Wealth and Investment Management

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A multispeed world

An American inflection: Corporate America and the Fed

Is there too much debt?

Cycling along at a healthy pace

Tactical asset allocation review: Markets spooked in October

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A multispeed world

Hans F. Olsen, CFA
Global Head of Investment Strategy

Dear clients and colleagues,

The notion of a "two-speed world" is coming closer to fruition, judging from data released in the United States and Continental Europe. In the US, employment levels have surpassed the peak of the prior expansion. Claims for unemployment benefits rest at 14-year lows.[1] The unemployment rate at 5.9% is at a level last seen six years ago. Average hourly earnings continue to grow roughly two percent over prior year levels – approximately in line with the inflation rate.[2] Job openings, an important gauge of economic vitality, are at levels not seen in 13 years.[3] Add to this falling energy prices and a stronger dollar, and it suggests a future that consumers will do what they do best: consume.

The picture in Continental Europe is sharply mixed. The exertions of the European Central Bank ("ECB") are in response to a recessing inflation rate that strikes fear into the heart of any sentient central banker. The ECB is not alone in its quest to arrest falling prices brought about by anemic but improving economic growth and elevated unemployment. Sweden's central bank, the Riksbank, cut interest rates to an absolute level of zero percent – a first for the central bank. Within the euro zone, the economy continues to struggle to gain forward momentum. Growth in Germany and France, the two largest economies in the bloc, is slowing or absent; however, in the periphery where the bitter medicine of internal devaluation has been taken over the last several years, green shoots are attempting to sprout.

A mixed bag in Europe

Equity markets in these blocs reflect the economic conditions in which they reside. Euro zone equities viewed through the Euro Stoxx 50 Index have recovered less than half of the correction that started in mid-September, while the S&P 500 Index has recovered more than 80% of the selloff.[4] Investors are voting with their respective currencies. Confidence is translated into prices.

Is the present prologue for interest rates and central bank policy?

NAIRU is the economic equivalent of the Yeti

Not likely. Just as there is an economic divergence between the US and Europe, there should be a divergence in central bank policy. In the case of the Federal Reserve, it is increasingly difficult to argue for continued quantitative easing as the CEO and President of the Federal Reserve Bank of St. Louis, James Bullard, hinted earlier this month. Beyond the clutch of data aforementioned, the unemployment rate at 5.9% is below the OECD's (Organization for Economic Co-operation and Development) estimate of what the Non-Accelerating Inflation Rate of Unemployment ("NAIRU") is for the United States: 6.08%.[5] It is a tough task to justify continued extraordinary monetary policy to ignite growth, when the economy is operating in an area that raises the risk of inciting inflationary pressures. To be sure, NAIRU is the economic equivalent of the Yeti – often cited but never seen. The point remains that the days of easy money in the United States should be numbered.

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[1] Source: Bloomberg, as of October 25, 2014.
[2] Source: Bloomberg, as of September 30, 2014.
[3] Source: Bloomberg, as of August 31, 2014.
[4] Source: Bloomberg, as of October 29, 2014.
[5] Source: Bloomberg, as of October 29, 2014.

The tripartite solution

Cooperation needed between Germany and France

Europe's path will be a familiar one if executed properly. Getting to a durably healthier footing will require a tripartite solution, which involves extraordinary monetary policy from the central bank; fiscal stimulus programs from the public sector; and finally, a willingness of the polity to engage in labor and market reforms. The efforts of the central bank should "buy time" for the latter two elements of the solution to take form. To be sure, this is easier said than done. Moreover, the principal players in this solution, Germany and France, have not shown a willingness to constructively work toward an enduring solution. Adversity is the mother of invention. Given recent developments within the euro zone, a renaissance of innovation might be in the offing.

In this edition of *Compass*, we offer a wide-ranging view of today's shifting economic and financial landscape. Our interview with Dr. Lawrence Lindsey, former Fed Governor and economic adviser to Presidents, provides a rare insider's view of fiscal decision making at the top. In another article, we explore the importance of debt with some fresh insights, and in a third piece, we examine where two of the world's leading economies – the US and UK – currently stand relative to their respective business cycles. Our tactical asset allocation review recounts how volatility spooked markets in October – just in time for Halloween.

Hans F. Olsen, CFA
Global Head of Investment Strategy

An American inflection: Corporate America and the Fed

All comments and data are as of September 18, 2014 unless otherwise indicated.

On September 18, 2014, Hans Olsen, Global Head of Investment Strategy, hosted a live webcast[6] featuring Dr. Lawrence Lindsey, President and CEO of the Lindsey Group, Senior Advisor to Barclays, and a former Governor of the Federal Reserve System. In their free-ranging conversation, Dr. Lindsey shared his first-hand experience as a decision maker steering the future of markets and economies.

Hans Olsen: It seems like, at long last, central bank policy is beginning to diverge between the United States and the ECB. I'm curious about your thoughts on the US Fed Reserve's path. It seems as if they are casting about for a durable way to judge the appropriate policy rate. Can you give us your thoughts on what they are looking at, what they should be looking at, and do you think they will end up behind the curve in trying to get rates to the appropriate level?

When no one has ever done something before, by definition it's an experiment

Dr. Lawrence Lindsey: Well, the first problem here is that we've really never been here before. We've never had as integrated a global economy as we have now. We've never had as integrated a set of monetary policies as we have now. We now have extraordinary measure everywhere, but how do you end it? Central bankers are a very distinguished group, but when no one has ever done something before, by definition it's an experiment.

A zero interest rate without a need to trigger economic expansion is just not prudent policy

We are now at 6.1% unemployment, which is only about three-quarters of a point from what the FOMC itself says is NAIRU,[7] which is sort of the maximum sustainable rate of unemployment.[8] With our unemployment rate dropping a tenth of a percentage point a month, sometime in the second quarter next year we're going to be at NAIRU. Having a zero interest rate when unemployment is not signaling a need for economic expansion is just not what would be considered prudent policy.

The view from the front row

Dr. Lindsey has 33 years of experience as a government economic adviser. Most recently, he was assistant to President George W. Bush and Director of the National Economic Council. During the 2000 presidential campaign, he was candidate Bush's chief economic advisor. From 1991 to 1997, he served as a Governor of the Federal Reserve System, and during the first Bush administration, he was special assistant to the President for domestic economic policy.

During President Reagan's first term, he was staff economist for tax policy at the Council of Economic Advisors. For five years, he was a member of the Harvard Economics faculty, and at the American Enterprise Institute, he held the Arthur F. Burns Chair for Economic Research. He earned his A.B., magna cum laude, from Bowdoin College, and his A.M. and Ph.D. from Harvard University.

[6] Registration is required to view the webcast.
[7] According the *OECD Glossary of Statistical Terms*, NAIRU stands for Non-accelerating inflation rate of unemployment, more informally thought of as the level of unemployment that is acceptable within a healthy economy.
[8] Dr. Lindsey here is referring to the Fed's estimation of NAIRU, which is not to be confused with the OECD's estimate of 6.08%, cited in Hans Olsen's opening letter (p. 2). The OECD's estimate is, surprisingly, higher than the Fed's.

While there's a sense the Fed has to move away from existing interest rates, it also knows there's going to be a lot of dislocation when it does so. The Fed is trying to do it in a slow, deliberate fashion to give markets time to adjust. So yes, they'll be behind the curve – deliberately.

Hans Olsen: The ECB announced a new program of lending through TLTROs [targeted longer-term refinancing operations], which is outright quantitative easing through a program of asset-backed security purchases. Finally, the ECB is adopting a more aggressive approach to dealing with the deflationary pull that the currency bloc is experiencing. Do you think the ECB has done enough, or will it have to do more?

Money and finance is a great way to buy time

Dr. Lawrence Lindsey: Money and finance is a great way to buy time, but it depends on what you do with the time. Devaluation is also a way of buying time, because it is true that when your currency goes down, at least internationally, everyone becomes more competitive. But of course, your costs also go up. Import costs are going to go up in Europe as well. And ultimately, you have made everyone in Europe poorer on an international basis as well. That's why you gain a small competitive advantage, but you give up something. There are no free lunches in economic policy. So TLTROs can't be the final step, because although finance is a way of buying time, it is not a way of solving problems.

Hans Olsen: So you buy the time and then you restructure?

Dr. Lawrence Lindsey: And then you restructure. Nobody thinks Europe is an optimal currency zone, that's an economic phrase for countries that should have the same currency. Frankly, America is not an optimal currency zone: the California economy is very distinct from the New England economy.

It's very hard to have one monetary policy for all of Europe

Because of regional differences, it's very hard to have one monetary policy for all of Europe, and that comes out at every ECB meeting, you see the various tensions. I think that is going to be very difficult for them to solve. Just looking at events, one really has to doubt whether Europe is going to get its act together in this next bout of buying time. Some of the major countries in Europe, France and Italy in particular, are in very, very difficult economic and fiscal straits.

Yes, I think the euro zone will hold together. But is it going to restructure? How is it going to work the differences out politically? How is it going to integrate monetary policy with fiscal policies? These are big questions, and these are going to take decades to resolve.

Hans Olsen: Since you started at the Fed, the US has had three recessions. The recovery period for getting lost jobs back has elongated in each successive recession, and for this one particularly. The 1991 recession was fairly short, and we recovered jobs in 12 or 13 months. The 2000 recession took about three years to regain lost jobs. A little more than six years afterward, we recovered jobs from 2007. (Figure 1) What's the best way out this slow growth?

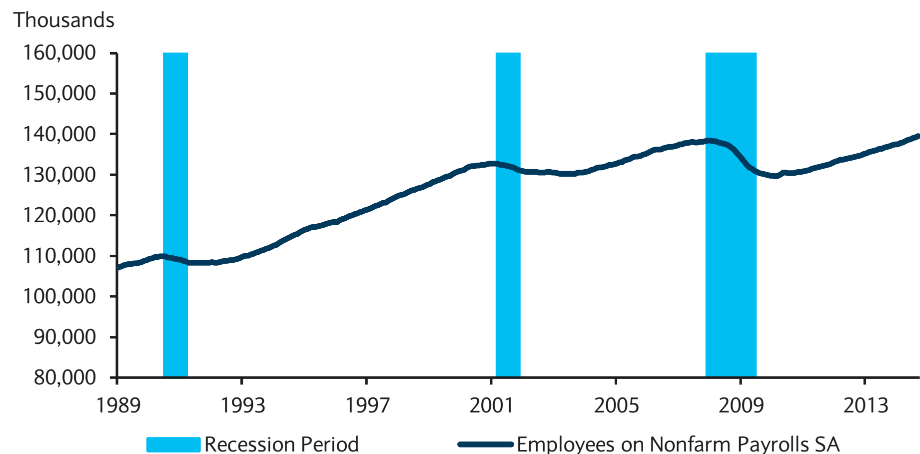
Private sector-based decision making is better than the public sector's

Dr. Lawrence Lindsey: It goes back to the quality of decision making. Let's say I'm the government, and I take a dollar from you that costs me 5%. If I turn around and I put it in a 7% project, the country is better off, obviously. But if I turn around and I put it in a 3% project, the country is worse off.

Private sector-based decision making is better than the public sector's because the private sector has an incentive to turn the 5% dollar into a 7% dollar. But if you take 5% dollars and turn them to 3% dollars, you end up not having any dollars left. There's no such discipline in the public sector, which is pushing 40% of GDP, but there's very little cost-benefit analysis involved in decision making.

The recovery period for getting lost jobs back has elongated in each successive recession

Figure 1: Job recovery demonstrated by our last three recessions

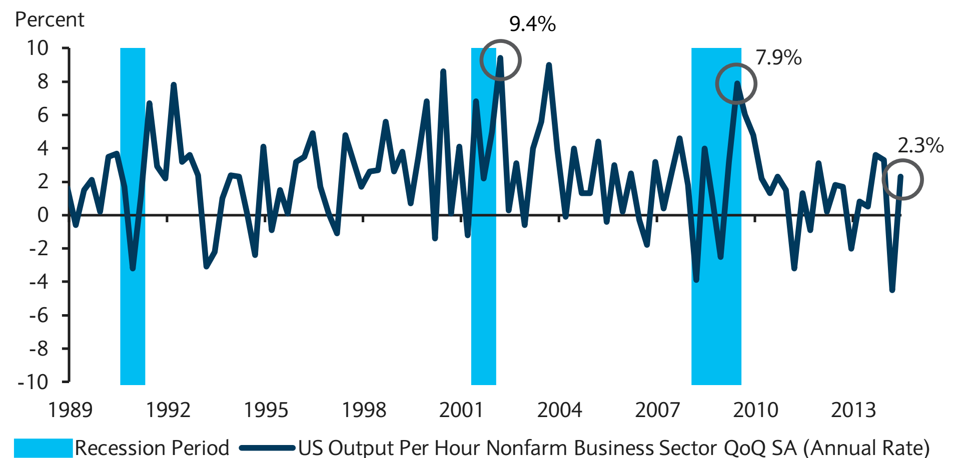


Source: Bloomberg, as of 30 Sep 2014. SA = seasonally adjusted

Our political system is focused more on short-term results, not on long-term issues, which is going to lower the rate of economic growth. One of the worst parts about this recovery is just how awful productivity growth is. We had a peak, on an annual basis, of productivity of about 9.4% since 1989. We're now down to 2.3%. (Figure 2) We're going to have to start making decisions to make sure that each dollar is spent well.

Productivity growth is now down to 2.3%

Figure 2: Tracking productivity growth over the last three recessions



Source: Bloomberg, as of 30 Jun 2014. QoQ = quarter over quarter. SA = seasonally adjusted

Hans Olsen: Recent tax inversions have forced a rethink of the American corporate tax level. We have one of the highest tax rates of OECD [Organization for Economic Co-operation and Development] countries. Will that be addressed?

Cash is a fact, income is an opinion

Dr. Lawrence Lindsey: There's a saying on Wall Street that cash is a fact, income is an opinion. Taxing income is a dumb thing to do: the US now has some very complicated IRS [Internal Revenue Service] codes just to define income. And FASB [Financial Accounting Standards Board], which sets accounting standards, has a different definition than the IRS. We should move away from defining income at both the corporate and personal level and move toward a cash flow basis of taxation. That's the ultimate reform we have to move to.

Hans Olsen: In the US, the energy resource base comprises one of our competitive advantages. We actually now drill more gas than the Russians, but we don't export. When will the US finally embrace a resource-competitive advantage and start to export unrefined product that would allow us to help our terms of trade, contribute to GDP growth, and perhaps change the geopolitical calculus? Will that ever happen?

Dr. Lawrence Lindsey: No, for an economic reason and a political reason. America is not energy-independent. We're still importing three-to-four million barrels a day. The petrochemical industry definitely doesn't want us exporting raw oil because it wants to keep the price of oil lower so it can export and be competitive. If I'm a refiner, I'm going to go tell the senator, "Well, you want to export raw oil, that's fine. Just be aware that you'll be raising the price of gasoline for American drivers." That's likely to be a campaign ad in the next election. Fundamentally, exporting oil is not a path to a balanced trade for us, and politically, it's going to be very difficult.

Hans Olsen: Has the Fed conquered inflation, or is inflation in a long-term coma waiting to awaken?

Credit is not being allocated based on risk

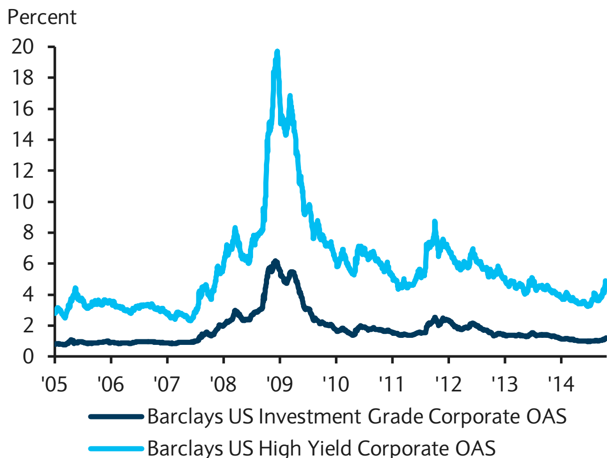
Dr. Lawrence Lindsey: Inflation is tame, in part, because we got a massive increase in global supply following the collapse of the Soviet Union, and the US and Japan decided to actively pursue policies to integrate China into the world economy. We've added 400-500 million people to the global industrial workforce, which takes a long time to digest. The immediate benefits in the 1990s led to a very rapid disinflation in spite of a boom. We still have a condition of global excess capacity, and I think globally that is a deflationary force.

I think inflation is in a coma and we're going to stay asleep for a while. In this country, look more for the global excess capacity, and importantly, workers departing from the labor force, which will put a cap on growth more than be inflationary.

Hans Olsen: Do you see any bubbles forming or in existence?

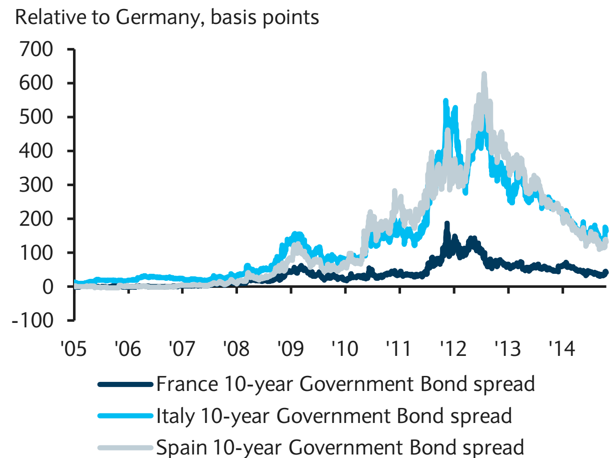
Dr. Lawrence Lindsey: They're most obvious in the credit markets. Credit is not being allocated based on risk. Look at the spreads between junk bonds and investable bonds. Look at the spreads between sovereigns in Europe. Countries like Italy, Spain, and France are having the lowest borrowing costs they've had in hundreds of years. (Figures 3 and 4)

Figure 3: Comparative yield spreads between High-Yield and Investment Grade Bonds



Source: Bloomberg, as of 21 Oct 2014. OAS = option adjusted spread
Past performance does not guarantee future results. An investment cannot be made directly in a market index.

Figure 4: Comparative yield spreads among European Sovereign Bonds



Source: Bloomberg, as of 21 Oct 2014
Past performance does not guarantee future results. An investment cannot be made directly in a market index.

Healthy systems have fear and greed. It's all greed right now, but there's no fear. It's often called reaching for yield. But at this point, I think there's definitely flashing yellow lights all over the place.

There's plentiful credit for reinvestment, but the marginal return on capital is very low

That's part and parcel of a zero interest rate policy. The intent of that policy is to encourage investment. But we're in a world of excess capacity. We're trapped in a paradox; while our zero interest rate policy is urging us to invest, globally the marginal return on capital is very, very low. So while there's now plentiful credit for reinvestment, there's no longer incentive to invest, because there's no return. This is a very, very tough cycle to get out of – we're stuck in a rut. We have yet to have an example in history where it ends well.

Hans Olsen: Are interest rate differentials helping the US Fed? The rest of the world is embarking on quantitative easing (QE) measures, and our bonds are more attractive on a relative basis. Is that keeping rates here lower for longer and enabling the Fed to accelerate its normalization efforts?

Dr. Lawrence Lindsey: Yes. Low global rates certainly make it possible for the US to have lower rates than it otherwise would. But foreign exchange markets absorb most of the shock of differential policy between different countries. With the foreign exchange market, the currency moves to create interest equalization. But I'm not sure that in any long-term sense, the Fed is helped or hindered by other countries' policies, because any result from those policies would come out in the exchange rate.

Hans Olsen: Do you think the market is correctly pricing the timing of an interest rate increase by the US Federal Reserve? Is the market expecting lower rates than the Fed may have in mind?

I would be quite nervous if I were a fixed income investor now

Dr. Lawrence Lindsey: I think so, yes. The Fed has had a history of being a little bit more optimistic about economic results than what actually comes to pass, and market participants are skeptical that the Fed will ever get it right. But one of the interesting things about the September 17, 2014 meeting was the Fed brought down its economic expectations. I think it's still a little bit rosy, but not as rosy as it used to be. If I were the market, I would be very, very nervous about the numbers. Look at the data in the labor market – we're in the sixth year of this expansion. The US economy's capacity to continue to expand indefinitely is quite constrained by labor supply right now, coupled with low productivity and lack of investment. I would be quite nervous if I were a fixed income investor right now.

Hans Olsen: Historically, the US economy has grown at about 3%. Has anything changed that would prevent America from returning to that level?

I think you'll see the US economy return to 3% growth

Dr. Lawrence Lindsey: Oh, the US can get back there. The popular phrase is secular stagnation, the new normal, but the people who use those phrases the most are the people who have been in charge. And so, they look around and they say, "My gosh, I've been in charge and we're getting lousy results. It couldn't possibly have been me. It must have been secular stagnation or the new normal. It couldn't have been my bad ideas."

What makes economies grow? Having good decision makers where the decision makers bear the risks and rewards of the decisions they make. Nothing concentrates the mind better. We have moved far, far from that model, and we need to get back there, and when we do, I think you'll see the US economy return to 3% growth.

Is there too much debt?

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For many, the answer to the question posed in our title is yes. But *is* there too much debt? Have we somehow borrowed our way to a bleaker future for our children? We explore some of the history of debt to illustrate that we should be wary of making too exact a link between debt and growth.

The emotive nature of debt

Debt is an emotive subject. At a personal level, few will have been fortunate enough to avoid the debilitating stress of trying to cobble together sufficient funds to meet overdue loan repayments at some stage in their lives. As consumers, we can feasibly borrow a finite amount, normally linked to our income or the assets we hold. At some stage, it has all got to be paid back. For the individual, it is easy to see why debt is often characterized as "borrowing from our future" or facilitating "living beyond our means."

Debt financing seems to be getting progressively less powerful in terms of the growth it purportedly generates

Shouldn't these same parameters apply at the level of the aggregate national or even global economy? Surely this mountain of debt our generation seems to have irresponsibly amassed is just pushing the problems of today onto future generations. Of greater concern still is the fact that this debt financing seems to be getting progressively less powerful in terms of the growth it purportedly generates. (Figure 1)

Many of the world's most renowned thinkers have weighed in with their thoughts on this debate. From Reinhart and Rogoff's now infamous piece[9] of scholarship to a more recent work on the absence of deleveraging in the post-crisis period from a group of highly regarded economists, the overwhelming consensus seems to be that there is too much debt. The world has somehow reached and breached a sustainable level of indebtedness, and the process of paying it back suggests years in the economic wilderness for much of the world economy. If debt has fuelled the last few decades of growth, then surely paying it back will have the reverse effect.

Is it possible to know what the threshold is for indebtedness in an ever-changing economy?

It is hard to argue with such assembled academic might, particularly when the points made seem to carry particular resonance with a developed world clearly chastened by the aftermath of the Great Financial Crisis and the European Debt Crisis.

However, what if the level of indebtedness reached in the run up to 2007 was not such a threshold for indebtedness? Can we possibly know what that threshold is?

Figure 1: Diminishing returns from debt financing

Date Range	Decade Change in Debt (billions $)	Decade Change in GDP (billions $)	Debt/GDP
1950 – 1959	337.3	248.0	1.36
1960 – 1969	751.9	491.3	1.53
1970 – 1979	2783.1	1654.9	1.68
1980 – 1989	8556.3	2922.3	2.93
1990 – 1999	12647.9	4026.0	3.14
2000 – 2009	27774.5	4525.9	6.14
2007 – 2013*	6046.3	1751.3	3.45

Source: Barclays, Ned Davis Research Group, as of 28 Oct 2014. Data only available up to 31 Mar 2013.

[9] "This Time Is Different: Eight Centuries of Financial Folly," Reinhart and Rogoff, 2010.

A reminder of the basics…

On its own, debt does not actually raise or reduce aggregate financial wealth

There are a couple of important things to remember about debt.

On its own, debt does not actually raise or reduce aggregate financial wealth. At the global level, there is no net debt. A former colleague used to wryly observe that since we have not yet managed to syndicate debt intergalactically, the planet Earth cannot yet be considered a net debtor.

For every borrower there is a lender, and they don't have to be different entities. In one way or another, companies, governments and consumers will all be both. For example, a consumer may lend to a particular government via his or her ownership of government bonds. However, this same consumer (depending on tax residency) owns the government through tax payments. The relationship doesn't have to be so abstract either. Both consumers and companies often have loans from the bank in the form of mortgages, but they may also maintain pension funds and other forms of savings. The broader point is that debt, at its best (and there will always be examples of greed and idiocy on both sides of the ledger) is an efficient form of redistributing capital. However, financial assets and liabilities do not necessarily produce anything directly. Long-term economic growth is both independent from monetary policy and still likely driven by land, labor, capital (intellectual and physical), and the ingenuity we use to organize these factors of production. Debt is part of the organization, but its direct influence on underlying economic growth is surely overstated, as explored in a bit more detail below.

Some historical context

In the UK, national debt was born in the wake of the Nine Years' War

In the UK, national or government debt was born in the wake of the Nine Years' War in the closing stages of the 17th century and exploded over the course of the 18th century, driven by various wars: It grew by over 7,000% between 1700 and the end of the Napoleonic Wars in 1815, which coincided with the First Industrial Revolution. Because living standards for UK citizens enjoyed a dramatic and sustained increase around that time, it could superficially suggest a link between the two. However, on closer inspection, this connection starts to fade. Although data on incomes are obviously unreliable for this period, it's interesting to note that life expectancy in the UK really only started to see dramatic increases in the 1870s, decades after modern-day historians date the end of the First Industrial Revolution. This broadly chimes with the view of certain economic historians (Harley, 1982, Williamson, 1984) who see the 1820s as a turning point for the UK economy, when growth in per capita income and industrial production began to see sustained and material growth – assuming that such improvements take some time to filter through to life expectancy.

The UK's unique price and wage structure triggered prosperity

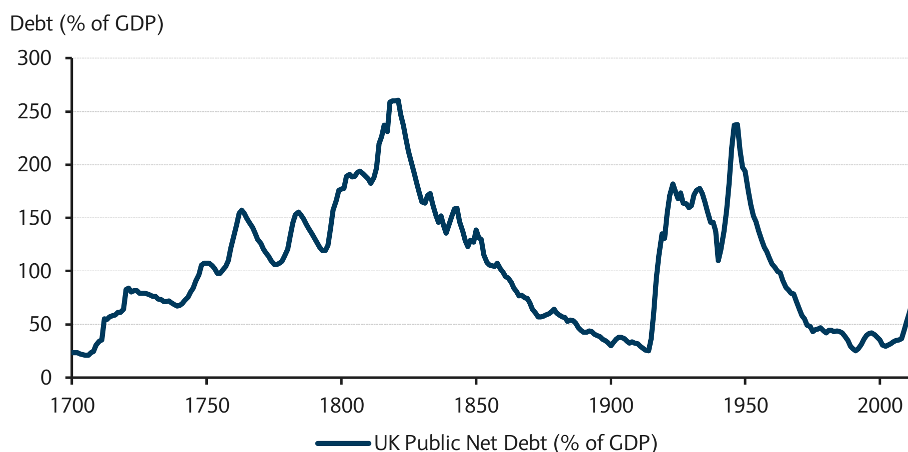
However, if this is accurate, this period of unprecedented increases in living standards and life expectancy in the UK began after public debt levels had peaked (c. 1816) and actually coincided with a period of marked deleveraging by the UK government – as the public net debt to GDP ratio fell from well north of 200% in the early 19th century to a low of just 25% in 1914. (Figure 2)

Further undermining the link, few credibly suggest that this surge in government borrowing had any direct relationship to the Industrial Revolution. Some historians have argued that the wars that sucked in all this debt financing may have had some positive technological benefits associated with greater demand for advanced military hardware.[10] However, the UK's role as

[10] McNeill, 1982.

UK national debt grew by over 7,000% between 1700 and the end of the Napoleonic Wars in 1815

Figure 2: A historical perspective on UK debt



Source: Barclays, HM Treasury, B.R. Mitchell, "British Historical Statistics," as of 01 Aug 2014.

the cradle of this leap forward in industrial technology is perhaps more plausibly attributed to its unique price and wage structure at the time.[11] Essentially British wages were very high by international standards, in large part due to its success in the international textiles market beginning in the late 16th century. On the other hand, thanks to Britain's rich coal deposits, energy was cheap, providing fertile ground for the substitution of expensive labor with new, cheaper machines.

Rising productivity resulted from the substitution of labor for machines and energy

At the very least, the history of the UK economy during this period of near-unrivalled government deleveraging suggests we should be far less deterministic concerning the relationship between deleveraging and growth. Myriad other factors influenced the UK's economic performance over this period, with the rising productivity resulting from the substitution of labor for machines and energy likely central.

Interestingly enough, some suggest[12] this dramatic increase in government debt over the 18th century was actually responsible for the delayed takeoff of the UK economy during the decades when the Industrial Revolution is now officially dated, a function of the government crowding out private sector investment.

The Third Industrial Revolution?

The First Industrial Revolution is an interesting case study in the context of today's global economy. We are now regularly told we are in a period of "secular stagnation," with high levels of debt and below-par GDP growth. GDP statistics have been suggesting that we've somehow ceased to get more productive or inventive, the central pillars of long-term growth. Without growth, how can we hope to pay this debt down?

Is GDP is an outdated way of measuring output, a relic of the "steel and wheat economy"?

Can this be true, or can it more simply be that GDP is an outdated way of measuring output, a relic of the "steel and wheat economy"? As Mokyr (2014) points out, "Many of the new goods and services are expensive to design, but once they work, they can be copied at very low or zero costs. That means they tend to contribute very little to

[11] Allen, R.C (2011), "Why the Industrial Revolution was British: commerce, induced invention and the scientific revolution," *The Economic History Review*.
[12] Williamson, J, G (1984), "Why was British growth so slow during the Industrial Revolution?" *The Journal of Economic History*, Vol. 44, No 3.

measured output even if their impact on consumer welfare is very large."[13] Similarly, as Glaeser (2014) suggests, "The theory of price indices is that an individual should be indifferent between living today and living in the past with the same real income. How many people would really be indifferent between earning $23,000 in 1984 and earning $50,000 in 2014? You could surely buy the same amount of most basic commodities in 1984, but you would forgo the use of thousands of significant innovations, some of which improve life expectancy and others which are just fun."[14]

For all intents and purposes, we may already be in the midst of a Third Industrial Revolution; we just lack the economic statistics to adequately describe it. In terms of future productivity, it feels perverse to suggest that we have somehow exhausted the productivity gains available from the inventions of the last few decades. Trends in productivity obviously do not travel in a straight line. New technology is not always immediately assimilated into the wider economy. It often takes companies and consumers decades to adopt and work out how to best use it. Around 120 years ago, US factories started switching from steam power to electric power; however, productivity gains were reportedly muted for several decades after the switch. It took the next generation of factory owners to redesign manufacturing processes around this more flexible power source for the gains in productivity to be more effectively reaped.[15] The same is true now. Much of today's global workforce grew up in a world where computers were a rarity and experts were figures of fun. It seems unnecessarily pessimistic to start betting on a structural decline in innovation as the workforce shifts towards a generation that has been immersed in this general purpose technology from birth.

Consider the advances currently being made in materials science

Those still skeptical of the potential for further progress should consider the advances currently being made in materials science. Historically, progress in materials science has always been the result of grueling trial and error or just outright luck (linoleum, for example).[16] Now, advances in computing power and software allow us to design new resins, ceramics and entirely new solids by computer simulation, with development occurring at the nano-technological level. This is already leading to previously undreamed-of synthesized materials, with custom-ordered properties in terms of elasticity, resilience and so on. This not only has massive implications for our level of resource consumption as a planet, but in combination with three-dimensional printing, it has the potential to spawn mass customization, a truly revolutionary industrial manufacturing concept.[17]

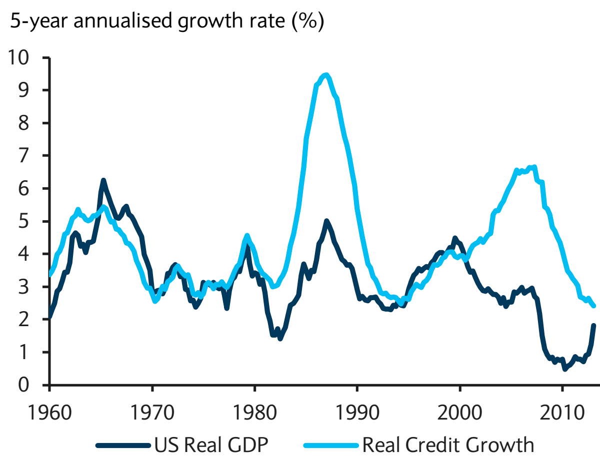
Robotics, artificial intelligence (AI) and genetic engineering are just some of the other areas where mankind is repeatedly moving into uncharted waters. Not all of it will be net progress. Some of these advances, particularly those in robotics and AI, will raise questions: what kind of education do we need to provide our citizens to prosper in this new world? How does our social safety net need to be adapted to reflect the more rapidly evolving employment backdrop? For the latter point, bear in mind that most of us now work in jobs that wouldn't have existed 100 years ago, and the same will likely be true 100 years from now.

Increases in productivity are historically the most significant contributor to long-term output growth

It is likely that future increases in productivity, historically a key contributor to long-term output growth, could easily coincide with one or more segments of the economy paying down debt. There simply doesn't have to be a strong relationship between the two.

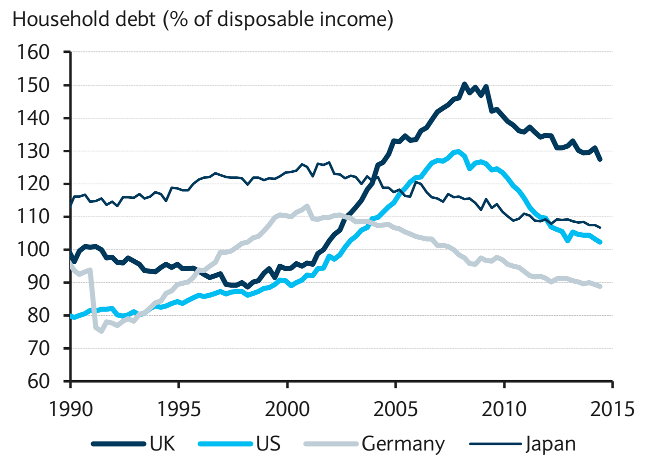
[13] Mokyr, J (2014), "Secular stagnation? Not in your life," *Secular stagnation: facts, causes and cures*, Edited by Coen Tuelings and Richard Baldwin, CEPR Press.
[14] Glaeser, E. L (2014), *Secular joblessness, Secular stagnation: facts, causes and cures*, edited by Coen Tailings and Richard Baldwin, CEPR Press.
[15] Brynolffson, E (2013), "The key to growth? Race with machines," TED lecture, February 2013.
[16] Mokyr, ibid.
[17] Ibid.

Figure 3: US GDP and credit growth not always in sync



Source: Barclays, Datastream as of 31 Dec 2013

Figure 4: Household debt in developed economies



Source: Barclays, Datastream as of 30 Jun 2014

Debt and growth in the modern day

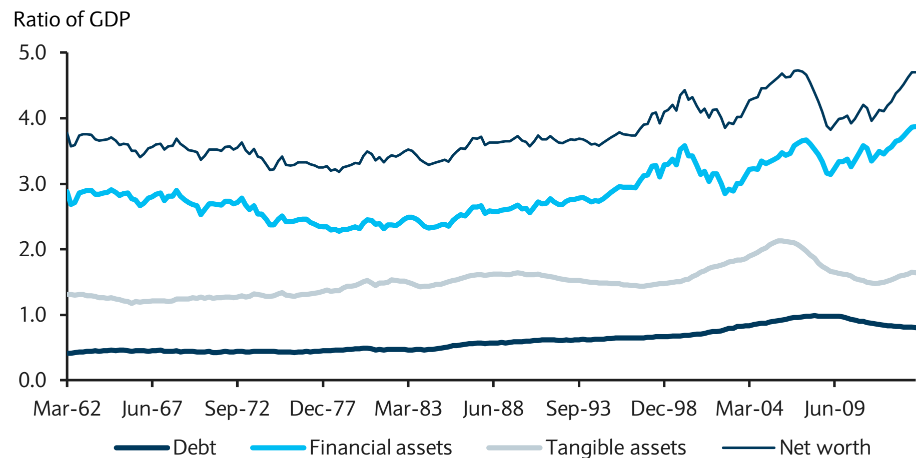
The surge in private sector borrowing that followed the piecemeal financial deregulation over the '60s, '70s and '80s in the West did not coincide with a dramatic acceleration in economic growth in either the US or the UK, as illustrated by Figures 3 and 4. Much of the credit expansion from the 1980s onwards has been associated with balance sheet transactions – for example, the acquisition of houses already in existence – where the direct economic impact has been surely modest. This could in turn mean that some mild deleveraging may have a similarly mild impact on economic growth.

Much of the private sector is likely to increase debt, not reduce it

However, for the US at least, the likely trend right now is for much of the private sector to increase debt, not reduce it. This shouldn't alarm us, since, viewed in the broader context of the consumer's total balance sheet, there might not be as much to worry about as some would have us believe. (Figure 5) The US consumer, much like many developed market consumers, enjoys strong positive net worth when factoring in the houses and financial assets they own, alongside the debts they owe. The increase in net worth in 2013 for the US consumer, as house, stock and bond prices all rose, was roughly the same size of the Chinese

The US consumer enjoys strong positive net worth

Figure 5: The US consumer's balance sheet looks healthy



Source: Barclays, Datastream, Federal Reserve as of 30 Jun 2014

economy.[18] The same goes for the non-financial corporate sector in the US. Levels of leverage, when compared to pre-depreciation and amortization corporate profits, for example, do not look especially high. We see leverage increasing from here, as companies continue to grow in confidence and boost capital expenditure.

There must be limits to borrowing for individuals, sectors and governments, but the likely reality is that such limits should be loosely defined and may well change over time. A population whose living standards and tangible assets are growing steadily may have greater uses for the flexibility facilitated by debt and use disproportionately more of it.

None of this is to say that certain countries, individuals and companies did not borrow recklessly and excessively in the run-up to the Great Financial Crisis, with some of these actors remaining questionable credit risks today (Greece for example). However, the current obsession with a fixed appropriate level of debt for the world as a whole is perhaps misplaced, as is the idea that deleveraging has to go hand-in-hand with slower growth. The prospects for the longer-term drivers of economic growth - the factors of production - are showing signs of health right now, bolstered by ongoing technological advances. To ignore that may mean missing out on some still attractive investment opportunities within the asset class that best expresses optimism about our future growth prospects – equities. The difficulties inherent in measuring the positive productivity effects arising from the spread of this new technology, combined with these same technologies' deflationary effects go some way to explaining, if not excusing, the bond market's continued buoyancy.

Stock investing involves risk including loss of principal.

[18] Federal Reserve, 30 Jun 2014

Cycling along at a healthy pace

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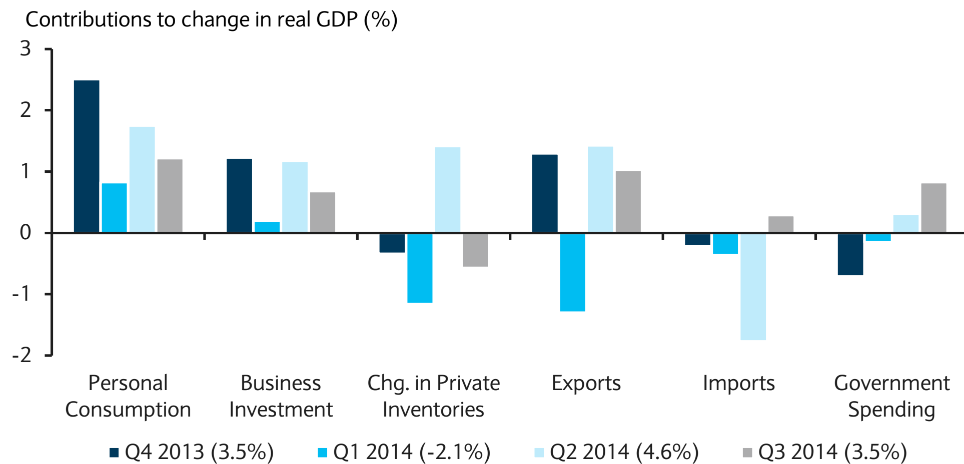
As fears over a global stagnation resurfaced in October, we asked ourselves where two of the world's brightest economies – the US and UK – stand relative to their respective business cycles. While concerns over structural changes and negative external spillovers are likely to weigh on near-term growth sentiment, leading indicators in both economies show that there is yet more strength to come.

Reasons to remain positive

Following a temporary setback in the first quarter of 2014, the recent summer has provided us with ample evidence to suggest that the US economy is in the midst of a cyclical expansion. At a healthy 3.5% annualized rate,[19] third-quarter GDP grew reasonably across all segments of the economy, including consumer spending, non-residential fixed investment and net exports. (Figure 1) Despite the persistence of external headwinds, with the Federal Reserve (Fed) expressing concern over a weaker euro zone and a stronger US dollar, the underlying economic outlook remains resilient.

Q3 GDP data confirms that the US economy is in the midst of a cyclical expansion

Figure 1: Recent US economic growth has been well-balanced

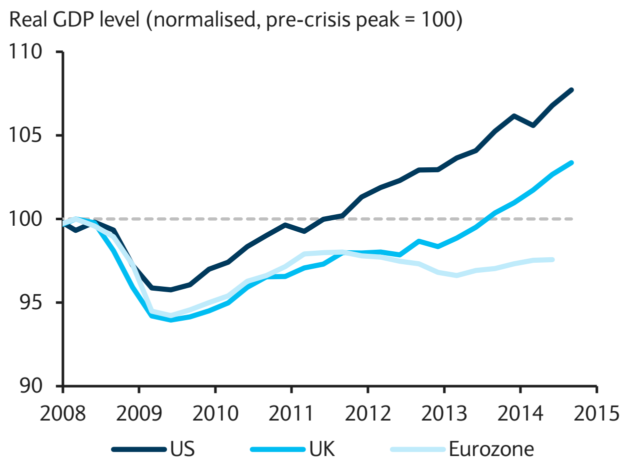


Source: Barclays, Bloomberg, Bureau of Economic Analysis (BEA), as of 30 Oct 2014. Figures in brackets denote the quarterly annualized real GDP growth rate.

A similar vein of optimism can be found on the other side of the Atlantic, with latest figures showing the UK economy also growing at a real annual rate of around 3%, in line with its historical trend and at a level now firmly above its pre-crisis peak.[20] (Figure 2) A moderation in the externally-exposed manufacturing sectors was more than offset by a small uptick in the pace of industrial production and construction growth, while the ongoing strength in domestic services continued. In fact, these latest figures highlight the well-balanced nature of both the UK and US economic recoveries. With growth predominantly reliant on

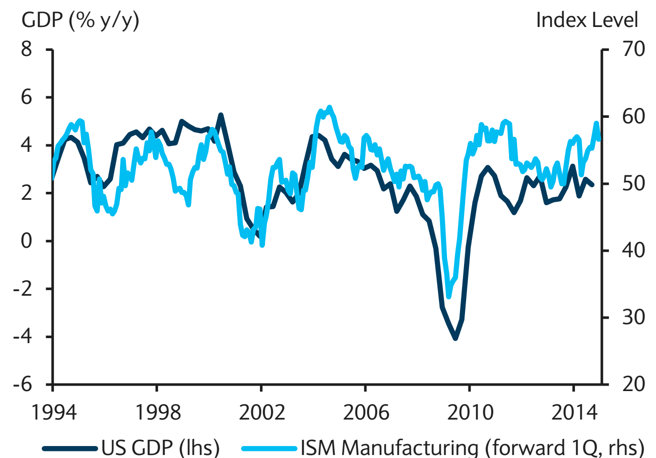
[19] Bloomberg, as of 30 Oct 2014.
[20] In September, the Office for National Statistics revised the methodology for constructing the national accounts, showing that the economy reached its pre-crisis peak much earlier than previously thought.

Figure 2: US and UK GDP is firmly above pre-crisis levels



Source: Barclays, Bloomberg as of 30 Oct 2014

Figure 3: US manufacturing outlook remains encouraging



Source: Barclays, Datastream as of 30 Oct 2014

domestically-oriented components, such as consumption and investment, the respective cyclical rebounds have occurred at a steady pace, remaining largely insulated from a more sluggish global economic backdrop.

Private sector investment gains traction

Leading indicators continue to paint a constructive outlook

Core business activity continues to strengthen in the US, with industrial production increasing by a stronger than expected 1% over the course of September.[21] During the same month, the ISM Purchasing Manager's Index (PMI) eased from previous highs, primarily in response to a softening of demand from Europe and Asia, though the aggregate index remains firmly in expansionary territory and at a level consistent with a further pickup in activity through the second half of the year. (Figure 3)

Over the last decade, UK economic activity has been traditionally dominated by the services sector, with recent data providing little evidence to indicate any material change in this trend. However, the latest revisions to national accounts emphasize the role of business investment in the ongoing economic recovery. Survey-based measures of investment intentions remain at historically high levels, suggesting that the headline figure may well continue to grow at double-digit rates over the forthcoming quarters.[22]

But domestic consumers still drive the cycle

Domestic consumers have driven recent economic growth

With private consumption accounting for approximately 70% of total GDP,[23] the US consumer remains an essential element of the domestic economy. The acceleration in consumption growth, to levels not too far-off its pre-crisis trend, has helped to support economic growth in the aftermath of the crisis. Consumer spending rose 0.5% on the month in August, partly due to improvements in household wealth and balance sheets. Retail sales, despite posting a small monthly decline in September, have gained substantial ground year-to-date and continue to grow at an annual rate of above 4%.[24] Significantly, the recent weakness in oil prices will help ease the squeeze on real disposable incomes, with the increased purchasing power of consumers likely to spur greater domestic activity ahead of the holiday season.

[21] Bloomberg, Institute of Supply Management, as of 30 Oct 2014.
[22] In Q2 2014, UK business investment grew by 11.0% compared to the same quarter a year ago.
[23] All figures in this paragraph are sourced from Bloomberg, Bureau of Economic Analysis (BEA), as of 30 Oct 2014.
[24] Ibid.

Much of the elevated confidence in the two economies can be attributed to improvements in the labor markets. Since the peak of the crisis, employment has risen by 1.8 million in the UK, with year-to-date figures accounting for almost a third of this increase.[25] In the US, steady non-farm payroll gains in September, consistent with the average rate of growth observed across the first nine months of 2014, suggest that the employment rebound is becoming more sustainable. With these trends likely to sustain consumer optimism, the outlook for overall demand remains positive.

Pockets of the economy are warming up

Low interest rates may be fuelling excessive financial risk-taking

More than six years after the onset of the financial crisis, policy rates in both the US and UK remain at historically low levels. While easy monetary conditions are playing a vital role in the recoveries, encouraging economic risk-taking in the form of greater investment and consumption by firms and households, the International Monetary Fund (IMF) recently expressed concern over ultra-low interest rates fuelling excessive financial risk-taking.[26] While the business cycle, on aggregate, remains relatively embryonic, some areas of the economy could be telling a different story.

The warning signs have been on the table for some time now; the unwelcome return of lower quality debt instruments and falling underwriting standards point to a degree of complacency in financial markets. Furthermore, in the UK, rising house prices earlier this year posed a significant risk to the durability of the recovery.

Despite these pockets of vulnerability, the risks have yet to materially spillover to other areas of the economy, suggesting that any concerns over a premature end to the business cycle expansion are somewhat misplaced. Over the past couple of years, the ratio of household debt to disposable income has been falling in both economies. As uncertainties over financial conditions diminish, consumers may begin to apportion less of their income towards repaying debt, instead channeling funds towards the consumption of goods and services.

The risk of the real economy overheating remains low

Therefore despite the slight loss of momentum in September's monthly indicators, reflecting a moderation in the pace of expansion, the US and UK are likely to continue growing above potential as we head into 2015.[27] In terms of the business cycle, these economies remain firmly in the midst of an upswing, and without any significant domestic inflationary pressures, the risk of the *real economy* overheating remains low. Simply put, the expansion still has some distance left to run; the focus now is on sustaining the post-recovery economic momentum.

The second phase of the cycle: self-sustaining growth

Taking a step back, the overall picture for the respective economies remains broadly unchanged. When put into an historical context, real GDP has taken longer to return to its pre-crisis level, while output continues to grow below its long-run growth trajectory. (Figures 4 and 5) Consequently, the cumulative loss of output from the Great *Recession* may well end up being larger than that experienced in the Great *Depression*.

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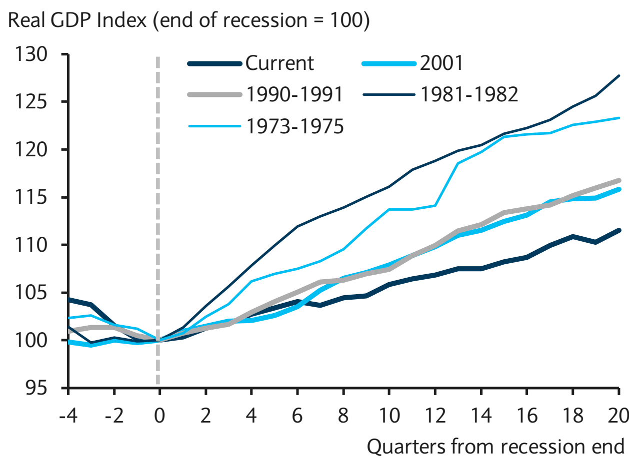
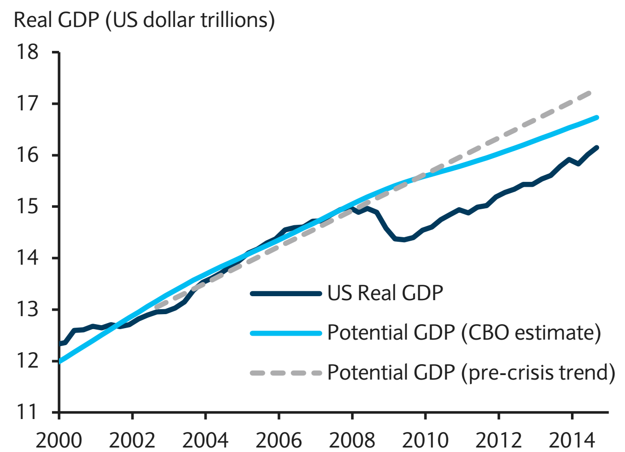
[25] UK Office for National Statistics, as of 31 Aug 2014.
[26] IMF *Financial Stability Report* (October 2014).
[27] IMF *World Economic Outlook* projections, as of 12 Oct 2014.

Figure 4: A slower and lower cyclical rebound for the US



Source: Barclays, Datastream as of 30 Jun 2014

Figure 5: US real GDP remains below pre-crisis trend



Source: Barclays, BEA, Congressional Budget Office (CBO) as of 30 Oct 2014

Financial crises tend to inflict greater damage to the underlying economy

As documented by Reinhart and Rogoff, recessions caused by systemic financial crises tend to inflict greater damage to the underlying economy when compared to more conventional downturns,[28] which partially explains the prolonged nature of the existing recovery. However, since the IMF's latest downward revisions to global growth, concerns over a *secular stagnation* – the idea of persistent shortfalls in demand due to underlying changes in the economy[29] – have seemingly extended past the academic domain, with market participants becoming increasingly concerned over future economic prospects.

This theoretical concept, made all the more ambiguous when expressed as two words, is often misinterpreted as either a downturn in the business cycle or more condemningly a lower potential growth rate. Intuitively, the "secular" term implies that the depressed state of an economy is a result of supply-side factors such as lower population growth and reduced technological innovation, whereas "stagnation" suggests that cyclical headwinds to demand, in the form of deleveraging or fiscal austerity, are responsible for weak activity. The reality is that a combination of the two factors is at play.[30] It is likely that the recovery in the US and UK will continue to be slower than previously observed, but there is significant room for gains as the demand-related headwinds gradually fade away.

The next phase of expansion is likely to be more gradual

We may therefore be entering a crucial stage of the cycle. The pace of expansion in the UK and US has begun to moderate and may potentially diminish further in the absence of any discernible increase in the organic drivers of economic growth. The speed, and more importantly, the extent of the next expansionary phase will depend on the underlying economy's ability to generate self-sustaining growth momentum.

While seemingly complex, the expected drivers can in fact be broadly described in the same terms as those processes responsible for the earlier stages of the recovery: (1) a pickup in capital expenditure (investment) from historically low levels and (2) an increase in household expenditure (consumption) following the eventual materialization of real wage growth.[31] The difference is that these factors, while typically correlated to the business cycle, have yet to

[28] "This Time Is Different: Eight Centuries of Financial Folly," Reinhart and Rogoff, 2010.
[29] As defined by Summers, Krugman, et. al in *Secular Stagnation: Facts, Causes and Cures* (2014).
[30] Though as discussed in *"Is there too Much Debt?"* it can be argued that ongoing technological advances make the "secular" headwinds less of a concern.
[31] The credit cycle is also a crucial factor, as discussed above, and is closely linked to the consumption driver.

fully shake off the more damning effects of the financial crisis. As the transitory elements of these headwinds dissipate, the US and UK could well experience a new wave of cyclical expansion from pent-up demand in the economy.

The investment anomaly: upside potential for capital expenditure

The US and UK need to see a new wave of cyclical expansion

Discretionary spending, which includes residential investment, is by definition non-essential and is therefore tightly linked to the economic cycle. In an expansionary phase, when there are no material constraints, discretionary expenditure is expected to rise; yet, as Figure 6 shows, it remains at historical lows and inconsistent with a cyclical recovery.

The key to this dislocation is the housing market. The ratio of residential investment to GDP has plummeted, which is somewhat expected, given the central role played by the property market during the initial stages of the recent recession. However, after bottoming out in 2011, house prices are now starting to recover, and demand for new houses is growing. This is likely to restore some normality to the US property market and help discretionary spending return to more typical levels.

The labor market anomaly: the recovery is not yet real for workers

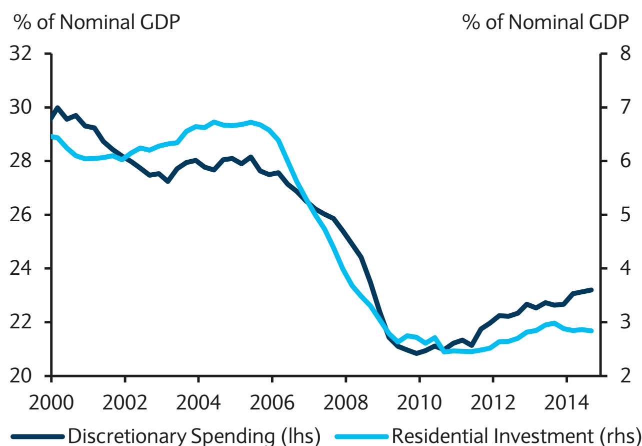
Workers have not felt the gains from the ongoing recovery

Leading indicators in both the UK and US suggest that underlying wage growth is in the pipeline. However, the lack of any material pass-through to headline measures means the recovery has yet to trickle down to real segments of the economy, in particular consumers. (Figure 7) The Beveridge curve – which plots job openings against the unemployment rate – only tells half the story. While vacancies are on the rise, they remain more unfilled than usual, therefore indicating significant mismatches in the labor market. With fewer people switching jobs and employees reluctant to take on the risk of new work, both evidenced by the low "quits" rate, labor market turnover remains subdued.

Frictions may disappear as employees take on more economic risks

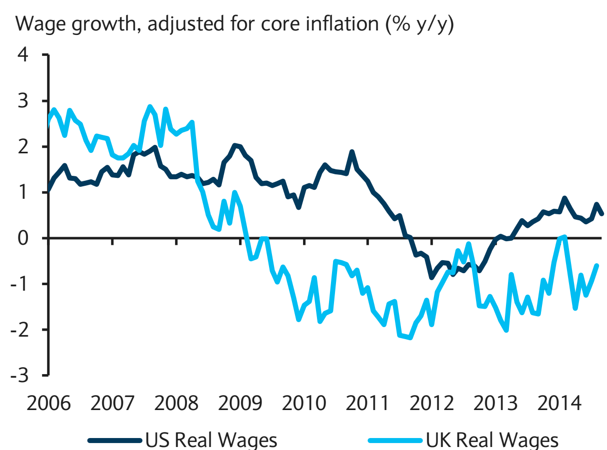
The mismatch problem is indicative of a structural impediment that is likely to take some time to overcome.[32] However, the inefficiencies created by the lack of turnover are also partially linked to the costly consequences of being unemployed, with individuals needing to

Figure 6: There is still upside room for capital spending



Source: Barclays, Bloomberg as of 30 Oct 2014
Discretionary spending includes durable goods expenditure and private fixed investment (residential as well as non-residential).

Figure 7: Subdued real wage growth in the UK and US



Source: Barclays, Datastream as of 28 Oct 2014
y/y = year over year

[32] In a recent study, the National Bureau of Economic Research discussed the "spatial-mismatch hypothesis," first proposed in 1965 John Kain, which argues that the location of jobs may also be factor for this market inefficiency.

tackle the debt accumulated during the previous expansionary phase. As we approach the end of this deleveraging cycle, we could well see some of the labor market frictions disappear, as employees begin to take on more economic risks. The result would see growth of average wages recover to pre-crisis levels, pushing incomes for many households higher.

Productivity gains will help sustain long-run growth

The economist Robert Lucas argued that the costs associated with business cycle fluctuations are minimal when compared to the loss of long-term growth. In gauging the relative strength of the economy at any point in time, one must take into account where it stands relative to its potential. Spare capacity – or the output gap – is not only a function of current growth, but also long-term estimated output. If the latter is diminishing, as is currently the case with the US (Figure 5), then is it feasible to say that this cyclical expansion – and subsequent decline in economic slack – is a sign of a thriving real economy?

The trade-off for greater employment has been lower wages

The adjustment since the financial crisis remains painful; the trade-off for greater employment and higher cyclical output has been lower wages and productivity.[33] But as a result of this process, individuals and firms in the world's two leading economies are now better placed to participate in the expansion as it gathers momentum. The next stage of the cycle will now require labor and capital to be put to more productive measures.

Beyond keeping the recovery on course, policies need to be focused on stimulating medium-term growth. In this respect, monetary policy has its limitations. The role of the two central banks will be to manage the exit from zero rates in a timely fashion, steering the economy towards its full potential in a manner that maintains price and financial stability. It will be the responsibility of other policymakers to tackle the inefficiencies of the economy, by developing a more skilled labor force, increasing infrastructure spending and reducing public debt. This should ensure the sustainability of any cyclical expansion over the long haul.

[33] Speech given by Mark Carney on 9 Sep 2014

Tactical asset allocation review: Markets spooked in October

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Volatility returned to markets this month. The cause: a confluence of unremarkable events, which stoked investors' fears of a global growth slowdown. Equities sold off; yields fell; oil plummeted. Strong US data and a solid start to US earnings season have since restored confidence. The recent correction should be viewed as a healthy event, rather than a harbinger of doom. Doubt often brings opportunity.

US Equities

US equity markets experienced a long over-due correction this month, with the S&P 500 falling 10% from its September peak.[34] Signs of slowing around the globe (from disappointing European data to lower oil demand forecasts) threatened to derail the US's accelerating economy and its seemingly indefatigable bull market. By the end of October, US equity markets had climbed most of the way back, as robust US economic data and a strong start to the third-quarter earnings season increased optimism that strength in the world's largest economy would outweigh global woes.[35]

Volatility returned in October

We maintain our Overweight in US Smid Cap Equities, as this domestically-exposed sector should benefit most from the continued US economic rebound through the end of the year. The primary catalysts are: a confident US consumer, higher quality earnings growth, and the potential for increased M&A activity.

We increased our allocation to US Large Caps from Neutral to Overweight. US economic strength relative to other developed markets should be a tailwind for its equities, particularly those in cyclical sectors.

Non-US Developed Markets Equities

European data disappointed

European economic data disappointed in October, corroborating doubts about the viability of the fragile recovery. The region's equities underperformed as a result.[36] On a positive note, the ECB's Asset Quality Review (AQR) revealed a mostly healthy banking sector, which should improve confidence and stimulate lending. Continued support from the ECB, along with strong earnings upside potential and early signs of improvement in credit markets, should help propel European equities higher.

Japanese equities underperformed in October as the economy struggled to regain its footing after the April sales tax hike. However, recently released data showed that retail sales grew the most in four months in September, a positive sign that consumption is recovering.[37]

Past performance does not guarantee future results. An investment cannot be made directly in a market index.

[34] Source: Bloomberg, as of October 15, 2014 (intra-day price).
[35] Source: Bloomberg, as of October 29, 2014.
[36] Source: Bloomberg, as of October 29, 2014, European equities represented by Euro Stoxx 50 Index.
[37] Source: Bloomberg, as of October 29, 2014, Japanese equities represented by Nikkei 225 Index.

Prime Minister Abe is set to decide by the end of the year whether to increase the tax once more next October. Hopes are pinned on the upcoming earnings season, particularly in light of the weaker yen, which should be a tailwind for profits.

We remain Overweight Non-US Developed Markets Equities, as valuations are compelling, and policy actions should be catalysts for outperformance over the long term.

US Bonds

A better US economy is putting pressure on the Fed to raise rates

US fixed income markets continued to benefit from lower-than-expected interest rates in October. While equity markets sold off in the middle of the month, US 10-year Treasuries hit their lowest point of the year.[38] Heightened geopolitical risk and doubts about global growth have increased demand for safe-haven assets, pushing down US Treasury yields. US High Yield Bonds were the worst performing fixed income segment. Spreads on these bonds widened during the market pullback as investors fled risk assets.

Improving US economic data, particularly in the labor market, is building pressure for the eventual increase in interest rates. Rising rates will hurt fixed income investors, especially those with passive, long-duration exposure. We remain either Underweight or Neutral fixed income assets for this reason.

We are Neutral on US High Yield Bonds. The higher coupons do not compensate for the risk of principal loss from widening spreads, particularly in light of deterioration in underwriting standards for leveraged loans.

Emerging Markets Bonds

Emerging Markets Bonds rose less than 1% this month after selling off in September.[39] Weaker global growth prospects led investors to anticipate lower US rates for longer, making Emerging Markets Bonds a more attractive yield source. However, with a stronger US dollar and more volatile political landscape, yields do not seems to compensate for the additional risk.

We are Underweight Emerging Markets Bonds due to an unfavorable risk-return profile in light of geopolitical concerns, the potential for continued currency volatility, and impending tightening in the US.

Commodities

Commodities under pressure

Slowing global demand and a stronger dollar pushed down commodity prices this month. Oil prices hit the lowest level since mid-2012, falling 25% from this year's peaks.[40] The supply side of the equation is also not working in oil's favor; US shale production has created a glut in the market. Prices for most industrial metals also fell with slower demand.

We are Underweight Commodities, as a stronger dollar, slowing global demand, and excess supply, in some sectors, will continue to put pressure on prices.

Past performance does not guarantee future results. An investment cannot be made directly in a market index.

[38] Source: Bloomberg, as of October 29, 2014, Equities represented by S&P 500 Index.
[39] Source: JPMorgan, as of August 29, 2014, Emerging Markets Bonds represented by JP Morgan GBI-EM Total Return Diversified Index.
[40] Source: Bloomberg, as of October 29, 2014, Commodities represented by Bloomberg Commodity Index.

REITs

REITS hang on to the #1 spot

REITs kept their place as the best-performing asset class year-to-date with returns in excess of 20%.[41] REITs have benefited from lower-than-expected interest rates, which bolster the appeal of REIT dividends for yield-hungry investors. Lower energy costs have given a lift to earnings in some sectors, such as hotel REITS. Apartments REITs have been among the top performing sectors this year, but demand will need to outpace new construction for this outperformance to continue. [42]

We are Neutral on REITs, as the transition to a normalized interest rate environment could put downward pressure on prices.

Emerging Markets Equities

Emerging Markets Equities felt the pain of geopolitical issues

Emerging Markets Equities struggled under the weight of geopolitical strife in October.[43] Russian equities were among the hardest hit with the combination of lower oil prices, increased sanctions, and soured sentiment causing cash to flee. Meanwhile, Brazilian equities sold off in response to the re-election of incumbent President, Dilma Rousseff, as investors anticipated four more years of corruption and economic stagnation. Slightly better-than-expected GDP and manufacturing data buffered Chinese equities, which ended the month better off than most of their peers with approximately flat returns.

We maintain a Neutral weight on Emerging Markets Equities. Wide disparity in valuations bodes well for actively managed vehicles. While tightening in the US may temporarily pressure EM equities, this should be offset by stronger external demand from developed markets.

Alternative Trading Strategies

Our Overweight to most Alternative Trading Strategies is a hedge against anticipated variability in asset prices, as markets adjust to the decreased pace of US monetary stimulus. Relative Value has benefited from declining correlations in US equity markets, and Event Driven strategies have outperformed due to a pickup in corporate actions, particularly M&A. Meanwhile, Global Macro funds suffered from the drop in interest rates.[44]

Past performance does not guarantee future results. An investment cannot be made directly in a market index.

[41] Source: Bloomberg, as of August 29, 2014, REITS represented by FTSE NAREIT US – ALL Equity REITs
[42] Source: Barclays, as of August 29, 2014.
[43] Source: Bloomberg, as of October 29, 2014, Emerging Markets Equities represented by MSCI Emerging Markets Index, Brazilian equities represented by Ibovespa Brasil Sao Paul Stock Exchange Index, Chinese equities represented by MSCI China Index.
[44] Source: Bloomberg. Returns as of September 30, 2014 for: Event Driven Strategies, Relative Value Strategies, and Managed Futures. Returns as of August 31, 2014 for Global Macro Strategies. Global Macro Strategies by Barclay Hedge Fund Global Macro Index; Relative Value Strategies by HFRI Relative Value Index; Event Driven Strategies by Dow Jones CS Event Driven Index.

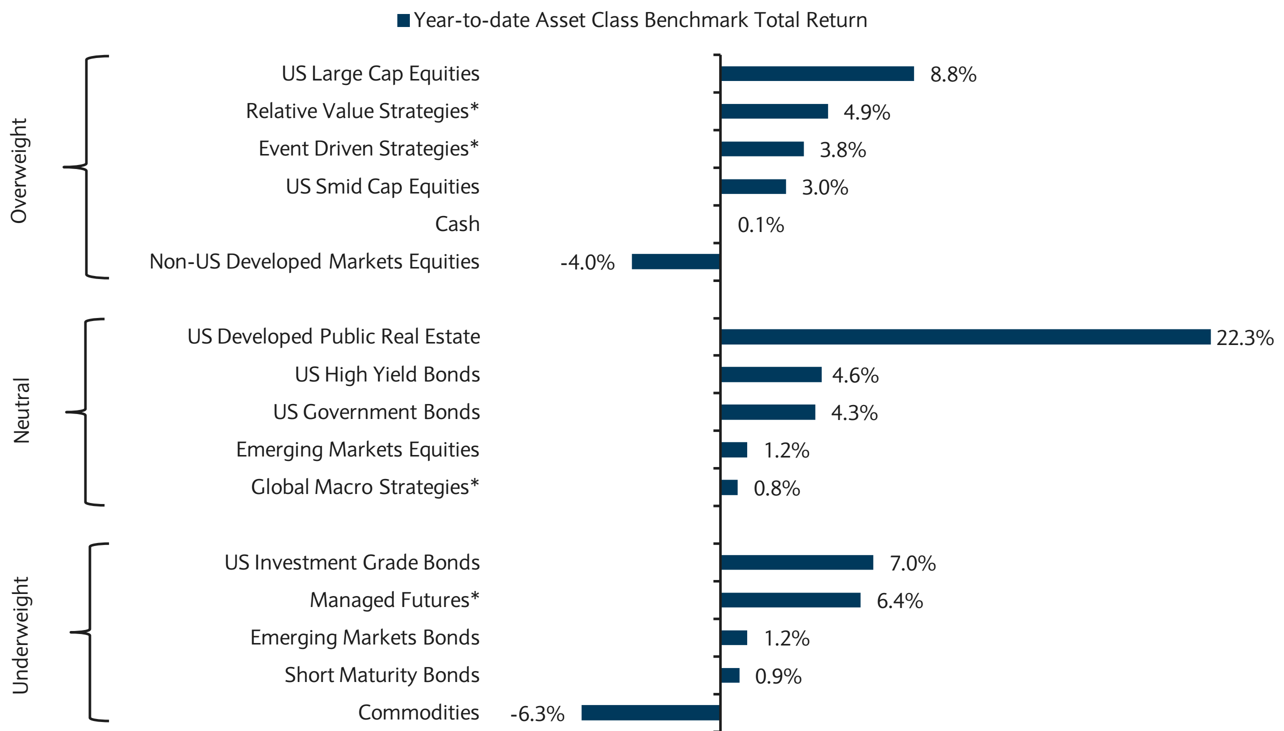
Figure 1: Strategic Asset Allocation (SAA) and Tactical Asset Allocation (TAA) by risk profile: asset class[45]

	Low		Medium Low		Moderate		Medium High		High	
Asset class	**SAA**	**TAA**	**SAA**	**TAA**	**SAA**	**TAA**	**SAA**	**TAA**	**SAA**	**TAA**
Cash and Short-maturity Bonds	46.0%	50.0%	17.0%	20.0%	7.0%	11.0%	3.0%	8.0%	2.0%	6.0%
Developed Government Bonds	8.0%	8.0%	7.0%	7.0%	4.0%	4.0%	2.0%	2.0%	1.0%	1.0%
Investment Grade Bonds	6.0%	4.0%	9.0%	7.0%	7.0%	5.0%	4.0%	2.0%	2.0%	0.0%
High Yield and Emerging Markets Bonds	6.0%	2.0%	10.0%	5.0%	11.0%	5.0%	10.0%	5.0%	8.0%	4.0%
Developed Markets Equities	16.0%	19.0%	28.0%	34.0%	38.0%	45.0%	45.0%	51.0%	50.0%	55.0%
Emerging Markets Equities	3.0%	3.0%	6.0%	6.0%	10.0%	10.0%	14.0%	14.0%	18.0%	18.0%
Commodities	2.0%	1.0%	4.0%	2.0%	5.0%	2.0%	6.0%	2.0%	5.0%	2.0%
Real Estate	2.0%	2.0%	3.0%	3.0%	4.0%	4.0%	6.0%	6.0%	7.0%	7.0%
Alternative Trading Strategies	11.0%	11.0%	16.0%	16.0%	14.0%	14.0%	10.0%	10.0%	7.0%	7.0%

Source: Barclays Wealth and Investment Management, as first published on October 16, 2014.
Gray: TAA is slightly underweight our SAA. Light blue: TAA is slightly overweight our SAA. No highlight: TAA is neutral weight the SAA.
See Figure 3 for benchmark indices used.

[45] The recommendations made for your actual portfolio will differ from any asset allocation or strategies outlined in this document. The model portfolios are not available to investors since they represent investment ideas, which are general in nature and do not include fees. Your asset allocation will be customized to your preferences and risk tolerance and you will be charged fees. You should ensure that your portfolio is updated or redefined when your investment objectives or personal circumstances change. Our **Strategic Asset Allocation (SAA)** models offer a baseline mix of assets that, if held on average over a five-year period, will in our view provide the most desirable combination of risk and return for an investor's degree of Risk Tolerance. They are updated annually. Our **Tactical Asset Allocation (TAA)** tilts our SAA views, incorporating small tactical shifts from one asset class to another, to account for the prevailing environment and our shorter-term outlook.

Figure 2: Year-to-date returns and TAA weightings for key asset and regional sub asset classes (by weighting)



*Returns as of September 30, 2014 for: Event Driven Strategies, Relative Value Strategies, and Managed Futures. Returns as of August 31, 2014 for Global Macro Strategies.

Source: Bloomberg as of October 28, 2014. We consider private equity to be part of the overall Developed Markets Equities allocation; however, as a reliable performance index is not available, it has been excluded from year-to-date returns/TAA weightings bar chart above. Diversification does not guarantee against losses. Past performance does not guarantee future results.

See Figure 3 for benchmark indices used. The benchmark indices are used for comparison purposes only. It is not possible to invest in these indices, and the indices are not subject to any fees or expenses.

Figure 3: SAA, TAA and tilts with key regional sub asset classes (Moderate Risk Profile)

Asset Class (including key regional sub asset classes)	Recommended allocation		Tilt
	SAA	TAA	SAA vs. TAA
Cash & Short-maturity Bonds	7%	11%	+4%
Cash	0%	8%	+8%
Short-maturity Bonds	7%	3%	-4%
Developed Government Bonds	4%	4%	0%
US Government Bonds	4%	4%	0%
Investment Grade Bonds	7%	5%	-2%
US Investment Grade Bonds	7%	5%	-2%
High Yield & Emerging Markets Bonds	11%	5%	-6%
US High Yield Bonds	5%	5%	0%
Emerging Markets Bonds	6%	0%	-6%
Developed Markets Equities	38%	45%	+7%
US Large Cap Equities	12%	14%	+2%
US Smid Cap Equities	5%	7%	+2%
Non-US Developed Markets Equities	16%	19%	+3%
Developed Private Equity	5%	5%	0%
Emerging Markets Equities	10%	10%	0%
Emerging Markets Equities	10%	10%	0%
Commodities	5%	2%	-3%
Real Estate	4%	4%	0%
US Developed Public Real Estate	4%	4%	0%
Alternative Trading Strategies	14%	14%	0%
Global Macro Strategies	3.5%	3.5%	0%
Relative Value Strategies	3.5%	4.2%	+.70%
Event Driven Strategies	3.5%	4.9%	+1.40%
Managed Futures	3.5%	1.4%	-2.1%

Gray = TAA is slightly underweight the SAA. Light blue = TAA is slightly overweight the SAA.
Source: Barclays Wealth and Investment Management, Americas Investment Committee, as first published on October 16, 2014.

Cash and Short-maturity Bonds: Cash by Barclays 3-6 month T-bills; Short-maturity Bonds by Barclays 1-3 Year US Treasury; **Developed Government Bonds**: US Government Bonds by Barclays US Treasury; **Investment Grade Bonds:** US Investment Grade Bonds by Barclays US Aggregate Corporate; **High-Yield and Emerging Markets Bonds:** US High Yield Bonds by Barclays US Corporate High Yield; Emerging Markets Bonds by JP Morgan GBI-EM Total Return Diversified; **Developed Markets Equities**: US Large Cap Equities by Russell 1000; US Smid Cap Equities by Russell 2500; Non-US Developed Markets Equities by MSCI EAFE Net Return; **Emerging Markets Equities** by MSCI EM; **Commodities** by Bloomberg Commodity Index; **Real Estate:** US Developed Public Real Estate by FTSE NAREIT US – ALL Equity REITs; **Alternative Trading Strategies:** Global Macro Strategies by Barclays Hedge Fund Global Macro Index; Relative Value Strategies by HFRI Relative Value Index; Event Driven Strategies by Dow Jones CS Event Driven Index; Managed Futures by Dow Jones CS Managed Futures Index. The benchmark indices are used for comparison purposes only. It is not possible to invest in these Indices; they are not subject to any fees or expenses.

Barclays' key macroeconomic projections

Figure 1: Real GDP and consumer prices (% y-o-y)

	Real GDP			Consumer prices		
	2013E	2014F	2015F	2013E	2014F	2015F
Global	3.1	3.1	3.5	2.6	2.8	2.9
Advanced	1.3	1.7	2.1	1.3	1.4	1.4
Emerging	4.8	4.6	4.9	4.8	5.0	5.4
United States	2.2	2.2	2.8	1.5	1.7	1.4
Euro area	-0.4	0.7	1.1	1.4	0.5	0.7
Japan	1.5	0.9	1.2	0.4	2.7	2.3
United Kingdom	1.7	3.0	2.7	2.6	1.6	1.8
China	7.7	7.4	7.0	2.6	2.3	2.8
Brazil	2.5	0.2	1.0	6.2	6.3	6.4
India	4.5	5.3	6.4	6.3	4.9	5.2
Russia	1.3	0.0	-0.5	6.8	7.5	7.3

Source: Barclays Research, *Global Economics Weekly*, 24 October 2014
Note: Arrows appear next to numbers if current forecasts differ from previous week by 0.2pp or more. Weights used for real GDP are based on IMF PPP-based GDP (5yr centered moving averages). Weights used for consumer prices are based on IMF nominal GDP (5yr centered moving averages). There can be no guarantees that these projections will be achieved.

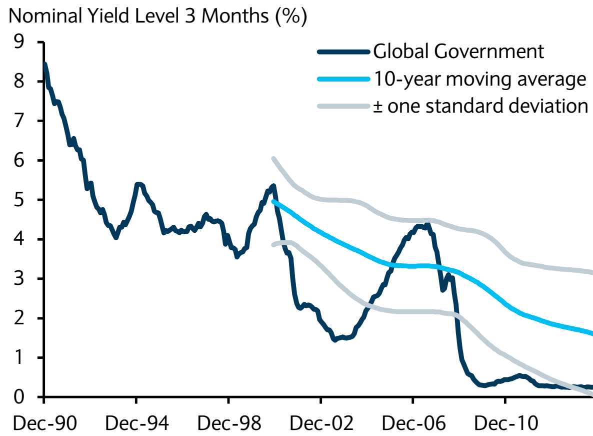
Figure 2: Central bank policy rates (%)

Official rate % per annum (unless stated)	Current	Forecasts as at end of Q4 14	Q1 15	Q2 15
Fed funds rate	0-0.25	0-0.25	0-0.25	0.25-0.50
ECB main refinancing rate	0.05	0.05	0.05	0.05
Bank of Japan overnight rate	0.10	0-0.10	0-0.10	0-0.10
Bank of England bank rate	0.50	0.50	0.75	1.00
China: 1y bench. lending rate	6.00	5.75	5.50	5.50
Brazil: SELIC rate	11.00	11.00	11.00	11.00
India: Repo rate	8.00	8.00	7.75	7.50
Russia: One-week repo rate	8.00	8.50	8.50	8.50

Source: Barclays Research, *Global Economics Weekly*, 24 October 2014
Note: Rates as of COB 24 October 2014.There can be no guarantees that these projections will be achieved.

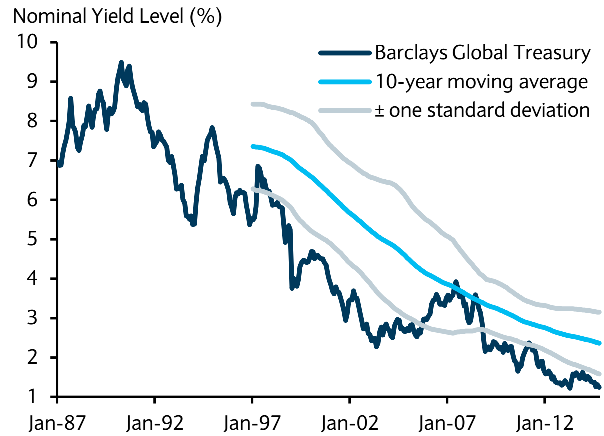
Interest rates, bond yields, and commodity and equity prices in context*

Figure 1: Short-term interest rates (global)



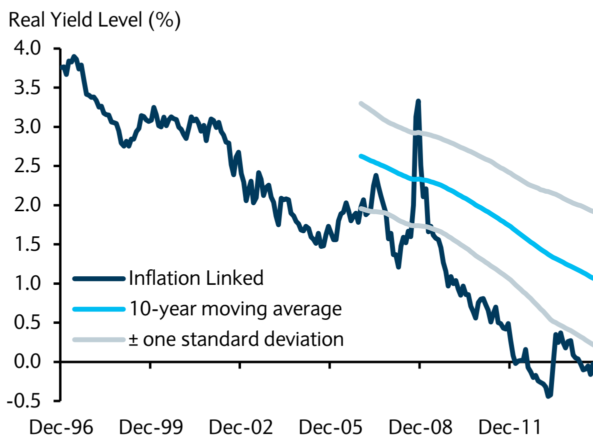
Source: FactSet, Barclays

Figure 2: Government bond yields (global)



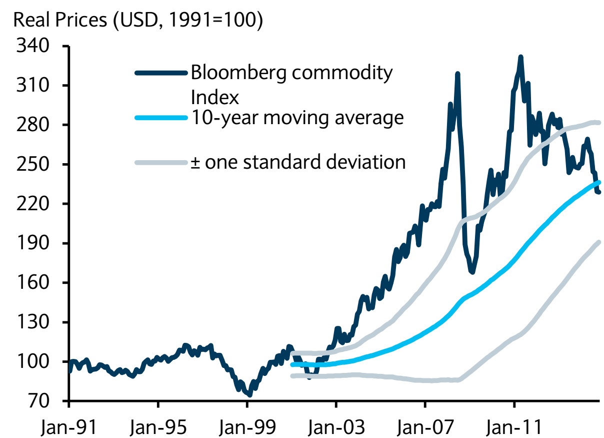
Source: FactSet, Barclays

Figure 3: Inflation-linked real bond yields (global)



Source: Bank of America Merrill Lynch, Datastream, FactSet, Barclays

Figure 4: Inflation-adjusted spot commodity prices



Source: Datastream, Barclays

Figure 5: Government bond yields: selected markets

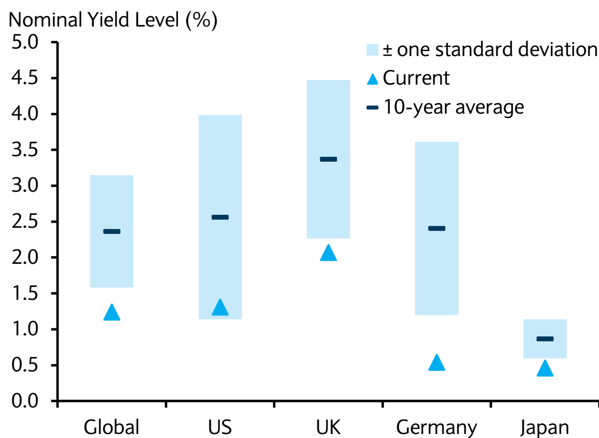
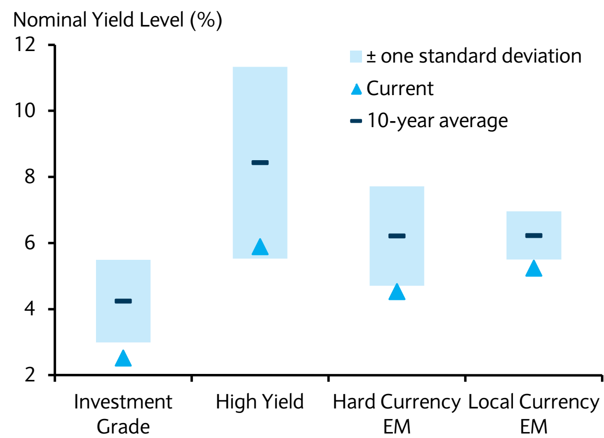


Figure 6: Global credit and emerging market yields



*Monthly data with final data point as of COB 28 October 2014. Past performance does not guarantee future results. An investment cannot be made directly in a market index. Source for Figures 5-6: FactSet, Barclays

Figure 7: Developed stock market, forward PE ratio

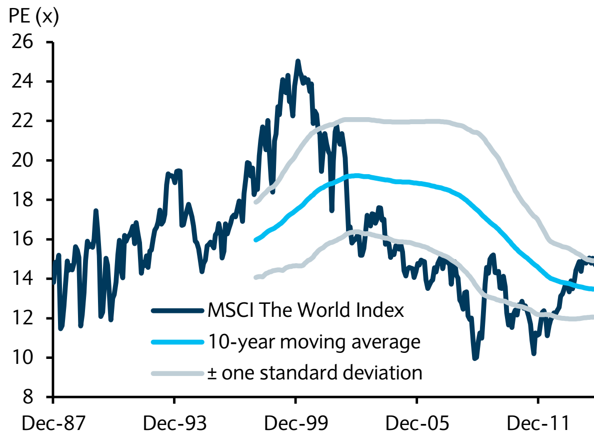


Figure 8: Emerging stock market, forward PE ratio

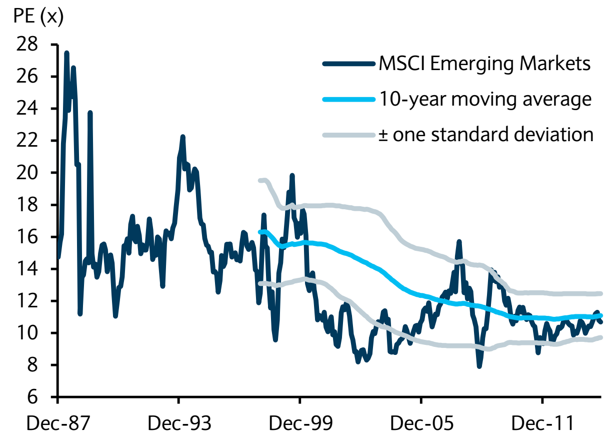


Figure 9: Developed world dividend and credit yields

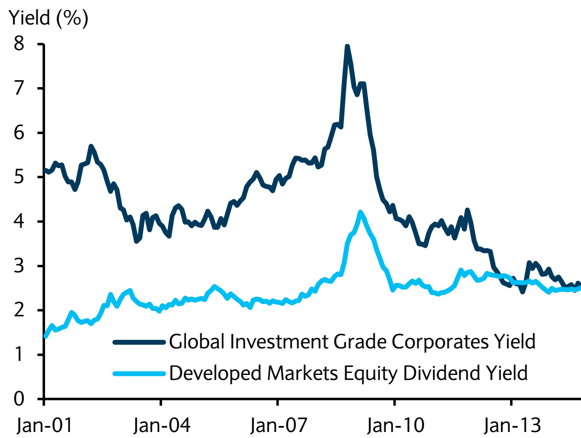


Figure 10: Regional quoted-sector profitability

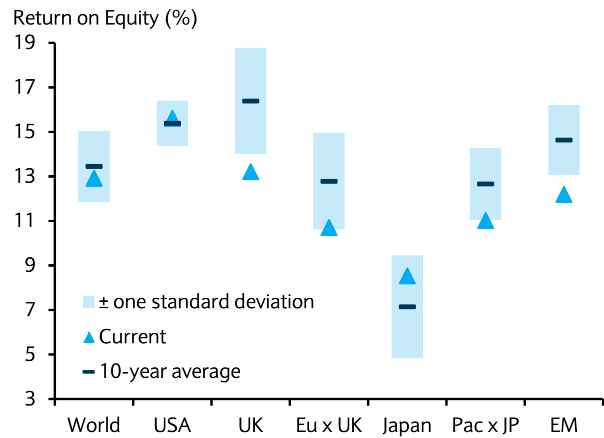


Figure 11: Global stock markets: forward PE ratios

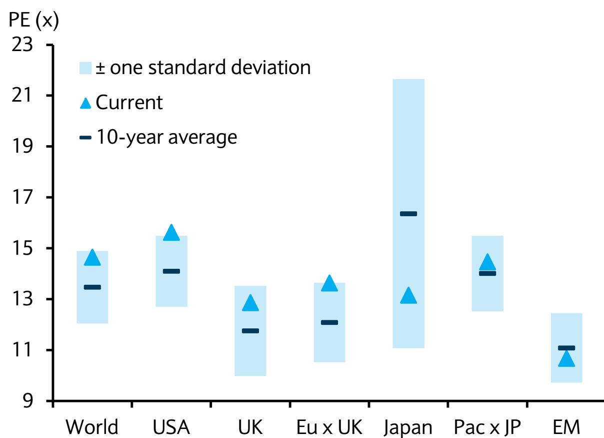
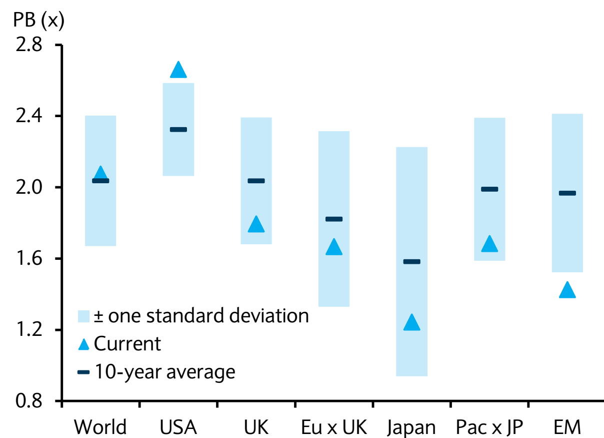


Figure 12: Global stock markets: price/book value ratios



All sources on this page: MSCI, IBES, FactSet, Datastream, Barclays
Past performance does not guarantee future results. An investment cannot be made directly in a market index.

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All end points of data for figures in this document are the same day as source dates unless otherwise indicated.
Chartered Financial Analyst Institute owns the **CFA** designation, which it awards to individuals who successfully complete rigorous certification requirements.

Asset class risks

Alternative Trading Strategy – There are specific concerns related to alternative investment strategies with respect to private wealth clients. These include: investor taxability; suitability of funds that require long lock-up periods for investors with liquidity needs or multiple investment horizons; communicating complex strategies to a non-professional client; greater likelihood of decision risk (changing strategies at the point of maximum loss) and clients whose wealth stems from concentrated positions in closely held companies may not be suited to other illiquid investments.

Bonds – Bonds are subject to market, interest rate and credit risk; and are subject to availability and market conditions. Generally, the higher the interest rate the greater the risk. Bond values will decline as interest rates rise. Government bonds are subject to federal taxes. **Municipal bond interest** may be subject to the alternative minimum tax; other state and local taxes may apply. **High yield bonds**, also known as "junk bonds" are subject to additional risks such as the increased risk of default. Debt securities may be subject to call features or other redemption features, such as sinking funds, and may be redeemed in whole or in part before maturity. These occurrences may affect yield. Like all bonds, corporate bonds tend to rise in value when interest rates fall, and they fall in value when interest rates rise. The longer the maturity of the bond, the greater the degree of price volatility. If you hold a bond until maturity, you may be less concerned about these price fluctuations (which are known as interest rate risk or market risk), because you will receive the par or face value of your bond at maturity. **Distressed Debt** – Although distressed debt opportunities are cyclical, in that they multiply during economic slowdowns, the time taken to profit from them depends on how long a firm takes to restructure, which varies from one case to another. The process can be lengthy - for instance, if the negotiations between a firm's management team and its creditors start to drag. Event risk relates to unexpected company-specific or situation-specific events that affect valuation. Market liquidity risk arises because distressed securities are less liquid, and demand runs in cycles. J-factor risk relates to the judge presiding over bankruptcy proceedings. The track record in adjudication and restructuring can play a significant role in both the overall outcome and determining the optimum securities in which to invest.

Cash Equivalents – Portfolios that invest in very short-term securities provide taxable or tax-advantaged current income, pose little risk to principal and offer the ability to convert the investment into cash quickly. These investments may result in a lower yield than would be available from investments with a lower quality or longer term.

Commodities – Commodities are assets that have tangible properties, such as oil, metals, and agricultural products. An investment in commodities may not be suitable for all investors. Commodities may be affected by overall market movements and other factors that affect the value of a particular industry or commodity, such as weather, disease, embargoes, or political and regulatory developments. Commodities are volatile investments and should only form a small part of a diversified portfolio. Diversification does not ensure against loss. Consult your investment representative to help you determine whether a commodity investment is right for you. Market distortion and disruptions have an impact on commodity performance and may impact the performance and values of products linked to commodities or related commodity indices. The levels, values or prices of commodities can fluctuate widely due to supply and demand disruptions in major producing or consuming regions.

Equities – Large Growth and Value Stocks – Portfolios that emphasize large and established US companies may involve price fluctuations as stock market conditions change.

Stocks of small- and mid-capitalization companies tend to involve more risk than stocks of larger companies. Investments in small- and mid-sized corporations are more vulnerable to financial risks and other risks than larger corporations and may involve a higher degree of price volatility than investments in the general equity markets.

International/Global Investing/Emerging Markets – International investing may not be suitable for every investor and is subject to additional risks, including currency fluctuations, political factors, withholding, lack of liquidity, the absence of adequate financial information, and exchange control restrictions impacting foreign issuers. These risks may be magnified in emerging markets.

Real Estate Investment Trusts (REITs) – The properties held by REITs could fall in value for a variety of reasons, such as declines in rental income, poor property management, environmental liabilities, uninsured damage, increased competition, or changes in real estate tax laws. There is a risk that REIT stock prices overall will decline over short or even long periods because of rising interest rates. Other risks include: **Sensitive to Demand for Other High-Yield Assets**. Generally, rising interest rates could make Treasury securities more attractive, drawing funds away from REITs and lowering their share prices. **Property Taxes**. REITs must pay property taxes, which can make up as much as 25% of total operating expenses. State and municipal authorities could increase property taxes to make up for budget shortfalls, reducing cash flows to shareholders. **Tax Rates**. One of the downsides to the high yield of REITs is that taxes are due on dividends, and the tax rates are typically higher than the 15% most dividends are currently taxed at. This is because a large chunk of a REIT's dividends (typically about three quarters, though it varies widely by REIT) is considered ordinary income, which is usually taxed at a higher rate.

Index definitions

Barclays EM Local Currency Governments Index is a broad-based index that measures the total return of 20 different local currency government debt markets spanning Latin America, Europe, the Middle East, Africa and Asia.

Barclays Global Aggregate Index – Corporates – The corporates portion of the Barclays Global Aggregate index grouping.

Barclays Global Governments 1-3 years Index– The 1-3 Yr component of the Barclays Global Treasury Index. The Barclays Global Treasury Index tracks fixed-rate local currency government debt of investment grade countries. The index represents the Treasury sector of the Global Aggregate Index and currently contains issues from 38 countries denominated in 23 currencies. The three major components of this index are the U.S. Treasury Index, the Pan-European Treasury Index, and the Asian-Pacific Treasury Index, in addition to Canadian, Chilean, Mexican, and South-African government bonds. The index was created in 1992, with history backfilled to January 1, 1987.

Barclays Global Governments 7-10 years Index – the 7-10 Yr component of the Barclays Global Treasury Index. The Barclays Global Treasury Index tracks fixed-rate local currency government debt of investment grade countries. The index represents the Treasury sector of the Global Aggregate Index and currently contains issues from 38 countries denominated in 23 currencies. The three major components of this index are the US Treasury Index, the Pan-European Treasury Index, and the Asian-Pacific Treasury Index, in addition to Canadian, Chilean, Mexican, and South-African government bonds. The index was created in 1992, with history backfilled to January 1, 1987.

The **Barclays Global Emerging Markets Index** represents the union of the USD-denominated U.S. Emerging Markets Index and the predominately EUR-denominated Pan Euro Emerging Markets Index, covering emerging markets in the following regions: Americas, Europe, Middle East, Africa, and Asia. As with other fixed income benchmarks provided by Barclays, the index is rules-based, which allows for an unbiased view of the marketplace and easy replicability.

Barclays Global High Yield Index represents the US High Yield Index, Pan-European High Yield Index, High Yield CMBS Index, and non-investment grade portion of the Barclays Global Emerging Markets Index.

Barclays Global Treasury Index tracks fixed-rate local currency government debt of investment grade countries. The index represents the Treasury sector of the Global Aggregate Index and currently contains issues from 37 countries denominated in 23 currencies. The three major components of this index are the U.S. Treasury Index, the Pan-European Treasury Index, and the Asian-Pacific Treasury Index, in addition to Canadian, Chilean, Mexican, and South-African government bonds.

Barclay Hedge Global Macro Index– Represents a measure of the average return of the macro geared/strategized hedge funds within the Barclay database whose positions concertedly reflect the direction of the overall market as attributed to major economic trends and events. The portfolios of these funds are comprised of an offering of stocks, bonds, currencies and commodities in the form of cash or derivative instruments. A majority of these index linked funds invest globally in both developed and emerging markets.

Barclays Municipal Bond Index – The Index currently contains approximately 46,200 bonds. To be included in the index, bonds must be rated investment-grade ("Baa3/BBB-" or higher) by at least two of the following ratings agencies: Moody's, Standard & Poor's and Fitch, if all three rate the bond. If only two of the three agencies rate the bond, the lower rating is used to determine index eligibility. If only one of the three agencies rates a bond, the rating must be investment-grade. To be included in the index, bonds must have an outstanding par value of at least $7 million and be issued as part of a transaction of at least $75 million. The bonds must be fixed rate, have a dated-date after December 31, 1990, and must be at least one year from their maturity date.

Barclays Short Treasury Index – this index is composed of all treasuries that have a remaining maturity between one and twelve months.

Barclays Treasury Bill Index includes US Treasury bills with a remaining maturity from 1 month up to (but not including) 12 months. It excludes zero coupon strips.

Barclays U.S. 1-3 Yr. Treasury Index – Barclays Capital 1-3 Year U.S. Government/Credit Index is composed of all bonds of investment grade with a maturity between one and three years.

Barclays US 3-6 Mo. Treasury Index – Comprised of all treasuries with 3-6 month maturities purchased at the beginning of each month and held for a full month. At the end of the month, issues with less than three months to maturity are sold and rolled into newly selected issues.

Barclays US Aggregate Bond Index – The index is market capitalization weighted that includes Treasury securities, Government agency bonds, Mortgage-backed bonds and Corporate bonds. It excludes Municipal bonds and Treasury Inflation-Protected securities because of tax treatment.

Barclays US. Aggregate Corporate Index – An unmanaged index considered representative of the U.S. investment-grade, fixed-rate bond market.

Barclays US Corporate High Yield Index measures the US corporate market of non-investment grade, fixed-rate corporate bonds. Securities are classified as high yield if the middle rating of Moody's, Fitch, and S&P is Ba1/BB+/BB+ or below.

Barclays US Data Surprise Index – This index shows the degree to which economic analysts under- or over-estimate the trends in the business cycle. The surprise element is defined as the percentage (or percentage point) difference between analyst forecasts and the published value of economic data releases.

Barclays U.S. Treasury Index – The index includes public obligations of the U.S. Treasury with a remaining maturity of one year or more.

Barclays US Aggregate Treasury 7-10 year Index – A subset of the U.S. Treasury Index, which includes public obligations of the U.S. Treasury. Treasury bills are excluded by the maturity constraint but are part of a separate Short Treasury Index. In addition, certain special issues, such as state and local government series bonds (SLGs), as well as U.S. Treasury TIPS, are excluded. STRIPS are excluded from the index because their inclusion would result in double-counting. Securities in the index roll up to the U.S. Aggregate, U.S. Universal, and Global Aggregate Indices. The U.S. Treasury Index was launched on January 1, 1973

Barclays Euro Aggregate Treasury 7-10 year Index – this index includes issues with 7-10 year maturities that are issued in the euro or the legacy currencies of the 16 sovereign countries participating in the European Monetary Union (EMU). All issues must be investment grade rated, fixed-rate securities with at least one year remaining to maturity. The Euro-Aggregate Index excludes convertible securities, floating rate notes, perpetual notes, warrants, linked bonds, and structured products. German Schuldscheine (quasi-loan securities) are also excluded because of their trading restrictions and unlisted status, which results in illiquidity. The country of issue is not an index criterion, and securities of issuers from outside the Eurozone are included if they meet the index criteria.

Bloomberg Commodity Index measures price movements of the commodities included in the appropriate sub index. It does not account for effects of rolling futures contracts or costs associated with holding the physical commodity.

Dow Jones CS Event Driven Index – Represents an aggregate of Event Driven funds. Event driven funds typically invest in various asset classes and seek to profit from potential mispricing of securities related to a specific corporate or market event. Such events can include: mergers, bankruptcies, financial or operational stress, restructurings, asset sales, recapitalizations, spin-offs, litigation, regulatory and legislative changes as well as other types of corporate events. Event driven funds can invest in equities, fixed income instruments (investment grade, high yield, bank debt, convertible debt and distressed), options and various other derivatives. Many event driven fund managers use a combination of strategies and adjust exposures based on the opportunity sets in each subsector.

Dow Jones CS Managed Futures Index – Focuses on investing in listed bond, equity, commodity futures and currency markets, globally. Managers tend to employ systematic trading programs that largely rely upon historical price data and market trends. A significant amount of leverage is employed since the strategy involves the use of futures contracts. CTAs do not have a particular bias towards being net long or net short any particular market.

The **EURO STOXX 50 Index**, Europe's leading Blue-chip index for the Euro zone, provides a Blue-chip representation of supersector leaders in the Euro zone. The index covers 50 stocks from 12 Euro zone countries: Austria, Belgium, Finland, France, Germany, Greece, Ireland, Italy, Luxembourg, the Netherlands, Portugal and Spain. The EURO STOXX 50 Index is licensed to financial institutions to serve as underlying for a wide range of investment products such as Exchange Traded Funds (ETF), Futures and Options, and structured products worldwide.

FTSE All Country Local Currency Index – The **FTSE All World Index** covers 48 different countries and approximately 2700 stocks. The indices aim to capture up to 90%-95% of the investable market capitalization of a country, incorporating both large and medium cap stocks.

FTSE EPRA/NAREIT Global Developed Index is designed to track the performance of listed real estate companies and Real Estate Investment Trusts (REITs) worldwide. It incorporates REITs and Real Estate Holding & Development companies. Index constituents are free float-adjusted and screened for liquidity, size and revenue screened.

FTSE NAREIT - All Equity REITs Index – An index that consists of all Real Estate Investment Trusts that currently trade on the New York Stock Exchange, the NASDAQ National Market System and the American Stock Exchange. Equity REITs include all tax-qualified REITs with more than 50 percent of total assets in qualifying real estate assets other than mortgages secured by real property.

HFRI Relative Value TR Index is comprised of investment managers who maintain positions in which the investment thesis is predicated on realization of a valuation discrepancy in the relationship between multiple securities. Managers employ a variety of fundamental and quantitative techniques to establish

investment theses, and security types range broadly across equity, fixed income, derivative or other security types. Fixed income strategies are typically quantitatively driven to measure the existing relationship between instruments and, in some cases, identify attractive positions in which the risk adjusted spread between these instruments represents an attractive opportunity for the investment manager. Relative Value is further subdivided into eight sub-strategies: Asset Backed, Convertible Arbitrage, Corporate, Sovereign, Volatility, Yield Alternatives-Energy Infrastructure, Yield Alternatives-Real Estate, and Multi-Strategy.

HFRX Global Hedge Fund Index is comprised of all eligible hedge fund strategies including, but not limited to: convertible arbitrage, distressed securities, equity hedge, equity market neutral, event driven, macro, merger arbitrage, and relative value arbitrage. The strategies are asset weighted based on the distribution of assets in the hedge fund industry.

Ibovespa Brasil Sao Paulo Stock Exchange Index – A gross total return index weighted by traded volume and is comprised of the most liquid stocks traded on the Sao Paulo Stock Exchange.

ISM Manufacturing Index – An index that assesses the state of US manufacturing sector by surveying executives on expectations for future production, new orders, inventories, employment and deliveries. Values over 50 generally indicate an expansion, while values below 50 indicate contraction.

JP Morgan GBI-EM Total Return Diversified Index – The JPMorgan Government Bond Index-Emerging Markets (GBI-EM) indices are comprehensive emerging market debt benchmarks that track local currency bonds issued by Emerging Market governments. The Diversified version was launched in January 2006.

Purchasing Managers' Index (PMI) – An indicator of the economic health of the manufacturing sector. The PMI index is based on five major indicators: new orders, inventory levels, production, supplier deliveries and the employment environment. A PMI of more than 50 represents expansion of the sector, compared to the previous month. A reading under 50 represents a contraction, while a reading at 50 indicates no change.

MSCI All Country World Index represents a free float-adjusted market capitalization weighted index that is designed to measure the equity market performance of developed and emerging markets. As of June 2009 the MSCI ACWI consisted of 45 country indices comprising 23 developed and 22 emerging market country indices. The developed market country indices included are: Australia, Austria, Belgium, Canada, Denmark, Finland, France, Germany, Greece, Hong Kong, Ireland, Italy, Japan, Netherlands, New Zealand, Norway, Portugal, Singapore, Spain, Sweden, Switzerland, the United Kingdom and the United States. The emerging market country indices included are: Brazil, Chile, China, Colombia, Czech Republic, Egypt, Hungary, India, Indonesia, Israel, Korea, Malaysia, Mexico, Morocco, Peru, Philippines, Poland, Russia, South Africa, Taiwan, Thailand, and Turkey.

The **MSCI China Index** provides coverage of the large and mid cap segments in China and is constructed according to the MSCI Global Investable Market Indexes Methodology. The MSCI China Index is part of the MSCI Emerging Markets index.

MSCI EAFE Index – The MSCI EAFE Index is a free float-adjusted market capitalization weighted index that is designed to measure the equity market performance of developed equity. As of January 2012 the MSCI EAFE Index consisted of the following 22 developed country indices: Australia, Austria, Belgium, Denmark, Finland, France, Germany, Greece, Hong Kong, Ireland, Israel, Italy, Japan, Netherlands, New Zealand, Norway, Portugal, Singapore, Spain, Sweden, Switzerland, and the United Kingdom.

MSCI EM Index represents a free float-adjusted market capitalization index that is designed to measure equity market performance of emerging markets. As of February 2013, the MSCI Emerging Markets Index includes 23 emerging market country indices: Argentina, Brazil, Chile, China, Colombia, Czech Republic, Egypt, Hungary, India, Indonesia, Israel, Korea, Malaysia, Mexico, Morocco, Peru, Philippines, Poland, Russia, South Africa, Taiwan, Thailand, and Turkey.

MSCI EM LatAm Index – captures large and mid cap representation across 5 Emerging Markets (EM) countries* in Latin America. With 140 constituents, the index covers approximately 85% of the free float-adjusted market capitalization in each country.

MSCI EM Asia Index – captures large and mid cap representation across 8 Emerging Markets countries*. With 535 constituents, the index covers approximately 85% of the free float-adjusted market capitalization in each country.

MSCI EM FX Index – tracks performance twenty-five emerging-market currencies relative to the US Dollar.

MSCI EMU Index measures the performance of stocks based in the European Economic and Monetary Union. It consists of stocks in the following 11 developed-market countries: Austria, Belgium, Finland, France, Germany, Greece, Ireland, Italy, the Netherlands, Portugal and Spain. The index contains almost 300 stocks and represents about 85% of the market capitalization in these countries.

The **MSCI Europe ex UK Index** captures large and mid cap representation across 14 Developed Markets (DM) countries in Europe*. With 330 constituents, the index covers approximately 85% of the free float-adjusted market capitalization across European Developed Markets excluding the UK.

The **MSCI USA Index** is designed to measure the performance of the large and mid cap segments of the US market. With 617 constituents, the index covers approximately 85% of the free float-adjusted market capitalization in the US.

MSCI World Index represents a free float-adjusted market capitalization weighted index that is designed to measure the equity market performance of developed markets. As of February 2013, it includes 24 developed market country indices: Australia, Austria, Belgium, Canada, Denmark, Finland, France, Germany, Greece, Hong Kong, Ireland, Israel, Italy, Japan, Netherlands, New Zealand, Norway, Portugal, Singapore, Spain, Sweden, Switzerland, the United Kingdom, and the United States.

MSCI World ex EMU Index captures large and mid cap representation across 13 of 23 Developed Markets countries* (excluding those in the EMU): Australia, Canada, Denmark, Hong Kong, Israel, Japan, New Zealand, Norway, Singapore, Sweden, Switzerland, the UK and the US. With 1,373 constituents, the index covers approximately 85% of the free float-adjusted market capitalization in each country.

NAREIT Global RE Hedged Index – The FTSE EPRA/NAREIT Developed Real Estate Index Series is broken down into eight index families and 141 indices in Asia Pacific, Europe and North America. It is the FTSE EPRA/NAREIT Developed Total Return Index in USD.

NCREIF TBI Index – A quarterly time series composite total rate of return measure of investment performance of a very large pool of individual commercial real estate properties acquired in the private market for investment purposes only. All properties in the NPI have been acquired, at least in part, on behalf of tax-exempt institutional investors - the great majority being pension funds. As such, all properties are held in a fiduciary environment.

Nikkei 225 Index – the leading and most-respected index of Japanese stocks. It is a price-weighted index comprised of Japan's top 225 blue-chip companies on the Tokyo Stock Exchange. The Nikkei is equivalent to the Dow Jones Industrial Average Index in the U.S. In fact, it was called the Nikkei Dow Jones Stock Average from 1975 to 1985.

Russell 1000 Index – measures the performance of the 1,000 largest companies in the Russell 3000 Index, which represents approximately 92% of the total market capitalization of the Russell 3000 Index. As of December 31, 2011, the weighted average market capitalization was approximately $86.1 billion; the median market capitalization was approximately $5.1 billion.

Russell 2000 Index – A Frank Russell index which consists of the 2,000 smallest securities in the Russell 3000 Index, representing approximately 8% of the Russell 3000 market capitalization. This index is widely regarded in the industry as the premier measure of small capitalization stocks. Dividends are reinvested. Indices are unmanaged, do not reflect the deduction of fees and expenses and cannot accommodate direct investments.

Russell 2500 Index – Measures the performance of the 2,500 smallest companies in the Russell 3000 Index. The index is market cap-weighted and

includes only common stocks incorporated in the United States and its territories.
Russell 3000 Index – A market capitalization weighted equity index maintained by the Russell Investment Group that seeks to be a benchmark of the entire U.S. stock market. This index encompasses the 3,000 largest U.S.-traded stocks, in which the underlying companies are all incorporated in the U.S.
The **Standard & Poor's (S&P) 100 Index** is a capitalization-weighted index based on 100 highly capitalized stocks selected from the S&P 500 index for which options are listed.
The **Standard & Poor's (S&P) 500 Index** represents a free-float capitalization-weighted index published since 1957 of the prices of 500 large-cap common stocks actively traded in the United States. The stocks included in the S&P 500 are those of large publicly held companies that trade on either of the two largest American stock market companies; the NYSE Euronext and the NASDAQ OMX. A selection committee selects the companies in the S&P 500 so they are representative of the industries in the United States economy.

An investment cannot be made directly in a market index.

Other definitions
Asset-backed securities (ABS) – Securities whose income payments and hence value is derived from and collateralized (or "backed") by a specified pool of underlying assets. The pool of assets is typically a group of small and illiquid assets which are unable to be sold individually.
Duration – A measure of the sensitivity of the price (the value of principal) of a fixed-income investment to a change in interest rates. Duration is expressed as a number of years. Rising interest rates mean falling bond prices, while declining interest rates mean rising bond prices.
Institute for Supply Management (ISM) – A non-profit organization that serves professionals, who are employed in the supply management profession. The Institute for Supply Management provides educational resources to its members, as well as creating industry standards. ISM polls its members about factors affecting their business, compiling this information in reports, such as the Purchasing Managers Index (PMI).
Price-to-Book Value (P/B) – A valuation metric that compares a stock's market value to its book value. Book value refers to a company's total assets minus its total liabilities. It is calculated by dividing the current closing price of the stock by the latest quarter's book value per share. Another way is to divide the current share price by the book value per share.
Price-to-earnings (P/E) multiple – The ratio of a stock's price to the company's earnings per share (EPS). It is calculated by dividing the stock's price by its EPS. It is a measure of how much an investor is paying for earnings.
Quantitative Easing (QE) – A monetary policy pursued by a central bank, in this case the Federal Reserve, that increases the bank's balance sheet through the regular purchase of government and other securities. It increases the money supply by providing financial institutions with capital in an effort to promote increased liquidity. QE is used when central bank interest rates are near zero and cannot be lowered by much. For more information, see *http://www.federalreserve.gov* website.
Targeted longer-term refinancing operations (TLTROs) – On 5 June 2014 the European Central Bank announced Targeted Long-Term Repo Operations (TLTROs]. Their main purpose is to stimulate bank lending to non-financial corporations. The operations would offer conditional cheap funding to banks in large size and for maturities of up to four years. Private loan conditions should ease in response, particularly in the euro area periphery, but the impact on area-wide credit is uncertain. Also, TLTROs might effectively be used for government bond carry trades.

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Past performance does not guarantee future returns.

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