



Executive Summary

Investors have been very concerned about the possibility of a square root recovery: a V-shaped bounce off the lows of the global financial crisis followed by a prolonged flat-line recovery that features stubbornly slow growth in both employment and GDP. Investors who believe in the square root scenario are very focused on left tail risk, and have therefore become interested in high quality, financially strong assets that are oriented toward income rather than growth. However, the ISSG's Bob Jaeger and Steve Kolano point out that current asset prices may already reflect the square root scenario. Investors who reorient their portfolios now might be selling cheap assets to buy expensive ones, while incurring considerable transaction costs and ending up with a portfolio that has no exposure to the potential for positive surprises. As the square root sign is also known as a radical, Bob and Steve argue that a square root recovery calls for a radical strategy: don't forget the right tail. With the U.S. economy oscillating between slow growth and stall speed, markets are likely to remain hyper-reactive to new information, both positive and negative. As a result, investors focused exclusively on left tail risk might be foregoing possible upside opportunities. They suggest that investors who feel compelled to "do something" should consider the possibility of adopting a contrarian trading strategy, taking the other side of the risk-on/risk-off trade as high-volatility expectations interact with sluggish fundamentals.

A Radical Proposal for a Square Root Recovery: Don't Forget the Right Tail

By

Robert Jaeger, Ph.D., Senior Investment Strategist, BNY Mellon Investment Strategy and Solutions Group (ISSG)¹

*Stephen Kolano, CFA,
Investment Analyst, ISSG*

The Pressure to "Do Something"

During the darkest days of the global financial crisis, investors mobilized a good part of the alphabet to debate the shape of an eventual economic recovery: would it be an L, U, V, W, or something else? They even resorted to the menu of mathematical symbols, invoking the square root sign to describe a V-shaped recovery followed by a prolonged flat line, i.e., a lengthy period of anemic growth and chronically high unemployment. Recent growth and employment statistics are consistent with the square root scenario, which some dub "lower for longer," "slower for longer," or "the new normal." Those who believe in the square root scenario often advocate substantial changes in the asset allocation mix to emphasize high-quality income, i.e., assets that are robust enough to resist economic shocks and that are tilted toward income rather than growth. This focus on quality and income is designed to address the left tail risk that exists both in the real economy and in financial markets.

¹ The Investment Strategy and Solutions Group is part of The Bank of New York Mellon, a principal banking subsidiary of BNY Mellon.

The investor who sets about now to build a “square root portfolio” runs the risk of selling cheap assets to buy expensive ones, thus incurring substantial transaction costs and missing potentially healthy returns if the fundamental economic news turns out to be better than expected.

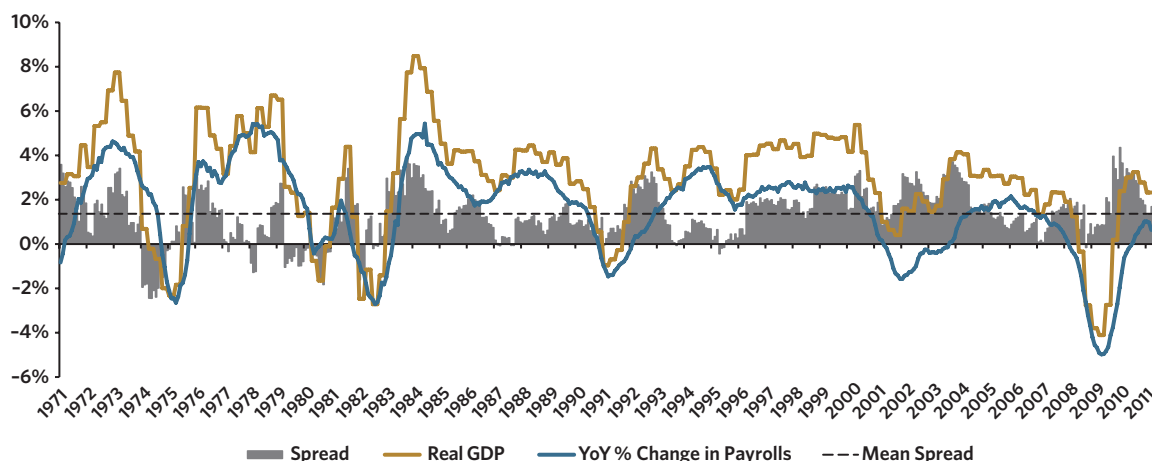
Although the square root scenario is entirely plausible, we think that investors who are already reasonably well diversified should resist the temptation to make radical changes in order to take advantage of that scenario. Investors are now so thoroughly focused on the square root view of the world that market prices may already reflect very low expectations. The investor who sets about now to build a “square root portfolio” runs the risk of selling cheap assets to buy expensive ones, thus incurring substantial transaction costs and missing potentially healthy returns if the fundamental economic news turns out to be better than expected. In an environment of diminished expectations, the right tail of the return distribution becomes at least as important as the left.

Warren Buffett and others remind us that many of the worst investment mistakes are caused by the pressure to “do something.” The bottom line of our analysis is very simple: investors should be wary of allowing a widespread preoccupation with left tail risk tempt them into some very expensive moves that might leave them without enough exposure to the right tail. Investors who feel compelled to do something might consider the possibility of adopting a contrarian trading strategy in response to a volatile market environment featuring sharp price swings as investors alternate between risk-on and risk-off modes.

The Square Root Scenario Reflects Secular Changes in the U.S. Economy

The square root recovery is the classic “jobless recovery,” where employment growth chronically lags GDP growth. The gap between those two growth numbers is the productivity gap. During the golden era of the late 1990s, payrolls grew robustly and GDP grew even more robustly as output per worker grew substantially. What we now face is the downside of that productivity gap: anemic GDP growth, and even more anemic payroll growth (possibly including shrinking payrolls). Exhibit 1 shows the relevant details. (Note that output per worker is the product of hours worked and output per hour. The figures shown here make no attempt to separate those two factors, though some official government statistics do make that attempt.)

Exhibit 1 - YoY % Change in Payrolls vs. YoY % Real GDP Growth



Source: Datastream, December 2011.

Exhibit 2 - U.S. Productivity Gains from 1987 to 2010 by Sector

Sector (Sorted by Annualized Productivity Growth)	'87 Real GDP/ Employee (1,000's)	'10 Real GDP/ Employee (1,000's)	'87 to '10 Annual Change	'87 % of Payrolls	'10 % of Payrolls	Change	'87 % of GDP	'10 % of GDP	Change
Information	65.5	116.8	+2.5%	2.4%	2.0%	-0.4%	3.8%	4.7%	+0.9%
Financial Activities	98.5	167.2	+2.3%	6.0%	5.6%	-0.4%	14.6%	18.8%	+4.2%
Manufacturing	67.5	110.1	+2.1%	16.7%	8.5%	-8.2%	27.5%	18.7%	-8.8%
Mining & Logging	197.1	295.8	+1.8%	0.7%	0.5%	-0.2%	3.5%	3.1%	-0.4%
Professional & Business Services	28.6	40.8	+1.6%	9.1%	12.3%	+3.2%	6.4%	10.0%	+3.6%
Government	29.7	38.0	+1.1%	16.2%	16.6%	+0.4%	11.8%	12.6%	+0.8%
Trade, Transport & Utilities	32.8	39.6	+0.8%	20.1%	18.2%	-1.9%	16.2%	14.4%	-1.8%
Leisure, Hospitality & Other	21.5	25.2	+0.7%	15.0%	17.6%	+2.6%	6.1%	6.9%	+0.8%
Education & Health Services	22.9	27.1	+0.7%	9.0%	14.5%	+5.5%	5.0%	7.8%	+2.8%
Construction	48.5	47.0	-0.1%	4.8%	4.1%	-0.7%	5.7%	3.8%	-1.9%

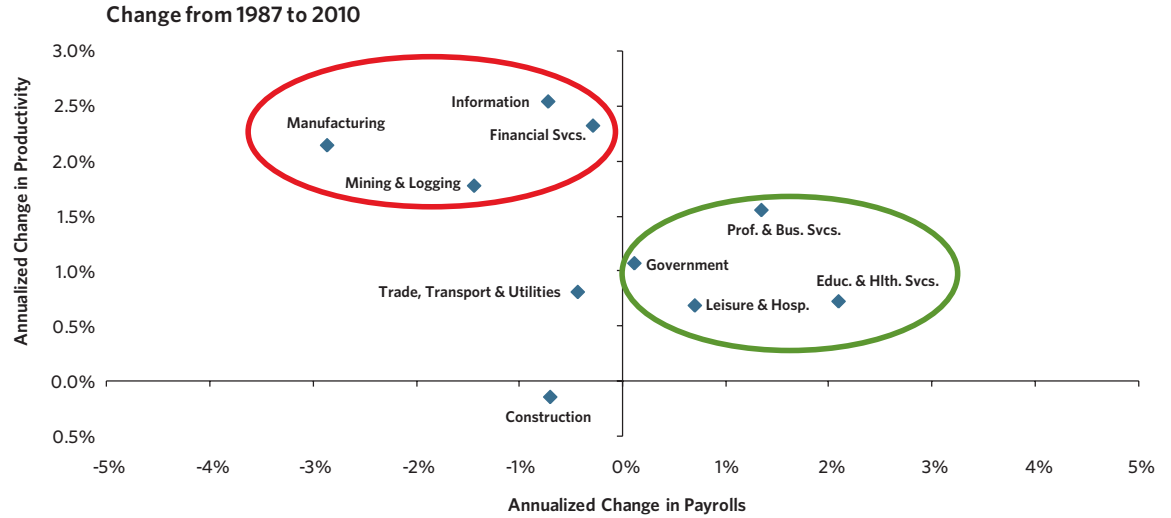
Source: U.S. Bureau of Economic Analysis and Bureau of Labor Statistics, December 2011.

If these trends continue, with new jobs created mainly in the less productive sectors, then overall productivity growth will slow and the stage will be set for a noxious combination of subpar GDP growth and subpar payroll growth.

In addition, productivity gains are very unevenly spread throughout the U.S. economy (Exhibit 2). If we compare the U.S. economy in 1987 and in 2010 (the most recent year for which relevant data are available), we see that some sectors of the workforce have shown strong productivity gains. The standouts are financial activities, information, and manufacturing. By contrast, productivity for construction, trade/transport/utilities, and leisure/hospitality has been essentially stagnant. The financial sector and the information sector have been so productive that their share of total GDP has increased while their share of total payrolls has decreased.

The scatter plot in Exhibit 3 suggests an inverse relationship between job growth and productivity growth: the four sectors in the red circle have shown high productivity and shrinking payrolls, while the four sectors in the green circle have shown growing payrolls and lower productivity. If these trends continue, with new jobs created mainly in the less productive sectors, then overall productivity growth will slow and the stage will be set for a noxious combination of subpar GDP growth and subpar payroll growth. This will put pressure on corporate earnings and other parameters that are important to equity investors.

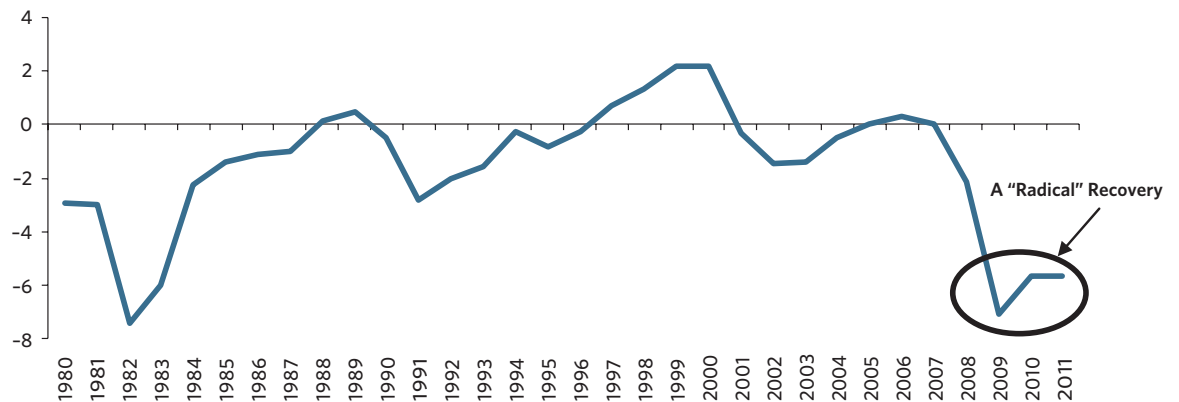
Exhibit 3 - Growth in Payrolls vs. Productivity



Source: U.S. Bureau of Economic Analysis and Bureau of Labor Statistics, December 2011.

The productivity gap described above is the spread between the growth of the workforce and the growth of the economy. The flip side of this gap is the output gap, which is the spread between the actual output of the economy and its "potential output" (what output could be at full employment). Exhibit 4 shows the history of that gap, ending in a clearly visible square-root symbol.

Exhibit 4 - U.S. Output Gap (1980 - 2011)



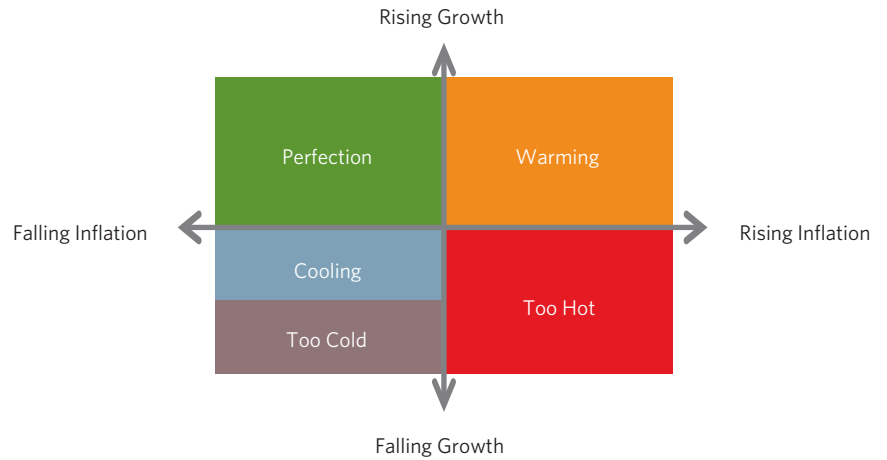
Source: Datastream, December 2011.

Caveat Emptor: Portfolio Hedges

In earlier work, we refined the temperature scale of a basic “Goldilocks” division of economic regimes into too hot, too cold and just right. That analysis identified five, more nuanced regimes according to changes in growth and inflation expectations, as depicted below.²

As the economy shows signs of warming, investors may begin to worry about a Too Hot scenario (rising inflation with falling growth). As the economy shows signs of cooling, investors may begin to worry about a Too Cold scenario (negative growth, perhaps accompanied by negative inflation). The result could be dramatic price volatility against a backdrop of range-bound economic data.

Exhibit 5 - Macroeconomic Regimes According to Growth and Inflation Changes



Source: ISSG.

Using that temperature analogy, a square root recovery occurs in a low-temperature environment in which the economy oscillates between gentle warming (growth and inflation both rising) and gentle cooling (growth and inflation both falling). However, the changes in expectations are not likely to be gentle. As the economy shows signs of warming, investors may begin to worry about a Too Hot scenario (rising inflation with falling growth). As the economy shows signs of cooling, investors may begin to worry about a Too Cold scenario (negative growth, perhaps accompanied by negative inflation). The result could be dramatic price volatility against a backdrop of range-bound economic data. (Note that the Perfection regime, where robust growth is triggered by wringing out inflationary excesses, is not likely to enter into investors’ speculations. There are no inflationary excesses now, so there’s nothing to wring out.)

² For further information on ISSG’s research into macroeconomic regimes and their effects on asset prices, please see, “The Power of Expectations: Aligning Asset Allocation with Macro Regime Changes,” BNY Mellon Asset Management, November 2011.

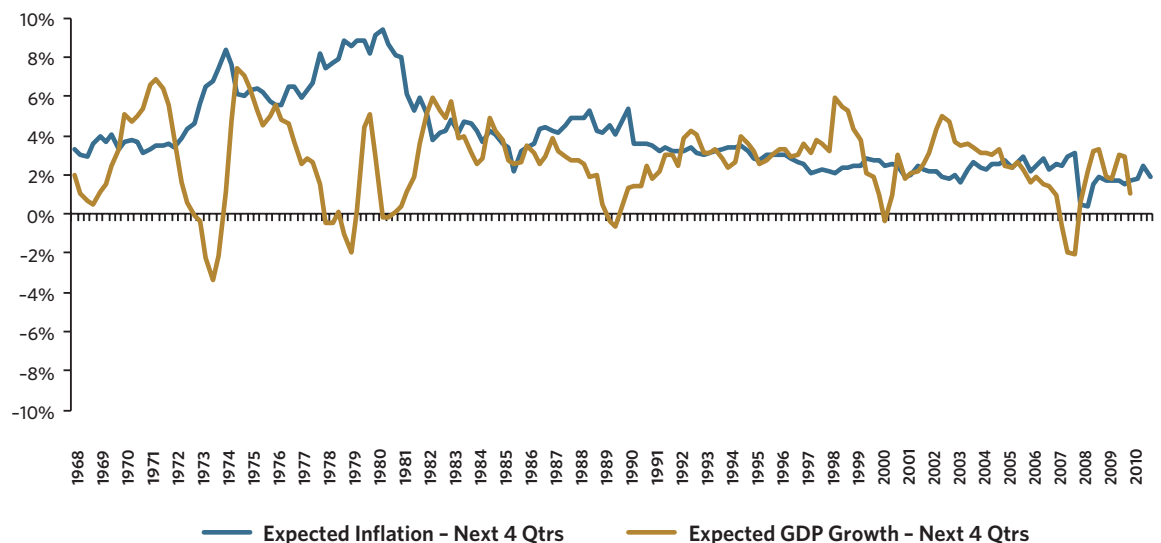
The concept of bond duration offers another useful analogy. When interest rates decline, bond durations extend, which means that bond prices are increasingly sensitive to subsequent changes in interest rates. In other words, low interest rates make for volatile bond prices. Similarly, when growth and inflation are both low, small changes in expectations are quite large when compared to current levels, which creates the potential for high volatility.

In our view, the wild market swings over the last year, featuring abrupt risk on/risk off shifts between riskier and less risky assets, reflect this heightened market sensitivity to new information.

In our view, the wild market swings over the last year, featuring abrupt risk on/risk off shifts between riskier and less risky assets, reflect this heightened market sensitivity to new information. As market data for 2011 show, at the slightest sign of renewed economic growth, assets sensitive to growth reacted very positively. Similarly, at the earliest sign of economic disappointment, growth assets violently sold off as investors headed for safety assets, such as U.S. Treasuries, despite historically low yields. There are numerous downside risks to worry about: double-dip recession in the U.S., a European banking crisis, a eurozone break-up, or a hard landing in China. But we think this focus on the downside creates the potential for major upside surprises, such as: a resolution of Europe’s sovereign debt problems; a resolution of the U.S. foreclosure impasse, enabling the U.S. housing market to clear; a resolution of the political impasse in the U.S. that would allow progress toward near-term growth and longer-term deficit reduction.

Overall there is a gradual ratcheting down of expectations for growth and inflation (Exhibit 6). We believe these meager expectations are largely reflected in the prices of many assets.

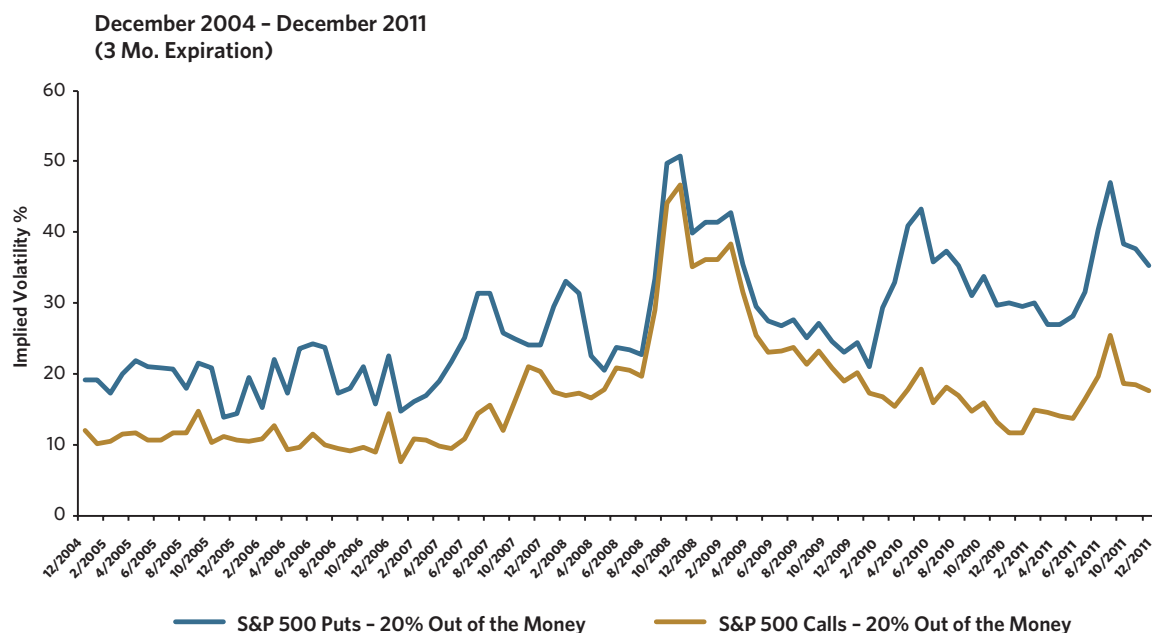
Exhibit 6 - Expected Inflation — Next Four Quarters



Source: Philadelphia Federal Reserve & ISSG, December 2011.

Most dramatically, standard market hedges have become very expensive. Exhibit 7 shows the implied volatility of out-of-the-money equity index puts and calls. Put prices are near their historical highs, and the spread between put prices and call prices is similarly elevated. In other words: investors are legitimately afraid of the left tail of the return distribution, and are relatively unconcerned about the right tail.

Exhibit 7 - Monthly S&P 500 Option Implied Volatility



Source: Bloomberg, December 2011.

Since a put hedge is such an obvious “insurance” strategy for left tail protection in a square root recovery, it is worth dwelling for a moment on crucial differences between, say, fire insurance and equity portfolio insurance. Fire insurance requires two simple decisions: whether to buy the insurance and for how much. Once you buy the insurance, there are no further decisions. If your house burns down, you collect the insurance; if it doesn’t, you lose the premium. An equity put hedge has to be managed, which means a sequence of follow-up decisions. Suppose, for example, that you buy out-of-the-money puts with two years to expiration. After one year, the market is down 25% and you have a sizable profit on your puts. What do you do now? You have three choices, all of which entail risk:

1. *Do nothing.* But if the market bounces back as expiration approaches, then you’ve lost the opportunity to realize a sizable interim trading profit.
2. *Sell.* But if the market declines further, you have no protection.
3. *Roll down;* that is, sell the position and use part of the proceeds to buy puts with a lower strike price. But if the market recovers, you lose the value of the new options; and if the market declines further, the new options offer less protection (they have a lower delta) than the old options.

The point here is that buying tail risk insurance is not a “set it and forget it” decision: it’s the first step in a continuing risk management process.

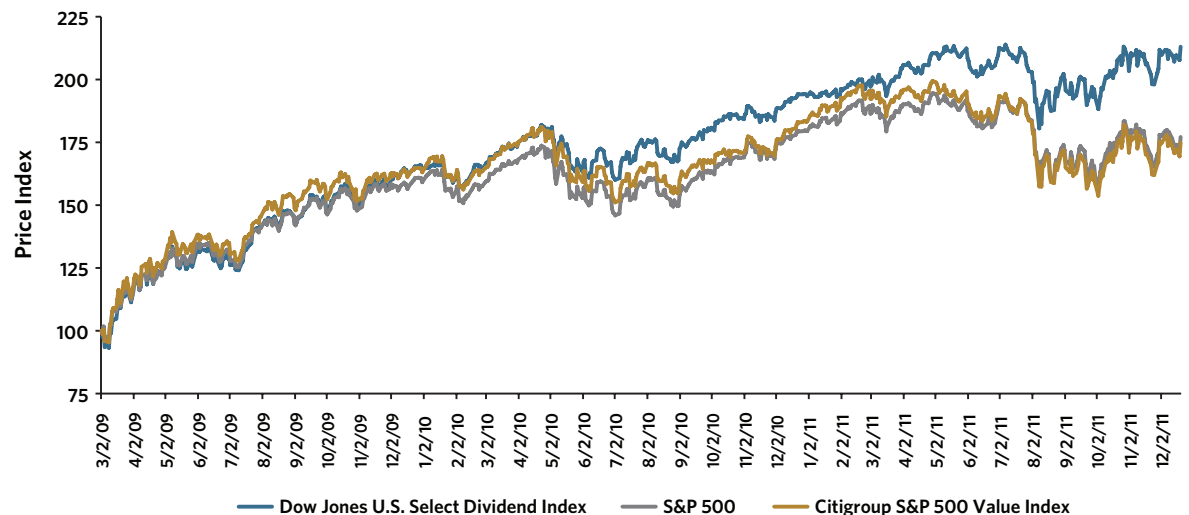
The point here is that buying tail risk insurance is not a “set it and forget it” decision: it’s the first step in a continuing risk management process.³

Indeed, for the long-term investor it may make more sense to sell insurance than to buy insurance. As many investors remember from the heady portfolio insurance days of the late 1980s, those who buy portfolio insurance are essentially pursuing a momentum-based option replication strategy whose basic idea is to buy on strength and sell on weakness. Those who sell portfolio insurance are pursuing a contrarian/rebalancing strategy: buy on weakness, sell on strength. In an environment of volatile prices and sluggish fundamentals, where trends reverse quickly, contrarian strategies may have the potential to deliver profit. In the current environment, we believe the ultimate contrarian strategy is to take the other side of the risk-on/risk-off trade, buying when fear rules and selling when greed rules. Many large institutions try to follow a rebalancing policy, but sometimes have trouble implementing that policy when markets get scary. For investors who believe in the square root scenario, remembering that conviction might give them courage when markets turn sharply down.

Caveat Emptor: Income Equity

The square root recovery is short on growth, so it’s natural to focus on income. In the equity arena, the focus on income can take two very different forms: high yield stocks or stocks with safe and potentially growing dividends. High yield stocks often involve unsustainably high payout ratios, or depressed stock prices, or other factors that may suggest risk. Exhibit 8 below underlines the difference.

Exhibit 8 - Relative Price Performance of Yield



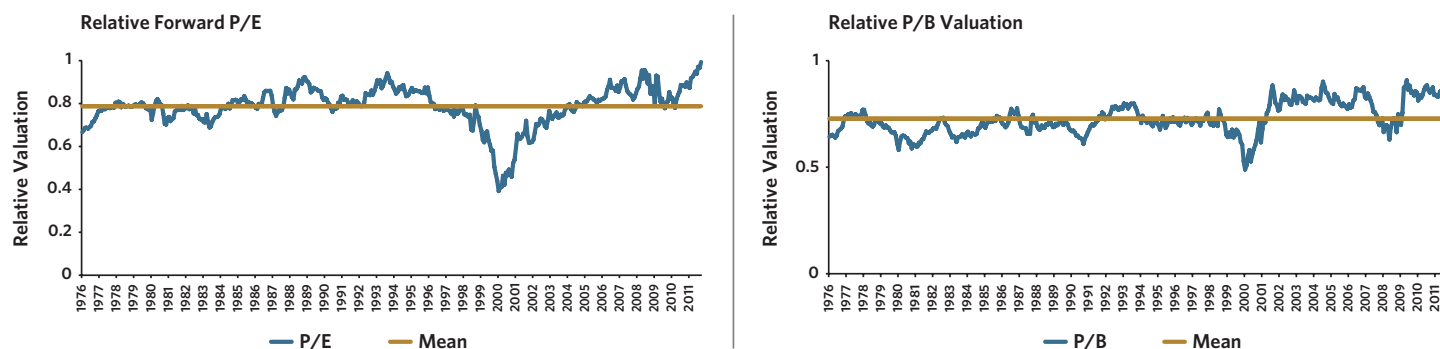
Source: Bloomberg, December 2011.

³ For more on the cost/benefit trade-offs of hedging tail risk, see the ISSG’s recent analysis by Ralph Goldsticker, “Burnin’ Down the House: Straight Talk on Tail Risk,” BNY Mellon Asset Management, November 2011. See also Bob Jaeger’s recent commentary, “Is Hedging the New Diversification?” BNY Mellon Asset Management, November 2011.

The Dow Jones Select Dividend Index emphasizes high dividend yields, while the Citigroup S&P 500 Value Index pays attention to the safety and potential growth of the dividend. The two indices moved closely together as the stock market moved off the March 2009 bottom, but they began to diverge in the middle of 2010 as investors worried increasingly about double dips, European sovereign debt, and other problems that would contribute to the square root scenario. The divergence in the last several months has been especially dramatic: “high yield” is up nicely, while “safer yield” has been trading water.

The same story emerges if we look more closely at the highest yielding quintile of S&P 500 U.S. large cap stocks, where valuations as measured by price to earnings and price to book value are both high by historical standards (see Exhibit 9).

Exhibit 9 – Top Quintile of Dividend Yielding Large Cap Stocks

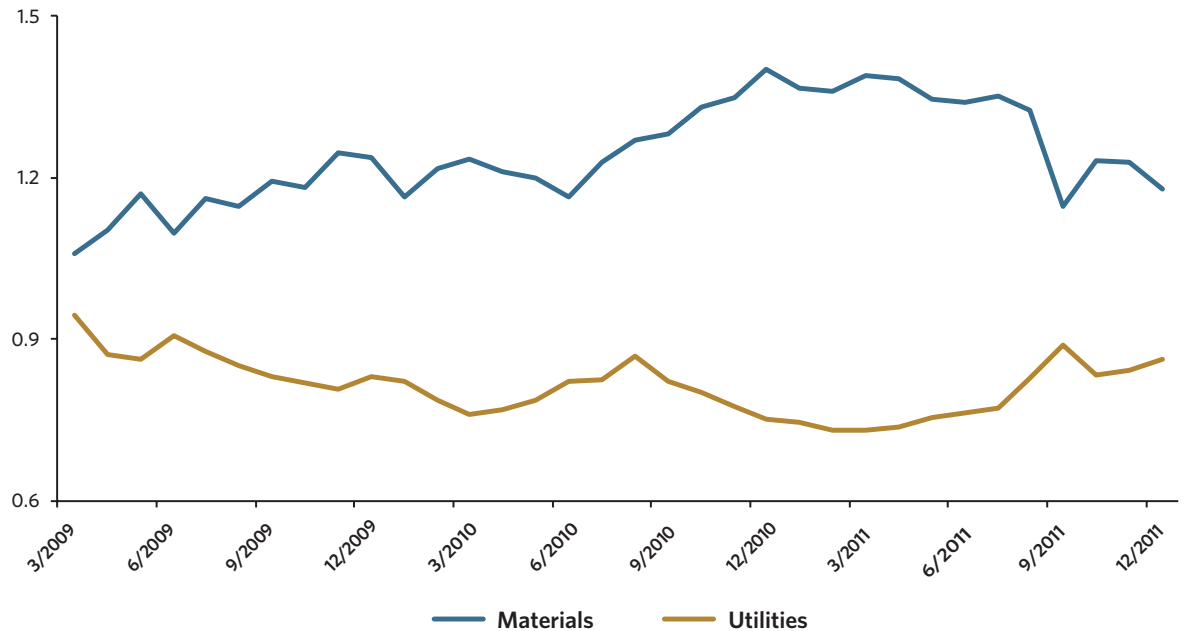


Source: Empirical Research Partners, November 2011.

Finally, we see a similar case at the sector level. Exhibit 10 contrasts the utility sector with the materials sector, which are the two sectors whose post-crisis performance has diverged most widely from that of the broad market.⁴ Materials outperformed and utilities underperformed as investors bet that the post-crisis recovery would be broad-based enough to include basic industrial stocks. But the mood shifted sharply around the middle of 2011, as the materials sector rolled over and utilities picked up steam, indicating that the square root scenario was tightening its grip on investor psychology.

⁴ ISSG, using Datastream sectors.

Exhibit 10 – Relative Price Performance of Materials vs. Utilities to Broad Market



Source: Datastream, December 2011.

The crucial point in our argument is that the square root scenario seems to have become the “consensus scenario,” i.e., the scenario that most closely reflects the thinking built into current prices.

Caveat Emptor: Other Strategies

When investors think about income, they also think about real estate, infrastructure, and various segments of the corporate debt market, even including such “non-vanilla” sectors as mezzanine debt, bank loans, and leveraged loans. We won’t go into a detailed sector-by-sector review, but the general message is the same throughout: beware of overvaluation, and beware of a plain vanilla approach where the dangers of herding are more pronounced than with active management approaches that rely on the careful analysis of individual opportunities. Having said all this, opportunities remain. For example, there are distressed debt situations that combine security (good collateral, strong covenants, etc.) with reasonable upside (e.g., buying debt at an attractive discount to face value). But these opportunities are calculated risks: they aren’t like \$100 bills lying on the sidewalk waiting to be picked up.

Doing Something vs Doing Nothing

We are not arguing that the economy *will* experience a prolonged square root recovery. Indeed, some of the recent economic statistics have been mildly encouraging. But the economy *could* experience a prolonged square root recovery, and such a recovery would fit in naturally with some long-term trends in the U.S. economy, notably the migration in employment toward lower-productivity sectors.

In our view, the bottom line is that investors need to avoid knee-jerk defensive measures and consider potential changes in the context of their overall portfolio, taking into account valuations and transaction costs.

The crucial point in our argument is that the square root scenario seems to have become the “consensus scenario,” i.e., the scenario that most closely reflects the thinking built into current prices. And this means that the temptation to “do something,” i.e., to sell “growth/aggressive assets” and buy “income/defensive assets,” might lead to expensive mistakes.

Indeed, given current valuations, we believe the most radical alternative for well-diversified investors might be to ignore exhortations to the contrary and do nothing. Current prices already reflect a very dismal set of expectations. Those prices could certainly move down further, but dismal expectations can create enormous amounts of upside risk, especially in highly reactive markets.

Having argued the case for “doing nothing,” let’s also remember the potential advantages of “doing something,” namely, pursuing the kind of rebalancing strategy that would take the other side of the risk-on/risk-off trade. Rebalancing in the face of widespread selling is never easy, but, for those who believe in the square root scenario, reminding yourself of what you believe might strengthen your resolve.

In our view, the bottom line is that investors need to avoid knee-jerk defensive measures and consider potential changes in the context of their overall portfolio, taking into account valuations and transaction costs. The last thing you want to do is to sell a lot of cheap “right tail assets” in order to buy a lot of expensive “left tail assets.”

Index Definitions

The **S&P 500 Index** consists of 500 stocks chosen for market size, liquidity and industry group representation. It is a market-value-weighted index (stock price times number of shares outstanding), with each stock’s weight in the index proportionate to its value. The index is one of the most widely used benchmarks of U.S. equity performance.

Dow Jones U.S. Select Dividend Index consists of 100 stocks selected for the index by dividend yield, subject to screens for dividend-per-share growth rate, dividend payout ratio and average daily dollar trading volume. Components are weighted by indicated annual dividend.

Citigroup S&P 500 Value Index is a market-capitalization-weighted index developed by Standard and Poor’s consisting of those stocks within the S&P 500 Index that exhibit strong value characteristics. The S&P 500/Citigroup Value Index uses a numerical ranking system based on four value factors and three growth factors to determine the constituents and their weightings.

These benchmarks are broad-based indices which are used for comparative purposes only and have been selected as they are well known and are easily recognizable by investors. The indices are trademarks and have been licensed for use by The Bank of New York Mellon Corporation (together with its affiliates and subsidiaries) and are used solely herein for comparative purposes. The foregoing index licensors are not affiliated with The Bank of New York Mellon Corporation, do not endorse, sponsor, sell or promote the investment strategies or products mentioned in this presentation and they make no representation regarding advisability of investing in the products and strategies described herein.

BNY Mellon Asset Management is one of the world's leading asset management organizations, encompassing BNY Mellon's affiliated investment management firms and global distribution companies. BNY Mellon is the corporate brand of The Bank of New York Mellon Corporation. • The statements and opinions expressed in this document are those of the authors as of the date of the article, are subject to change as economic and market conditions dictate, and do not necessarily represent the views of BNY Mellon, BNY Mellon Asset Management International or any of their respective affiliates. This document is of general nature, does not constitute legal, tax, accounting or other professional counsel or investment advice, is not predictive of future performance, and should not be construed as an offer to sell or a solicitation to buy any security or make an offer where otherwise unlawful. The information has been provided without taking into account the investment objective, financial situation or needs of any particular person. BNY Mellon Asset Management International Limited and its affiliates are not responsible for any subsequent investment advice given based on the information supplied.

Past performance is not a guide to future performance. The value of investments and the income from them is not guaranteed and can fall as well as rise due to stock market and currency movements. When you sell your investment you may get back less than you originally invested. • While the information in this document is not intended to be investment advice, it may be deemed a financial promotion in non-U.S. jurisdictions. Accordingly, where this document is used or distributed in any non-U.S. jurisdiction, the information provided is for use by professional and wholesale investors only and not for onward distribution to, or to be relied upon by, retail investors. • Products or services described in this document are provided by BNY Mellon, its subsidiaries, affiliates or related companies and may be provided in various countries by one or more of these companies where authorized and regulated as required within each jurisdiction. This document is not intended for distribution to, or use by, any person or entity in any jurisdiction or country in which such distribution or use would be contrary to local law or regulation. This document may not be distributed or used for the purpose of offers or solicitations in any jurisdiction or in any circumstances in which such offers or solicitations are unlawful or not authorized, or where there would be, by virtue of such distribution, new or additional registration requirements. Persons into whose possession this document comes are required to inform themselves about and to observe any restrictions that apply to the distribution of this document in their jurisdiction. **The investment products and services mentioned here are not insured by the FDIC (or any other state or federal agency), are not deposits of or guaranteed by any bank, and may lose value.** • This document should not be published in hard copy, electronic form, via the web or in any other medium accessible to the public, unless authorized by BNY Mellon Asset Management International Limited.

In **Australia**, this document is issued by BNY Mellon Asset Management Australia Limited (ABN 56 102 482 815, AFS License No. 227865) located at Level 6, 7 Macquarie Place, Sydney, NSW 2000. Authorized and regulated by the Australian Securities & Investments Commission. • In **Brazil**, this document is issued by BNY Mellon Serviços Financeiros DTVM S.A., Av. Presidente Wilson, 231, 11th floor, Rio de Janeiro, RJ, Brazil, CEP 20030-905. BNY Mellon Serviços Financeiros DTVM S.A. is a Financial Institution, duly authorized by the Brazilian Central Bank to provide securities distribution and by the Brazilian Securities and Exchange Commission (CVM) to provide securities portfolio managing services under Declaratory Act No. 4.620, issued on December 19, 1997. • Investment vehicles may be offered and sold in **Canada** through BNY Mellon Asset Management Canada Ltd., a Portfolio Manager, Exempt Market Dealer and Investment Fund Manager. • In **Dubai, United Arab Emirates**, this document is issued by the Dubai branch of The Bank of New York Mellon, which is regulated by the Dubai Financial Services Authority. • In **Germany**, this document is issued by WestLB Mellon Asset Management Kapitalanlagegesellschaft mbH, which is regulated by the Bundesanstalt für Finanzdienstleistungsaufsicht. WestLB Mellon Asset Management Holdings Limited is a 50:50 joint venture between BNY Mellon and WestLB AG. WestLB Mellon Asset Management Kapitalanlagegesellschaft mbH is a wholly owned subsidiary of this joint venture. • If this document is used or distributed in **Hong Kong**, it is issued by BNY Mellon Asset Management Hong Kong Limited, whose business address is Level 14, Three Pacific Place, 1 Queen's Road East, Hong Kong. BNY Mellon Asset Management Hong Kong Limited is regulated by the Hong Kong Securities and Futures Commission and its registered office is at 6th floor, Alexandra House, 18 Chater Road, Central, Hong Kong. • In **Japan**, this document is issued by BNY Mellon Asset Management Japan Limited, Marunouchi Trust Tower Main Building, 1-8-3 Marunouchi Chiyoda-ku, Tokyo 100-0005, Japan. BNY Mellon Asset Management Japan Limited is a Financial Instruments Business Operator with license no 406 (Kinsho) at the Commissioner of Kanto Local Finance Bureau and is a Member of the Investment Trusts Association, Japan and Japan Securities Investment Advisers Association. • In **Korea**, this document is issued by BNY Mellon AM Korea Limited for presentation to professional investors. BNY Mellon AM Korea Limited, 21/F Seoul Finance Center, 84 Taeyungro 1-ga, Jung-gu, Seoul, Korea. Regulated by the Financial Supervisory Service. • In **Singapore**, this document is issued by The Bank of New York Mellon, Singapore Branch for presentation to professional investors. The Bank of New York Mellon, Singapore Branch, One Temasek Avenue, #02-01 Millenia Tower, Singapore 039192. Regulated by the Monetary Authority of Singapore. • This document is issued in the **UK** and in **mainland Europe** (excluding Germany), by BNY Mellon Asset Management International Limited, 160 Queen Victoria Street, London EC4V 4LA. Registered in England No. 1118580. Authorized and regulated by the Financial Services Authority. • This document is issued in the **United States** by BNY Mellon Asset Management.

BNY Mellon holds over 90% of the parent holding company of The Alcentra Group. The Group refers to these affiliated companies: Alcentra, Ltd and Alcentra NY, LLC. Only Alcentra NY, LLC offers services in the U.S. • BNY Mellon Western FMC, Insight Investment and WestLB Mellon Asset Management do not offer services in the U.S. This presentation does not constitute an offer to sell, or a solicitation of an offer to purchase, any of the firms' services or funds to any U.S. investor, or where otherwise unlawful. • BNY Mellon holds a 20% interest in Siguler Guff & Company, LP and certain related entities (including Siguler Guff Advisers LLC). • BNY Mellon Cash Investment Strategies is a division of The Dreyfus Corporation. • BNY Mellon Western Fund Management Company Limited is a joint venture between BNY Mellon (49%) and China based Western Securities Company Ltd. (51%). The firm does not offer services outside of the People's Republic of China. • Hamon's services are offered in the U.S. by Hamon Asian Advisors Limited. BNY Mellon holds a 19.9% interest in Hamon Investment Group Pte Limited, which is the parent of Hamon Asian Advisors Limited. • The Newton Group refers to the following group of companies: Newton Investment Management Limited, Newton Capital Management Limited, Newton International Investment Management Limited, Newton Capital Management LLC, and Newton Fund Managers (CI) Limited. Except for Newton Capital Management LLC and Newton Capital Management Limited, none of the other Newton companies offers services in the U.S. • BNY Mellon Asset Management International Limited and any other BNY Mellon entity mentioned above are all ultimately owned by BNY Mellon.



BNY MELLON ASSET MANAGEMENT

The Alcentra Group
 BNY Mellon ARX
 BNY Mellon Cash Investment Strategies
 BNY Mellon Western Fund Management
 Company Limited
 The Boston Company Asset Management, LLC
 The Dreyfus Corporation
 EACM Advisors LLC
 Hamon Investment Group
 Insight Investment
 Mellon Capital Management Corporation
 The Newton Group
 Pareto Investment Management Limited
 Siguler Guff & Company LP
 Standish Mellon Asset Management Company LLC
 Urdang Capital Management, Inc.
 Urdang Securities Management, Inc.
 Walter Scott & Partners Limited
 WestLB Mellon Asset Management