

The Index Investor

Invest Wisely...Get an Impartial Second Opinion.

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A Letter from the Publisher

The painful crisis now underway has spawned a rash of articles about the failure of diversification, efficient markets, buy-and-hold investing, risk models, hedge funds, compensation systems and many other aspects of the process by which we as an industry seek to allocate savings in a manner which results in the achievement of our clients' long-term financial goals. Like you, I read them carefully, and think about their meaning for my business. Many of them strike close to home, for they show the extent to which this crisis has represented a gross failure to pay sufficient attention to asset allocation and hedging downside risk, whether through diversification, options or moving into cash.

For example, a recent column by John Redwood in the *Telegraph* ("Expert Advice for Pension Trustees", 24 February 2009) succinctly captured the painful questions now being asked by too many investors and plan sponsors: "Many pension funds will have lost more than a fifth of their value and some as much as a third...The Trustees will have to decide what to do, and how to tell the members the bad news...The Actuaries will point out how there is now a bigger hole in the pension

fund...The Sponsoring Company will be expected to make up [with higher savings contributions] for the black hole in the pension fund...The [Fund Managers] will say they were not responsible for the main cause of the loss. They did what they were asked to do, implementing an asset allocation laid down by someone else...The Trustees, they will say, made the overall asset allocation decision...The poor old Trustees will be left pondering how come they had spent a small fortune in fees, yet lacked [adequate] advice on the one thing that really matters.” In a similar vein, Johan Magnusson, the managing director of AP1, one of the Swedish National Pension Funds, recently declared that “we want to raise the level of ambition in strategic asset allocation, which has the greatest influences on the fund’s ability to deliver long-term returns...We will take a more flexible approach and achieve greater freedom in our reallocation than at present.”

In sum, all of the articles I have read have only reinforced my belief that there is too little good analysis and advice available to investors and trustees on the critical issues of asset allocation and hedging downside risk. They have also made it clear that we are on the right track intellectually. Over the past twelve years our company has developed a distinctive approach to asset allocation and hedging downside risk that is grounded in complex adaptive systems theory and the adaptive markets hypothesis. This leads to a strong focus on how investor decisions result from the interplay of rational, emotional and social processes, producing a constant interaction between fundamental value and momentum strategies that can cause asset classes to sometimes become severely over and undervalued. This is why we also spend a lot of time on methodologies for improving decision making in the face of uncertainty (not just risk), including sensemaking, situation awareness, pre-mortems, model averaging, analysis of competing hypotheses, and modeling trade-offs between fidelity to historical data, robustness to uncertainty, and confidence in prediction. Our focus on continuous learning and innovation has resulted in the constantly improving quality of our publications over the past ten years. We now offer very detailed monthly asset class valuation reports, political and economic forecasts whose methodology is explicit and whose conclusions are clearly linked to potential changes in asset class returns,

and our wide-ranging product and strategy notes, in addition to our tools for balancing financial goals and portfolio allocations. As a result of this relentless focus on improving our offering, over the past twelve years we have evolved from a publication about the advantages of index investing targeted at individual U.S. investors, to a much more sophisticated investment strategy journal with a global subscriber base that is now primarily composed of investment managers, financial advisers, and sophisticated individual investors. This evolution has been a symbiotic process, with improvements to our offering attracting more demanding subscribers, who have stimulated even more innovations in our methods and writing.

However, when people ask me what I am most proud of after twelve years of hard work, I point to the impact we've had on investors' portfolio returns, and the life goals that depend on them. I like to point to the warnings we issued in March 2000 and May 2007 about dangerously overvalued asset classes, and the emails we later received thanking us, describing the size of the losses that were avoided as a result of acting on our recommendations, and above all what that meant in terms of people's lives. At the end of the day, that is what the investment management business is really about, and that is why it is so important for all of us to get it right. With that in mind, I also like to point to the emails we've received saying how much professional advisers and asset managers value our distinctive methodology, independent point of view, and explicitly reasoned arguments as inputs into their own asset allocation and risk management processes. Clearly we are serving an important market need for high quality asset allocation analysis that can generate very large economic benefits, particularly when it comes to protecting against large downside risks.

I found further confirmation for this view in a new EDHEC report, "A Long Road Ahead for Portfolio Construction." Their survey of practitioners found that "in many respects, current practice falls short of the state of the art in portfolio management techniques." More encouragingly, "95% of those surveyed believed improvements must be made in portfolio construction practices", 86% agreed that "further education was a highly important means of closing this gap", and 79% believed that "better explanations of the practical applications of academic research are highly important."

I read these comments, and have no doubt we are on the right track. Yet as a publisher, I am also painfully aware of the rising costs of producing publications that constantly strive to deliver valuable insight while also pursuing innovation and improving our quality. To put it bluntly, this doesn't come cheap (e.g., we will soon be launching quarterly webinars for subscribers). This is why, for the first time since 2006, I have decided to raise our subscription price. No publisher ever does this with enthusiasm; however, in our case I am also well aware that, even after the price increase, our journals are still priced below many other investment publications, few of which focus on our niche: high quality asset allocation analysis, advice and education. And I also know that, given the value of our readers' assets under management, even our new price amounts to, at most, only a few basis points per year – which pales in comparison to the size of too many investors' losses over the past two years because of asset allocation mistakes. So I am confident you will understand this price change, and continue to recognize the high quality and value of our content. I also ask that you keep recommending us to your clients and colleagues as a unique and valuable source of asset allocation insight and education. The more people that subscribe, the better job we can do for you, and the easier it is for me to hold the line on future price increases. In that sense, we're all in this together.

Thank you for your support, and for your continued suggestions about how we can better serve your needs.

Sincerely yours,

Susan L. Miller
Publisher

March 2009 Issue: Key Points

This month's feature article takes an in-depth look at the progress we have made towards resolving the three problems that underlie the global economic crisis: (1) The

previous engine of growth, the U.S. consumer (or, more broadly, the Anglosphere consumer), has reached her or his borrowing limit, and is now struggling to pay mortgage, credit card, and auto debt, while worrying about losing his or her job; (2) Thanks to high leverage and tight global connections, these credit problems have triggered a systemic crisis across the world financial system; and (3) The problems have been further accentuated by deep imbalances in world economy, which for too long has been characterized by Anglosphere countries like the U.S. issuing increasing amounts of debt to enable them to spend beyond their incomes, while other countries, most notably China (but also including Japan and Germany) financed this profligacy in order to facilitate the growth of their overly-export dependent economies. As a result, when American consumers finally hit their borrowing limit, the consequences exploded across the world with frightening speed, in the manner of those rare mass-cataclysms in complex systems known as “punctuated equilibrium” events.

We find that the middle class American consumer is becoming more anxious, angry and volatile. While they are still giving the Obama stimulus plan and budget the benefit of the doubt, the fact that they have slammed the breaks on spending has made financial asset valuations more uncertain, and will not make it any easier to resolve the financial system crisis. After presenting a short guide to the policy alternatives facing a government trying to sort out a failing bank, we conclude that there are major differences between small and medium size banks, and the megabanks at the center of the current crisis. Regarding the latter, we conclude that the U.K. has set an example for other countries, with its combination of wholesale funding guarantees and de-facto nationalization via government equity purchases. That said, we also believe that at least some wholesale funding should be converted into bank equity, and that both principal/agent and political logic indicate that far more management changes need to be made in nationalized banks than we have seen to date. In terms of international imbalances, we add new detail to our two principal scenarios. The essence of the cooperative scenario is a new era of investment led growth in the United States (focused on the transformation of the energy, and perhaps

healthcare industries), consumption led growth in China, and maintenance of a relatively high level of global economic integration.

While there are some signs that the cooperative scenario could develop, there are also plenty of obstacles that may prevent its successful realization. Whether by accident or design, we believe that our conflict scenario could easily develop, which includes higher inflation, slower growth, decreased globalization, and the rise of competing Sinosphere and Anglosphere blocs and hinterlands, with the Eurozone caught in the middle. On balance, we conclude that so many things have to go right in order for the cooperative scenario to develop that the conflict scenario must be considered more likely. We conclude this month's update with a very detailed look at how these two scenarios could affect fundamental value drivers, investor behavior, and prices in a wide range of asset classes over the next two years.

Our product and strategy notes review a number of new studies that should be of great interest to subscribers who are financial advisers, as well as two papers that show how hedge fund size, inflows, and the aggregate amount of money invested in a strategy all affect realized returns. We also review new product launches around the world, new papers on the dynamics of commodity returns, and another paper on one of our favorite subjects, the role of foreign currency exposures in a portfolio.

This Month's Letters to the Editor

Why do you write about academic research? Why don't you provide more frequent updates about where different markets are headed?

One of our key beliefs is that rather than focusing on relative performance (versus peers or a benchmark), investors and trustees (as opposed to the investment managers they employ) should instead focus on achieving the minimum compound real portfolio return they need to realize their long-term goals. Once a long-term asset allocation policy has been established with this target real return in mind, monitoring asset class valuations and avoiding large downside losses is critically important. So too is balancing different ways to accomplish this objective, including diversification

and rebalancing, the use of options, and sometimes moving into cash. Another of our key beliefs is that markets function as a complex adaptive system, in which asset classes can become substantially over and undervalued, due to the interaction of fundamental value and momentum strategies, and the underlying investor decision making on basis of a complex mix of rational, emotional and social inputs. In the constantly evolving markets that result, anyone who makes investment decisions faces an ongoing sensemaking challenge that has three parts: where to allocate scarce attention (i.e., deciding what information is valuable), explaining the meaning of this information in light of your investment goals, and predicting how the situation is likely to evolve in the future. In turn, this process of making sense of the current situation helps an investor to identify, evaluate and choose between different decision options (e.g., stay fully invested in 2007, or move out of overvalued asset classes and into cash?).

Clearly, personal experience contributes to this process. Yet over the past thirty years, we have repeatedly seen great traders and investors blow themselves up when they wrongly relied on mental or quantitative models after the system in which they had been developed had changed. That is the curse of expertise: unless it is constantly challenged and renewed, its validity will decline. So the real question becomes how to do this. There are many different approaches, including consciously broadening and trying to learn from experience (rather than simply repeating what works until it doesn't any more), learning from history, learning from simulations, learning from others (e.g., adding diversity to your group, or seeking outside forecasts in addition to your own), and learning from academic research studies (the best of which are based on practitioner experience) that offer new or updated theories. All of these provide a richer source of frameworks that an investor can use when allocating his or her attention, understanding the current situation, predicting how it will evolve in the future, identifying options, and deciding what action to take. So that's why we report on new academic research findings: because learning from them is one of the ways investors can improve their performance.

As for the frequency with which we update our views about where markets are headed, our starting point is that we are investors, not traders, and are guided more by our views about fundamental value than we are by short term changes in investor behavior that are much harder to predict (though we are strong believers that a wide divergence between fundamental valuation indicators and current market momentum often marks an impending turning point). As Ben Graham famously wrote, “in the short-run, the market is a voting machine – reflecting a voter registration test that requires only money, not intelligence or emotional stability – but in the long-run, the market is a weighing machine.” In today’s world of widespread internet connectivity and 24/7 news cycles, Graham’s insight has never been more accurate or more important. Investors today are more interconnected and facing a much higher volume of often sensationalized data than ever before. Even a small sampling of the hourly market analysis provided on television and radio stations, to say nothing of the minute by minute analysis provided online, make it clear that many commentators make either no or only minimal effort to discriminate between the diagnostic value and reliability of each new piece of data, and instead automatically link them to short term market moves and use this dubious causal analysis to hype their importance. But let’s be honest – most of these media outlets are in the business of aggregating audiences for advertisers who pay the bills. Generating high emotional energy, and indeed, a sense of urgency, is what it takes to make their business model succeed. They know that people instinctively pay attention to information with high emotional content, and readily communicated it to others. However, that is not our approach. Instead, we concentrate on fundamental asset class valuation, and decisions guided by good analysis and explicit logic. Providing our asset class valuation and economic updates just once each month quite honestly provides time for both us and our subscribers to think. To put it differently, we believe that taking the time to reflect, and publishing once a month, is critical to the quality of the insights we provide, as well as the quality of our subscribers’ decision making process.

Why do you not include currencies as asset classes in your model portfolios?

While we are familiar with institutional style currency overlay programs, we decided that this approach would be “a bridge too far” for many investors, not the least because of the calculations involved. In our model portfolios, currency exposure is bound up with exposure to foreign currency denominated asset classes, all of which we use on an unhedged basis (and note that the local currency returns on commodities, timber, and uncorrelated alpha in our models all reflect the underlying return in USD, plus the exchange rate change). That said, with the recent introduction of so many currency based ETF products, we are once again re-examining this position.

Is your use of uncorrelated alpha strategies in some of your model portfolios inconsistent with your belief in passive investing?

On the surface, yes, but at a deeper level, no. At one level, multiple research studies make it clear that, after expenses and taxes, the number of active managers who can outperform a comparable index fund declines sharply with time. Other research has concluded that a substantial portion of the alpha that is actually delivered by active managers reflects luck rather than skill (see, for example, “False Discoveries in Mutual Fund Performance” by Barras, Scaillet, and Wermers), and that it is extremely difficult to distinguish between the two. It is also clear that it is easy for unscrupulous investment managers to game systems that attempt to measure alpha (see “The Hedge Fund Game: Incentives, Excess Returns and Performance Mimics” by Foster and Young). The challenges facing active managers are no doubt extremely hard. Superior investment performance results from superior forecasts, which in turn must be based on either superior information and/or superior models. We know that markets are not perfectly efficient, because superior forecasts are possible, at least during some periods. One of our core beliefs is that, like the economy, financial markets function as a complex adaptive system, in which information does not flow freely,

investors are imperfectly rational, and multiple investment strategies compete and have different impacts on prices. The net result is that markets are usually in a state of disequilibrium, which is a necessary precondition for active managers to make successful forecasts. Yet the existence of disequilibrium is also the basis of our belief that asset classes can become substantially overvalued, and that investors must consequently be vigilant about avoiding large losses.

So what explains the dismal track record of many active managers? We believe four factors are involved. First, the effectiveness of superior sources of information and superior models are inevitably undermined by competitor copying (as was seen in some hedge fund strategies) or by changes in the underlying system (e.g., the passage of Regulation FD which limited analysts' private access to companies, or the globalization of financial markets). This is no different from the observation that corporate performance tends to regress toward the mean over time, and that as the time horizon lengthens, an increasing number of companies fail. Second, portfolio constraints often mean that the accurate forecasts are not fully translated into portfolio positions (e.g., U.S. mutual funds have traditionally been prevented from taking short positions).

Third, the positive returns on accurate forecasts that are implemented in a portfolio get eaten up by expenses and taxes, which also add to the size of losses caused by inaccurate forecasts. Fourth, consider the differing situations facing an active manager whose success is judged annually based on her performance versus an index benchmark, and a manager whose performance is evaluated over a multiyear time frame, based on her ability to manage a portfolio of asset class index funds to achieve a minimum long-term compound rate of return. For the first manager, both Type 1 errors (failing to buy a stock that outperforms the benchmark) and Type 2 errors (buying a stock that underperforms) detract from performance, particularly given the short performance evaluation period (which limits the ability of regression to the mean to even out the impact of different mistakes). Each year, this manager must therefore make a large number of decisions whose stakes (given the annual performance evaluation) are high. Moreover, since the annual return on the

benchmark index is driven by a mix of fundamental and behavioral factors, our manager faces a complicated set of tradeoffs every time she makes one of those decisions. As Ariely, Gneezy, Loewenstein and Mazar show in “Large Stakes and Big Mistakes”, this combination of complexity and high stakes can actually lead to a degradation of performance.

Now consider our second manager. For her, once the initial asset allocation is established, only Type 1 errors are critical – i.e., failure to rebalance or hedge exposure to avoid a large loss when one or more asset classes becomes severely overvalued and then crashes. However, since this rarely happens, our second manager will have ample time to make a well considered decision, without excessive pressure. Moreover, the decision to get back into an asset class after a crash is also likely to be easier, since at that point, its expected long-term return (which are what counts given her performance objective) is likely to be higher than average. In other words, even if she doesn’t get back in at the bottom, regression towards the mean over time will still be working in her favor. As a result of these factors, our second manager’s average decision quality, stress level and performance are likely to be different than our first manager’s.

Clearly, I have just made a convincing argument for passive investing. So why do we include uncorrelated alpha strategies in some of our portfolios? There are two reasons. First, because we believe, that under certain conditions, successful active management (i.e., positive alpha after expenses and taxes) is possible, particularly for those managers who focus on continuously improving their sources of information and/or forecasting models. Second, because of the undeniable mathematical benefits of uncorrelated alpha to a portfolio, in terms of its ability to reduce the risk you must accept in order to to achieve higher long-term real return targets. That said, the relatively low maximum limits we set on our allocation to uncorrelated alpha reflects our recognition of the difficult challenges involved in consistently delivering it over long periods of time, as does our focus on minimizing fund costs (note that the mutual funds we use cost a lot less than the “2 and 20” charged by many hedge funds), and our recommendation that these funds be held in tax-advantaged accounts. Clearly,

we are trying to make a tradeoff here, and reasonable people can disagree about the maximum amount we are willing to allocate to uncorrelated alpha strategies. That said, we believe the underlying logic of our argument is sound, and in the case of higher portfolio real return targets, some allocation to uncorrelated alpha strategies makes sense from a risk/return perspective.

Global Asset Class Returns

YTD 27Feb09	In USD	In AUD	In CAD	In EURO	In JPY	In GBP	In CHF	In INR
Asset Held								
US Bonds	-1.14%	7.22%	1.56%	7.49%	6.21%	-0.28%	7.49%	3.59%
US Prop	-34.54%	-26.18%	-31.84%	-25.91%	-27.19%	-33.68%	-25.91%	-29.81%
US Equity	-17.84%	-9.48%	-15.14%	-9.21%	-10.49%	-16.98%	-9.21%	-13.11%
AUS Bonds	-11.76%	-3.39%	-9.05%	-3.12%	-4.40%	-10.89%	-3.12%	-7.03%
AUS Prop	-33.81%	-25.44%	-31.10%	-25.17%	-26.45%	-32.94%	-25.17%	-29.07%
AUS Equity	-19.91%	-11.55%	-17.21%	-11.28%	-12.56%	-19.05%	-11.28%	-15.18%
CAN Bonds	-4.09%	4.27%	-1.38%	4.54%	3.26%	-3.23%	4.54%	0.64%
CAN Prop	-10.41%	-2.04%	-7.70%	-1.77%	-3.05%	-9.54%	-1.77%	-5.67%
CAN Equity	-13.43%	-5.06%	-10.72%	-4.79%	-6.07%	-12.56%	-4.79%	-8.69%
Euro Bonds	-10.27%	-1.91%	-7.57%	-1.64%	-2.92%	-9.41%	-1.64%	-5.54%
Euro Prop.	-17.77%	-9.40%	-15.06%	-9.13%	-10.41%	-16.90%	-9.13%	-13.03%
Euro Equity	-13.59%	-5.23%	-10.89%	-4.96%	-6.24%	-12.73%	-4.96%	-8.86%
Japan Bnds	-8.24%	0.12%	-5.53%	0.40%	-0.89%	-7.37%	0.40%	-3.51%
Japan Prop	-30.73%	-22.37%	-28.03%	-22.10%	-23.38%	-29.87%	-22.10%	-26.00%
Japan Eqty	-23.07%	-14.71%	-20.37%	-14.44%	-15.72%	-22.21%	-14.44%	-18.34%
UK Bonds	-4.11%	4.25%	-1.41%	4.52%	3.24%	-3.25%	4.52%	0.62%
UK Prop.	-37.90%	-29.54%	-35.20%	-29.27%	-30.55%	-37.04%	-29.27%	-33.17%
UK Equity	-18.20%	-9.84%	-15.50%	-9.57%	-10.85%	-17.34%	-9.57%	-13.47%
World Bnds	-4.25%	4.11%	-1.55%	4.38%	3.10%	-3.39%	4.38%	0.48%
World Prop.	-30.02%	-21.66%	-27.32%	-21.39%	-22.67%	-29.16%	-21.39%	-25.29%
World Eqty	-19.35%	-10.98%	-16.64%	-10.71%	-11.99%	-18.48%	-10.71%	-14.61%
Commod	1.41%	9.78%	4.12%	10.05%	8.77%	2.28%	10.05%	6.14%
Timber	-25.12%	-16.75%	-22.41%	-16.48%	-17.76%	-24.25%	-16.48%	-20.38%
Uncor Alpha	-0.63%	7.73%	2.07%	8.00%	6.72%	0.23%	8.00%	4.10%
Volatility	15.88%	24.24%	18.58%	24.51%	23.23%	16.74%	24.51%	20.61%
Currency								
AUD	-8.36%	0.00%	-5.66%	0.27%	-1.01%	-7.50%	0.27%	-3.63%
CAD	-2.70%	5.66%	0.00%	5.93%	4.65%	-1.84%	5.93%	2.03%
EUR	-8.63%	-0.27%	-5.93%	0.00%	-1.28%	-7.77%	0.00%	-3.90%
JPY	-7.35%	1.01%	-4.65%	1.28%	0.00%	-6.49%	1.28%	-2.62%
GBP	-0.86%	7.50%	1.84%	7.77%	6.49%	0.00%	7.77%	3.87%
USD	0.00%	8.36%	2.70%	8.63%	7.35%	0.86%	8.63%	4.73%
CHF	-8.63%	-0.27%	-5.93%	0.00%	-1.28%	-7.77%	0.00%	-3.90%
INR	-4.73%	3.63%	-2.03%	3.90%	2.62%	-3.87%	3.90%	0.00%

Uncorrelated Alpha Strategies Detail

YTD 27Feb2009	<u>In USD</u>	<u>In AUD</u>	<u>In CAD</u>	<u>In EURO</u>	<u>In JPY</u>	<u>In GBP</u>	<u>In CHF</u>	<u>In INR</u>
<i>Strategies:</i>								
<i>Eq Mkt Neutral</i>								
HSKAX	-1.22%	7.14%	1.48%	7.41%	6.13%	-0.36%	7.41%	3.51%
OGNAX	-1.79%	6.57%	0.92%	6.84%	5.56%	-0.93%	6.84%	2.94%
<i>Arbitrage</i>								
ARBFX	2.28%	10.65%	4.99%	10.92%	9.64%	3.15%	10.92%	7.02%
ADANX	0.10%	8.46%	2.80%	8.73%	7.45%	0.96%	8.73%	4.83%
<i>Currency</i>								
DBV	-2.52%	5.84%	0.18%	6.11%	4.83%	-1.66%	6.11%	2.21%
ICI	0.73%	9.10%	3.44%	9.37%	8.09%	1.60%	9.37%	5.46%
<i>Equity L/S</i>								
HSGFX	2.29%	10.65%	4.99%	10.92%	9.64%	3.15%	10.92%	7.02%
PTFAX	-6.15%	2.21%	-3.45%	2.48%	1.20%	-5.29%	2.48%	-1.42%
<i>GTAA</i>								
MDLOX	-9.89%	-1.52%	-7.18%	-1.25%	-2.53%	-9.02%	-1.25%	-5.16%
PASAX	-7.77%	0.59%	-5.07%	0.86%	-0.42%	-6.91%	0.86%	-3.04%

Asset Class Valuation Update

Our asset class valuation analyses are based on the belief that financial markets are complex adaptive systems, in which prices and returns emerge from the interaction of multiple rational, emotional and social processes. We further believe that while this system is attracted to equilibrium, it is generally not in this state. To put it differently, we believe it is possible for the supply of future returns a market is expected to provide to be higher or lower than the returns investors logically demand, resulting in over or undervaluation. The attraction of the system to equilibrium means that, at some point, these situations are likely to reverse in the direction of their fundamental valuation. However, the complex adaptive nature of the system means that it is difficult if not impossible to accurately forecast how and when such reversals will occur. Yet this does not mean that valuation analyses are a fruitless enterprise. Far from it. For an investor trying to achieve a multiyear goal (e.g., accumulating a certain amount of capital in advance of retirement, and later trying to preserve the real value of that capital as one generates income from it), avoiding large downside losses is mathematically more important than reaching for the last few basis points of return. Investors who use valuation analyses to help them limit downside risk when an asset class appears to be substantially overvalued can substantially increase the probability that they will achieve their long term goals. This is the painful lesson learned by too many investors in the 2001 tech stock crash, and then learned again in the 2007-2008 crash of multiple asset classes.

We also believe that the use of a consistent quantitative approach to assessing fundamental asset class valuation helps to overcome normal human tendencies towards over-optimism, overconfidence, wishful thinking, and other biases that can cause investors to make decisions they later regret. Finally, we stress that our monthly market valuation update is only a snapshot in time, and says nothing about whether apparent over and undervaluations will in the future become more extreme before they inevitably reverse. That said, when momentum is strong and quickly moving prices far away from their fundamental values, it is usually a good indication a turning point is near.

In the case of an equity market, we define the future supply of returns to be equal to the current dividend yield plus the rate at which dividends are expected to grow in the future. We define the return investors demand as the current yield on real return government bonds plus an equity market risk premium. While this approach emphasizes fundamental valuation, it does have an implied linkage to the investor behavior factors that also affect valuations. On the supply side of our framework, investors under the influence of fear or euphoria (or social pressure) can deflate or inflate the long-term real growth rate we use in our analysis. Similarly, fearful investors will add an uncertainty premium to our long-term risk premium, while euphoric investors will subtract an “overconfidence discount.” As you can see, euphoric investors will overestimate long-term growth, underestimate long-term risk, and consequently drive prices higher than warranted. In our framework, this depresses the dividend yield, and will cause stocks to appear overvalued. The opposite happens under conditions of intense fear. To put it differently, in our framework, it is investor behavior and overreaction that drive valuations away from the levels warranted by the fundamentals. As described in our November 2008 article “Are Emerging Market Equities Undervalued?”, people can and do disagree about the “right” values for the variables we use in our fundamental analysis. Recognizing this, we present four valuation scenarios for an equity market, based on different values for three key variables. First, we use both the current dividend yield and the dividend yield adjusted upward by .50% to reflect share repurchases. Second, we define future dividend growth to be equal to the long-term rate of total (multifactor) productivity growth. For this variable, we use two different values, 1% or 2%. Third, we also use two different values for the equity risk premium required by investors: 2.5% and 4.0%. Different combinations of all these variables yield high and low scenarios for both the future returns the market is expected to supply (dividend yield plus growth rate), and the future returns investors will demand (real bond yield plus equity risk premium). We then use the dividend discount model to combine these scenarios, to produce four different views of whether an equity market is over, under, or fairly valued today. The specific formula is $(\text{Current Dividend Yield} \times 100) \times (1 + \text{Forecast Productivity Growth})$

divided by (Current Yield on Real Return Bonds + Equity Risk Premium - Forecast Productivity Growth). Our valuation estimates are shown in the following tables, where a value greater than 100% implies overvaluation, and less than 100% implies undervaluation. In our view, the greater the number of scenarios that point to overvaluation or undervaluation, the greater the probability that is likely to be the case.

Equity Market Valuation Analysis at 27 February 2009

<i>Australia</i>	Low Demanded Return	High Demanded Return
High Supplied Return	34%	53%
Low Supplied Return	50%	70%

<i>Canada</i>	Low Demanded Return	High Demanded Return
High Supplied Return	71%	108%
Low Supplied Return	110%	152%

<i>Eurozone</i>	Low Demanded Return	High Demanded Return
High Supplied Return	37%	56%
Low Supplied Return	54%	73%

<i>Japan</i>	Low Demanded Return	High Demanded Return
High Supplied Return	110%	150%
Low Supplied Return	159%	206%

<i>United Kingdom</i>	Low Demanded Return	High Demanded Return
High Supplied Return	31%	57%
Low Supplied Return	53%	82%

<i>United States</i>	Low Demanded Return	High Demanded Return
High Supplied Return	76%	115%
Low Supplied Return	118%	163%

<i>Switzerland</i>	Low Demanded Return	High Demanded Return
High Supplied Return	67%	101%
Low Supplied Return	102%	163%

<i>India</i>	Low Demanded Return	High Demanded Return
High Supplied Return	75%	133%
Low Supplied Return	144%	217%

<i>Emerging Markets</i>	Low Demanded Return	High Demanded Return
High Supplied Return	69%	117%
Low Supplied Return	91%	140%

In our view, the key point to keep in mind with respect to equity market valuations is the level of the current dividend yield, which history has shown to be the key driver of long-term real equity returns in most markets. The recent rise in uncertainty has undoubtedly increased many investors' required risk and uncertainty premium above the long-term average, while simultaneously decreasing their long-term real growth forecasts. The net result has been a sharp fall in equity prices that has caused dividend yields to increase. From the perspective of an investor with long-term risk and growth assumptions in the range we use in our model, this increase in dividend yields has more than offset the simultaneous rise in real bond yields, and caused at least some equity markets to appear undervalued. That said, many companies are cutting dividends at a pace not seen since the 1930s. Hence the numerator of our dividend/yield calculation may well further decline in the months ahead, which, all else being equal, should further depress prices. In sum, we believe that rather than trying

to catch the bottom of different equity markets, most investors are best advised to either wait or commence a staged increase in their equity allocations.

Our government bond market valuation update is based on the same supply and demand methodology we use for our equity market valuation update. In this case, the supply of future fixed income returns is equal to the current nominal yield on ten-year government bonds. The demand for future returns is equal to the current real bond yield plus historical average inflation between 1989 and 2003. We use the latter as a proxy for the average rate of inflation likely to prevail over a long period of time. To estimate of the degree of over or undervaluation for a bond market, we use the rate of return supplied and the rate of return demanded to calculate the present values of a ten year zero coupon government bond, and then compare them. If the rate supplied is higher than the rate demanded, the market will appear to be undervalued. This information is contained in the following table:

Bond Market Analysis as of 27 Feb 09

	Current Real Rate*	Average Inflation Premium (89-03)	Required Nominal Return	Nominal Return Supplied (10 year Govt)	Return Gap	Asset Class Over or (Under) Valuation, based on 10 year zero
Australia	2.24%	2.96%	5.20%	4.44%	-0.76%	7.51%
Canada	2.39%	2.40%	4.79%	3.14%	-1.65%	17.20%
Eurozone	2.56%	2.37%	4.93%	3.12%	-1.81%	18.96%
Japan	3.65%	0.77%	4.42%	1.27%	-3.15%	35.78%
UK	1.30%	3.17%	4.47%	3.61%	-0.86%	8.61%
USA	2.44%	2.93%	5.37%	3.04%	-2.33%	25.05%
Switz.	2.43%	2.03%	4.46%	2.28%	-2.18%	23.46%
India	2.43%	7.57%	10.00%	6.94%	-3.06%	32.55%

*For Switzerland and India, we use the average of real rates in other regions with real return bond markets

It is important to note some important limitations of this analysis. Our bond market analysis uses historical inflation as an estimate of expected future inflation.

This may not produce an accurate valuation estimate, if the historical average level of inflation is not a good predictor of future average inflation levels. The following table, which shows historical average inflation rates (and their standard deviations) for the U.K. and U.S. over longer periods of time than the ones we have used, helps to put the possible size of any estimation and valuation errors into context:

	<i>U.K.</i>	<i>U.S.</i>
<i>Avg. Inflation, 1775-2007</i>	2.19%	1.62%
Standard Deviation	6.60%	6.51%
<i>Avg. Inflation, 1908-2007</i>	4.61%	3.29%
Standard Deviation	6.24%	5.03%
<i>Avg. Inflation, 1958-2007</i>	5.98%	4.11%
Standard Deviation	5.01%	2.84%

If future inflation is expected to be lower than the inflation assumption we have used in our valuation analysis, then required returns should be lower. All else being equal, this would reduce any estimated overvaluation. In this regard, the difference between yields on ten year U.S. government nominal and inflation linked bonds is about one percent, is a rough proxy for the expected future rate of inflation (we say rough because it technically includes not only the expected inflation rate, but also a further premium for inflation risk). This value is currently well below the average historical rate of inflation we have used in our analysis.

Let us now move on to a closer look at the current level of real interest rates. In keeping with our basic approach, we will start by looking at the theoretical basis for determining the rate of return an investor should demand in exchange for making a one year risk free investment. The so-called Ramsey equation tells us that this should be a function of a number of variables. The first is our “time preference”, or the rate at which we trade-off a unit of consumption in the future for one today, assuming no growth in the amount of goods and services produced by the economy. As is often the case, the correct value for this parameter is the subject of much debate. For example, this lies at the heart of the debate over how much we should be willing to spend today to limit the worst effects of climate change in the future. In our analysis, we assume

the average time preference is two percent per year. However, it is not the case that the economy does not grow; hence, the risk free rate we require should reflect the fact that there will be more goods and services available in the future than there are today. Assuming investors try to smooth their consumption over time, the risk free rate should also contain a term that takes the growth rate of the economy into account. Broadly speaking, this growth rate is a function of the increase in the labor supply and the increase in labor productivity. However, the latter comes from both growth in the amount of capital per worker and from growth in “total factor productivity”, which is due to a range of factors, including better organization, technology and education. Since capital/worker cannot be increased without limit, over the long-run it is growth in total factor productivity that counts. Hence, in our analysis, we assume that future economic growth reflects the growth in the labor force and TFP. However, this future growth is not guaranteed; rather, there is an element of uncertainty involved. Hence we also need to take investor’s aversion to risk and uncertainty into account when estimating the risk free rate of return they should require in exchange for letting others use their capital for one year. There are many ways to measure this, and unsurprisingly, many people disagree on the right approach to use. In our analysis, we have used Constant Relative Risk Aversion with an average value of three (see “How Risk Averse are Fund Managers?” by Thomas Flavin). The following table brings these factors together to determine our estimate of the risk free rate investors in different currency zones should logically demand in equilibrium (for an excellent discussion of the issues noted above, and their practical importance, see “The Stern Review of the Economics of Climate Change” by Martin Weitzman):

Region	Labor Force Growth %	TFP Growth %	Steady State Econ Growth %	Std Dev of Econ Growth Rate %	Time Preference %	Risk Aversion Factor	Risk Free Rate Demanded* %
Australia	1.0	1.20	2.2	1.1	2.0	3.0	3.2
Canada	0.8	1.00	1.8	0.9	2.0	3.0	3.8
Eurozone	0.4	1.20	1.6	0.8	2.0	3.0	3.9
Japan	-0.3	1.20	0.9	0.5	2.0	3.0	3.8

Region	Labor Force Growth %	TFP Growth %	Steady State Econ Growth %	Std Dev of Econ Growth Rate %	Time Preference %	Risk Aversion Factor	Risk Free Rate Demanded*
United Kingdom	0.5	1.20	1.7	0.9	2.0	3.0	3.8
United States	0.8	1.20	2.0	1.0	2.0	3.0	3.5

- The risk free rate equals time preference plus (risk aversion times growth) less (.5 times risk aversion squared times the standard deviation of growth squared).

The next table compares this long-term equilibrium real risk free rate with the real risk free return that is currently supplied in the market. Negative values indicate that real return bonds are currently overvalued, as their prices must fall in order for their yields (i.e., the returns they supply) to rise:

Region	Risk Free Rate Demanded %	Actual Risk Free Rate Supplied %	Difference % (negative is overvalued)
Australia	3.2	2.2	-0.9
Canada	3.8	2.4	-1.4
Eurozone	3.9	2.6	-1.4
Japan	3.8	3.6	-0.1
United Kingdom	3.8	1.3	-2.5
United States	3.5	2.4	-1.1

We reiterate that this analysis is based on a medium term view of the logical value of the risk free real return investors should demand. For example, plunging consumer spending around the world implies a lower time preference rate than the 2.0% we have used in our analysis, which would reduce the apparent overvaluation of this asset class.

Let us now turn to the subject of the valuation of non-government bonds. Some have suggested that it is useful to decompose the bond yield spread into two parts. The first is the difference between the yield on AAA rated bonds and the yield on the ten year Treasury bond. Because default risk on AAA rated companies is very low,

this spread may primarily reflect prevailing liquidity and jump (regime shift) risk conditions (e.g., between a low volatility, relatively high return regime, and a high volatility, lower return regime). The second is the difference between BAA and AAA rated bonds, which may tell us more about the level of compensation required by investors for bearing relatively high quality credit risk. For example, between August and October, 1998 (around the time of the Russian debt default and Long Term Capital Management crises), the AAA-Treasury spread jumped from 1.18% to 1.84%, while the BAA-AAA spread increased by much less, from .62% to .81%. This could be read as an indication of investor's higher concern with respect to the systematic risk implications of these crises (i.e., their potential to shift the financial markets into the low return, high volatility regime), and lesser concern with respect to their impact on the overall pricing of credit risk.

The following table shows the statistics of the distribution of these spreads between January, 1986 and December, 2008 (based on daily Federal Reserve data – 11,642 data points). Particularly in the case of the BAA spread, it is clear we are not dealing with a normal distribution!

	AAA – 10 Year Treasury	BAA-AAA
Average	1.20%	.94%
Standard Deviation	.44%	.34%
Skewness	.92	3.11
Kurtosis	.53	17.80

At **27 February 2009**, the AAA minus 10 year Treasury spread was 2.32%. The AAA minus BAA spread was 2.86%. Since these distributions are not normal (i.e., they do not have a “bell curve” shape), we will take a different approach to putting them in perspective. Over the past twenty three years, there have been only 134 days with a higher AAA spread (1.15% of all days) and 53 days with a higher BAA spread (.46%). Clearly, current spreads reflect severe investor uncertainty about both liquidity and credit risk. However, given the uncharted economic waters through which we

are now passing, it is not yet clear to us whether these spreads represent the over, under, or fair valuation of liquidity and credit risk.

Let us now turn to currency valuations. For an investor contemplating the purchase of foreign bonds or equities, the expected future annual percentage change in the exchange rate is also important. Study after study has shown that there is no reliable way to forecast this, particularly in the short term. At best, you can make an estimate that is justified in theory, knowing that in practice it will not turn out to be accurate, especially over short periods of time. In our case, we have taken the difference between the yields on ten-year government bonds as our estimate of the likely future annual change in exchange rates between two regions. According to theory, the currency with the relatively higher interest rates should depreciate versus the currency with the lower interest rates. Of course, in the short term this often doesn't happen, which is the premise of the popular hedge fund "carry trade" strategy of borrowing in low interest rate currencies, investing in high interest rate currencies, and, essentially, betting that the change in exchange rates over the holding period for the trade won't eliminate the potential profit. Because (as noted in our June 2007 issue) there are some important players in the foreign exchange markets who are not profit maximizers, carry trades are often profitable, at least over short time horizons. Our expected medium to long-term changes in exchange rates are summarized in the following table:

Annual Exchange Rate Changes Implied by Bond Market Yields on 27Feb09

	To AUD	To CAD	To EUR	To JPY	To GBP	To USD	To CHF	To INR
From								
AUD	0.00%	-1.30%	-1.32%	-3.17%	-0.83%	-1.40%	-2.16%	2.50%
CAD	1.30%	0.00%	-0.02%	-1.87%	0.47%	-0.10%	-0.86%	3.80%
EUR	1.32%	0.02%	0.00%	-1.85%	0.49%	-0.08%	-0.84%	3.82%
JPY	3.17%	1.87%	1.85%	0.00%	2.34%	1.77%	1.01%	5.67%
GBP	0.83%	-0.47%	-0.49%	-2.34%	0.00%	-0.57%	-1.33%	3.33%
USD	1.40%	0.10%	0.08%	-1.77%	0.57%	0.00%	-0.76%	3.90%
CHF	2.16%	0.86%	0.84%	-1.01%	1.33%	0.76%	0.00%	4.66%
INR	-2.50%	-3.80%	-3.82%	-5.67%	-3.33%	-3.90%	-4.66%	0.00%

Our approach to valuing commercial property securities as an asset class is also based on the expected supply of and demand for returns, utilizing the same mix of fundamental and investor behavior factors we use in our approach to equity valuation. Similar to equities, the supply of returns equals the current dividend yield plus the expected real growth rate of net operating income (NOI). A number of studies have found that real NOI growth has been basically flat over long periods of time (with apartments showing the strongest rates of real growth). This is in line with what economic theory predicts, with rapid increases in rent attracting new property investors, finance the construction of new space which, when it comes onto the market, causes rents to fall. Our analysis also assumes that over the long-term, investors require a 2.5% risk premium above the yield on real return bonds as compensation for bearing the risk of securitized commercial property as an asset class. Last but not least, there is significant research evidence that commercial property markets are frequently out of equilibrium, due to the interaction between fundamental factors and investors' emotions (see, for example, "Investor Rationality: An Analysis of NCREIF Commercial Property Data" by Hendershott and MacGregor; "Real Estate Market Fundamentals and Asset Pricing" by Sivitanides, Torto, and Wheaton; "Expected Returns and Expected Growth in Rents of Commercial Real Estate" by Plazzi, Torous, and Valkanov; and "Commercial Real Estate Valuation: Fundamentals versus Investor Sentiment" by Clayton, Ling, and Naranjo). Hence, it is extremely hard to forecast how long it will take for any over or undervaluations we identify to be reversed. The following table shows the results of this month's valuation analysis:

Country	Dividend Yield	Plus LT Real Growth Rate	Equals Supply of Returns	Real Bond Yield	Plus LT Comm Prop Risk Premium	Equals Returns Demanded	Over or Undervaluation (100% = Fair Value)
Australia	12.6%	0.2%	12.8%	2.2%	2.5%	4.7%	36.0%
Canada	14.6%	0.2%	14.8%	2.4%	2.5%	4.9%	32.1%
Eurozone	10.2%	0.2%	10.4%	2.6%	2.5%	5.1%	47.5%

Country	Dividend Yield	Plus LT Real Growth Rate	Equals Supply of Returns	Real Bond Yield	Plus LT Comm Prop Risk Premium	Equals Returns Demanded	Over or Undervaluation (100% = Fair Value)
Japan	9.1%	0.2%	9.3%	3.6%	2.5%	6.1%	65.2%
Switzerland	1.7%	0.2%	1.9%	2.4%	2.5%	4.9%	277.6%
U.K.	10.7%	0.2%	10.9%	1.3%	2.5%	3.8%	33.6%
United States	12.1%	0.2%	12.3%	2.4%	2.5%	4.9%	39.1%

Let us now turn to the Dow Jones AIG Commodity Index, our preferred benchmark for this asset class because of the roughly equal weights it gives to energy, metals and agricultural products. One of our core assumptions is that financial markets function as a complex adaptive system which, while attracted to equilibrium (which generates mean reversion) are seldom in it. To put it differently, we believe that investors' expectations for the returns an asset class is expected to supply in the future are rarely equal to the returns a rational long-term investor should logically demand. Hence, rather than being exceptions, over and undervaluations of different degrees are simply a financial fact of life. We express the demand for returns from an asset class as the current yield on real return government bonds (ideally of intermediate duration) plus an appropriate risk premium. While the former can be observed, the latter is usually the subject of disagreement. In determining the risk premium to use, we try to balance a variety of inputs, including historical realized premiums (which may differ considerably from those that were expected, due to unforeseen events), survey data and academic theory (e.g., assets that payoff in inflationary and deflationary states should command a lower risk premium than those whose payoffs are highest in "normal" periods of steady growth and modest changes in the price level). In the case of commodities, Gorton and Rouwenhorst (in their papers "Facts and Fantasies About Commodity Futures" and "A Note on Erb and Harvey") have shown that (1) commodity index futures provide a good hedge against unexpected inflation; (2) they also tend to hedge business cycle risk, as the peaks and troughs of their returns tend to lag behind those on equities (i.e., equity returns are leading indicators, while commodity returns are coincident indicators of the state of the real business cycle); and (3) the realized

premium over real bond yields has historically been on the order of four percent. We are inclined to use a lower ex-ante risk premium in our analysis (though reasonable people can still differ about what it should be), because of the hedging benefits commodities provide relative to equities. This is consistent with the history of equities, where realized ex-post premiums have been shown to be larger than the ex-ante premiums investors should logically have expected.

The general form of the supply of returns an asset class is expected to generate in the future is its current yield (e.g., the dividend yield on equities), plus the rate at which this stream of income is expected to grow in the future. The key challenge with applying this framework to commodities is that the supply of commodity returns doesn't obviously fit into this framework. Broadly speaking, the supply of returns from an investment in commodity index futures comes from four sources. First, since commodity futures contracts can be purchased for less than their face value (though the full value has to be delivered if the contract is held to maturity), a commodity fund manager doesn't have to spend the full \$100 raised from investors to purchase \$100 of futures contracts. The difference is invested – usually in government bonds – to produce a return.

The second source of the return on a long-only commodity index fund is the so-called “roll yield.” Operationally, a commodity index fund buys futures contracts in the most liquid part of the market, which is usually limited to the near term. As these contracts near their expiration date, they are sold and replaced with new futures contracts. For example, a fund might buy contracts maturing in two or three months, and sell them when they approached maturity. The “roll yield” refers to the gains and losses realized by the fund on these sales. If spot prices (i.e., the price to buy the physical commodity today, towards which futures prices will move as they draw closer to expiration) are higher than two or three month futures, the fund will be selling high and buying low, and thus earning a positive roll yield. When a futures market is in this condition, it is said to be in “backwardation.” On the other hand, if the spot price is lower than the two or three month's futures price, the market is said to be in “contango” and the roll yield will be negative (i.e., the fund will sell low and buy high).

The interesting issue is what causes a commodity to be either backwardated or contangoed. A number of theories have been offered to explain this phenomenon. The one that seems to have accumulated the most supporting evidence to date is the so-called “Theory of Storage”: begins with the observation that, all else being equal, contango should be the normal state of affairs, since a person buying a commodity at spot today and wishing to lock in a profit by selling a futures contract will have to incur storage and financing costs. In addition to his or her profit margin, storage and financing costs should cause the futures price to be higher than the spot price, and normal roll yields to be negative.

However, in the real world, all things are not equal. For example, some commodities are very difficult or expensive to store; others have very high costs if you run out of them (e.g., because of rapidly rising demand relative to supply, or a potential disruption of supply). For these commodities, there may be a significant option value to holding the physical product (the Theory of Storage refers to this option value as the “convenience yield”). If this option value is sufficiently high, spot prices may be bid up above futures prices, causing “backwardation” and positive roll-yields for commodity index funds. Hence, a key question is the extent to which different commodities within a given commodity index tend to be in backwardation or contango over time. Historically, most commodities have spent time in both states. However, contango has generally been more common, but not equally so for all commodities. For example, oil has spent relatively more time in backwardation, as have copper, sugar, soybean meal and lean hogs. This highlights a key point about commodity futures index funds – because of the critical impact of the commodities they include, the weights they give them, and their rebalancing and rolling strategies, they are, in effect, uncorrelated alpha strategies. Moreover, because of changing supply and demand conditions in many commodities (e.g., global demand has been growing, while marginal supplies are more expensive to develop and generally have long lead times), it is not clear that historical tendencies toward backwardation or contango are a good guide to future conditions. To the extent that any generalizations can be made, higher real option values, and hence backwardation and positive roll returns are more likely to

be found when demand is strong and supplies are tight, and/or when there is a rising probability of a supply disruption in a commodity where storage is difficult. For example, ten commodities make up roughly 75% of the value of the Dow Jones AIJ Commodities Index. The current term structures of their futures curves are as follows:

Commodity	2009 DJAIG Weight	Current Status
Crude Oil	13.8%	Contango
Natural Gas	11.9%	Contango
Gold	7.9%	Contango
Soybeans	7.6%	Backwardated
Copper	7.3%	Contango
Aluminum	7.0%	Contango
Corn	5.7%	Contango
Wheat	4.8%	Contango
Live Cattle	4.3%	Backwardated
Unleaded Gasoline	3.7%	Neutral
	74.0%	

While many commodity curves have improved over the past month, given the continued prevalence of so many contangoed futures curves, near term roll returns on the DJAIG should be negative, absent major supply side shocks (note that this can generate positive returns for commodity funds that can take short positions – i.e., sell rather than buy futures contracts).

The third source of commodity futures return is unexpected changes in the price of the commodity during the term of the futures contract. It is important to stress that the market's consensus about the expected change in the spot price is already included in the futures price. The source of return we are referring to here is the unexpected portion of the actual change. Again, large surprises seem more likely when supply and demand are finely balanced – the same conditions which can also give rise to changes in real option values and positive roll returns. At the present time, with economic growth weakening, demand is falling across a wide range of commodities. Hence, the source of any surprising price increases must be a changes

in expected supply that either occur suddenly and are extremely hard to forecast (e.g., a weather or terrorist related incident) or changes that investors may have not yet fully incorporated into their valuation models (e.g., the faster than expected decline in oil production from current reservoirs). This return driver probably offers investors the best chance of making profitable forecasts, since most human beings find it extremely difficult to accurately understand situations where cause and effect are significantly separated in time (e.g., failure to recognize how fast rising house prices would – albeit with a time delay – trigger an enormous increase in new supply).

The fourth source of returns for a diversified commodity index fund is generated by rebalancing a funds portfolio of futures contracts back to their target commodity weightings as prices change over time. This is analogous to an equity index having a more attractive risk/return profile than many individual stocks. This rebalancing return will be higher to the extent that price volatilities are high, and the correlations of price changes across commodities are low. Historically, this rebalancing return has been estimated to be around 2% per year, for an equally weighted portfolio of different commodities. However, as correlations have risen in recent years, the size of this return driver has probably declined – say to 1% per year.

So, to sum up, the expected supply of returns from a commodity index fund over a given period of time equals (1) the current yield on real return bonds, reduced by the percentage of funds used to purchase the futures contracts; (2) expected roll yields, adjusted for commodities' respective weights in the index; (3) unexpected spot price changes; and (4) the expected rebalancing return. Of these, the yield on real return bonds can be observed, and we can conservatively assume a long-term rebalancing return of, for example, 1.0%. These two sources of return are clearly less than the demand for returns that are equal to the real rate plus a risk premium of, say, 3.0%. The difference must be made up by a combination of roll returns (which, given the current shape of futures curves, are likely to be negative in the near term) and unexpected price changes, due to sudden changes in demand (where downside surprises currently seem more likely than upside surprises) and/or supply (where the best chance of a positive return driver seems to be incomplete investor recognition of

slowing oil production from large reservoirs and/or the medium term impact of the current sharp cutback in E&P and refining investments).

Another approach to assessing the valuation of commodities as an asset class is to compare the current value of the DJAIG Index to its long-term average. Between 1991 and 2008, the inflation adjusted (i.e., real) DJAIG had an average value of 91.61, with a standard deviation of 16.0 (skewness of .52, and kurtosis of -.13 – i.e., it was close to normal). The inflation adjusted 27 February 2009 closing value of 67.95 was 1.48 standard deviation below the long term average. Assuming the value of the index is normally distributed around its historical average (which in this case is approximately correct), a value within one standard deviation of the average should occur about 67% of the time, and a value within two standard deviations 95% of the time. Whether the current level of the inflation adjusted DJAIG signifies that commodities are undervalued depends upon one's outlook for future roll returns and price surprises. While short term developments remain highly uncertain, on a medium term view, we believe that commodities are likely undervalued today.

Our approach to assessing the current valuation of timber is based on two publicly traded timber REITS: Plum Creek (PCL) and Rayonier (RYN). As in the case of equities, we compare the return these are expected to supply (defined as their current dividend yield plus the expected growth rate of those dividends) to the equilibrium return investors should rationally demand for holding timber assets (defined as the current yield on real return bonds plus an appropriate risk premium for this asset class). Two of these variables are published: the dividend yields on the timber REITS and the yield on real return bonds. The other two variables have to be estimated, which presents a particularly difficult challenge with respect to the rate at which dividends will grow in the future.

In broad terms, the rate of dividend growth results from the interaction of physical, and economic processes. In the first part of the physical process, trees grow, adding a certain amount of mass each year. The exact rate depends on the mix of trees (e.g., southern pine grows much faster than northern hardwoods), on silviculture techniques employed (e.g., fertilization, thinning, etc.), and weather and

other natural factors (e.g., fires, drought, and beetle invasions). In the second part of the physical process, a certain amount of trees are harvested each year, and sold to provide revenue to the timber REIT. In the economic area, three processes are important. As trees grow, they can be harvested to make increasingly valuable products, starting with pulpwood when they are young, and sawtimber when they reach full maturity. This value increasing process is known as “in-growth.” The speed and extent to which in-growth increased value depends on the type of tree; in general, this process produces greater value growth for hardwoods (whose physical growth is slower) than it does for pines and other fast-growing softwoods. The second economic process (or, more accurately, processes) is the interaction of supply and demand that determines changes in real prices for pulpwood, sawtimber and other forest products. As is true in the case of commodities, there is likely to be an asymmetry at work with respect to the impact of these processes, with prices reacting more quickly to more visible changes in demand, while changes in supply side factors (which only happen with a significant time delay) are more likely to generate surprises. In North America., a good example of this may be the eventual supply side and price impact of the mountain pine beetle epidemic that has been spreading through the northwestern forests of the United States and Canada.

The IMF produces a global timber price index that captures the net impact of demand and supply fluctuations, which is further broken down into hardwood and softwood. The average annual change in real prices (derived by adjusting the IMF series for changes in U.S. inflation) between 1981 and 2007 are shown in the following table:

	Average	Standard Deviation
Hardwood	0.4%	11.8%
Softwood	1.7%	21.6%
All Timber	0.1%	9.2%

As you can see, over the long term, prices have been quite stable in real terms, though with a high degree of volatility from year to year (and additional volatility across

different regional markets). The final economic process that affects the growth rate of dividends is changes in the REIT's cost structure, and non-timber related revenue streams (e.g., from selling timber land for real estate development). With respect to the latter, the potential imposition of carbon taxes or cap and trade systems for carbon emissions could provide a new source of revenue for timber REITs in the future.

The following table summarizes the assumptions we make about these physical and economic variables in our valuation model:

Growth Driver	Assumption
Biological growth of trees	We assume 6% as the long term average for a diversified timberland portfolio.
Harvesting rate	As a long term average, we assume that 5% of tree volume is harvested each year.
In-growth of trees	We assume this adds 3% per year to the value of timber assets, assuming no change in the real price of pulpwood, sawtimber and other final products.
Change in prices of timber products	We assume that over the long term prices will just keep pace with inflation. However, there are indications that climate change is causing increasing tree deaths in some areas, which should lead to future real price increases (see "Western U.S. Forests Suffer Death by Degrees" by E. Pennisi, <i>Science</i> , 23Jan09). Hence our assumption is conservative.
Carbon credits	We assume no additional return from this potential source of value, which also appears to be conservative given forests' role in CO2 absorption.

This leaves the question of the appropriate return premium to assume for the overall risk of investing in timber as an asset class. Historically, the difference between returns on the NCRIF timberland index and those on real return bonds has averaged around six percent. However, since the timber REITS are much more liquid than the properties included in the NCRIF index, we have used four percent as the

required return premium for investing in liquid timberland assets. Arguably, this may still be too high, as timber is an asset class whose return generating process (being partially biologically driven) has a low correlation with returns on other asset class. Hence, it should provide strong diversification benefits to a portfolio when they are most needed, and investors should therefore require a relatively low risk premium to hold this asset class.

Given these assumptions, our assessment of the valuation of the timber asset class at **27 February 2009** is as follows:

Average Dividend Yield	6.75%
Plus Long Term Annual Biological Growth	6.00%
Less Percent of Physical Timber Stock Harvested Each Year	(5.00%)
Plus Average Annual Increase in Stock Value due to In-growth	3.00%
Plus Long Term Real Annual Price Change	0.00%
Plus Other Sources of Annual Value Increase (e.g., Carbon Credits)	0.00%
Equals Average Annual Real Return Supplied	<u>10.75%</u>
Real Bond Yield	2.44%
Plus Risk Premium for Timber	4.00%
Equals Average Annual Real Return Demanded	<u>6.44%</u>
Ratio of Returns Demanded/Returns Supplied Equals Valuation Ratio (less than 100% implies undervaluation)	<u>35%</u>

Our approach to assessing the current value of equity market volatility (as measured by the VIX index, which tracks the level of S&P 500 Index volatility implied by the current pricing of put and call options on this index) is similar to our approach to commodities. Between January 2, 1990 and December 30, 2008, the average daily value of the VIX Index was 19.70, with a standard deviation of 7.88 (skewness 2.28, kurtosis 9.71 – i.e., a very “non-normal” distribution). On **27 February 2009**, the VIX

closed at 46.35. To put this in perspective, only 54 days, or 1.1% of our sample had higher closing values of the VIX. However, this high level of implied volatility still seems in line with the equally high degree of uncertainty that currently exists in financial markets and the world economy. As a result, it is hard to say whether volatility is under, over, or fairly valued today.

Sector and Style Rotation Watch

The following table shows a number of classic style and sector rotation strategies that attempt to generate above index returns by correctly forecasting turning points in the economy. This table assumes that active investors are trying to earn high returns by investing today in the styles and sectors that will perform best in the next stage of the economic cycle. The logic behind this is as follows: Theoretically, the fair price of an asset (also known as its fundamental value) is equal to the present value of the future cash flows it is expected to produce, discounted at a rate that reflects their relative riskiness.

Current economic conditions affect the current cash flow an asset produces. Future economic conditions affect future cash flows and discount rates. Because they are more numerous, expected future cash flows have a much bigger impact on the fundamental value of an asset than do current cash flows. Hence, if an investor is attempting to earn a positive return by purchasing today an asset whose value (and price) will increase in the future, he or she needs to accurately forecast the future value of that asset. To do this, he or she needs to forecast future economic conditions, and their impact on future cash flows and the future discount rate. Moreover, an investor also needs to do this before the majority of other investors reach the same conclusion about the asset's fair value, and through their buying and selling cause its price to adjust to that level (and eliminate the potential excess return).

We publish this table to make an important point: there is nothing unique about the various rotation strategies we describe, which are widely known by many investors. Rather, whatever active management returns (also known as "alpha") they

are able to generate is directly related to how accurately (and consistently) one can forecast the turning points in the economic cycle. Regularly getting this right is beyond the skills of most investors. In other words, most of us are better off just getting our asset allocations right, rather than trying to earn extra returns by accurately forecasting the ups and downs of different sub-segments of the U.S. equity and debt markets (for three good papers on rotation strategies, see “Sector Rotation Over Business Cycles” by Stangl, Jacobsen and Visaltanachoti; “Can Exchange Traded Funds Be Used to Exploit Industry Momentum?” by Swinkels and Tjong-A-Tjoe; and “Mutual Fund Industry Selection and Persistence” by Busse and Tong).

That being said, the highest rolling three month returns in the table do provide us with a rough indication of how investors expect the economy and interest rates to perform in the near future. *The highest returns in a given row indicate that a plurality of investors (as measured by the value of the assets they manage) are anticipating the economic and interest rate conditions noted at the top of the next column* (e.g., if long maturity bonds have the highest year to date returns, a plurality of bond investor opinion expects rates to fall in the near future). Comparing returns across strategies provides a rough indication of the extent of agreement (or disagreement) investors about the most likely upcoming changes in the state of the economy. When the rolling returns on different strategies indicate different conclusions about the most likely direction in which the economy is headed, we place the greatest weight on bond market indicators. Why? We start from a basic difference in the psychology of equity and bond investors. The different risk/return profiles for these two investments produce a different balance of optimism and pessimism. For equities, the downside is limited (in the case of bankruptcy) to the original value of the investment, while the upside is unlimited. This tends to produce an optimistic view of the world. For bonds, the upside is limited to the contracted rate of interest and getting your original investment back (assuming the bonds are held to maturity). In contrast, the downside is significantly greater – complete loss of principal. This tends to produce a more pessimistic (some might say realistic) view of the world (although some might argue that the growth of the credit derivatives market has undermined this discipline). As we

have written many times, investors seeking to achieve a funding goal over a multi-year time horizon, avoiding big downside losses is arguably more important than reaching for the last few basis points of return. Bond market investors' perspective tends to be more consistent with this view than equity investors' natural optimism. Hence, when our rolling rotation returns table provides conflicting information, we tend to put the most weight on bond investors' implied expectations for what lies ahead.

Three Month Rolling Nominal Returns on Classic Rotation Strategies in the U.S. Markets

*Rolling 3 Month
Returns Through*

27Feb09

<i>Economy</i>	Bottoming	Strengthening	Peaking	Weakening
<i>Interest Rates</i>	Falling	Bottom	Rising	Peak
<i>Style and Size Rotation</i>	Small Growth (DSG) -11.04%	Small Value (DSV) -17.71%	Large Value (ELV) -22.15%	Large Growth (ELG) -10.98%
<i>Sector Rotation</i>	Cyclicals (RXI) -9.74%	Industrials (EXI) -20.02%	Staples (KXI) -12.74%	Utilities (JXI) -15.72%
<i>Bond Market Rotation</i>	Higher Risk (HYG) 5.28%	Short Maturity (SHY) 0.38%	Low Risk (TIP) 4.12%	Long Maturity (TLT) -2.26%

The following table sums up our conclusions (based on the analysis summarized in this article) as to potential asset class under and overvaluations at the end of **February 2009**. The distinction between possible, likely and probable reflects a rising degree of confidence in our estimate. Finally, we stress that this is an assessment of valuations at a given point in time, which implies no forecast as to whether and when changes in investor perceptions and behavior (i.e, the market's "animal spirits") will cause any over and undervaluations reverse in the future. Bear in mind, that before this reversal occurs, over and undervaluations could actually become

more extreme. That said, common sense suggests that more extreme situations are more likely to be recognized and reversed.

Probably Overvalued	Swiss Property
Likely Overvalued	Japan, US, Swiss, India Govt Bonds; Japan and India Equity
Possibly Overvalued	Canada and Eurozone Govt Bonds; US Equity
Possibly Undervalued	
Likely Undervalued	Commodities; Japan Real Return Bonds; Japan Property
Probably Undervalued	Timber; Australia, Canada, Eurozone, UK and US Property; Australia, Eurozone and UK Equities

Economic Update: Situation, Scenarios, and Asset Allocation Implications

In today's world of broadband internet, 24/7 news cycles, and intense competition between media companies, it seems that every new piece of information that appears is instantly seized upon, globally disseminated, and intensely discussed, often in strongly emotional terms, regardless of its diagnostic value, or sometimes even its reliability. This has created a more dangerous and difficult environment for many investors, with truly informative signals hidden by more noise, and social networks increasingly populated by people with elevated levels of fear or euphoria. While an increasingly complex and uncertain environment has made carefully reasoned investment analyses more valuable than ever, the current mix of technology and social forces seems to have made them increasingly rare relative to the growing volume of noise. With that in mind, this month we are taking a longer than usual look at the current financial, economic and political situation, and what it may portend for asset class returns over the next two years.

In broad terms, the world economy faces three large problems: (1) the previous engine of growth, the U.S. consumer (or, more broadly, the Anglosphere consumer), has reached her or his borrowing limit, and is now struggling to pay mortgage, credit card, and auto debt, while worrying more every day about losing his

or her job; (2) thanks to high leverage and tight global connections, these credit problems have triggered a systemic crisis across the world financial system, which is now plagued with uncertainty about the value of its assets and basic solvency; and (3) these problems are intimately linked to deep imbalances in world economy, which for too long has been characterized by Anglosphere countries (especially the US) issuing increasing amounts of debt to enable them to spend beyond their incomes, while other countries, most notably China (but also including Japan and Germany) financed this profligacy in order to facilitate the continued strong growth of their overly-export dependent economies. As a result, when American consumers finally hit their borrowing limit, the consequences exploded across the world with frightening speed, in the manner of those rare mass-cataclysms in complex systems known as “punctuated equilibrium” events.

Seen in a longer historical perspective, recent events have born an interesting resemblance to the last peak of global integration, which occurred around the turn of the twentieth century, and ended in World War 1, the Roaring Twenties, the Great Depression and ultimately World War 2 and the Cold War. Both then and today, rising globalization unleashed a wave of energy (in the most recent case, due to the sudden integration into the world economy of millions of well educated workers in China and India), which generated widespread transformations (e.g., globalized supply chains and shifts in the location of production, an explosion in service industry jobs in OECD countries after manufacturing moved to Asia, more complicated structures for moving capital around the world and managing financial risk, etc.). And in both cases, the changes in control systems put in place to manage and guide the use of this higher level of energy proved insufficient to the task, which ultimately precipitated a collapse, and (depending on your perspective) either a reduction in the energy level or an increase in disorder. Anyone familiar with the prisoner’s dilemma game should not be surprised by this result. In the absence of a “world government”, keeping a highly integrated global system under effective control requires very high levels of cooperation between very different parties, who naturally have conflicting agendas and cultural norms. Whether in the case of the United Nations, the IMF, the WTO, Basle 2,

or the Kyoto Treaty, there is overwhelming evidence that this level of cooperation cannot be consistently achieved or maintained. And we have just learned the hard way that relying on self-interest and market mechanisms to provide effective control of an integrated global economy is no better an alternative. Hence from the perspective of history (not to mention complex adaptive systems theory and the second law of thermodynamics), we should not be surprised that we have ended up where we are today. Nor should we be surprised if the end result of the wrenching changes underway is a less integrated global economy that is easier to effectively control. Indeed, the more surprising result would be if we returned to a highly integrated global system

In order to develop a more detailed understanding of what may happen in the future, we have to look at the current status of the key underlying problems in more detail. I think it is safe to say, if not a gross understatement, that the U.S. middle class consumer has emerged from shock and disbelief, and is now either angry or depressed. In short, the U.S. consumer is in a very ugly mood today. He is scared about losing his job, his health insurance and his house; about having to declare bankruptcy, sliding visibly down the social status scale, and having to find a way to survive, likely (at least it seems today) at a much lower standard of living than before. She is angry at bankers who are apparently without shame, whose bonuses and lack of contrition for the destruction wrought by their selfish irresponsibility seems to rub her nose in it every day. She is angry at the unionized public sector workers in her town, who blithely demand higher taxes to fund their now depleted pension plans, and lavish health benefits. She has the growing sense that she hasn't been treated fairly by the system, that the deck has been stacked against her, in spite of how hard she's worked. As a result, she strongly supports higher taxes on those whom she now believes have unjustly received high monetary rewards, since they presided over the system that has so shockingly failed. She is angry that her company and her mortgage aren't getting bailed out, that instead she is facing at best flat or declining pay, more saving and less consumption, and at worst the loss of her job and health insurance, and a painful, shameful trip to bankruptcy court. Depending on whom she

reads or listens to, she may also be getting increasingly angry at Chinese leaders who tell Americans to tighten their belts to preserve the value of China's investment in U.S. assets, and at leaders in Europe who seem happy to let the American taxpayer shoulder the cost of saving the world economy. Always ambivalent about the alleged benefits of globalization, her doubts about it are growing at an accelerating pace. She is increasingly ready to listen to populist appeals, but is likely holding off until she sees whether the Obama plan will gain traction. Still, our middle class American consumer's anxiety is constantly, grindingly, being ratcheted higher every week by the fear he sees on the faces all around him, by the empty stores and restaurants, and by the incessant flow of news that only reinforces his sense that he and almost everyone around him is in an uncontrollable dive, with no bottom or upturn yet in site.

At an even deeper level, she is constantly having to fight off the tentacles of depression, reaching out from the now empty place inside her that used to be filled with "shopping therapy", conspicuous consumption, keeping up with the Joneses, and the trite but powerfully appealing notion that it was "all about me." With polling data showing no increase in church attendance since the crisis began, it remains to be seen what will eventually fill this hole. The end result is a source of fundamental uncertainty today. In the meantime, our middle class consumer has no doubt vowed that, rather than continuing to support the global economy, if he can only make it through this crisis he'll cut up his credit cards and not get into so much debt ever again, move to a smaller house with a more manageable mortgage, consume a lot less and look for other sources of meaning in life. And when the Obama tax credit comes, it's going to pay down debt, or into the bank. No way is he going to spend it, except on the basics. If polls are accurate, he also strongly supports President Obama's plans to reform the U.S. health insurance system, improve public education, and boost spending on alternative energy. But if the history of the Michigan Consumer Sentiment Index is any guide, it could take two years or more for our middle class consumer's confidence to recover (see "Once Confidence is Shaken, It Takes a While to Stir" by Bill McInturff). In sum, it seems highly unlikely that the U.S. consumer will

any time soon return to her role as the growth engine of the global economy, and increasingly possible that he or she will demand a rise in protectionism.

Now let's move on to the financial system, and start with some facts. The following table shows the amounts of credit market debt outstanding in the U.S. at the end of 2008:

U.S. Credit Market Debt Outstanding, 2008 Q4

Source: Flow of Funds, Federal Reserve Z.1 Report

Instrument	Amount USD Billions	Pct of US GDP
Open Market Paper (Commercial Paper, etc.)	1,600	11.3%
U.S. Treasury Securities	6,338	44.6%
Agency and GSE Backed Securities (FNMA, etc.)	8,213	57.8%
Municipal Securities	2,690	18.9%
Corporate and Foreign Bonds (includes Collateralized Debt Obligations, which are issued by entities whose assets are loans or other debt securities, so there is some double counting)	11,170	78.7%
Mortgage Loans	14,640	103.1%
Consumer Credit Loans	2,596	18.3%
Other Loans and Advances (e.g., loans made by hedge funds, etc., to non-financial corporate businesses)	2,617	18.4%
Bank Loans, not elsewhere counted	2,730	19.2%
Total Credit Market Instruments	52,594	370.4%
Comparison: Value Publicly Traded Corporate Equities	15,190	107.0%

Looking more closely at \$14,640 billion of outstanding mortgage debt, we find that this is comprised of \$11,030 billion of home mortgages (75% of the total, including \$1,115 billion of home equity lines of credit, which are generally secured by junior liens), \$2,599 billion of commercial mortgages (18%), \$900 billion of multifamily residential, and \$111 billion of farm mortgages.

The next logical question to ask is who holds this mortgage debt. At first glance, this is easy to answer: \$4,965 billion (34%) is held either on the books of federal mortgage agencies (e.g., FNMA) or in pools sponsored by them that issue securities backed by mortgages they insure; \$3,841 billion (26%) is held by commercial banks, \$2,585 billion (18%) is held by private sponsors of pools that issue mortgage backed securities; and \$1,208 billion (8%) is held on the books of savings institutions and credit unions. However, as investors by now know all-too-well, many mortgage backed securities were purchased by entities that pooled the cash flows from them, and issued yet another set of securities, so-called collateralized debt obligations (CDOs). The most notorious CDO structures took low rated mortgage backed securities (e.g., BBB grade), and issued their own claims against the pooled MBS cash flows. In a true act of financial alchemy or gross negligence (take your pick), the most senior of these claims were awarded AAA ratings, based on the assumption that a pool of mortgages that was sufficiently geographically diversified could not experience a severe increase in average default level (apparently, nobody at the ratings agencies or at the institutions that bought this paper thought to look at the experience in Japan or the UK in the late 80s and early 90s). Unfortunately, too many professional investors who bought this story, including banks, who sponsored CDO issuers, and often took the highest yielding, lowest rated tranches onto their own books, where they were leveraged up to produce rising profits and bonuses for the bankers, traders, and salespeople who keep this “structured finance” machine laying its golden eggs. While the profits proved chimerical, a substantial portion of the bonuses were paid in cash, and are not subject to any sort of clawback. The more these stories appear in the media, the angrier voters will become about spending tax dollars to bail out the financial system.

So this is the problem today: banks, broker dealers, government mortgage agencies, life insurance companies, finance companies, issuers of asset backed securities and CDOs, and other institutions hold on their books a substantial amount of assets whose value is increasingly uncertain as the economy continues to worsen. These include mortgage, consumer, and business loans, and securities issued by pass through entities like mortgage pools and CDOs. The following table, again from the Federal Reserve Flow of Funds, shows the largest holders of credit market assets at the end of 2008, in billions of U.S. dollars:

Sector	Amount (USD billions)
Commercial Banks and Broker Dealers	\$10,157
-- of which Foreign Banking Offices in US	\$1,070
Agency Backed Mortgage Pools	\$4,965
Asset Backed Securities Issuers	\$3,968
Life Insurance Companies	\$2,891
Finance Companies	\$1,779
Funding Corporations (includes CDOs)	\$1,058
<i>Sum</i>	<i>\$24,818</i>
<i>Benchmark #1: US 2008 GDP</i>	<i>\$14,200</i>
<i>Benchmark #2: US Treasury and Agency Securities Outstanding at Year End 2008</i>	<i>\$14,551</i>

Broadly speaking, the current high uncertainty about the economic value of these credit market assets (i.e., their risk adjusted NPV) has four root causes. First, in many cases information about the underlying credits (and, in the case of the pass through entities, about the quality of the underlying legal documentation) is often not readily available. Second, there is uncertainty about the future path of the economy, and hence about many debtors' ability to pay. Third, the carrying value of these credit market instruments on the books of the institutions that hold them is reported in three different ways: (a) securities held for trading purposes are "marked to market", where a liquid market is available; (b) where a liquid market is not available, securities are "marked to model" – that is, a model, and a set of parameter estimates (both subject to

error, as our readers well know), is used to estimate the reported value; and (c) when the institution claims its intent is to hold a loan or security to maturity, it can continue to carry it at face value, unless a permanent impairment of that value is deemed to have occurred (at banks, this was the traditional purpose of the loan loss reserve). As nobody is sure about who is solvent or insolvent, financial market liquidity contracts, which tends to make the underlying problems worse.

Finally, as you can see, even a further write down of 10% in the value of outstanding credit market instruments held by these institutions (which, obviously, equates to a higher write downs on CDO, consumer credit, mortgage and/or corporate debt instruments) generates a very large loss, relative to either the capital of these institutions, U.S. GDP or outstanding U.S. government debt obligations (which don't include the value of off balance sheet liabilities for future Social Security and Medicare costs, unless those programs are changed). In this regard, it has not been an encouraging sign that there are growing indications that the crisis of confidence is now spreading to life insurance companies (e.g., Aviva in the UK, Hartford in the US, and Manulife Financial in Canada have all seen sharp stock price falls since February). Coming on top of the already record-setting fiscal deficits caused by the Bush and Obama administrations' emergency stimulus programs and Obama's proposed FY 2010 budget, there are, for the first time in modern history, real questions about even the ability of the U.S. government to absorb financial system losses at the upper end of what appears to be possible, if not likely. So that is where we are today.

We know from the study of economic history that financial system crises are associated with the longest and deepest recessions. For example, in "The Aftermath of Financial Crises", Reinhart and Rogoff find that "more often than not, the aftermath of severe financial crises shares three characteristics. First, asset market collapses are deep and prolonged. Real housing price declines average 35 percent stretched out over six years, while equity price collapses average 55 percent over a downturn of about three and a half years. Second, the aftermath of banking crises is associated with profound declines in output and employment. The unemployment rate rises an average of 7 percent over the down phase of the cycle, which lasts on average over

four years. Output falls (from peak to trough) an average of over 9 percent, although the duration of the downturn, averaging roughly two years, is considerably shorter than for unemployment. Third, the real value of government debt tends to explode, rising an average of 86 percent in post-World War Two episodes...The big drivers of debt increases are the inevitable collapse in tax revenues that governments suffer in the wake of deep and prolonged output contractions, as well as often ambitious countercyclical fiscal policies aimed at mitigating the downturn.” (for additional historical perspective, see “Stock Market Crashes and Depressions” and “Macroeconomic Crises Since 1870” by Barro and Ursua, “What Happens During Recessions, Crunches and Busts?” by Claessens, Kose, and Terrones of the IMF, and “This Time is Different: A Panoramic View of Eight Centuries of Financial Crises” by Reinhart and Rogoff).

However, the still unresolved question (itself a cause of uncertainty, which feeds back to worsen the problem) is how to resolve the financial system crisis we face today. I spent a portion of my youth cleaning up the aftermath of the LDC debt crisis, which included bank workouts. Based on that experience, plus issues raised by the current crisis, I have put together the following table, which summarizes the difficult choices facing policy makers who are trying to put the OECD financial system back together again.

Options for Resolving Banking Crises: A Short and Simplified Guide

Assume that Dodgy Bank PLC has total assets of 100, of which 10 are in cash and government bonds, 40 are loans of questionable value (for simplicity, we assume no loss reserve), and 50 are loans of solid value. To keep things simple, we assume that Dodgy has not bought or sold derivative contracts or any other transactions that could give rise to contingent assets or liabilities. Further assume that all of Dodgy’s loans have a net interest margin of 5% -- i.e., if they are all paying interest, they will generate 4.5 per year in additions to equity (assume no taxes or dividends). Dodgy Bank funds its 100 in assets with a mix of 60 in government insured deposits, 35 in uninsured wholesale funding (e.g., bonds), and 5 in equity (i.e., it employs 20:1 leverage). Quite obviously, the discovery that 40% of Dodgy’s assets are of questionable value raises some difficult policy questions, which are summed up in the following table.

Option	Simplified Accounting	Issues
<i>Sell the</i>	Dr. Cash	<ul style="list-style-type: none"> • If the loss is greater than 5, equity capital

Option	Simplified Accounting	Issues
<i>questionable assets to someone else.</i>	Dr. Loan Loss Cr. Dodgy Assets	is wiped out, and the bank is technically insolvent, assuming it can't raise more equity. <ul style="list-style-type: none"> • Hence the value at which the dodgy assets are sold is critical. In a private market transaction, bank will argue for high value, while buyer will argue for low value to maximize return. But if this makes bank insolvent, government must decide what to do. One option would be for the government (e.g., TARP) to buy the dodgy assets for a higher price to avoid insolvency, and buy time to rebuild equity via earnings on the good assets, plus new equity issues. • Of course, this carries the political liability of being seen to giving Dodgy's management, wholesale funders, and shareholders a bailout, with minimal upside for the taxpayers.
<i>Government deposit insurer seizes the bank.</i>	Dr. Deposits Dr. Loan Loss Reserves Cr. Cash and Securities Cr. Loan Portfolio	<ul style="list-style-type: none"> • Once seized, the government usually holds onto the questionable assets and over time tries to realize the most value from them. For example, this was the role of the Resolution Trust Company during the U.S. savings and loan crisis, which it executed via a series of partnerships with private sector investors. The deposits and good assets are sold to other banks as quickly as possible. • A key policy question here, as seen in the case of Washington Mutual, is how to treat the bondholders. • If they are wiped out along with equity holders, while there is still doubt about the value of the dodgy assets (i.e., if there is still a chance those assets have sufficient value to, at some point, provide a cash payout to the bondholders), then you may raise questions in the mind of investors about the safety of investing in any bank's

Option	Simplified Accounting	Issues
		<p>bonds – which could raise the overall level of systemic risk.</p> <ul style="list-style-type: none"> • Also, if the providers of wholesale funding are themselves banks, then wiping them out could widen the crisis. • Finally, while this approach can work with small to medium sized institutions, it would logically struggle in the case of mega-banks, for which there are few buyers (unless, perhaps, those banks were broken up into smaller entities).
<p><i>Split Dodgy into Good and Bad Banks</i></p>	<p>Dr. Deposits Cr. Cash and Securities Cr. Good Loans</p>	<ul style="list-style-type: none"> • Regulators seize deposits and good loans, which can then be resold to another bank (but see above on the limitations of this approach when the seized bank is very large). • However, rather than having the regulator seize and attempt to work out the bad loans, Dodgy is left as an operating entity – essentially, a distressed debt hedge fund capitalized by the bondholders and Dodgy’s shareholders. This would allow the bondholders to either seize the assets, or convert a portion of their debt to equity, to gain effective control of the bank and match interest payments to bondholders with the actual stream of interest coming from the dodgy loan portfolio. This might also lead to the bondholders replacing Dodgy’s management, without the government having to force this action. • If the “bad bank” is managed well (e.g., if some of those loans are converted to equity in the borrowing companies, etc.), this might even turn a big profit for the bondholders (as was the case in some Japanese bank workouts). • On the other hand, it may be the case that the wholesale funders can’t afford this solution because they need the income from the Dodgy funding to maintain their

Option	Simplified Accounting	Issues
		<p>own solvency. If this is the case, it again raises the question of whether other private sector entities would be willing to invest in such a deal, or if government equity investment would be needed.</p>
<p><i>Inject New Equity into Dodgy</i></p>	<p>Dr. Cash Cr. Equity</p>	<ul style="list-style-type: none"> • This creates a bigger equity cushion to absorb the write-downs of the dodgy loans without triggering insolvency. It also buys time for earnings on the good loans to add to the size of this capital cushion. • However, if the value of the dodgy loans isn't easy to estimate, then private investors are unlikely to provide the equity (e.g., as TPG learned the hard way after seeing its equity investment in Washington Mutual wiped out). • This means that the government becomes the logical provider of this new equity (as happened under TARP phase 2). • Of course, this raises the question of whether the government paid an appropriate price for the equity (many have asserted that the government overpaid over TARP, and in so doing transferred value from taxpayers to bank employees, creditors, and shareholders). • Last but not least, there is the awkward issue that this leaves in place the Dodgy management team and organizational culture that created the problem in the first place. In addition, it is not clear that, given continued uncertainty about economic conditions, borrower creditworthiness, and asset values, that Dodgy would use the new cash to expand lending. Hence, an assertion that the government is investing in Dodgy's equity in order to stimulate lending as part of an economic recovery package could easily cause political problems later on.
<p><i>Sell insurance</i></p>	<p>Dr. Insurance Expense</p>	<ul style="list-style-type: none"> • As in the case of a credit default swap, this

Option	Simplified Accounting	Issues
<p><i>to Dodgy to put a floor under the value of its questionable loans.</i></p>	<p>Cr. Cash</p> <p>If insurance pays out, then:</p> <p>Dr. Cash</p> <p>Cr. Loan</p>	<p>solves the valuation uncertainty problem facing potential providers of wholesale funding and new equity capital to Dodgy (assuming the counterparty to the insurance contract can pay – see AIG).</p> <ul style="list-style-type: none"> • It also buys time for earnings on the good loan portfolio to add to equity capital, and hence increase the bank’s capacity for absorbing losses on the bad loans without triggering insolvency. However, it is unlikely to stimulate new lending, at least until uncertainty about the future direction of the economy is reduced. At the end of the day, credit growth has always been a lagging rather than a leading indicator. • Nor does an asset value guarantee allow one to escape the valuation issue. A private insurer is likely (particularly after the AIG debacle) to charge very high premiums for the credit insurance it sells to Dodgy. • If Dodgy can’t afford this premium (or if the credit insurer can’t absorb all the contingent risk exposure), then everyone will look to the government to provide said insurance at a more affordable price. The government might be interested if doing so would help avoid the failure of Dodgy and higher systemic risk (e.g., because other banks or insurance companies have provided the wholesale funding). • However, this still leaves the government open to questions about whether it charged an appropriate premium to Dodgy for the insurance policy, and if it did not, why it was subsidizing Dodgy’s management, wholesale lenders, and shareholders. • To the extent people believe the insurance is underpriced, they will logically ask what else the government and taxpayers are getting in return (e.g., they will look for

Option	Simplified Accounting	Issues
		<p>some type of contingent payout or ownership stake).</p> <ul style="list-style-type: none"> • And once again, there is the awkward issue that this leaves in place the Dodgy management team and organizational culture that created the problem in the first place.
<p><i>Provide a government guarantee to providers of Dodgy's wholesale funding.</i></p>	<p>Dr. Funding Insurance Expense.</p> <p>Cr. Cash</p> <p>The accounting becomes murkier if this policy had to pay out – would it then trigger a deposit insurance style seizure? Or if the bank was too big for this treatment, would it trigger an inflow of cash and issuance of new equity to the government, in a de facto nationalization?</p>	<ul style="list-style-type: none"> • In effect, this extends deposit insurance to the providers of wholesale funding. Some will inevitably ask why wholesale lenders, who presumably were sophisticated investors, should not bear some of the cost and pain for the failure of Dodgy's management and board to make good loans. Telling the public that this is necessary to limit systemic risk is not likely to go down well with much of the public (see the uproar over how the AIG bailout money was actually used). • Moreover, it is not clear how a government guarantee of Dodgy's wholesale funding creates strong incentives for Dodgy's management to work hard to collect the bad loans – if anything, it would seem to create an incentive to reduce their level of effort. • Hence, one might conclude that if the government is going to guarantee wholesale funding, it should also inject sufficient equity to gain control (call it defacto nationalization) and replace Dodgy's board and management. • However, this raises the human resources question of whether there is sufficient outside talent available to replace them, who can simultaneously reform institutional cultures and processes that lie at the heart of the problem.

As you can see from a review of this short guide to bank workouts, the challenges and trade-offs facing OECD government policymakers today are undeniably difficult. Perhaps the clearest approach to date has been taken in the UK, with guarantees of wholesale funding, de facto nationalization via equity injections that have given the government a majority equity stake in a number of large banks, and replacement of many board members. Yet despite this logical approach, policymakers have still been bedeviled by a number of lingering issues, including (a) payment of bonuses to departing executives, that, while they may have been contractually guaranteed, were politically toxic; (b) failure to replace lower levels of management or to visibly reform the incentive systems that contributed to the original problem (though belated progress is being made on improving risk management systems); (c) failure to demonstrably improve the regulatory regime; and (d) questions as to whether the UK can afford to simultaneously rescue its largest banks and pay for the fiscal stimulus needed to maintain aggregate demand and avoid depression. All of these issues will have to be successfully addressed as the rescue of the global financial system proceeds. If they aren't, and if the bank rescue founders as a result, the current uncertainty will be prolonged (and possibly increase), which will further reduce consumption and investment spending, worsen the banking crisis, and put more even pressure on governments to issue more debt (which will likely be monetized) and increase public spending in order to maintain some level of demand.

Last but not least, let us now move on to the third issue in this Gordian policy knot – the question of severe international economic imbalances. The following table shows the relative importance of different countries and regions in terms of their contribution to world GDP and the size of their current account imbalances:

Region	Pct of World PPP GDP in 2008	External Balance (Current Account as PCT of GDP)	External Balance as PCT of World GDP
Australia	1.1%	(4.9%)	-0.05%
Canada	1.8%	0.9%	0.02%

Region	Pct of World PPP GDP in 2008	External Balance (Current Account as PCT of GDP)	External Balance as PCT of World GDP
China	10.8%	9.3%	1.00%
Eurozone	15.8%	(0.5%)	-0.08%
India	4.7%	(2.8%)	-0.13%
Japan	6.5%	4.0%	0.26%
Switzerland	0.5%	9.3%	0.05%
United Kingdom	3.1%	(3.6%)	-0.11%
United States	21.1%	(4.6%)	-0.97%
Middle East	3.9%	22.8%	0.89%

As you can see, this story essentially boils down to the imbalance between China's heavily investment and export led growth model, the huge foreign exchange surpluses they generated, and their investment in the United States, where they boosted liquidity, held down interest rates and facilitated (along with lax regulation and inept financial institution management) an explosion of borrowing, asset price inflation and overconsumption. When the growing resource demands produced by this model bumped up against global supply constraints, commodity prices spiked, which temporarily boosted commodity exporters' revenues and global liquidity, but which also began the slowdown in global consumption. It is clear that this system cannot continue; however, it is not at all clear what will replace it, or what the full consequences of that transition will be. At best, we can currently glimpse the outline of what might constitute a cooperative solution to the current crisis: a new era of investment led growth in the United States, consumption led growth in China, and a relatively high level of global economic integration.

To be sure, there are some hopeful signs that this cooperative scenario could develop. In the U.S., these include not only the heavy focus of stimulus spending on energy and environmental innovation, but also the 2010 budget's focus on transforming healthcare and education (both of which would boost human capital quality, a key driver of growth), and plans to start a cap and trade system that will put an explicit price on carbon emissions, and thereby incentivize further energy and

environmental innovation and investment. There is also some interesting research that suggests that energy transitions (such as the proposed large-scale move away from fossil fuel-based technologies) lie at the heart of the most significant transitions in human history (see “Major Transitions in Big History” by Robert Aunger). As we noted last month, in constant dollar terms, the technology and investment stimulus package proposed by the Obama administration is of the same order of magnitude as the program to put a man on the moon – and the growth consequences of that initiative were extremely large and long-lasting. In China, there have been encouraging indications their stimulus plan’s initial focus on infrastructure investment (which would essentially maintain employment in export industries until foreign consumption demand recovers) has shifted to more emphasis on building the stronger social safety net that is a necessary precondition for higher domestic consumption spending and a shift of employment from export oriented to more domestic oriented sectors (e.g., services).

Unfortunately, there are also plenty of obstacles that may prevent successful realization of this cooperative scenario. In the United States, there are bound to be intense political battles over education and healthcare transformation, as well as the passage of a cap and trade system to control CO2 emissions. The resulting delays will only deepen consumer’s gloom and spending cutbacks, which (along with uncertainty about the shape and impact of cap and trade) will further depress business investment. The failure to implement this agenda and achieve a sustained increase in U.S. private investment will logically have a number of consequences, including higher inflation (due to the monetization of larger government deficits, as well as greater popular pressure for reduction of real consumer debt burdens) and calls for more protection of U.S. jobs. In addition to uncertainties about the fate of the Obama recovery program, it also remains to be seen whether the financial system crisis can be politically and economically contained, and the current decline reversed. The recent behavior of industry leaders, while understandable to those who know the industry culture, seems to be making a bad situation worse, not better. Of course, the same could be said about U.S. union leaders, who seem intent on going down the same

road with their vigorous support for ever-higher public sector benefits and passage of undemocratic “card check” legislation to stimulate unionization in the private sector. There are also growing indications that, whether due to inexperience or lack of staff, it will take longer than expected to actually get the stimulus plan money flowing, particularly into energy and environmental investments. These delays will lead to deeper declines in demand and employment, place more stress on the financial system, and worsen the mood of the American middle class, making it more likely that they will call for inflationary and protectionist solutions, particularly if they see that a major result of high U.S. spending is employment growth in China, but not the United States. Rising conflict between the U.S. and China seems the likely result.

In China, the government still appears divided over how best to address the current crisis. While the overriding goal of the Communist Party is to maintain employment and avoid social unrest that could threaten their hold on power, it is not clear that they can develop and successfully implement the policies necessary to facilitate a shift from an investment and export-based to a consumption and service-based economy. For example, there are significant political obstacles to land reform (which would help raise peasant incomes), infighting between party factions (e.g., those who favor developing the coastal regions’ export industries, versus those who advocate faster rural development), and strong cultural barriers to higher spending and lower saving. Yet the longer this transition is delayed, and the more that China is perceived by other nations to be pursuing a “beggar they neighbor” policy of maintaining export demand and employment at all costs, the greater the chances of provoking conflicts that will lead the world away from an open and integrated global system, and toward one dominated by trading blocs.

An alternative, and more worrying hypothesis, is that this may in fact be China’s intention. In addition to retaining power, China’s leadership seems to be pursuing a long term goal of making their country one of the most powerful in the world – returning the Middle Kingdom to its proper place, if you will. To pursue this goal, China needed to rapidly acquire advanced technology and develop world scale production capacity. These are not only key to supplying rising domestic consumption

demand and building advanced military power projection capabilities, but the process of their development also resulted in the “hollowing out” of production capacity in many competing nations (e.g., due to production facilities being relocated to Asia in pursuit of supply chain efficiencies). Moreover, it is now clear that the recycling of export surpluses back into Western, and especially U.S. economies had the additional benefit of helping to create an extremely debilitating banking, economic, and political crisis, that has not only caused domestic turmoil, but has also weakened the NATO Alliance, the European Union, and potentially the United States’ alliances with Australia and Japan. On the other hand, China also faces significant constraints including the need to import energy and other resources, a rapidly ageing population, rising domestic economic inequality, environmental problems, and corruption that together undermine the legitimacy of the Communist Party leadership. Hence, attaining its long-term goal requires China to gain secure access to resources and markets with younger demographics, secure their ocean supply routes, and maintain the party leadership’s legitimacy, using the twin tools of economic growth and Chinese nationalism. It is clear that China is pursuing these goals. For example, in recent years it has used its foreign exchange reserves to make a range of investments in African, South American and Southeast Asian resource suppliers, as well as Iran; it has made a \$29 billion loan to Russia to develop Siberian oil and gas reserves that will be purchased by China; it has systematically worked to improve its relationships with Indonesia and Australia; it has established new naval bases along its key supply route to the Middle East (in Pakistan, Sri Lanka and Myanmar); it has substantially expanded its navy and capability to wage asymmetric war against the United States (e.g., emphasis on submarines, information warfare, and area denial weapons); and it has expanded its “strategic dialogue” (at the economic, military and political level) with Taiwan and Japan. More recently, it has staged a naval “incident” with the United States in the South China sea, given a lackluster response to proposals to increase the IMF’s resources to enable that organization to head off the potential for a new developing country debt crisis, and publicly questioned the trustworthiness of the United States as a debtor nation (which also reinforces growing domestic anger at the losses suffered

by China in its investment in U.S. companies like the Blackstone Group). One is reminded of some of the classic admonitions of Sun Tzu, the great Chinese military strategist: “All warfare is based on deception...Be extremely subtle, even to the point of formlessness. Be extremely mysterious, even to the point of soundlessness...For to win one hundred victories in one hundred battles is not the acme of skill. To subdue the enemy without fighting is the acme of skill.”

To be sure, it may be that the true long-term goal of the Chinese leadership is simply for their country to become an equal member of a globally integrated and open world economy. And it may be that both the naval incident and the comments about U.S. creditworthiness were intended for a domestic audience, to increase nationalistic feelings and support for the government as unemployment rises and the economy begins a politically dangerous transition. But the evidence is also consistent with the alternative hypothesis, that China is pursuing a strategy whose goal is the isolation of the United States and the establishment of a powerful Chinese-led bloc at the center of the world economy.

In sum, we see two scenarios that could develop over the next two years. One is characterized by cooperative solutions to current problems, including the rescue of the global financial system, the restructuring of global demand, the acceleration of a major energy transition, and maintenance of a reasonably open and integrated world economy. As this scenario develops, investors will face two challenges: (1) an inevitable period of higher inflation that is the logical consequence of the monetization of the debt issued to fund fiscal stimulus and financial recovery programs; and (2) a sharp spike in commodity prices as demand recovers, which will be the unavoidable consequence of the reduction in supply expansion projects that is taking place today.

The other scenario is characterized by much higher levels of conflict, and seems likely to end up in a less globalized world that is divided into trading blocs and hinterland regions led by China and the United States (call them the Sinosphere and the Anglosphere). This scenario could develop either by accident (e.g., as a result of the interacting social and political consequences of an extended recession in China and the United States) or by design. This conflict scenario would present far greater

challenges for investors. It also seems likely to include a period of high inflation, and could also result in much slower economic growth, particularly if the Obama administration fails to successfully enact its education, healthcare, and energy and environmental initiatives. There are many ways this could happen, including effective political opposition in the United States, or the diversion of resources to the financial system, to military contingencies (e.g., renewed conflict in the Middle East, if more radical elements win the June elections in Iran, or Pakistan collapses into chaos), or to support struggling countries in the Western Hemisphere or Eastern Europe. Thus, it seems likely that the conflict scenario would produce not only higher levels of inflation, but also higher levels of uncertainty, and lower levels of growth (for another excellent discussion of the challenges we face, and likely scenarios that could develop, see “Adjusting to Global Economic Change: The Dangerous Road Ahead” by Robert Levine of RAND).

So what does this mean for investors and their asset allocations? We have constructed the following table to provide insight into the balance of market views as to which of three regimes – high uncertainty, high inflation, or normal growth – is developing. Under each regime, certain asset classes should deliver relatively higher returns. We assume that the rolling three month return on these asset classes is a useful indicator of the market’s collective estimate of the regime that is most likely to develop in the short-term.

<i>Regime Indicators</i>			27Feb09
High Uncertainty	High Inflation		Normal
Short Maturity US Govt Bonds (SHY) 1.62%	US Real Return Bonds (TIP) 7.39%		US Equity (VTI) -13.88%
1 - 3 Year International Treasury Bonds (ISHG) 3.20%	Long Commodities (DJP) -17.45%		EAFE Equity (EFA) -11.96%

<i>Regime Indicators</i>			27Feb09
High Uncertainty	High Inflation		Normal
Swiss Francs (FXF) 0.33%	Global Commercial Property (RWO) -25.91%	Emerging Equity (EEM)	-9.59%
Gold (GLD) 27.99%	Long Maturity Nominal Treasury Bonds (TLT)** 13.42%	High Yield Bonds (HYG)	7.88%

* falling returns on TLT indicate rising inflation expectations

As you can see, the weight of investor opinion seems to favor the continuation or worsening of the current high uncertainty regime, while continuing to undervalue assets that will perform well under the inevitable inflation regime that will eventually develop.

Let us now move on to a longer term perspective. In broad terms, we believe that changes in asset prices reflect two forces: changes in fundamental values, and changes in investor behavior, with turning points (i.e., situations of high asset class over and undervaluation) characterized by the fundamentals pointing in one direction, while momentum runs strongly in the other direction (see, for example, “Global Momentum”, published by MSCI Barra in January 2009, or our May 2007 and March 2000 issues). In the following table, we have summarized our current views (and the logic that underlies them) about the likely changes asset class fundamentals and investor behavior under the cooperative and conflict scenarios. We hope it provides fruitful food for thought, and valuable input into our readers’ forecasting process.

Potential Evolution of Asset Class Prices Over the Next Two Years

<i>Asset Class</i>	Current Fundamental Valuation Conclusion	Implications of Cooperative Scenario Developing over Next 24 Months	Implications of Conflict Scenario Developing over Next 24 Months
<i>AUD Real Bonds</i>	• Neutral	• <i>Fundamentals</i> : Higher yields and lower prices	• <i>Fundamentals</i> : Lower yields, positive returns

<i>Asset Class</i>	Current Fundamental Valuation Conclusion	Implications of Cooperative Scenario Developing over Next 24 Months	Implications of Conflict Scenario Developing over Next 24 Months
		<p>due to reduced expected GDP variability, and possibly higher time discount rate (reduced demand for liquidity and greater focus on short rather than long-term) and lower risk aversion</p> <ul style="list-style-type: none"> • <i>Investor Behavior:</i> Rising risk of inflation should cause rising demand for this asset class, causing higher prices and lower yields. • <i>Net Result:</i> Investor effect likely to dominate, causing higher prices and falling real yields. 	<p>due to higher expected GDP variability, lower time discount rate and higher risk aversion</p> <ul style="list-style-type: none"> • <i>Investor Behavior:</i> Much depends on which side Australia takes in the growing Sinosphere/Anglosphere conflict. Siding too strongly with the latter might frighten investors, unless India is strongly onboard; on the other hand, signs of accommodation with the Sinosphere could make Australian bonds more attractive for investors seeking secure, liquid investments that can hedge their mounting uncertainty. This would bid up prices and drive down yields. • <i>Net Result:</i> Unclear, but leaning towards rising bond prices and lower real yields.
AUD Govt Bonds	<ul style="list-style-type: none"> • Neutral 	<ul style="list-style-type: none"> • <i>Fundamentals:</i> Higher real yields (see above), and higher expected inflation (e.g., in energy prices) given faster expected growth. Result: falling prices. • <i>Investor Behavior:</i> Will seek higher yields given higher expected 	<ul style="list-style-type: none"> • <i>Fundamentals:</i> Lower real yields as above. May be more than offset by higher expected inflation and premium for inflation risk. Result: falling prices and rising yields. • <i>Investor Behavior:</i> Australian government

<i>Asset Class</i>	Current Fundamental Valuation Conclusion	Implications of Cooperative Scenario Developing over Next 24 Months	Implications of Conflict Scenario Developing over Next 24 Months
		<p>inflation, causing prices to fall.</p> <ul style="list-style-type: none"> • <i>Net Result:</i> Falling prices and higher yields. 	<p>bonds may become an attractive defensive investment for foreign investors, depending country's positioning in growing Sinosphere – Anglosphere conflict, as well as natural resource endowment and management of national health care and retirement liabilities. Despite rising expected inflation, this influx of buyers could cause prices to rise and yields to fall.</p> <ul style="list-style-type: none"> • <i>Net Result:</i> Unclear, but leaning towards rising bond prices and lower yields.
AUD Property	<ul style="list-style-type: none"> • Probably Undervalued 	<ul style="list-style-type: none"> • <i>Fundamentals:</i> While dividend yields should fall, rising prices and returns should result from rising expected net operating income growth and, on the demand side, falling uncertainty premiums • <i>Investor Behavior:</i> Increasing interest in property as an inflation hedge drives prices higher. • <i>Net Result:</i> Rising prices and positive returns. 	<ul style="list-style-type: none"> • <i>Fundamentals:</i> Assuming Australian conflict with Sinosphere, falling prices as net operating income growth expectations fall and uncertainty premiums rise. Net result is falling prices. On the other hand, accomodation with Sinosphere might reverse these trends. • <i>Investor Behavior:</i> Even in the absence of accomodation with Sinosphere, fears of rising inflation could

<i>Asset Class</i>	Current Fundamental Valuation Conclusion	Implications of Cooperative Scenario Developing over Next 24 Months	Implications of Conflict Scenario Developing over Next 24 Months
			<p>cause rising property prices. Accomodation with Sinosphere could also attract foreign investment, further boosting prices.</p> <ul style="list-style-type: none"> • <i>Net Result:</i> Rising prices based on either inflation hedging demand or rising real growth due to accomodation with Sinosphere.
AUD Equity	<ul style="list-style-type: none"> • Probably Undervalued 	<ul style="list-style-type: none"> • <i>Fundamentals:</i> While dividend yields should fall, they may be more than offset by rising expected dividend growth and, on the demand side, falling uncertainty premiums. Net result: rising prices. • <i>Investor Behavior:</i> Australia as a politically stable resource intensive play highly leveraged to China growth could attract foreign inflows. • <i>Net Impact:</i> Rising equity prices. 	<ul style="list-style-type: none"> • <i>Fundamentals:</i> Rising growth expectation and falling uncertainty premium under accomodation with Sinosphere. Probably the opposite, if Australia strongly takes the Anglosphere side, although this would be moderated by a stronger Australia – India relationship and trade flows. • <i>Investor Behavior:</i> Will follow fundamentals. • <i>Net Impact:</i> Unclear; depends on how Australia reacts to rising Sinosphere – Anglosphere conflict. Recent Australian emphasis on improving relations with China, with less emphasis on India, at the margin tilts forecast toward rising

<i>Asset Class</i>	Current Fundamental Valuation Conclusion	Implications of Cooperative Scenario Developing over Next 24 Months	Implications of Conflict Scenario Developing over Next 24 Months
			prices.
<i>AUD XR vs USD</i>	<ul style="list-style-type: none"> • Depreciate 	<ul style="list-style-type: none"> • Should appreciate, due to foreign inflows into bond, property and equity markets. 	<ul style="list-style-type: none"> • Should appreciate, assuming Australia reaches accomodation with Sinosphere.
<i>CAD Real Bonds</i>	<ul style="list-style-type: none"> • Neutral 	<ul style="list-style-type: none"> • <i>Fundamentals:</i> Higher yields, falling prices due to reduced expected GDP variability, and possibly higher time discount rate and lower risk aversion • <i>Investor Behavior:</i> Increasing attractiveness as a hedge against higher inflation expectations. May also benefit from foreign investors seeing Canada as an attractive diversification opportunity, given strong financial system and natural resource endowment. As a result, prices rise. • <i>Net Impact:</i> Depends on extent of foreign inflows. Size of U.S. deficit seems likely to cause investors to look for more diversification opportunities, resulting in rising prices and falling real yields. 	<ul style="list-style-type: none"> • <i>Fundamentals:</i> Lower yields, positive returns due to higher expected GDP variability, lower time discount rate and higher risk aversion. • <i>Investor Behavior:</i> Concern with rising inflation uncertainty should drive demand and prices higher. May also attract foreign inflows from investors wishing to diversify exposure to worsening U.S./China conflict. • <i>Net Impact:</i> Rising prices and falling real yields.
<i>CAD Govt Bonds</i>	<ul style="list-style-type: none"> • Possibly Overvalued 	<ul style="list-style-type: none"> • <i>Fundamentals:</i> Higher yields, falling prices due to higher real yields (see 	<ul style="list-style-type: none"> • <i>Fundamentals:</i> Rising prices due to lower real yields (see above), offset

<i>Asset Class</i>	Current Fundamental Valuation Conclusion	Implications of Cooperative Scenario Developing over Next 24 Months	Implications of Conflict Scenario Developing over Next 24 Months
		<p>above) and higher expected inflation (e.g., in energy prices) given faster expected growth.</p> <ul style="list-style-type: none"> • <i>Investor Behavior:</i> Will seek higher yields due to rising concern with inflation, causing prices to fall. • <i>Net Impact:</i> Falling prices and rising yields. 	<p>by falling prices and higher nominal yields due to higher inflation.</p> <ul style="list-style-type: none"> • <i>Investor Behavior:</i> Potential conflict between investors seeking higher nominal yields to hedge rising inflation expectations (which would cause prices to fall) and foreign investors seeking to diversify their hedge against rising uncertainty about growing U.S./China conflict. These investors would bid up prices and accept lower yields. • <i>Net Impact:</i> Unclear. Depends on inflow of foreign investment, which in turn depends on extent of Sino-US conflict. Our best estimate is rising prices and falling nominal yields.
CAD Property	<ul style="list-style-type: none"> • Probably Undervalued 	<ul style="list-style-type: none"> • <i>Fundamentals:</i> Rising prices should result from rising expected net operating income growth and, on the demand side, falling uncertainty premiums. • <i>Investor Behavior:</i> Rising inflation expectations should lead to increased investment 	<ul style="list-style-type: none"> • <i>Fundamentals:</i> Rising dividend yields but further price falls as net operating income growth expectations fall and uncertainty premiums rise. • <i>Investor Behavior:</i> Rising inflation expectations should lead to increased investment

<i>Asset Class</i>	Current Fundamental Valuation Conclusion	Implications of Cooperative Scenario Developing over Next 24 Months	Implications of Conflict Scenario Developing over Next 24 Months
		<p>in commercial property as a hedge.</p> <ul style="list-style-type: none"> • <i>Net Impact:</i> Rising prices. 	<p>in commercial property as a hedge.</p> <ul style="list-style-type: none"> • <i>Net Impact:</i> Rising prices.
<i>CAD Equity</i>	<ul style="list-style-type: none"> • Neutral 	<ul style="list-style-type: none"> • <i>Fundamentals:</i> While dividend yields should fall, rising prices should result from rising expected dividend growth and, on the demand side, falling uncertainty premiums. • <i>Investor Behavior:</i> Foreign investor buying of resource based companies should help drive up prices. • <i>Net Impact:</i> Rising prices. 	<ul style="list-style-type: none"> • <i>Fundamentals:</i> Rising dividend yields but further negative returns as dividend growth expectations fall and uncertainty premiums rise. • <i>Investor Behavior:</i> Investors will shy away from Canadian equities until the end result of rising Sinosphere – Anglosphere crisis is clear. • <i>Net Impact:</i> Falling prices.
<i>CAD XR vs. USD</i>	<ul style="list-style-type: none"> • Neutral 	<ul style="list-style-type: none"> • Should appreciate, as investors become worried about future U.S. inflation, and appreciate the relative strength of Canada's fiscal condition, financial system and natural resource endowment. 	<ul style="list-style-type: none"> • Low U.S. growth and rising barriers to world trade could hold down Canadian resource exports and lead to depreciation of CAD vs. USD.
<i>EUR Real Bonds</i>	<ul style="list-style-type: none"> • Neutral 	<ul style="list-style-type: none"> • <i>Fundamentals:</i> Higher yields and falling prices due to reduced expected GDP variability, and possibly higher time discount rate and lower risk aversion. 	<ul style="list-style-type: none"> • <i>Fundamentals:</i> Lower yields and rising prices, due to higher expected GDP variability, lower time discount rate and higher risk aversion. • <i>Investor Behavior:</i> With

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		<ul style="list-style-type: none"> • <i>Investor Behavior:</i> Attraction to real return bonds as a hedge against rising inflation will depend on how much inflation the ECB accepts. Foreign buying by investors (both private and official) diversifying away from USD should put upward pressure on prices. • <i>Net Impact:</i> Unclear, but leaning towards rising prices. 	<p>the Eurozone likely to be caught uncomfortably between the Sinosphere and Anglosphere, investors will likely raise allocations to defensive holdings (e.g., German and French bonds), leading to rising prices and falling yields. As Eurozone comes under more pressure we also expect widening spreads between government issuers. Price rises should be reinforced by investors diversifying away from USD.</p> <ul style="list-style-type: none"> • <i>Net Impact:</i> Rising prices and falling yields.
EUR Govt Bonds	<ul style="list-style-type: none"> • Possibly Overvalued 	<ul style="list-style-type: none"> • <i>Fundamentals:</i> Higher real yields and, depending on the ECB's views, higher inflation, should lead to higher yields and falling prices. • <i>Investor Behavior:</i> While there may be downward pressure on prices due to higher real yields and higher inflation, this could be more than offset by higher demand for German and French bonds from China, Russia, oil exporters and others diversifying 	<ul style="list-style-type: none"> • <i>Fundamentals:</i> Lower real yields should put upward pressure on prices, while rising inflation expectations should have the opposite effect. • <i>Investor Behavior:</i> With the Eurozone likely to be caught uncomfortably between the Sinosphere and Anglosphere, investors will likely raise allocations to defensive holdings (e.g., German and French bonds), leading to rising prices and falling yields.

<i>Asset Class</i>	Current Fundamental Valuation Conclusion	Implications of Cooperative Scenario Developing over Next 24 Months	Implications of Conflict Scenario Developing over Next 24 Months
		<p>reserve holdings. Net result could be higher prices and lower yields.</p> <ul style="list-style-type: none"> • <i>Net Impact:</i> Unclear, but leaning toward higher prices and falling yields. 	<p>As Eurozone comes under more pressure we also expect widening spreads between government issuers. Price rises should be reinforced by investors diversifying away from USD. Collectively, these flows could offset pressures for higher nominal yields (assuming higher inflation than current level) and lower prices.</p> <ul style="list-style-type: none"> • <i>Net Impact:</i> Rising prices and falling yields.
EUR Property	<ul style="list-style-type: none"> • Probably Undervalued 	<ul style="list-style-type: none"> • <i>Fundamentals:</i> Rising prices and returns should result from rising expected net operating income growth due to economic recovery and, on the demand side, falling uncertainty premiums. • <i>Investor Behavior:</i> Prices could get a further boost from flows related to diversification of currency holdings by countries with high FX reserves. Also from inflation hedging flows, depending on how tightly ECB controls this. 	<ul style="list-style-type: none"> • <i>Fundamentals:</i> Price falls as net operating income growth expectations worsen and uncertainty premiums rise, particularly as questions are raised about future property demand, given an aging population and rising restrictions on world trade. • <i>Investor Behavior:</i> Rising desire to hedge rising inflation and politico/economic risk, and/or foreign investors diversifying away from US holdings, could all push Eurozone commercial property

<i>Asset Class</i>	Current Fundamental Valuation Conclusion	Implications of Cooperative Scenario Developing over Next 24 Months	Implications of Conflict Scenario Developing over Next 24 Months
		<ul style="list-style-type: none"> • <i>Net Impact:</i> Rising prices. 	<p>prices higher, particularly in the most stable markets (e.g., Germany, France).</p> <ul style="list-style-type: none"> • <i>Net Impact:</i> Rising prices.
<i>EUR Equity</i>	<ul style="list-style-type: none"> • Probably Undervalued 	<ul style="list-style-type: none"> • <i>Fundamentals:</i> Rising prices and returns should result from rising expected dividend growth and, on the demand side, falling uncertainty premiums. • <i>Investor Behavior:</i> Prices could get a further boost from foreign inflow flows related to diversification of currency holdings by countries with high FX reserves. • <i>Net Impact:</i> Rising prices. 	<ul style="list-style-type: none"> • <i>Fundamentals:</i> Price falls as dividend growth expectations are reduced and uncertainty premiums rise. • <i>Investor Behavior:</i> On the other hand, prices could get a further boost from foreign inflows related to diversification of currency holdings by countries with high FX reserves, and/or pursuing the political goal of winning over the Eurozone in the Sinosphere – Anglosphere conflict. • <i>Net Impact:</i> Unclear, but leaning towards downward pressure as local investors sell holdings to shift into property, gold and other traditional hedges against high uncertainty.
<i>EUR XR vs. USD</i>	<ul style="list-style-type: none"> • Neutral 	<ul style="list-style-type: none"> • Should appreciate, driven by lower inflation in Eurozone and FX reserve diversification flows. However, this 	<ul style="list-style-type: none"> • Should appreciate, due to flows out of USD by Sinosphere countries and allies. This thesis could be undone,

<i>Asset Class</i>	Current Fundamental Valuation Conclusion	Implications of Cooperative Scenario Developing over Next 24 Months	Implications of Conflict Scenario Developing over Next 24 Months
		thesis could be undone if the Eurozone itself experiences extreme political strains.	however, if Eurozone sided strongly with the Anglosphere.
<i>JPY Real Bonds</i>	<ul style="list-style-type: none"> • Likely Undervalued 	<ul style="list-style-type: none"> • <i>Fundamentals:</i> Higher yields and price falls, due to reduced expected GDP variability. • <i>Investor Behavior:</i> Could benefit from inflows from countries diversifying FX reserves away from USD, which would lead to rising prices. However, this may be limited by Japan's high government debt/GDP ratio, and questions about its future growth rate, given a rapidly aging population and resistance to immigration. • <i>Net Impact:</i> Unclear. Best estimate is rising prices, since some FX reserve diversification is driven by non-economic motives. 	<ul style="list-style-type: none"> • <i>Fundamentals:</i> Lower yields and rising prices due to higher expected GDP variability and higher risk aversion as Japan struggles to choose sides as the China/USA conflict escalates. Alternative view: if deflation increases, this would cause real yields to increase and prices to fall. • <i>Investor Behavior:</i> Locals should seek safety, bidding up prices. Extent to which this is matched by foreign investors will depend on how Japan positions itself in the US/China conflict. • <i>Net Impact:</i> Unclear. Best estimate is rising prices and lower yields.
<i>JPY Govt Bonds</i>	<ul style="list-style-type: none"> • Likely Overvalued 	<ul style="list-style-type: none"> • <i>Fundamentals:</i> Higher real yields, and low or no inflation lead to falling prices. • <i>Investor Behavior:</i> Inflows related to FX reserve diversification away from USD could 	<ul style="list-style-type: none"> • <i>Fundamentals:</i> Lower yields and rising prices due to lower real yields (see above), and possible deflation. • <i>Investor Behavior:</i> If Japan fails to choose sides in Sino/Anglo

<i>Asset Class</i>	Current Fundamental Valuation Conclusion	Implications of Cooperative Scenario Developing over Next 24 Months	Implications of Conflict Scenario Developing over Next 24 Months
		<p>put upward pressure on prices.</p> <ul style="list-style-type: none"> • <i>Net Impact:</i> Unclear. Best estimate is rising prices, since some FX reserve diversification is driven by non-economic motives. 	<p>conflict, domestic buying pressure should push up prices. Siding with China could lead to higher buying by foreign FX reserve managers. Siding with Anglosphere could lead to defensive buying by local investors, but selling by some FX reserve managers.</p> <ul style="list-style-type: none"> • <i>Net Impact:</i> Rising prices and falling yields.
JPY Property	<ul style="list-style-type: none"> • Likely Undervalued 	<ul style="list-style-type: none"> • <i>Fundamentals:</i> Assuming immigration restrictions continue, population ageing should put downward pressure on expected net operating income growth rates, reducing the supply of returns relative to demand, and causing prices to fall. • <i>Investor Behavior:</i> While there may be some buying by global commercial property index funds, this won't offset weak fundamentals. • <i>Net Impact:</i> Falling prices. 	<ul style="list-style-type: none"> • <i>Fundamentals:</i> If Japan joins Sinosphere bloc, demand for office space and other commercial property could increase, raising expected operating income growth, reducing uncertainty premium, and causing prices to rise. If this does not happen, lower expected operating income growth and a higher uncertainty premium should cause prices to fall. • <i>Investor Behavior:</i> In the absence of strong buying related to Japan siding with the Sinosphere, investors should be selling based on weak fundamentals, and no demand for

<i>Asset Class</i>	Current Fundamental Valuation Conclusion	Implications of Cooperative Scenario Developing over Next 24 Months	Implications of Conflict Scenario Developing over Next 24 Months
			<p>hedges against rising inflation.</p> <ul style="list-style-type: none"> • <i>Net Impact:</i> Unclear. Depends on how Japan manages rising China/US conflict.
<i>JPY Equity</i>	<ul style="list-style-type: none"> • Likely Overvalued 	<ul style="list-style-type: none"> • <i>Fundamentals:</i> Renewed growth in China and other export markets should raise expected dividend growth, reduce uncertainty premiums and generate rising prices and returns. • <i>Investor Behavior:</i> Should be driven by perception of how strong growth is in China. • <i>Net Impact:</i> Rising prices. 	<ul style="list-style-type: none"> • <i>Fundamentals:</i> If Japan joins Sinosphere bloc, this could raise expected dividend growth, and perhaps P/Es due to an inflow of investment driven by FX reserve diversification. On the other hand, uncertainty premiums might still remain high. Net impact of these trends on equity prices and returns is unclear. • <i>Investor Behavior:</i> If Japan joins Sinosphere, and global capital flows are not constrained, this could lead to aggressive foreign buying, and some less-than-enthusiastic buying by local investors. If Japan does not join Sinosphere, expect selling. • <i>Net Impact:</i> Unclear. Depends on how Japan manages rising China/US conflict.
<i>JPY XR vs. USD</i>	<ul style="list-style-type: none"> • Appreciate 	<ul style="list-style-type: none"> • Should appreciate, as investors become 	<ul style="list-style-type: none"> • If Japan joins Sinosphere bloc, could

<i>Asset Class</i>	Current Fundamental Valuation Conclusion	Implications of Cooperative Scenario Developing over Next 24 Months	Implications of Conflict Scenario Developing over Next 24 Months
		worried about future U.S. inflation, and FX managers move to diversify USD holdings.	benefit from FX inflows out of USD and higher expected growth. If it does not join Sinosphere, net outflows could result, based on fears about Japan's future.
GBP Real Bonds	<ul style="list-style-type: none"> • Neutral 	<ul style="list-style-type: none"> • <i>Fundamentals:</i> Higher yields and falling prices due to reduced expected GDP variability, and possibly higher time discount rate and lower risk aversion. • <i>Investor Behavior:</i> Higher demand from buyers seeking to hedge rising inflation risk as well as continued buying by pension funds as they switch to liability based performance benchmarks. • <i>Net Impact:</i> Rising prices and falling yields. 	<ul style="list-style-type: none"> • <i>Fundamentals:</i> Falling yields and rising prices due to higher expected GDP variability, lower time discount rate and higher risk aversion. Upward prices pressure will also come from investors trying to hedge inflation risk. • <i>Investor Behavior:</i> Strong demand from investors seeking to hedge both inflation and growing global political/economic uncertainty. • <i>Net Impact:</i> Rising prices and falling yields.
GBP Govt Bonds	<ul style="list-style-type: none"> • Neutral 	<ul style="list-style-type: none"> • <i>Fundamentals:</i> Higher yields and lower prices, due to both rising real rates and a rising inflation risk premium. • <i>Investor Behavior:</i> Falling prices as investors demand higher yields to hedge rising inflation expectations. However, this could be 	<ul style="list-style-type: none"> • <i>Fundamentals:</i> UK siding with US causes a reduction in buyers for rising government debt issuance needed to fund higher government fiscal deficit. This forces debt monetization, which raises inflation and inflation risk premium. Result is falling prices and higher yields.

<i>Asset Class</i>	Current Fundamental Valuation Conclusion	Implications of Cooperative Scenario Developing over Next 24 Months	Implications of Conflict Scenario Developing over Next 24 Months
		<p>offset by strong BoE buying pressure all along the yield curve, if there is a strong attempt to hold down nominal rates to spur growth in spite of rising monetization and inflation. However, we would expect BoE to let rates rise if cooperative scenario develops.</p> <ul style="list-style-type: none"> • <i>Net Impact:</i> Lower prices and higher nominal yields. 	<ul style="list-style-type: none"> • <i>Investor Behavior:</i> Increased global uncertainty leads to higher demand for government bonds, putting upward pressure on prices, despite rising inflation. This could be reinforced by BoE buying. • <i>Net Impact:</i> Unclear. Depends on depth and extent of conflict between China and US.
GBP Property	<ul style="list-style-type: none"> • Probably Undervalued 	<ul style="list-style-type: none"> • <i>Fundamentals:</i> Consumer deleveraging, housing market problems and weak office demand by financial services companies should all depress operating income growth expectations and keep uncertainty premiums high. As a result, prices should either stabilize or fall. • <i>Investor Behavior:</i> Rising inflation could lead to more domestic buying of property as a hedge against rising prices. • <i>Net Impact:</i> Unclear, but best estimate is that, given the scale of the fiscal stimulus needed in 	<ul style="list-style-type: none"> • <i>Fundamentals:</i> Rising world trade barriers and emergence of sharper Sinosphere/Anglosphere conflict will reduce UK's role in global finance, and keep downward pressure on net operating income growth. It will also keep uncertainty premiums high. Net result will be falling or continued low property prices. • <i>Investor Behavior:</i> Rising inflation and uncertainty about world situation could lead to more defensive buying of property, pushing up prices. • <i>Net Impact:</i> Unclear, but best estimate is rising prices.

<i>Asset Class</i>	Current Fundamental Valuation Conclusion	Implications of Cooperative Scenario Developing over Next 24 Months	Implications of Conflict Scenario Developing over Next 24 Months
		the UK and the consequent need to monetize part of the debt, inflation related buying could boost property prices.	
GBP Equity	<ul style="list-style-type: none"> Probably Undervalued 	<ul style="list-style-type: none"> <i>Fundamentals:</i> Weak growth expectations and continued high uncertainty premiums should cause prices to stay flat or fall. <i>Investor Behavior:</i> Due to high inflation or rising uncertainty, equity will remain less attractive than other asset classes. <i>Net Impact:</i> Flat or falling prices. 	<ul style="list-style-type: none"> <i>Fundamentals:</i> Rising world conflict will weaken growth expectations and cause uncertainty premium to rise, causing prices to fall. <i>Investor Behavior:</i> Due to high inflation and rising uncertainty, equity will remain less attractive than other asset classes. <i>Net Impact:</i> Falling prices.
GBP XR vs. USD	<ul style="list-style-type: none"> Neutral 	<ul style="list-style-type: none"> Greater fiscal stimulus, along with less severe housing and financial system crises should cause net flow out of GBP and into USD. Offsetting this may be some moves into GBP by FX reserve managers diversifying out of USD. On balance, expect depreciation. 	<ul style="list-style-type: none"> GBP could benefit from global investors seek to “spread their bets” across multiple countries as China/US conflict worsens. Extent of this will depend on progress towards resolving financial system and housing problems, and boosting non-financial services, non-energy exports.
USD Real Bonds	<ul style="list-style-type: none"> Neutral 	<ul style="list-style-type: none"> <i>Fundamentals:</i> Higher yields and falling prices due to reduced expected GDP variability, and 	<ul style="list-style-type: none"> <i>Fundamentals:</i> Falling yields and rising prices due to higher expected GDP variability, lower

<i>Asset Class</i>	Current Fundamental Valuation Conclusion	Implications of Cooperative Scenario Developing over Next 24 Months	Implications of Conflict Scenario Developing over Next 24 Months
		<p>possibly higher time discount rate and lower risk aversion.</p> <ul style="list-style-type: none"> • <i>Investor Behavior:</i> Upward prices pressure will come from investors trying to hedge inflation risk. • <i>Net Impact:</i> Rising prices and falling real yields. 	<p>time discount rate and higher risk aversion.</p> <ul style="list-style-type: none"> • <i>Investor Behavior:</i> Upward prices pressure will also come from investors trying to hedge inflation risk. • <i>Net Impact:</i> Rising prices and falling real yields.
USD Govt Bonds	<ul style="list-style-type: none"> • Likely Overvalued 	<ul style="list-style-type: none"> • <i>Fundamentals:</i> Higher real yields, and rising expected inflation should lead to falling prices and rising nominal yields. • <i>Investor Behavior:</i> Huge issuance related to fiscal stimulus should lead to monetization, higher inflation and investor demand for higher yields, which will cause prices to fall compared to today's levels. FX reserve managers diversifying out of USD should accentuate price falls. We are unclear about the extent to which this could be offset by Fed buying of longer maturity issues to deliberately hold down rates (e.g., to spur economic recovery and help financial system 	<ul style="list-style-type: none"> • <i>Fundamentals:</i> Lower real yields, and rising expected inflation should lead to higher nominal yields and price falls from today's levels. • <i>Investor Behavior:</i> Huge issuance related to fiscal stimulus should lead to monetization, higher inflation and investor demand for higher yields, which will cause prices to fall compared to today's levels. Offsetting this will be higher domestic inflows into Treasuries as a hedge against rising uncertainty, but more outflows by FX managers. • <i>Net Impact:</i> Fed may act to limit price falls and rise in nominal yields.

<i>Asset Class</i>	Current Fundamental Valuation Conclusion	Implications of Cooperative Scenario Developing over Next 24 Months	Implications of Conflict Scenario Developing over Next 24 Months
		recover). <ul style="list-style-type: none"> • <i>Net Impact:</i> Falling prices and rising nominal yields. 	
USD Property	<ul style="list-style-type: none"> • Probably Undervalued 	<ul style="list-style-type: none"> • <i>Fundamentals:</i> Recovering economy should lead to rising expectations for operating income growth and reduced uncertainty premium, driving prices higher. • <i>Investor Behavior:</i> Rising inflation should drive more buying of commercial property as a hedge. • <i>Net Impact:</i> Rising prices. 	<ul style="list-style-type: none"> • <i>Fundamentals:</i> Deteriorating international situation will hold down expectations for operating income growth, and keep uncertainty premium high. This will keep prices flat. • <i>Investor Behavior:</i> Rising inflation concerns and, perhaps, concerns about long-term value of US government debt, will drive increased buying pressure and cause prices to rise. • <i>Net Impact:</i> Rising prices.
USD Equity	<ul style="list-style-type: none"> • Possibly Overvalued 	<ul style="list-style-type: none"> • <i>Fundamentals:</i> Increased real economic growth should lead to rising growth expectations and reduced uncertainty premium, driving prices higher. • <i>Investor Behavior:</i> Rising inflation should reduce investor enthusiasm for equities in favor of better 	<ul style="list-style-type: none"> • <i>Fundamentals:</i> Rising conflict with China as well as higher inflation should keep growth expectations low and uncertainty premiums high, resulting in flat to falling prices. • <i>Investor Behavior:</i> These conditions should lead to rising investment in other asset classes that provide better

<i>Asset Class</i>	Current Fundamental Valuation Conclusion	Implications of Cooperative Scenario Developing over Next 24 Months	Implications of Conflict Scenario Developing over Next 24 Months
		inflation hedges. <ul style="list-style-type: none"> • <i>Net Impact:</i> At best, a slight rise in equity prices, unless very visible progress is made toward inflation control. 	hedges against inflation and uncertainty. Equity prices will decline. <ul style="list-style-type: none"> • <i>Net Impact:</i> Falling prices.
CHF Govt Bonds	<ul style="list-style-type: none"> • Likely Overvalued 	<ul style="list-style-type: none"> • <i>Fundamentals:</i> Higher real yields due to reduced expected GDP variability, and possibly higher time discount rate and lower risk aversion. Higher inflation due to rising energy prices as global economy recovers. Net impact is higher nominal yields and lower prices than today. • <i>Investor Behavior:</i> If the global economy recovers, there may be foreign investor selling as previous hedges against uncertainty are unwound. • <i>Net Impact:</i> Falling prices and higher yields. 	<ul style="list-style-type: none"> • <i>Fundamentals:</i> Falling real yields due to higher expected GDP variability, lower time discount rate and higher risk aversion. Change in inflation will primarily depend on world energy prices, which will be driven by a combination of demand and supply risk factors. • <i>Investor Behavior:</i> Strong buying pressure as global investors look to Switzerland for a hedge against uncertainty. • <i>Net Impact:</i> Rising prices and falling yields.
CHF Property	<ul style="list-style-type: none"> • Probably Overvalued 	<ul style="list-style-type: none"> • <i>Fundamentals:</i> Appreciation of CHF has reduced global competitiveness in some areas, and held down business demand for property at a time when capacity was increasing. This will reduce expected operating 	<ul style="list-style-type: none"> • <i>Fundamentals:</i> If Switzerland becomes a more popular location for corporate HQs as the US/China conflict heats up, expectations for operating income growth will rise, pushing prices higher. • <i>Investor Behavior:</i>

<i>Asset Class</i>	Current Fundamental Valuation Conclusion	Implications of Cooperative Scenario Developing over Next 24 Months	Implications of Conflict Scenario Developing over Next 24 Months
		<p>income growth, and points to lower prices.</p> <ul style="list-style-type: none"> • <i>Investor Behavior:</i> Key question is the extent to which previous defensive foreign flows into Swiss property as a hedge against uncertainty will reverse. Higher global inflation should limit this. Overall impact is unclear. • <i>Net Impact:</i> Only marginally lower prices; strong global recovery would trigger outflows by hedging investors, but also raise expected operating income, assuming a fall in the CHF. 	<p>Worsening international conflict should lead to more foreign investor buying of Swiss property as a defensive hedge.</p> <ul style="list-style-type: none"> • <i>Net Impact:</i> Higher prices.
CHF Equity	<ul style="list-style-type: none"> • Neutral 	<ul style="list-style-type: none"> • <i>Fundamentals:</i> Rising prices should result from rising expected dividend growth in a global recovery (assuming some fall in the CHF) and, on the demand side, falling uncertainty premiums. • <i>Investor Behavior:</i> Perhaps some greater allocation to Swiss equities as hedge against long-term uncertainty. Otherwise, minimal. • <i>Net Impact:</i> Rising prices. 	<ul style="list-style-type: none"> • <i>Fundamentals:</i> Price falls as dividend growth expectations are reduced and uncertainty premiums rise. • <i>Investor Behavior:</i> Moves out of equities and into more defensive investments that offer better hedges against uncertainty and inflation. At best, prices could get a boost from foreign inflows related to diversification of currency holdings by countries with high FX reserves, as the

<i>Asset Class</i>	Current Fundamental Valuation Conclusion	Implications of Cooperative Scenario Developing over Next 24 Months	Implications of Conflict Scenario Developing over Next 24 Months
			<p>US/China conflict intensifies.</p> <ul style="list-style-type: none"> • <i>Net Impact:</i> Falling prices.
<i>CHF XR vs. USD</i>	<ul style="list-style-type: none"> • Appreciate 	<ul style="list-style-type: none"> • Depreciation as previous defensive flows into CHF denominated investments are reversed as the economy recovers. 	<ul style="list-style-type: none"> • Appreciation as rising uncertainty leads to higher demand for CHF assets.
<i>INR Govt Bonds</i>	<ul style="list-style-type: none"> • Likely Overvalued 	<ul style="list-style-type: none"> • <i>Fundamentals:</i> Higher real yields due to reduced expected GDP variability, and possibly higher time discount rate and lower risk aversion. Higher inflation due to rising energy prices as global economy recovers, and perhaps some monetization of debt as fiscal policy is used to boost demand. Net impact is higher nominal yields and lower prices than today. • <i>Investor Behavior:</i> Rising inflation will cause investors to demand higher returns, forcing a fall in bond prices. • <i>Net Impact:</i> Falling prices and higher nominal yields. 	<ul style="list-style-type: none"> • <i>Fundamentals:</i> Falling real yields due to higher expected GDP variability, lower time discount rate and higher risk aversion. Change in inflation will primarily depend on world energy prices, and extent of government deficits and monetization of debt. • <i>Investor Behavior:</i> Demand for government debt will depend on how India positions itself in the rising crisis between China and the US. If confidence in government is high, demand for debt as defensive investment should also rise. Otherwise, defensive investors will seek other assets (e.g., gold), causing debt prices to fall. • <i>Net Impact:</i> Unclear.

<i>Asset Class</i>	Current Fundamental Valuation Conclusion	Implications of Cooperative Scenario Developing over Next 24 Months	Implications of Conflict Scenario Developing over Next 24 Months
<i>INR Property</i>	<ul style="list-style-type: none"> • No estimate 	<ul style="list-style-type: none"> • <i>Fundamentals:</i> Reduction of severe credit constraints on new projects will expand supply while improving global economy increases expected operating income growth and reduces uncertainty premium. Net result should be higher prices. • <i>Investor Behavior:</i> Key constraint is limited amount of commercial property traded on public equity market. • <i>Net Impact:</i> Higher prices. 	<ul style="list-style-type: none"> • <i>Fundamentals:</i> Worsening China/US conflict should drive India closer to Anglosphere and could lead to higher investment inflows that were previously headed to China. This would benefit property. On the other hand, if India tries to follow a “middle path”, inflows should be lower. Net impact is unclear. • <i>Investor Behavior:</i> Assuming more public market vehicles are available to foreign investors, they could raise inflows in anticipation of more investment, assuming India aligns with Anglosphere. • <i>Net Impact:</i> Unclear
<i>INR Equity</i>	<ul style="list-style-type: none"> • Likely Overvalued 	<ul style="list-style-type: none"> • <i>Fundamentals:</i> Faster global growth should lead to faster expected dividend growth and reduced uncertainty premium, causing prices to rise. • <i>Investor Behavior:</i> Stronger global economic growth should lead to renewed interest in India, particularly as 	<ul style="list-style-type: none"> • <i>Fundamentals:</i> Rising conflict could lead to either faster expected growth in India (assuming strong alliance with Anglosphere) or higher uncertainty (if country aligns with China or tries to stay on middle path). On balance, unclear.

<i>Asset Class</i>	Current Fundamental Valuation Conclusion	Implications of Cooperative Scenario Developing over Next 24 Months	Implications of Conflict Scenario Developing over Next 24 Months
		<p>most recent crisis and operation of legal system in China has made investors more conscious of the attractions of the Indian model.</p> <ul style="list-style-type: none"> • <i>Net Impact:</i> Rising prices. 	<ul style="list-style-type: none"> • <i>Investor Behavior:</i> Anything other than strong alliance with Anglosphere may lead to outflows, as uncertainty vis-a-vis Sinosphere rises. • <i>Net Impact:</i> Unclear.
<i>INR XR vs. USD</i>	<ul style="list-style-type: none"> • Depreciate 	<ul style="list-style-type: none"> • Renewed economic growth could see return of some capital that sought defensive hedges elsewhere. This would lead to appreciation of XR. So too would higher investment inflows. 	<ul style="list-style-type: none"> • Depends on policy India follows as US/China conflict worsens. Tilt toward China could be negative, tilt towards Anglosphere could be positive. On balance, unclear.
<i>Commodities Asset Class</i>	<ul style="list-style-type: none"> • Likely Undervalued 	<ul style="list-style-type: none"> • Because of supply contraction, rising global demand should lead to rapid increases in energy prices, which will reinforce inflation and weaken recovery. • Industrial metal prices will rise with economy. • Agricultural prices will be affected by energy legislation (how big will be the future role of biofuels), as well as rising incomes in developing world, which lead to dietary changes. However, agricultural supply response is faster than energy or metals, which tends to moderate 	<ul style="list-style-type: none"> • Higher energy prices could be driven by rising perception of supply risks as China/US conflict intensifies. • Metals prices changes will be minimized by weak overall growth and, perhaps, by buyers trying to drive better deals for themselves. • Agricultural prices could be boosted by greater emphasis on biofuels as supplies of traditional energy supplies become less secure. • Since commodities are priced in USD, changes in XR will also affect non-USD returns

<i>Asset Class</i>	Current Fundamental Valuation Conclusion	Implications of Cooperative Scenario Developing over Next 24 Months	Implications of Conflict Scenario Developing over Next 24 Months
		price changes. <ul style="list-style-type: none"> • Since commodities are priced in USD, changes in XR will also affect non-USD returns 	
<i>Timber</i>	<ul style="list-style-type: none"> • Probably Undervalued 	<ul style="list-style-type: none"> • Rises with inflation. • Since commodities are priced in USD, changes in XR will also affect non-USD returns 	<ul style="list-style-type: none"> • Rises with inflation and increased desire for investment in real assets to hedge capital value in the face of sharp rise in uncertainty. • Since commodities are priced in USD, changes in XR will also affect non-USD returns
<i>Gold</i>	<ul style="list-style-type: none"> • No estimate 	<ul style="list-style-type: none"> • Declines with level of investor uncertainty, but not to very low levels, as memory of recent uncertainty shock will linger. • Unclear how much rising inflation will affect prices, which are already high because of rise in uncertainty. With inflation, there are more competing hedges. 	<ul style="list-style-type: none"> • Sharp increase, due to rising uncertainty and rising inflation.
<i>Equity Volatility</i>	<ul style="list-style-type: none"> • Neutral 	<ul style="list-style-type: none"> • Falls from current level, though at an uncertain rate 	<ul style="list-style-type: none"> • Rises from current level

Product and Strategy Notes

Two Interesting Papers on Commodities

Sometimes, it helps to put things in their proper historical perspective. In “Commodity Price Volatility and World Market Integration Since 1700”, Jacks, O’Rourke and Williamson examine a very large data set, and reach three conclusions: (1) commodity price volatility has not increased over time; (2) rather, the authors find variation over time, rather than a trend: “three centuries of history show that economic isolation caused by war or autarkic policy has been associated with much greater commodity price volatility, while world market integration associated with peace and pro-global policies has been associated with less commodity price volatility; but (3) That said, “commodity prices have always been more volatile than the price of manufactured goods.”

In “Risk Appetite and Commodity Returns”, Erkkö Etula looks at a much more recent data set, and finds that, from shortly after the launch of commodity futures contracts, “changes in the risk appetite of leveraged financial institutions such as security broker-dealers forecasts commodity returns at quarterly horizons...this result is particularly strong for energy commodities.” While interesting, we’re not sure about the conclusion of this study, which reminds us of the old warning that “correlation is not causation.” Looking back over the past five years, we can see that rising commodity prices and returns occurred during a period when supply/demand conditions were tight, due to rapid economic growth, which was driven by high consumption by increasingly overleveraged U.S. consumers, whose addiction to borrowing was fed by very ample liquidity. In commodity markets, tight supply/demand conditions led to both more frequent price surprises (mostly on the upside, until the big downside move), and higher convenience yields (i.e., a higher value from owning physicals and hence a boost in spot prices relative to futures) which produced positive “roll yields”. These same liquidity and economic growth conditions also led broker-dealers to use much more leverage, in part to finance much larger positions in lower rated tranches of

mortgage based collateralized debt obligations which, as we now know all-too-well, later turned out to be highly toxic. To prove causation, Etula would have to show that a fall in the risk premium required by broker-dealers to hold long positions in commodity futures caused them to expand their purchases, which in turn caused the price surprises, generating higher returns and reinforcing this positive feedback loop. Clearly, people who blamed speculators for the run up in commodity prices during the summer of 2008, believed that this was the process at work. Yet, as we noted at the time, there was also evidence of very tight conditions existing in physical markets, just as today's much lower commodity prices are associated with clear evidence of substantial excess supply. As a result, we continue to believe that physical market conditions are a more important driver of commodity returns than is the extent of broker-dealer balance sheet leverage.

News of Note for Advisers

A number of recent studies contain interesting findings for financial advisers. In "The Influence of Financial Advisors on Household Portfolios", Gerhardt and Hackethal use an extensive German data set of 65,000 bank customers, and analyze the impact of deciding to obtain regular advice from an advisor. The authors observe that "many aspects of the differences between advised and non-advised investors can be attributed to differences in investor characteristics", rather than the actions of advisers per se. However, their analysis finds that, even after adjusting for investor characteristics, use of investment advisers still has a beneficial impact, including more diversification and less speculative trading. Hence, the authors conclude that "it is indeed worthwhile for most investors to hire an investment adviser." In another paper ("Smart Money: The Effect of Education, Cognitive Ability, and Financial Literacy on Financial Market Participation"), Cole and Shastry "provide the first precise, causal estimates of the effects of education on financial market participation." They find "a large effect, even controlling for income...one year of additional schooling increases the probability of financial market participation by 7-8%, holding other factors

constant.” They then test the hypothesis that increased participation is due to greater exposure to financial literacy education in school. They find that high school financial literacy programs do not affect financial market participation. Instead, after controlling for family background and other factors, they find that education increases cognitive ability, which in turn drives increased financial market participation. In sum, this study seems to confirm the observations and instincts of many of the financial advisers with whom we have discussed this issue over the years.

Advisers with high net worth clients may find “Emotional Assets and Investor Behavior” by Campbell, Koedijk, and de Roon an interesting read. The authors “use a broad range of indices on a number of emotional assets, such as art, wine, stamps, watches, atlases and books, which make up more than fifty percent of HNWI’s investment into the luxury goods sector. The reason for investing in such emotional assets goes beyond investment value alone. They also have a consumption value and provide the owner with greater utility in the form of aesthetic value and can act as a signal of the owner’s wealth.” The authors then note that a number of funds have been established that invest in these emotional assets. This raises a number of questions, including “just how large is the consumption or emotional value from holding these assets directly, instead of via a fund? Does this render the financial return insufficient to warrant investment into emotional asset funds?” The authors “find evidence that direct investors are willing to forgo financial returns to invest in certain emotional assets, such as clocks and watches, atlases and stamps.” They conclude that “the consumption or emotional value of such assets is therefore very large.” Based on their analysis of the data series they use, the authors also conclude that investment in these emotional assets provide diversification benefits. However, as we have noted in the past with respect to the potential diversification benefits from investing in fine art (or fine art funds), the construction of these data series raises a number of serious issues about their comparability with time series data for traded financial assets. Moreover, as we have noted in the past, given that prices of emotional assets tend to rise and fall with overall economic conditions, their diversification benefits are likely to be lower than what the time series data indicate.

Still, the author's findings on the value that HNWI's attach to emotional assets should either reinforce or sharpen advisers' view of this often important client issue.

We also read two new studies that bear on the issue of active versus passive management. The first is "When is Stock Picking Likely to Be Successful?" by Duan, Hu and McLean. They find that "mutual fund managers have stock picking ability in stocks with high idiosyncratic volatility, but not in stocks with low idiosyncratic volatility." Using a U.S. data set, they assert that this is "consistent with a situation in which high arbitrage costs for such stocks insulates mispricing." However, they also find that "the stock-picking ability of the average mutual fund manager declined after the extreme growth in the number of both mutual funds and hedge funds in the late 1990s." This latter conclusion is consistent with one found in the second paper, using a different data set. In "The Performance of Actively and Passively Managed Swiss Equity Funds", Ammann and Steiner study data from 1989 to 2007 for funds investing in Swiss equities using active and passive strategies. They find that "the average manager of an active Swiss equity fund systematically overweights small-cap and value" shares. They also find that both active institutional and active retail funds underperform comparable passive funds. However, most of this underperformance is concentrated in the retail funds, where fees and expenses are higher. Moreover, the underperformance has worsened since 2000, with the authors asserting that this is evidence of the Swiss equity market becoming more efficient.

Finally, we all know that the role of a financial adviser in his or her client's life often goes well beyond investments and planning. With that in mind, we will highlight the key findings from some other interesting studies we've recently read that seem quite timely in light of current economic conditions. In "Life Satisfaction", Kapteyn, Smith and van Soest analyze the determinants of life satisfaction in the Netherlands and the United States. They find that "life satisfaction is well described by four domains: (1) job or daily activities; (2) social contacts and family; (3) health; and (4) income." Among these four, "social contacts and family have the highest impact on life satisfaction, followed by job and daily activities, and health. Income has the lowest impact, though it is relatively more important in the United States than in the

Netherlands.” A closely related study is “Am I Going to Be Happy and Financially Stable? How American Women Feel When They Think About Financial Security” by Talya Miron-Shatz. The author’s goal was to “reconcile the conflict between research findings suggesting that income does not substantially predict life satisfaction, and the commonly held belief that finances account for a substantial portion of well-being.” Miron-Shatz focuses her study on women, because other research has found that they tend to worry more about finances than men. Her research confirms her hypothesis is that “measures of subjective financial security take precedence over monetary measures of income and assets in determining life satisfaction” and offers as a possible explanation for this findings from other studies that show how financial aspirations tend to rise with achievement, which prevents satisfaction from rising with the latter.

Two other studies dig deeper into the underlying factors that may be driving these results. In “Gender Differences in Risk Behavior”, Booth and Nolen find “gender differences in preferences for risk taking are sensitive to the gender mix of the experimental group, with girls being more likely to choose risky outcomes when assigned to all-girl groups.” They conclude that “observed gender differences in behavior under uncertainty found in previous studies might reflect social learning rather than inherent gender traits.” Finally, the fourth study looks at the underlying causal drivers of work success. In “How the Rich (and Happy) Get Richer (and Happier)”, Judge and Hurst find that higher “core self-evaluations” (essentially a construct that captures self-image and self-efficacy) “were associated with both higher levels of initial work success and steeper work success trajectories over time.” They also found that “individuals with high core self-evaluations have more ascendant jobs and careers, in part because they are more apt to pursue further education and maintain better health.” From an investment perspective, we found this study fascinating because it highlights a fundamental tension between the factors that drive long-term career and income generation (e.g., optimism, confidence, and a belief in one’s ability to control events) and those that drive investment success (e.g., avoiding over-optimism and overconfidence, and recognizing the limits to one’s ability to predict

the future). In our view, all of these studies offer a glimpse into underlying mediating role played by the best financial advisers, particularly those who counsel very successful clients.

Two Interesting Hedge Fund Papers

As noted by ourselves and many other authors, the term “hedge funds” covers a multitude of investing approaches and seems to obscure important issues rather than clarify them – such as the fact, often emphasized in our writing, that most hedge funds are not intended to deliver the uncorrelated alpha that is so beneficial to a portfolio. At best, the term “hedge funds” today refers to a common approach to compensating active managers, which usually includes two fees, one a percentage of the value of assets under management, and one a percentage of profits earned each year above a given benchmark (e.g., the famous 2% and 20% formula). Some would argue that it also captures the ability to use investing techniques like leverage and shorting. However, we note that these are increasingly becoming more common in the mutual fund, as it moves closer to the hedge fund model. The first of the new research papers is cleverly titled “Crowded Chickens Farm Fewer Eggs.” Weidenmuller and Verbeek, the paper’s authors, examine data covering over 2,000 individual hedge funds that operated between 1994 and 2006. Their first finding replicates one made by other researchers: “on a fund-specific level, performance is concavely related to fund size and negatively related to inflows, with the latter effect contingent on fund size. More precisely, while small funds are hurt by inflows, larger funds are not, as the negative effect [on returns] of being past an optimal size predominates.” More interesting is the authors second finding, that “on the strategy segment level [e.g., long/short, equity market neutral, global macro, emerging markets, convertible arbitrage, etc.], we also observe a concave relationship with segment size and a negative one with segment flows, implying that the increase in capital allocated [to popular strategies] eradicates the alpha returns available.” The authors conclude that “the main contribution of this paper is that it shows that fund-specific and segment-

specific inflows separately and differentially affect future fund performance.” In sum, this paper reinforces the growing sense of many researchers that there is an optimum size for both a fund and for the amount of assets dedicated to a given hedge fund strategy. Once these are exceeded, returns decline. On the bright side, by reducing the crowding in many popular strategies, the current sharp reduction in the number of hedge funds that is now underway bodes well for future hedge fund returns, if you accept the conclusions of these papers. On the other hand, if the surviving hedge funds have a larger average size than before, this should result in lower returns (even before factoring in the impact of lower leverage and tighter regulation).

The previous paper referred to hedge fund and strategy level returns. However, the returns actually realized by investors depend not only on the assets in the fund and the overall strategy, but also on when they invested in a given hedge fund (e.g., those who invest after a period of rising fund or strategy returns are likely to be disappointed). This issue is analyzed in “Higher Risk, Lower Returns: What Hedge Fund Investors Really Earn” by Dichev and Yu. They use “dollar weighted returns to assess the properties of actual investor returns on hedge funds and compare them to buy-and-hold fund returns.” They find that “annualized dollar weighted returns are on average about four percent lower than buy-and-hold returns. This performance gap rises to as much as 9 percent for ‘star’ funds with the highest buy-and-hold returns [and the highest inflows from investors chasing strong past performance].” The authors also find that “dollar weighted returns, in aggregate, are below comparable returns for broad-based stock indexes.” They conclude that “the combined impression from these results is that the return experience of hedge fund investors is much worse than previously thought.” Taken together, these two papers suggest some general rules for hedge fund investors: (1) focus on small or medium size funds; (2) avoid crowded strategies; and (3) avoid chasing good performance. To which we would also add, and focus on hedge fund strategies that are intended to produce uncorrelated alpha, and not those that combine both asset class returns (which you can obtain more cheaply via index products) and active returns (for which you should be willing to

pay higher fees, assuming you believe the manager is skilled and can generate returns in excess of fund expenses and taxes generated by its trading).

On the Product Front

“Source ETF” the new European joint venture between Goldman Sachs and Morgan Stanley, has registered its first fifty ETFs in Ireland. It is largely a “me too” list that fails to break new ground in terms of asset classes or uncorrelated alpha strategies. Instead, the new offerings are focused on global equity markets and various tilts within them (the EPRA Eurozone Commercial Property Index ETF being a notable exception). On the bright side, more product should lead to lower fees for investors, and more advertising and other types of distribution support should result in more investors taking advantage of index products. In the United States, the most interesting new product registration involves new MacroShares ETF products that will enable investors to take long and short positions on the different residential real estate markets tracked by the S&P/Case Shiller Indexes. While we applaud the launch of a product that will give retail investors access to a new asset class, we continue to believe that getting overborrowed households, in the U.S., U.K. and elsewhere, out from under onerous mortgage burdens could best be done by creating a mechanism for swapping a portion of this debt into equity that could be combined into index products that facilitate investment in residential real estate as an asset class. On the gold front, a sharp eyed reader sent us a heads up about another financial product that is exchangeable into physical gold, that is similar to the Swiss ETF products discussed last month. The Perth Mint Gold product is a commodity call warrant (i.e., long-dated option) which trades on the Australian Stock Exchange under the symbol ZAUWBA. The warrants expire at the end of 2013, and can be settled in either cash or one troy ounce of gold (per 100 warrants). As we noted last month, any investor considering the purchase of a product that is potentially redeemable in physical gold should first ascertain the process, cost, and tax consequences associated with physical redemption. Finally, we note the publication of an interesting research paper by Lu,

Wang and Zhang. In “Long Term Performance of Leveraged ETFs”, the authors conclude that these products (which enable an investor to earn double or more of the return or the inverse of the return on a given index) “are not long term substitutes for long or short positions in the benchmark indexes” because of their substantial tracking errors for holding periods greater than one month.

Foreign Currency Bonds...Again

Long-time readers of our publications will recall that, at least until recently, we would regularly receive and answer questions related to our model portfolios’ allocations to unhedged, developed market, foreign currency government bonds as an asset class. Briefly summarized, our logic has always rested on two premises: (1) evidence that, in local currency terms, foreign currency bond returns had low to negative correlations with returns on the domestic equity market, and (2) that along with foreign equities and foreign commercial property, foreign currency bonds provided a hedge against a sharp depreciation of the local currency, and thereby help to preserve the real purchasing power of a portfolio. Over the years, we have also noted that, when it comes to foreign currency exposures in a portfolio (via currency holdings or different foreign asset classes), reasonable people can disagree. For example, we have noted the traditional view that foreign bond holdings should be currency hedged, while some portion of foreign equity holdings should not (foreign property holdings, or holdings of other US dollar denominated assets like commodities, timber or various uncorrelated alpha strategies have yet to receive an academic analysis of whether they should be currency hedged).

Given our commitment to airing all sides of this debate, we recommend a new paper by Campbell, De-Medeiros, and Viceira. In “Global Currency Hedging”, the authors consider the Australia, Canadian and U.S. dollars, Yen, Pound, Euro and Swiss Franc between 1975 and 2005. They find that “at one extreme, the Australian dollar and the Canadian dollar are positively correlated with local currency returns on equity markets around the world, including their own domestic markets. At the other

extreme, the Euro and the Swiss Franc are negatively correlated with world stock returns and with their own domestic stock returns. The Yen, Pound and U.S. dollar fall in the middle, with the latter most similar to the Euro and Swiss Franc.” Hence, from the perspective of hedging equity market exposures, an optimal currency position is long the Swiss Franc, Euro and U.S. dollar. The authors also find that, over holding period from one month to one year, most currency returns are almost uncorrelated with bond returns. On the basis of their analysis, they recommend fully currency hedging foreign bond investments. They note that “this is consistent with common practice of institutional investors” but also note that “global bond mutual funds are available without currency hedging.” And they also note that, “the U.S. dollar is an exception to this general pattern, in that it tends to appreciate when bond prices fall -- that is when interest rates rise around the world. This generates a modest demand for U.S. dollars by risk minimizing bond investors.” What the authors do not do is reach an integrated conclusion on currency hedging for an investor who holds a portfolio that is diversified across a wide range of asset classes. However, taking all of their analysis into consideration, it would appear that, for an investor who chooses not to hold foreign currency, but still wants the benefits of the hedge it provides, a position that is long unhedged foreign currency bonds (with a particular emphasis on Swiss Francs and Euro for U.S. dollar based investors, and on Swiss Francs, Euro and U.S. dollars for other investors) appears to make good sense. Events over the past year have certainly reinforced this impression. So it may be that after all this time we are finally getting closer to a more widely shared understanding of the role of unhedged foreign currency bonds in a portfolio.

Model Portfolios Update

Our model portfolios are constructed using a simulation optimization methodology. They assume that an investor understands the long-term compound real rate of return he or she needs to earn on his or her portfolio to achieve his or her long-term financial goals. We use SO to develop multi-period asset allocation solutions that are “robust”. They are intended to maximize the probability of achieving an investor’s

compound annual return target under a wide range of possible future asset class return scenarios. More information about the SO methodology is available on our website. Using this approach, we produce model portfolios for six different compound annual real return targets: 7%, 6%, 5%, 4%, 3%, and 2%. We produce two sets of these portfolios: one assumes only investments in broad asset class index funds. These are our “all beta” portfolios. The second set of model portfolios includes equity market neutral (uncorrelated alpha) funds as a possible investment. These assume that an investor is primarily investing in index funds, but is willing to allocate up to ten percent of his or her portfolio to equity market neutral investments.

We use two benchmarks to measure the performance of our model portfolios. The first is cash, which we define as the yield on a one year government security purchased on the last trading day of the previous year. For 2009, our JPY cash benchmark is 1.07% (in nominal terms). The second benchmark we use is a portfolio equally allocated between the ten asset classes we use (it does not include equity market neutral). This portfolio assumes that an investor believes it is not possible to forecast the risk or return of any asset class. While we disagree with that assumption, it is an intellectually honest benchmark for our model portfolios' results.

The year-to-date nominal returns for all these model portfolios can be found at: <http://www.indexinvestor.com/Members/YTDReturns/Japan.php>