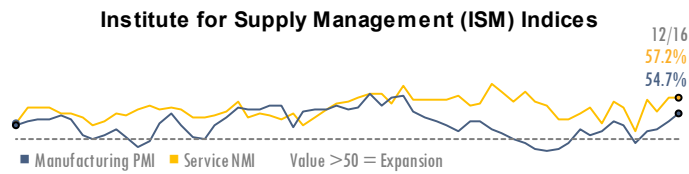
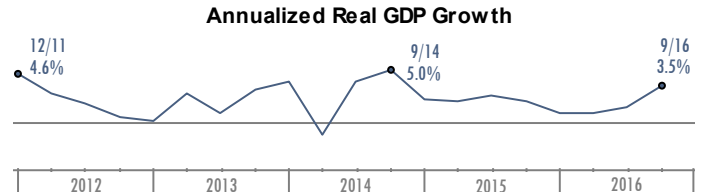


MARKET Recap

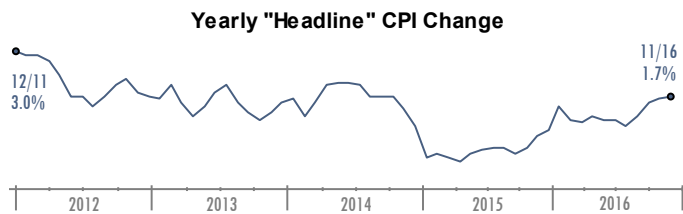
The US Economy: “Inflation at Last?”

Economic growth surged in the third quarter, rising to a 3.5% annualized pace. Nearly every sector of the economy contributed to growth. Residential fixed investment, the primary detractor, decreased more slowly compared to the previous quarter, while exports surged more than imports. Defense spending accelerated, something we keep an eye on (particularly going into elections) as creative accounting can be used to generate a temporary surge in growth, only to dematerialize the following quarter. However, the spending acceleration was lower than observed in the 2014 election cycle.

Leading indicators remain mostly positive and improving, with strong manufacturing signals despite US dollar strength. In short, it was a bullish print, and the Fed responded with the rate increase we had expected in June. Discussion following the announcement focused on inflation, and the likely impact of Trump policies on the economy. The headline Consumer Price Index continued to gain steam through November, renewing interest in inflation-sensitive investment strategies.



The Fed’s preferred yardstick is the more stable Core Personal Consumption Expenditures Price Index, which equates the real and nominal prices of goods and services purchased for consumption, excluding food and energy. That statistic is approaching its 2% target level, a goal actually realized in early 2012 before retrenchment. Is it different this time around?



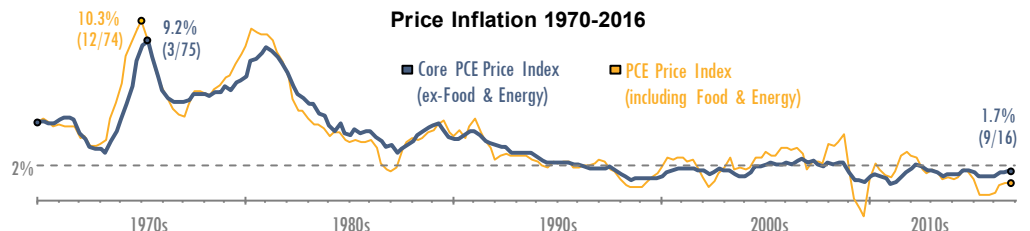
We think so – there are key differences between now and then. First, recall that both the CPI and PCE are lagging indicators. Unlike 2012, more volatile leading indicators of pricing pressure are now also positive. Two that we watch are wages (increasing, on low unemployment) and PMI production input prices (rising for 10 months and accelerating).

Second, falling commodity prices interrupted the 2012 price surge. Bubbles can be severely deflationary when they burst, particularly when they have a direct line to consumer prices (as do oil and credit). One can assign “bubble” status to any number of financial assets today, and a plunge in equities or real estate could dampen consumer spending; but historically, market corrections often do not directly drive consumer spending. We would not overly discount the possibility of an equity price correction, but unless it is severe and prolonged, it may not find its way to consumer prices.

There is the simple factor of time. In 2017 we will mark the 10th anniversary of the credit crisis. Deflationary recessions create slack as employers rarely cut wages directly, and they are slow to downsize or retool. Increased economic activity does not push prices higher until that slack is absorbed, and employment statistics indicate we have arrived at that point.

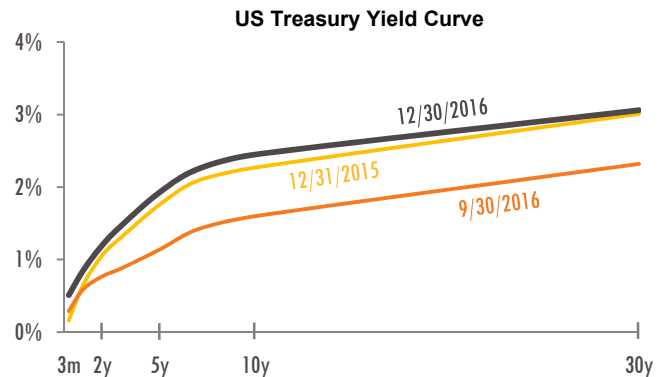
And finally, there is Mr. Trump. To the extent we can predict his policies, they come down to two themes: trade less with the rest of the world, and spend more on infrastructure & defense. Both are inflationary in nature. Trade barriers, if implemented, threaten to cancel out the price-dampening effect of a further strengthening US dollar. It was a trade barrier in the form of an oil embargo which triggered the sharp stagflation of the 1970’s, where prices rose while economic growth stalled. Geopolitical conflict further heightens the risk of inflation.

To be sure, inflation is still very low by historical standards. But glance right to get a sense as to how quickly that can change. Price-sensitive investors, including endowments and 401(k) plans, would do well to prepare.



The US Bond Market

The Federal Reserve and Donald Trump were jointly responsible for an eventful fourth quarter in US fixed income markets. Election night jitters erupted into a brief flight to safety as Mr. Trump's upset echoed yester-quarter's Brexit. While stock market futures hit a 5% limit down, the front US Treasury 10-year futures contract topped out at just over a one percent gain in price. Despite these initial reactions, markets found their bearings the morning after. Following this walk of shame, the yield curve continued to steepen through the end of the quarter. Helped by the Fed's signaling towards picking up the pace from an expected two rate hikes in 2017 to likely three hikes, the yield curve ended the year slightly above where it had begun.



Fed funds futures traders continue to discount the FOMC dot plots. The implied probability of two hikes against three in 2017 is nearly matched. January 2018 fed funds futures settled at 98.88, or an implied 1.12%, at year end. Discounting the eventual rise in yields has worked out thus far, and fundamental arguments supporting "lower for longer" are still easily found. The spectre of inflation remains unseen, and the Fed will be wary of inciting deflation. Republicans will control fiscal policy, and oft-touted spending cuts may outweigh stimulus. Yields spreads offered by US Treasuries against German Bunds and Japanese government bonds, among others, are increasingly attractive. Geopolitical threats abound.

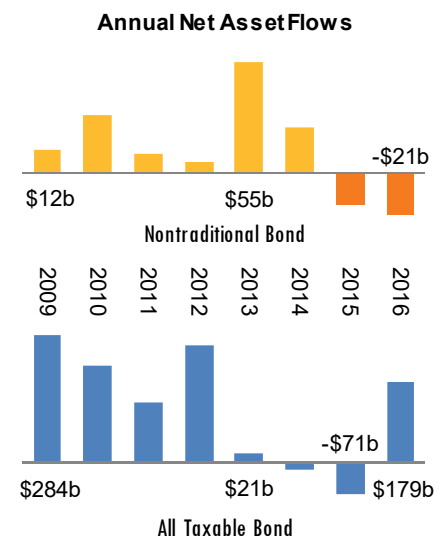
US Bond Indices - Total Returns		
Barcap Indices	4Q16	2016
Aggregate	-2.98%	2.65%
Interm. Gov't	-2.18%	1.05%
Long Gov't	-11.50%	1.43%
TIPS	-2.41%	4.68%
Municipal	-3.62%	0.25%
Interm. Credit	-1.90%	3.68%
Long Credit	-5.40%	10.22%
High Yield	1.75%	17.13%
MBS	-1.97%	1.67%

For corporate credits, tightening spreads offset rising rates. High yield spreads narrowed the most, coming in 75 bps during the quarter to close at 4.21% (BAML US HY OAS). Investment-grade spreads narrowed by 14 bps to 1.29% (BAML US Corp. Master OAS). Corporate bond issuance slowed in December, as usual. Compared to one year ago, high yield made up a larger proportion of Q4 debt, especially in December. Despite this, the volume of new high yield debt for 2016 fell 9.6% from 2015; investment-grade issuance was up 3.7% over the same period. Investment-grade and high yield issuance for the quarter were \$205 billion and \$48 billion, respectively.

Unconstrained bond funds are seeing an exodus of assets. The first of these nontraditional bond funds was introduced in 2008 as T-bill rates were plummeting down close to zero. Such funds are fairly unrestricted by the typical constraints around duration, credit quality, region, and currency exposure. Many venture into equities or alternative assets. Unlike traditional bond funds, unconstrained funds are free to short duration in a period where yields have fallen well below historical norms. They also seek to make more flexible use of derivatives and dynamic or concentrated allocations. The success of nontraditional bond funds in 2012-2013 drove inflows that eclipsed nearly every other Morningstar category in 2013. By the end of 2014, this new asset class had surpassed US smallcap value, real estate, corporate bond, and intermediate government funds by AUM. Now, investors seem burdened by what initially attracted them – a glut of active management.

Even among institutional mutual funds, the category average expense ratio is 81 basis points, or 71 bp weighted by AUM. Short- and intermediate-term bond funds are, on average, over 25 bp cheaper. The cost of negative duration is more than just a higher expense ratio. A typical unconstrained manager will short US Treasury bonds and go long lower-credit-quality issues of a similar maturity to achieve negative duration and positive yield. However, the cost of carrying shorts and derivatives does, in effect, reduce the yield of the portfolio for the investor.

Unconstrained funds offer the benefit of active management and flexibility, but at a price. Certainly there is no guarantee that active management will add value. Having more dials to turn gives investment managers more power, but maybe not where it is most constructive, and it opens up more and deeper pitfalls. Historically, a full bond market cycle is often the better part of a century. How does timing such ultra-long-term cycles fit within any reasonable investment horizon? Flexible active management is also a challenge because it limits transparency and makes it difficult to assess the fit within a broader portfolio.

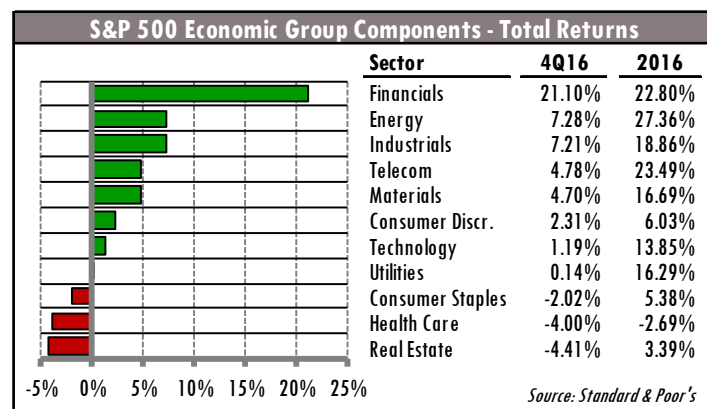


Source: Morningstar; 2016 data as of 11/30

The US Stock Market

It was a tale of two quarters in the US equity market, with experience largely separated into “pre-election” and “post-election” buckets. This was most evident in financials which posted a Q4 gain of 21.1% (after an October return of 2.3%) largely on the promise of reduced regulation and anticipation of the long-awaited December rate hike. Regional banks captured the lion’s share of the gains, up 32.2% for the quarter. Mr. Trump’s open attitude toward spending and the promise of infrastructure bills boosted industrials, while OPEC production cuts in November drove up oil prices and lifted the energy sector. Conversely, a few sectors seemed to miss out on the Trump rally. Notably, with yields on Treasuries rising and rates going up, REITs had a down quarter and a lackluster year. Consumer staples and healthcare also missed out on the Q4 bump. The defensive nature of consumer staples typically leads to underperformance during market rallies. The majority constituents of the healthcare sector - biotechnology and pharmaceuticals - posted negative annual returns due to scrutiny of drug pricing and high profile research failures.

For the twelve months ending September 30, earnings among S&P 500 companies rose 4.3%, despite being weighed down heavily by the energy sector which posted earnings growth of -67.5%. Excluding energy, earnings growth was 7.9%, indicating a fundamental improvement in corporate prospects. 71.2% of S&P 500 companies reported earnings above analyst expectations, while 9.6% reported earnings at analyst expectations and 19.2% fell short of expectations.



US Stock Indices - Total Returns					
Large-cap Stocks	4Q16	2016	Mid-cap Stocks	4Q16	2016
S&P 500	3.82%	11.96%	S&P Midcap 400	7.42%	20.74%
Russell 1000	3.83%	12.05%	Russell Midcap	3.21%	13.80%
Growth	1.01%	7.08%	Growth	0.46%	7.33%
Value	6.68%	17.34%	Value	5.52%	20.00%
Broad Markets			Small-cap Stocks		
Russell 3000	4.21%	12.74%	S&P Smallcap 600	11.13%	26.56%
Growth	1.20%	7.39%	Russell 2000	8.83%	21.31%
Value	7.24%	18.40%	Growth	3.57%	11.32%
			Value	14.07%	31.74%

The difference in performance between growth, value, small-cap, and large-cap sectors was quite stark in Q4. Strong performance of energy and financials helped value dominate growth for both the quarter and the year. Due to economic contraction in the sector, energy stocks have shifted “style” from growth to value. Small cap stocks outperformed large cap stocks, driven by increased confidence in the potential for a lower corporate tax rate. A lower rate would particularly benefit many small-caps due to their US focus and the prospects for economic growth with a return to expansionary fiscal policy.

Like many of the dear celebrities we lost in 2016, Wall Street mourned the delisting of popular triple-leveraged oil

ETNs (exchange traded notes) UWTI and DWTI. TD Ameritrade marked UWTI as the 5th most popular stock traded by millennials in 2015. Triple leveraged products try to post 3 times the daily return of the underlying index, but these funds have been in the regulatory crosshairs recently with the SEC suggesting that 3x-levered products may be “unduly speculative.” Credit Suisse, who underwrites the ETNs, announced November 16th it would wind down the ETNs by December 8th. As of December 9th, there was still \$600 million in UWTI and DWTI, with neither traded on any exchange.

ETNs are often confused with ETFs (exchange traded funds) because both are seen as passive, indexed vehicles. While it is true that they are both passive investments, they are structurally very different. ETFs operate much like mutual funds, with each share of the ETF representing an ownership stake in the basket of securities held by the issuer. ETNs function more like unsecured debt notes where the issuer owns the underlying securities. In the event the underwriter of the ETN defaults, the buyers of the ETN can receive a fraction of the underlying securities’ value after they wait on line in bankruptcy court with other creditors. Credit risk on these notes is not negligible; for instance, when Lehman Bros collapsed, their Opta suite of 3 ETNs subsequently lost most or all of their value. Some of the firms who offer leveraged ETNs list their products by the amount of leverage like restaurants list spiciness on their menus.

Overseas Markets

Overseas markets finished the quarter with muted performance after a fairly volatile year. Many developed and emerging markets ended the period modestly negative (although positive for the year) as investors digested populist votes in Europe, the UK and US, attempted coups, terrorism, continued corruption in Latin America and sluggish growth in China.

Foreign Stock & Bond Indices - Total Returns					
MSCI Broad Indices	4Q16	2016	Barcap Global Indices*	4Q16	2016
World Index	1.86%	7.51%	Global Aggregate	-7.07%	2.09%
EAFE (Developed)	-0.71%	1.00%	Pan-Euro	-8.23%	-1.05%
Emerging Markets	-4.16%	11.19%	Asian-Pacific	-13.79%	5.28%
			Eurodollar	-1.58%	3.01%
			Euro-Yen	-13.08%	4.26%
			Other Currencies	-5.93%	0.07%
MSCI Regions					
Europe	-0.40%	-0.40%			
Japan	-0.16%	2.38%			
Pacific ex-Japan	-2.72%	7.85%			
Latin America	-0.88%	31.04%			

The IMF issued its semi-annual Global Financial Stability Report (GFSR) in October. The report found that short-term risks to global financial stability lessened since April 2016, however medium-term risks appear to be increasing. Financial institutions in developed markets continue to face both structural and cyclical challenges that will require them to adapt to an environment characterized by low growth and low interest rates. Commodity prices have rebounded, and emerging markets have experienced somewhat of a recovery in capital flows. Immediate concerns over a slowdown in

China have also eased with growth-focused policy measures. In advanced economies, weaker growth was offset by the prospect of further accommodative policies, which supported asset prices and has led to a modest recovery in risk appetites. The shock of Brexit initially roiled markets, but markets have since adjusted to concerns about downside risks to the UK economy and the potential for spillover effects.

Medium-term, slow global growth has fostered expectations of prolonged low inflation, with low interest rates and delayed normalization of monetary policy. In many countries, the political climate remains unsettled. Low income growth and rising inequality have led to populist and protectionist policies. These developments make it potentially more difficult to solve issues facing these countries, further exposing economies and markets to shocks. Profitability-challenged banks may suffer from eroding buffers, leaving them unable to support growth. The IMF report calls for reforms and better systemic management for European and Japanese banks as well as deleveraging within emerging market economies.

Europe

In early December, the ECB signaled that it would start scaling down bond purchases in 2017, pushing yields higher across the region as well as in the US. Yields on the 10-year German Bund rose to 0.37%, its highest close since January. Yields in Italy, Spain and Portugal saw a sharper rise. Specifically, the 10-year bond yield in Portugal rose over 20 basis points to 3.6%. These moves came after bonds had rallied in anticipation that the ECB would continue its bond-buying beyond March 2017. The ECB did announce an extension of the QE program through the end of 2017, but also surprised investors by cutting its anticipated buys by €20 billion starting in April 2017, causing concerns that the bank would taper its buying.

Selling occurred in long-term government issues as the ECB also stated that it would begin buying one-year maturities. ECB President Draghi said that the bank would not rule out buying bonds with yields below the current deposit rate of -0.40%, which is not permitted under current rules. The migration into shorter-term paper drove up the yield premium for long-term debt. Such steepening typically signals a positive outlook on earnings, especially for the banking sector. Developed market yields have continued to climb after having fallen in late summer following the Brexit vote.

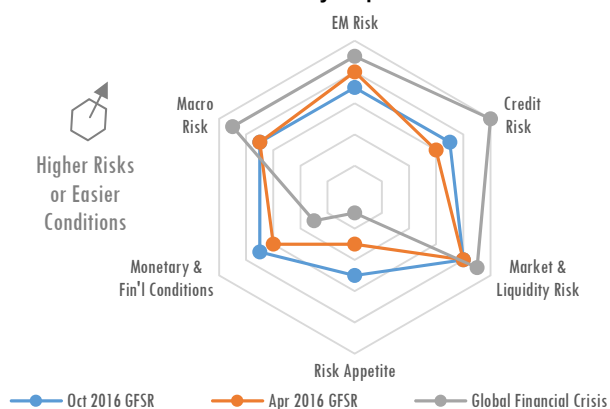
Echoing populist votes elsewhere, Italy voted in December to reject political and economic reforms through a change to the country's constitution, forcing the resignation of Prime Minister Renzi. Investors fear that a protracted period of political uncertainty might impact the Italian bond market given Italy's previous banking issues. Italian banks have been hit hard in 2016 by a combination of ultra-low interest rates, slow economic growth and non-performing loans. Italy's oldest bank, Banca Monte dei Paschi di Siena, lost 84% of its market value in 2016 on insolvency fears. Ahead of the vote, spreads on Italian 10-year bonds widened out, with yields settling over 2.0% before backing down to 1.9%.

Greece's creditors agreed to move forward with previously suspended debt-relief measures for the country. The move was an attempt to ease tensions over the bailout exacerbated by the decision to boost pensions (a Christmas bonus of €300 to €800) and by persisting disagreements between lenders over required structural changes. Unfreezing the debt relief will provide a boost to Athens, and comes as Greece and its international creditors (including the eurozone and the IMF) are struggling to conclude their latest review of up to €86 billion in rescue loans.

Asia

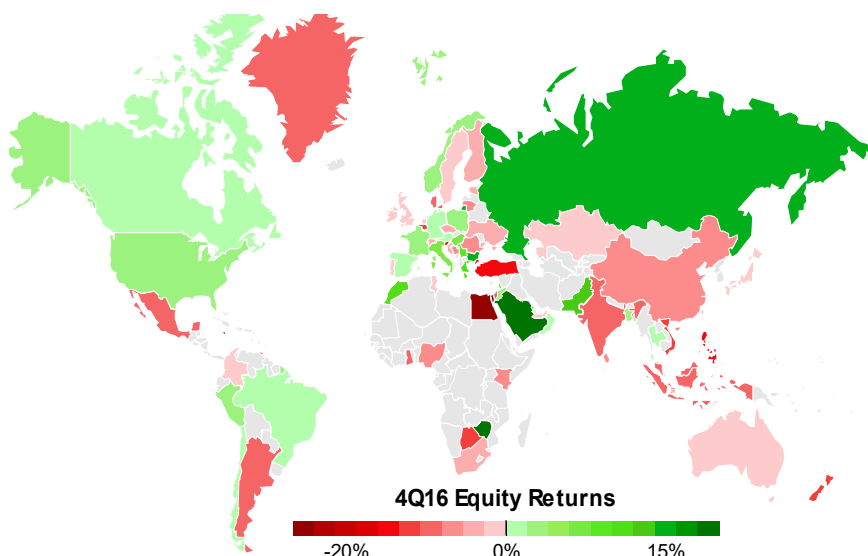
The Japanese government raised its assessment of the economy for the first time in nearly 2 years, although it remains cautious in the face of global economic uncertainty. In its December report, the government said that the economy is

IMF Global Financial Stability Map: Risks & Conditions

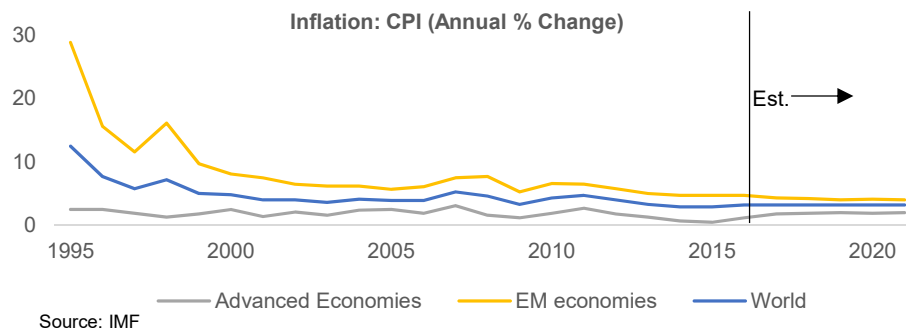


continuing on a moderate recovery path. An increase in household spending and exports were cited as positive signs. However, data also showed an uptick in wholesale prices, a possible indication of inflationary pressures. The latest forecast reflects modest momentum with the economy picking up speed to 1.5% growth in 2017, from an estimated 1.3% this year.

Industrial production rose 1.5% month-over-month in November. The increase was modestly below consensus expectations. However, it is a positive sign for the economy as demand for Japanese electronics overseas and a domestic rebound in demand for cars are encouraging. Production of transport equipment also rose during the period. A decrease in inventories for a third consecutive month after inventories peaked early in 2016 was also a positive. Decreasing inventories tend to signal an increase in production as companies seek to replenish depleted stores of goods.



Stronger-than-expected inflation data out of China and the ECB’s decision to reduce its monthly bond purchases were cited as the reasons behind a sell-off in global fixed income markets in December. Chinese data showed that both consumer and wholesale prices accelerated faster than expected during the quarter. As the world’s second largest economy, increases in inflation in China serve as a signal for global inflation expectations.



The China Beige Book’s (CBB) Q4 survey predicts a stable economy throughout 2017. The CBB is a quarterly survey of over 3,300 companies and 160 bankers across the country. According to the CBB, corporate prospects solidified during Q4 as prices rose and input costs fell, increasing profit margins. Industrial profits were up 14.5% year-on-year in November, versus increases of 9.8% in October and 7.7% in September. Overall, companies saw higher

revenue, more capital investment and expanded hiring compared with Q3. There are some worrisome signs lurking below the surface however. Many companies reported deteriorating cashflow while customers continued to delay paying bills across all sectors. Companies borrowed more in the last half of 2016 than during any two quarters since mid-2013. Along with attacking excessive borrowing, policy makers are also trying to rein in elevated property prices while maintaining growth. Meanwhile, yuan depreciation and capital outflow pressures remain a concern amidst a rise in US interest rates. Outflows are expected to have exceeded \$200 billion in Q4 (Asia Analytica). Additionally, the risk of confrontation on US trade policies could further disturb markets, especially following the appointment of Peter Navarro, a vocal critic of China’s trade policies, to a newly formed White House National Trade Council.

Latin America

Latin American markets rebounded significantly this year following a tough 2015. The region’s turnaround is primarily due to Brazil’s recovery this year. Its stocks make up more than 50% of the MSCI EM Latin American Index. In 2015, Brazil experienced a devastating recession due to tumbling commodity prices, the Petrobras corruption scandal and subsequent political crisis, resulting in a 13.5% loss for the Brazilian stock market in 2015. However, a rebound in commodity prices, a new president, and appreciation of the Brazilian real (over 20% against the US dollar this year) calmed global investors. The stock market was up close to 70% in 2016, boosting the Latin American Index 30% for the year (though returns were slightly negative in Q4). But uncertainty in the region remains, providing potential headwinds for Latin America in the new year. The election of Donald Trump in the US is already causing some volatility due to comments throughout his campaign on immigration and trade. Since Mr. Trump’s victory, the Mexican stock market has dropped about 6%. The Mexican peso also plunged 13% following the election due to the President-elect’s hard immigration stance, including the

building of a wall along the Mexico/US border. Rising US interest rates and a stronger US dollar could negatively impact emerging markets overall as investors may have less incentive to buy “riskier” emerging market assets.

Focus On: *Factors to Consider in Factor Investing*

The notion of factor investing is not a new phenomenon, although recent fund flows and marketing trends would have you believe otherwise. Going back to 1964, William Sharpe’s Capital Asset Pricing Model (CAPM) stated that the pricing of stocks was determined by one risk factor: beta. This model asserted that higher beta, or market-sensitive, stocks should produce higher expected returns due to their increased risk. Over time, academics continued to research the existence of other factors to help explain equity returns. The most notable update occurred in 1992 and 1993 when Eugene Fama and Kenneth French published two papers postulating that, in addition to market beta, both size and value factors had explanatory power of stock returns. Since that time, the idea of factor investing has gained significant traction, and both academia and the investor community have identified many other factors as drivers of equity performance. While the scope of this article and the industry’s focus of factor investing are on equity markets, research into fixed income and hedge fund factors continues to be an emphasis for many.

Common Investment Factors		
Value	Size	Momentum
Growth	Leverage	Dividend Yield
Earnings Yield	Earnings Variation	Volatility
Profitability	Management Quality	Liquidity

Recent growth of factor investment strategies has been explosive, despite having existed in some form for decades. Investors disappointed with active returns and the associated higher fees (but who still believe in the prospect of beating the traditional capitalization-weighted market) have turned to “smart beta” strategies. In 2012, assets held within smart beta strategies were less than \$100 billion, but by June 2016 AUM had reached \$429 billion and is expected to reach \$1 trillion by 2020 (BlackRock). A large part of this growth has been from investments in easily accessible ETFs.

What’s In a Name?

A significant issue of factor investing is the inconsistent usage of names and categorizations. Similar to the word “alternatives”, certain names within the factor investing space can mean different things to different people and are often applied too broadly to the overall market segment. Smart or alternative beta strategies share commonalities with both passive and other active forms of investing, the most notable of which are their passive approach to rebalancing constituent weights (traditional passive) and their ability to outperform a cap-weighted public index (quant & stock picking). More active “quant” or systematic strategies try to achieve a similar objective of outperforming a public market index but abandon the notion of passive rebalancing

Long Only Equity Investing

	Passive	Active		
		Factor-Based		Fundamental
		Smart Beta	Quant/Systematic	Stock Picking
Weighting	Market Cap	Factor/Style	Factor/Style	Conviction/Market Cap
Outperformance Potential	None	Moderate	Moderate	Moderate to High
Transparency	High	High	Low	Low
Number of Holdings	High	High	Moderate to High	Low to Moderate
Human Interaction	None	None to Low	Low to Moderate	Moderate to High
Turnover	Low	Low	Moderate to High	Moderate to High
Fees	Low	Low to Moderate	High	High

in favor of using dynamic models to screen stocks. Quant models often screen on factors included in smart beta strategies, but they use more detailed definitions and will also focus on a host of other factors or signals discovered through proprietary research. Some may include a timing component as well. While fundamental stock pickers are quite differentiated from their factor-focused peers, it is important to note that these strategies do have underlying factor exposures, often an output of management’s philosophical biases.

Smart Beta Strategies Are Not Created Equal

The rise in popularity of smart beta strategies has produced a wide variety of implementations. Similar to passive strategies, smart beta strategies track proprietary indices constructed using rules-based processes. A smart beta strategy may track either a published index created by an independent vendor (i.e., MSCI, S&P, etc.) or a proprietary index. While traditional market cap-weighted indices use price multiplied by shares outstanding to determine a security’s weight in an index, smart-beta indices typically use either a fundamental or volatility weighting construction process. That is, the index is constructed based on a ranking methodology focused on specific statistics (i.e., price-to-book ratio, 6-month price return, debt-to-equity, etc.) as representatives of various factors (i.e., value, momentum, quality, low volatility, etc.). The measure (or measures) underpinning the ranking process is the main differentiator.

Smart beta strategies or indices can provide exposure to a single factor or multiple factors. Among single factor approaches, specific measures used to rank stocks will vary. For example, value-focused indices may use either price-to-book, -earnings, -sales, or -cash flow to define the value factor. Other indices may use more than one depending on appropriateness or robustness of each within a given sector or country.

Among multi-factor approaches, investment managers have differing views on which factors should be included. Portfolio construction methodologies also vary as some indices simply aggregate separate single factor strategies while others rank constituents based on a multi-factor scoring approach. Going a step further, some multi-factor indices equally weight exposure across the multiple factors while others assign specific weightings based on cross-correlations or individual factor valuations. Although rebalancing frequency can vary, most smart beta strategies choose to do so semi-annually. With so many variables underlying each strategy, it is important for investors to understand the nuances of each and how they differ relative to peers as well as how they align with your own investment philosophies.

Role in Institutional Portfolios

Much of the recent growth in factor-based products has come from passive ETF implementations focused on providing exposure to retail investors. The lower-cost strategies make sense in individual portfolios, helping to reduce fees while still offering a chance of outperformance, but do factor-based strategies have a role in institutional portfolios?

While institutional investment management fees can be relatively low for actively managed strategies, lower cost factor-based strategies can help to further reduce overall fees in most cases. Factor-based strategies can also complement existing traditional passive and fundamental active management exposure. Passive strategies tend to outperform during periods of decreased stock return dispersion and increased return correlation. In the reverse scenario, active stock pickers generally are able to deliver alpha over their cap-weighted benchmarks. In periods of average stock return dispersion or correlation, certain styles or factors can dominate equity market performance providing an opportunity for factor-based strategies to outperform.

Institutional investors have a number of important considerations in implementing a factor-based program in an existing equity allocation. The first is the source of funding for the new mandates. Much of this decision can be based on whether the program is intended primarily as a fee reducer or as an alternative to fundamental active management. A second important consideration is the geographic implementation of the program. Currently, the majority of products in the space focus on the US equity market, but there has been significant growth among global and international strategies. Another critical choice will be the allocation between passive smart beta products and more actively managed quantitative strategies. Views on the robustness, timing, and accessibility of specific factors will be the main criteria in the decision. Finally, the residual factor exposures from existing fundamental active managers should also be considered.

Performance Measurement and Risk Management

While research into factors has been beneficial to providing a differentiated approach to equity investing, it has also been extremely valuable in decomposing active performance and risk of fundamental active management. In the most basic sense, investors have viewed equity investing in two distinct ways: beat the cap-weighted index through fundamental active management or accept the cap-weighted index through traditional passive management. As factor-based strategies become more accepted and accessible to investors, the "either/or" proposition is changing to include this alternate option, and the market is being forced to adapt.

Fundamental active managers have always promoted their stock picking capabilities, but this has not been easy to accurately prove or measure, often resulting in poorly defended marketing statements. This has made them an easy target for their factor-focused peers who assert that fundamental active managers offer little exposure to true stock picking, but rather hold or time factor exposures and charge excessive fees for doing so. Now, the proliferation of both factors and technology has led to significant advances in risk management software allowing these managers to be able to prove (or disprove) their marketing claims.

Historically, institutional-quality fundamental active managers have used risk management software to monitor unintended risks within their portfolios. However, investors, consultants, and even the managers themselves failed to utilize this information effectively as proof of the strategy's purpose: to pick stocks well. A significant reason for this may have been the lack of acceptance and accessibility of factor-based strategies. As the market changes and investors view the equity world three-dimensionally, tolerance for paying fundamental active fees for static underlying factor exposures (or even factor timing) will decrease, something we are beginning to see today.

In our experience, even those who are beginning to shift their view on benchmarking active managers start with the wrong question: Where is my active *return* coming from? The question that should be asked is: Where is my active *risk* coming from? While the source of active return is important to the attribution process, the focus should first be on proving if the manager is even “picking stocks” before questioning their skill in doing so.

Risk management software with the ability to run holdings-based factor risk and return contribution reports provides this information, and it is something all institutional-quality fundamental active managers generally have access to. The benefits of this type of analysis go beyond proving the existence of and proficiency in stock picking, to including valuable detail of underlying factor exposures and their associated effect on performance. Many fundamental active managers will highlight specific biases

(i.e., quality, value, etc.) when describing their philosophy and process, which are equally important to prove and monitor on an ongoing basis. However, while risk management software and its corresponding output are extremely helpful in benchmarking fundamental active managers, they are only one piece of the due diligence puzzle and best used in conjunction with other quantitative and qualitative analysis.

Fad or Here to Stay?

One of the major questions investors considering factor investing are faced with today is whether these strategies will have a place alongside traditional passive and fundamental active management approaches long-term, or ultimately fall short and be labeled as one of the more recent investing fads. Even with a period of strong performance by fundamental active managers, we believe interest in a cheaper active management alternative is likely to persist driven by increased scrutiny of investment costs. But regardless of the longevity of the trend, one piece of advice continues to apply: maintain a skeptical bias. Skepticism is undoubtedly one of the best traits a long-term institutional investor can have when evaluating popular trends or investment ideas in the market, which often fail to meet their hype.

Particularly for factor-based strategies, it will be important to assess whether factors continue to have meaningful explanatory power of equity returns going forward. Equally as important, investors will need to analyze the effect of increasing popularity of factor strategies on the factors themselves as large shifts in investor flows can have a significant impact on their behavior. However, one aspect of factors that should continue to persist is their beneficial contribution to performance measurement and risk management.

While specific factor-based strategies will come and go, we believe the genre is here to stay. It is rare that the interests of institutional investors, individual investors, and asset managers coincide so well. Factor-based strategies offer investors low cost, transparency, risk control, and outperformance potential, accessible to all investor types. For asset managers, it offers hope for continued relevance in an increasingly commoditized, indexed world. And although this means increased due diligence for investors and their consultants, it should ultimately lead to better outcomes for fiduciaries and the organizations we serve.

Sample Holdings-Based Factor Analysis of a Fundamental Active US Equity Manager

	Active Risk Contribution <i>(Is my manager picking stocks?)</i>		Active Return Attribution <i>(Is my manager good at picking stocks?)</i>		
	Predicted Tracking Error	Contribution to Tracking Error	Net Return	Average Exposure	Factor Return
Strategy	2.90%		2.55%		
Benchmark (Russell 3000 Index)	-		2.07%		
Active Risk/Return	2.90%	100.00%	0.48%		
Factors	0.51%	17.59%	-0.58%		
Momentum	0.14%		1.58%	-0.35	-4.84%
Growth	0.12%		0.34%	-0.15	-2.95%
Earnings Yield	0.10%		0.33%	-0.07	-2.84%
Size	0.09%		0.09%	-0.48	-0.34%
Value	0.05%		-0.15%	0.44	-0.52%
Dividend Yield	0.01%		-0.34%	-0.14	3.19%
Earnings Variation	0.00%		-0.76%	0.30	-3.46%
Leverage	0.00%		-0.77%	0.38	-2.05%
Volatility	0.00%		-0.91%	0.36	-3.85%
Country	NA	NA	NA		
Market Timing	0.20%	6.90%	-0.30%		
Industry	0.89%	30.69%	0.25%		
Stock Specific	1.30%	44.83%	1.11%		

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