

The Index Investor

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October 2009 Issue: Key Points

Our economic update this month reviews the data presented in the IMF's most recent World Economic Outlook. We conclude that on balance, the odds of our conflict scenario developing have increased over the last month, and that returns on asset classes that perform well under the high uncertainty regime are likely to show the highest rolling returns in the months ahead. These include short term government bonds (e.g., SHY for U.S. Treasuries, and ISHG for a mix of short term government bonds from other nations), gold, volatility, Swiss Francs (FXF), and Swiss and European commercial property. In this month's letters to the editor, we respond to more letters about timber, as well as questions about oil and gas partnerships, whether diversification can be overdone, the best asset allocation today, and why we don't make bigger allocations to emerging markets equity in our model portfolios. This

month's feature article looks at the construction of equal risk weighted portfolios and how they performed across major currency zones in 2007 and 2008. Our product and strategy notes include another warning to limited partners about the challenges of investing in venture capital, a review of recent research into early warning indicators for future financial markets crises, a very interesting new paper on the long term drivers of equity market valuation, and whether investors on average anticipate or react to them, and with what degree of accuracy, and the long-term impact of the 2007-2008 crisis on financial advisers.

Global Asset Class Returns

YTD 30 Sep 09	In USD	In AUD	In CAD	In EURO	In JPY	In GBP	In CHF	In INR
Asset Held								
USD Bonds	-1.10%	-27.68%	-16.13%	-6.25%	-2.35%	-12.34%	-3.68%	-2.38%
USD Prop.	18.82%	-7.76%	3.80%	13.67%	17.57%	7.58%	16.24%	17.54%
USD Equity	21.58%	-5.00%	6.56%	16.43%	20.33%	10.34%	19.00%	20.30%
AUD Bonds	14.82%	-11.76%	-0.20%	9.67%	13.57%	3.58%	12.24%	13.54%
AUD Prop.	37.49%	10.91%	22.47%	32.34%	36.24%	26.25%	34.92%	36.21%
AUD Equity	57.43%	30.85%	42.41%	52.28%	56.18%	46.19%	54.86%	56.15%
CAD Bonds	16.50%	-10.08%	1.47%	11.35%	15.25%	5.26%	13.92%	15.22%
CAD Prop.	55.29%	28.71%	40.26%	50.14%	54.04%	44.05%	52.71%	54.01%
CAD Equity	44.37%	17.80%	29.35%	39.22%	43.12%	33.13%	41.80%	43.09%
CHF Bonds	13.25%	-13.33%	-1.78%	8.10%	12.00%	2.01%	10.67%	11.97%
CHF Prop.	21.82%	-4.76%	6.80%	16.67%	20.57%	10.58%	19.24%	20.54%
CHF Equity	18.56%	-8.02%	3.54%	13.41%	17.31%	7.32%	15.98%	17.28%
INR Bonds	-10.59%	-37.17%	-25.61%	-15.74%	-11.84%	-21.83%	-13.16%	-11.87%
INR Equity	78.81%	52.23%	63.79%	73.66%	77.56%	67.57%	76.24%	77.53%
EUR Bonds	2.38%	-24.20%	-12.65%	-2.77%	1.13%	-8.86%	-0.20%	1.10%
EUR Prop.	40.26%	13.68%	25.24%	35.11%	39.01%	29.02%	37.68%	38.98%
EUR Equity	13.31%	-13.27%	-1.72%	8.16%	12.06%	2.07%	10.73%	12.03%
JPY Bonds	0.17%	-26.41%	-14.85%	-4.98%	-1.08%	-11.07%	-2.41%	-1.11%
JPY Prop.	16.65%	-9.93%	1.63%	11.50%	15.40%	5.41%	14.07%	15.37%
JPY Equity	4.28%	-22.30%	-10.74%	-0.87%	3.03%	-6.96%	1.70%	3.00%
GBP Bonds	11.88%	-14.70%	-3.14%	6.73%	10.63%	0.64%	9.31%	10.60%
GBP Prop.	20.90%	-5.68%	5.88%	15.75%	19.65%	9.66%	18.32%	19.62%

YTD 30 Sep 09	In USD	In AUD	In CAD	In EURO	In JPY	In GBP	In CHF	In INR
GBP Equity	28.69%	2.11%	13.67%	23.54%	27.44%	17.45%	26.11%	27.41%
1-3 Yr US Govt	0.46%	-26.11%	-14.56%	-4.69%	-0.79%	-10.78%	-2.11%	-0.82%
World Bonds	6.33%	-20.25%	-8.70%	1.18%	5.08%	-4.91%	3.75%	5.05%
World Prop.	27.01%	0.43%	11.98%	21.86%	25.76%	15.77%	24.43%	25.73%
World Equity	27.23%	0.65%	12.20%	22.08%	25.98%	15.99%	24.65%	25.95%
Commod Long	9.58%	-17.00%	-5.45%	4.43%	8.33%	-1.66%	7.00%	8.30%
Commod L/Shrt	-10.56%	-37.13%	-25.58%	-15.71%	-11.81%	-21.80%	-13.13%	-11.84%
Gold	14.25%	-12.33%	-0.77%	9.10%	13.00%	3.01%	11.68%	12.97%
Timber	-0.25%	-26.83%	-15.27%	-5.40%	-1.50%	-11.49%	-2.82%	-1.53%
Uncorrel Alpha	9.85%	-16.72%	-5.17%	4.70%	8.60%	-1.39%	7.28%	8.57%
Volatility VIX	-35.98%	-62.55%	-51.00%	-41.13%	-37.23%	-47.21%	-38.55%	-37.26%
Currency								
AUD	26.58%	0.00%	11.55%	21.43%	25.33%	15.34%	24.00%	25.30%
CAD	15.02%	-11.55%	0.00%	9.87%	13.77%	3.79%	12.45%	13.74%
EUR	5.15%	-21.43%	-9.87%	0.00%	3.90%	-6.09%	2.57%	3.87%
JPY	1.25%	-25.33%	-13.77%	-3.90%	0.00%	-9.99%	-1.32%	-0.03%
GBP	11.24%	-15.34%	-3.79%	6.09%	9.99%	0.00%	8.66%	9.96%
USD	0.00%	-26.58%	-15.02%	-5.15%	-1.25%	-11.24%	-2.58%	-1.28%
CHF	2.58%	-24.00%	-12.45%	-2.57%	1.32%	-8.66%	0.00%	1.29%
INR	1.28%	-25.30%	-13.74%	-3.87%	0.03%	-9.96%	-1.29%	0.00%

Uncorrelated Alpha Strategies Detail

As we have repeatedly noted over the years, actively managed strategies whose objective is to produce returns with low or no correlation with the returns on major asset classes (so-called “uncorrelated alpha strategies”) have an undeniable mathematical benefit for a portfolio. Moreover, the potential size of this benefit increases with the portfolio’s long-term real rate of return target. On the other hand, we have also repeatedly noted that, for a wide range of reasons, active management is an extremely difficult game to play consistently well, and that this challenge only increases with time. Hence, in our model portfolios, we have tried to strike an appropriate balance between these two perspectives. We start by limiting allocations to uncorrelated alpha to no more than ten percent of a portfolio. We then equally divide this allocation between four different strategies. Within each strategy, we track the performance of two liquid, retail funds which can be used to implement it, and which have far lower costs than the 2% of assets under management and 20% of profits

typically charged by hedge fund managers using the same strategy (for more on the advantages of such funds, see “How Do Hedge Fund Clones Manage the Real World?” by Wallerstein, Tuchshmid, and Zaker). The following table shows the year to date performance of these funds (which are listed by ticker symbol):

YTD 30 Sep 09	<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>Eq Mkt Neutral</i>								
HSKAX	-1.95%	-28.53%	-16.98%	-7.10%	-3.20%	-13.19%	-4.53%	-3.23%
OGNAX	-0.10%	-26.68%	-15.12%	-5.25%	-1.35%	-11.34%	-2.68%	-1.38%
<i>Arbitrage</i>								
ARBFX	8.54%	-18.03%	-6.48%	3.39%	7.29%	-2.69%	5.97%	7.26%
ADANX	9.40%	-17.18%	-5.62%	4.25%	8.15%	-1.84%	6.82%	8.12%
<i>Currency</i>								
DBV	18.49%	-8.09%	3.46%	13.34%	17.24%	7.25%	15.91%	17.20%
ICI	4.88%	-21.70%	-10.14%	-0.27%	3.63%	-6.36%	2.30%	3.60%
<i>Equity L/S</i>								
HSGFX	6.05%	-20.53%	-8.97%	0.90%	4.80%	-5.19%	3.47%	4.77%
PTFAX	17.14%	-9.43%	2.12%	11.99%	15.89%	5.90%	14.57%	15.86%
<i>GTAA</i>								
MDLOX	17.74%	-8.84%	2.71%	12.58%	16.48%	6.50%	15.16%	16.45%
PASAX	18.35%	-8.23%	3.32%	13.20%	17.10%	7.11%	15.77%	17.07%

Table: Market Implied Regime Expectations and Three Year Return Forecast

We use the following table to provide insight into the weight of market views about which of three regimes – high uncertainty, high inflation, or normal growth – is developing. The table shows rolling three month returns for different asset classes. The asset classes we list under each regime should deliver relatively high returns when that regime develops. We assume that both the cross-sectional and time series comparisons we present provide insight into the market’s conventional wisdom – at a specific point in time -- about the regime that is most likely to develop within the next twelve months. To obtain the cross-sectional perspective, we horizontally compare the row labeled “This Month’s Average” for the three regimes. In our interpretation, the

regime with the highest rolling three month average is the one which (on the specified date) the market's conventional wisdom believed was the most likely to develop.

For the time series perspective, we vertically compare this month's average rolling three month return for a given regime to the regime's rolling three month average three months ago. We believe this time series perspective provides insight into how fast and in what direction the conventional wisdom has been changing over time.

<i>Rolling Three Month Returns in USD</i>			30-Sep-09
<i>High Uncertainty</i>	<i>High Inflation</i>	<i>Normal Growth</i>	
Short Maturity US Govt Bonds (SHY) 0.76%	US Real Return Bonds (TIP) 2.93%	US Equity (VTI) 16.36%	
1 - 3 Year International Treasury Bonds (ISHG) 4.87%	Long Commodities (DJP) 3.82%	EAFE Equity (EFA) 19.36%	
Equity Volatility (VIX) -2.81%	Global Commercial Property (RWO) 30.06%	Emerging Equity (EEM) 20.73%	
Gold (GLD) 8.41%	Long Maturity Nominal Treasury Bonds (TLT)* 5.31%	High Yield Bonds (HYG) 11.01%	
<i>Average</i> 2.81%	<i>Average (with TLT short)</i> 7.88%	<i>Average</i> 16.86%	
<i>Three Months Ago:</i> -8.20%	<i>Three Months Ago:</i> 13.66%	<i>Three Months Ago:</i> 23.22%	

* falling returns on TLT indicate rising inflation expectations

As you can see, at the end of last month, the conventional wisdom still seemed to favor a relatively quick return to normal times (though with an undercurrent of worry about higher inflation). From a dynamic perspective, however, we can see that rate at which these expectations were improving has sharply slowed. In addition, we can see

a renewed concern with the possible return to a high uncertainty regime (e.g., the proverbial W, U, or L shaped recession profile). Psychologically, we can understand the need to cling to the view that good times are about to return; we can also understand that in some cases this need is reinforced by the incentives facing some professional investors. However, as we describe in this month's Economic Update, we believe that this hope is misplaced, and that the probability of moving again into the high uncertainty regime is quickly rising.

At the request of many readers, we will now publish forecasts for real returns on different asset classes. They can be compared to asset class return forecasts regularly produced by GMO, to which many of our readers also subscribe. Given our belief that foresight accuracy is improved by combining the outputs from different forecasting methodologies, we have taken a different approach from GMO. As we understand it, they start with their estimate of current over or undervaluation, and assume that these will return to equilibrium over a seven year business cycle. They apparently believe that the use of this time horizon will cause a number of ups and downs caused by cyclical and investor behavior factors to average out. It has always struck us as a very logical approach. In contrast, the forecasting approach we have taken is grounded in our research in to the performance of different asset classes in three regimes, which we have termed high uncertainty, high inflation and normal times. In the latter regime, asset class returns are strongly attracted to their equilibrium levels – i.e., to the situation in which the returns supplied and the returns demanded are close to balance. Our approach to estimating returns under this regime is to appropriate risk premiums for different asset classes to our estimate of the equilibrium yield on risk return bonds when the system is operating under normal conditions. In contrast, the high uncertainty and high inflation regimes are very much disequilibrium conditions in which investor behavior dominates the returns that are actually supplied. Under these regimes, our approach to return forecasting starts with our estimate of what the real rate of return would be (lower than normal under high uncertainty because of a lower time discount rate, and lower still under high inflation because of much stronger investor demand for inflation hedging assets like real return bonds). We then add an

estimate of the realized return spread over the real bond yield for each asset class in the high uncertainty and high inflation regimes. To determine these premia, we began with the results from our historical regime analysis, and subjectively adjusted the results to make them more consistent with each other while generally preserving the rank ordering of asset class returns from our historical regime analysis. The final step in our methodology is to subjectively estimate the percentage of time that the financial system will spend in each of the three different regimes over the next 36 months. We are the first to admit that this is, at best, a noisy estimate of the returns investors are likely to receive on different asset classes over our target time horizon. We have no doubt that GMO would say the same about the results produced by their methodology. Indeed, it is either naive or misleading to say anything else, given that one is attempting to forecast results produced by a constantly evolving complex adaptive system. As always, we stress that research has shown that accuracy can be improved by combining forecasts produced using different methodologies. With that admonition, our results are as follows:

Regime	Normal Regime	High Uncertainty Regime	High Inflation Regime	Forecast Annualized USD Real Return
<i>Assumed Regime Probability Over Next 36 Months</i>	20%	50%	30%	
<i>Real Rate Under Regime</i>	3.50%	2.50%	1.50%	2.40%
<u>Asset Class Premia</u>				
Domestic Bonds	1.0%	1.0%	-3.0%	2.20%
Foreign Bonds	0.5%	2.0%	0.5%	3.65%
Domestic Property	3.0%	-10.0%	1.0%	-1.70%
Foreign Property	3.0%	-10.0%	-1.5%	-2.45%
Commodities	2.0%	-6.0%	3.0%	0.70%
Timber	2.0%	-8.0%	1.0%	-0.90%
Domestic Equity	3.5%	-12.0%	-5.0%	-4.40%
Foreign Equity	3.5%	-12.0%	-7.0%	-5.00%
Emerging Equity	4.5%	-15.0%	1.0%	-3.90%
Gold	-2.0%	2.0%	2.5%	3.75%
Volatility	-25.0%	50.0%	25.0%	29.90%

Table: One Year Asset Class Valuation Conclusions and Recent Momentum

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 **September 2009**, over a one year time horizon. Note that our views on valuation over a longer time horizon sometimes differ from our short-term views. As we repeatedly note, when discussing asset class valuation (or any forecast, for that matter), being specific about the time horizon is critical. Our longer term valuation views are contained in the Global Asset Class Valuation Analysis section of each month's journal.

We believe that asset prices reflect the interaction of three broad forces. The first is fundamental valuation, as reflected in the balance between the expected supply of and demand for returns. The Global Asset Class Valuation Analysis of each month's journal contains an extensive discussion of fundamental valuation issues. One of our core beliefs is that while asset prices are seldom equal to their respective fundamental values (because the system usually operates in disequilibrium), they are, in the medium and long-run strongly drawn towards that attractor.

The second driver of asset prices, and undoubtedly the strongest in the short run, is investor behavior, which results from the interaction of a complex mix of cognitive, emotional and social inputs – the latter two comprising Keynes' famous "animal spirits". We try to capture the impact of investor behavior in each month's Market Implied Expectations Analysis, as well as in two measures of momentum for different asset classes – one covering returns over the most recent three months (e.g., June, July and August), and one covering returns over the previous non-overlapping three month period (e.g., March, April, and May).

The third driver of asset prices is the ongoing evolution of political and economic conditions and relationships, and the degree uncertainty that prevails about their future direction. We capture these longer term forces in our economic scenarios.

The following table summarizes our current views about current prices compared to fundamental valuation estimates over a one year time horizon.

Specifically, we reach conclusions about whether different asset classes appear close to fairly priced (in which case our rating is “neutral”), or whether they are under or overvalued.

The extent to which we believe over or undervaluation to be the case is reflected in the confidence rating we assign to each conclusion. We believe it is extremely important for the recipient of any estimate or assessment to clearly understand the analyst’s confidence in the conclusions he or she presents. How best to accomplish this has been the subject of an increasing amount of research (see, for example, “Communicating Uncertainty in Intelligence Analysis” by Steven Rieber; “Verbal Probability Expressions in National Intelligence Estimates” by Rachel Kesselman, “Verbal Uncertainty Expressions: Literature Review” by Marek Druzdzal, and “What Do Words of Estimative Probability Mean?” by Kristan Wheaton). We use a three level verbal scale to express our confidence level in our valuation conclusions. “Possible” represents a relatively low level of confidence (e.g., 25% – 33%, or a 1 in 4 to 1 in 3 chance of being right), “likely” a moderate level of confidence (e.g., 50%, or a 1 in 2 chance of being right), and “probable” a high level of confidence (e.g., 67% to 75%, or a 2 in 3 to 3 in 4 chance of being right). We do not use a quantitative scale, because we believe that would give a false sense of accuracy to judgments that are inherently approximate due to the noisy data and subjective assumptions upon which they are based.

An exception to this approach is our assessment of the future return to local investors for holding U.S. dollars. In this case, our conclusions are mechanically driven by interest rate differentials on ten year government bonds. To be sure, the theory of Uncovered Interest Rate Parity, which calls for exchange rates offsetting interest rate differentials does not often hold in the short-run, as the apparent profitability of the carry trade has shown (i.e., borrowing in low interest rate currencies to invest in high interest rate currencies). However, other research has shown that a substantial portion of these profits represents compensation for bearing so-called “crash” risk (see “Crash Risk in Currency Markets” by Farhi, Fraiberger, Gabaix, et al) – as many who were long Icelandic Krona in 2007 and 2008 learned the hard way.

Our fundamental valuation estimates over a one year time horizon, as well as recent momentum, are summarized in the following table. We stress that these conclusions represent our assessment at a given point in time, which implies no forecast as to when any over and undervaluations will be reversed. Indeed, before such a reversal occurs, current 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. An example of this would be a situation in which an asset class was deemed likely or probably overvalued, but where momentum data indicated an accelerating increase in prices. As so many authors have noted throughout history, trends that can't continue don't continue. Finally, conclusions about potential price reversals also have to be seen in the longer term context of the likely evolution of future political/economic scenarios and their implications for asset class valuations and investor behavior (see, for example, our monthly Economic Updates). This is also an important input into investment decisions, as we do not believe that the full implications of these scenarios are typically reflected in current asset prices and investor behavior.

Valuation at 30 Sep 09	Fundamental Valuation Estimate Based on a One Year Time Horizon	Rolling 3 Month Return in Local Currency	Rolling 3 Month Return 3 Months Ago
AUD Real Bonds	Neutral	0.25%	-3.70%
AUD Bonds	Possibly Undervalued	2.40%	-9.16%
AUD Property	Possibly Overvalued	28.32%	11.11%
AUD Equity	Neutral	21.04%	12.70%
CAD Real Bonds	Neutral	3.04%	2.21%
CAD Bonds	Possibly Undervalued	1.83%	-0.41%
CAD Property	Neutral	20.24%	29.57%
CAD Equity	Likely Overvalued	10.16%	21.91%
CHF Bonds	Neutral	2.98%	-1.55%
CHF Property	Neutral	11.96%	9.27%

Valuation at 30 Sep 09	Fundamental Valuation Estimate Based on a One Year Time Horizon	Rolling 3 Month Return in Local Currency	Rolling 3 Month Return 3 Months Ago
CHF Equity	Likely Overvalued	17.08%	11.88%
EUR Real Bonds	Neutral	4.28%	8.08%
EUR Bonds	Possibly Undervalued	1.27%	-3.62%
EUR Prop.	Neutral	31.85%	13.32%
EUR Equity	Neutral	8.35%	5.62%
GBP Real Bonds	Neutral	2.95%	3.19%
GBP Bonds	Neutral	3.14%	-1.51%
GBP Property	Neutral	30.55%	21.33%
GBP Equity	Possibly Undervalued	21.25%	12.82%
INR Bonds	Possibly Overvalued	-8.46%	7.02%
INR Equity	Probably Overvalued	17.80%	49.75%
JPY Real Bonds	Neutral	5.76%	11.44%
JPY Bonds	Possibly Undervalued	0.99%	-0.30%
JPY Property	Neutral	3.65%	16.40%
JPY Equity	Probably Overvalued	-1.88%	15.80%
USD Real Bonds	Neutral	3.05%	0.25%
USD Bonds	Possibly Undervalued	-3.14%	1.75%
USD Property	Possibly Overvalued	34.55%	30.02%
USD Equity	Probably Overvalued	16.46%	16.95%
Following in USD:			
Investment Grade Credit (CIU)	Possibly Overvalued	4.63%	7.47%
High Yield Credit (HYG)	Likely Overvalued	10.54%	20.23%
Emerging Mkt Equity (EEM)	Probably Overvalued	41.63%	15.56%
Commodities Long	Neutral	3.82%	12.37%
Commodities L/S	N/A	1.06%	-5.25%
Gold	Possibly Undervalued	8.41%	1.00%
Timber	Possibly Undervalued	7.80%	10.04%
Uncorrelated Alpha	N/A	4.30%	4.58%
Volatility (VIX)	Likely Undervalued	-2.81%	-40.30%
Return in Local for holding USD:			

Valuation at 30 Sep 09	Fundamental Valuation Estimate Based on a One Year Time Horizon	Rolling 3 Month Return in Local Currency	Rolling 3 Month Return 3 Months Ago
Returns to AUD Investor	Positive	-12.63%	-16.25%
Returns to CAD Investor	Neutral	-9.31%	-8.02%
Returns to EUR Investor	Neutral	-4.28%	-5.16%
Returns to JPY Investor	Negative	-6.88%	-2.00%
Returns to GBP Investor	Neutral	3.87%	-14.80%
Returns to CHF Investor	Negative	-4.61%	-4.01%
Returns to INR Investor	Positive	0.43%	-5.46%

Market Phase Change Risk Analysis

One of our core assumptions is that financial markets function as complex adaptive systems. One of the key features of such systems is their ability to pass through so-called “phase transitions” that materially change their character once certain variables exceed or fall below critical thresholds. In our September 2009 issue, we reviewed a paper on one of critical variables, “Leverage Causes Fat Tails and Clustered Volatility” by Thurner, Farmer and Geanakoplos. This paper more formally demonstrated the importance of a factor that has been associated with booms and busts throughout financial history: the expansion of the supply of credit at a pace well in excess of real economic growth. In the past we have also noted that rising uncertainty and the changing connectedness and strength of social networks that influence investor decision making may also be critical variables driving phase transitions in financial systems (see, for example, “Asset Pricing in Large Information Networks” by Ozsoylev and Walden, or “Dragon Kings, Black Swans, and the Prediction of Crises” by Didier Sornette). As a practical matter, the challenge for investors has been to identify variables or statistics that can be used to identify the strengthening of networks (and consequent alignment of opinions, which may or may not reflect irrational herding) that is often associated with phase transitions. It was with this in mind that we recently read an excellent paper by Lisa Borland, of the asset management firm Evnine and Associates in San Francisco (“Statistical Signatures in Times of Panic: Markets as a Self Organizing System”). Using the phase transition

approach, Borland searched for statistical signatures of market panics, and proposes a new order parameter that is easy to calculate and appears to capture the changing dynamics of asset return correlations and the underlying social network phenomena that give rise to them. The parameter equals the number of financial markets or assets that have positive returns over a given interval, less the number that have negative returns, divided by the total number of financial markets or asset classes evaluated. If the value is zero, the markets are in a disordered state and far from the potential phase change point. However, as the parameter value approaches one or negative one, the markets are in an increasingly ordered state. In this state, networks are more extensive, and presumably social influences have a greater impact on investor decisions. Under these conditions, a market may be close to or at a phase change point, and therefore subject to a sudden, and potentially violent, shift in its previous trend. We have calculated this order parameter for the 38 financial markets (excluding foreign exchange) we evaluate each month. Here are the results so far for 2009:

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
(0.57)	(0.68)	(0.47)	-	0.21	0.11	0.32	0.63	0.53

As you can see, in 2009 global financial markets appear to have swung from a relatively ordered and negatively oriented state early in the year, through a period of disorganization during the spring and early summer, then into a period of stronger positive orientation by August that began to reverse in September.

This Month's Letters to the Editor

What do you think of oil and gas partnerships? Where do they fit in your model portfolios?

Let me start with the second question. Oil and gas limited partnerships are often divided into three categories: exploratory drilling (at the high risk/high return end of the

spectrum), development drilling (to increase production from a field with proven reserves), midstream (lower risk businesses that process hydrocarbons, e.g., to remove natural gas liquids from natural gas) and occasionally pipelines (at the lower risk/lower return end of the spectrum). As you can see, the first two are effectively investments in real assets, similar to investments in timber, gold or commodities. As a result, we would include them under our allocation to commodities. In contrast, the latter two are investments in businesses that provide a service related to bringing commodities to market – one would not normally expect their revenues to fluctuate with commodity prices as much as those partnerships that are directly involved with the production and sale of the commodities themselves. Given this, the latter two types of limited partnership seem closer to equities in their essential nature. In terms of your first question, let me draw a distinction between three alternatives. The first is an investment in a public equity index that tracks performance of relatively large companies that are primarily engaged in oil and gas exploration – for example, ETFs like IEO or XOP. The second is an investment in the publicly traded stock of a single small E&P company that is not included in the ETF. And the third is an investment in a limited partnership or LLC unit issued by an organization engaged in either exploratory or development drilling. What distinguishes these three investments?

In terms of risk, the ETFs provide some diversification benefits that reduce net exposure to single company risk, leaving a mix of exposure to the E&P sector and the overall equity market (e.g., these ETFs have recently had a roughly a .60 correlation with the S&P 500). Interestingly, over the past two years, IEO has outperformed the broad equity market when hydrocarbon prices were rising (but not risen as high as investments that more closely track energy prices, like JJE, which tracks the GSCI energy sub-index). On the other hand, it has outperformed JJE and similar commodity investments when energy prices were falling. In contrast, with both the small E&P stock and the E&P partnership, you are relatively more exposed to company-specific risk (e.g., lease location and cost, drilling execution, etc.), with arguably less exposure to the overall equity market. In terms of functional differences between the public corporation and private partnership form of organization, the former may provide

superior disclosure, but less effective control. In terms of the costs associated with each form, the public corporation undoubtedly has higher reporting costs, while the partnership may (and I emphasize may) have higher potential employee compensation costs if the firm is successful (and therefore may also be able to attract higher quality employees who reduce execution risk). E&P partnerships and LLCs may also have better access to capital than the smaller public E&P companies, for which excessive dilution is often a problem (remember, many penny stocks were originally resource plays).

Turning to the return side of the equation, because of the lower company specific risk profile, ETFs like IEO and XOP should deliver returns in line with the relative riskiness of E&P as a function or sector – in other words, better than the overall market, but not as high as the potential returns on a single E&P company or partnership, where potential returns should also reflect compensation for much higher company specific and small company risk. Finally, with respect to midstream and pipeline partnerships, some of these are traded publicly, in the form of master limited partnerships, or MLPs. Their performance has historically been tracked by the Alerian MLP Index. Since this past summer, an ETN issued by JPMorgan Chase tracks this index, and trades under the ticker AMJ (of course, this ETN also requires you to hold JPMorgan Chase credit risk, which may give you second thoughts).

I'm sure you get asked this question a lot (given what you do), but I'm still curious about how you answer it: What's the best asset allocation today?

Unfortunately, there is no simple answer to that question. Compliance officer-types might say that the answer depends on the answers you give on a survey that attempts to measure your “risk tolerance” and/or “risk capacity.” The problem we have with this approach is that risk tolerance is much more situation specific than compliance officers like to admit. To use a glib example: Under normal circumstances, I would think it insane to run into a burning building – it would be well outside my risk tolerance, given my highest priority goal at the time – say, staying alive. But if my child was inside,

running inside would be well within my risk tolerance, given the change in my highest priority goal – saving my child. In general, while research seems to indicate that people have degrees of risk aversion that are relatively stable over time, this is very different from their willingness to take risk, which can change dramatically under different circumstances. Consider three different situations. In the first, a couple has a clear plan to accumulate a million (choose your currency) by the time they retire in thirty years time. This plan includes an annual savings target and a clear asset allocation and rebalancing plan. One day, a letter arrives saying a distant uncle has left them half a million. This could affect their accumulation plan in many different ways, including shortening their accumulation period, raising their accumulation target, reducing their saving contribution, and/or making their asset allocation more conservative. Now consider another situation. Same couple, same initial circumstances, but the value of their portfolio is reduced by half in the 2007-2008 crash. Once again, how does this affect their plan? Do they save more? Extend their target retirement date? Plan to accumulate less, and possibly reduce their expected post-retirement standard of living? Adopt a riskier asset allocation? Again, I don't know. And I'd guess that they don't either, until they have worked through, thought about, and discussed the alternatives (hopefully with a good adviser). Finally, consider a third person: the manager of a global macro hedge fund, whose performance is measured on a yearly basis. At the end of December, he asks your opinion on the best asset allocation. Presumably, he is interested in the allocation that will maximize his or her fund's returns over the next 12 months. But maybe this isn't the case. Maybe his brother is a sales manager who is trying to plan for his retirement asked him the same question. The point is this: until you understand all the facts and circumstances facing the person who is asking it, there is no simple answer to the question, "what is the best asset allocation today?" The glib, honest answer is, "it depends."

Is it possible to over-diversify a portfolio?

Yes, it is. And unfortunately, it happens all too frequently. Consider the person who thinks they have a well-diversified portfolio because they have a well diversified portfolio because 25% is in a corporate bond index, 25% is in a large cap value stock index, 25% is in a small cap growth stock index, and 25% is in an international stock index. Diversification works when a portfolio is exposed to a wide range of return generating factors and processes that have relatively little relationship with each other (e.g., the growth of trees, changes in real risk free interest rates, changes in inflation expectations, and growth in investors' share of corporate profits). Given this basic principle, how well diversified is the portfolio described above? I would say it is minimally diversified, To be sure, the returns on these four investments won't be perfectly correlated; however, I would also guess that a more sophisticated analytical technique (e.g., principal components analysis) would show that just one or two factors account for well over fifty percent in the variation of returns on this portfolio (e.g., such a factor might have a powerful affect on corporate cash flow, before its division between debt and equity holders). So in this sense, a portfolio can be overdiversified, or, perhaps, provide a false sense of the potential size of the likely diversification benefit. A different way of approaching this question is to measure the risk reduction benefit of adding a new asset class to a portfolio. Even when the asset classes in question have low levels of correlation with each other, the incremental diversification benefit usually declines as additional asset classes are added. So at some point, the incremental cost of adding another asset class might exceed its benefit. However, there is no hard and fast rule in this regard; it is also the case that new asset classes that become available to investors can still add substantial benefits, even if a portfolio already contains many other asset classes. In recent years, examples of this have included commodities, timber, real return bonds, and volatility.

Mohamed El-Erian from PIMCO generally recommends a heavier weighting than you do for emerging markets and foreign equities. Any thoughts?

We have two responses. The first is contained in our answer to the question above on what is the best asset allocation. If the PIMCO portfolio in question is based on a different set of investor goals and constraints than the ones we assume for a given model portfolio, I could easily explain the difference. More broadly, however, we admit to being somewhat cautious when it comes to investing in emerging markets. Undoubtedly, this has something to do with the number of years we have spent working in them, and our experience with the challenges they present for investors. These include relatively weak institutional structures compared to more developed markets (e.g., contract, property, and shareholder protection law and the effectiveness of the judicial system); the consequent preference for organizing as private companies, often in the context of extensive family groupings; quite extensive corruption that can sap free cash flow; often times weak education systems that limit the supply of skilled labor that is critical to growth; in many cases, either weak political parties and/or a history of populist and potentially destabilizing political uprising when economic conditions deteriorate; and low levels of domestic savings and consequent reliance of foreign debt which heightens the possibility of value destruction due to inflation, debt, and exchange rate crises. We don't disagree with the obvious economic logic pointing to potentially higher returns to investment in emerging markets that are long labor and resources, but short capital. However, we also have a very healthy respect for the challenges that must be overcome to realize this potential. And having seen those challenges triumph over potential gains on more than one occasion over the past thirty years (many more, in fact), we are cautious about allocating substantial amounts of a portfolio to emerging market investments.

In your timber article last month, I think you overlooked two key points. On the demand side, you have missed the very important woody biomass market (being driven by renewable fuels, global warming and energy self sufficiency issues) and its evolving impact on stumpage prices. Second, historical timber prices have risen at a real rate of about 2%. The assumption you use is too low.

Point taken about potential biomass related revenues (e.g., cellulosic ethanol). However, we chose to err on the side of conservatism here, as we did with the treatment of revenues from CO2 sequestration. On the real price change point, we accept that 1% to 2% real has been a North American TIMO rule of thumb. However, in trying to construct a valuation framework for timber as a broad global asset class, we chose to use the IMF's data for the historical evolution of global softwood and hardwood prices. Clearly, it is possible to take issue with their methodology, from weighting to quality adjustments; to cite just one recent example, new technologies that make softwood more durable should expand the range of its potential uses, and thus add to demand and upward price pressure. Again, we took the most conservative approach. The bottom line remains the same: any attempt to value timber as a global asset class is unavoidably "noisy" and uncertain; however, even a conservative approach leads to the conclusion that timber is likely undervalued over a medium term time horizon.

What do you think of Daniel Rohr's recent articles on timber on Morningstar ("If a Tree Falls in the Forest, Does It Generate and Adequate Return?")

We found them very interesting, and would strongly recommend them to our readers. As we are fond of saying, in complex adaptive systems like the financial markets, nobody has a monopoly on truth, and forecast accuracy is improved by combining analyses that are based on different methodologies. This is a perfect example of that. In this case, we agree on a number of key points, including the limitations of the NCREIF Index and the way discount rate arbitrage between industrial sellers and institutional buyers of timberland has likely driven up timberland prices and returns in the past. We also commend Rohr for his very detailed analysis of physical supply and demand in the North American forest products industry. And we agree with Rohr's investment conclusion: "We are by no means suggesting that timberland has no role to play in institutional portfolios. In our view, owing to timberland's unique characteristics [e.g., the fact that timber growth is uncorrelated with the return generating process on

other asset classes], it certainly does. Rather, we would simply argue that in making asset allocation choices, decision makers are ill served by relying on timberland's historical returns." To the extent we differ, it is probably on the issue of what future returns are likely to be. At the margin, we probably see more potential upside in timber (from its CO2 sequestration benefits) than Rohr; however, in the interest of conservatism, our valuation model does not include them. Hence, like Rohr, our basic model forecasts relatively modest future total real returns from an investment in timberland, given today's dividend yields on our two proxies for this asset class, Plum Creek (PCL) and Rayonier (RYN). However, when it comes to valuation, the future returns an asset class is expected to supply is only half the equation. The other half is the rate of return an investor should demand to hold the risks inherent in that asset class (with an additional illiquidity premium if the investment is in a partnership rather than a publicly traded timber REIT like PCL or RYN). In this regard, the uncorrelated aspect of part of timber's return generating process argues for quite a low required return – we currently use a three percent risk premium over real return bonds, but there is an argument that even that may be too high. After taking both the supply of and demand for returns from timberland into account, we still believe that liquid timber REITs are likely undervalued today.

However, if we were to challenge our own position on this, we might argue that we should also add some type of company specific risk premium to reflect that fact that our proxy for timber as an asset class is based on only two companies. In our most recent analysis, this "breakeven" company specific risk premium would be 1.37%, on top of the 3.00% risk premium we already use for timber as an asset class, or 4.37% in total. If we use 3.50% as an overall long-term risk premium for the public equity market as a whole, and use the average of PCL and RYN's reported betas (1.15) to adjust it upward, we get a required risk premium of 4.03%. So at worst, using this alternative approach, it could be argued that PCL and RYN are at worst approximately fully valued, but not overvalued. Bottom line: we agree with Rohr that there remains a strong case for including timberland as a risk reducing asset class in a portfolio.

October 2009 Economic Update

As long-time readers know, over the years we have found the Economic Balance Identity (EBI) to be a particularly useful framework for generating insights about the state of the global economy, and what lies ahead for asset class returns (for an excellent recent overview of this approach, see “Fiscal Policy and the Economics of Financial Balances” by Gennaro Zezza). The EBI is composed of three key terms. The first is the private sector balance. This represents the excess of savings over investment in the private sector. Savings are the difference between total output and private consumption, and investment includes capital spending by both households and businesses. The second key term is the public sector balance, which is the difference between taxes and other revenues, and total public sector spending. The third key term is the external, or current account balance, which is the difference between the goods and services a nation imports, and those it exports to other countries. By definition, the sum of a nation’s private and public sector balances equals its external balance. Another critical point about the EBI is that it measures flows over a given period of time. Some of these flows represent real demand for goods and services. However, any imbalance on the private, public or external account also gives rise to a flow of financial claims. For example, for part of the past decade, the United States’ private sector balance was negative, with the excess of consumption and investment over output financed via the issuance of claims on the private sector’s future real output, whether in the form of debt or equity instruments. Similarly, for most of the past decade, the United States public sector balance was also negative, and was financed by the issuance of various types of government debt (i.e., claims on future tax revenues) by federal, state and local authorities. Finally, the sum of the United States’ private and public sector balance was also negative for most of the past decade, which meant that the current account balance was also negative, and financed by the issuance of private and public claims to investors located in other countries (e.g., China). In other countries, the opposite situation prevailed, with

positive private sector and current account EBI balances leading to the accumulation of financial claims.

Those of you with a systems dynamics bent have no doubt already recognized the next point: while the EBI measures the flows in the system over a given period of time, those flows also affect the levels of different stocks that can place constraints on the systems overall level of performance. On the real side of the economy, these potential supply constraints include the supply of raw materials, skilled labor, and existing productive capacity. On the financial side of the economy, the key constraint is the willingness of parties with positive private, public or current account balances to continue to accumulating debt and equity claims issued by parties with negative balances.

It is with these concepts in mind that we reviewed the statistical tables that are published each year with the IMF's World Economic Outlook. As always, they told a very sobering story, which we will summarize here. To set the scene, the following table shows the percentage of world GDP that is accounted for by various countries and regions:

Region	Pct 2007 World GDP	Pct 2010 World GDP
Value of World GDP (USD Billions, Purchasing Power Parity Basis)	\$66,122	\$72,980
USD	21.1	19.6
GBP	3.3	3.0
CAD	1.9	1.8
AUD	1.2	1.1
Subtotal: Anglosphere	27.5%	25.5%
EUR	16.1	14.8
CHF	0.5	0.4
Swed, Nor, Pol, Hun	1.5	1.6
Subtotal: Continent	18.1%	16.8%
CNY	10.7	12.7
JPY	6.6	6.0

Region	Pct 2007 World GDP	Pct 2010 World GDP
INR	4.6	5.1
KOR	1.8	1.9
Subtotal: Asia	23.7%	25.7%
Middle East	3.9	4.2
Brazil	2.8	2.9
Russia	3.2	3.4
Total Share of World GDP	79.2%	78.5%

As you can see from this table, the world is evolving towards two main economic constellations, the Anglosphere countries and a slowly organizing group of nations in Asia (and in this context, the recent call by newly elected Japanese prime minister Haotyama for the formation of an Asian economic bloc, similar to the European Union, is a sign of the times). Economically, the most important groupings on the periphery of these two core constellations include the Eurozone and closely associated countries, the Middle East, and Brazil and Russia.

Let us now turn to the changes in key private, public, and current account balances between 2007 and 2010 (the latter as forecast by the IMF), with all data expressed as a percentage of world GDP. The following table presents this analysis:

	2007 Pct of World GDP	2010 Pct of World GDP	Change 2007 to 2010
USA			
Private Balance	(0.51)	1.53	2.04
Public Balance	(0.59)	(1.96)	(1.37)
External Balance	(1.10)	(0.43)	0.67
United Kingdom			
Private Balance	(0.00)	0.34	0.34
Public Balance	(0.09)	(0.40)	(0.31)
External Balance	(0.09)	(0.06)	0.03
Canada			
Private Balance	(0.01)	0.04	0.05
Public Balance	0.03	(0.07)	(0.10)

	2007 Pct of World GDP	2010 Pct of World GDP	<i>Change 2007 to 2010</i>
External Balance	0.02	(0.03)	<i>(0.05)</i>
Australia			
Private Balance	(0.09)	(0.00)	<i>0.09</i>
Public Balance	0.02	(0.06)	<i>(0.08)</i>
External Balance	(0.08)	(0.06)	<i>0.01</i>
Anglosphere - 4			
<i>Private Balance</i>	<i>(0.61)</i>	<i>1.91</i>	<i>2.52</i>
<i>Public Balance</i>	<i>(0.63)</i>	<i>(2.49)</i>	<i>(1.86)</i>
<i>External Balance</i>	<i>(1.24)</i>	<i>(0.58)</i>	<i>0.66</i>
Eurozone			
Private Balance	0.14	0.93	<i>0.79</i>
Public Balance	(0.10)	(0.98)	<i>(0.88)</i>
External Balance	0.05	(0.04)	<i>(0.09)</i>
Switzerland			
Private Balance	0.04	0.04	<i>(0.00)</i>
Public Balance	0.01	(0.01)	<i>(0.02)</i>
External Balance	0.05	0.03	<i>(0.02)</i>
Eurozone + Switzerland			
<i>Private Balance</i>	<i>0.18</i>	<i>0.97</i>	<i>0.79</i>
<i>Public Balance</i>	<i>(0.09)</i>	<i>(0.98)</i>	<i>(0.90)</i>
<i>External Balance</i>	<i>0.10</i>	<i>(0.01)</i>	<i>(0.11)</i>
China			
Private Balance	1.10	1.46	<i>0.36</i>
Public Balance	0.07	(0.37)	<i>(0.44)</i>
External Balance	1.18	1.09	<i>(0.08)</i>
Japan			
Private Balance	0.48	0.73	<i>0.25</i>
Public Balance	(0.17)	(0.61)	<i>(0.45)</i>
External Balance	0.32	0.12	<i>(0.20)</i>
India			
Private Balance	0.10	0.22	<i>0.12</i>
Public Balance	(0.14)	(0.35)	<i>(0.20)</i>
External Balance	(0.05)	(0.13)	<i>(0.08)</i>

	2007 Pct of World GDP	2010 Pct of World GDP	<i>Change 2007 to 2010</i>
Korea			
Private Balance	(0.05)	0.12	<i>0.17</i>
Public Balance	0.06	(0.06)	<i>(0.12)</i>
External Balance	0.01	0.06	<i>0.05</i>
Asia - 4			
<i>Private Balance</i>	<i>1.63</i>	<i>2.53</i>	<i>0.90</i>
<i>Public Balance</i>	<i>(0.17)</i>	<i>(1.38)</i>	<i>(1.21)</i>
<i>External Balance</i>	<i>1.46</i>	<i>1.15</i>	<i>(0.31)</i>
Middle East			
<i>External Balance</i>	0.71	0.33	<i>(0.37)</i>

This table clearly shows the dramatic and jarring changes that have occurred in the world economy (keep in mind that each 0.1 percent change between 2007 and 2010 as a percent of world GDP is worth about USD 70 billion, based on the average size of world GDP over this period – and a 1.0% change is worth about 700 billion). To begin with, the Anglosphere private sector balance went from negative (.61) percent of world GDP to 1.91% -- a swing of 2.52%. This represents nearly two trillion dollars that was previously spent on private consumption and investment that is now spent on debt repayment or savings (i.e., the accumulation of financial claims issued by parties with negative balances). This change – in no small measure caused by reluctance of other parties to further add to their stock of financial claims on the future output of the Anglosphere private sector – represents an enormous shock to global aggregate demand. Consider what would have happened if the Anglosphere public sector balance had remained at its 2007 level of negative (.63). The EBI makes it clear that the Anglosphere's external balance would have become a positive 1.28% of world GDP. Of course, this raises the question of how this would have affected those countries that had previously run positive current account balances that were the necessary offset to the Anglosphere's previous deficit. Of these, the two most important were China (1.18%) and the Middle East (.71%). Had there been no change in either their own private sector balance or the public sector balance of the

Anglosphere, both of these regions would have experienced dramatic reductions in aggregate demand, probably with severe social and political consequences.

It is therefore very interesting to see how events actually turned out, in terms of changes in the EBI. As you can see, a substantial portion of the potential external impact of the swing in the Anglosphere's private balance was offset by a dramatic increase in its public sector deficit. Of the external impact that remained, most of it was absorbed by the Middle East, via falling oil prices, (.31) and Japan (.20). The Eurozone (.09) and China (.08) suffered comparatively smaller shocks to their net export demand. To put it differently, it appears from the data that over the past two years, the U.S. taxpayers, via their future obligation for service on U.S. federal debt, have spent a very substantial amount of money (e.g., the expansion of the U.S. public deficit was more than three times as great as the expansion of China's) to ensure short term economic, social and political stability in China, presumably with the intention that this additional breathing room will be used by the Chinese to accelerate that country's transition to an economy driven much more by domestic consumption demand (and hence a potentially a bigger market for foreign exports), and much less by investment and export demand. Time will tell whether this is the case (though as we note below, we have our doubts).

However, in every country with the exception of Switzerland, there was a significant positive increase in the private sector balance that was offset, to some degree, by an increase in the negative public sector balance in an attempt to maintain aggregate demand. On the monetary side of the world economy, governments also undertook multiple initiatives to maintain the functioning of the global market for financial claims, particularly those on private sector issuers, and thereby avoid widespread bankruptcies and accelerating deflation. In aggregate, these policy initiatives have resulted in an unprecedented increase in the global money supply.

So this is the predicament we are in today. An inherently unstable system in which global demand was sustained the continued willingness of the Middle East and China to accumulate financial claims on the Anglosphere's household and business sectors has given way to one which demand is sustained by the continued willingness

of investors to accept financial claims on governments' future tax revenues. It would appear that we have traded one debt financed boom for what may turn out to be another. The difference, of course, lies in the way these two different types of booms historically come to an end. In the case of excessive private sector debt, the collapse of the bubble that is often its final chapter triggers widespread bankruptcies, and a collapse in demand, asset values and prices that has been called debt deflation. However, in the case of excessive public sector debt, the collapse usually takes the form of high inflation and a dramatic fall in the exchange rate. To be sure, the speed with which these end games play out varies substantially from episode to episode. For example, Japan has struggled for two decades with the aftermath of the collapse of its late eighties bubble, while during this same period Argentina has arguably gone through this process at least twice.

This raises the question of what, if any, alternatives there are to repeating the experiences of these two countries. As Reinhart and Rogoff note in their new book ([This Time is Different: Eight Centuries of Financial Folly](#)), history is not encouraging in this regard – banking crises usually result in prolonged periods of reduced economic demand and output. As a number of thoughtful analysts have recently noted (see, for example, Bill White's OpEd "Some Fires are Best Left to Burn Out" *Financial Times* 16 Sep 09, and Andy Xie's column in the 16 Sep 09 issue of *Caijing*, "What We Can Learn as Japan's Economy Sinks"), our best alternative may be to aggressively pursue structural reforms on the supply side at the same time we provide fiscal stimulus via a widening public sector balance to maintain demand. Three structural reforms seem critical. The first is a controlled reduction in the levels of debt that cripple the financial sector in the Anglosphere and parts of the Eurozone. We have repeatedly stated our belief (based on experience twenty five years ago in Latin America) that this can be accomplished through a mix of bankruptcies, debt/equity swaps and selective government support. This will also help to reduce excess capacity in industries where its continuation would result in prolonged downward pressure on prices.

The second critical reform encompasses a range of measures that will help to increase productivity, economic growth, and the private and public sectors' ability to

service their debts in the future while still achieving rising standards of living. These measures include investments in improved physical infrastructure (e.g., smart Grid) and reforms that increase the efficiency and effectiveness of healthcare and educational systems. Given the scale of the overcapacity that has developed in many industries, and the increasingly uncertain and volatile nature of an integrated world economy, these measures should also include (particularly in the United States) a more effective and efficient system for supporting people facing prolonged periods of unemployment.

The third critical reform is a significant appreciation in China's exchange rate. As Bill Emmott notes in his 21Sep09 London *Times* OpEd ("Time to Stop Being Chicken and Talk About China"), this will do more than any other policy step (short of a sharp increase in protectionism) to wean China from its aggressive mercantilist economic strategy (which is now effectively exporting unemployment to other countries, in a worrying echo of the 1930s), and force it to devote more effort to building domestic demand. To be sure, this is already happening (e.g., in a 7Oct09 *Financial Times* column, James Kynge provides some very important evidence about the monetization of agricultural land and the "Seeds of Change in Rural China." But as many others have noted, the increase in domestic Chinese demand is not happening fast enough, given the challenges facing the rest of the world (see Martin Wolf's 22Sep09 *Financial Times* column, "Why China Must Do More to Rebalance Its Economy"). The longer this change is delayed, the worse the consequences are likely to be. As Xie notes in his article, "as I traveled across China recently, it was rare to hear about a business whose officials are enthusiastic about their core business. But everyone seems excited about financial activities. The lending boom in the first half of 2009 seems to have been channeled mostly into asset markets by the corporate sector. In particular, property seems to have become the main source of profit for most big businesses...If a manufacturing business is buoyant, odds are it is profiting from property development...China's corporate sector increasingly looks like a shadow banking system. The same thing happened in Japan."

Yet as noted in many of the articles published on the recent 60th anniversary of the founding of the People's Republic, the current Chinese leadership is caught between their worries about the economic future, and their even greater worries about social and economic stability over the next three months, which, they believe would be threatened by a sharp shift away from China's current orientation towards investment and exports as the main motors of aggregate demand. Further evidence of this was recently provided by the *Telegraph*, in a story about the draft "Rare Earths Industry Development Plan 2009-2015." With rare earths metals critical to many industries (e.g., hybrid vehicles and wind turbines), and with China having driven most other world producers out of business (via cheaper labor, capital, energy and environmental costs), the report allegedly called for a total ban on shipments to foreign suppliers, to provide a greater advantage to Chinese producers making use of these materials. While the final plan has yet to be officially released, it is undeniable that Chinese exports of these materials have been severely reduced in recent years, and that China has recently targeted cleantech sectors making use of rare earth metals as a priority for future development (see [The China Greentech Report, 2009](#)). In this regard, another recent publication also makes fascinating reading, despite the fact that we don't agree with all of it. "*China's Strategic Culture: A Perspective for the United States*" is a monograph published by the Strategic Studies Institute of the U.S. Army War College, authored by a career intelligence officer, Colonel Kenneth Johnson. The paper "illustrates the key characteristics of Chinese strategic culture – philosophy, history and domestic factors that, to a remarkable extent, structure the strategic objectives of China's formal foreign policy and explain how Chinese strategic interests are defined by modern Chinese pragmatic nationalism, its drive for modernization, and the desire for China to have a more prominent role in the Asian and world communities." Johnson concludes that "the main goal of Chinese foreign policy is to maintain a strong, independent, powerful and united China that can pursue its number one priority: economic development." That said, that author also notes the historical Chinese preference for an active defense, and a willingness to take preemptive action when threatened. In that regard, it was also interesting to read Stratfor.com's recent

analysis, “The China Files: The Core Struggle”, which frames the current domestic tensions in China in the context of the repeating conflicts throughout Chinese history between the central government and provincial bureaucrats, and the inward looking peasant interior and the outward looking coastal economic elites. Together, these analyses reinforce our belief that it is unlikely that China will acquiesce to the appreciation of its exchange rate versus the U.S. dollar, or to any reforms in its capital intensive export industries that would result in a sharp increase in unemployment. While the recent G-20 meeting in Pittsburgh paid lip service to the need for global rebalancing, the fact remains that there exists no mechanism to compel such adjustment. Unfortunately, the alternatives are equally unpalatable: a sharp rise in protectionism (which China could easily interpret as a threat to its national security) or prolonged stagnation in the Anglosphere and Eurozone economies. In short, there does not appear to be an easy way out of the trap we are in, though moving aggressively on the other two structural reform priorities would likely help – perhaps substantially.

Elsewhere last month, the IMF’s most recent Global Financial Stability Review made it clear that the global financial system still faces serious challenges. “The risk of a reintensification of the adverse feedback loop between the real and financial sectors remains significant as long as banks remain under strain and households and financial institutions need to reduce leverage...there are still serious concerns that credit deterioration will continue to put pressure on banks’ balance sheets...the transfer of financial risks to fiscal authorities, combined with the financing burden of fiscal stimulus, has raised concerns over crowding out the private sector and the sustainability of public sector finances.” The GFSR forecasts that another \$1.5 trillion in writedowns will have to be taken, and “earnings are not expected to fully offset them over the next 18 months, resulting in continuing pressure on capital.” In this regard, another article caught our eye last month: “Homeowners Who Strategically Default on Loans a Growing Problem”, which was published in the 20 Sep 09 *Los Angeles Times*. The article described the results of a new study by Experian and Oliver Wyman, that found a surprisingly high and rising number of so-called “strategic mortgage defaults”

by U.S. homeowners with high levels of income and education, good credit scores and spotless payment records. “Two thirds of these defaulters were walking away from primary homes” and “look at defaulting [on the mortgage on a house with substantial negative equity] as a business decision...they see it as the most practical solution under the circumstances.” We prefer to see this report in a larger context, in which the strategic defaulters have assessed the likelihood that their economic situation will improve within a reasonable period of time – i.e., the price their house will go up, and their risk of unemployment will go down. As we have repeatedly noted, implementation of the three structural initiatives we believe are critical to sustained economic recovery are all currently blocked by powerful interest groups. Making the situation even worse, potentially, is the growing political opposition to further increases in government deficits. In short, what the Soviet’s used to call “the correlation of forces” increasingly seems to favor a prolonged period of economic stagnation. In this context, we are not surprised that “strategic defaults” by the most educated mortgage borrowers are increasing, as they decide to cut their losses in the face of what they have concluded is the most likely future scenario.

Last but not least, last month saw a further worsening in the growing crisis between Iran and the West. Shortly before the G-20 meeting, the leaders of the United States, United Kingdom and France announced the existence of a second fortified nuclear enrichment facility near Qom. This was after President Ahamdinejad made a vehemently anti-Israel speech at the United Nations. Then right after the G-20 meeting, the *New York Times* reported that the International Atomic Energy Agency had concluded that the Iranians were now capable of building an atomic bomb, while the London *Times* reported that Israel had informed Russia that it was aware of the latter’s heretofore unacknowledged and apparently extensive support for Iran’s nuclear program. To complete the flow of bad news, Stratfor.com published an excellent analysis showing how Russia and its Central Asian allies could enable Iran to avoid any negative impact from the “crippling” gasoline import sanctions promised by the Obama administration if Iran did not halt its nuclear program, and the Iranian courts pronounced the first two death sentences on people arrested during this summer’s

post-election protests. If the current course is not altered, it seems inevitable that either Israel and/or some combination of Western nations will militarily attack Iran, as the traditional theory of nuclear deterrence seems rather shaky in its application to parties with extreme religious beliefs. Any military attack would likely lead to the mining by Iran of the Strait of Hormuz, which would cause a sharp spike in oil prices and create severe headwinds for governments' attempt to maintain aggregate demand through fiscal and monetary stimulus.

In sum, developments over the past month do not seem consistent with the development of our cooperative scenario. (For more detail on key scenario-related evidence accumulated over the past three months, please see the Appendix).

Global Asset Class Valuation Analysis

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.

Equity Markets

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 $(\text{Current Yield on Real Return Bonds} + \text{Equity Risk Premium} - \text{Forecast Productivity Growth})$. 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 30 Sep 2009

<i>Australia</i>	Low Demanded Return	High Demanded Return
High Supplied Return	74%	106%
Low Supplied Return	108%	143%

<i>Canada</i>	Low Demanded Return	High Demanded Return
High Supplied Return	79%	131%
Low Supplied Return	140%	204%

<i>Eurozone</i>	Low Demanded Return	High Demanded Return
High Supplied Return	50%	86%
Low Supplied Return	85%	126%

<i>Japan</i>	Low Demanded Return	High Demanded Return
High Supplied Return	95%	150%
Low Supplied Return	163%	230%

<i>United Kingdom</i>	Low Demanded Return	High Demanded Return
High Supplied Return	31%	69%
Low Supplied Return	66%	111%

<i>United States</i>	Low Demanded Return	High Demanded Return
High Supplied Return	89%	150%
Low Supplied Return	166%	244%

<i>Switzerland</i>	Low Demanded Return	High Demanded Return
High Supplied Return	81%	134%
Low Supplied Return	143%	251%

<i>India</i>	Low Demanded Return	High Demanded Return
High Supplied Return	85%	182%
Low Supplied Return	227%	374%

<i>Emerging Markets</i>	Low Demanded Return	High Demanded Return
High Supplied Return	98%	189%
Low Supplied Return	140%	232%

In our view, the key point to keep in mind with respect to equity market valuations is the level of the current dividend yield (or, more broadly, the yield of dividends and buybacks), which history has shown to be the key driver of long-term real equity returns in most markets. The rise in uncertainty that accompanied the 2007-2008 crisis 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 was a fall in equity prices that 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, in some regions this increase in dividend yields more than offset the simultaneous rise in real bond yields, and caused the equity market to become undervalued (using our long-term valuation assumptions). On the other hand, in a still weak economy, many companies have been 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. Despite this, the past few months have seen a very strong rally develop in many equity markets, which, in some cases, has caused our valuation estimates to rise into the "overvalued" region. Given the absence of progress in reducing the three main obstacles that block a return to sustainable economic growth (see our Economic Update), we believe that these rallies reflect investor herding (and the incentives of many professional investment managers to deliver positive returns on 2008's disastrous end-of-year base), rather than any improvement in the underlying fundamentals.

Real Return Bonds

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. 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 long-term average time preference rate is two percent per year.

However, it is not the case that the economy does not grow; hence, the risk free rate we require also 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.

Unfortunately, this rate of future growth is not guaranteed; rather, there is an element of uncertainty involved. Therefore we also need to take investors’ 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
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. The valuation is based on a comparison of the present values of ten year zero coupon bonds offering the rate demanded and the rate supplied, as of **30 September 2009**.

Region	Risk Free Rate Demanded	Actual Risk Free Rate Supplied	Difference	Overvaluation (>100) or Undervaluation (<100)
Australia	3.2	3.1	-0.1	101
Canada	3.8	1.7	-2.0	122
Eurozone	3.9	1.6	-2.3	125
Japan	3.8	2.1	-1.7	118
United Kingdom	3.8	0.7	-3.2	136
United States	3.5	1.7	-1.8	119

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, the sharp fall in

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 estimated overvaluation of this asset class. Such a fall would be consistent with recent research findings that as perceived uncertainty increases, individuals typically reduce their time preference discount rate – that is, they become less impatient to consume, and more willing to save (see, for example, “Uncertainty Breeds Decreasing Impatience” by Epper, Fehr-Duda, and Bruhin).

Finally, we also recognize that certain structural factors also affect the pricing (and therefore yields) of real return bonds. For example, some have argued that in the U.K., the large number of pension plans with liabilities tied to inflation has created a permanent imbalance in the market for index-linked gilts, causing their returns to be well below those that models (such as ours) suggest should prevail. A similar set of conditions may be developing in the United States, particularly as demand for inflation hedging assets increases. Finally, valuation of real return bonds is further complicated by deflation, which affects different instruments in different ways. For example, US TIPS and French OATi adjust for inflation by changing the principal (capital) value of the bond. However, they also contain a provision that the redemption value of the bond will not fall below its face value; hence, a prolonged period of deflation could produce significant real capital gains (this is known as the “deflation put”). In light of these considerations, we have a neutral view on the valuation of real return bonds in all currency zones.

Government Bond Markets

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 30 September 2009

	Current Real Rate*	Average Inflation Premium (89-03)	Required Nominal Return	Nominal Return Supplied (10 year Govt)	Yield Gap	Asset Class Over or (Under) Valuation, based on 10 year zero
Australia	3.06%	2.96%	6.02%	5.39%	-0.63%	6.15%
Canada	1.75%	2.40%	4.15%	3.31%	-0.84%	8.42%
Eurozone	1.60%	2.37%	3.97%	3.24%	-0.73%	7.27%
Japan	2.12%	0.77%	2.89%	1.29%	-1.60%	16.94%
UK	0.69%	3.17%	3.86%	3.58%	-0.28%	2.76%
USA	1.68%	2.93%	4.61%	3.31%	-1.30%	13.34%
Switz.	1.82%	2.03%	3.85%	2.03%	-1.82%	19.30%
India	1.82%	7.57%	9.39%	7.65%	-1.74%	17.39%

*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 over the long-term. 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. This is especially true today, when a period of deflation is a distinct possibility in many countries, particularly over the next 12 months. In this case, many nominal return bonds might in fact be undervalued today, over a shorter term time horizon. On the other hand, a sharp currency depreciation could certainly change this view, particularly in countries like the U.K., that are significantly exposed to international trade.

However, this raises the issue of how long a period of deflation might last, and how deep it might be, particularly given the unprecedented levels of monetary and fiscal deficit expansion that have been undertaken in many countries in response to the worst downturn since the Great Depression. History suggests that over the long-term, they are likely to result in higher rates of inflation. The following table, shows historical average inflation rates (and their standard deviations) for the U.K. and U.S. over longer periods of time, and helps to put our valuation analysis (and inflation assumptions) into context:

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

In sum, over a long-term time horizon in which inflation levels revert to their long-term averages, many government bond markets appear overvalued today (i.e., prevailing nominal yields appear to be too low). However, over a short-term time horizon, during which inflation should either be low or negative, one can make the case that many government bond markets are significantly undervalued today. As is always the case when it comes to questions about valuation levels, the underlying assumption about the time horizon being used is critical.

Credit Spreads

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 primarily reflects 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 tells us more about the level of compensation required by investors for bearing relatively high quality credit risk. Research has also shown that credit spreads on longer maturity intermediate risk bonds has predictive power for future economic demand growth, with a rise in spreads signaling a future fall in demand (see “Credit Market Shocks and Economic Fluctuations” by Gilchrist, Yankov, and Zakrajsek).

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 **30 September 2009**, the AAA minus 10 year Treasury spread was 1.73%. The AAA minus BAA spread was 1.13%. Since these distributions are not normal (i.e., they do not have a “bell curve” shape), we take a different approach to putting them in perspective. Over the past twenty three years, there have been only 744 days with a higher AAA spread (6.4% of all days) and 1,362 days with a higher BAA spread (11.7% of all days in our sample). Clearly, and despite all the talk one hears about “green shoots”, current spreads still reflect relatively a high degree of investor uncertainty about future liquidity and credit risk, despite the declines in the BBB and AAA spreads from their crisis highs. However, given the uncharted economic waters through which we are still passing, and our belief that the conventional wisdom underestimates the amount of trouble on the horizon, we believe that these spread

possibly reflect the undervaluation of liquidity and credit risk – or, to put it differently, the overvaluation of AAA and BBB rated bonds – on a one year time horizon.

Over a longer term time horizon, where risk premiums return to more normal levels, one can argue that credit is probably undervalued today, based on prevailing yields. However, the validity of that conclusion also critically depends on one's assumptions about future default rates and loss rates conditional upon default. A decision to buy 50,000 in bonds at what appears to be a very attractive yield from a long-term perspective can still generate negative total returns if the future default rate (and losses conditional upon default) more than wipes out the apparently attractive extra yield. And since the differences between current AAA and BBB credit spreads and their long-term averages are well under 100 basis points today, it doesn't take much mis-estimation of future default rates (and losses conditional on default) to turn today's apparently good decision into tomorrow's painful outcome. And the "historically attractive yields" argument gets (non-linearly) less convincing the further down the credit ratings ladder you go. On balance, we think that even on a long-term view, credit is at best fully valued today, and quite possibly overvalued, given the uncertain economic outlook and difficulty in accurately estimating future default and loss given default rates.

Currencies

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 (for a logical approach to forecasting equilibrium exchange rates over longer horizons, see "2009 Estimates of Fundamental Equilibrium Exchange Rates" by Cline and Williamson).

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 (for an excellent analysis of the sources of carry trade profits – of which 25% may represent a so-called "disaster risk premium", see "Crash Risk in Currency Markets" by Farhi, Frailberger, Gabaix, Ranciere and Verdelhan). 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 30 September 2009

	To AUD	To CAD	To EUR	To JPY	To GBP	To USD	To CHF	To INR
From								
AUD	0.00%	-2.08%	-2.15%	-4.10%	-1.81%	-2.08%	-3.36%	2.26%
CAD	2.08%	0.00%	-0.07%	-2.02%	0.27%	0.00%	-1.28%	4.34%
EUR	2.15%	0.07%	0.00%	-1.95%	0.34%	0.07%	-1.21%	4.41%
JPY	4.10%	2.02%	1.95%	0.00%	2.29%	2.02%	0.74%	6.36%
GBP	1.81%	-0.27%	-0.34%	-2.29%	0.00%	-0.27%	-1.55%	4.07%
USD	2.08%	0.00%	-0.07%	-2.02%	0.27%	0.00%	-1.28%	4.34%
CHF	3.36%	1.28%	1.21%	-0.74%	1.55%	1.28%	0.00%	5.62%
INR	-2.26%	-4.34%	-4.41%	-6.36%	-4.07%	-4.34%	-5.62%	0.00%

Commercial Property

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 on an index covering publicly traded commercial property securities, 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 increases in real rent lead to an increase in property supply, which eventually causes real rents to fall. However, it is entirely possible – as we have seen in recent months – that rents can fall sharply over the short term during an economic downturn.

Our analysis also assumes that over the long-term, investors require a 3.0% risk premium above the yield on real return bonds as compensation for bearing the risk of securitized commercial property as an asset class (see this month's feature article on 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 slow adjustment processes as well as 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 our valuation analysis as of **30 September 2009**: We use the dividend discount model approach to produce our estimate of whether a property market is over, under, or fairly valued today, assuming a long-term perspective on property market valuation drivers. The specific formula is $(\text{Current Dividend Yield} \times 100) \times (1 + \text{Forecast NOI Growth})$ divided by $(\text{Current Yield on Real Return Bonds} + \text{Property Risk Premium} - \text{Forecast NOI Growth})$. Our estimates are shown in the following tables, where a value greater than 100% implies overvaluation, and less than 100% implies undervaluation.

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	4.9%	0.2%	5.1%	3.1%	3.0%	6.1%	120%
Canada	6.7%	0.2%	6.9%	1.7%	3.0%	4.7%	68%
Eurozone	4.9%	0.2%	5.1%	1.6%	3.0%	4.6%	89%
Japan	6.4%	0.2%	6.6%	2.1%	3.0%	5.1%	77%
Switzerland*	3.8%	0.2%	4.0%	1.8%	3.0%	4.8%	121%
U.K.	4.2%	0.2%	4.4%	0.7%	3.0%	3.7%	83%
U.S.A.	4.8%	0.2%	5.0%	1.7%	3.0%	4.7%	93%

**Using the current dividend yield, the valuation of the Swiss property market appears to be significantly out of line with the others. Hence, our analysis is based on the estimated income yield on directly owned commercial property in Switzerland instead of the dividend yield on publicly traded property securities.*

As you can see, on a long-term view, a number of commercial property markets still look undervalued today, despite the sharp recent increase in property share prices in many countries. Over the next twelve months, however, we believe the balance of risks points in the other direction. Consumer spending remains weak in many markets, occupancy rates are declining, rents are stagnant at best, and landlords continue to struggle with debt refinancings (indeed, the press is full of stories about the declining quality of commercial mortgage backed securities). It is hard to see how government fiscal stimulus, strong though it is, will improve this situation very much, as long as the underlying problems – high consumer leverage, a weak financial system, and continuing international imbalances – remain unresolved. Moreover, the development of real return bond and commodity markets has weakened, to some extent, property's traditional attraction as an inflation hedge. In sum, we believe that the recent sharp run up in property security prices is yet another sign of some combination of investor over-optimism about the speed and size of economic recovery, and/or the tendency of institutional investors to herd rather than risk losing assets (or

their jobs) due to their underperforming an asset class benchmark. The exception to our general view may come in Switzerland and the Eurozone, where rising insecurity often triggers an increased allocation to property, on the basis of traditional wealth preservation principles.

Commodities

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 AIG Commodities Index. The current term structures of their futures curves are as follows on **30 September 2009**:

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

Given the continued presence of so many contangoed futures curves, expected near term roll returns on the DJAIG as a whole are still negative, absent major supply side shocks. On a weighted basis, the forward premium (relative to the spot price) has fallen to 2.8% from 5.10% two months ago. However, we also note that under these conditions, commodity funds that can take short as well as long positions may still deliver positive returns.

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. 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).

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. Given our economic outlook, at this point we view negative surprises on the demand side that depress commodity prices as more likely than supply surprises that have the opposite effect.

The fourth source of returns for a diversified commodity index fund is generated by rebalancing a fund's 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 **30 September 2009** closing value of 81.01 was .66 standard deviations 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, and, critically, the time horizon being used.

Two factors argue in favor of undervaluation over the medium to long-term. The first is the large amount of monetary easing underway in the world, which, at some point, will likely lead to higher inflation. The second factor is the equally large amount of fiscal stimulus being applied to the global economy, with its focus on infrastructure projects and clean fuels, both of which should eventually boost demand for commodities (and indirectly boost economic growth in commodity exporting countries like Australia and Canada). Gold prices should also benefit from rising investor uncertainty and/or worries about future inflation, which should generate higher retail flows into the expanding range of gold ETF products that make easier to invest in this commodity.

The argument in favor of a negative view on commodity valuations is (as more fully discussed in our Economic Update) is based on the length of time that will pass before the three critical problems that underlie this global recession are resolved: excessive consumer debt, insolvent banks, and substantial world current account imbalances. Until this happens, the impact of fiscal stimulus on global real growth (and hence commodity prices) is likely to be, at best, weakly positive, with a significant

potential for a sharp increase in inflation. At the end of **September 2009** we believe that the balance of probabilities favors an increase in commodity prices over the medium term; hence we believe that, on a long-term view, commodities are possibly undervalued today. Over a one year time horizon, we have a mixed view. While the worsening crisis with Iran indicates a possibility for an upside surprise in oil prices, the consequent negative shock to a weak world economic recovery would work in the other direction for many other commodities. Similarly, we continue to believe that gold is possibly undervalued in the short-term, given our view that the majority of market participants have underestimated the chances of a sharp increase in uncertainty over the next 12 months, and in inflation thereafter.

Timber

The underlying diversification logic for investing in timber is quite simple: the key return driver is biological growth, which has essentially no correlation with factors driving returns on other asset classes. That said, the correlation of timber returns with other asset classes should be different from zero, as it also depends on the price of timber products (which depends, in part, on GDP growth) as well as changes in real interest rates and investor behavior – factors affect returns on other asset classes as well as timber.

However, in valuing timber as a global asset class, we face a number of significant challenges. First, the underlying assets are not uniform – they are divided between softwoods and hardwoods, at different stages of maturity, located in different countries, face different supply conditions (e.g., development, harvesting, and environmental regulations and pest risks), and different demand conditions in end-user markets. Second, the majority of investment vehicles containing these assets are illiquid limited partnerships, and the few publicly traded timber investment vehicles (e.g., timber REITs) provide insufficient liquidity to serve as the basis for indexed investment products. Finally, the two indexes that attempt to measure returns from timberland investing (the NCREIF Index in North America, and IPD Index in Europe)

are regional in coverage and utilize an appraisal based valuation methodology based on timber limited partnerships, which tends to understate the volatility of returns and their correlation with other asset classes. Given these challenges, the result of any valuation estimate for timber as a global asset class must be regarded as, at best, a rough approximation.

Our valuation approach is based on two timber REITs that are traded in the United States: Plum Creek (PCL) and Rayonier (RYN). We chose this approach because both of these REITs are liquid, publicly traded vehicles, and both derive most of their revenues from their timberland operations. This avoids many of the problems created by appraisal based approaches such as the NCREIF and IPD indexes. That said, for the reasons noted above, this approach is still far from a perfect solution to the asset class valuation problem presented by timber.

As in the case of equities, we compare the returns that a weighted mix of PCL and RYN 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). We note that, since PCL and RYN are listed securities, investors should not demand a liquidity premium for holding them, as they would in the case of an investment in a TIMO Limited Partnership (Timber Management Organization). Two of the variables we use in our valuation analysis are readily available: the dividend yields on the timber REITS and the yield on real return bonds. The other two variables, the expected rate of growth and the appropriate risk premium, have to be estimated. The former presents a particularly difficult challenge.

In broad terms, the rate of dividend growth results from the interaction of physical, economic, and regulatory processes. Physically, 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). Another aspect of the physical process is that a

certain number of trees are harvested each year, and sold to provide revenue to the timber REIT. A third aspect of the physical process is that trees are exposed to certain risks, such as fire, drought, or disease (e.g., the mountain pine beetle in the northwest United States and Canada). And fourth physical process is that, through photosynthesis, trees sequester a portion of the carbon dioxide that would otherwise be added to the earth's atmosphere.

In the economic area, three processes are important. First, 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 occurs 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. At the level of individual timber investments, the rate of in-growth is a key driver of returns; however, at the asset class level, we have decided to assume a constant mix of grades over time. The second economic process (or, more accurately, processes) is the interaction of supply and demand that determines changes in real prices for different types and grades of timber. 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. The average annual change in real prices (derived by adjusting the IMF series for changes in U.S. inflation) between 1981 and 2007 was 0.1% (i.e., average prices over the period remained essentially constant in real terms), but with a significant standard deviation of 9.2% -- i.e., it is normal for real timber prices to be quite volatile from year to year.

The third set of economic processes that affects the growth rate of dividends includes changes in a timber REIT's cost structure, and in its non-timber related revenue streams (e.g., proceeds from selling timber land for real estate development or conservation easements). For example, if wood prices decline, and non-timber sources of revenue dry up (as is happening during the current recession), a timber REIT (or timber LP) will have to either cut operating costs and/or distributions to investors, or increase the physical volume of trees that are harvested.

Regulatory processes also affect the future growth rate for timber REIT dividends. In the past, the most important of these included restrictions on harvesting or land development. In the future, the most important regulatory factor is likely to be the imposition of carbon taxes or a cap and trade systems to limit carbon emissions. These new environmental regulations could provide an additional source of revenue for timber REITs in the future (for an early attempt at establishing the CO2 sequestration value of timberland, see "Economic Valuation of Forest Ecosystem Services" by Chiabai, Travisi, Ding, Markandya and Nunes. For a review of similar studies, see "Estimates of Carbon Mitigation Potential from Agricultural and Forestry Activities" by the U.S. Congressional Research Service).

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. We stress that biological growth rates can vary widely for different types of timber investment (with softwoods and timber located in tropical countries delivering the highest growth, and hardwoods and timber in more temperate climates delivering the slowest growth rates). We have also changed our valuation model to assume a constant mix of product grades, to present a better approximation for timber as a global asset class.

Growth Driver	Assumption
Harvesting rate	As a long term average, we assume that 5% of tree volume is harvested each year. As a practical matter, this should vary with timber prices and the REITs prevailing dividend level. So 5% is a “noisy” long-term estimate for timber as a global asset class.
Change in prices of timber products	In line with IMF data, we assume that over the long term, average timber prices will just keep pace with inflation. Again, this is a “noisy” estimate, because the IMF data also shows that real prices are highly volatile. Moreover, 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 we believe our long term price change assumption is conservative.
Carbon credits	Until more comprehensive regulations are enacted, we assume no additional return to timberland owners from the CO2 sequestration service they provide (or for timber’s use in various biomass energy applications). Again, given the high level of global concern with limiting the increase in atmospheric CO2 levels, we believe this is a conservative assumption.

This leaves the question of the appropriate return premium that investors should demand to compensate them for bearing the risk of investing in timber as an asset class. Historically, the difference between returns on the NCRIEF 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 NCRIEF index, and since timber has displayed a very low correlation with returns on other asset classes (particularly during the worst of the 2008 crisis, even in the case of liquid timber vehicles), we use three percent as the required return premium for

investing in liquid timberland assets. Arguably, because at least part of timber's return generating process (physical growth) has zero correlation with the return generating processes for other asset classes, we should use an even lower risk premium. Again, we believe our approach is conservative in this regard. Given these assumptions, our assessment of the valuation of the timber asset class at **30 September 2009** is shown in the following table. We use the dividend discount model approach to produce our estimate of whether timber is over, under, or fairly valued today. The specific formula is (Current Dividend Yield x 100) x (1+ Forecast Dividend Growth) divided by (Current Yield on Real Return Bonds + Timber Risk Premium - Forecast Dividend Growth). A value greater than 100% implies overvaluation, and less than 100% implies undervaluation.

Average Dividend Yield (70% PCL + 30% RYN)	5.05%
Plus Long Term Annual Biological Growth	6.00%
Less Percent of Physical Timber Stock Harvested Each Year	(5.00%)
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>6.05%</u>
Real Bond Yield	1.68%
Plus Risk Premium for Timber	3.00%
Equals Average Annual Real Return Demanded	<u>4.68%</u>
Ratio of Returns Demanded/Returns Supplied Equals Valuation Ratio (less than 100% implies undervaluation)	<u>72%</u>

We stress that this is a long-term valuation estimate that contains a higher degree of uncertainty than valuation estimates for larger and more liquid asset classes. Over a one year time horizon, you could easily reach a different valuation conclusion. For example, if you believe that real timber prices will decline over the next year, and/or

that physical harvesting rates will increase to cover costs and dividends, then you could argue that, in so far as PCL and RYN are roughly accurate proxies for the asset class as a whole, timber is likely overvalued today. On the other hand, whether looking over a short or long-term time horizon, if you believe that new revenues from timber's CO2 sequestration service are likely to be significant, and/or that four percent is too high a risk premium to use, then you could argue that timber is actually undervalued today on a medium term view, and possibly on a short-term view, depending on your outlook for cap and trade legislation.

In sum, timber valuation is an issue upon which reasonable people can and do disagree, in no small measure because of their different time horizons and the different underlying assumptions and methodologies they use to reach their conclusions. On balance, taking a long-term view, we continue to believe that timberland is likely undervalued today, for three reasons: (1) future revenue growth related to CO2 sequestration is likely to be significant; (2) the negative impact on timber prices caused by the recession and long-term slowdown in North American housing construction will be moderated or offset by the impact of supply side changes, such as the mountain pine beetle problem, and by rising demand for wood products that will accompany rising incomes in China. On a one year view, however, we are neutral, with downward price risk balanced against the upside potential inherent in pending environmental legislation.

Volatility

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 **30 September 2009**, the VIX closed at 25.61, To put this in perspective, only 790 days, or 16.5% of our sample

had higher closing values of the VIX. In the short term – say, over the next 12 months -- this very high (by historical standards) level of implied volatility may still be too low, if (as described in this month's economic update) investors' hopes for a fast return to normalcy eventually meet with disappointment as the conflict scenario and/or a worsening global influenza pandemic develops. As we noted above with respect to commodities, despite the likely impact of fiscal stimulus on aggregate demand, and monetary growth on price levels (i.e., reducing the risk of prolonged deflation), the core issues that lie at the heart of the current recession remain unresolved. Critically, we do not believe that this information and its likely impact on future uncertainty levels has been fully incorporated into S&P 500 option prices, and hence into the VIX. For these reasons, at the end of **September 2009** we estimate that volatility is likely undervalued over a short-term time horizon. However, over a longer term time horizon, volatility is possibly overvalued today. We hesitate to take a stronger stance on this issue, because we believe that structural changes – such as electronic trading, faster dispersal of information to investors, and the substantial amount of money committed to various quantitative trading strategies -- may well have made equity prices permanently more volatile than they have been in the past.

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*

30 September 09

<i>Economy</i>	Bottoming	Strengthening	Peaking	Weakening
<i>Interest Rates</i>	Falling	Bottom	Rising	Peak
<i>Style and Size Rotation</i>	Small Growth (DSG) 19.77%	Small Value (DSV) 25.32%	Large Value (ELV) 15.10%	Large Growth (ELG) 15.43%

<i>Sector Rotation</i>	Cyclicals (RXI) 17.89%	Industrials (EXI) 21.42%	Staples (KXI) 14.13%	Utilities (JXI) 11.52%
<i>Bond Market Rotation</i>	Higher Risk (HYG) 11.01%	Short Maturity (SHY) 0.76%	Low Risk (TIP) 2.93%	Long Maturity (TLT) 5.31%

Feature Article: Equal Risk Weighted Portfolios in 2007 and 2008

As regular readers know, our primary benchmark for evaluating the performance of our model portfolios is based on equal asset class weighting. This methodology assumes no ability to forecast either asset class returns or risk (i.e., volatility, correlation, and other risk metrics). The key to implementing this approach is to define asset classes broadly enough to create a portfolio of exposures to underlying return generating processes while minimizing the overlap between them. However, we have also noted that future asset class returns and risk are not equally hard to forecast. Rather, history suggests that the relative ranking of asset class riskiness is more stable over time than the ranking of asset class returns. This is not to say that volatilities and correlations do not change over time – as was vividly demonstrated in 2008. However, even when these variables change, the overall riskiness ranking tends to be more stable over time than the ranking of asset class returns. This observation provides the logic for another approach to creating a benchmark portfolio – allocating asset class weights so that each makes the same contribution to overall portfolio risk. Mechanically, this requires making assumptions about the standard deviation of returns (i.e., volatility) for each asset class, and the correlations between them. If any of these forecasts prove to be wrong, the actual contribution of different asset classes to overall portfolio risk will not be equal.

We thought it would be interesting to see how equally risk weighted portfolios that were formed at the end of 2006 (based on returns data from the previous five

years) performed in 2007 and 2008. We formed equal risk weighted portfolios using twelve different asset classes for portfolios covering AUD, CAD, CHF, EUR, GBP, JPY and USD. All portfolios included domestic and foreign bonds, domestic and foreign commercial property, commodities, timber, emerging markets equity, uncorrelated alpha strategies (defined as a 50/50 mix of an equity market neutral and a global macro index) and volatility (defined as the VIX index). Where real return bonds were available, we also included them; where they were not (in CHF and JPY, the latter because of the short data series), we included gold instead. Finally, in the USD portfolio, we combined domestic and foreign equity (which were used in all other portfolios) into developed market equity, and added gold (in the form of the GLD ETF). After reading that, long-time subscribers may start scratching their heads, as we have traditionally taken the position that while an allocation to gold coins makes sense as part of one's cash or liquid reserve, its role as a stand alone asset class (separate from commodities, where most indexes already include an allocation to gold) is more open to question, not the least because of the difficulty in establishing a fundamental value for it (since it provides no regular stream of income). To be honest, the inclusion of gold in this analysis was a bit of an experiment. Clearly, gold ETFs have performed well, and provided diversification benefits, during a period of heightened uncertainty, and may also do well if inflation eventually spikes as a result of the past two year's explosion in global liquidity. This is not necessarily true of a similar asset class, short-term U.S. Treasuries, which did very well in the former case, but should not repeat that performance if inflation spikes. Equally important is our evolving view of the fundamental valuation challenge. In this regard, deeper commodity futures markets have provided more information that could be used in a fundamental valuation analysis, as has the IMF's continuing research into gold's evolving role and the factors driving its price. So consider the appearance of gold in this analysis as yet another step in our exploration of gold's potential role as a permanent asset class investment option.

In each currency region, our analysis made two points clear. First, as shown in the following table, the equal risk weighted portfolios had lower expected real return volatility than the equal asset weighted portfolios:

Volatility	AUD	CAD	CHF	EUR	GBP	JPY	USD
Eq Risk	4.2%	2.6%	3.5%	3.6%	3.6%	4.4%	2.7%
Eq Asset	7.3%	4.6%	8.6%	8.6%	6.8%	9.4%	4.3%

Second, in the equal asset weight portfolios, just three asset classes usually accounted for over half the portfolio's volatility. The following table shows the top three contributors (and their percentage contribution) to the volatility of the equal asset weight portfolios:

AUD	CAD	CHF	EUR	GBP	JPY	USD
Emg Eq (20%)	Emg Eq (28%)	Emg Eq (23%)	Emg Eq (23%)	Emg Eq (26%)	Dom Prop (25%)	Emg Eq (29%)
Timber (16%)	For Eq (20%)	Dom Eq (20%)	Dom Eq (20%)	Dom Prop (20%)	Dom Eq (18%)	World Eq (21%)
For Prop (13%)	Dom Eq (19%)	For Prop (12%)	For Eq (13%)	Dom Eq (17%)	Emg Eq (17%)	Dom Prop (13%)

It is also interesting to note that in all cases, the inclusion of an allocation to volatility as an asset class in our 12 equal asset class weight portfolios had a negative contribution to overall portfolio risk (i.e., it reduced it). This provides yet another reason for including it as an option in our updated model portfolios. The next table shows the composition of each of our equal risk weighted portfolios:

	AUD	CAD	CHF	EUR	GBP	JPY	USD
Real Bonds	14%	18%	--	37%*	24%	--	10%
Dom Bonds	29%	22%	49%	13%	19%	3%	16%
For Bonds	9%	14%	10%	11%	9%	45%	4%
Dom Prop	12%	4%	6%	4%	3%	3%	6%
For Prop	4%	4%	4%	4%	5%	7%	4%
Commod	5%	4%	4%	4%	7%	12%	4%
Timber	3%	7%	3%	3%	4%	4%	12%
Gold	--	--	6%	--	--	4%	6%
Dom Eq	4%	5%	3%	3%	4%	3%	--
For Eq	6%	4%	3%	4%	5%	4%	--
World Eq	--	--	--	--	--	--	5%

Emg Eq	3%	3%	2%	2%	3%	3%	3%
Uncor Alpha	6%	9%	6%	8%	7%	6%	24%
Volatility	5%	6%	4%	7%	10%	6%	6%
Total	100%	100%	100%	100%	100%	100%	100%

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Last but not least, the next table shows how our equal asset and equal risk weighted portfolios performed between 31 December 2006 and 31 December 2008, assuming they were rebalanced monthly (and ignoring the associated transaction costs). Both portfolios have a starting value of 100:

	AUD	CAD	CHF	EUR	GBP	JPY	USD
Final Value of Eq Asset Wtd Portfolio	93.43	98.67	95.84	87.80	121.08	75.44	102.32
Final Value of Eq Risk Wtd Portfolio	94.83	107.08	101.61	101.18	134.08	80.25	106.38
Difference	1.5%	8.5%	6.0%	15.2%	10.7%	6.4%	4.0%

As you can see, even under conditions which were quite favorable to the equal risk weighting approach (due to the high weighting it gave to fixed income asset classes in 2007 and 2008), the extent of its outperformance versus equal asset weighting (using 12 asset classes) was not very large. Put differently, it might well have been the case that the performance differences we observe could have been eliminated by the choice of a different approach to forming our equal risk weighted portfolios (e.g., collecting historical data from a different time period, or using a different methodology, like shrinkage estimators or an exponential moving average, to weight it). In other words, the differences we observe between the two portfolios do not strike us as very significant, at least over the 2007 -2008 period. Of course, that begs the question of how an equally risk weighted portfolio might have performed over another time frame. Yet that raises a series of additional issues, such as the methodology for forming the

portfolio, and how often it is updated — interesting questions for another article to address.

That said, this analysis produced some useful insights, not only about the risk weights of different asset classes in the equal asset weighting portfolio, but also about the roles of volatility (which appeared in all equal risk weighted portfolios), gold (which received similar weightings where it was available, even in the presence of real return bonds), and uncorrelated alpha (which received a much heavier weighting in the USD portfolio than in the others, which no doubt reflects the impact of changing exchange rates on its non-USD returns and risk).

Product and Strategy Notes

Another View of the Challenges Facing Investors in Venture Capital Funds

Following our recent article on problems in the world of buyouts and venture capital, a reader sent us an excellent research piece from Landmark Partners. In “Venture Capital: Hope is Not a Strategy”, they make a number of good points:

- Venture capital returns have been closely related to returns on the NASDAQ Composite.
- Venture capital in the aggregate is therefore not a good portfolio diversifier; “in fact, it is a systematically risk-concentrating position relative to the broad equity market. That means the only good reason to invest in venture deals is if you’re convinced you can find some alpha – some expected return that’s due to manager skill and not to the market in general. And if the aggregate net alpha of venture capital is negative, as it appears, that means that most venture limited partners are probably overoptimistic about their own prospects for identifying and accessing alpha-generating managers.”
- “One way that LPs try to identify alpha generating managers is to focus on those who have had first quartile funds [in the past]. It is widely said that top performing funds tend to repeat, and to some extent that’s true. But there’s

also a lot of evidence that simply relying on quartile rankings is not a good investment strategy. Recent evidence has shown that the successor fund following a top-quartile fund has about a 65% likelihood of being in the top half...The problem is that when an investor is considering a new fund (call it fund N), he doesn't actually know the results of the previous fund (N-1) that has only just finished up its investment period. Instead, the investor only has a pretty good idea of the performance of fund N-2 or N-3. If your information is about fund N-2, [the joint probability] of fund N being in the top half fall to about 55%. If your information is from fund N-3, the odds in your favor fall to about 52%. This is better than random, but not by much."

Improving Warning of Future Financial Crises

In the wake of the shocking events of 2007 – 2008, there has been a great deal of new interest in early warning models to improve regulators' and investors' foresight about developing problems in financial markets. The IMF's October 2009 World Economic Outlook devotes an entire chapter to this research (although, somewhat surprisingly, it does not mention the very large body of work from the intelligence community on the subject of warning and surprise). After reviewing the recent research, the IMF concludes that credit growth, the share of investment in GDP, rising house and equity prices, and growing current account deficits are the most informative warning indicators of future crises. Yet the IMF still concludes that "nonetheless, even the best indicator failed to raise an alarm one to three years ahead for roughly one half of all busts since 1985. Thus, asset price busts are difficult to predict."

In our view, however, the IMF analysis is far from complete, and not just because it ignores the body of findings from the intelligence community. It also ignores an impressive and growing body of work from complex adaptive systems theory about the underlying causes of phase transitions, when systems pass from a zone of stable operations into one that is highly unstable. An important part of this work is the search for variables that control these phase transitions. Last month, we

reviewed a paper on one of these, “Leverage Causes Fat Tails and Clustered Volatility” by Thurner, Farmer and Geanakoplos. This is along the lines of the credit growth indicator identified by the IMF. Yet we also noted the equally important impact of rising uncertainty and the changing connectedness and strength of social networks that influence investor decision making (see, for example, “Asset Pricing in Large Information Networks” by Ozsoylev and Walden, or “Dragon Kings, Black Swans, and the Prediction of Crises” by Didier Sornette). As a practical matter, the challenge for investors has been to identify variables or statistics that can be used to identify the strengthening of networks that is often associated with phase transitions. It was with this in mind that we recently read an excellent paper by Lisa Borland, of the asset management firm Evnine and Associates in San Francisco (“Statistical Signatures in Times of Panic: Markets as a Self Organizing System”). Using the phase transition approach, Borland searches for statistical signatures of market panics, and proposes a new order parameter that is easy to calculate and appears to capture the changing dynamics of asset return correlations and the underlying social network phenomena that give rise to them. The parameter equals the number of financial markets or assets that have positive returns over a given interval, less the number that have negative returns, divided by the total number of financial markets or asset classes evaluated. If the value is zero, the markets are in a disordered state and far from the potential phase change point. However, as the parameter value approaches one or negative one, the markets are in an increasingly ordered state. In this state, networks are more extensive, and presumably social influences have a greater impact on investor decisions. Under these circumstances, a market is close to or at a phase change point, and therefore subject to a sudden, and potentially violent, shift in its previous trend.. In our market value update section, starting this month we will calculate this order parameter for the 38 financial markets (excluding foreign exchange) we evaluate each month. Here are the results so far for 2009:

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
(0.57)	(0.68)	(0.47)	-	0.21	0.11	0.32	0.63	0.53

As you can see, in 2009 global financial markets appear to have swung from a relatively ordered and negatively oriented state early in the year, through a period of disorganization during the spring and early summer, into a period of stronger positive orientation by August that has begun to break down in September. Congratulations to Ms. Borland on an excellent and very useful piece of work.

A New View on the Fundamental Drivers of Equity Market Returns

Another fascinating paper that we read last month is “What Happened to the U.S. Stock Market? Accounting for the Last 50 Years” by Boldrin and Peralta –Alva of the Federal Reserve Bank of St. Louis. The authors begin by noting, “the extreme volatility of stock market values has been the subject of a large body of literature. Previous research focused on the short run because of a widespread belief that, in the long run, the market reverts to well understood fundamentals. Our work suggests this belief should be questioned as well.” They conclude that changes in “actual dividends cannot account for the secular trends in stock market values...[However], a more comprehensive measure of capital income [which reflects both the changing share of corporate profits in national income, and the changing division of those profits between labor, taxes, and capital owners] fluctuates much more than dividends paid, and roughly coincides with changes in stock market trends.” The authors show how between 1982 and 2007, both corporate profits and the share of them going to capital providers experienced a dramatic increase, which drove above average equity market returns over this period. The authors note, “the issue of what the market can and cannot forecast correctly is at the root of the problem we are addressing.” For example, they observe that “it is only after the middle 1980s, when the...capital share of corporate income share of corporate income has started to rise steadily, that the market [valuation] ratio also picks up and starts reflecting either current successes, or, maybe, forecasting future ones.” They stress that “a similar point can be made for pretty much every single major swing of the data we are considering: oscillations in equity market valuations are anticipated by oscillations in the share of capital income

in corporate income instead of predicting them...The problem, obviously, is how reasonable is it to assume that people extrapolate trends that cannot be sustained forever.”

The authors then show that by assuming that forecasts of corporate profit growth and corporate profit shares are inescapably imperfect, traditional asset pricing theory (which assumes perfect foresight about dividend growth rates and future discount rates) can be reconciled with the actual gyrations we observe in equity market valuations over time. However, this analysis applies to the long term more than to shorter periods. Over three year time horizons, the authors show that forecasts of future market values are likely driven more by forecasts of discount rates and investor behavior than by forecasts of changes in capital providers’ after-tax share of corporate income. Still, as Jeremy Grantham has often noted, unsustainably high shares of corporate profits in GDP, and capital providers’ share of corporate profits remain very useful valuation indicators, as trends that can’t go forever on eventually must reverse.

The Long-Term Impact of the 2007-2008 Crisis on Financial Advisers’ Compensation

Regular readers know that we are strong believers in the value that a first class financial adviser can add to a client’s life. In particular, we strongly support fee based advisers who are subject to fiduciary standards, such as those that govern the behavior of Registered Investment Advisers in the United States. However, our commitment to financial advisers does not mean that we shy away from reporting on research that is critical of their performance, as we believe that it points the way to improvements that will benefit both them and their clients.

In the wake of the substantial losses suffered by many investors during the 2007 -2008 financial crisis, a growing amount of research has been directed at the strengths and shortcomings of financial advisers. In 2007, Fischer and Gerhardt wrote an excellent paper on how individual investor decisions often deviate from what is theoretically optimal, and how financial advisers can add substantial value by reducing

these mistakes (“Investment Mistakes of Individual Investors and the Impact of Financial Advice”). Unfortunately, there is also substantial research that suggest that many who hold themselves out as financial advisers fail to deliver these potential benefits to their customers and clients. For example, in “Assessing the Costs and Benefits of Brokers in the Mutual Fund Industry”, Bergstresser, Chalmers and Tufano found that “relative to direct-sold funds, broker-sold funds deliver lower risk-adjusted returns, even before subtracting distribution costs.” One theory is that this reflects inherent conflicts of interest between brokers and their clients, since, unlike Registered Investment Advisers, who have a fiduciary duty to put their client’s interest above their own, brokers are held to the much less stringent standard that the products they sell must only be “suitable” to their customer’s needs. Indeed, there is growing evidence that more customers’ recognize this trend, and have been voting with their feet (see, for example, “Wary Investors Are Seeking Out Objective Voices”, *Wall Street Journal*, 29 July 2009). Eliminating this conflict lies at the heart of the current battle between regulators and brokers around the world over whether the latter should also be held to fiduciary standards.

Another theory about the underlying cause of the poor performance of broker sold funds focuses on whether brokers’ skills are adequate in the face of the complicated nature of today’s financial markets and customers’ financial needs. In this regard, another recent article was illuminating. In the 1 August 2009 *New York Times*, Paul Sullivan reviewed a recent Price WaterhouseCoopers survey of 238 private banks and wealth management firms (“In Search of Competent (and Honest) Advisers”). The survey questioned advisers working with clients who have between \$500,000 and \$20 million in investable assets. As Sullivan notes, “of that sample, only 7 percent said they felt strongly they had received adequate training to complete their job to the highest standard. A little more than half said they had received some training. What is shocking is the rest – some 36 percent of wealth managers surveyed – said they believed they were not fully qualified to do their jobs.” Sullivan asks, “Why haven’t firms addressed this issue? The leading suspect is the industry’s focus on

advisers who can bring in clients with lots of assets, as opposed to advisers who can actually counsel clients.”

A paper published this summer provides further fuel for this debate. In “Financial Advisors: A Case of Babysitters?”, Hackenthal, Haliassos, and Jappelli “track the accounts of 32,751 randomly selected individual customers over 66 months, and allow direct comparison of performance across self-managed accounts and accounts run by, or in consultation with, independent financial advisers” in Germany. They conclude, “in contrast with the picture painted by performance records, econometric analysis that corrects for the endogeneity of the choice of having a financial adviser (e.g., IFAs tend to be matched with richer, older investors) suggests that advisers are associated with lower total and excess account returns, higher portfolio risk and probabilities of losses, and higher trading frequency and portfolio turnover relative to what account owners of given characteristics tend to achieve on their own...Our findings imply that financial advisers end up collecting more in fees and commissions than any monetary value they add to the investment account.” We also note that it is important to put this paper into its regional context, in that on the continent, the performance of the system for distributing investment products has been criticized by many parties (e.g., see Pauline Skypala’s column, “Is It Time to Act On Distribution? In the 4 Oct 09 *Financial Times*). Of course, another hypothesis is that these excess fees compensate the adviser for other services – for example, another paper (“Do Contracts Impact Comprehensive Financial Advice?” by Finke, Huston, and Waller) found that clients “who rely primarily on financial planners are more likely to have adequate life insurance holdings, while being a customer of a broker is not related to adequate coverage levels.” Indeed, the economic value of these additional services can be substantial (of course, so too is the value of avoiding investment mistakes). This leads to the current controversy over the elimination of adviser commissions in favor of explicit fees, as has been proposed in Australia and the United Kingdom. Explicit fees not only reduce conflict of interest problems between advisers and product providers, but also make it easier to calculate the true economic

value added of advisers' integrated service offering to their clients. However, we are still a long way from this approach becoming the norm.

Instead, as Gillian Tett and Kate Burgess recently noted in their 27 Sep 09 *Financial Times* column, "the financial storm that has raged for the past two years...has posed fundamental questions about 21st century investing and the nature of the industry that conducts that activity on behalf of hundreds of millions of citizens across the developed world...Unease is widespread about the very structure of the industry." ("Costly Cogs, Misfiring Machine"). Indeed, some of the asset management industry's leading lights are becoming increasingly vocal about their agreement with Ms. Tett's and similar criticisms. For example, consider what PIMCO's Bill Gross wrote in his August 2009 *Investment Outlook*: "My point is that those who sell [actively managed] investment 'potions' must wrap their product with an extra large ribbon because history is not on their side. Common sense would dictate that the industry as a whole cannot outperform the market because they are the market, and long-term statistics revealing negative alpha for the class of active managers confirms it. Yet, what a price investors are willing to pay! A recent Barron's article pointed out that stock funds extract an average 99 basis points or virtually 1% a year in fees from an investor's portfolio. Bond managers are more benevolent (or less pretentious) at 75 basis points, and many money market funds manage to subsist at a miserly 38. Still, those 38 basis points are as deceptive as the pea that disappears beneath the shell of a street-side con game. Since money market funds barely earn 38 basis points these days, much of the return winds up in the hands of investment managers. A mighty expensive potion indeed. While some index and ETF proponents avoid this extreme absurdity with lower fees, roughly 90% of the \$1.5 trillion in 401(k) and other defined contribution assets in mutual funds are in actively managed offerings with expenses close to 1%. Paying for those potions during an era of asset appreciation with double-digit returns may have been tolerable, but if investment returns gravitate close to 6% as envisaged in PIMCO's "new normal," then 15% of your income will be extracted" – before taxes.

It is for this reason that we believe the days are ultimately numbered for traditional long-only actively managed funds that deliver a mix of beta and alpha returns at an excessively high price. Under both market and regulatory pressure (e.g., a re-examination of prudent man standards for plan trustees in light of the great accumulation of evidence against the reasonable likelihood of long term active management success), we expect the best of these long-only active funds to evolve into uncorrelated alpha strategies that can deliver positive returns without the benefit of rising overall markets. As evolutionary pressure increases, the rest should gradually disappear, as more portfolios become composed of broad, low cost asset class index products and higher cost uncorrelated alpha strategies. We can already see evidence that this change is underway, both in the rising value of investments in ETF and other index products, and the growing number of uncorrelated alpha-type products that are being made available to retail investors around the world. On the other hand, these developments will also put rising pressure on advisers to become more adept at asset allocation and portfolio risk management.

As Tett and Burgess note, “two years after the crisis started, the task of fixing the social contract between the suppliers of capital and those charged with allocating it remains as great as ever. Indeed, it is arguably one of the biggest problems bedeviling the developed world today.”

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 uncorrelated alpha strategy 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 USD cash benchmark is 0.37% (in nominal terms). The second benchmark we use is a portfolio equally allocated between the ten asset classes we use (it does not include uncorrelated alpha). 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/USA.php>

Appendix: Economic Scenarios and Accumulated Evidence

The following table summarizes the accumulated evidence over the past three months (on a rolling basis) against both of our scenarios in the following table. More specifically, we report evidence that seems significantly more likely to be observed if a scenario is false than if it is true. This is in the spirit of the scientific method, where one tries not to *prove* hypotheses, but to *disprove* them. This approach also helps to minimize the risk that our conclusions will be skewed by the confirmation bias, of the tendency to only look for, and give relatively heavier weight to evidence which confirms one's existing views. We do not claim that this approach is foolproof, nor that it guarantees perfect objectivity and foresight. However, evidence from the use of this approach in the intelligence community suggests that it does help to improve forecast accuracy.

	Cooperative Scenario	Conflict Scenario
<i>Brief Scenario Description:</i>	More rapid domestic consumption growth in China and cleantech investment demand in North America return the world to a health rate of growth, and enable preservation of the world trading system, a reduction in global imbalances, and monetary actions to head off an extended period of high inflation.	Domestic politics prevents an increase in cleantech investment in the United States, while China continues to pursue export led growth while encouraging rising nationalism to limit domestic unrest and the political threat to the current Chinese leadership. This only reinforces growing demands for protection in Europe and the United States. Weak global demand is maintained by rising fiscal deficits, which are increasingly monetized, leading to much higher inflation.
<i>Key Agent Level Scenario Assumptions</i>		

	Cooperative Scenario	Conflict Scenario
U.S. Middle Class	Resolution of banking crisis, passage of health care reforms, mortgage relief, and a sharp increase in cleantech driven investment spending lead to reduced uncertainty and a shift towards higher savings and lower consumption, without triggering populist demands for protectionism.	Continued economic stagnation, uncertainty, and insecurity lead to more extreme partisanship and the development of strong populist calls for protectionism and income redistribution.
Chinese Peasants	Land reform and economic growth (which provides jobs) boost incomes while a sharp increase in government spending on health care and education limits resentment of Communist Party corruption and economic inequality compared to coastal elites. This minimizes social unrest and threats to continued legitimacy of the Party's governance of China.	Growing unemployment and a sense that government stimulus is disproportionately benefiting coastal and party elites triggers widespread unrest and peasant alignment with disaffected students, urban unemployed, and members of the military. The Chinese government becomes aggressively nationalist in an attempt to channel this anger outward. At best, this triggers a global retreat into trading blocs; at worst, this strategy fails and China descends into fragmented authoritarian regions with minimal central control.
Iranian Youth	Prolonged economic stagnation and rising inflation lead to the defeat of President Ahmadinejad in June 2009 elections, and widespread pressure for better relations with the West. Economic self-interest trumps the Revolutionary Guards'	Supreme Leader Khamenei ensures that Ahmadinejad is re-elected. Repression and emigration are used to limit resistance by younger Iranians to these policies. The country attempts to improve economic conditions via closer ties with China, while

	Cooperative Scenario	Conflict Scenario
	ideological opposition to this opening. Moderation of Iran's conflicts with the west and a renewal of inward investment flows lead to increased hydrocarbon production, limiting upward pressure on global energy prices.	maintaining its nuclear program (which could trigger an attack by Israel) and a conflict-oriented policy versus the US that continues to put upward pressure on energy prices.
Key Issue Level Scenario Assumptions:		
Overleveraged Consumers	Effective mortgage relief plans implemented in most affected countries, while stronger economic growth maintains income needed for debt repayment.	No effective mortgage relief legislation passed. Instead, rise in bankruptcies and mortgage foreclosures puts continuing downward pressure on housing prices.
Financial System Weakness	Combination of stronger investment and export led economic growth and effective bank rescue plans reduces uncertainty about health of system, and enables sufficient flow of credit to support renewed economic growth.	Worsening economic conditions and failure of bank rescue plans (due to design or political resistance) cause uncertainty to remain high, credit flows to be constrained, and defaults to increase, which all contribute to a worsening process of debt deflation.
International Imbalances	Rising domestic consumption spending in China enables a reduction in export dependence, while U.S. imports are reduced by a shift from private consumption to private saving and higher investment spending and greater exports. This reduces global current account imbalances to a manageable level.	China's continued emphasis on export led growth, at a time when the US is incurring high fiscal deficits (and eventually higher taxes) to maintain global demand, triggers demands for greater protection, which in turn precipitate a dollar exchange rate crisis as other countries move to limit the losses on their foreign exchange reserves. Result is a fragmentation of

	Cooperative Scenario	Conflict Scenario
		the global trade and financial system into much less integrated blocs.
<i>Evidence Over the Previous Three Months Against Each Scenario (most recent month first)</i>	<i>Evidence Against the Cooperative Scenario</i>	<i>Evidence Against the Conflict Scenario</i>
September 2009 (This month's issue)	<ul style="list-style-type: none"> • LA Times (20Sep09) reports new Experian OliverWyman study that finds “the number of strategic mortgage defaults in 2008 was far beyond most industry estimates.” A significant portion are by people with high education and incomes, who “see default as a business decision.” • IMF’s Global Financial Stability Review forecasts another \$1.5 trillion in bank chargeoffs. It also concludes that earnings will be insufficient to absorb them, and that capital ratios will once again come under pressure. • London <i>Telegraph</i> reports draft Chinese report proposes export ban on rare earth minerals that are critical to many western industries, including hybrid vehicles and windmills. • Obama Administration 	<ul style="list-style-type: none"> • G20 meeting in Pittsburgh agrees on need to address global imbalances. • Reports that Chinese agricultural land reforms are beginning to result in higher capital flows to peasant population (see James Kynge, “Seeds of Change in Rural China”, FT 7Oct98 •

	Cooperative Scenario	Conflict Scenario
	<p>imposes duties on Chinese tire imports. China plans retaliation.</p> <ul style="list-style-type: none"> • Reports that many Chinese companies, in an echo of 1980s Japan, are reaping large profits from land speculation (see Andy Xie’s column in the 16 Sep 09 issue of Caijing, “What We Can Learn as Japan’s Economy Sinks) • New Japanese Prime Minister Yukio Hatoyama proposes new Asian Economic Bloc, modeled on European Union • Iran acknowledges second uranium upgrading location; Israel reported to have evidence of substantial Russian involvement in Iranian nuclear program; Reports of Russian plans to thwart any blockade of gasoline imports into Iran imposed by Western nations; President Ahmadinejad delivers strong anti-Israel speech at U.N.; first death sentences imposed on people arrested in Iran during summer’s post election protests. 	
August 2009	<ul style="list-style-type: none"> • IMF recognition that two key transitions needed to escape prolonged slow growth – shift from 	<ul style="list-style-type: none"> • H1N1 influenza epidemic is spreading in Northern Hemisphere as forecast; however,

	Cooperative Scenario	Conflict Scenario
	<p>government to private sector spending in U.S., and to a lower Chinese current account surplus – will both be difficult to achieve.</p> <ul style="list-style-type: none"> • Unemployment continues to worsen in the U.S., with continuing evidence of credit quality deterioration in multiple sectors, including residential and consumer mortgages, credit cards, municipal securities, and small and medium sized banks • 31% of workers report being worried about layoff; double the number of a year ago. Meanwhile, broadly measured U.S. unemployment is at 16.7%. • Minimal progress towards passage of healthcare reform legislation, and new financial services industry regulation • Growing resentment of booming profits and bonus accruals at Wall Street firms that benefit from de facto government guarantees of their liabilities. • Chinese spying allegations against Rio Tinto, and U.S. 	<p>fatality rate thus far is lower than rates implied by some earlier Southern Hemisphere experiences (e.g., in Argentina), and vaccinations will start in October.</p>

	Cooperative Scenario	Conflict Scenario
	<p>imposition of anti-dumping duties on Chinese tire export</p> <ul style="list-style-type: none"> • Falling profits reported in many Chinese industrial sectors, despite GDP growth fueled by aggressive bank lending. Bubble conditions in Chinese equity and possibly property markets. • In Iran, Ahmadinejad consolidates his position, and, with Russian's help, apparently forces Western nations to back down on demand for nuclear talks or imposition of sanctions. Israel may decide it has no choice but to attack Iran, as it did Iraq's Osirak reactor in 1981 	
July 2009	<ul style="list-style-type: none"> • Apparent failure of U.S. Treasury meeting with mortgage servicers to make any progress toward reducing mortgage burdens and stem foreclosures. With unemployment benefits running out for a growing number of households, this will put further downward pressure on consumer confidence, and raise the level of middle class frustration • Widespread reports of faster deterioration in the 	<ul style="list-style-type: none"> • Obama announces support for bipartisan commission to consider ways to solve the growing federal fiscal crisis • Cooling of previously aggressive rhetoric between Chinese and U.S. leadership; successful Strategic and Economic Dialogue Conference • Continued uncertainty in Iran (if opposition succeed in replacing Ahmadinejad, it is

	Cooperative Scenario	Conflict Scenario
	<p>quality of commercial real estate loan portfolios and associated asset backed securities</p> <ul style="list-style-type: none"> • Sharp falls in economic output in Japan, Eurozone and UK • Rising concern with high levels of loan growth in China, to either finance new investment in industries that already have excess capacity, or speculation in commodities, equity and property markets • Evidence of workers' willingness to use violence to resist restructuring of inefficient industries in China • China launches WTO complaint against foreign nations allegedly blocking access of Chinese exports to their markets 	<p>evidence against Conflict Scenario; if Ahmadinejad consolidates his position, it is evidence against the Cooperative Scenario)</p> <ul style="list-style-type: none"> • 75% of US stimulus money remains unspent, which should help economy in 2010