate policy is one of several factors increasing economic divergences.

Persistent moderate growth, 2% inflation, and near full employment (4.7% unemployment) suggest interest rates and the Federal Reserve's balance sheet should be at normal levels, but real interest rates are still negative. Monetary policy must be normalized given economic conditions, but slow and steady unwinding is the only way to avoid upsetting markets. We believe "data dependency" actually justifies steady rate hikes of ¼% every other meeting on a path to 3.5%, unless growth stalls or unemployment rises more than 1%. If inflation exceeds 3%, interest rate hikes may increase to every meeting as in 2004. We don't expect the yield curve to flatten much given use of forward guidance, meaning that long bond yields should rise nearly as much as short-term interest rates. The U.S. dollar will continue to strengthen if other countries don't hike rates, but their bond yields should rise at least half as much as U.S. yields, suggesting steeper yield curves.

Economic and capital market forecasting is hard, particularly at times of substantial legislative, trade, and regulatory policy changes expected over the next several years. Investors have had little time to adjust to the new paradigm, but an initial re-rating of markets was observed in November. Even we were a bit surprised by the markets' reaction, reflected in returns of stocks, particularly small-cap equities, and bonds, as well as the U.S. dollar. Our revised forecasts for higher earnings and real economic growth, as well as increasing inflation and interest rates, are noteworthy. Some data is still estimated for 2016.

Economic Forecasts	**2012**	**2013**	**2014**	**2015**	**2016e**	**2017e**	**2018e**
GDP Growth (Y/Y Real)	2.3	2.7	2.5	1.9	**1.9**	**3.0**	**3.2**
S&P500 Earnings	6.0	5.7	8.1	-0.9	**1.1**	**9.5**	**11.5**
CPI Inflation (Y/Y)	1.8	1.8	0.7	0.7	**2.2**	**2.5**	**2.7**
Unemployment	7.8	6.7	5.6	5.0	**4.7**	**4.8**	**4.5**
Fiscal Deficit	-6.6	-3.2	-3.5	-3.0	**-3.8**	**-3.5**	**-3.0**
Fed Funds Target	0.25	0.25	0.25	0.50	**0.75**	**1.75**	**3.25**
10y Treasury Notes	1.85	3.00	2.17	2.27	**2.45**	**3.50**	**4.75**
S&P 500 Target	1426.	1848.	2059.	2044.	**2239.**	**2350.**	**2500.**

Source: Strategic Frontier Management

Change in the U.S. balance of power is expected to have an impact on future potential growth, productivity, and profit margins. A U.S. pivot on tax policy and regulation could bolster potential growth, productivity, and competitiveness. This may also boost average inflation and thus interest rates. Other countries must respond to a widening gap in competitiveness—devaluing currencies or increasing tariffs are unsustainable responses, in this regard.

U.S. potential real growth may increase to 2.8-3.0% from 2.2-2.5%, given objectives of the President's agenda. We boosted our 2017 GDP to 3.0%, followed by 3.2% in 2018, based on constructive changes to fiscal and regulatory policy. New administrations typically prioritize work in series, but this Administration is likely to execute many initiatives simultaneously in parallel, unconcerned about expending *political capital,* which isn't likely a constraint for this President.

The decline of Communism, European Socialism, and crumbling of the Berlin Wall in the 1980s were helped along by U.S. success restoring principles of *Free-market Capitalism*, including fiscal and regulatory reform. Yet, failures of Socialism, lack of fiscal discipline, and other misguided policies are being repeated. The result is increasing global divergences fueled by fundamental choices in fiscal, regulatory, and trade policy. Disruptive innovation with an accelerating rate of technological change, at a time of shifting investor preferences, have implications for financial services and particularly providing investment advice that drive key trends and critical uncertainties.

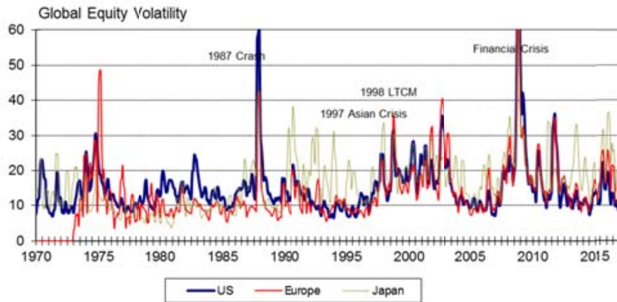
2016 Capital Markets Review

The S&P 500 returned 12.0% in 2016 (Q4: 3.8%) to close at 2239, above our year ago forecast of 2200. Our tactical models also favored small-cap, as the Russell 2000 outperformed the S&P 500 by 9.3%. Our recommendation to overweight U.S. and Emerging Market equities (11.2%) over developed international equities (EAFE: 1.0%) also worked well during 2016. Japan returned 2.4% and Continental Europe (-0.6%) lagged in U.S. dollars, as well.

We expected stocks to outperform bonds by a wide margin, as 10-year Treasury bonds returned just 0.9%. Interest rates across the yield curve didn't rise as much as we expected, but the 17.1% return to high yield bonds benefited from tighter credit spreads. Currency volatility also increased with greater economic and monetary policy uncertainty. The -16.2% decline in the British pound due to BREXIT exceeded the -2.9% decline in the Euro. The Yen (+3.1%) strengthened somewhat, despite a Q4 plunge of -13.2%.

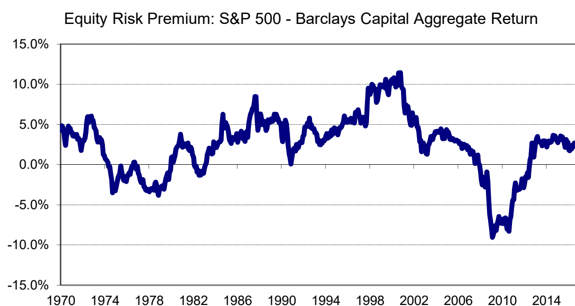
Our contrarian view on equity risk last year corresponded with the rise in variance-of-volatility, instead of simply higher volatility as other strategists

suggested. Instead, global equity volatility generally declined with greater global economic dispersion and uncertainty. U.S. equity volatility fell from a slightly below average 14.5% to 8.7% by year-end, while European equity market volatility fell to 10.1%. Japanese equity volatility rose modestly to 18.5%. S&P 500 average volatility of 10-12% seems reasonable in this environment. Equity volatility moderated similarly from 2004-2006 as interest rates were rising.



Source: Strategic Frontier Management

Long-term return differentials of equities versus bonds or cash (i.e., equity risk premiums), have normalized. Public company earnings rebounded since 2009, but some naïve valuation measures like Market Index/GDP or Shiller's CAPE are flawed in this regard, and never worked well tactically for investors. As the Financial Crisis sunsets from 10-year rolling returns, the stock – bond return difference will probably increase beyond 3.5% and bolster investor confidence in equities again. In 2000, the return differential exceeded 10%, and investors were "exuberant", coinciding with severe equity over-valuation, so a correction was inevitable. In 2008, a credit-induced recession caused earnings to collapse, although valuations were not worrisome prior to the recession's onset.



2007-2016	Large Eqty	Small-cap	Int'l Eqty	Agg Bonds	Cash
Return	6.95%	7.07%	0.75%	4.34%	0.65%

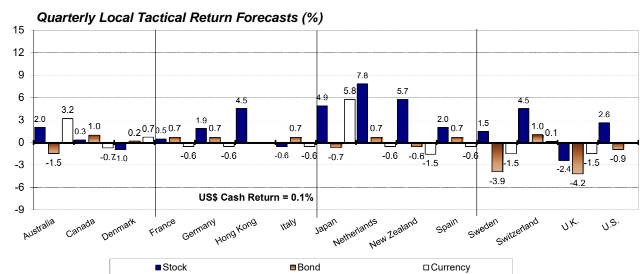
Source: Strategic Frontier Management

The S&P 500 returned 260% since February 2009, but this is perhaps the most unloved and mischaracterized equity bull market that has continued to set new records. Return to normal relative 10-year return differentials has been observed. A rebound and further growth in earnings has kept valuations reasonable. However, international equity (MSCI EAFE) has lagged with disappointing economic performance that limited earnings growth in Japan and Europe. As interest rates rise, extended risk factors may underperform, such as low volatility, large size, and high dividend yield. These factors tend to exhibit higher interest rate sensitivity.

What Matters Most

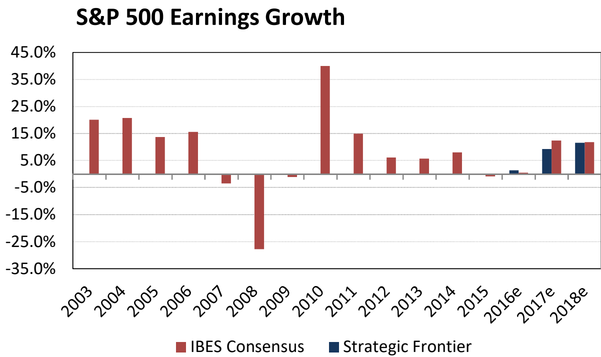
We believe several key variables are critical to stock, bond, and currency returns, specifically valuation, economic growth, inflation, interest rates, and earnings. Changes in these core factors, which are fundamental to our tactical asset allocation process, generally have had the greatest impact on market returns. The initial re-rating of markets resulted from changing investment expectations following the election, but now investors will probably wait and observe further legislation and clarification of executive action before upgrading U.S. economic and earnings growth further.

Our global tactical models have shifted after a strong fourth quarter U.S. equity return, rising Treasury yields, and a strong U.S. dollar. We still forecast positive global equity returns, but our U.S. equity forecast moderated. Rising bond yields moderated our negative U.S. Treasury forecast, despite higher inflation. Significant Yen weakness bolstered our Japanese equity forecast. Similar factors impacted European equity forecasts. Equities in the Netherlands, New Zealand, Japan, Hong Kong, and Switzerland are favored, while the U.S. dollar should strengthen further. We are now neutral on size after small-cap soared, but favor a value tilt---we had been neutral on style.



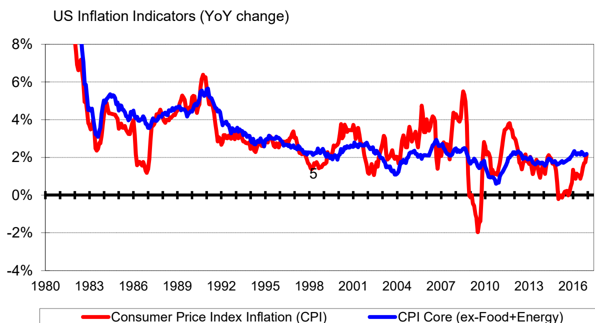
Earnings estimates were too optimistic recently as oil prices fell and U.S. dollar strengthened (i.e., earnings translation). Yet, these forces are moderating just as U.S. economic growth firms, thereby increasing potential earnings growth. Energy sector earnings declined about -80% in 2016, which even for a smaller sector, stalled S&P 500 earnings. However, WTI oil prices rose 45% in 2016 to over $50 a barrel, including 11.7% in Q4. With expected stability in oil prices, energy analysts expect a 450% earnings increase in 2017. If real growth increases to 3% with inflation of about 2.5%, then earnings growth of 7-10% is

reasonable. Many will underestimate earnings growth after two years of nearly 0% growth, but 2018 would be when impact of policy change emerges.

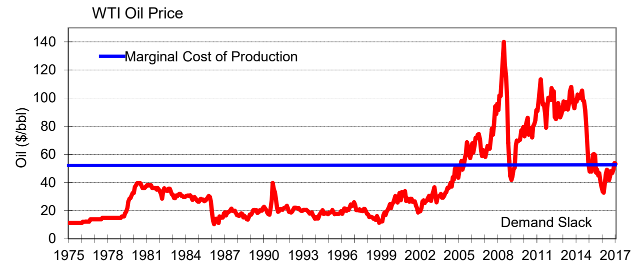


Source: IBES & Strategic Frontier Management

We discussed last year how inevitably this inflation convergence was going to force central banks to raise interest rates sooner than anticipated. Inflation has converged toward core inflation (ex-food, energy) on rising housing, labor, and medical service costs. Rent equivalent consumer prices rose 3.7-3.9% over 2016 and account for 32% of the CPI. Weekly wage earnings continued to rise 2%, as well. It is unlikely cyclical forces driving inflation will moderate much, but our secular disinflation theme will keep inflation from increasing too quickly, which results from globalization, flexible outsourcing, Internet price transparency, hyper-competition, machine automation, and innovation.

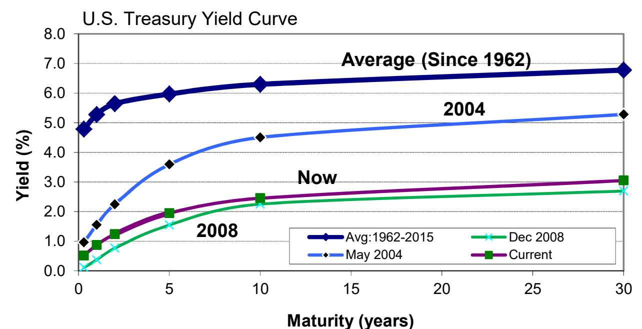


Changes in oil prices and its effect on inflation can be significant. Rising inflation was restrained by collapsing oil prices, but that effect has sunset now. Overshooting $50 a barrel to the downside drove inflation lower, so reversal back to our $50-60 target can drive inflation higher. Our theme of demand destruction for foreign oil limits its upside and results from *Conservation, Substitution*, and *Innovation*. The rise in energy prices has yet to flow through consumer prices. Thus, interest rates must rise with inflation over 2%. Energy sector earnings also should rebound with rising oil prices, after undermining 2015-16 S&P 500 earnings growth.



Global bond yields still hover near record lows, observed in mid-2016. Investors must appreciate the effect of high bond convexity[2], which increases interest rate sensitivity at low interest rates—*That Sneaky Second Derivative* again! Leverage and extended bond duration will amplify losses as bond yields rise. Investors may be surprised by larger bond losses for a 1% change in yield. Investors should also recognize that interest rate sensitivity extends beyond bond holdings to private market and equity portfolios.

The chart below suggests normalizing interest rates still have a long way to go. Treasury 10-year yields need to rise 2% to just get to May 2004 levels or the beginning of the last interest rate cycle. The outlook for the yield curve is critical to interest rate risk. Few investors have the tools to fully appreciate its significance, which was costly in 2004 and 1994. Many equity managers were oblivious to their unintended interest rate sensitivity without a multi-factor risk model designed to isolate econometric risks (i.e., growth, inflation, currency, interest rates, etc.). These are lessons gained from experience and highlight the insufficiency of using VaR for asset managers.



Source: Strategic Frontier Management

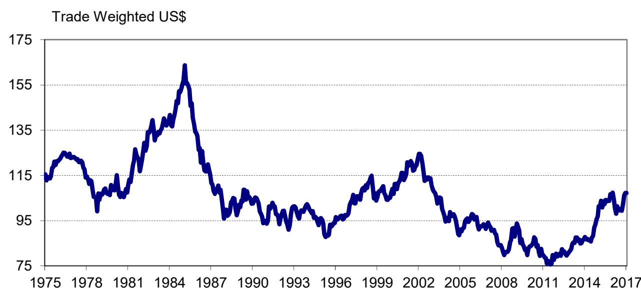
We expect steady ¼% interest rate hikes every other FOMC meeting or 1% per year until reaching at least 3.5%, unless a recession emerges. Treasury 10-year bond yields will follow and need to rise above 5%. Variance from that will undermine the transparency that the Federal Reserve has sought to promote. Persistent

[2] Bond convexity is a measure of changing bond return sensitivity to changes in interest rates, specifically the second derivative of bond price with respect to interest rate changes.

bond losses should increase the inflation risk premium, which we've suggested could exceed 0.5%, resulting in higher interest costs for an *extended period* with oversaturation of global debt and the need to reduce central bank bond holdings (more bond supply).

Extended manipulation of interest rates has limited the velocity of money and credit expansion, causing imbalances that could be precarious to unwind. Bond issuers have taken advantage of historic low interest rates again in 2016. Demand for yield, extending duration, and increasing leverage encouraged greater issuance. The "bill" for years of unconventional forward guidance, manipulation of rates, and quantitative easing is now due. Adverse effects should become visible in portfolios most exposed to interest rate sensitivity, particularly those with bond leverage. Interest rate normalization and eventual unwinding of central bank holdings should increase bond volatility.

Currency relevance comes and goes, but investors will also need to pay greater attention to exchange rates for the foreseeable future. For over five years, currency volatility has been low, even as the U.S. dollar drifted higher, but over the 2H/2016, currency volatility has increased. The focus on trade recently has drawn attention to U.S. dollar strength. Currencies must be considered in a relative context, so while many have forecast collapse of the U.S. dollar, monetary policy of other central banks undermined their currencies even more. The relative difference in growth, inflation, trade flows, capital flows, and interest rates tends to drive changes in exchange rates between two countries.



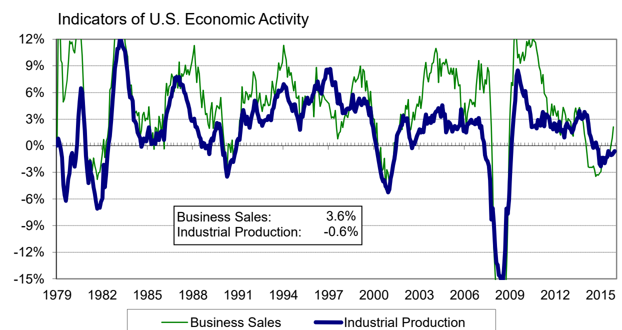
A strong currency tends to lower the cost of imported goods, and thus moderates inflation. Weakening currencies tend to bolster trade balances and increase inflation, particularly the cost of imported goods and services. Intervention by central banks tends to disrupt this process of normalizing relative growth and trade.

Chinese yuan concerns have moderated, although we observed last April that their trade weighted currency has appreciated steadily over the last decade. The quasi-fixed exchange rate is a burden to China if the U.S. dollar is strong. Fixing the exchange rate is one of few tools available. Devaluation of the Yuan (-7.4%) over the last three years was a fraction of the decline in Euro (-16.6%), Yen (-10.2%), Indian rupee (-12.9%), and Mexican peso (-31.7%). Socialist states with failing economies also suffered currency declines, such as Venezuela (-34.6%), Brazil (-38.1%) or Russia (-46.4%).

Finally, corporate and individual tax reforms, combined with targeted deregulation, are among the top priorities of Congress and the new Administration. Rolling back Executive Orders will have an impact, but legislative policy changes take time, and effects usually lag significantly. However, we expect economic effects of policy changes will be more immediately evident. Alignment of political control can result in the greatest changes in the least time.

Fundamentals, Not Time, Define Cycles

Investors should not avoid equities simply because of the duration and magnitude of rising equity markets. Economic and market cycles are not defined by the calendar on the wall or simply changes in price. We believe valuations such as price/earnings or price/book define market cycles, while fundamentals drive growth and inflation, as well as productivity and margins. There are no short-cuts or simple triggers that call the peak in either regard. We leverage leading economic indicators and valuations to forecast market returns. There is no uniquely reliable factor, but emphasize the importance of multi-factor analysis.



This economic expansion began in Spring 2009, but it has been sub-par on average, even if it was a long period without a recession. U.S. real growth averaged 1.8% over this period, but well below its 3.2% average over 60 years (source: U.S. BEA). Our expectation for potential growth had declined to 2.3-2.5%, but that still doesn't support the *secular stagnation* theories of Summers or Gordon. Our thesis of a subpar longer cycle, or *square-root recovery,* as observed in the chart above, hinged on excessive regulation and misguided policies that crippled business activity, credit formation, and entrepreneurial incentives. The economic cycle remains volatile as ever, but growth should increase over 3% again. Business formation rates have declined by 27% over the last decade. According to the SBA, 28 million small businesses account for 54% of total sales, and employ 55% of all American workers. If small business isn't working, America is stumbling.

Unemployment of 4.7% is low and wages are rising faster than inflation. However, the labor force must evolve now with labor and energy intensity driven lower by technology and innovation. Policies that drove up energy prices and labor costs promoted off-shoring to less developed countries with lower labor, tax, and regulatory costs. Transportation costs of materials and finished goods are now rising as a share of total cost, which should reverse offshoring trends. A dozen jobs in developing countries can be replaced by a couple of system operators in the U.S. Thus, any job that is repetitive, systematic, or quantitative may be displaced by adaptive robots, software, sensors, and automation, both tangible and virtual. *Alexa: Make an Open Table lunch reservation for two at Bob's tomorrow.*

Below, we offer thoughts on proposed infrastructure spending, tax reform and trade to highlight a few important observations and conclusions.

Infrastructure investment seems to be the most misunderstood policy initiative, particularly with regard to its financing. Fiscal stimulus is not needed, and experience with spiraling fiscal deficits to fund unsustainable stimulus programs in 2009 suggests we can't tax and spend ourselves into prosperity or productivity. We think the assumed $1 trillion spending program is likely to be mostly privately financed. There are many roads, bridges, and essential services (i.e., water, sewer, communication networks, power, etc.) that need upgrading. Construction spending can increase jobs, but these are transitory and typically most of these projects are funded by states or consumers. There are many ways that government can support and promote investment spending at much less cost to taxpayers.

Tax Reform is expected to include rationalization, simplification (eliminate many deductions), and flattening individual progressive tax rates. Corporations and individuals that have taken extreme advantage of tax breaks and credits will likely benefit least, if not resulting in a higher effective tax rate, while taxpayers with few deductions will probably pay a more equitable effective tax rate. Dividend and long-term capital gain rates could retreat back to 15%, and estate tax reform is likely to be considered. **Corporate Tax Reform** is expected to reduce the 35% statutory rate toward the global average of 20%, while eliminating most tax breaks and accelerating expensing of capital investment. Lower tax rates will increase repatriation of foreign earnings, which then should finance more investment and boost tax revenue. Corporate tax reform is considered politically easier than individual tax reform. If corporate tax and regulatory reforms are done well, competitiveness improves, and there is no need for border adjustment taxes (import tariffs).

Multi-lateral **Trade Agreements** are too complex, which can limit investment and innovation incentives, exacerbate production inefficiency, or reduce competitiveness. Treaties seek to reduce or eliminate inefficient tariffs, restrictions, or other limitations on exchange of goods and services. In a perfect world, there is no need for trade treaties, but the U.S. should instead favor bilateral over multilateral agreements. Game theory suggests negotiations between n-players is combinatorically more complex and require greater compromise by all players.

Renegotiating treaties with Canada and Mexico can begin with North American Free Trade Agreement (NAFTA) as a starting point. NAFTA was negotiated almost 30 years ago, but much as changed. Similarly, the Trans-Pacific Partnership (TPP) can be a starting point with Japan, Australia, Korea, and others. Once a deal is struck, it can be leveraged in bilateral agreements with other countries. The European Union still has no trade agreement with the U.S., but Britain's exit from the European Union provides an opportunity to reset its trade policy, and develop a trade agreement with the U.S. Effort to revisit our trade agreements have been described as isolationist, but we suggest it recognizes that the world is evolving more quickly.

Asset Owners Quest

For the last decade, large sophisticated asset owners have increased asset allocation complexity with higher exposures to alternative investments. It hasn't worked well compared to simpler balanced strategies. Private alternatives failed to moderate downside risk during the Financial Crisis, and lagged performance of simpler low-cost balanced strategies since then.

	NACUBO Return	Risk (σ)	Ret/Risk
2002-2016	5.2%	10.5%	0.50
10 year	5.3%	11.3%	0.47
	SFM Global-60%	**Risk (σ)**	**Ret/Risk**
2002-2016	6.4%	10.4%	0.62
10 year	5.9%	11.3%	0.52
	60/35/5	**Risk (σ)**	**Ret/Risk**
2002-2016	5.7%	9.2%	0.62
10 year	6.6%	9.7%	0.67

Note: University Endowment Fiscal Years End June 30, 2016

Large university endowments like Harvard, Yale, Princeton, Stanford, MIT, and University of Texas increased their alternative exposure to over 50% on average, much of that invested in private funds. The hope was to enhance return with greater portfolio diversification, and capitalize on the illiquidity premium of private markets. Others followed suit, as they did into international investing during the 1990s, but many question the wisdom of alternative investments given a decade of disappointing results and transparency.

As discussed in *Alternative Reality*, the performance over the last decade of university endowment funds lagged balanced portfolios. Realization of the hurdle of high fees, liquidity risks, and capacity issues of private investments are finally acknowledged. Announcements of pension funds cutting hedge fund and private equity exposure are more frequent, with increased scrutiny of costs and portfolio transparency. Real estate and infrastructure seem somewhat immune, however. Until fee structures are reset to increase net return, a slow unwinding will likely continue. In the meantime, asset owners should consider a simpler and smarter approach to investing. Global multi-asset managers that exceed return expectations, rationalize costs, and manage multi-factor risk well are critical to success.

Harvard Management Company, which is the largest endowment, plans to transition most internally managed portfolios to external managers and released about half their staff. Harvard embraced a hybrid structure reliant on greater internal management, but internal strategy performance had been disappointing. They should not have struggled to recruit the best talent, but under the bright lights of public scrutiny, outsourcing may be an easier decision. The loss of expertise and increased dependency on external resources in outsourcing limits capabilities managing or hedging risks and financing opportunities. One can't ignore the irony of this decision given the affiliation with Harvard's acclaimed business school.

CalPERS recently opted to move in the opposite direction and anticipate bringing another $30 billion or 10% of its assets in-house this year, adding to 75% of internally managed assets. With $307 billion under management, CalPERS has greater capacity issues than most, and deserves credit for enhancing internal investment capabilities and lowering costs.

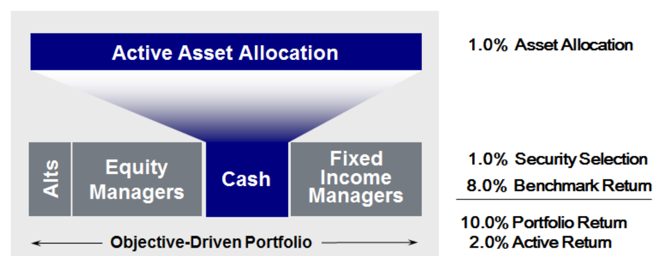
The Yale Investments Office has been a remarkable outlier for many decades, which their attribution suggests depended on asset allocation and manager selection---both active decisions requiring great skill. Princeton and MIT may not be highlighted, but their results were slightly better over the last decade. Large asset owners often fail to recognize their ability to attract talent, exploit efficiency in scale, and be a preferred direct investor of needed long-term capital.

Many suggest that alternative investments reduce risk, but lack of mark-to-market accounting doesn't increase diversification. Pricing uncertainty should increase risk. We believe private market volatility and correlation is higher than assumed, given markets are integrated and private valuation methodologies must rely on changes on comparable public market valuations. An illiquidity risk premium seems desirable, but capacity is scarce and most private alternative funds struggle to provide investor benefit in excess of market exposure. Liquid alternative performance has failed to meet investor expectations, and thus fund flows have turned negative according to Morningstar. Alternative diversification only seems to benefit investors with high dependency on active management and low costs. In our opinion, hedge fund replication is an irrational idea when you actually think about it.

Active: A Better Alternative Investment

Active management is a novel *alternative investment* with better likelihood of adding value, greater liquidity, more transparency, superior risk attribution, and lower cost than private equity or hedge funds. Diversification and value added that alternative promised to provide is available in active management, seeking to increase portfolio return/risk. It is tough to identify future value added managers, but evaluating private market and hedge fund managers must be more difficult, even with enhanced analytical attribution tools.

Consider the lost portfolio opportunity in the equation of potential value added for those that may dismiss active management potential of large-cap stocks, for example, which are a significant share of portfolios. While return dispersion and universe in small-cap equity, international, or high yield may be greater, the hit ratio of security selection is similar, but large-cap equity trading costs are much less. The potential contribution of active management spanning a portfolio can easily exceed the excess return of private funds limited to just 10-25% of the portfolio, even with more than double the potential excess return. This assumes we compare all strategies to appropriate benchmarks.



Note: This simple performance conceptualization is for illustration only, and not indicative of any investment product or security for sale.

While active asset allocation can be practiced by shifting portfolio exposures, long-short tactical overlays do not displace and can be independent of underlying security selection strategies. Correlation between benchmark and active returns are generally negligible, or even negative. Thus, it is possible to enhance potential active return by layering a tactical overlay strategy in parallel, without materially increasing total portfolio risk, enhancing risk-adjusted return. Such overlays can also facilitate asset allocation rebalancing at lower cost. Breadth and liquidity of ETFs have lowered the required asset threshold and expanded the universe of tactical decisions to include many risk

factors. For these reasons, asset managers have increased their investment into Multi-asset and Global Tactical Asset Allocation disciplines.

Asset management is adapting to changing investor preferences, increased awareness of costs, and need for greater fee alignment. Index allocation strategies has driven up turnover in ETFs, as well as being compatible with managed account platforms, which are collections of strategies published as model portfolios, and are displacing mutual funds. Active management fund flows are muddled by a shift in how wealth advisors manage portfolios. Mutual fund flows are no longer a proxy for active management. Shear breadth and specificity of new ETFs suggest passive investing today is quite different from John Bogle's index vision.

Growth in ETFs is assumed to be a rotation into passive management, but the emergence of ETF strategists and highly specific nature of ETFs suggest factor investing is coming of age. Alternative-beta, including *smart-beta* and other enhanced strategies, wrapped as ETFs seek to add value or isolate risk factors by leveraging insights familiar to quantitative equity strategies. Mutual fund holdings are also being displaced by portfolios of individual holdings, guided by managed account strategies. These platforms provide model portfolios, some similar to existing mutual funds, but at lower cost, while facilitating tax optimization. It is a lot more difficult to track actively managed assets.

Private equity and hedge funds are more dependent on security selection skill to add value than equity or bond strategies. Value added over market benchmarks has not been favorable. Remarkably, many advocates of equity indexing are also proponents of alternative funds, particularly private equity and hedge funds. Yet, alternative funds require exceptional security selection skill to add value given the high hurdle of fees and costs, illiquidity, and a longer required holding period for a limited universe. If the objective is to reduce downside risk, maybe short-term bonds are more comforting. Cambridge Associates has long advocated for alternative funds. Yet, they acknowledge hedge funds have disappointed and suggest only a small percentage of hedge fund managers get the job done.

Concluding Thoughts

"Do not go where the path may lead, go instead where there is no path and leave a trail."

-- Ralph Waldo Emerson

We have identified several critical investment conclusions this quarter. The pivot in U.S. policy with the change in the balance of power should yield better economic growth and greater tax revenue, even with lower tax rates and tax code simplification, in our opinion. Tax and regulatory reform should promote increasing productivity, potential growth, investment, competitiveness and trade. Less gridlock provides an opportunity for simpler and purposeful legislation without compromises that cost taxpayers. Adjustment in investor expectations are driven by increasing likelihood of implementing pro-growth policies.

Investors' frame-of-reference and many assumptions shifted in 2016. Global challenges to the status quo are not surprising after a decade of languishing economic growth. Labor and energy intensity have collapsed, which obvious in persistence of deflationary forces. Increasing economic divergence may cause investors, including portfolio managers, to stumble into a greater number of unintended pitfalls. When risk premiums are evolving, single factor VaR may not be sufficient for longer horizons involving slower drifting risk factors. *That Sneaky Second Derivative* can be quite stealthy, gnawing away at returns until exposed over time.

Investment risks and trends can help anticipate *That Sneaky Second Derivative*. Certain widely held assumptions may prove misleading, and there is a lot to consider after the November 8th election. The Administration's agenda has many objectives, although details are yet to be worked out. However, the shift in the balance of power provides an opportunity to accomplish many objectives efficiently. Appointment of agency heads will seize control of interpreting legislation, while key vacancies at the SEC, Federal Reserve, CFTC, Supreme Court, and NLRB will have a long-term effect on policy and regulation.

We expect higher bond and currency volatility, exacerbated by reduced bond market liquidity and increasing restraints on market makers. Although consensus expected equity market volatility to increase, it declined. Instead, greater volatility-of-volatility in equities is consistent with policy uncertainty, greater economic dispersion, and an inflection point in interest rates. Investors need to extend their time horizon and simplify their asset allocation. Correlations and volatility are evolving more quickly with increased economic dispersion and an inflection point in interest rates, as well as meaningful policy uncertainty.

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