



ColumbiaManagement®



Columbia Management 2015 Perspectives

Outlook on the financial markets and economy



About Columbia Management

Backed by more than 100 years of experience, Columbia Management is one of the nation's largest asset managers. At the heart of our success — and, most importantly, that of our investors — are some of the most talented professionals in the industry, brought together by a unique way of working.

It starts with carefully selected, specialized investment teams. While each team brings a diverse and innovative range of skills, all are grounded by a common set of core beliefs. All possess a solid conviction in the power of proprietary, bottom-up research. All look not only at generating returns, but also at the likely consistency of those returns and the risks required to achieve them. And while our culture encourages teams to operate independently and question established thinking, a rigorous investment oversight process ensures that each team stays true to its clearly articulated investment process. At Columbia Management, reaching our performance goals matters, and the way we reach them matters just as much.



Pulling back the lens



It has been a privilege to collaborate with the authors of the Columbia Management *2015 Perspectives* outlook. I found this year's work helped reinforce the importance of maintaining a longer term framework in considering investment strategies. Given the high volume of data, media and punditry to which we are subjected, it is a constant challenge to align the execution of our strategies with the successful outcome of longer term goals. Taking time to reflect on the past year and look to the year ahead can help one rise above the day-to-day noise and see the broader picture.

Establish clear goals

For all investors, the first step in making prudent investment choices is to clearly define your goals. What are the outcomes you aim to achieve, and does your portfolio realistically align with those aspirations? "Trending: Socially responsible fixed-income investing" is a timely reminder that many investors have goals that transcend balancing financial returns and risks. We strongly believe that ethical goals can be compatible with desired investment performance. We also believe that adding an ethical dimension to investment decision-making will continue to be an increasing market focus.

Assess the landscape

The end of year is an appropriate time to take bearings on our investment journey. We want to maintain a long-term perspective but need to consider whether the environment around us has changed. And while we all want to be the first to spot a change, sometimes the reality is that when you add it all up, the fundamental path remains the same. That is the conclusion of Global Head of Investment Solutions and Asset Allocation Jeff Knight and Senior Portfolio Manager Dave King. Both gentlemen note that perhaps the real surprise for 2015 will be the lack of change to the core outlook.

This does not mean there won't be twists and turns along the way. As Portfolio Manager and Strategist Zach Pandl points out, we are likely to see the end of the Federal Reserve's liquidity trap, potentially eliminating a core tailwind for U.S. fixed-income assets. Still, as Chief Economist Marie Schofield writes, the U.S. economy has room to run at a healthy, sustained pace. Senior Portfolio Manager Anwiti Bahuguna concludes that the overall weakness in emerging market growth seems likely to persist. And while Paul Doyle and Dan Ison from our European equity team see selective opportunities, they do not anticipate broad economic acceleration.

From 10,000 feet, the overall environment appears awfully similar to what we have been experiencing. Low overall global growth, low interest rates and reasonably high absolute asset valuations suggest it may be appropriate for investors to set modest expectations for nominal returns.

Establish a solid foundation

As with building any structure, a comprehensive investment strategy starts with a solid foundation. While low rates make it unlikely that supernormal fixed-income returns will persist, fixed income remains a core pillar of any diversified portfolio. Director of Fixed Income Research Kirk Moore cuts to the basics of the asset class by reasserting the strong case for fixed income as a vehicle to first and foremost protect one's principal. Senior Portfolio Managers Gene Tannuzzo and Tom Murphy dive deeper to reveal where they believe opportunities exist.

On the equity side of the ledger, Portfolio Manager Dave Dudding reminds us that using a longer term discipline focused on fundamental competitive advantages ("moats") can help investors seize opportunities created by undue short-term fear in the markets. Finally, Head of Quantitative Research Jason Wang makes some important points about the nature of active investing. He reminds us that portfolios should be constructed to limit exposure to the influence of unintended factors. Such portfolio construction allows investors to potentially win the investment performance war — by systematically picking a diverse array of smaller battles where inefficiencies are more likely to remain undiscovered.

Picking smaller battles

We pursue investment returns in a world that is increasingly driven by asset allocators who move huge amounts of money through liquid passive vehicles, such as index funds. These passive tools and strategies can be convenient and useful. However, by their nature they make broad-brush investments based on simple rules, usually governed by the composition of an index. We believe the continued growth of these vehicles as a percentage of trading volume is creating inefficiencies within markets. Furthermore, we believe these inefficiencies are exploitable by investors who have the staying power to wait as fundamentals are eventually reflected in market pricing.

Our quantitative models pursue these inefficiencies by breaking the markets down into increasingly granular pieces and applying very specific, differentiated analysis to those sub-sectors. Our dedicated central analyst teams also perform this role. Director of Equity Research Tom West points out that opportunities exist among innovators, especially where businesses risk obsolescence because they have underinvested in their own futures to boost today's cash flows. There are still opportunities for underappreciated innovators to grow beyond expectations. We're seeing this in the explosive productivity of the biotechnology industry.

Our small-cap equity team forecasts a revival of relative prospects for small-cap investing. Undiscovered inefficiencies are more prevalent among small caps, and recent underperformance has driven more attractive valuations for investors, as well as for companies pursuing mergers and acquisitions. Head of Asian Equities for Threadneedle Investments Soo Nam Ng notes that the sustainability of growth is improving across

emerging Asia. While overall levels of growth remain under pressure across the region, there are examples of countries, sectors and individual companies making significant strides toward higher quality growth models, bringing the potential for valuations to rise.

Expanding the investment toolkit

With an expected backdrop of low absolute returns from traditional corners of the financial markets, yet no diminution in the risk of volatility, it makes sense to consider expanding one's arsenal of investment tools. Deputy Head of Global Investment Solutions Bill Landes shares one example by demonstrating the value that alternative betas can bring to an asset allocation approach. There are those who will attempt to meet their goals by adding greater leverage to historical investments (spoiler alert: that usually ends badly). However, we believe that prudently using well-researched alternative approaches can help diversify a portfolio's sources of added return — and will be an increasingly important way to deliver desired outcomes for investors.

Conclusion

In the darker days of the financial crisis, Global Chief Investment Officer Colin Moore laid out the case for a potential “square root” recovery, where global economic fundamentals might snap back violently from their plunge before settling into a long period of flattish growth. (If graphed, this would form a line trending sharply down then sharply up, followed by a flattish line, similar to the square root symbol.) Colin went on to suggest the duration of that slow growth period would be determined by the potency of real fiscal and structural reforms.

Given the reliance on monetary stimulus and the general lack of structural reforms to aid productivity and competitiveness in much of the world, we see this model holding, even in the sixth year of recovery. Therefore, while liquidity remains abundant, there is no clear rising tide of global fundamental growth. As a result, we believe planning and executing an investment strategy for 2015 needs to be a particularly deliberate exercise. We look forward to the opportunity to partner with you in that effort.

Finally, on behalf of all of my colleagues at Columbia Management and Threadneedle Investments, thank you for your interest, support and business. Best wishes for a happy, healthy and prosperous 2015.

A handwritten signature in black ink, appearing to read 'Rt McConnaughey', with a stylized flourish at the end.

Robert McConnaughey
Global Research Director
Columbia Management

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Important disclosures

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2015 Outlook: Same song, slightly different arrangement

Jeffrey Knight, CFA, Global Head of Investment Solutions and Asset Allocation

The other day, my teenage daughter asked how my passion for music began. I described for her my first record player, a Kenner “Close ‘n Play.” This aptly named device would play your chosen 45 rpm record when you closed its cover and stop playing when you opened it. I loved my Close ‘n Play, and I would listen to songs like “Can’t Buy Me Love” over and over again on it. It even had a handle, so I could carry my music from one room to another, like an iPod.

Unlike an iPod though, the Close ‘n Play would travel with only one song. “Can’t Buy Me Love” in the kitchen. “Can’t Buy Me Love” in the basement. In the early 1970s there was no Pandora or Spotify or Rhapsody.

As I sit down to compose an outlook for 2015, it occurs to me that since 2009, the financial markets have been more like a Close ‘n Play than an iPod — low expected returns from safe assets and stocks offering the best chance of any meaningful investment gains. Just like last year and the year before.

What’s different in 2015?

As stationary as market conditions have felt lately, circumstances are always evolving. For 2015, while the essential elements of our outlook remain in place, we highlight two important changes in the market environment:

- > The relative value of global equities vs. global bonds actually improved during 2014.

- > Monetary policy around the globe has become desynchronized, with the U.S. Federal Reserve (the Fed) contemplating rate hikes, while the European Central Bank (ECB) and the Bank of Japan (BOJ) intensify their monetary stimulus programs.

In this article, I will detail the implications of these conditions for investment strategy. In our view, while equities will most likely continue to dominate, the complex interactions of today’s conditions elevate the role of dynamic risk management. We argue that investors will need a cross-asset surveillance methodology to detect tactical threats.

Equity hegemony in action

For several years, we have argued that equities have a significant advantage over other asset classes based on valuation. With short-term interest rates near zero and government bond yields around the world at historic lows, the comparison between stocks and bonds based on forward-looking expected returns has been very lopsided. Market returns in 2014 underscore the valuation advantage that equities offer (Exhibit 1).

Exhibit 1: In 2014, equities outperformed bonds again

	YTD returns (%)
Equity: MSCI ACWI (USD)	6.21
Bond: Barclays U.S. Aggregate Bond Index	5.87

Source: Bloomberg as of 11/28/14

For this comparison, we use global returns to represent equities but only U.S. returns to represent bonds. This is an unfair comparison because the equity index reflects a loss of return due to currency translation effects, while the domestic bond index does not. We make the comparison to emphasize that today, a margin of safety exists in favoring stocks over bonds.

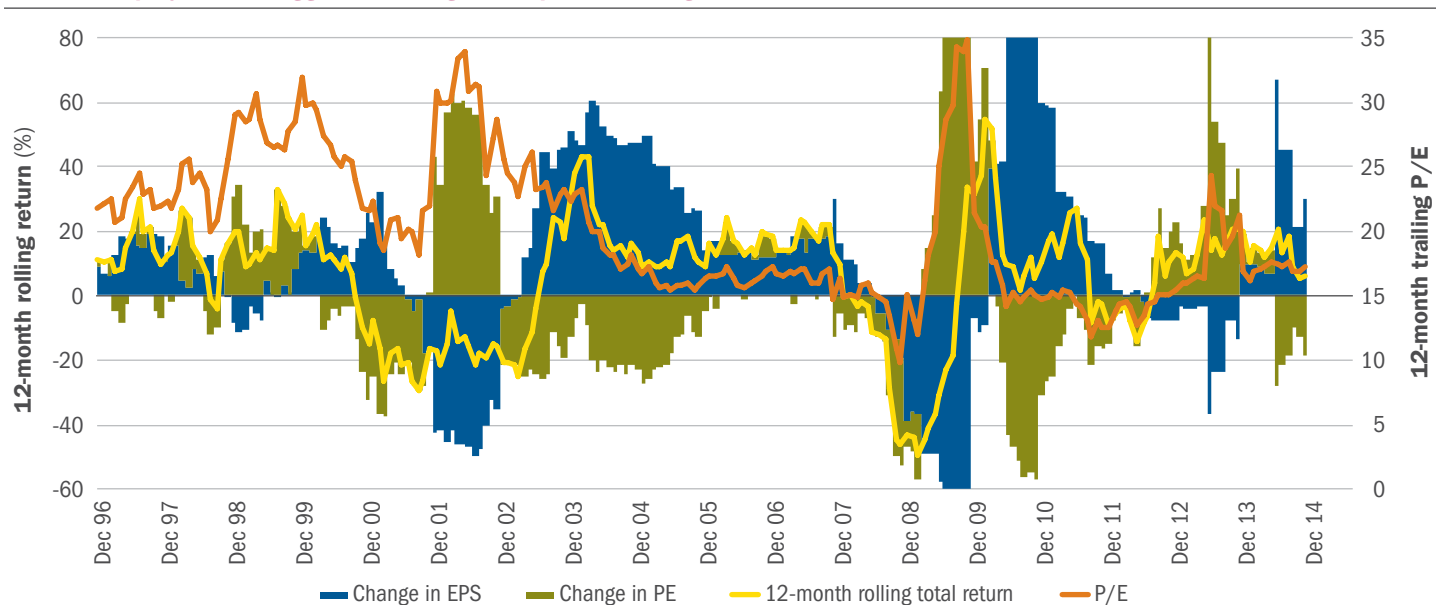
When we analyze these returns closely, we find significant evidence of this margin of safety. With respect to bonds, the Barclays U.S. Aggregate Bond Index offered a yield-to-worst of 2.5% as 2014 began. This means that investors could have expected roughly a 2.5% return for the year if bond prices had stayed constant. The fact that the index has returned more than double its promised yield reveals that bond prices have not stayed constant, they have risen. Few investors expected bond prices to rise in 2014. Therefore, bonds (represented by the Barclays U.S. Aggregate Bond Index) delivered more return than expected. Global stocks, on the other hand, delivered less than expected.

Exhibit 2 breaks down global equity returns into the portion attributed to corporate earnings growth (EPS) and the portion attributed to changes in the price/earnings (P/E) multiple (the multiple of earnings that investors have paid for equities). For 2014, returns for the MSCI All Country World Index (MSCI ACWI) lagged the change in corporate earnings for the year. The green bars below the X axis illustrate that P/E multiples actually contracted in 2014 for the first time in years.

These comparisons reveal the powerful valuation advantage that equities enjoy today. Our proxy for equities, the MSCI ACWI, outperformed our proxy for bonds, the Barclays U.S. Aggregate Bond Index, even though:

- > The equity index includes substantial losses related to currency.
- > The equity index faced a headwind from falling multiples.
- > The bond index enjoyed an unexpected tailwind from rising bond prices.

Exhibit 2: Equity returns lagged the change in corporate earnings



Source: Columbia Management Investment Advisers, LLC

This is what we mean by the phrase “equity hegemony.” With the relative valuation so favorable for equities, they have delivered superior returns even when a variety of influences conspired against them.

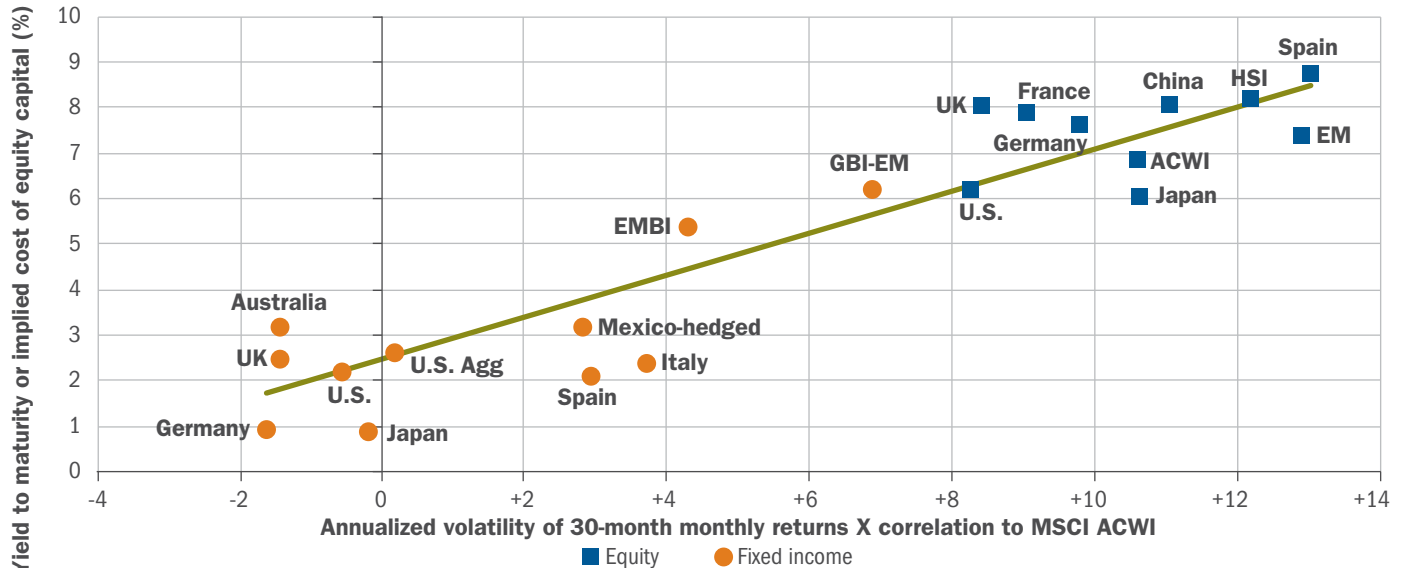
The comparison favors equities more strongly for 2015

Exhibit 3 depicts our valuation landscape for selected global assets as 2015 begins. The graph plots the expected return vs. risk for selected assets around the world, based on Columbia Management proprietary estimates. For each asset, the expected return (proxied by yield-to-maturity for bonds and by implied cost of equity capital for stocks) is plotted against the product of volatility and correlation to world equities. By incorporating correlation, we give credit to assets that offer a diversification benefit by adjusting the asset’s volatility

downward as long as it has a correlation of less than one to world stocks. We believe this adjustment helps in the direct comparison of stocks and bonds from a risk-adjusted return standpoint.

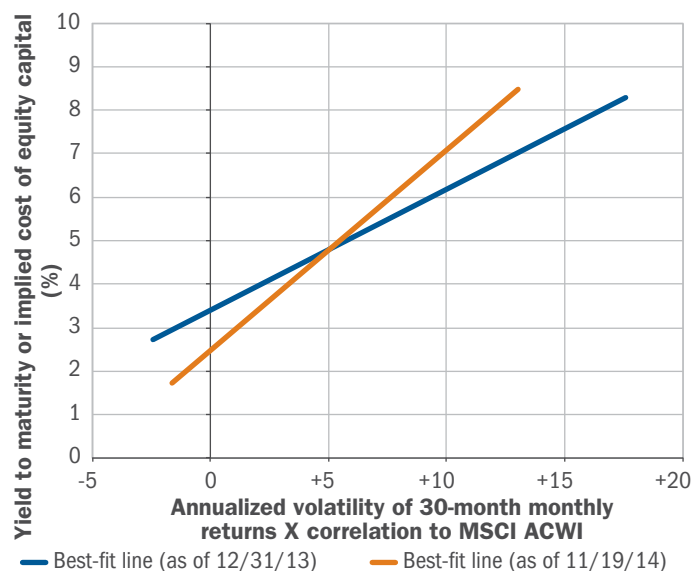
The chart also shows a “line of best fit” through all of the points, which visually represents the compensation that investors get for adding risk by increasing allocations to the assets on the right of the zero point. Today, that line is quite steep, indicating a high marginal reward to investors willing to increase portfolio volatility. For the past several years, the best-fit line has been notably steeper than its typical level. This is noteworthy, as our adjusted volatility measure, in effect, gives an advantage to bonds and should serve to flatten the line of best fit. This cross-asset analysis was key to our assessment that global equities enjoy a valuation advantage.

Exhibit 3: Equity markets offer higher expected risk-adjusted returns than bonds



Source: Columbia Management Investment Advisers, LLC.

Exhibit 4: The steeper 2014 best-fit line suggests higher expected returns for stocks



Source: Columbia Management Investment Advisers, LLC

Exhibit 4 removes all of the individual markets and simply plots our line of best fit against the same line as it stood at the beginning of 2014. This visual reveals the surprising way relative valuation has evolved over the past year. The left side of the line has dropped, indicating that the expected returns from bonds have fallen, while the right side of the line has risen, indicating an increase in expected returns for global stocks.¹ Amazingly, in this era of equity hegemony, the comparison has become even more favorable for equities going forward.

Monetary policies diverge

The Fed has given strong signals that economic growth in the United States has reached self-sustaining momentum and no longer needs unconventional efforts to support the expansion. The withdrawal and suspension of large-scale asset purchases was only the first step in the evolution toward policy normalization. In 2015 we expect to see a change in forward guidance and, most likely, the first interest rate increase in years.

These actions stand in stark contrast with the direction of the monetary policies of other central banks as they double down on efforts to support growth and avoid deflation. The BOJ has announced its intention to increase both qualitative and quantitative easing on an enormous scale, expanding purchases of Japanese government bonds (JGBs), exchange-traded funds (ETFs) and real estate investment trusts (REITs). They intend to coordinate this with government pension investment fund purchases by shifting into riskier assets through sales of JGBs.

With evidence of deterioration on both the economic and inflation front, the ECB also plans to take bolder actions. These include increased purchases of asset-backed securities and covered bonds in both the primary and secondary market, together with the long-term refinancing operations that will steer the ECB's balance sheet higher by €1 trillion. The latest to jump on the bandwagon was the People's Bank of China (PBOC), which cut its benchmark interest rate for the first time in over two years to support private sector investment, as targeted liquidity injections have had minimal effect on sinking economic growth.

Markets reacted very positively to the announcements from BOJ, ECB and PBOC, as the rush of liquidity from these actions will be felt across global markets and provide a counterbalance to tighter policy in the United States. However, this newfound asymmetry in monetary policy also creates pressure for a stronger dollar. As we detailed in our third-quarter *Investment Strategy Outlook*, a strong dollar can be a headwind for risk assets. We believe that markets can withstand a gradual appreciation of the U.S. dollar, but a concentrated and intense move in currency markets represents one of the key market risks for 2015.

This tension between the tailwind that global monetary policy brings to asset prices and the potential headwind of currency volatility complicates the investment strategy challenge for 2015. While valuation strongly suggests an equity-dominated portfolio strategy, a portfolio concentrated in risk assets remains vulnerable to volatility spikes, such as those we observed during early autumn 2014. As we argued in our fourth-quarter *Investment*

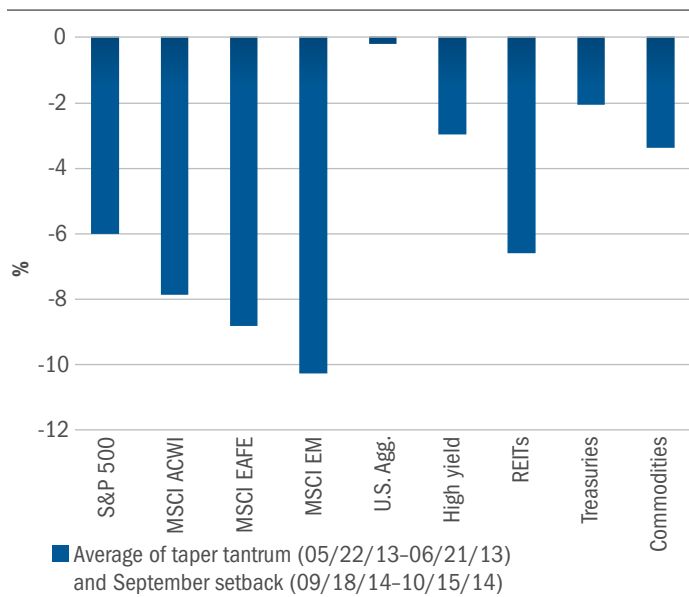
¹ The steepening of the line also results in part from the drop in equity volatility experienced over the past 36 months.

Strategy Outlook, the real loser in the face of ongoing dollar strength may be diversification. With so many assets proving vulnerable to currency movements, we believe investors must expand their search for diversifiers. Non-traditional holdings in areas like liquid alternatives, alternative beta exposures² and absolute return strategies can broaden an investor's palate for diversification.

Cross-asset market surveillance

While adding new diversifying strategies can help stabilize portfolios, we believe diversification alone may be inadequate to protect portfolio values from future drawdowns. Looking at two recent episodes of market volatility, the taper tantrum of 2013 and the September setback of 2014, we discover a troublesome commonality. During both of these events, nearly the full array of asset classes posted negative returns (Exhibit 5).

Exhibit 5: During two recent periods of market volatility, nearly all asset classes declined in value



Sources: Columbia Management Investment Advisers, LLC, Bloomberg

While these two episodes proved to be only temporary, we think they foreshadow the risk management challenge that investors face when so many market prices are connected by interventionist macro policies. If all assets can rise together, then surely they can fall together. We believe managing the risk of simultaneous drawdown across asset classes requires a willingness to actively reduce portfolio risk and a methodology for diagnosing the conditions to trigger such a step.

Over the past two years, the Global Asset Allocation team at Columbia Management has conducted significant research on precisely this challenge. We have concluded that effective risk analysis requires a cross-asset perspective. By cross-asset, we mean that bond market conditions can be very influential to our equity market outlook and vice versa. A methodology for simultaneously analyzing market conditions across asset classes can bring meaningful insights to discern favorable from unfavorable market conditions.

The Columbia Adaptive Risk Allocation (CARA) process offers such a methodology. This approach combines logical diagnoses of bond and stock market conditions. By design, the approach is agnostic on market conditions most of the time, as we base our analysis on thresholds of unusualness. In the case of bonds, unusualness is triggered when government bond yields become too low.³ In the case of equities, unusualness is triggered by a combination of low realized volatility, favorable price momentum and reasonable valuation. These thresholds create four unique combinations of market state as depicted in Exhibit 6.

² For more information, see "Using alternative betas in the management of investment portfolios" within our *2015 Perspectives*.

³ Our technical definition of "too low" includes a comparison of bond yields to prevailing inflation, as well as a measure of the yield curve slope.

Exhibit 6: The Columbia Adaptive Risk Allocation process simultaneously analyzes conditions across assets

		Stock market conditions	
		Neutral	Favorable
Bond market conditions	Neutral	Neutral market state Historical occurrence: 60%	Bullish market state Historical occurrence: 19%
	Unfavorable	Capital preservation market state Historical occurrence: 17%	Highly bullish market state Historical occurrence: 4%

Source: Columbia Management Investment Advisers, LLC, based on internal model. Historical occurrences are for the period 01/01/70–09/30/14 and may not reflect future market conditions.

Our research reveals important insights from using these market thresholds in combination. For example, when equities satisfy their exceptionally good criteria, they deliver more efficient performance. However, they become a negative influence on bond returns if bond yields are too low. When equities are not in this sweet spot, downside

risk management becomes more important. And if bond yields are high enough, this can be accomplished through risk-balanced investing. On the other hand, if bond yields are too low, then not only is their diversifying power weakened, but they might be signaling greater headwinds for the economy. For example, our research finds that when bond yields are too low and equity market conditions are not exceptionally good, the probability of a recession is significantly higher. In other words, the bond market can tell us that risks for equities have risen. Under such circumstances, active de-risking makes sense, and capital preservation becomes a priority.

During 2014, this methodology produced useful results. Exhibit 7 shows the month-by-month market state classification. Notice that as yields fell and equity volatility rose through the summer, our framework recognized that market risks were rising, culminating in a capital preservation market state for September. While no approach to market forecasting can capture every nuance of prevailing market conditions, we think this simple approach can help to identify the very thing that our investment strategy requires for today's markets — a prudent and timely indication for when to reduce portfolio risk.

Exhibit 7: The Columbia Management model helps determine when to reduce portfolio risk

2014 market state	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Capital preservation			•						•			•
Neutral		•		•				•		•	•	
Bullish	•				•							
Highly bullish						•	•					

Source: Columbia Management Investment Advisers, LLC, based on internal model. Each dot in the chart represents a single month and the classification process can only be in one market state at a time.

Investment strategy for 2015

We are as convinced as ever that relative value favors stocks over bonds, even though stocks outperformed in 2014. Therefore, like a child with a Close 'n Play, you will hear the same recommendation from us for 2015. Equities remain the most important asset class for generating returns. Within equities, the currency-based advantage of U.S. stocks is offset somewhat by the valuation advantage from overseas equities, notably in Japan. Indeed, economic growth in Japan and Europe is an essential ingredient for equities to continue to perform well. If Japanese and European stocks cannot produce gains, then the global economy will probably be stuck in a near recessionary funk.

Devising a strategy to manage risk and stabilize portfolio values in the event that equities do not perform well remains complicated. Bond yields are low enough that they are not likely to offer powerful diversification benefits. We affirm our recommendation for three additional sources of portfolio stability:

- > Non-traditional diversifiers, such as liquid alternatives, alternative beta exposures and absolute return strategies
- > Explicit downside hedges, such as put options (with emphasis on managing the related expense)
- > Flexibility and a methodology for active risk reduction when appropriate (Our cross-asset methodologies should prove valuable in this regard.)

How many times can we play the same song before we must change the record? Our overall stance for investment strategy is likely to remain in place until the valuation advantage for equities has been priced away, or until the healing process for the global economy reverses.

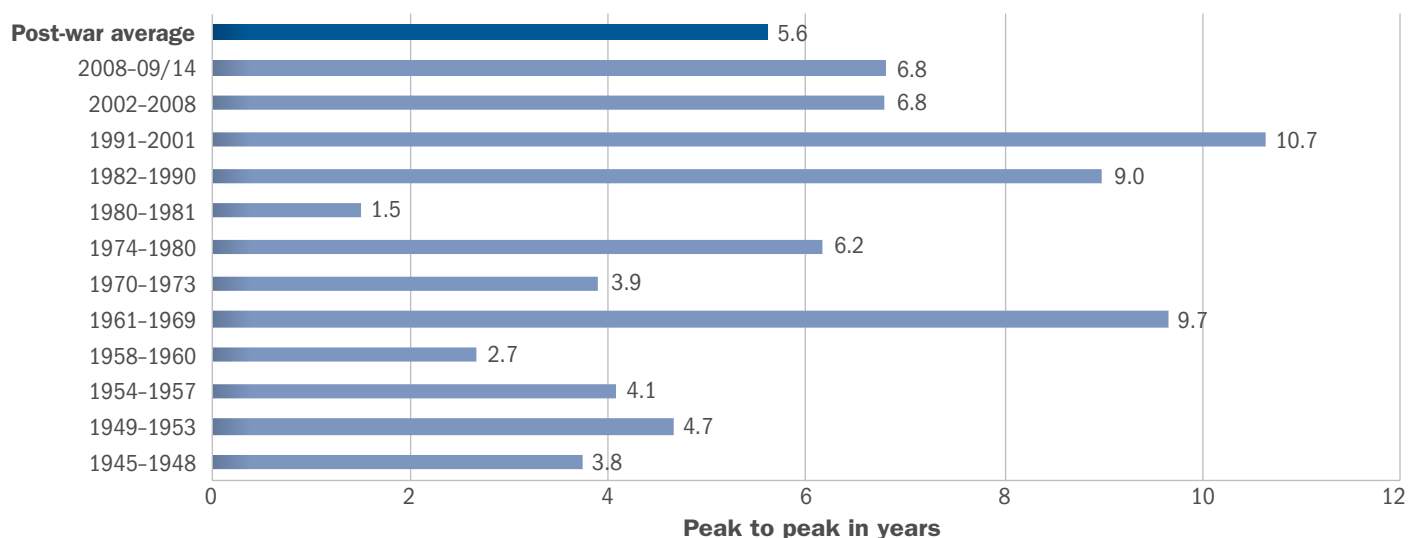
Further to run in this business cycle

Marie Schofield, CFA, Chief Economist and Senior Portfolio Manager

The U.S. economy reached a milestone of sorts recently; the current business cycle has now surpassed the last one in length (measured peak to peak). The prior business cycle started in 2001 and continued until the December 2007 peak, lasting about 6.8 years. The cycle actually exceeded the post-war average of about 5.6 years but was shorter than the nine-to-10-year business cycles of the 1980s and 1990s (Exhibit 1). The question about the current business cycle's longevity is relevant, considering peaks mark the start of recessions and turning points carry important implications for asset class performance.

The National Bureau of Economic Research has the final say on dating business cycles, but it does so using a variety of measures and only with hindsight. For instance, the group announced in December 2008 that the last recession began in December 2007. Should we be concerned about the current business cycle based on length alone? The short answer is no, and it generally appears this cycle has much further to run.

Exhibit 1: The current business cycle is longer than average but shorter than those of the '80s and '90s.
Post-war business cycles



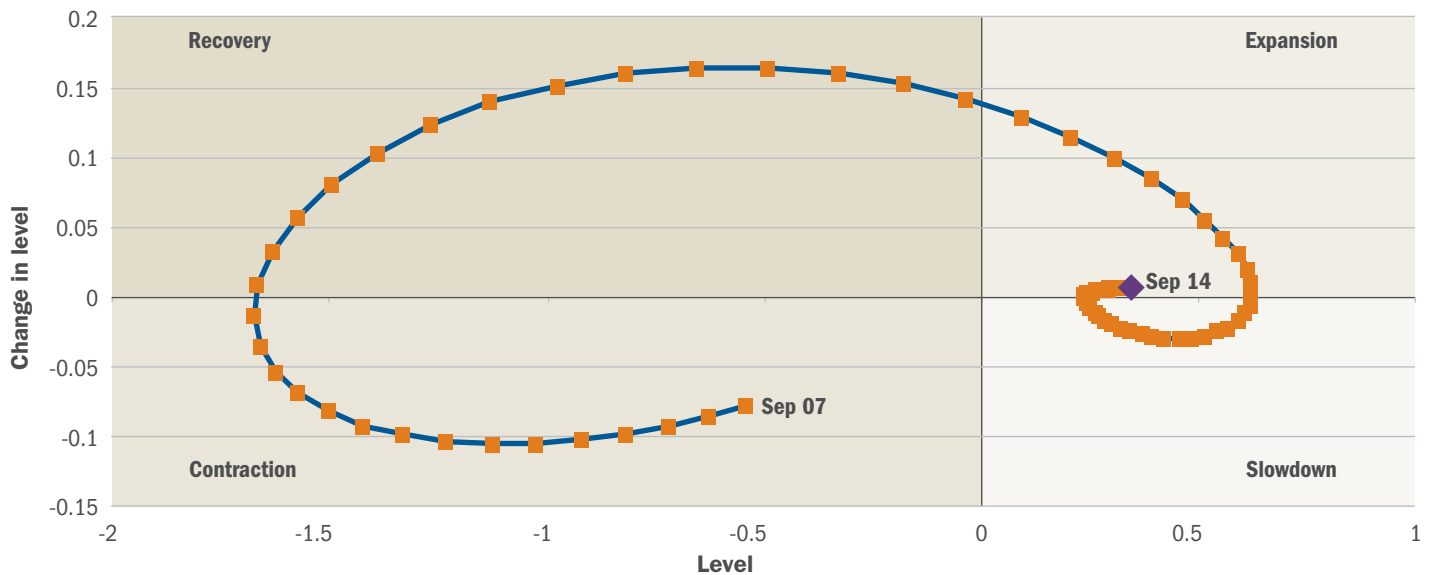
Source: National Bureau of Economic Research

The argument that the current business cycle is far from over is illustrated by the Columbia Management “investment clock.” Our Global Asset Allocation team uses the clock to monitor the business cycle, its various phases (recovery, expansion, slowdown and contraction) and its current position. The clock uses eight economic data series that are highly correlated to the business cycle and

aggregates these into a composite indicator, which is depicted in the “swirlogram” in Exhibit 2. The cycle remains in the expansion phase, although we note that the positioning within the expansion has been quite shallow after exiting a mid-cycle slowdown last year. This is consistent with the recovery experienced to date, which can be characterized as modest but stable.

Exhibit 2: The Columbia Management “investment clock” confirms that the economy remains in an expansion.

Global Asset Allocation investment clock: Long run



Source: Columbia Management Investment Advisers, LLC

Typical causes of business cycle peaks are not evident today

Business cycle peaks always have causes. These are the typical causes:

- > **Unexpected systemic events.** These present risks that are unpredictable but unquestionably negative and can short-circuit expansions. This category is broad but includes bank failures and price shocks.
- > **Economic or financial imbalances.** Unsustainable conditions ultimately require adjustment. Inventory swings and excesses can affect growth in the short term (such as early 2014 when an inventory contraction contributed to a negative gross domestic product reading) but have rarely caused recessions, at least in the last few decades. To derail an expansion, excesses need to be large and the associated adjustments need to impact a broad swath of the domestic economy. We can point to the lethal combination of housing, credit and leverage in the last recession. Excessive investment was a contributing factor in the 2001 recession.
- > **An extended period of Federal Reserve (Fed) tightening.** Usually in response to an overheating economy and inflation, these periods are marked by ongoing rate hikes by the Fed, causing the yield curve to invert — that is, short-term rates become higher than long-term rates. This, in turn, heralds an environment where lending is too tight given shifting economic fundamentals and growth trends. Yield curve inversions are an important recessionary indicator and have been evident prior to nearly all economic contractions in the post-war period.

A review of these factors reveals few if any factors that would signal risk to the current business cycle. In the current cycle, growth and inflation remain below the Fed's forecasts, and output gaps remain modestly negative. The Fed has yet to even begin tightening policy, and it would be mathematically impossible to construct an inverted yield curve in the present environment where the Fed is adhering to a zero interest-rate policy.

In addition, there are few if any economic or financial imbalances at present. Indeed, a hallmark of the recovery to date may be an inherent lack of imbalances due to its muted nature. While we expected fragile growth would make the economy more vulnerable to shocks and recession early in the cycle, it should now be seen as strength in the second half of the business cycle. Weak growth has not allowed economic excesses to build up. Capital investment remains low and housing investment is still recovering from the last bust.

As to financial imbalances, some may point to compressed risk premiums and excessive risk-taking. Those are worrisome when leverage (debt) is high and financial conditions (like lending) are tight. But new regulatory constraints and macroprudential policy initiatives (designed to reduce the severity and frequency of asset bubbles and excessive credit growth) have prevented a buildup of financial leverage and credit, and financial conditions continue to ease. While financial conditions may begin to tighten next year, it will be some time before they are considered tight.

Finally, while systemic risks are inherently unpredictable, these are present primarily in the global environment. Systemic risks will, however, have an undeniable effect on both global and domestic growth, particularly for more open economies exposed to trade, while closed economies like the United States may prove more resilient.

We emphasize that while the U.S. business cycle is likely past its mid-point, its durability should not be measured by length alone. It is somewhat ironic that what was perceived a weakness earlier in the cycle is now a strength — the tepid nature of this recovery has prevented the buildup of excesses that normally precede recessions. And it will be some time before any imbalances build up to the point of excess and stymie the expansion. In short, this expansion has much further to run.

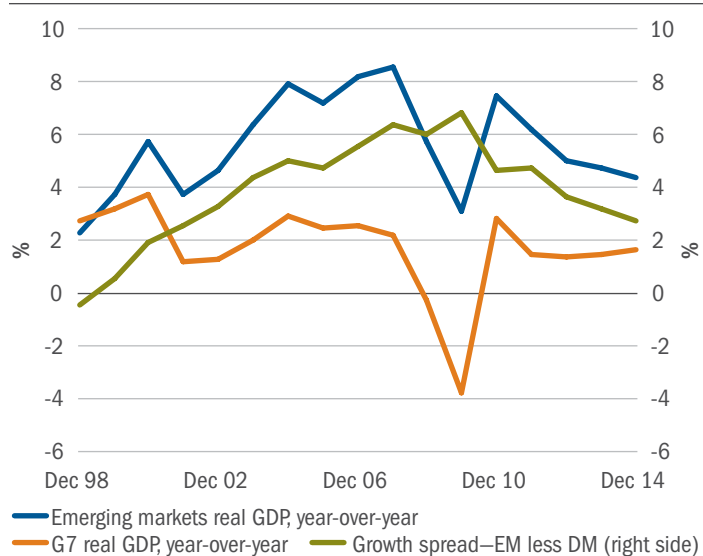
A four-year emerging markets hangover

Anwiti Bahuguna, Ph.D., Senior Portfolio Manager

Maya Bhandari, Strategist

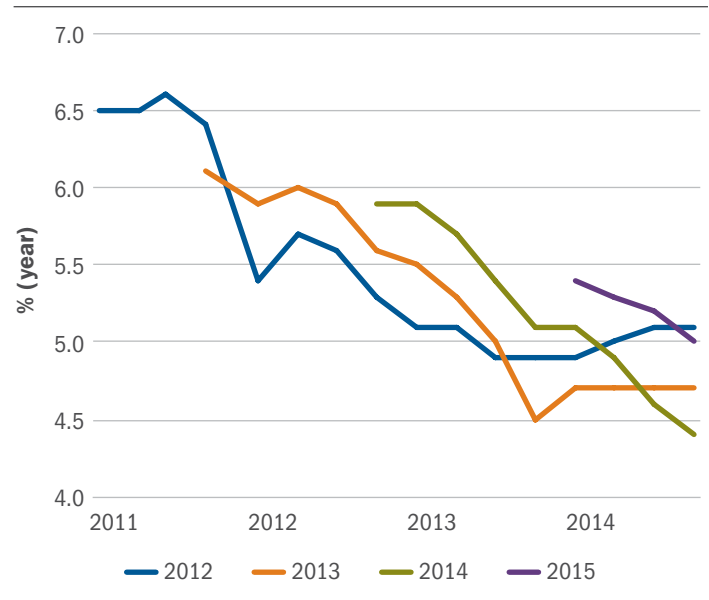
Over the last few years, we have seen a material de-rating of emerging market (EM) growth and growth expectations, along with some deterioration in EM macro fundamentals. For instance, the 2.7% growth premium that the EM markets are likely to achieve over developed markets (DM) in 2014 will be the lowest since the early 2000s, when EMs were recovering from a series of financial crises that littered the 1990s (Exhibit 1a). Expectations for growth have ratcheted lower over time and point to further slippage (Exhibit 1b) — the opposite of the trend for DM economies.

Exhibit 1a: The EM growth rate premium is narrowing



Sources: Bloomberg, Threadneedle and Columbia Management Investment Advisers, LLC

Exhibit 1b: The IMF EM 2015 growth forecast points to further decline



Sources: Bloomberg, Threadneedle and Columbia Management Investment Advisers, LLC

Growth drivers are weak and narrow

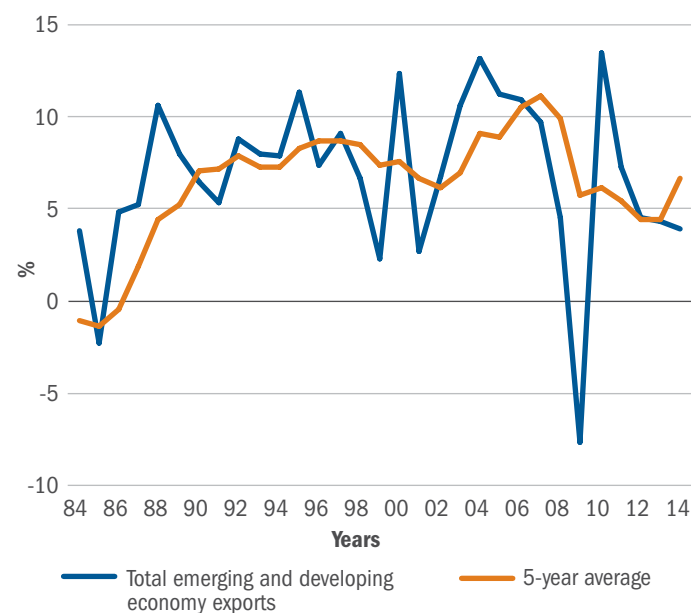
Except for a handful of economies, the typical driver of EM growth in recent decades has been external demand, or exports. Since the financial crisis, however, both demand from DM and EM export growth have been feeble.

Estimated growth of 3.9% in 2014 will be the lowest since 2009, and before that since 2001; it will also be around half the 7.3% average experienced since the mid-1980s (Exhibit 2).

The lower growth rate is largely a function of sluggish global demand, but there is some evidence of an increase in protectionism too. According to Global Trade Alert, since 2008 more than 70% of the changes in trade rules have curtailed trade rather than supported it.¹ For 2015, we do not see a tremendous pickup in global demand or in EM exports.

Exhibit 2: Export trends have been a drag on EM economies

Export volume of goods and services year-over-year percent change



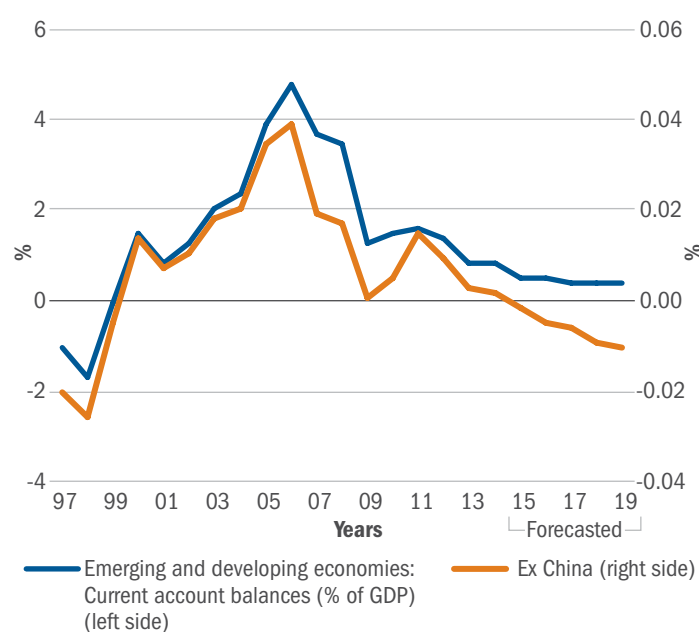
Sources: IMF, Bloomberg, Threadneedle and Columbia Management Investment Advisers, LLC

Policy: Vulnerable to capital outflows but supported by commodity prices

In many countries, fundamentals seem soggier too, with a perceptible deterioration in current account positions and fiscal balances. Excluding China, IMF forecasts imply that EM overall will fall into an external deficit in 2014 for the first time since the Asian financial crisis (Exhibit 3). Growing skepticism of the ability of domestic policy and policy institutions to properly manage these challenges underscores the quandary facing EM economies: EM needs to attract capital inflows just as they may be harder to attract.

Exhibit 3: EM economies are headed for a current account deficit

EM and DM current account balance as a % of GDP



Sources: IMF, Bloomberg, Threadneedle and Columbia Management Investment Advisers, LLC

¹ The Economist: Nov 15–21, 2014, “Free Exchange: Signs of Life.”

One factor that seems likely to inhibit capital inflows is the Federal Reserve (the Fed). We expect the Fed to begin normalizing (raising) policy rates in the middle of 2015, with a gradual but sustained tightening cycle. While it is true that global monetary policy is materially easier than it has been during past Fed tightenings, the Fed is still in the driver's seat for global capital flows. And previous Fed tightening has generally been associated with capital flowing out of EM economies. The more capital-dependent countries are already seeing a reduction in flows and may, as Fed tightening draws closer, see some currency weakness.

At the same time, the recent substantial decline in oil prices may prove to be a blessing for the majority of EM economies. Countries such as India and Turkey, with large current account deficits and a tendency to be net energy importers and hemorrhage capital as rates normalize, could get some respite.

The drop in commodities should also provide room for EM central bankers to maintain relatively easy, growth-supportive monetary conditions. As an added bonus, reform-minded countries, such as India and Indonesia, have used this opportunity to reduce subsidies on oil, creating lower fiscal vulnerabilities. So, although energy exporters are likely to suffer from cheaper oil as their terms of trade, fiscal and external balances and, ultimately, growth weaken, EM overall stands to gain.

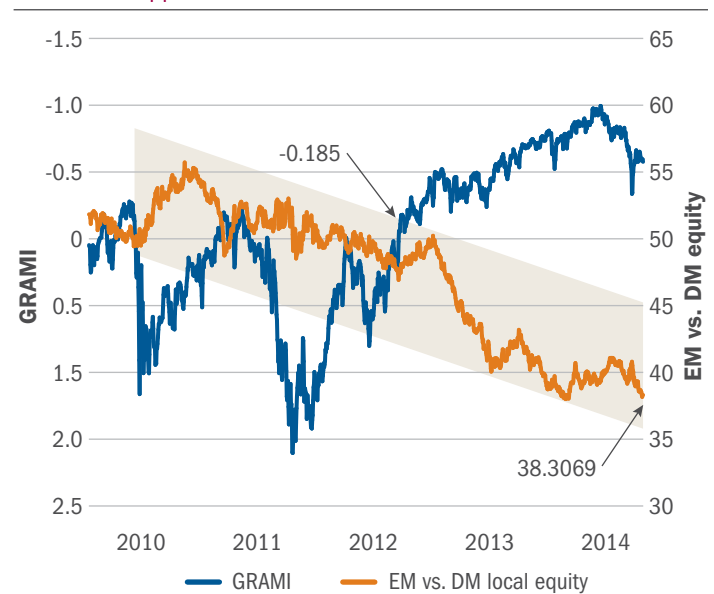
Valuation: Bargains or value traps?

The question is: How much of this weak growth and vulnerable policy environment is already reflected in the price of EM assets? For example, EM equities have

underperformed DM equities consistently since the fourth quarter of 2010, with the ratio of EM-to-DM stocks trading in a fairly tight downward sloping channel over this period (Exhibit 4a). This underperformance has persisted despite a steady improvement in global investors' appetite for risk, particularly between late 2011 and mid-2014.

Exhibit 4a: EM equities have underperformed DM equities for the past four years

Ratio of EM/DM performance and cross-asset risk appetite



Source: Bloomberg.

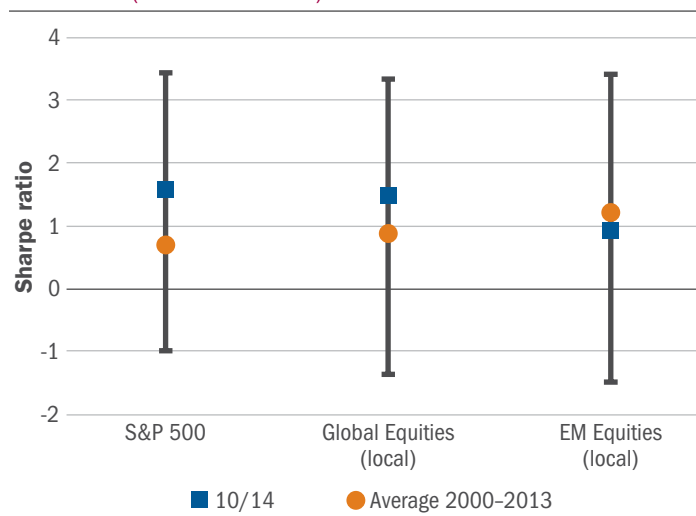
GRAMI = Global Risk Aversion Macro Indicator

Past performance does not guarantee future results.

The weakness in EM equity performance has coincided with disappointing earnings over this time period such that, at an aggregate level, EM valuations are not deeply attractive. The exceptions include a handful of countries and sectors with well-known problems, chiefly Russian oil and gas companies, Chinese state-owned enterprises and Chinese banks. Furthermore, on a volatility-adjusted basis, prospective EM returns look less appealing (Exhibit 4b).

Exhibit 4b: EM returns look less appealing on a volatility-adjusted basis

Global equities, volatility-adjusted returns
(2000–Oct. 2014)



Orange: ratio of EM/DM MSCI, local

Blue: Cross-asset risk appetite (Citi GRAMI Index — higher as shown is better risk appetite)

Source: Bloomberg

Past performance does not guarantee future results.

Not ready to face the bright lights

In 2015, we expect some support for EM equities from the drop in commodity prices as well as continued liquidity from DM central bankers. Risks of a major external vulnerability-led blow-up in EM economies seem contained. But mediocre fundamentals, a lack of broadening growth drivers and a reluctance to embark on another credit-led growth rally prevent us from upgrading the overall asset class. Consensus for EM equities may once again be setting the bar too high: Equity return projections are in the range of 10%–12%. In our view, growth of 5%–6% in earnings plus dividends with no P/E rerating implies dollar equity returns in the range of 7%–8%. That is, if we assume there will be no further currency depreciation in the EM space. Of course, in some countries returns may well exceed these average projections. For equity-focused investors, select EM countries may offer attractive opportunities in 2015. However, in the context of diversified multi-asset portfolios, we have greater confidence in EM bonds, where we see better value than in EM equities.

Investment themes for a *Groundhog Day* world (or, the times, they aren't a-changin')

Dave King, CFA, Senior Portfolio Manager

Wall Street strategists and financial media pundits have spent much of the last several years foreshadowing a dramatically changing investment environment and telling people what to do about it.

Despite these prolific predictions, the actual environment has been remarkably stable, featuring slow economic growth, little inflation, low interest rates, significant geopolitical tension and just about everything being slightly better in the United States than anywhere else.

Eventually the backdrop for investors will change. However with slack labor markets, prudent government spending in most major countries and no apparent structural shortages of key commodities worldwide, change may not come anytime soon.

Investors may have to confront the profound decisions Bill Murray's character faced in the comedy movie *Groundhog Day*. If tomorrow is always very much like today, and you are not happy with the current positioning of your investment portfolio, you probably need to do something. But what?

Given the demographic profile of most investment strategists, financial reporters and portfolio managers, it is perhaps no surprise that these people all seem to expect constant change. Over the last 35 years, a barrel of crude oil has been \$160 and it has been \$10. Ten-year U.S. Treasury bonds have yielded 14% and they have yielded 1.5%. The Dow Jones Industrial Average has been below 800 and above 17,000. It is a logical fallacy, however, to base a forecast of the future only on one's *personal* experience, even if that experience is lengthy and comprehensive. Consider these points:

- > The recent stability of official interest rates, such as the Federal Reserve discount rate, is unusual since the 1970s, but it was fairly common prior to then. Also, large price movements in bonds that end up being fully repaid with interest are mostly a late 20th to early 21st century phenomenon.
- > An environment where the dividend yields of established public companies are similar to the current yields of high-quality bonds has occurred before, most recently in the 1950s. Although a typical forecast today is cautious on bond returns and only modestly positive on equities, the parallel 1950–1965 period saw bond returns that satisfied investor expectations and equity returns that were very strong.

- > The concept of the United States being the world's best overall financial market has recently reemerged. Global diversification should *always* be considered, but don't be overly deterred by all the flaws we see living everyday life in the U.S. or the recent strength of our stocks and bonds. The number of other countries with consensus AAA-rated government bonds, a dominant military and hundreds of years of democratic tradition is zero. Any one of these factors can have a material effect on investment returns, as you would notice if you have recently been long Venezuelan government bonds or Russian stocks.

Suppose we remain in a period where the pundits continue to be surprised by a *lack of change*? Which strategies proposed by the experts, based on their 30 to 40 years of experience, do we stick with? Which do we change?

- > First and foremost, recognize that an environment of slow economic growth, low interest rates and minimal inflation is an above-average context for financial market performance. For the last five years, investors who have taken prudent risk and had a long-term strategy have been rewarded with strong returns and modest volatility. Unless we are nearing the end of our Groundhog Day story, operating with an unusually low-risk budget could be a big mistake.
- > High-quality bonds are currently revered for their safety and reviled for their duration risk (the risk of a mark-to-market decline that would occur if similar new bonds were issued with higher coupons). Ironically, in a Groundhog Day world, *neither* of these points is central to the bond buy/sell decision. Highly rated bonds should provide their contractual returns, with limited price volatility and negligible default risk.
- > While the point above may sound like a ringing endorsement for bonds if it is always going to be February 2, that is not the case. Owning a portfolio full of financial instruments that meet your expectations isn't optimal if those expectations are low, or if you are missing out on other securities that would fit well within your risk budget and could perform substantially better. Many securities in today's financial market, including common stocks, convertibles, master limited partnerships and the like, have yields similar to those of investment-grade bonds. If we stay in a favorable, lower risk environment, consideration of bond alternatives that have similar current income but potential for growth of income or capital will be critical to investment success.
- > The world is a big place, and there will be financial instruments everywhere that deserve consideration. That being said, Groundhog Day is a uniquely American holiday. In today's environment, our country is more insulated from geopolitical risk and better suited for business innovation and free commerce than any other large country. If you look at the common stocks of well-known U.S. companies in early 2010, *after* a significant recovery rally coming out of recession, and compare the prices then with the prices *and dividend yields* today, remorse may set in. If you're thinking, "Darn! Why didn't I buy some of those back then?" you may want to avoid similar regrets that might occur if the world looks largely the same a few years from now as it does today.

Getting back to Groundhog Day: In the movie, the lead character was initially despondent that time had stopped moving forward. He took actions that were at first silly, then very foolish. Later, when the world *still* didn't change, he realized he could capitalize on the predictability of the environment for the benefit of himself and everyone around him. Eventually, this led to a very happy ending.

For today's investor, there may be a degree of surprise or even frustration that the recent market environment has persisted. Bonds yield very little by historic standards, but to the chagrin of the bears, they are not plummeting in price. Stocks have moved much higher, but many solid companies pay safe dividends at higher rates than Treasury bond yields. Despite good performance, the volatility associated with these stocks has been moderate if not low. New income securities proliferate and perform well, despite being unfamiliar to many retail investors. We read

about the gridlock and animosity within our federal government daily, yet the U.S. annual budget deficit is declining, interest rates are stable at low levels, and the dollar has been slowly strengthening.

Here are some strategies that have worked in the Groundhog Day markets of 2010 to 2014:

- > Take a long-term view.
- > Use your full, appropriate risk budget. Conservatism is a valid investment philosophy; fear is not.
- > Pursue a realistic income goal with more than bonds. Common stocks and a variety of other corporate securities may yield as much as reputable bonds with greater return potential over time. The volatility of these bond alternatives has been very manageable.
- > Take advantage of the best investment opportunities in your own back yard before you start thinking about attractive potential tax credits on Australian dividends, or how Eurobonds work. The new house, college education or good retirement you are saving for is probably priced in U.S. dollars. Someday, conditions may be different, but the checklist of what's better for investors in the United States is currently a long one.

If change in the investing environment continues at its current, tortoise-like pace, strategies that were effective in the last few years deserve very serious consideration looking forward.

Happy Groundhog Day!

Obsolescence and disruption: The new capacity utilization

Tom West, CFA, Director of Equity Research

In a typical “V-shaped” recovery following a recession, pent-up demand drives economic activity and absorbs previously idled capacity. As the economic flywheel begins to gain speed, new capital investment is required to support expansion. But over the last several years, capital investment has been limited. Many companies have been able to support modest growth while cutting costs and keeping investment to a minimum. Pricing discipline has been impressive: With little incremental business to win, why lower price? Except for the lack of growth, conditions have been benign for corporations and their shareholders. Will it all hold together? Can we count on high margins while we wait for more vigorous growth to return? Yes and no.

Drivers of investment in a slow-growth economy

It seems that in the absence of some disruption, discipline holds up. Pure price competition has generally not been the spoiler of profit margins. It usually takes a catalyst to disturb the status quo. In some cases, it is a classic disruptive technology. But in others, it's more a matter of customer demand moving in a different direction, leaving companies unable to sell the same old widget at the same old price. Of course, change is a constant and innovation is good. But in a low-growth economy, more investment seems to be going toward supporting shifts in demand rather than increases in demand. Shifts include new entrants with better mousetraps, changes in customer expectations and legislative changes.

E-commerce pressures. Retailers have succeeded to manage inventory and price points, but they cannot escape investment needed to meet consumer expectations for “omni-channel” retailing; that is, make a purchase online, but have the ability to return, exchange or pick up in the store. While incremental online sales might help soften the blow, the costs of technology and general fulfillment have gone up, and there is generally no ability to pass on these costs. Some early adopters are slightly ahead, but it's simply a new, higher “ante” to the retailing game.

Parcel delivery companies also have to invest substantially to support their part of the e-commerce chain. When powerful companies like Amazon control large blocks of business, shippers need to invest in scale to make it all work. In 2014, UPS spent an additional \$175 million — a 7% increase to the capital budget — to expand hubs and accelerate the rollout of its new ground route optimization software. In addition, the company will add 8,000 “access points” in the U.S. in 2015, which will improve stop density as customers opt to pick up their packages at a centralized location. The new business comes with an investment cost.

Technological advances. Large technology infrastructure companies also have to invest heavily in new product offerings to stay relevant to their customer base. Companies such as IBM, Microsoft, Cisco, Hewlett-Packard and EMC are entrenched in the high-margin, legacy

products within their enterprise customer bases. However, new technology architectures that leverage commoditized hardware and shared hosting “public cloud” capabilities are attacking some of their most profitable business lines, which is forcing large IT vendors to invest in their proprietary lower-cost product and service offerings.

Several vendors have embarked on worldwide data center build-outs to offer their own infrastructure, platform and software “as-a-service” offerings. It is not yet clear if these up-front investments will help retain customers or provide the same level of profit as the legacy products.

Innovative gains. Perhaps the starkest example of the spoils going to the innovators and those willing to invest has been the “shale oil” revolution, which has boosted U.S. production by 3.4 million barrels per day (bpd) and has driven current production to levels not seen since 1986. The major beneficiaries of this boom have been the smaller, entrepreneurial independents who were early to capture the acreage and figure out how to increase efficiencies and lower costs.

EOG Resources, for example, has seen its total U.S. liquids production increase by over 300,000 bpd since 2009 and now ranks as the largest U.S. onshore oil producer. The producer is well ahead of larger companies like Chevron, ExxonMobil and BP, who have all struggled to grow production. With lower oil prices and increased pressure to rein in spending on the large mega-projects, the majors will have to figure out how to better compete with or possibly acquire some of their smaller rivals.

Legislative reforms. Thanks to shifts brought on by legislative changes, insurance brokers are finding growth, or at least managing to stay relevant, via private healthcare exchanges. These electronic platforms enable insurance brokers to team with insurance carriers to help employers cut the uncertainty of their benefits costs while providing choice to employees. In setting up exchanges, brokers are making investments in personnel, IT and distribution, and incurring the costs that come with such a change. Exchanges won’t dramatically affect brokers’ growth rates, but they are the fastest growing portion of the brokerage industry.

A selective approach to equities

If long-term deleveraging keeps a lid on the strength of the recovery, and a lack of excess investment comforts us that there isn’t much “overhang” in the economy, it seems that company- and industry-specific forces will remain important factors in stock selection. We see this in the average correlation of stocks in the S&P 500 Index, which has been dropping and is at post-financial crisis lows. Stocks are moving more individually and less as a group.

We will continue to look for companies that are making smart investments in the future. Equally as important, we’ll keep a watchful eye on companies with large profit pools from products and services that may be getting long in the tooth. Capacity utilization is a useful macroeconomic statistic, but sometimes capacity gets pushed aside before it can get utilized.

The Standard & Poor’s (S&P) 500 Index tracks the performance of 500 widely held, large-capitalization U.S. stocks.

It is not possible to invest directly in an index.

The securities listed are for illustrative purposes only, subject to change and should not be construed as a recommendation to buy or sell. Securities discussed may or may not prove profitable.

Sustaining excellence in quantitative equity investing

Jason Wang, Head of Quantitative Research

Active equity managers tend to fall into two broad categories: fundamental and quantitative. Both active fundamental and quantitative managers seek to deliver positive investment outcomes, usually defined by outperforming a market or market segment, as measured by an index. They approach this task, however, from different perspectives.

Fundamental vs. quantitative managers

Fundamental managers aim to use their expertise and informed insights to forecast business results that differ from embedded consensus in order to generate outperformance (alpha). By contrast, quantitative managers largely rely on predictive, fact-based models to identify investment characteristics that have proven to outperform over time. In both cases, most successful managers use portfolio construction tools to gain broad exposure to these characteristics (known by quants as factors) while minimizing unintended risk. It is probably fair to observe that quantitative managers are generally more disciplined in this regard.

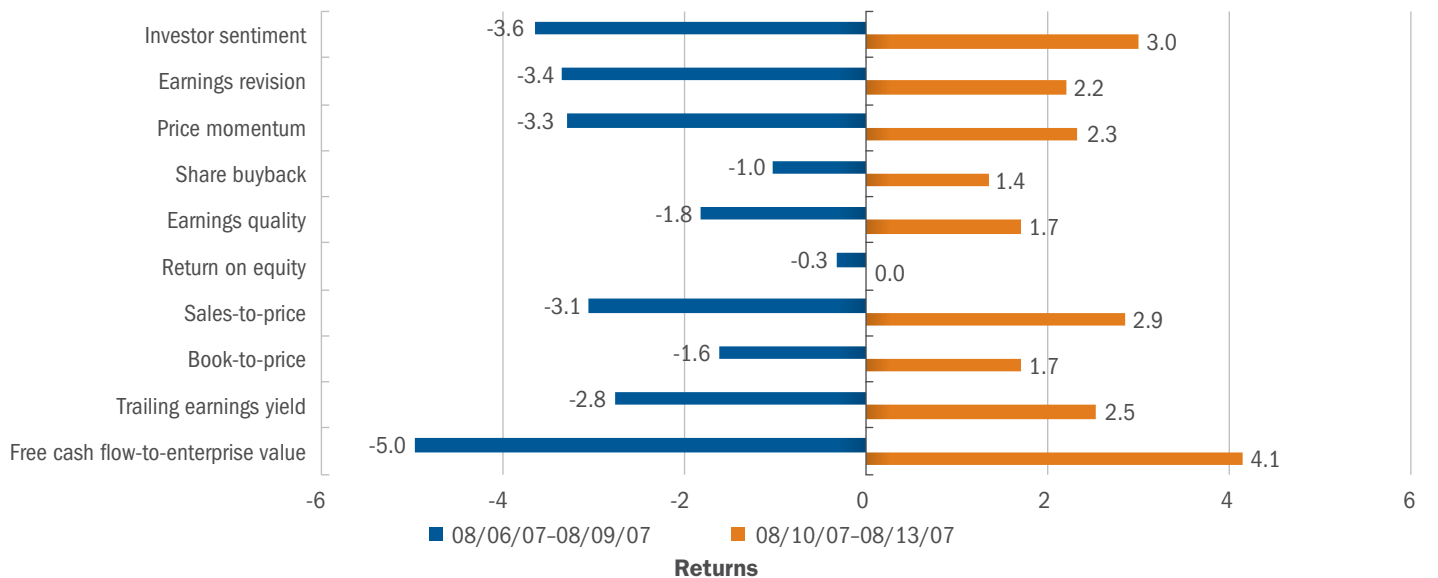
There is as much dissimilarity among quantitative managers as there is among fundamental managers. However, across both styles, managers who have been successful over the long term generally make intentional and well-informed investment decisions within a well-defined risk management framework.

Recent and ongoing challenges

In terms of both performance and asset growth, quantitative investing enjoyed a remarkable run in the decade prior to 2007, outperforming both the markets and, on average, fundamental managers. However, from the second half of that year through 2009, quantitative managers underperformed both by significant margins. Two events stood out from that turbulent time: the 2007 quant meltdown and the crash of the momentum strategy in 2009.

The quant meltdown occurred in August 2007. For several days, many commonly used value, quality and momentum metrics worked in a perverse manner. Stocks with positive quantitative scores significantly underperformed stocks with negative scores. Then the metrics suddenly reversed direction and quickly recovered (Exhibit 1).

It is widely believed that the turmoil that month was triggered by a rapid unwind of several large, highly levered quantitative equity market neutral funds (Khandani et. al., 2008). In our view, a liquidity crunch stemming from the subprime lending debacle was the main driver for this event. Experienced quantitative portfolio managers, who recognized this as a liquidity event rather than a paradigm shift (and who did not face client withdrawals), were able to maintain their investment discipline and pass through the crisis relatively unscathed.

Exhibit 1: In the quant meltdown of August 2007, several factors shifted sharply from negative to positive

Sources: Columbia Management Investment Advisers, LLC and Quintile Spreads in Russell 1000 Universe

Past performance does not guarantee future results.

The crash of momentum strategies occurred right after the peak of the financial crisis. Price momentum is a key pillar for many quantitative stock selection models. Basically, momentum investing involves buying stocks or other securities with consistently high historical returns, usually over the past 12 months, and selling those that have had poor returns over the same period. Until recently, trading strategies that exploit this phenomenon were consistently profitable (Jegadeesh and Titman, 1993 and 2011). Momentum strategies, however, are prone to infrequent but strong and persistent bouts of negative returns. One such bout occurred between March and May 2009. According to Daniel and Moskowitz (2014), over this period stocks ranking in the bottom decile for past performance (low relative strength) gained 163%. Conversely, stocks in the top decile (high relative strength) gained just 8%.

Quantitative models are designed to apply their investment process and risk controls systematically over the course of market cycles. In theory, their returns should be consistent

throughout the cycle — even in volatile markets. The quantitative meltdown and the momentum crash clearly demonstrate that no investment process will outperform in all market environments. Quantitative investing is not immune to price-dislocating market events or to external macroeconomic environment pressures.

Prior to 2007, quantitative techniques grew significantly as more assets and investment firms entered the market. As a result, it is possible that too many assets were chasing the same return factors, leading to a heightened risk of coordinated failure. Additionally, the quantitative underperformance of 2009 underscored that much of the “rationality” built into financial models failed to capture the movements of markets driven by fear in what turned out to be the greatest recession since the Great Depression.

Fabozzi et. al. (2008) contended that other challenges facing quantitative managers include correlating markets, style rotation, fundamental market shifts, insufficient

liquidity and the dissipation of well-known anomalies. Blyth (2012) cited other reshaping forces confronting quantitative practitioners, such as government intervention, regulatory reform and the fact that certain beliefs and model assumptions of fundamental managers have been refuted. Granted, all active managers face the same hurdles.

However, for resilient quantitative managers, setbacks and strains simply mean that they have to work even harder and adapt through constant innovation to stay ahead of the game. For example, we believe quantitative managers must:

- > Be aware of the natural shortcomings in quantitative approaches
- > Pay significant attention to details and the soundness of economic rationale
- > Have a pragmatic and intuitive understanding of the markets
- > Think creatively and use different ways to build stock return forecasting models

In short, they must adjust and improve.

Opportunities and the constant quest for improvement

Since 2007, the best quantitative managers have worked hard to differentiate their models and adapt to better handle risk exposures. As is often the case, the lessons learned from crisis help to inspire improvements and forge a stronger system.

Going deeper rather than wider. One example of a more resilient and differentiated approach is building more granular sector models instead of generic cross-sectional models. Parsing the investment universe into distinct groups according to their business models not only makes the comparison across companies more sensible, it also provides room to use industry-specific factors.

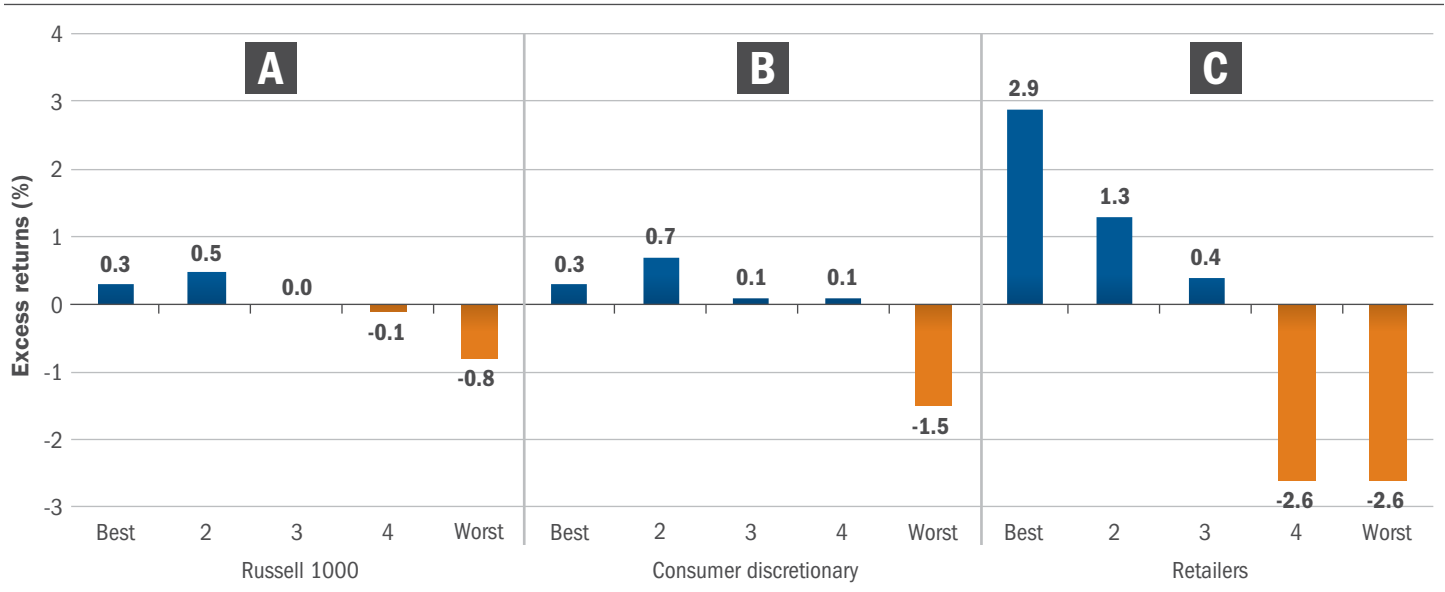
For instance, the consumer discretionary sector is a diverse, catch-all grouping; a more refined sector classification is warranted. Based on the characteristics of companies, the sector can be broken down into four distinct groups: durables, consumer services, media and retail, each with different drivers and relevant metrics. For retailers, inventory is one of the key determinants of success or failure. The importance of planning, buying and controlling merchandise inventory cannot be overstated. The speed with which inventory is sold (inventory turnover) is a key metric to measure competitiveness across the industry. Conversely, for media and consumer services companies, inventory management is not relevant.

Exhibit 2 presents the forward 12-month excess returns for the inventory management factor within the Russell 1000 Index, consumer discretionary sector and the retail subgroup. As illustrated in the chart (Zone A vs. Zone C), using this factor in the full Russell 1000 universe would dilute its relevance and efficacy. The factor offers a much more telling story when the larger universe is broken down into subcategories.

The Russell 1000 Index tracks the performance of 1,000 of the largest U.S. companies, based on market capitalization.

Exhibit 2: Quantitative measures, such as inventory management, are more meaningful at an industry-specific level

Excess forward 1-year returns for inventory management quintile portfolios



Sources: Columbia Management Investment Advisers, LLC and Quintile Relative Excess Returns, December 1986–October 2014

Past performance does not guarantee future results. It is not possible to invest directly in an index.

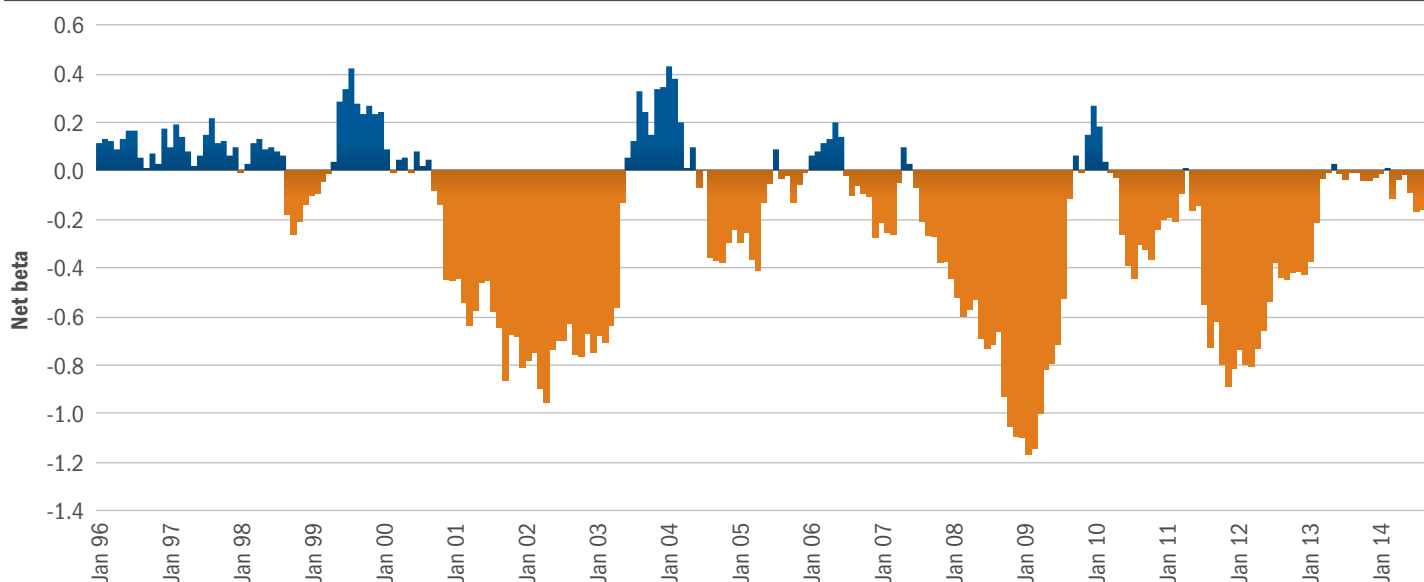
Just as investors must focus on diversifying their portfolios for exposure to a balanced mix of drivers, quantitative models must pursue a diversified range of decision drivers to generate alpha if they seek reliable outcomes. Managers can break down the drivers of investment decisions into a more dispersed series to analyze with proprietary and segment-specific data. We believe this enables managers to deliver more consistent and differentiated results that are less likely to ride common factors up and down with the herd.

Monitoring risk and return relationships. Having tools in place to monitor the risk and return relationships between quantitative factors is another essential step in helping

investment managers position portfolios properly under dynamically shifting economic conditions. For instance, Daniel and Moskowitz (2014) indicate that beta, a measure of a stock's volatility, is a key characteristic of momentum crashes. During a bear market, momentum strategies favor shares of defensive or counter-cyclical companies with low beta. However, when a rebound begins, significant upside volatility occurs, leaving momentum portfolios with substantial negative market exposure. That is what happened to the price momentum strategy in 2009. The net difference in beta between the top decile momentum portfolio and the bottom decile was a whopping -1.2 on March 9, 2009, the day stocks bottomed out (Exhibit 3).

Exhibit 3: Price momentum strategies suffered by favoring low-beta stocks when a rebound started in early 2009

Beta difference between high momentum and low momentum decile portfolios



Sources: Columbia Management Investment Advisers, LLC, sector-neutral decile price momentum portfolios, Russell 1000 Universe, January 1996–October 2014

A beta of less than 1 means the security will be less volatile than the market. A beta of greater than 1 indicates the security's price will be more volatile than the market.

Conclusions

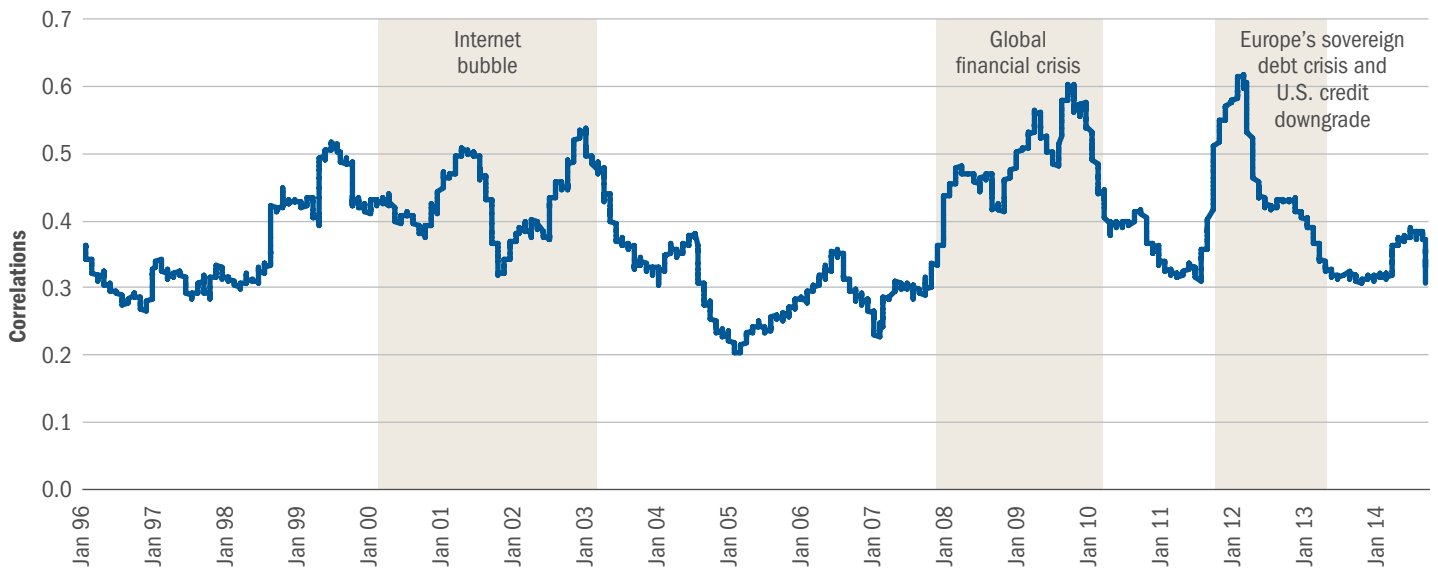
Quantitative and fundamental managers employ different investment approaches for alpha generation, and both have their own merits. We believe the choice of investment style is less important than choosing managers who have demonstrated long-term success with consistent investment processes, robust tool sets and solid equity platforms.

The market turbulence of recent years highlights the importance for all active managers to be vigilant about managing the hidden and unintended risk exposure of their

investments. Quantitative-style investing, if correctly applied, can reliably add alpha net of fees and is not necessarily doomed to periodic blow-ups if managers use (as we do) a differentiated and diversified set of inputs and are systematically wary of unintended factor build-ups. As correlations between risk factors have reached post-financial-crisis lows (Exhibit 4), managers have more opportunities to generate excess returns. Investors today can capitalize on these events if they don't shy away from the powerful and diversifying alpha source that distinguished quantitative investing can provide.

Exhibit 4: Correlations between risk factors have reached post-financial crisis lows

Rolling 6-month correlation between the Barra risk factor and returns



Sources: Columbia Management Investment Advisers, LLC, MSCI Barra, S&P 500 Universe, January 1996–October 2014

References

- > Blyth, Stephen, 2012. *The Quant Delusion: Financial Engineering in the Post-Lehman Dodd-Frank Landscape*. CFA Institute Conference Proceedings Quarterly.
- > Daniel, Kent and Moskowitz, Tobias J., 2014. *Momentum Crashes*. Working paper, NBER.
- > Fabozzi, Frank J., Focardi, Sergio M. and Jonas, Caroline, 2008. *Challenges in Quantitative Equity Management*. CFA Institute.
- > Jegadeesh, Narasimhan and Sheridan, Titman, 1993. *Returns to Buying Winners and Selling Losers: Implications for Stock Market Efficiency*. Journal of Finance.
- > Jegadeesh, Narasimhan and Sheridan, Titman, 2012. *Momentum*. Working paper, Emory University.
- > Khandani, Amir E. and Lo, Andrew W., 2010. *What Happened to the Quants in August 2007?* Journal of Investment Management.

Small-cap stocks today and for the long term

Jeremy H. Javidi, CFA, Senior Portfolio Manager

Wayne Collette, CFA, Senior Portfolio Manager

Richard D'Auteuil, Senior Portfolio Manager

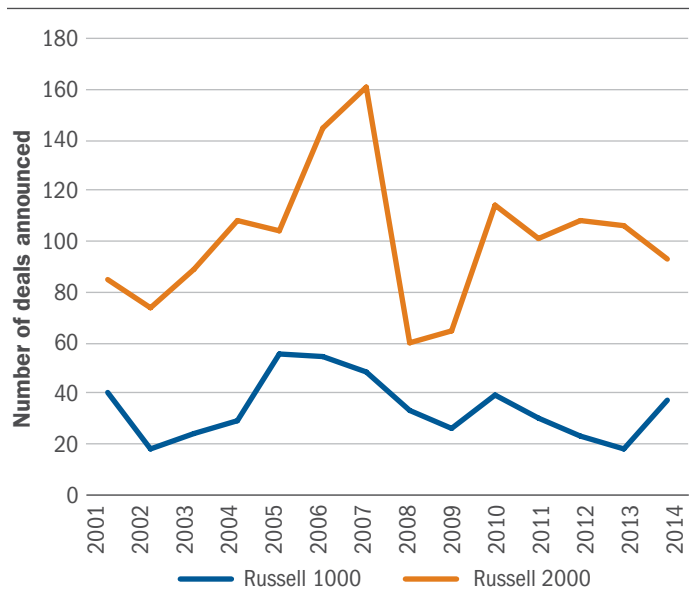
Christian Stadlinger, Ph.D., CFA, Senior Portfolio Manager

Pundits often compare the valuation of small- and large-cap securities and frequently come to different conclusions about which sector appears the most attractive investment. Our dedicated small-cap teams at Columbia Management came together to highlight why small cap is an attractive space for investors today and over the long run. We remain very positive about the growth attributes of small-cap securities. In general, small-cap companies are not as widely covered by research analysts as larger companies, and they offer the opportunity to unlock value through increased merger and acquisition activity. Over time, the higher returns from small-cap securities are also associated with higher volatility, so it is always important to consider the sector within an asset allocation framework.

Merger and acquisition premiums

Acquisition premiums can be a significant driver of investment returns over time. While it is impossible to know in advance if a company is contemplating a sale, the number of transactions over time has been both cyclical and consistent.

During recessionary periods, mergers and acquisitions often take a back burner as companies aim to improve their primary business lines and protect cash flow. However, toward the tops of economic cycles, the excess cash flow that companies generate has often flowed to mergers or acquisitions as a way of enhancing growth during a period when the core business is peaking. Over the past 14 years, merger and acquisition activity has reduced the small-cap universe by about 5% per year.

Exhibit 1: Small-cap merger and acquisition activity may be set to rise

*2014 is an annualized number; data available through 09/14

Sources: Bloomberg, Columbia Management Investment Advisers, LLC

As shown in Exhibit 1, recent merger and acquisition activity has increased among large-cap securities, whereas announced deals among small caps have been falling. For a few reasons, we believe this trend may reverse:

- > Increased large-cap activity may be a precursor for future mergers and acquisitions in small caps. In the last market cycle, large-cap deals picked up 12 months prior to a rise in small-cap deals.
- > The current market continues to be conducive to deal volume. Within the bond market, liquidity is prevalent and yields are inexpensive. For acquirers, balance sheets and cash flows are strong, and current margins are at historically high levels.
- > Slow worldwide economic activity has resulted in excess capacity in most industries, keeping capital expenditure projects in check. Companies may use capital for mergers and acquisitions instead.

- > If interest rates rise, the cost of capital will increase. This may act as a catalyst for potential buyers to accelerate merger and acquisition activity in the near future.

The payoff for shareholders of the acquired companies is often significant, as control premiums have historically ranged from 15% to greater than 50% above the stock's prior trading range. (Control premium is the amount the buyer is willing to pay over the current market price to acquire a controlling share in the company.) Although we can't be certain which companies will be acquired, we can improve the probability of success by understanding the traits that make a company more attractive to acquirers, and by having exposure to those companies. While we do not explicitly invest in a security in anticipation of it being acquired, when an acquisition occurs it is often a very profitable way to exit such a position.

In addition, as companies are acquired, the replacements into the small-cap indices are often new companies. These new companies, some of which may come from initial public offerings, may be growing faster than the companies that were acquired. This allows the small-cap asset class to have an inherent bias toward innovative growth relative to larger, mature companies.

Small caps receive a growth premium

Historically, small caps have traded at a premium valuation to large-cap securities. Research from Bank of America/Merrill Lynch suggests that the price/earnings ratio for small-cap securities has historically been 1.6x greater than the multiple on large-cap securities, a premium that approximates the market's position as we pen this article. However, if we change the lens and overlay the growth component, small caps look relatively inexpensive from a historical perspective.

Over time, growth from small-cap securities has outpaced both large- and mid-cap securities. (For this exercise, we define large caps as the Russell 200, mid caps as the Russell 800 and small caps as the Russell 2000.) Looking at long-term earnings growth forecasts over the past 25 years, we see an average 12% long-term growth forecast for

small-cap securities — a significant premium to the 10.3% expected growth rate for mid caps and 10.2% for large caps. Since 1990, long-term earnings growth expectations for small caps have been higher than those for large caps in 92% of the months and higher than those for mid caps in 93% of the months.

One measure that combines the price/earnings ratio and growth expectations is the PEG ratio, defined as PE/growth rate. This metric indicates the multiple of earnings investors pay per unit of growth. For this calculation, we used the forward earnings estimate for the P/E component and the long-term growth rate for the growth factor.

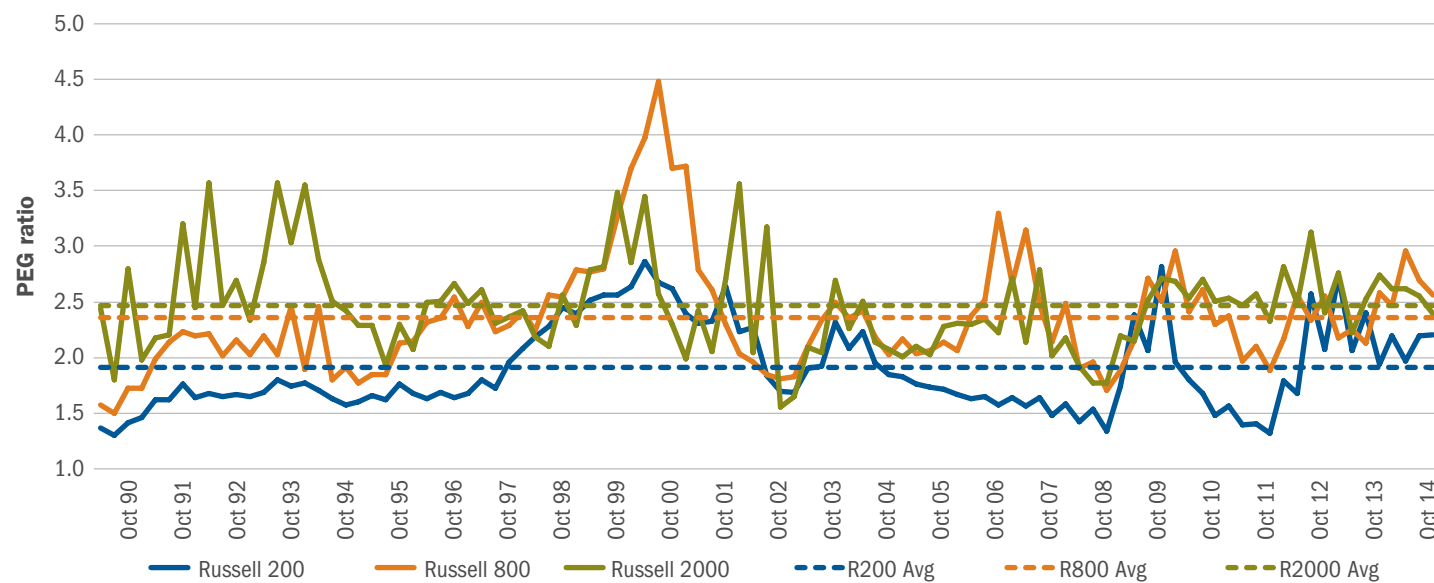
As the data in Exhibit 2 shows, the small-cap universe has historically and consistently commanded a premium PEG ratio. We believe this is due to the consistent premium growth rate relative to both large- and mid-cap securities

over time. When compared to their 25-year historical PEG ratio, small-cap securities are currently trading at a discount. Today's small-cap PEG ratio is tracking below its historical average of 2.5x, at 47% of the historical range. Conversely, large caps and mid caps are currently above their long-term averages, at 75% and 78%, respectively, over the 25-year range.

Direct participation in economic growth trends

One characteristic that tends to drive interest in small-cap securities is their focused end markets. When an economic trend becomes evident, investors can often invest directly in the trend through small-cap companies because of their monoline nature. For large companies, the growth area may represent a small portion of overall business, whereas in small companies the anticipated growth can flow directly to shareholders without being diluted by other activities.

Exhibit 2: Small-cap securities are trading at a discount to their historical PEG ratio



Sources: Columbia Management Investment Advisers, LLC, FactSet and IBES

The Russell 2000 Index measures the performance of the 2,000 smallest companies in the Russell 3000 Index, which represents approximately 8% of the total market capitalization of the Russell 3000 Index. The Russell Top 200 Index measures the performance of the 200 largest companies in the Russell 1000 Index. The Russell Top 800 Index measures the performance of the 800 largest companies in the Russell 1000 Index. It is not possible to invest directly in an index.

Under-covered (and unrealized) opportunities

Part of the attraction to small-cap securities is the lack of attention they garner from the broader investment community. For example:

- > Each large-cap security has an average of 21 analysts providing earnings estimates.
- > Each mid-cap security has an average of 10 analysts providing earnings estimates.
- > Each small-cap security has an average of only four analysts providing earnings estimates.

Having fewer earnings estimates can be an advantage for active small-cap managers, as we can apply fundamental analysis to underfollowed securities and find attractive opportunities for our clients. With fewer analysts covering each stock, active portfolio managers have more opportunities to identify value that has not yet been recognized by the market or reflected in a company's stock price.

Favorable conditions for long-term investors

Over time, small-cap securities have produced strong risk-adjusted returns for investors. In today's market environment, we find there are still many small-cap companies with attractive growth prospects, given the improving economy. While the overall world of investing is becoming more crowded, with round-the-clock business news channels and websites reporting information, we still find that there is a tremendous number of under-covered opportunities in small cap. In addition, it appears that we are mid-cycle in merger and acquisition activity following the great recession. There may be a significant acceleration in activity over the next couple of years.

For all these reasons, we believe small-cap securities can offer investors the same benefits they have delivered throughout history.

Investing in economic moats

David Dudding, Fund Manager, Threadneedle Investments*

The longer a company can generate significant cash flow, the more it is worth. It therefore stands to reason that a business that enjoys a significant competitive advantage is likely to be more valuable than one that does not. And if the market underestimates the time that the business can enjoy that competitive advantage, then the stock is undervalued. These are the principles behind “economic moats,” a concept mainly associated with Warren Buffett. In medieval times, the wider a moat, the harder it was to attack a castle. The same is now true for companies, and these are the sorts of businesses in which we look to invest.

Unlike their medieval counterparts, there are many types of economic moats:

Patents. Most often associated with the pharmaceutical or technology industries, competition is expressly forbidden during the lifetime of the patent, giving the patent holder monopoly pricing. But patents have a limited life span and are often subject to litigation, so their advantages are not necessarily the most sustainable (hence the rise of generic drug companies in recent years).

Cost advantage. A more defensible moat, cost advantage is typically found in commodity-type industries. Over time, the price of a commodity should revert to the cost of the marginal producer; the low-cost producer can therefore

always make money, forcing those above it in the cost curve out of business if the industry is rational. Ryanair and Spirit Airlines work on this principle. They can offer the lowest fares in their industry, and with a tight focus on costs they can still generate solid profits.

CSL, an Australian health care company, is the global leader in products like albumin, derived from human plasma. This is a highly regulated industry; the United States is picky about where it accepts plasma imports from, so the industry is oligopolistic. The few companies involved have to collect plasma and fractionate it into various products. CSL has the lowest collection costs among its peers, so it derives more products — and therefore higher revenues — from one liter of plasma than its competitors can.

Brand. Most of us realize that it does not cost much to produce a can of Coca-Cola, certainly much less than the cost at which the product is sold. Given the scale of the company, this makes it very profitable and seemingly vulnerable to competition. Although the product tastes great and the recipe is a closely guarded secret, it is quite possible to come up with a product almost as good. Indeed, there have been periods when consumers have preferred other types of cola. So why is Coca-Cola still dominant more than 100 years after the original product

*Threadneedle International Limited is an FCA- and a U.S. Securities and Exchange Commission registered investment adviser based in the UK and an affiliate of Columbia Management Investment Advisers, LLC.

was developed? It largely comes down to the consistency and success of the company's global advertising and marketing over time. No wonder global consumers recognize that "Coke is it" — or that Warren Buffett has been a shareholder in the company for years.

Is it possible to find companies like this in other parts of the world? Certainly. In fact, even countries can successfully brand themselves or their products. German cars often sell at a premium. The Swiss are associated with chocolate and watchmaking, which is wonderful news for Lindt and Vacheron Constantin, respectively. The watchmaker, part of the Richemont group, was established in 1755. That means it has successfully negotiated a path through the French Revolution, democratization, two world wars, the move to wrist watches and digital watches. Will Vacheron Constantin's manual watches withstand the arrival of the Apple Watch? We think so. The Swiss are also known for banking secrecy — only this trait may come under threat sometime soon.

Distribution. In emerging markets, the recipe for competitive success might be as simple as "feet on the street," or the strongest distribution network. The life insurance company AIA, listed in Hong Kong, benefits from this advantage. Selling insurance across the Asian Pacific region or even in single countries like Indonesia is a highly complex industry, with a regulatory minefield and a long lead time to train the necessary army of salespeople. Deep pockets are required, and at a time when European insurers have their own battles to fight and are pulling out of the region, AIA's moat is getting wider.

Resilient pricing. Moats can crop up in the most peculiar industries. Paint, for example, has extremely resilient pricing. Sherwin-Williams in the United States makes and distributes architectural coatings through a network of its own stores. It targets the professional painter. Because

the price of paint is much less important than the price of labor in the overall cost of a job, contractors are happy to pay more for a better quality product that takes less time to apply. No surprise then that Warren Buffett owns another paint business, Benjamin Moore.

So if moat investing is so successful, what are the drawbacks and why isn't everyone doing it?

1. There is no uniform, clear-cut way to measure the size of the moat. It can be very difficult to make an accurate financial or quantitative assessment of the competitive advantage enjoyed by any particular business.
2. Perhaps more significant, business models themselves can simply lose their strength. Castles were great in a world of bows and arrows, but less useful when cannons arrived on the scene. The internet is the modern equivalent. Newspapers used to enjoy quasi-monopolies, but as advertising has shifted online the model has come under increasing pressure. The same goes for a whole host of industries:
 - > CDs and DVDs aren't quite the thing today (we stream instead).
 - > Banks no longer require as many branches.
 - > Families do not gather around the television every night (bad for network advertisers).
 - > Plastic or mobile phones might replace cash.

Moats can simply evaporate.

In our view, the market probably overestimates the risk of a moat evaporating, seeing potential disruptors around every corner. For well-moated companies, the risks are small. The incumbent is undervalued if the fear is exaggerated. The concept is a great starting point for successful investors, and the search goes on: Long live the moat.

Foreign investments are subject to risks, including political, economic, market, social and others within a particular country, as well as to currency instabilities and less stringent financial and accounting standards generally applicable to U.S. issuers.

The securities listed are for illustrative purposes only, subject to change and should not be construed as a recommendation to buy or sell. Securities discussed may or may not prove profitable.

Asia Pacific ex-Japan equity market outlook: A quality of growth story in 2015

Soo Nam Ng, Head of Asian Equities for Threadneedle Investments*

Since the beginning of 2014, the Asia Pacific ex-Japan equity team in Singapore has been positing the emergence of “great moderation” dynamics in Asia. We see the economic slowdown developing into a period of sustained but moderately high growth, characterized by level-headed economic policies and adaptive corporate behavior that could spell a prolonged period for harvesting equity returns. In essence, we believe the quality of growth in Asia should continue to improve, which sets the context for us to survey the investment landscape for 2015.

Quality upon quantity (of growth)

As of this writing, many companies in Asia are already enjoying more stabilized earnings trajectories, albeit at growth rates that look to be lower than in Asia’s hyper-growth era. A rerating of equity values has occurred in pockets where investor confidence has recalibrated around revised growth expectations. Our forecast for 2015 includes further recovery in investor confidence, particularly as China is able to navigate a path to lower, more sustainable growth.

Most of our actionable stock ideas in 2014 revolved around the rerating of equities benefiting from stabilized growth. Going into 2015, we believe fresh ideas may depend more on the improving quality of growth — for example, improvements in the country or sector operating

environment, company-specific competitive advantages or the ability to generate more profits, cash flow and dividends. In the later part of 2015, such quality improvements could add up to accelerating corporate earnings growth, as improved corporate efficiencies deliver results even as gross domestic product (GDP) growth rates remain modest.

Policy-driven quality

China, India and Indonesia are our top picks for quality improvement in the macroeconomic and political environment. China has labored at reforms to anchor sustainable growth since Xi Jinping took power in 2012 — across the full spectrum of what needed to be done. The country accepted the tradeoff between quantum growth and quality growth as it focused on defusing the shadow-banking credit bubble, fighting corruption, improving environmental standards, progressively liberalizing the financial sector and bolstering the rule of law. The fact that China has done all of these and managed to sustain more than 7% year-over-year GDP growth for each of the past 10 quarters is a feat that bodes well for 2015.

India and Indonesia once again exemplify what good leaders can do for their countries. Hopefully politics will not interfere with Prime Minister Narendra Modi and President Joko Widodo (Jokowi) as they get down to the nuts and

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bolts. Jokowi might enjoy more scope for upside surprises, as there are some low-hanging fruits that he can avail even if the parliament may not be easy at times. The risk of over-optimistic expectations for India notwithstanding, the dynamism of India's companies holds its own lure, although near-term stock valuations are by no means cheap after the rally in 2014.

We envision rich stock picks in sectors where government policies are becoming more supportive of growth.

- > In China, fiscal reforms have placed infrastructure spending under tighter controls to ensure money is used for projects that make economic sense, such as in intensifying the usage of the high-speed rail network. We also see scope for capacity utilization improvements in areas where incremental capacity is being added at a more orderly pace (or in some cases being removed). Also, government regulatory policies have become increasingly more market-friendly, such as in allowing timely tariff adjustments to enable cost pass-through for the gas utility sector.
- > In Indonesia, Jokowi already implemented one round of fuel price hikes after taking power in order to reduce energy subsidies. This should free up the fiscal budget for much-needed economic infrastructure.
- > In India, the same shift toward more market-based pricing mechanisms is likely. The country has its own subsidy of sorts that not only drains the budget but also distorts resource allocation.
- > In South Korea, we are hopeful that the government will continue to nudge listed companies to pay more dividends because we suspect the National Pension Service, a heavy investor in its equity market, may start to need such dividend flows as the population ages.

Countries such as Malaysia, Thailand and the Philippines that lack policy momentum supporting quality growth rank low in our preferences, although selective bottom-up ideas may beckon.

Market-driven quality

Beyond policy-driven quality gains, there is another theme in place linked to the emerging quality of growth in Asia — efficiency imperatives in a competitively driven marketplace. We present three variations on this theme below:

1. **e-commerce** will continue to challenge traditional models, forcing an accelerated shift toward more efficient ways of doing business. Information technology, including the widespread acceptance of ultra-high-speed wireless internet, will continue to drive the efficient flow of goods and services along the supply chain. Meanwhile, smart inventory management and logistics fulfillment will help drive down costs. Within the equity markets, we see actionable opportunities in companies that are able to gain online consumption penetration, as well as modern logistics enablers that are critical to the efficiency upshift.
2. **Market leaders** stand to benefit in industries where tier two players can no longer leverage ultra-high growth to gain the business traction needed to challenge market share. In a moderate growth environment, such leaders are better positioned to consolidate their lead by acquiring smaller players. The field for such opportunities remains fertile, particularly in the banking and insurance sectors in developed Asia and regulated sectors across the region.
3. **Moderate growth companies with ongoing cost reduction initiatives** will continue to enjoy our attention, unless growth overall accelerates. The Singapore and Australia markets offer rich pickings, but selective opportunities are also beginning to surface among stocks from China and Hong Kong.

Risks to consider

- > Areas where competition remains aggressive and fluid, such as in the smartphone space, warrant caution. Samsung's leading market share is likely to erode as its ability to meaningfully differentiate its products diminishes.
- > Valuation might be a risk in some sectors where scarce ultra-high growth has resulted in stretched valuations, such as in some e-commerce and pharmaceutical names.
- > Events outside Asia ex-Japan will also remain important on the risk front, particularly with regard to U.S. interest rates and the Japanese yen.
- > Security events in the Middle East may have a short-term effect on sentiment, but we do not expect them to disrupt Asia fundamentals unless there is a major escalation in tension.

Executing substantive reforms at the government and corporate level is never simple. We fully anticipate setbacks along the journey to a higher-quality growth environment. However, we are confident in the broad direction of change and believe that durable investment opportunities will continue to emerge within the Asia Pacific equity universe as 2015 unfolds.

Selectively optimistic on European equities

Paul Doyle, Head of Europe ex-UK Equities, Threadneedle Investments*

Dan Ison, Head of Pan European Equities, Threadneedle Investments*

It would be easy to characterize 2014 as a “lost” year for investing in Europe. Economic growth lagged and equity valuations remain depressed by a number of measures. However, we have seen huge changes to the macroeconomic and market environment. Despite the likelihood that economic growth will continue to struggle in 2015, certain company earnings could get a currency boost, which in turn could help lift valuations for select stocks. We believe the winners in this environment will emerge among high-quality growth companies with strong cash flows.

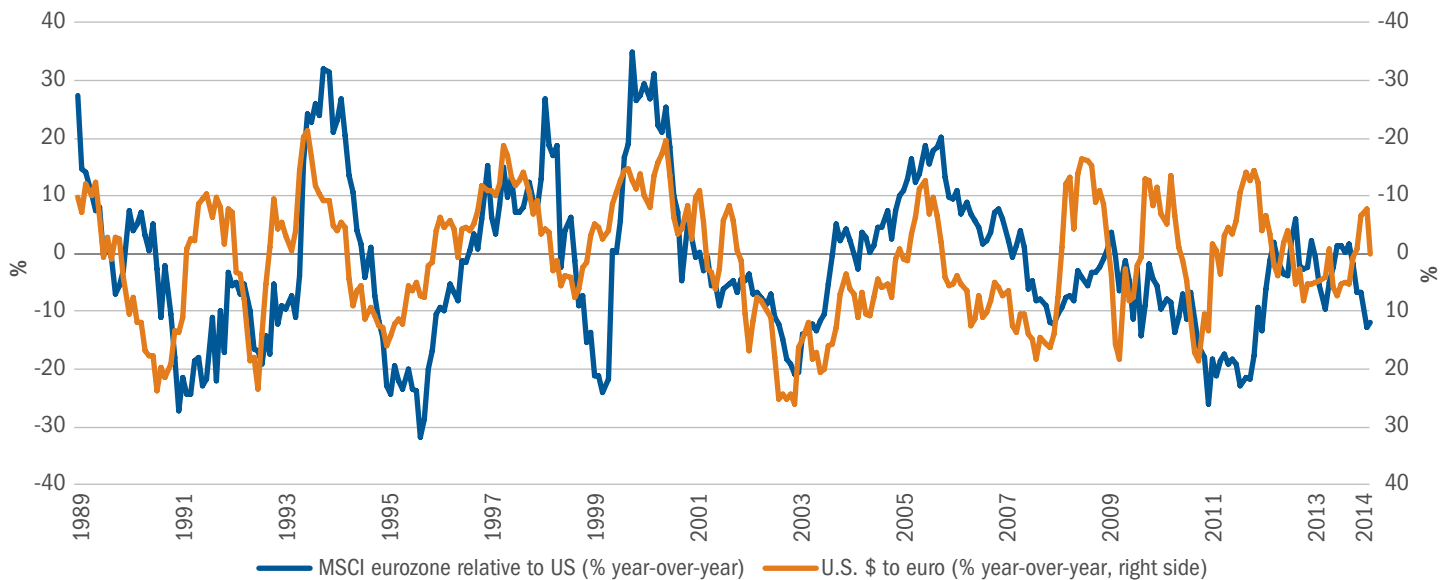
Review of 2014: Central bank actions start to add value

In 2014, investors finally recognized that the hangover from the financial crisis cannot be corrected with a short-term fix. The European Central Bank (ECB), led by an especially dovish Mario Draghi, initiated unconventional policy measures and another asset quality review (AQR) stress

test for the banks while keeping interest rates at or near zero. Nevertheless, we have not seen any recovery in domestic demand in Europe, which faces the prospects of a triple-dip recession and deflation.

A more favorable currency relationship. The ECB’s actions have another important consequence: The euro declined from a peak of more than 1.40 vs. the dollar in May 2014 to 1.25 in December 2014. This should alleviate some of the deflationary pressures. In addition, at times there has been a strong correlation between European equities’ relative performance and a weaker euro (Exhibit 1). European corporate earnings were downgraded progressively through most of 2014 but should see a boost from the weaker currency in 2015. Still, interest in European equities has waned, and flows out of the asset class have reversed much of the inflows seen in early 2014.

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Exhibit 1: European equities often outperform relative to U.S. stocks when the euro weakens

Sources: JP Morgan, Datastream

Modest growth and manageable inflation. At its last meeting, the ECB said it is committed to “using additional unconventional instruments within its mandate” but qualified the statement by adding, “should it become necessary,” and, “if needed...taking into account new information and analysis.” Third-quarter 2014 gross domestic product (GDP) in the eurozone grew 0.6% quarter-over-quarter and 0.8% year-over-year. Although this is below the recent trend, it is hardly so low as to require an extraordinary policy response. Similarly, core inflation (excluding food and energy) is undershooting the ECB’s target of close to 2% — sitting just under 1%. This is not much below that of the United Kingdom at 1.5%, where GDP is growing by more than 2%. In our view, this is not a bad thing. Falling food and energy prices are as much a boost to the European consumer as they are in the United States and United Kingdom. Draghi recently said, “The recent drop in oil prices...should support real incomes.”

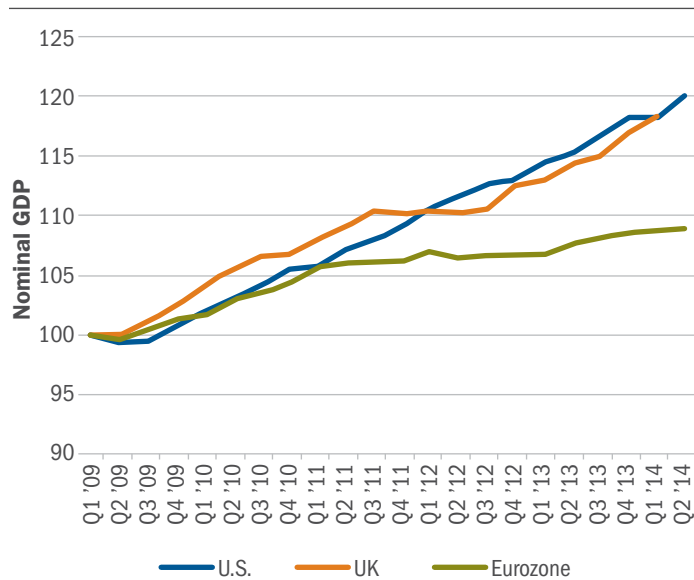
Positive trends for capital flows. Europe has high operational leverage. A 1% change in U.S. GDP typically translates into a 10% increase in corporate profits. But in the eurozone, the operational leverage is twice this. So a 1% increase in GDP would lift profits by closer to 20% because stock market profits represent a smaller share of GDP in the eurozone than in the United States. This sensitivity of eurozone equities to changes in GDP growth also affects capital flows to a greater degree than in other regions, and this has had an impact on the currency as well. We do not necessarily assume the ECB will launch full-scale quantitative easing; it is not even certain that outright purchases of government bonds would change banks’ lending behavior, given that they are already awash with excess reserves. But the lack of important failures in the AQR removes one of the reasons for European banks to shrink their balance sheets. If bank credit starts to flow again after the AQR, this should have a positive impact on

growth in Europe. The money supply has already improved since April, with the broad M3 money measure up 2.5% year-on-year.

Will we ever see a recovery in European earnings?

While corporate profits in the United States and the United Kingdom have recovered in a fairly conventional way, in Continental Europe they have lagged. This can partly be explained by the divergence of nominal economic growth seen in the eurozone vs. other western economies, particularly since 2011 (Exhibit 2).

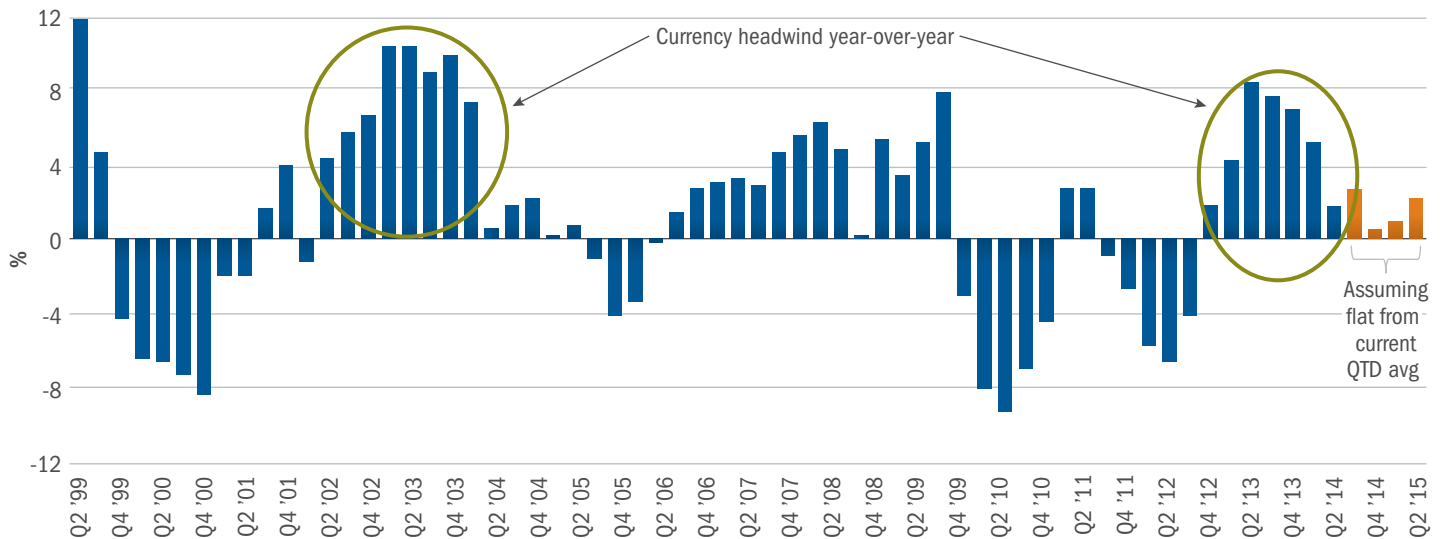
Exhibit 2: Economic growth in the eurozone has diverged from other western economies



Progression in nominal GDP in the United States, United Kingdom and eurozone

Source: Datastream, September 2014

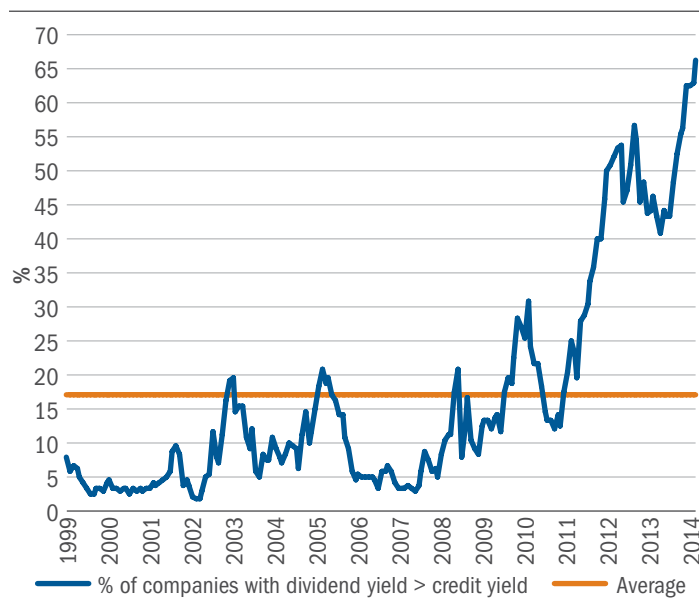
European companies have significant exposure to emerging market growth (more than companies in the United States, for example) and therefore were affected by the slowdown in the BRIC (Brazil, Russia, India and China) economies in 2014. In addition, geopolitics has affected confidence, with the continuing conflict in Ukraine and Russian sanctions hitting exports. Thankfully, expectations for exports in 2015 are already cautious, with earnings growth expected to be around 11%, 3%–5% of which will come from the weaker euro (Exhibit 3). Although this is similar to the forecast as we entered 2014, we believe the extra currency boost makes expectations more achievable this time around.

Exhibit 3: Headwinds from a stronger euro are likely to fade in 2015

Source: UBS, November 2014

You may have heard the saying, “Be greedy when others are fearful.” You can do this when valuations look compelling, and we see a number of factors supporting the relative valuation of European equities:

- > The real yield gap in Europe is currently at 90% of its level at the peak of the financial crisis. More than 60% of European stocks yield more than credit (Exhibit 4).
- > Cyclical stocks are only 5% above their 2009 lows.
- > Eurozone stocks lag the United States by 22% year-to-date in 2014 (Exhibit 5); they are again below the lows reached in the summer of 2012.
- > The U.S. market has outperformed Europe by 45% since 2007 and is now trading at a 30-year premium relative to Europe on a cycle-adjusted basis, while the United States/Europe profit gap is at a record high.
- > The AQR bank stress test has been completed, and bank balance sheets have been rebuilt by more than €200 billion. Meanwhile, targeted long-term refinancing operations are offering at least €400 billion at a rate of 15 basis points (bps) over the next four years to support bank lending (conditional on the banks actually lending to the real economy). The European credit survey is at its best level in seven years. M1 (a good leading indicator for bank lending) is already improving. The eurozone credit cycle is turning, and German lending growth has already turned positive.
- > Falling oil and food prices and a weaker euro also support growth.

Exhibit 4: More than 60% of European stocks yield more than credit

Sources: FactSet, Datastream, Goldman Sachs Global Investment Research

Eurozone equities have lagged those of the United States by more than 20% over 2014-to-date in common currency terms, and the price differential is even lower than it was at the height of the eurozone crisis. The Shiller (cycle-adjusted) price/earnings (P/E) ratio for Europe is only 13.5 times vs. more than 18 times for the global average and more than 20 times for the United States. On a price-to-book basis, the eurozone at a discount of 50% is trading at the bottom of its historic range relative to U.S. stocks. Earnings per share for the S&P 500 Index are more than 20% above the peak reached in the last cycle, while eurozone earnings are more than 30% below their most recent peak.

Exhibit 5: Eurozone stocks have underperformed U.S. stocks

Sources: Datastream, JP Morgan

Conclusion

We remain skeptical that European domestic economic growth will accelerate, even if the ECB introduces full-blown quantitative easing. We also do not expect any help from emerging economies in the short term, so many companies relying on those markets will struggle. Dollar earners will disproportionately benefit, and we have tilted our portfolios toward these stocks.

Europe is still home to many global winners with strong balance sheets and rising dividends. We also find many stock-specific situations with the potential to boost portfolio performance. In a low-growth and low-inflation world, European equities offer good diversification benefits, particularly where portfolios are dominated by high-quality growth companies that continue to generate strong cash flow and dividends.

Trending: Socially responsible fixed-income investing

Chad Farrington, CFA, Head of Municipal Bond Credit Research and Senior Portfolio Manager
Robert McConnaughey, Director of Global Research

While it has been part of U.S. equity investing for decades, socially responsible investing is relatively new to the fixed-income space and to the municipal bond arena in particular. It is quickly evolving, however, and gaining traction as an important component in many individual and institutional fixed-income portfolios.

An investment philosophy that goes beyond assessing financial return and considers broader social implications dates back to when the Quakers prohibited investments in the slave trade. Similar approaches are evident in other parts of the world, with ethical factors playing an integral role in investment approaches.

Until recently, ethical investing has focused on avoiding exposure to perceived negative activities. Ethical investors direct capital away from companies involved in industries such as tobacco, firearms and other products that are viewed as detracting from the overall social good. Many investors have gone a step further by investing in companies that make positive social contributions. In its most advanced form, this practice is known as impact investing.

We believe efforts to bring societal impact into the investment decision process will continue to expand as it becomes increasingly clear that the strategy can be executed without necessarily sacrificing long-term financial returns. However, ethical investing must be approached in a balanced and disciplined manner to meet a broad range of goals.

Municipal bonds are designed to serve society

One area particularly well suited to socially responsible investing is local municipal bonds, which offer a cost-effective way to fund programs and infrastructure to serve the public good. For example, local roads, bridges and water and sewer systems are public assets essential for a functioning society. Programs such as public education can create opportunities for economic advancement, while affordable housing and health care provide support for the neediest in our society.

Municipal bond issuers, either governmental or non-profit organizations, use net revenue from bond offerings to advance their missions of providing health care, maintaining roads, educating underserved populations and building affordable housing. Investors focused on balancing financial returns with positive societal impact could easily start with a universe of municipal investments designed to serve the public good.

We believe in the typical course of constructing a municipal bond portfolio; elements of social importance can be incorporated so that investment performance is not sacrificed. In fact, in many cases, the more effectively and efficiently a municipality applies the proceeds of an offering to advance the public good, the stronger its fundamental credit. Therefore, analyzing positive societal impact and fundamental credit are actually related exercises.

A municipal bond's issuing documents detail how proceeds will be used and allow investors to determine the investment's intended social impact. We begin our muni investment process by assessing the issuer's fundamental credit strength. We review various time-tested factors to determine default risk but focus on the financial strength of the organization and the likelihood that it will be able to repay its debt obligations in addition to its ongoing operating expenses. If the price of the bond appropriately compensates for the risks, we will consider making an investment.

Since our investment process already includes an analysis of what the bond proceeds will be used for, it is easy to take the next step: to identify the universe of offerings that have these credit characteristics and also fulfill socially responsible goals. Some examples of projects that we believe align closely with socially responsible values include:

- > Affordable housing developments
- > Charter schools that produce high graduation rates in poor communities
- > Water treatment projects that prevent wastewater from polluting rivers or lakes

Again, delivering these services effectively and cost efficiently is good for the credit and for the sustainability of these worthy programs.

In addition, in today's environment of increasing tax rates and depressed yields on Treasury securities, municipal bonds provide investors with a compelling combination of tax-exempt interest income and the opportunity to fund projects with significant positive social outcomes. In the end, a dollar of tax-free income gained from such investments is a dollar that can be reinvested in additional positive impact.

Corporate bonds require diligent analysis

The much larger corporate bond market also offers opportunities for advancing socially responsible investing ambitions. However, it can be difficult to determine how money raised in the corporate bond market is being put to work. We are extremely wary of the real impact of some "green bond" offerings, especially from issuers with questionable credibility when it comes to responsible corporate practices. Therefore, we believe that investors should consider an issuer ranking or screening technique combined with an analysis of specific acceptable policies and practices. In our view, this approach builds on what our analysts have always focused on when analyzing investment opportunities: Credit analysis is fundamentally about the sustainability of a business.

We want to be vigilant about any threats to that sustainability, whether from competition, macroeconomic forces, environmental regulation, changing consumer preferences or declining relations with a labor force. Technology and social media have accelerated the speed at which information is spread around the world. For businesses, new tools allow for more efficient marketing and delivery of better products. However, they also mean that companies must be more careful to avoid negative public opinion. For example, consumers can quickly shift buying habits away from companies that use child labor in China or run factories that pollute community water sources.

Today's consumers are acutely aware of the potential effects of issues such as climate change or practices such as genetic engineering of food. And they appear to be much more willing to alter their buying preferences away from products with negative societal effects and toward those with positive results. Therefore, it is not surprising to find that companies that are proactive and dedicated to adapting their businesses to deal with and solve these challenges are often the strongest performers in their respective industries.

Longer term financial return is not necessarily diluted and may even be enhanced by focusing on companies that understand the benefits of addressing social issues. These companies have discovered a way to manage the environmental impact of their production methods and assure the respectful and inclusive treatment of their customers and staff, all within a disciplined financial model.

A growing trend with real potential

It is clear that an increasing percentage of the public is conscious of how its purchasing decisions affect the world. More consumers worry about sustainability and inherent fairness within society, and more investors seek benefits beyond pure financial return. This awareness is driving rapid growth of the socially responsible investment segment from a market niche to a powerful mainstream trend.

We believe this growth is commendable and likely to continue. There is real scope to bring together investment opportunities that marry attractive financial returns with meaningful social outcomes. It will take discipline, skill and broad resources to ensure those goals are effectively combined to deliver a win-win proposition. However, we believe that it will be well worth the effort. Doing well while doing good is a compelling outcome to pursue.

Income from tax-exempt municipal bonds or municipal bond funds may be subject to state and local taxes, and a portion of income may be subject to the federal and/or state alternative minimum tax for certain investors. Federal income tax rules will apply to any capital gains.

There are risks associated with an investment in bond investments, including the impact of interest rates, credit and inflation. In general, bond prices rise when interest rates fall and vice versa. This effect is usually more pronounced for longer term securities.

Interest rates: Farewell, liquidity trap

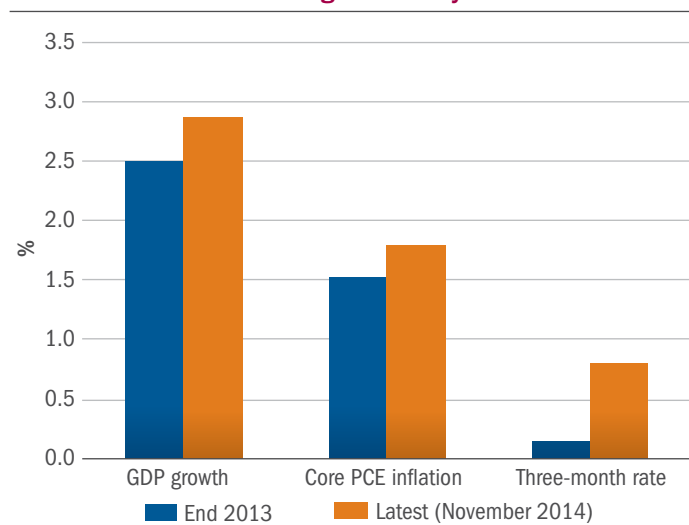
Zach Pandl, Portfolio Manager and Strategist

With continued growth and further improvement in labor markets, the Federal Reserve (the Fed) looks likely to begin raising short-term interest rates in 2015, marking an end to the lengthy liquidity trap in the U.S. In our view, government bond markets are unprepared for this outcome at current yield levels. Investors should brace for a year of challenging returns.

Better domestic economy but lower rates

At this time last year we argued that the U.S. economy would continue to recover in 2014, and that gradually rising rates would prove a headwind to high-quality fixed-income returns.¹ We now know that the former view was correct, but the latter was not. Exhibit 1 shows changes in survey expectations for gross domestic product (GDP) growth, core inflation and short-term interest rates one year ahead, comparing the end of 2013 to the latest observation. Expectations for these key drivers of bond yields — growth, inflation and policy rates — all moved higher over the course of 2014.

Exhibit 1: Expectations for GDP growth, core inflation and short-term rates higher on the year



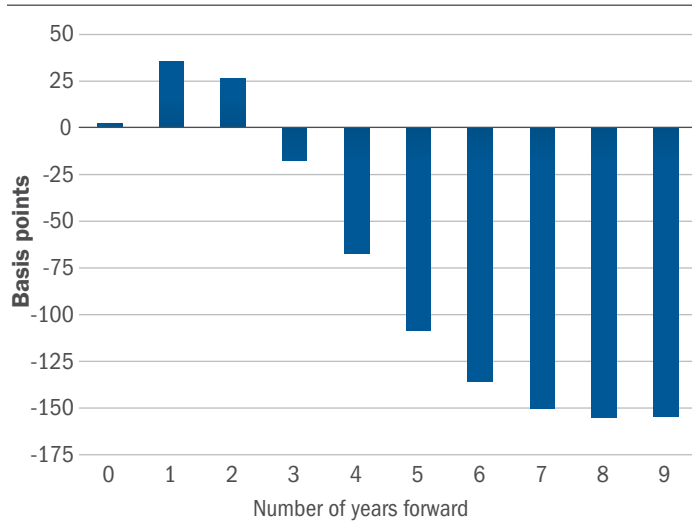
Sources: Consensus Economics and Bloomberg economist surveys

Despite this improving economic backdrop, long-term Treasury yields declined in 2014, providing a tailwind rather than a headwind to fixed-income returns. The move lower in Treasury yields was not uniform across maturities, however, and the marked changes in curve shape hint to the likely drivers of the rally. As shown in Exhibit 2, near-term forward rates increased as the market began to discount the prospect of Fed rate hikes. In contrast, forward rates three or more years out fell sharply, and those more than six

¹ "Interest rates: Halfway home," Columbia Management 2014 Perspectives, December 2013.

years forward fell by 150 basis points (bps). The net result was a much flatter yield curve, caused primarily by lower long-term forward rates, rather than higher near-term forward rates.

Exhibit 2: Drop in distant forward rates drove Treasury yields lower (change, year to date)



Source: Columbia Management Investment Advisers, LLC

This steep decline in forward rates has been a puzzle for many bond investors. And even in hindsight the causes are not entirely obvious. However, our research suggests two broad explanations:

1. Monetary easing outside the U.S.

Although the Fed moved closer to exiting its easing strategies, both the European Central Bank (ECB) and Bank of Japan (BOJ) stepped up their monetary easing campaigns. The ECB cut short-term interest rates into negative territory, introduced targeted long-term refinancing operations and began purchasing covered bonds and asset-backed securities. For its part, the BOJ significantly expanded its quantitative easing program in late October 2014. Central banks in a number of other countries also cut policy rates, including Sweden, Poland, Korea and Mexico.²

In our view, monetary easing overseas goes a long way to explaining why U.S. rates unexpectedly declined this year (Exhibit 3). The normalization of U.S. policy proved the exception rather than the rule.

Exhibit 3: U.S. and eurozone on divergent policy paths
1y1y swap rates



Source: Bloomberg

2. The secular stagnation thesis

Ever since Larry Summers resurrected the concept in November 2013, the idea that developed market economies might be facing a “secular stagnation” has played a role in the debate among bond investors, perhaps because the idea feels intuitively correct to many observers.

Secular stagnation is a blanket term covering many ideas about the economy. Two of these ideas, which may not be mutually exclusive, have bearing on the outlook for interest rates. The first notion is that the economy requires very low real rates in the medium term because of headwinds impeding the recovery, and the second is that rates will

² Elsewhere there was a mix of cuts and rate hikes in developing Asia and Europe, as well as Latin America.

remain low even in the longer term because of slow potential growth. According to economic theory, this outlook leads to a lower neutral policy rate. (The neutral rate is where the Fed will rest short-term interest rates when the economy returns to normal.) Lower neutral policy rates in turn imply a lower “fair value” for forward yields (Exhibit 4).

Exhibit 4: 5-year forward Treasury yields have returned to pretaper levels



Source: Bloomberg

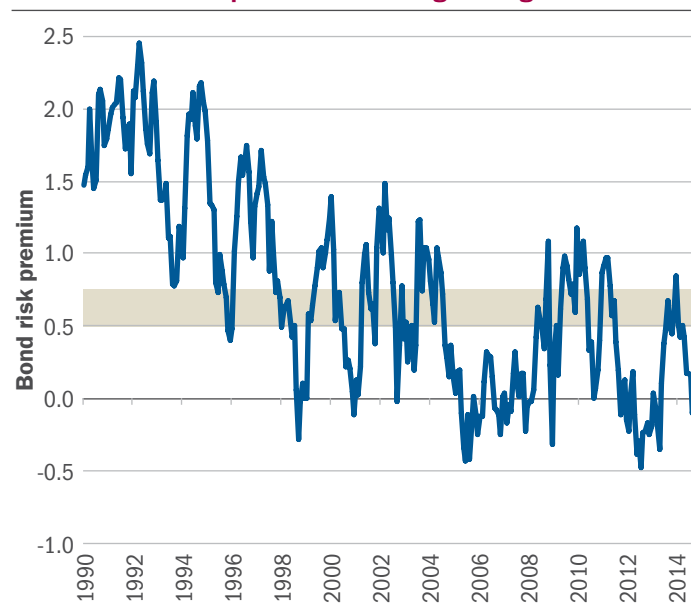
Time to take profit

The outlook for rates naturally hinges on these fundamentals — the U.S. economy, the global economy and perceptions about the secular outlook — as well as current market valuations. In our view, the solid returns investors experienced in 2014 are highly unlikely to be repeated, making the present a good time to take profit on long-duration fixed income.

First, valuations are currently poor. Our measure of the bond risk premium³ turned negative in August 2014 and remains there at the time of this writing, November 2014 (Exhibit 5). In plain English, this means that 10-year Treasuries yield less than our expected cash return over

the next 10 years, and investors are not being compensated for the duration risk on longer term bonds. History tells us that poor returns for interest-sensitive sectors tend to follow these periods.

Exhibit 5: Bond risk premium turned negative again

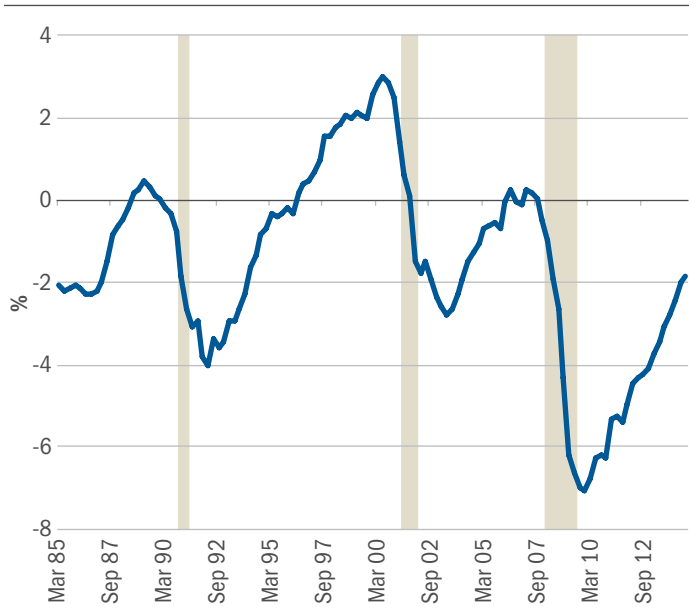


Source: Columbia Management Investment Advisers, LLC

Note: Shading indicates estimate of fair value.

Second, the cyclical position of the U.S. economy points to rate hikes next year. The conventional unemployment rate fell by more than 100 bps over the last 12 months and has now slipped below 6%. In addition, broader measures of underutilization in the labor market, such as the percent of workers on part-time schedules and the number of discouraged workers, have shown signs of improvement. Our measure of the output gap for the U.S. (the difference between the economy's actual output and its output at full capacity) is now around -2%, up from -3% a year ago (Exhibit 6). This improvement suggests continued expansion. While wage and price inflation have not firmed definitively, Fed officials are unlikely to wait for a complete recovery before beginning the process of normalization. Therefore we continue to see rate hikes from the Fed starting around the middle of 2015.

³ For background see “The Bond Risk Premium,” Columbia Management white papers, March 2013.

Exhibit 6: Steady normalization in the output gap

Source: Columbia Management Investment Advisers, LLC, November 2014

Note: Shaded areas represent recessions.

Third, we expect overseas developments to have a waning influence on U.S. interest rates, though this may take some time to play out. In developed markets, we observe a rough parity between bond yields when countries share two common features: (1) similar cash rates and (2) similar long-run growth and inflation expectations. With cash rates depressed in most places, U.S. Treasuries can seem to offer an attractive yield pick-up compared with German Bunds, for example. However, if cash rates in the U.S. start to rise or long-term macroeconomic fundamentals begin to diverge, Treasuries and Bunds will decouple.

Lastly, while it's difficult to have strong convictions about the secular stagnation thesis, we can be confident about one thing: At current valuations, these ideas need to be correct for Treasuries to generate attractive returns. We are inclined to think that the future will look similar to the past. Thus, markets might be placing too much probability on the idea that major economies will remain in a permanent funk. Time will tell.

Conclusion

Long-duration fixed-income assets generated attractive returns in 2014, following sizable losses the year before. On net, the Treasury market as a whole has returned +1% annualized since the end of 2012 (and +0.5% annualized since the low in 10-year yields in July 2012). Because of imminent Fed rate hikes and depressed yield levels, prospective returns look no better today. We recommend investors take profit in long-duration fixed-income sectors that benefited from 2014's decline in rates and look to other sources of income for their bond portfolios.

It is the principal of the thing

Kirk Moore, CFA, Director of Fixed Income Research

Through mid-November, fixed-income credit sectors generated solid returns for 2014, with municipal credit producing an 8.0% return, emerging markets (hedged) 6.9%, investment-grade credit 6.5%, securitized credit 5.2% and high-yield credit 4.35%.¹ Much like 2014, market participants are peering into 2015 with significant worry. The confluence of headwinds is daunting with the inevitable rise in U.S. interest rates, disappointing and uneven global growth and, more recently, the notable drop in commodity prices. A recent poll of 501 Bloomberg customers highlights this uneasiness, as 25% of respondents, if given only one choice, selected a credit market as their desired short.² After what shaped up to be up a solid return year in 2014, and given the forward-looking challenges, should investors rotate away from the credit sectors of U.S. fixed income? We see three key considerations.

1. Start with the basics: Avoid losses and protect principal

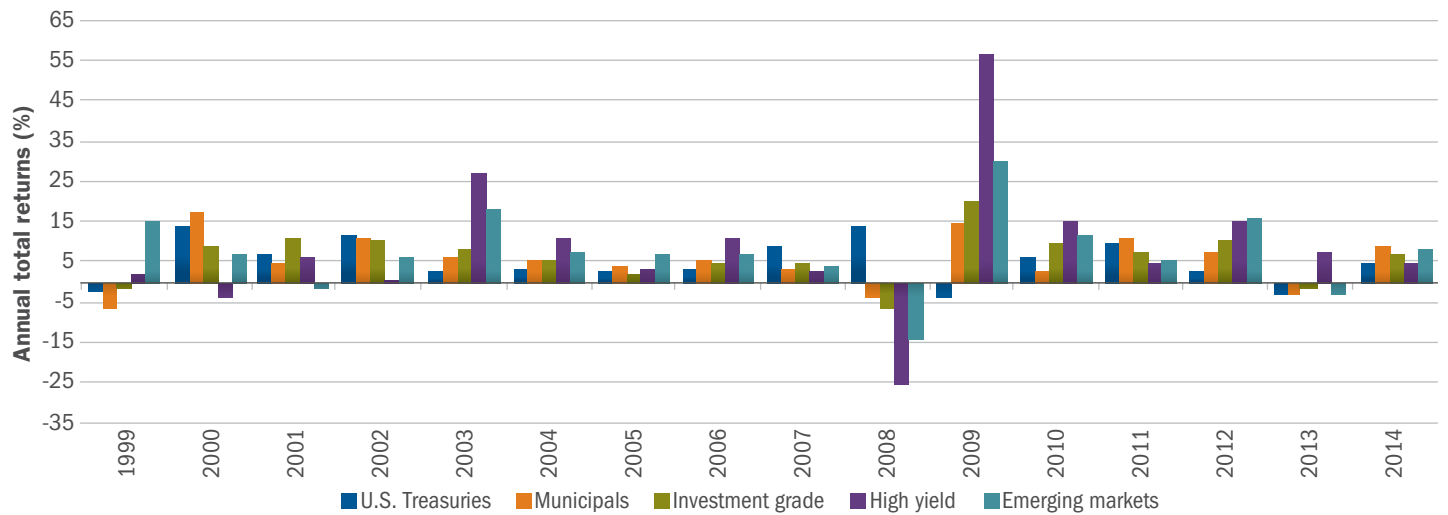
In 1990, fresh out of college with an undergraduate degree in finance, I had the extremely good fortune to obtain an

investment analyst position with one of the few asset managers in my hometown of St. Louis. Prior to joining the firm, I had only a vague idea of fixed income. On the first day, my boss sat me down and asked, “Do you know why we are here?” He explained, “We are here to protect our clients’ principal. Clients invest in fixed income with the expectation that they will receive the return of the initial investment.” Simple, powerful and something worth remembering when faced with today’s challenges.

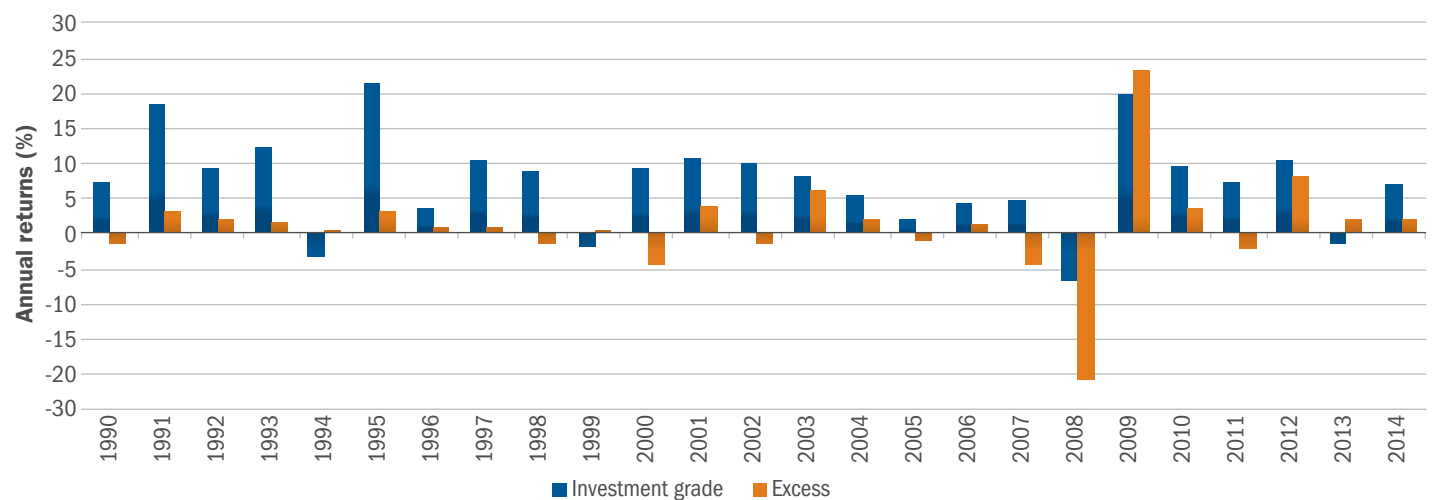
Is fixed-income credit a proper vehicle to protect principal? We believe so. Exhibit 1 highlights the annual total returns of various fixed-income credit sectors, as well as U.S. Treasuries. As the chart demonstrates, fixed income performs as expected and generally avoids losses on an annual basis. Years in which losses have occurred have been followed by years with gains. On average since 1998, credit has returned 6.9%.

¹ Barclays Indices through Nov. 14, 2014

² Conducted Nov. 11-12, 2014 by Setzer & Co

Exhibit 1: Most credit sectors have historically generated positive annual returns

Source: BofA Merrill Lynch Indices

Past performance does not guarantee future results. It is not possible to invest directly in an index.**Exhibit 2: Investment-grade credit has historically offered enough yield to protect principal**

Source: BofA Merrill Lynch Indices

Past performance does not guarantee future results. It is not possible to invest directly in an index.

Exhibit 2 shows returns from investment-grade credit as well as excess returns from investment grade vs. U.S. Treasury securities since 1990. Here again, even the one of most conservative yielding credit classes offers enough yield to protect principal.

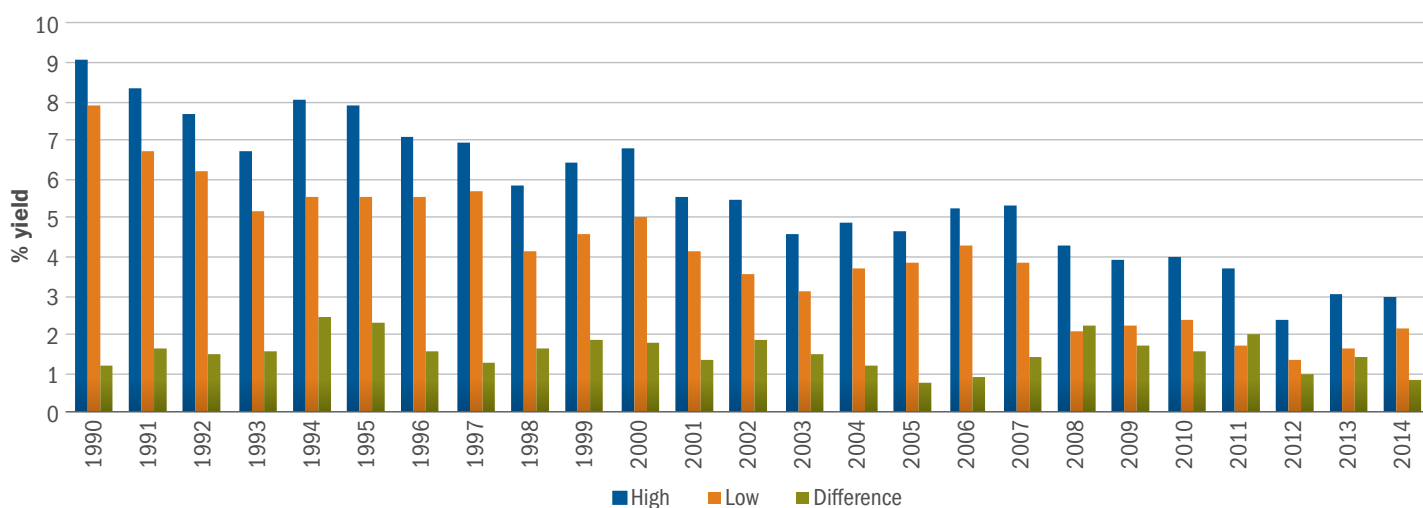
2. Understand the secret of U.S. interest rates (Hint: A modest rise isn't that bad)

The skeptics will correctly point out that past performance is no guarantee of future performance. Some might even note that in 1990 the 10-year U.S. Treasury bond started the year at almost 8.0%. Since then, the general trajectory has been lower, providing a tailwind to returns. However, this ignores the only near-constant truth witnessed in U.S. fixed income: Since 1990, the peak to trough for the 10-year rate annually is at least 1.0%. Only in 2006 and

2007 did the difference not exceed this threshold. The average high/low spread was 1.54%. And while not a truly apples-to-apples comparison (as it glosses over duration differences and yield curve concerns), the average excess return of investment-grade credit above U.S. Treasuries for the same time period was 1.24%. This is not much different than the 1.65% yield advantage over Treasury securities. This shows that the yield premium does provide a cushion to rate volatility.

Looking forward, it is the position of Columbia Management that the 10-year U.S. Treasury bond should end 2015 at approximately 3.25%, about 1.0% above current levels (2.23% on November 14, 2014). Currently the yield premium for the Barclays Investment Grade Corporate Index is 1.23%.

Exhibit 3: 10-year U.S. Treasury rates



Source: Barclays

Past performance does not guarantee future results.

The Barclays Investment Grade Corporate Index is an unmanaged index consisting of publicly issued U.S. corporate and specified foreign debentures and secured notes that are rated investment grade (Baa3/BBB- or higher) by at least two ratings agencies, have at least one year to final maturity and have at least \$250 million par amount outstanding. To qualify, bonds must be SEC-registered.

3. Good management teams adapt (and it's easier when business fundamentals are solid)

An example of this concept can be seen in the United States telecom industry. Since the deregulation of the industry in 1984, the demise of Ma Bell's offspring has been heralded multiple times. While AT&T and Verizon look much different than in 1984, so does the way people communicate. The two companies have not only survived but thrived. Their success is in part the result of management using resources to appropriately respond to countless new competitors and numerous changes in regulation and technology. Simply put, this is good management.

In the exhibits shown, there are some notable negative years that resulted from the financial crisis of 2008, the technology and telecommunications bubble of the early 2000s and the Asian and Russian crises of 1998. All periods are associated with significant credit events and were driven by inadequate resource (balance sheet) oversight. In response to these events, management teams have adjusted their behavior. For example, prior to the tech and telecom crisis, Verizon maintained 24% of its debt capital in short-term commercial paper. After the default of WorldCom, Verizon had difficulty rolling this debt. There were whispers that it might be next. Today industrial companies rarely issue commercial paper.

What lies ahead for the major fixed-income sectors?

Investment-grade bonds. The investment-grade bond analysts at Columbia Management anticipate that in 2015 the companies under their coverage will grow revenue by 2.4% and profit margins by 20 basis points to 19.3%, while maintaining leverage, on average, at a comfortable 1.75x.

High-yield bonds. Likewise, the Columbia High Yield Team expects 86% of the companies it follows to post positive revenue, and 81% to post EBITDA growth, as we enter 2015. The recent fall in commodity prices is likely to be a headwind in 2015; energy is a meaningful component of the U.S. high-yield market. However, the analyst team projects default rates to remain modest at 2.5%.

Structured assets. The Columbia Structured Asset Team has witnessed continued improvement in residential and commercial real estate fundamentals. This is supported by the sustained mid-single-digit loan growth at banks during 2014, as well as improving property fundamentals (occupancy and rental rates) noted by the Commercial Real Estate Team. The valuations of apartments and major-market central business district real estate have retraced to above 2007 levels.

Municipal bonds. The Columbia Municipal Research Team has seen revenues at the state level improve significantly since the first quarter of 2010; revenues now stand above pre-recessionary peak levels. For fiscal year 2014, total tax revenue increased 1.8%, led by a 4.2% increase in sales tax collected. Every region witnessed growth with the exception of the Great Lakes, which saw a decline of 0.1%.

Credit fundamentals in the United States look to be on sound footing going into 2015. On average, balance sheets for companies and consumers are solid or improving. Revenues are growing at low- to mid-single-digit rates at both the state and company level. And, important for future growth, lending is slowly improving.

Conclusions

Heading into 2015, many investors appear anxious about the impending rise in U.S. interest rates, the uneven and disappointing growth across the globe and concerns that risk premiums are not providing adequate compensation for taking credit risk. It is likely that 2015 will be a bumpy ride. Zach Pandl, rate strategist for Columbia Management, projects the U.S. 10-year Treasury bond rate will reach 3.25%, approximately 1.00% higher than the end of 2014. As demonstrated in this article, the yield premiums for credit sectors generally provide adequate protection against a rate move of this magnitude.

With subdued global growth likely resulting in continued accommodative monetary policy across the globe, it is possible that lower rates in Europe will continue to act as a drag on higher U.S. rates. And while growth may have disappointed many, in the United States it has been strong enough to result in increased state tax revenue, as well as improved commercial and residential real estate prices that are supporting an uptick in lending.

The ability of fixed income to protect principal remains strong. And much like the expectation coming into 2014, generating coupon-like returns is possible. Just as good corporate managers respond to their environment, the portfolio managers at Columbia Management continually strive to do the same.

Finding bond opportunities throughout the business cycle

Gene Tannuzzo, CFA, Senior Portfolio Manager

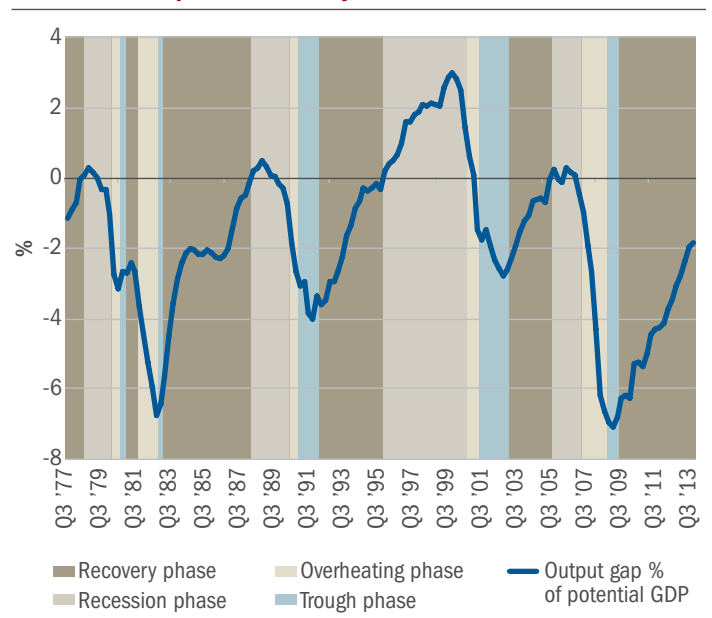
- > Global bond markets respond in different ways throughout the business cycle.
- > A flexible strategy can adapt its risk complexion to capture opportunities and mitigate downside.
- > Bond investors should avoid duration risk in 2015, focusing instead on opportunities in credit and currencies.

It is well documented that high-quality government bonds perform well when the economy is slowing and central banks are easing policy. Many investors aware of this historical performance are now positioning for the unfavorable side of this relationship; that is, better growth could start pushing bond prices down. Unfortunately, this analysis may be incomplete, as it overlooks the fact that risk factors can often create value and opportunity, particularly at turning points in the business cycle. Risk factors in fixed income are like levers that bond investors can pull at certain times to generate return and actually mitigate overall risk.

Opportunity at business cycle turning points

Turning points in the cycle are characterized by changes in the velocity and composition of economic growth, combined with changes in the level of available capacity within the economy to provide labor, produce goods and perform services (Exhibit 1). As these factors evolve, trends in the bond market can change as well.

Exhibit 1: Four phases of the cycle



Source: Columbia Management Investment Advisers, LLC

Recessions may benefit investors who have taken on duration risk by investing in long-dated bonds. In the bond market, duration risk offers its best returns when the economy sours. When economic growth slows (a recession in Exhibit 1), inflation expectations typically decline as well. As a result, the central bank cuts rates and yields on long-dated bonds tend to fall, buoying prices. Volatility risk also increases as investors grow uncertain about the future of the economy and markets.

In troughs, those exposed to credit risk stand to gain the most. When the economy hits a trough, investors exposed to credit risk (the risk that a bond issuer will fail to pay interest or principal) may experience better outcomes. Wide yield spreads more than compensate for economic uncertainty. Credit market healing precedes a broader economic recovery. During this phase, risk premiums (i.e., spreads) contract, leading to more attractive borrowing conditions for companies and outperformance from credit-sensitive bonds.

During recoveries, credit risk remains low and currencies could benefit. As the cycle progresses into a recovery phase, improving labor markets and growing corporate profits lead to a broader base of economic growth that keeps default rates contained. Differentiation in economic leadership leads to a divergence of monetary policy among nations. These changes can lead to meaningful and persistent moves in currency performance.

When an economy overheats, inflation-linked debt takes center stage. As an economy reaches full capacity, wages tend to increase, driving up price levels for goods and services. As inflation pressures mount, bond investors may find opportunities to profit from inflation risk by purchasing inflation-linked debt.

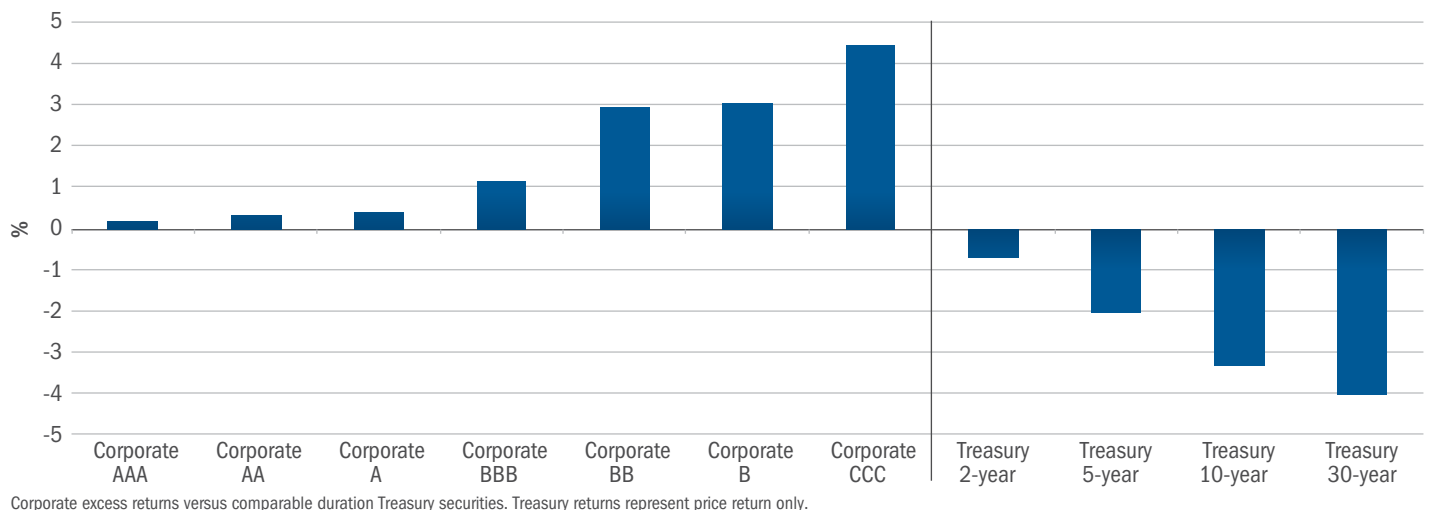
Changes in these dynamics can create profitable opportunities not only in a single bond market over time, but also across different bond markets at a single point in time. A flexible strategy can adapt its risk exposure to capture opportunities and mitigate downside.

Where are we now?

Based on our characterization of the business cycle, the economic cycle in the United States remains in recovery. While the growth outlook remains firm, the economy still has spare capacity to fill. This is supported by high corporate profit margins, a declining unemployment rate and low inflation pressures in the near term. We believe this should help keep credit risk in check. With the Federal Reserve (the Fed) nearing the point of raising short-term rates, history suggests that excess returns from bonds remain attractive (Exhibit 2), and credit risk remains preferable to other types of risk.

Lastly, we believe valuations remain appropriate, given today's point in the cycle. Credit spreads are generally wider than they have been in previous periods when the Fed has raised rates.

Exhibit 2: Average excess returns, six months before Fed rate hike

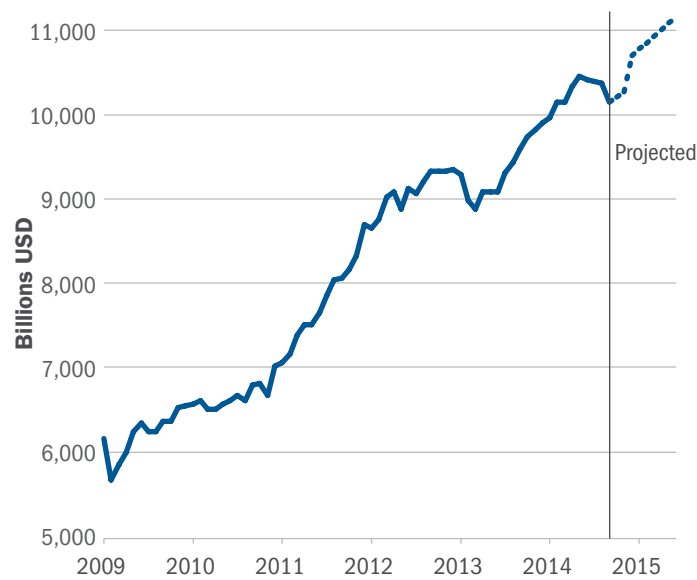


Sources: Columbia Management Investment Advisers, LLC and Barclays

Past performance does not guarantee future results.

Outside the United States, we can find economies in each of the business cycle stages. As global economies continue to diverge, central bank policies are diverging as well. The United States is expected to raise rates in 2015, and the United Kingdom may follow suit. Meanwhile, Japan has recently taken a more accommodative policy stance, while the European Central Bank may embark on full-blown sovereign quantitative easing. The major central banks are providing liquidity support that could be more helpful than many investors appreciate; the four largest central banks are likely to expand their balance sheets by nearly \$1 trillion in 2015 alone. Broadly speaking, this should help suppress volatility throughout the market and support global bond returns.

Exhibit 3: G4 central bank assets



Sources: Columbia Management Investment Advisers, LLC and Haver Analytics

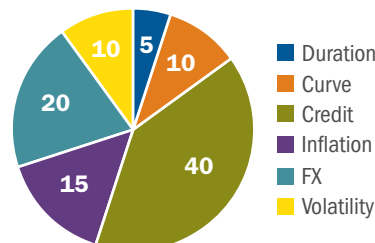
Recommended investment approach: Move duration risk to the back seat, and focus on opportunities in credit and currencies in 2015.

While domestic markets face interest rate risk, duration is more attractive in some other regions and countries, such as core Europe (due to monetary policy) and Mexico (due to the valuation of real interest rates). We also believe there may be opportunities to profit from changes in the yield curve, both in the United States and in other G10 bond markets. Meanwhile, diverging monetary policies could be positive for currency markets, with the U.S. dollar poised to move another leg higher in 2015. With the recent decline in commodity prices, inflation risk has not been a major concern lately, but this may change toward the end of 2015.

Credit remains attractive as the Fed approaches rate hikes, and bond valuations are not stretched given the state of the U.S. economy. However, we are cautious about lower quality credit in sectors and regions with insufficient growth to support a high debt burden. In 2015, investors may begin to weed out some of the winners from the losers.

Yields are low, but investors need not shun the entire bond market as a result. Rather, investors could seek to exploit opportunities presented by bond market risk factors beyond duration. Today's bond market offers profitable total return opportunities for investors who are able to prudently balance their risk budgets (Exhibit 4).

Exhibit 4: Bond portfolio: Target risk allocation for 2015



Source: Columbia Management Investment Advisers, LLC

There are risks associated with fixed-income investments, including credit risk, interest rate risk, and prepayment and extension risk. In general, bond prices rise when interest rates fall and vice versa. This effect is usually more pronounced for longer term securities. Duration is a measure of the sensitivity of the price (the value of principal) of a fixed-income investment to a change in interest rates.

Sizing up the impact of liquidity on credit strategies

Tom Murphy, CFA, Senior Portfolio Manager

Tim Doubek, CFA, Senior Portfolio Manager

Katy Nuss, CFA, Director, Fixed Income Product Management

Open up the pages of virtually any financial periodical and you will likely find an article detailing the lack of liquidity in the corporate bond market. Commentators often blame regulation and lower risk tolerance for the decline in dealer inventories. To be sure, the role of traditional counterparties as primary liquidity providers has diminished greatly since the financial crisis. At the same time, demand for fixed-income assets from a myriad of investors has soared.

Strong flows into credit products have resulted in some managers' assets growing far faster than the markets they invest in, which has bred concern about their ability to successfully navigate increasingly volatile markets. Indeed, we believe that liquidity could present a challenge for some of the predominant credit strategies available today.

Lower dealer inventories and growing investor demand

Prior to 2008, primary dealers captured the lion's share of trading activity across fixed-income sectors. Dealers attempt to match buyers and sellers of assets, occasionally using their own balance sheets to facilitate trading if a buyer cannot be located quickly. Through this activity, known as market-making, dealers take bonds into their inventory to ensure a liquid and orderly market. More stringent financial regulations and capital requirements have made market-making less profitable, thereby reducing dealers' willingness and ability to provide a backstop and hold inventory when fixed-income assets are sold.

Just as the sell-side community has been slowly stepping away from credit markets, yield-hungry investors have been stepping in. Five years of monetary easing by global central banks has driven bond yields ever-lower and forced risk-averse investors further out on the credit spectrum to satisfy their income needs. Traditionally home to a distinct set of long-term liability-matching investors (pension funds and insurance companies) and mutual funds, the corporate bond market has seen an influx of "nontraditional" investors. These nontraditional investors often employ what we view to be extremely short-term focused portfolio management and trading strategies in the pursuit of yield and total return. This changing composition of the buy side has introduced additional liquidity challenges for market makers, resulting in increased volatility across credit markets.

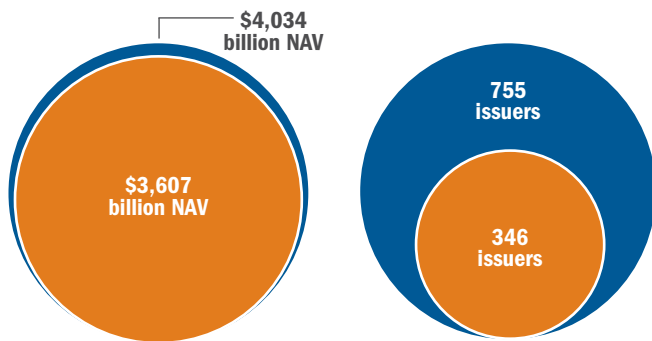
Asset managers are forced to adapt

In many cases, these changes have forced asset managers to adjust the way they approach credit management. A few firms have gathered a disproportionate amount of assets and now control a larger share of the credit markets than ever before. Hamstrung by evaporating liquidity while supporting an exponentially larger asset base, many managers have been forced to abandon traditional credit strategies that pursue gains through security selection.

This is in part because the universe of available issuers shrinks dramatically as the size of a required investment increases. Consider a hypothetical \$100 billion credit strategy that invests in the constituents of the Barclays U.S. Investment Grade Corporate Index. If the manager wanted to establish a position totaling 2.5% of assets, all issuers with outstanding debt of less than \$2.5 billion become ineligible for investment. While almost 90% of the index net asset value (NAV) remains available, the number of issuers represented shrinks disproportionately (Exhibit 1).

Exhibit 1: The investable universe shrinks dramatically as the size of the required investment increases

Investable universe assuming minimum \$2.5 billion position

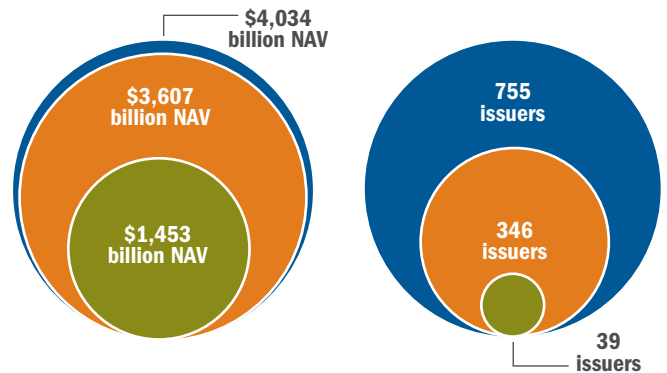


Source: Barclays U.S. Investment Grade Corporate Index as of 10/31/14

A liquidity constraint intended to allow for the entry and exit out of positions with minimal market impact further prevents managers from owning more than 15% of an issuer's debt outstanding. Surprisingly, only 39 issuers offer enough debt to meet this new \$16.7 billion requirement (Exhibit 2). It quickly becomes clear that gaining meaningful allocations constrains a large manager to only buying issuers with large amounts of debt outstanding. This reduces the availability of potential alpha opportunities and has caused many large managers to adopt macro strategies that rely heavily on derivatives, lack transparency, and are largely unrelated to fundamental credit investing.

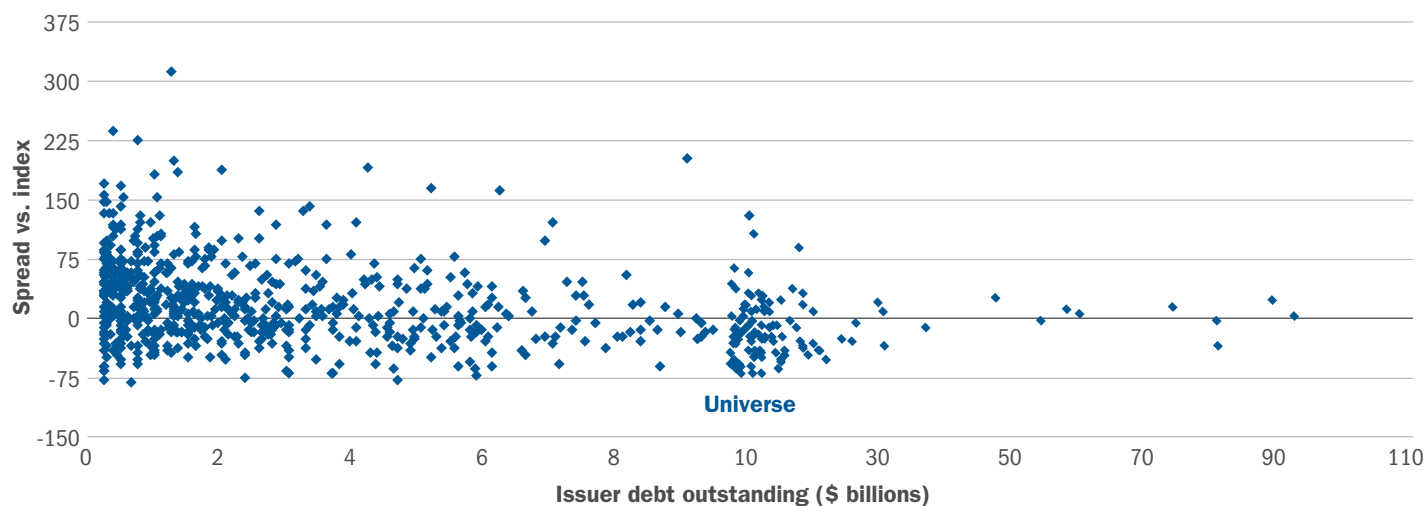
Exhibit 2: The investable universe shrinks even further considering liquidity constraints

Investable universe assuming minimum \$2.5 billion position and total debt outstanding per issuer of at least \$16.7 billion



Source: Barclays U.S. Investment Grade Corporate Index as of 10/31/14

This approach may disappoint investors going forward because independent credit ideas are likely to be a primary determinant of portfolio performance. While the deterioration of market liquidity has elevated spread volatility, it has also created a more favorable environment for security selection strategies. Opportunities for security selection have historically been most prevalent in small to moderately sized issuers, as spread variability often widens as issuer size decreases (Exhibit 3). For large managers, exposure to these securities can be dilutive rather than impactful. As such, only appropriately sized strategies with the flexibility to take a range of active positions can effectively exploit this specific opportunity set to enhance portfolio returns.

Exhibit 3: Wider variability of spreads exists among small issuers

Debt outstanding	Number of issuers	Average absolute spread vs. index OAS	Standard deviation
≤ \$1 billion	250	33.2	53.3
\$1 billion–\$10 billion	407	13.9	49.8
> \$10 billion	98	-12.7	35.0

Source: Barclays U.S. Investment Grade Corporate Index as of 10/31/14

The new landscape favors managers who can pursue diversified sources of alpha

Changes to both the buy- and sell-side have structurally altered the trading landscape for corporate bonds, and the reduction in liquidity is likely to increase market volatility for the foreseeable future. Managers responsible for massive pools of assets will likely find it more difficult to maneuver in and out of positions or even gain exposure to certain

securities. Given the headwinds from thinner risk premiums and higher interest rates, we worry that their inability to exploit all possible sources of excess return may lead to disappointing outcomes relative to more conscientiously sized peers. Instead, we think that investors should renew their focus in proven strategies that seek to derive value from independent credit decisions based on bottom-up fundamental research.

The Barclays U.S. Investment Grade Corporate Index is an unmanaged index considered representative of publicly issued, fixed-rate, nonconvertible, investment-grade debt securities.

It is not possible to invest directly in an index.

There are risks associated with fixed-income investments, including credit risk, market risk, interest rate risk and prepayment and extension risk. In general, bond prices fall when interest rates rise and vice versa. This effect is more pronounced for longer term securities.

Using alternative betas to improve portfolio diversification

Bill Landes, Ph.D., Deputy Head of Global Investment Solutions

Jeffrey Knight, CFA, Global Head of Investment Solutions and Asset Allocation

Marc Khalamayzer, CFA, Senior Analyst and Portfolio Manager

Over the last several decades, a portfolio invested across stocks and bonds struck a nice balance between risk and return, with bonds offering strong diversification benefits as well as meaningful returns in their own right. Today, with bond yields near historic lows, fixed-income investments are less able to serve this role in a portfolio. Meanwhile, post-crisis worldwide macroeconomic policies have helped asset prices recover from crisis levels but have also caused global financial markets to become more interconnected. As a result, investors have witnessed more synchronized price advances and declines across major asset classes, diminishing the benefits of classic diversification. To respond to this environment, investors are exploring new sources of return — and new sources of diversification — and incorporating them in a meaningful way into their portfolios.

The financial industry has responded with an ever-evolving set of investment choices. Over the past several years, alternative investments have expanded dramatically. While the onslaught of investment options and the accompanying jargon can seem overwhelming, we believe these innovations, when properly understood and used, can help address the growing challenges that today's markets bring.

One such innovation is the investable universe of alternative betas. Investors can use these investment

strategies (sometimes referred to as hedge fund betas) to increase the diversification of a traditional 60/40 balanced blend, as well as to improve the risk profile of hedge fund portfolios.

Market betas vs. alternative betas

In traditional capital markets, investors receive a payoff for bearing risks that are inherent to those capital markets. For example, the equity risk premium rewards investors for bearing the risk of uncertain cash flows from corporations. In fixed income, the credit premium rewards investors for taking on high-yield credit risk. But traditional excess return payoffs have a shortcoming; investors have significant exposure to the direction of the market or market beta. In order to earn the equity risk premium, investors must take on exposure to the equity market. To earn the credit premium, investors must buy high-yield bonds and accept exposure to the direction of interest rates. There are times when these associations (correlations) with general markets can wreak havoc in an otherwise balanced, diversified portfolio.

Alternative beta investing allows investors to build a diversified portfolio using strategies beyond the traditional asset classes. Alternative betas are the systematic risks in capital markets that are caused by continual structural

and/or behavioral biases. Alternative beta strategies are designed to efficiently and systematically capture risk premium in a long/short or arbitrage fashion and can provide true uncorrelated diversification in traditional and alternative portfolios.

Alternative betas have existed for some time in academic literature but have only recently entered the mainstream of individual investor thinking. We believe alternative betas allow asset allocators to improve the efficient frontier of their investments or balance the risks of their hedge fund portfolios.

Using alternative betas to diversify a 60/40 balanced portfolio

Numerous alternative betas are available to investors, but our examples focus on the three styles that have the widest acceptance in the academic and practitioner community and have endured over time:

- > The **value premium alternative beta** captures the tendency for cheap assets to have above-market returns and expensive assets to have below-market returns. This is perhaps the best-known premium. An extensive library of academic research explores its existence across asset classes.
- > The **momentum premium alternative beta** captures the tendency for assets that have performed well in the recent past to continue to perform well and assets that have performed poorly in the recent past to continue to perform poorly.
- > The **carry premium alternative beta** captures the tendency for higher yielding assets to outperform lower yielding assets over time.

Exhibit 1: Sample alternative beta strategies

Alternative beta strategies use systematic rules (like those shown below) to harvest the value, momentum and carry-risk premium across liquid securities within equity, bond and currency asset classes.

	Value	Momentum	Carry
Equity	Buy the cheapest 20% of stocks ranked on price-to-book, and sell the most expensive 20% of stocks ranked on price-to-book.	Buy the top 20% of stocks ranked on 12-month returns, and sell the bottom 20% of stocks ranked on 12-month returns.	Does not apply to equities.
Interest rates (government)	Buy government bonds whose real rates are above historical averages, and sell government bonds whose real rates are below historical averages.	Buy government bonds ranked highest based on 12-month returns, and sell government bonds ranked lowest based on 12-month returns.	Buy government bonds with the steepest yield curves, and sell government bonds with the flattest yield curves.
Foreign exchange (G10 and emerging markets)	Buy currencies that are undervalued according to purchasing power parity, and sell currencies that are overvalued according to purchasing power parity.	Buy currencies ranked highest based on 12-month returns, and sell currencies ranked lowest based on 12-month returns.	Buy currencies ranked highest based on local short-term interest rates, and sell currencies ranked lowest based on local short-term interest rates.

The alternative beta returns used in this paper are from rules-based indices that are delivered through a daily liquid total return swap and include execution costs and typical access fees. (A total return swap is an agreement where one party receives the returns from a reference index in exchange for a fixed or variable payment.) In our example, the alternative beta portfolio is created by ensuring that each individual alternative beta contributes equally to portfolio volatility. We weighted the individual components by the inverse of trailing volatility and targeted 7% annualized volatility for the overall portfolio.

One of the benefits of an alternative beta portfolio is achieving diversification through low correlation. Correlation is the degree to which assets tend to move in tandem. When correlations are low among asset types, weakness in one asset may be offset by strength in another. Likewise, when correlations are high, all asset classes tend to move up or down by a similar degree.

The average realized correlation of the alternative betas to the S&P 500 is 2.33%, with a range of -38% to +61% (Exhibit 2). The average correlation to the Barclays Aggregate is 2%, with a range of -20% to +49%. The average correlation among the risk premium themselves is similarly low at -5%, which again demonstrates the significant diversification benefits.

Exhibit 2: Low correlations mean alternative betas can be effective portfolio diversifiers

November 2004– October 2014	S&P 500 (%)	Barclays Aggregate (%)	Equity value (%)	Equity momentum (%)	Rates value (%)	Rates momentum (%)	Rates carry (%)	FX value (%)	FX momentum (%)	FX carry (%)
S&P 500										
Barclays Aggregate	4									
Equity value	29	2								
Equity momentum	15	-5	-49							
Rates value	7	0	9	-8						
Rates momentum	-34	49	-14	-9	-29					
Rates carry	-4	-6	8	8	-9	18				
FX value	-38	-8	10	-33	-13	9	1			
FX momentum	-17	-20	-22	18	-22	4	-5	-7		
FX carry	61	4	9	28	6	-28	0	-22	-12	

Sources: Columbia Management Investment Advisers, LLC, Bloomberg, Deutsche Bank, Nomura

How would this benefit investors in practice?

In the context of a traditional balanced portfolio, as represented by a 60% S&P 500 and 40% Barclays Aggregate fixed-income mix, it is possible to improve the efficiency of the portfolio by allocating to a diversified alternative beta basket. The traditional balanced portfolio has been a tough hurdle over the last 10 years, as both equities and fixed income have performed well. Introducing uncorrelated alternative risk premium to the equity/bond

asset mix would have improved the return profile without adding additional risk.

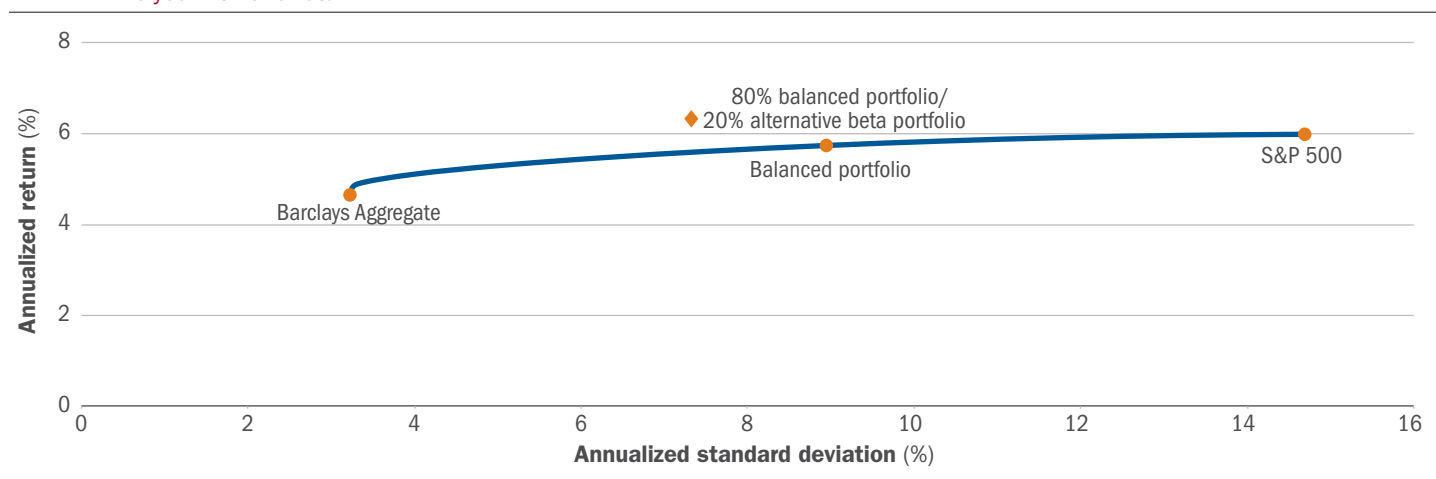
For example, in a hypothetical balanced portfolio, adding a 20% allocation to a risk-weighted alternative beta strategy over the last 10 years would have improved returns while lowering volatility and reducing drawdown (Exhibit 3). Visually, the resulting portfolio moves above the efficient frontier that an equity and bond allocation provides (Exhibit 4).

Exhibit 3: Adding alternative betas to a hypothetical balanced portfolio increased return and reduced risk

	S&P 500	Barclays Aggregate	Alternative beta portfolio	Balanced portfolio	80% balanced portfolio/ 20% alternative beta portfolio	Difference
Return (%)	5.97	4.64	8.26	5.72	6.34	0.61
Risk (%)	14.67	3.23	7.37	8.95	7.41	-1.54
Return/risk	0.41	1.44	1.12	0.64	0.86	0.22
Max drawdown (%)	-52.57	-3.83	-10.53	-33.85	-26.99	6.86
Correlation to S&P 500 (%)		4.22	6.05	98.95	96.85	-2.10
Beta to S&P 500		0.01	0.03	0.60	0.49	-0.11

Sources: Columbia Management Investment Advisers, LLC, Bloomberg, Deutsche Bank, Nomura

Exhibit 4: The hypothetical portfolio containing alternative betas lands above the efficient frontier
10-year risk and return



Sources: Columbia Management Investment Advisers, LLC, Bloomberg, Deutsche Bank, Nomura

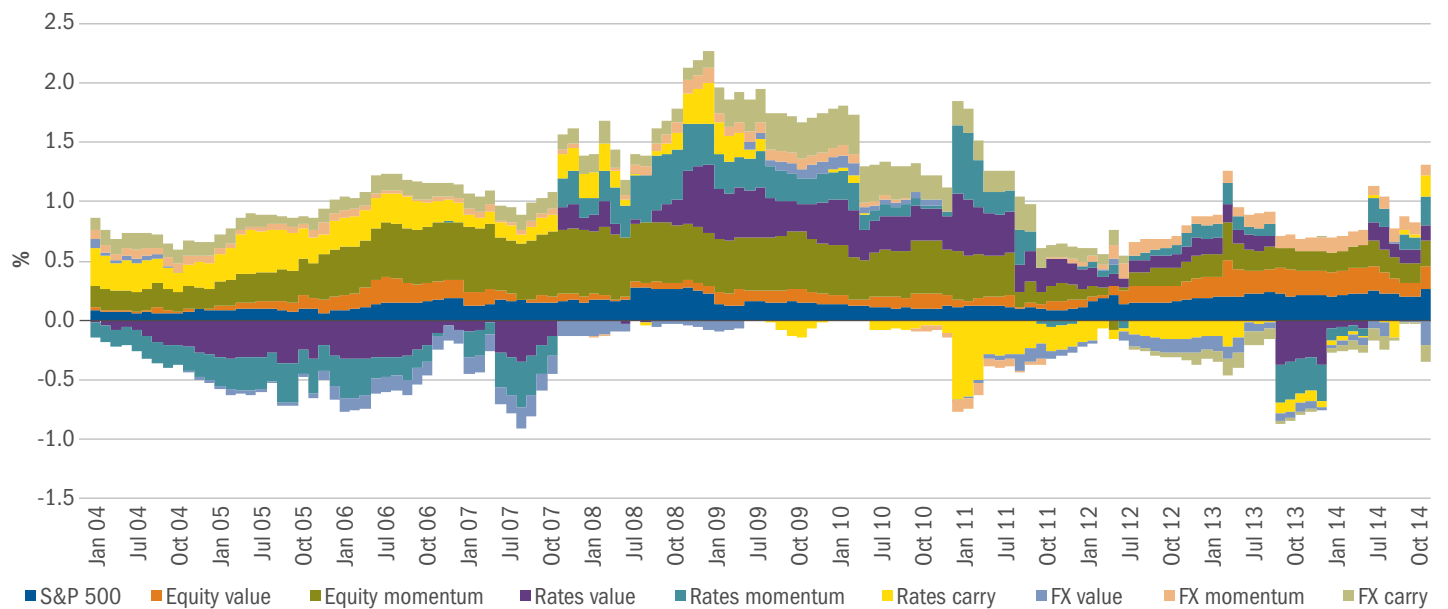
The illustrations shown are hypothetical risk scenarios. Securities and characteristics shown are for illustrative purposes only and will differ from those of an actual portfolio in the strategy. There are inherent limitations in any tool and no representation is made that any security will or is likely to achieve a particular rate of return.

Using alternative betas to balance risk and modify directionality in a hedge fund portfolio

Similar to traditional fund returns, hedge fund returns can be decomposed into their alpha and beta (hedge fund beta) components. For example, we took the HFRI Fund of Hedge Funds Index, which represents the universe of private fund of hedge fund managers, and estimated the exposure of

the index to the S&P 500 and our list of risk premium (Exhibit 5). Looking at the hedge fund portfolio through this lens, we can see that not only are the risks unbalanced (equity risk dominates) but hedge funds can take on negative exposure to risk premiums that are shown to have positive performance over long periods of time.

Exhibit 5: Estimated fund of hedge fund exposure



Sources: Columbia Management Investment Advisers, LLC, Bloomberg, Deutsche Bank, Nomura, HFR

Alternative investments involve substantial risks and are more volatile than traditional investments, making them more suitable for investors with an above average tolerance for risk.

The **Barclays U.S. Aggregate Bond Index** is a market value-weighted index that tracks the daily price, coupon, pay-downs and total return performance of fixed-rate, publicly placed, dollar-denominated and non-convertible investment-grade debt issues with at least \$250 million par amount outstanding and with at least one year to final maturity.

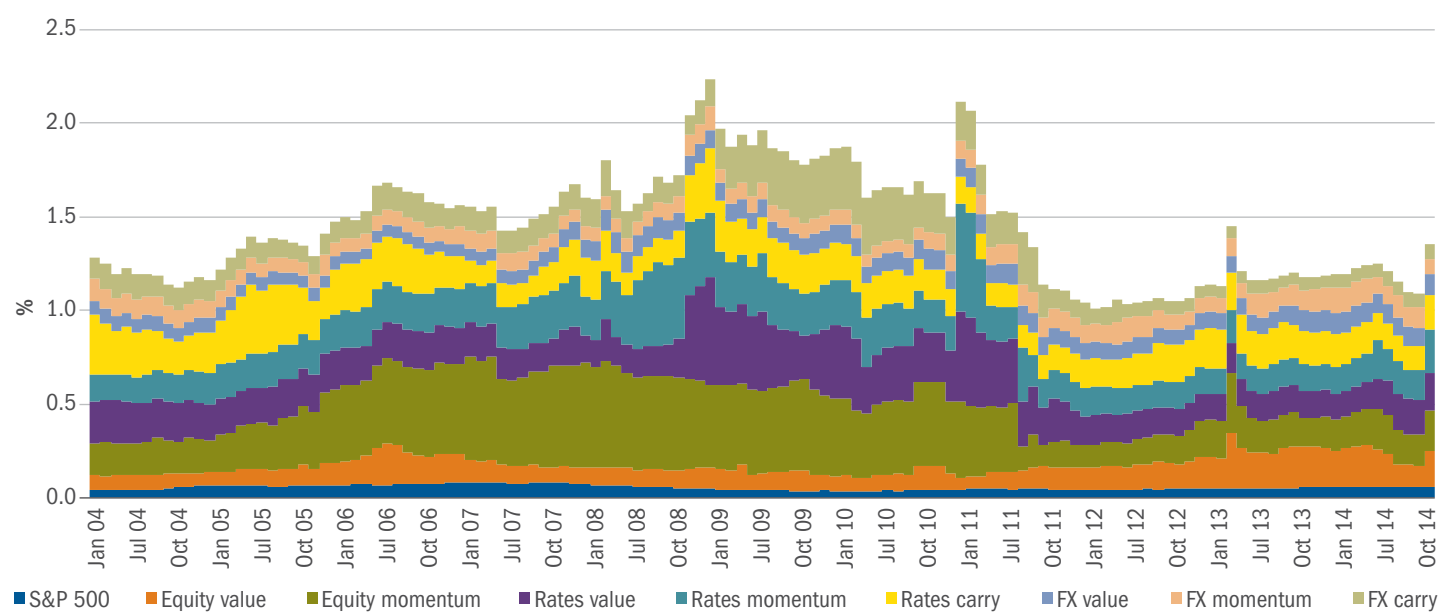
The **Standard & Poor's (S&P) 500 Index** tracks the performance of 500 widely held, large-capitalization U.S. stocks.

One of the major drawbacks to investing in funds of hedge funds over the past 10 years has been the high correlation to equity markets and the lack of diversification benefits to traditional portfolios. Alternative betas provide a way to balance the risks associated with hedge fund investments (Exhibit 6). Through a hedge fund beta overlay portfolio, it is possible to equalize the systematic risks and maintain

the pure alpha of the hedge fund portfolio. In our hypothetical example, we assume that for every \$1 invested in the hedge fund portfolio, \$1 is invested in a hedge fund beta overlay portfolio. The result is a portfolio that would have performed about 100 basis points better than a standalone fund of hedge funds portfolio, while cutting the correlation to the S&P 500 by half (Exhibit 7).

Exhibit 6: Adding an overlay of alternative betas balances the risks

Fund of hedge funds plus overlay exposure



Sources: Columbia Management Investment Advisers, LLC, Bloomberg, Deutsche Bank, Nomura, HFR

Exhibit 7: The beta overlay results in better hypothetical performance with less risk and correlation

	HFRI FOF Index	HFRI FOF Index + Overlay	Difference
Return (%)	3.27	4.25	0.98
Risk (%)	5.54	4.41	-1.13
Return/risk	0.59	0.96	0.37
Max drawdown (%)	-22.20	-13.97	8.23
Correlation to S&P 500 (%)	69.73	35.10	-34.63
Beta to S&P 500	0.26	0.11	-0.15

Source: Columbia Management Investment Advisers, LLC, Bloomberg, Deutsche Bank, Nomura, HFR

Conclusion

Although alternative betas have been cast in a shroud of investment jargon, they can be powerful building blocks for investors, providing additional sources of diversification beyond asset classes. As with most investment strategies, alternative beta risk premium investing is not a cure-all but gives investors another tool to diversify their traditional portfolios or better manage the risks of their hedge fund allocations. With interest rates near all-time lows and equities entering a sixth year of barely interrupted advances, it will be increasingly important to make sure that portfolios can withstand increasing market volatility. One way to achieve a more resilient portfolio is through the use of alternative beta.



ColumbiaManagement®

Columbia Management
Investment Distributors, Inc.
225 Franklin Street
Boston, MA 02110-2804

columbiamanagement.com
blog.columbiamanagement.com
800.426.3750



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