Retired Investor

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This Month's Issue: Key Points

This month's first feature article looks at equal weighting as an asset allocation strategy. We first look at the historical performance of a portfolio that equally weights eleven different asset classes. We find that its returns are comparable to a traditional 60% domestic equity, 40% domestic debt split, but with significantly less downside risk exposure. We then review recent academic research into equal weighting. It is generally supportive, particularly as the number of assets used increases. The next step in our analysis is a risk budgeting view. We show how equal asset class weighting produces very unequal risk weighting. We then derive the asset class weights that correspond to equal risk weighting. We find that the historical performance of an equally risk-weighted portfolio is very impressive. This article closes with an examination of whether equal asset class weighting is a practical substitute for a capitalization weighted market portfolio (the construction of which is problematic because of questions about how to handle asset classes like commodity futures, timber and property). Based on an analysis of asset class covariances with the equally weighted portfolio, we

conclude that as a practical matter equal weighting is a reasonable proxy for the capitalization weighted market portfolio.

Our second feature article updates our economic early warning indicators through the end of 2006. There are two thoughts that dominate our view of the world at the start of 2007. The first is that things that can't continue eventually don't continue. We continue to believe that many asset classes are overvalued, and remain quite skeptical about the future course of the world economy. Balanced against that is our second key thought: that complex adaptive systems tend to surprise observers by their creativity in developing new adaptations that, despite rising pressures, delay (often to an extent that surprises observers) their tipping over into a region of chaotic dynamics. Given that, we remain highly uncertain about the events that will trigger the downturn we expect, or when it will finally arrive.

We continue to believe that a prolonged period of excess liquidity in the global economy has led to full to overvaluation of many asset classes at the same time that China's entry into the global economy has led to unprecedented current account imbalances and accumulation of deflationary pressures and foreign exchange reserves. We remain focused on the future behavior of three key groups – Chinese peasants, Iranian youth, and the American middle class – which we believe could determine the future course of the world economy and financial markets. We continue to perceive high levels of uncertainty about their future actions. Finally, we note that, despite being out of the headlines, the H5N1 influenza virus continues to evolve in a dangerous direction, with the most worrisome developments found in Indonesia and Egypt.

This month's product and strategy notes cover the SEC's new minimum requirements for hedge fund investors, new research papers on financial planning and investor behavior, and fascinating new data on the world wealth distribution.

This Month's Letters to the Editor

I have read your "Investing in Commodities" article (with updates) many times over the past year or two. There is one part of the commodities return-generating process I don't understand: the "diversification yield". I understand the simple statistical benefit of diversification, in that it reduces risk (variation in returns) of a portfolio, but how does holding various uncorrelated commodities futures produce a "yield" (or return) by itself?

The best source for answering your question is "The Tactical and Strategic Value of Commodity Futures" by Erb and Harvey. The authors note that "the average compound, geometric, excess return of the average commodity futures has, historically, been close to zero. This raises an important question for investors considering a long-only investment in commodity futures: how can a commodity futures portfolio have "equity-like" returns when the average returns of the portfolio's constituents have been close to zero? It turns out that portfolios of commodity futures that periodically rebalance might have "equity-like" excess returns. This potential rebalancing return is attributable to portfolio diversification, not to seemingly fundamental influences such as the rate of inflation, economic growth or risk premia. This rebalancing or diversification return is very reliable…For a portfolio consisting of two or more assets, a positive diversification return simply means that the compound return of a portfolio will be greater than the weighted average compound return of the individual portfolio constituents" due to the variance reduction brought about by diversification and rebalancing.

In your monthly asset class valuation update, you indicate that commodities are likely overvalued at this time. However, am I correct in that when it comes to commodities futures (i.e., a commodity futures mutual fund which you are using for this asset class instead of commodities themselves), it cannot be said that they are overvalued, since this possible overvaluation is already reflected in the price of the future? Therefore, based on commodities futures prices (vs commodity prices themselves), would you consider this to be as good of time as any to enter that asset class if I have not yet entered into this asset class?

You are correct that, at any given point in time, the current price of a futures contract equals the expected future spot price less some premium the buyer of the future receives for bearing the risk that this price will be inaccurate. The expected return to the buyer of the futures contract reflects compensation for providing price insurance to the seller of the contract. However, the actual return realized by the buyer of the futures contract may turn out to be different from the expected return. The difference will be due to unexpected changes in the spot price of the contract that occur after the date on which the futures contract was purchased but before it is closed out. If the unexpected change in the spot price is positive, the buyer of the futures contract will receive a higher than expected return; if the unexpected price change is negative, the buyer's return will be lower than expected. In a perfectly efficient market, these unexpected price changes should be unpredictable, and over time net out to zero. Under those conditions, you are correct that "it cannot be the case that a futures contract can be

said to be overvalued" at the time it is purchased, since it theoretically incorporates all the information that is known about future spot prices. On the other hand, if the futures market is less than perfectly efficient – if, for example, investors' emotions cause prices to sometimes diverge from their rational equilibrium values – then it is possible for futures contracts to be over or undervalued. On balance, we view financial markets, including commodity futures, as a complex adaptive system which, while attracted to equilibrium, is seldom in it. As a result, we believe that over and undervaluations exist, and successful active management is possible for skilled investors (though consistent success becomes geometrically more difficult as the time horizon lengthens, as unique sources of private information are copied or disappear, and/or models' are copied or their assumptions are invalidated by changes in the economy).

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Global Asset Class Returns

YTD 29Dec06	In USD	In AUD	In CAD	In EURO	In JPY	In GBP	In CHF	In INR
Asset Held								
US Bonds	4.20%	-3.47%	4.48%	-7.30%	5.10%	-9.60%	-3.47%	2.08%
US Prop	35.10%	27.43%	35.38%	23.60%	36.00%	21.30%	27.43%	32.98%
US Equity	15.50%	7.83%	15.78%	4.00%	16.40%	1.70%	7.83%	13.38%
AUS Bonds	0.90%	-6.77%	1.17%	-10.60%	1.79%	-12.91%	-6.77%	-1.22%
AUS Prop	38.82%	31.16%	39.10%	27.33%	39.72%	25.02%	31.16%	36.71%
AUS Equity	24.93%	17.27%	25.21%	13.44%	25.83%	11.13%	17.27%	22.82%
CAN Bonds	4.01%	-3.66%	4.29%	-7.49%	4.91%	-9.79%	-3.66%	1.89%
CAN Prop	22.90%	15.23%	23.17%	11.40%	23.79%	9.09%	15.23%	20.78%
CAN Equity	13.38%	5.71%	13.65%	1.88%	14.28%	-0.42%	5.71%	11.26%
Euro Bonds	11.61%	3.94%	11.89%	0.11%	12.51%	-2.19%	3.94%	9.49%
Euro Prop.	58.63%	50.96%	58.91%	47.13%	59.53%	44.83%	50.97%	56.51%
Euro Equity	33.10%	25.43%	33.37%	21.60%	33.99%	19.29%	25.43%	30.98%
Japan Bnds	-0.61%	-8.28%	-0.33%	-12.11%	0.29%	-14.41%	-8.28%	-2.73%
Japan Prop	20.19%	12.52%	20.47%	8.69%	21.09%	6.39%	12.52%	18.07%
Japan Eqty	5.10%	-2.56%	5.38%	-6.39%	6.00%	-8.70%	-2.56%	2.99%
UK Bonds	14.18%	6.51%	14.46%	2.68%	15.08%	0.38%	6.51%	12.06%
UK Prop.	71.57%	63.90%	71.85%	60.07%	72.47%	57.77%	63.90%	69.45%
UK Equity	26.00%	18.33%	26.27%	14.50%	26.89%	12.19%	18.33%	23.88%
World Bnds	5.80%	-1.87%	6.08%	-5.70%	6.70%	-8.00%	-1.87%	3.68%
World Prop.	40.26%	32.59%	40.54%	28.76%	41.16%	26.46%	32.59%	38.14%
World Eqty	21.05%	13.38%	21.33%	9.55%	21.95%	7.25%	13.38%	18.93%
Commod	-3.50%	-11.17%	-3.22%	-15.00%	-2.60%	-17.30%	-11.17%	-5.62%
Timber	12.80%	5.14%	13.08%	1.31%	13.70%	-1.00%	5.14%	10.69%
EqMktNtrl	5.66%	-2.01%	5.93%	-5.84%	6.55%	-8.15%	-2.01%	3.54%
Volatility	-4.23%	-11.89%	-3.95%	-15.72%	-3.33%	-18.03%	-11.89%	-6.34%
Currency								
AUD	7.67%	0.00%	7.94%	-3.83%	8.56%	-6.14%	0.00%	5.55%
CAD	-0.28%	-7.94%	0.00%	-11.77%	0.62%	-14.08%	-7.94%	-2.39%
EUR	11.50%	3.83%	11.77%	0.00%	12.39%	-2.31%	3.83%	9.38%
JPY	-0.90%	-8.56%	-0.62%	-12.39%	0.00%	-14.70%	-8.56%	-3.01%
GBP	13.80%	6.14%	14.08%	2.31%	14.70%	0.00%	6.14%	11.69%
USD	0.00%	-7.67%	0.28%	-11.50%	0.90%	-13.80%	-7.67%	-2.12%
CHF	7.67%	0.00%	7.94%	-3.83%	8.56%	-6.14%	0.00%	5.55%
INR	2.12%	-5.55%	2.39%	-9.38%	3.01%	-11.69%	-5.55%	0.00%

Asset Class Valuation Update

Our market valuation analyses are based on the assumption that markets are not perfectly efficient and always in equilibrium. This means that 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. 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. As described in our May, 2005 issue, people can and do disagree about the "right" values for these variables. 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, which is equal to either 1% or 2%. Third, we use two different values for the equity risk premium required by investors: 2.5% and 4.0%. Different combinations of these variables yield high and low scenarios for both the future returns the market is expected to supply, and the future returns investors will demand. 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 (Current Dividend Yield x 100) x (1+ Forecast Productivity Growth) divided by (Current Yield on Real Return Bonds + Equity Risk Premium - Forecast Productivity Growth). Our valuation estimates are shown in the following tables, where a value greater than 100% implies overvaluation, and less than 100% implies undervaluation:

Australia	**Low Demanded Return**	**High Demanded Return**
High Supplied Return	78%	113%
Low Supplied Return	117%	158%

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Canada	**Low Demanded Return**	**High Demanded Return**
High Supplied Return	97%	160%
Low Supplied Return	180%	262%

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Eurozone	**Low Demanded Return**	**High Demanded Return**
High Supplied Return	74%	120%
Low Supplied Return	125%	180%

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Japan	**Low Demanded Return**	**High Demanded Return**
High Supplied Return	109%	207%
Low Supplied Return	264%	412%

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United Kingdom	**Low Demanded Return**	**High Demanded Return**
High Supplied Return	51%	92%
Low Supplied Return	92%	140%

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United States	**Low Demanded Return**	**High Demanded Return**
High Supplied Return	130%	197%
Low Supplied Return	228%	316%

Switzerland	**Low Demanded Return**	**High Demanded Return**
High Supplied Return	87%	157%
Low Supplied Return	178%	255%

India	**Low Demanded Return**	**High Demanded Return**
High Supplied Return	138%	229%
Low Supplied Return	291%	425%

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 the historical average inflation premium (the difference between nominal and real bond yields) between 1989 and 2003. 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:

	Current Real Rate	**Average Inflation Premium (89-03)**	**Required Nominal Return**	**Nominal Return Supplied (10 year Govt)**	**Return Gap**	**Asset Class Over or (Under) Valuation, based on 10 year zero**
Australia	2.75%	2.96%	5.71%	5.95%	0.24%	-2.29%
Canada	1.76%	2.40%	4.16%	4.09%	-0.07%	0.71%
Eurozone	1.92%	2.37%	4.29%	3.95%	-0.34%	3.33%
Japan	1.16%	0.77%	1.93%	1.67%	-0.26%	2.63%
UK	1.38%	3.17%	4.55%	4.79%	0.24%	-2.23%
USA	2.42%	2.93%	5.35%	4.70%	-0.65%	6.38%
Switz.	1.37%	2.03%	3.40%	2.47%	-0.93%	9.46%
India	2.77%	7.57%	10.34%	7.77%	-2.57%	26.58%

*Derived from ten year yield and forecast inflation

It is important to note some important limitations of this analysis. First, it uses the current yield on real return government bonds (or, in the cases of Switzerland and India, the implied real yield if those bonds existed). Over the past forty years or so, this has averaged around 3.00%. Were we to use this rate, the required rate of return would generally increase. Theoretically, the "natural" or equilibrium real rate of interest is a function of three variables:

(1) the expected rate of multifactor productivity growth (as it increases, so to should the demand for investment, which will tend to raise the real rate); (2) risk aversion (as investors become more risk averse they save more, which should reduce the real rate of interest, all else being equal); and (3) the time discount rate, or the rate at which investors are willing to trade off consumption today against consumption in the future. A higher discount rate reflects a greater desire to consume today rather than waiting (as consumption today becomes relatively more important, savings decline, which should cause the real rate to increase). These variables are not unrelated; a negative correlation (of about .3) has been found between risk aversion and the time discount rate. This means that as people become more risk averse, they also tend to be more concerned about the future (i.e., as risk aversion rises, the time discount rate falls).

All three of these variables can only be estimated with uncertainty. For example, a time discount rate of 2.0% and risk aversion factor of 4 are considered to be average, but studies show that there is wide variation within the population and across the studies themselves. The analysis in the following table starts with current real return bond yields and the OECD's estimates of multifactor productivity growth between 1995 and 2002 (with France and Germany proxying for the Eurozone). We then try to back out estimates for risk aversion and the time discount rate that would bring theoretical rates into line with those that have been observed in the market. The real rate formula is [Time Discount Rate + ((1/Risk Aversion Factor) x MFP Growth)].

Real Rate Analysis	AUD	CAD	EUR	JPY	GBP	USD
Risk Aversion Factor	4.0	5.0	5.0	6.0	6.0	4.0
Time Discount Rate	2.25%	1.50%	1.50%	1.00%	1.25%	2.00%
MFP Growth	1.60%	1.20%	1.40%	0.60%	1.40%	1.40%
Theoretical Real Rate	2.65%	1.74%	1.78%	1.10%	1.48%	2.35%
Real Rate on 29Dec06	2.75%	1.76%	1.92%	1.16%	1.38%	2.42%

Our bond market analysis also uses historical inflation as an estimate of expected future inflation. This may not produce an accurate valuation estimate, if the historical average level of inflation is not a good predictor of average future inflation levels. For example, if expected future inflation is lower than historical inflation, required returns will be lower. Also, if one were to assume a very different scenario, involving a prolonged recession,

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accompanied by deflation, then one could argue that government bond markets are actually undervalued today.

Let us now turn to the subject of the valuation of non-government bonds. Some have suggested that it is useful to decompose the bond yield spread into two parts. The first is the difference between the yield on AAA rated bonds and the yield on the ten year Treasury bond. Because default risk on AAA rated companies is very low, this spread may primarily reflect prevailing liquidity and jump (regime shift) risk conditions (e.g., between a low volatility, relatively high return regime, and a high volatility, lower return regime). The second is the difference between BBB and AAA rated bonds, which may tell us more about the level of compensation required by investors for bearing credit risk. For example, between August and October, 1998 (around the time of the Russian debt default and Long Term Capital Management crises), the AAA-Treasury spread jumped from 1.18% to 1.84%, while the BBB-AAA spread increased by much less, from .62% to .81%. This could be read as an indication of investor's higher concern with respect to the systematic risk implications of these crises (i.e., their potential to shift the financial markets into the low return, high volatility regime), and lesser concern with respect to their impact on the overall pricing of credit risk.

The following table shows the average level of these spreads between January, 1970 and December, 2005 (based on monthly Federal Reserve data), along with their standard deviations and 67% (average plus or minus one standard deviation) and 95% (average plus or minus two standard deviations) confidence range (i.e., based on historical data, 95% of the time you would expect the current spreads to be within two standard deviations of the long term average).

	AAA – 10 Year Treasury	**BBB-AAA**
Average	.97%	1.08%
Standard Deviation	.47%	.42%
Avg. +/- 1 SD	1.44% - .50%	1.51% - .66%
Avg. +/- 2 SD	1.91% - .03%	1.93% - .23%

At 29 December 2006 the AAA minus 10 year Treasury spread was .73%. This was somewhat below the long-term average compensation for bearing liquidity and jump risk (assuming our model is correct).

At the end of the month, the BBB minus AAA spread was .89%. This was below the long-term average compensation for bearing credit risk. The stability of this spread over the past year in the face of other developments (e.g., rising concern over the future strength of the global economy) lead us to conclude that it is more likely that corporate bonds today are overvalued than undervalued. This impression is reinforced by data on the prevailing spreads over Treasury yields for credit default swaps (CDS). These are derivative instruments that function as insurance contracts providing protection against credit risk. The premium paid for this insurance is expressed as a spread over the current yield on a Treasury security. For example, between September 2006 and the end of December, CDS spreads for credit insurance on a portfolio of U.S. B rated bonds fell from just over 3% to about 2.5%. Similarly, the cost of insurance on a portfolio of emerging market bond fell from 1.50% to about 1.10%. In our view, these falling spreads reflect two forces: the first is the high level of liquidity in the global economy that has pushed up prices (and forced down yields and expected returns) across a wide range of asset classes. The second is the rising level of underlying risk caused by growing imbalances (e.g., the U.S. current account, investment versus consumption in China, U.S. budget deficits, savings and spending on housing, etc.). On balance, the impact of liquidity seems to be outweighing the second effect; as a result, the return for bearing credit risk has been falling, rather than rising.

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. At best, you can make an estimate that is justified in theory, knowing that in practice it will not turn out to be accurate. That is what we have chosen to do here. Specifically, 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. This information is summarized in the following table:

Annual Exchange Rate Changes Implied by Bond Market Yields

	To AUD	To CAD	To EUR	To JPY	To GBP	To USD	To CHF	To INR
From								
AUD	0.00%	-1.86%	-2.00%	-4.28%	-1.16%	-1.25%	-3.48%	1.82%
CAD	1.86%	0.00%	-0.14%	-2.42%	0.70%	0.61%	-1.62%	3.68%
EUR	2.00%	0.14%	0.00%	-2.28%	0.84%	0.75%	-1.48%	3.82%
JPY	4.28%	2.42%	2.28%	0.00%	3.12%	3.03%	0.80%	6.10%
GBP	1.16%	-0.70%	-0.84%	-3.12%	0.00%	-0.09%	-2.32%	2.98%
USD	1.25%	-0.61%	-0.75%	-3.03%	0.09%	0.00%	-2.23%	3.07%
CHF	3.48%	1.62%	1.48%	-0.80%	2.32%	2.23%	0.00%	5.30%
INR	-1.82%	-3.68%	-3.82%	-6.10%	-2.98%	-3.07%	-5.30%	0.00%

Our approach to valuing commercial property securities as an asset class is hindered by a lack of historical data about rates of dividend growth. To overcome this limitation, we have assumed that markets are fairly valued today (i.e., the expect supply of returns equals the expected returns demanded by investors), and "backed out" the implied growth rates to see if they are reasonable in light of other evidence about the state of the economy (see below). This analysis assumes that investors require a 2.5% risk premium above the yield on real return bonds to compensate them for the risk of securitized commercial property as an asset class. The following table shows the results of this analysis:

Country	Real Bond Yield	Plus Commercial Property Risk Premium	Less Dividend Yield on Commercial Property Securities	Equals Expected Rate of Future Real Dividend Growth
Australia	2.75%	2.50%	5.7%	-0.4%
Canada	1.76%	2.50%	3.9%	0.4%
Eurozone	1.92%	2.50%	2.6%	1.8%
Japan	1.16%	2.50%	1.3%	2.4%
Switzerland	1.37%	2.50%	3.8%	0.1%
United Kingdom	1.38%	2.50%	1.9%	2.0%
United States	2.42%	2.50%	3.6%	1.3%

A very rough way to test the reasonableness of these implied expected growth assumptions is to compare them to the expected real annual change in commercial rents over the next five years. If you think the real growth estimates are too high relative to your expectation for changes in rents, that implies overvaluation. On the other hand, if you think they are too low, that implies undervaluation. Since we expect a significant slowdown in the global economy over the next few years, we are inclined to view most of these implied real growth assumptions as too optimistic (Australia excepted), and therefore to believe that the balance of business cycle and valuation evidence suggests that commercial property in many markets is probably overvalued today.

To estimate the likely direction of short term commodity futures price changes, we compare the current price to the historical distribution of futures index prices. Between 1991 and 2005 period, the Dow Jones AIG Commodities Index (DJAIG) had an average value of 107.6, with a standard deviation of 21.9. The December 29th closing value of 166.51 was slightly less than 3.0 standard deviations above the average (assuming the value of the index is normally distributed around its historical average, a value greater than three standard deviations away from that average should occur less than 1% of the time). Given this, the probability of a near term decline in the spot price of the DJAIG still seems much higher than the probability of an increase.

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, 2005, the average value of the VIX Index was 19.45, with a standard deviation of 6.40. The one standard deviation (67% confidence interval) range was 13.05 to 28.85, and the two standard deviations (95% confidence) range was from 6.65 to 32.25. On December 29, 2006, the VIX closed at 11.56. This is 1.23 standard deviations below the VIX's long term average value. This still strikes us as too low, in light of rising uncertainty in the economy and financial markets. Hence, we conclude that equity volatility is probably undervalued today.

Sector and Style Rotation Watch

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

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

We publish this table to make an important point: there is nothing unique about the various rotation strategies we describe, which are widely known by many investors. Rather, whatever active management returns (also known as "alpha") they are able to generate is directly related to how accurately (and consistently) one can forecast the turning points in the economic cycle. Regularly getting this right is beyond the skills of most investors. In other words, most of us are better off just getting our asset allocations right, and implementing them via index funds 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. That being said, the highest rolling three month returns in the table give 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 most investors 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.

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

Rolling 3 Month Returns Through		**29-Dec-06**		
Economy	Bottoming	Strengthening	Peaking	Weakening
Interest Rates	Falling	Bottom	Rising	Peak
Style and Size Rotation	Small Growth (DSG)	Small Value (DSV)	Large Value (ELV)	Large Growth (ELG)
	8.49%	**8.18%**	**7.41%**	**5.78%**
Sector Rotation	Cyclicals (IYC)	Basic Materials (IYM)	Energy (IYE)	Utilities (IDU)
	7.77%	**10.76%**	**9.81%**	**8.43%**
	Technology (IYW)	Industrials (IYJ)	Staples (IYK)	Financials (IYF)
	6.04%	**6.31%**	**5.29%**	**6.01%**
Bond Market Rotation	Higher Risk (LQD)	Short Maturity (SHY)	Low Risk (TIP)	Long Maturity (TLT)
	1.56%	**0.96%**	**-2.32%**	**0.41%**

The next tables describe the typical cycles in the markets for commercial property and commodities. We believe they should be read in conjunction with current situation in the bond market. However, rather than being leading indicators of future economic conditions, commercial property and commodity market returns tend to coincide with current economic and interest rate conditions (i.e., those at the top of the same column, rather than the next one to the right). When many investors share the same expectations about future economic conditions, one would expect to see alignment between bond and equity market year-to-date returns, and conditions in commodity and commercial property markets. However, we also

note that this is when markets are most fragile; large moves can occur if something happens to change these closely aligned expectations. In contrast, when investors do not share the same expectations for the future, you would expect to see misalignment between year-to-date returns in bond, equity, commodity and commercial property markets.

Economy	Bottoming	Strengthening	Peaking	Weakening
Interest Rates	Falling	Bottom	Rising	Peak
Commodities				
Commodity Inventories	Peaking	Falling	Bottoming	Rising
Spot Prices	Bottoming	Rising	Peaking	Falling
Futures Prices Relative to Spot Price	Contango (futures higher than spot)	Uncertain	Backwardation (futures lower than spot)	Uncertain
Profitability of long commodity futures position, before diversification and collateral yields	Negative (falling spot and negative roll yield)	Uncertain (rising spot, uncertain roll yield)	Positive (rising spot and positive roll yield)	Uncertain (falling spot, uncertain roll yield)
Comm'l Property				
Commercial Property Vacancy Rates	Peaking	Falling	Bottoming	Rising
Rents	Low	Rising	High	Falling
New Construction Completion (space coming onto the market)	Falling	Bottoming	Rising	Peaking
Property Valuation Ratios	Bottoming	Rising	Peaking	Falling
Expected Future Property Returns	Peaking	Falling	Bottoming	Rising

The following table sums up our subjective view of possible asset class under and overvaluations at the end of December 2006. The distinction between possible, likely and probable reflects a rising degree of confidence in our conclusion.

Probably Overvalued	Commodities, Corporate Bonds
Likely Overvalued	Commercial Property, Most Equity Markets
Possibly Overvalued	
Possibly Undervalued	
Likely Undervalued	Equity Volatility
Probably Undervalued	Non-U.S. Dollar Bonds

The Joys of Equal Weighting

We are frequently asked, "if you could give someone just one piece of asset allocation advice, what would it be?" Over the years, we've concluded that the best answer may be, "most investors should simply equally weight their portfolios across a wide range of broadly defined asset classes and get on with their lives." We admit that may sound a little too glib. But two recently published papers show that we are not alone in this view.

In "The 1/N Pension Puzzle", Wincliff and Boyle note that "defined contribution [pension] plans are becoming the dominant vehicle for providing pension [retirement] income. In this connection, the portfolio strategies of the participants are a critical factor, since the asset allocation decision determines the ultimate benefits available under these plans." In light of this, they make a convincing case that equal weighting (i.e., 1 divided by the number of asset classes, or 1/N) should be a pension plan's default asset allocation. Their argument begins with an examination of the size of potential parameter estimation risk, when historical data is used to derive future asset class risk and return assumptions used in a Mean/Variance asset allocation model. As other researchers have found, Wincliff and Boyle demonstrate that, particularly for return estimates, these estimation errors can be quite large when typical five year data sample periods are used. The authors also note that the obvious solution to this problem – using longer data samples – is often undermined by changes in the underlying return generating process (in statistical terms, when a process is "non-stationary" using a longer sample period does not reduce estimation errors). Through a series of quantitative examples, Wincliff and Boyle then demonstrate that, after taking the adverse impact of estimation errors into account, "the performance of the 1/N heuristic can be quite satisfactory, assuming an appropriate set of investment choices in the pension plan."

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The simply titled "1/N" by DeMiguel, Garlappi and Uppal is an extremely rigorous examination of this subject. They compare the results of a 1/N (equal) weighting with the performance of portfolios formed using a wide variety of techniques intended to reduce estimation error. They also conclude that, despite the use of these techniques, the theoretical performance improvements that result from using these techniques is more than offset by the estimation error that remains, leading to underperformance versus the 1/N portfolio. As they note, "the intuition for the poor performance of optimizing models relative to 1/N is that even small errors in estimating asset returns can lead to large differences in portfolio weights. As a result, "allocation mistakes" [versus the models' view of what is optimal] caused by using the 1/N weights can turn out to be smaller than mistakes caused by using the weights from an optimizing model with inputs that have been estimated with error." That being said, the authors also find that ability of 1/N to outperform allegedly optimal asset allocations is weakest when the number of assets involved is smaller. Again, the intuition is clear: "a smaller number of assets implies fewer parameters to be estimated, and therefore less room for estimation errors to be made." While this makes it less likely that an equally weighted portfolio comprised of a limited number of broadly defined asset classes will outperform an optimized portfolio, it is nonetheless interesting to look more closely at the historical results of equal asset class weighting.

The following table compares the performance of traditional 60% domestic equity/40% domestic bonds portfolio to a portfolio equally weighted across eleven asset classes (real return bonds, domestic bonds, foreign currency bonds, domestic commercial property securities, foreign commercial property securities, commodities, timber, domestic equity, foreign equity, emerging market equity and equity market neutral). The results are in real (inflation adjusted) U.S. dollar terms, and cover 1994 to 2004.

1994 to 2004	Equally Weighted	60/40 Portfolio
Average Annual Real Return (1)	5.9%	7.2%
Standard Deviation	8.3%	10.6%
Return/Std. Deviation	.71	.68

1994 to 2004	Equally Weighted	60/40 Portfolio
Maximum Quarterly Drawdown	(6.2%)	(9.1%)
95% Probability Drawdown (2)	(8.2%)	(10.6%)

(1) Based on annualized quarterly data
(2) Equals average less 2.33 times the standard deviation

As you can see, the ratio of return to risk for these two portfolios is broadly similar, with equal weighting delivering lower returns and lower risk compared to the 60/40 benchmark. However, it is also important to remember that for investors pursuing accumulation or decumulation (i.e., portfolio income withdrawal and bequest) goals over a multiyear horizon, the avoidance of significant downside losses is critical. On this criterion, the table shows the comparative advantage of the equally weighted portfolio.

It is also important to note that equal weighting across asset classes is not the same as the equal allocation of one's risk budget, since (in the absence of leverage) asset classes have different degrees of risk (for more on this, see our July 2006 article on risk budgeting). The following table shows the percentage of total portfolio risk that each asset class accounts for in an equally weighted portfolio (note that these calculations are based on historical 1994 to 2004 real returns data, which may not be a good estimate of the future).

	AU	CA	CH	EU	JP	UK	US
Real Return Bonds	Not used	Not used	Not used	Not used	Not used	Not used	1.7%
Domestic Bonds	2.0%	1.8%	-0.2%	-0.8%	0.1%	0.0%	1.1%
Foreign Bonds	7.1%	-0.7%	4.8%	2.5%	5.7%	0.2%	7.1%
Domestic Property	7.0%	15.1%	3.6%	7.0%	8.4%	12.5%	9.6%
Foreign Property	14.7%	12.6%	13.6%	13.1%	9.5%	15.0%	22.3%
Commodities	6.2%	3.4%	10.1%	6.8%	12.2%	5.1%	3.9%
Timber	8.8%	1.9%	8.0%	6.3%	9.2%	3.3%	1.8%
Domestic Equity	10.2%	21.3%	12.1%	18.0%	10.2%	15.0%	11.1%
Foreign Equity	17.9%	17.3%	16.1%	16.3%	14.7%	17.2%	16.8%
Emerging Equity	20.8%	25.7%	22.8%	24.7%	20.8%	28.5%	24.3%
Equity Market Neutral	5.3%	1.5%	9.0%	6.0%	9.0%	3.2%	0.2%

	AU	CA	CH	EU	JP	UK	US
	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

As you can see, equal asset class weighting clearly implies an uneven distribution of an investor's risk budget across different asset classes. This raises an interesting question: what asset class weights would result in an equal distribution of the risk budget? The following table shows the answers to this question. Again, this analysis is based on real returns covariance data from 1994 to 2004. Also, in some cases, equal risk budget allocation would have required taking short positions in one or more asset classes. We did not do that in this analysis; where this occurred, we sought closest to equal weighting we could achieve without taking short positions.

	AU	CA	CH	EU	JP	UK	US
Real Return Bonds	Not used	Not used	Not used	Not used	Not used	Not used	8.2%
Domestic Bonds	36.8%	21.5%	5.0%	5.0%	93.4%	64.2%	13.4%
Foreign Bonds	7.4%	1.0%	27.5%	30.4%	1.3%	29.2%	2.0%
Domestic Property	9.1%	2.6%	21.4%	10.8%	0.9%	0.5%	1.5%
Foreign Property	4.3%	3.1%	5.7%	6.5%	0.8%	0.4%	0.6%
Commodities	10.3%	22.5%	7.6%	11.0%	0.6%	1.1%	3.6%
Timber	7.2%	19.9%	9.7%	11.9%	0.8%	1.7%	7.9%
Domestic Equity	6.2%	1.8%	6.4%	4.2%	0.7%	0.6%	1.3%
Foreign Equity	3.6%	2.2%	4.8%	4.6%	0.5%	0.3%	0.8%
Emerging Equity	3.1%	1.5%	3.4%	3.1%	0.3%	0.2%	0.6%
Equity Market Neutral	12.1%	23.9%	8.5%	12.6%	0.8%	1.8%	60.2%
	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

As you can see, the allocation to equity market neutral in the U.S. that is required to achieve an equal risk budget across asset classes is very high. Since equity market neutral is an active strategy, this approach assumes a very high level of confidence in an investor's ability to identify skilled active managers. In light of this, we re-ran our U.S. analysis, limiting the investment in equity market neutral to a maximum of 9.1% of the portfolio. The resulting asset class weights are shown below:

	Adjusted US
Real Return Bonds	21.1%
Domestic Bonds	21.6%

	Adjusted US
Foreign Bonds	5.1%
Domestic Property	3.8%
Foreign Property	1.6%
Commodities	9.2%
Timber	20.5%
Domestic Equity	4.3%
Foreign Equity	2.2%
Emerging Equity	1.5%
Equity Market Neutral	9.1%
	100.0%

How does the performance of an "equally weighted risk budget" portfolio compare to that of an "equally weighted asset class" portfolio? The following table shows the real return results for two U.S. Dollar denominated portfolios over the 1994 to 2004 period:

1994 to 2004	**Equal Risk Weights**	**Equal Risk Weights (Adjusted)**	**Equal Asset Weights**
Average Annual Real Return (1)	6.4%	5.4%	5.9%
Standard Deviation	3.5%	3.3%	8.3%
Return/Std. Deviation	1.83	1.64	.71
Maximum Quarterly Drawdown	(2.1%)	(3.1%)	(6.2%)
95% Probability Drawdown (2)	(2.5%)	(2.5%)	(8.2%)

      (1) Based on annualized quarterly data
      (2) Equals average less 2.33 times the standard deviation

As you can see, assuming the historical asset class covariance estimates that underlie this analysis remain valid in the future (which is by no means assured), equal risk budget weighting across asset classes appears to be a promising technique. We intend to incorporate it in our biennial asset allocation review, which will be conducted later this year.

A final interesting question about the equally weighted portfolio is how closely it resembles the capitalization weighted market portfolio so often used in theoretical analyses. This is not an easy comparison to make, because of the numerous measurement difficulties when using capitalization weights. For example, (as noted in our December 2004 issue) it is not clear whether capitalization weighting is appropriate for debt market instruments. Nor is it clear how to measure capitalization weights for commodities, timber, or property. Moreover, because it is a strategy rather than a proper asset class, equity market neutral has no weight at all in the capitalization weighted market portfolio. Given these measurement problems, we took a different approach, and looked at how the real returns on different asset classes covaried (between 1994 and 2004) with returns on the equally weighted asset class portfolio. In theory, asset classes with the highest covariance with the market portfolio should have commanded the highest returns (because they offer investors the lowest diversification benefits), while those with low or negative covariances should required lower returns than the market portfolio.

To facilitate comparisons between asset classes and across currency regions, the following table sets the covariance between emerging market equities and the (ten or eleven asset class) equally weighted market portfolio equal to 100%, and scales the covariances of other classes against this baseline:

Covariance Comparison	AU	CA	CH	EU	JP	UK	US
Real Return Bonds	Not used	Not used	Not used	Not used	Not used	Not used	-0.2%
Domestic Bonds	8.4%	6.6%	-0.8%	-3.2%	-0.4%	0.1%	-1.8%
Foreign Bonds	33.4%	-5.8%	19.7%	9.2%	23.6%	0.0%	8.1%
Domestic Property	33.1%	55.6%	15.9%	28.7%	46.4%	45.1%	34.2%
Foreign Property	71.7%	48.7%	59.0%	53.1%	41.0%	52.7%	70.9%
Commodities	26.7%	9.8%	42.4%	25.8%	54.0%	16.5%	11.2%
Timber	41.0%	3.7%	33.0%	23.9%	39.8%	10.4%	4.1%
Domestic Equity	50.8%	81.7%	53.6%	73.5%	52.8%	53.4%	60.1%
Foreign Equity	87.0%	65.2%	70.1%	65.8%	69.0%	60.5%	66.8%
Emerging Equity	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Equity Market Neutral	14.8%	0.6%	37.2%	21.6%	37.3%	8.6%	0.6%
Equity Market Volatility (1)	-120.8%	-132.7%	-78.4%	-112.7%	-68.9%	-140.9%	-131.5%

(1) As measured by implied volatility on the S&P 500 Index (i.e., the VIX Index)

Broadly speaking, the distribution of these covariances is in line with the relative distribution of returns one would expect to earn on different asset classes, with emerging market equities at the high end, domestic bonds at the low end, and property usually somewhere in between. Japan and the UK are interesting exceptions to this last point, in that property and domestic equity have very similar covariances. This may help to explain the relative popularity of property as an asset class in these two currency regions. In all cases, equity market volatility has a large and negative covariance with the equally weighted market portfolio, confirming its powerful hedging role in a portfolio (note too that the negative covariance also implies that investors should be willing to pay to obtain it, rather than demanding a positive return to hold it). Commodities is also an interesting case; this analysis suggests that the recent fall in expected returns from investing in this asset class may reflect growing pricing efficiency rather than a short term imbalance between supply and demand in various futures markets.

Overall, this analysis leads us to conclude that the equally weighted asset class portfolio is, as a practical matter, an acceptable proxy for the true capitalization weighted "market" portfolio. In turn, this conclusion points the way to modifications of the equally weighted portfolio that could be made to either boost expected returns (give more weight to asset classes with high covariances) or reduce risk (give more weight to asset classes with lower or negative covariances).

Economic Warning Indicators Update

We produce our primary economic and asset class return outlook each March (the next one will be in our April 2007 issue). We update it in September with the results of the IMF's semi-annual forecast. In between, in June and December, we produce shorter updates to our list of economic early warning indicators.

There are two thoughts that dominate our view of the world at the start of 2007. The first is that things that can't continue eventually don't continue. But the second is that complex adaptive systems tend to surprise observers by their creativity in developing new adaptations that, despite rising pressures, delay (often to an extent that surprises observers) their tipping over into a region of chaotic dynamics. A recent example of this latter phenomenon was provided in the paper, "A Behavioral Finance Model of the Exchange Rate

with Many Forecasting Rules" by DeGrauwe and Kaltwasser. The authors started by defining rationality not in the classical "rational equilibrium" sense of the ability to understand a complex system (and predict its future path), but rather take an evolutionary view of rationality as the effectiveness of the "mechanism used by investors to evaluate their past decisions according to a fitness criterion and revise them as new information becomes available." They create an agent based simulation model of a world populated by investors who switch between different trading rules, based on mixes of fundamental valuation, simple extrapolation of past prices, and more sophisticated momentum rules based on relationships between moving averages over different time horizons. They find that their market usually vacillates between two types of equilibrium, one stable based on fundamental values (which occurs when the number of trading rules in use is relatively varied, and uncertainty about true fundamental values is lower) and another (less stable) "bubble" equilibrium. While the authors find that certain combinations of parameters give rise to chaotic dynamics, the percentage of time the system enters this state is surprisingly small.

Despite the low theoretical propensity for a financial system to enter a chaotic state, there is no shortage of recent papers that address how the multiple threats to today's false state of calm could play out in the future. In one way or another, most of these papers recognize that the current state of affairs in the world economy can't continue. The United States can't keep running enormous current account deficits, and borrowing from the rest of the world, while Asian countries and oil exporters, and China in particular, keep accumulating ever larger amounts of foreign exchange reserves. At some point, something has to give. The problem is, nobody knows when that point will arrive. As noted above, one of the defining characteristics of a complex adaptive system is its ability to confound attempts to predict its turning points.

Along these lines, the International Monetary Fund has published a number of recent papers that explore different aspects of the unprecedented adjustment problem facing the world economy today. In "Effects of Globalization on Labor's Share of National Income", Anastasia Guscina examines the possible causes of the decline (across multiple countries) of labor's share of national income since 1985, despite increases in aggregate labor productivity. She concludes that an initial shift of wages toward higher skilled workers caused by greater use of information technology was reinforced by increased openness to cross-border

investment and trade (i.e., globalization), which caused more developed countries to further specialize in more skill-intensive goods. The next result was a sharp widening in rates of income and wealth inequality in much of the OECD region, and an accompanying rise in underlying political tensions. In "Debt Dynamics and Global Imbalances: Some Conventional Views Reconsidered", Guy Meredith evaluates different adjustment paths that could return the world economy to a more stable footing. He raises the possibility that the necessary changes might be less severe than many have feared, provided that the real rate of interest on the United States' external liabilities remains below the return earned on its external assets and its real rate of economic growth.

In "Rebalancing China's Economy: What Does Growth Theory Tell Us?", Jahangir Aziz looks at another aspect of the "soft landing" story, the need for China to shift from high real growth led by investment and exports to high growth led by domestic spending. He concludes that banking sector reforms and further development of domestic bond and equity markets are critical to the successful pursuit of this strategy.

The IMF has not been alone in its analysis of the unprecedented unbalances facing the world economy. In their paper "Would Protectionism Defuse Global Imbalances and Spur Economic Activity?," Farugee, Laxton, Muir and Pesenti of the Federal Reserve Bank of New York begin by noting that "in the evolving analysis of global imbalances, the possibility that countries will resort to increased protectionism is often mentioned but rarely analyzed." They begin their analysis by observing that, "persistent and widening trade and payments imbalances have fuelled rising protection sentiment in a number of countries. In the United States, for example, several congressional bills concerning trade imbalances have been written. At the heart of the controversy are sizable trade surpluses in emerging Asia, paired with substantial foreign reserve accumulation and large-scale intervention in the currency market to limit exchange rate flexibility. In fact, roughly three-quarters of the vast global reserve build-up between 1999 and 2004 is attributable to Asia. During that time, key Asian central banks, including India, South Korea, Taiwan, Hong Kong, Singapore and Malaysia . as a group have more than doubled their official holdings of foreign securities, mostly U.S. Treasuries, to over $2 1/2 trillion. Japan and China account for the bulk of these holdings, although oil exporting countries have more recently played a larger role in foreign reserve accumulation."

The authors go on to note, "scapegoating often emanates from domestic economic woes, and the recent situation may not be an exception. In the recent past job growth in the United States has been below previous economic recoveries, particularly in sectors exposed to foreign competition. Wages have also reacted slowly to changing business conditions. Not surprisingly, politicians and business leaders alike are tempted to support protectionism as an appealing and politically costless recipe to address internal and external problems."The question they address, is, as the title suggests, whether increased protectionism could be a solution to the imbalances facing the world economy today. The authors conclude that "the key message is that in every case there are fairly large real income and consumption losses" to the world economy. More specifically, "according to our estimates, a generalized 10 percent hike against emerging Asia improves the US current account balance as a share of GDP by a mere 0.1 percentage point. The effect disappears after about two years, and in the absence of further adjustment in net saving, it may even revert sign. Similar effects hold in the rest of the world."

In another paper, Enrique Medoza of the National Bureau of Economic Research explores "Endogenous Sudden Stops in a Business Cycle Model with Collateral Constraints." This is economist-speak for a slowdown in the world economy that triggers a classic debt deflation scenario. He concludes that the probability of sudden stops occurring is higher than many traditional economic models would suggest. Perhaps with this in mind, Bardo, Erceg, Levin and Michaels of the U.S. Federal Reserve Board have recently published a historical analysis of "Three Great American Disinflations", after the Civil War, First World War, and the 1970s inflationary spike. The focus of their analysis is how to minimize the costs of deflation to the real economy. They conclude that, provided there is confidence in a country's monetary policy, "a new nominal [price level or inflation] target can be achieved with a minimum fallout in the real economy, provided implementation occurs over a period of at least three years." However, if the monetary authority lacks credibility, more aggressive action [with higher real costs] may be required in the short term to convey a clear signal to the markets.

Undoubtedly, the biggest worry on many policymakers' minds seems to be the health of housing markets around the world. In "Household Savings and Asset Valuation in Selected Industrialized Countries", Paul Hiebert of the Reserve Bank of Australia finds that Australia,

Canada, the U.K., and the U.S. have all been characterized by falling household savings and rising housing values in recent years. At the Bank of England, Benito and Mumtaz examine "Consumption Excess Sensitivity, Liquidity Constraints, and The Collateral Role of Housing." They find that falling housing values are most likely to affect consumption of liquidity constrained investors, and put more pressure on the middle class. In the United States, the Congressional Budget Office recently published its own analysis of "Housing Wealth and Consumer Spending." It concludes that the most likely scenario over the next year is that "changes in home prices will have a moderately negative impact on the growth of consumer spending." However, the preponderance of risk lies on the downside of this forecast.

In past economic analyses, we have called attention to three groups of people whose attitudes and actions we believe will be critical to the future state of the world economy and financial system. In these areas, the latest trends are decidedly mixed. The first group is Chinese peasants, who, despite rapid economic growth, have seen a sharp erosion in their health care benefits, frequent seizure of their land with minimal compensation, and rising corruption. Recently, preliminary data from the World Bank showed that China's poor have actually been falling, in both absolute and relative terms. Along with rising corruption, this widening gap between rich and poor in China is leading to building political pressures within that country. These make it all the more important that high rates of growth be maintained, to keep the rapidly growing Chinese middle class out of politics. Unfortunately, this necessitates continued deferral of difficult financial market reforms (e.g., the development of domestic bond and equity markets, and cleaning up of the still increasing number of bad loans) and avoidance of the potential economic slowdown that could be caused by serious exchange rate appreciation of the Yuan versus the U.S. Dollar (in the absence of an offsetting increase in government spending on infrastructure or a renewed social safety net). Complicating all this is the undoubted desire of the Chinese leadership to minimize social and political disruptions in the run up to the 2008 summer Olympics in Beijing. Unfortunately, the other side of this coin is increasing real undervaluation of the Chinese currency (due to the combination of a relatively constant nominal exchange rate and relatively high productivity growth in many tradeable goods sectors), continued competitive pressures on the economies of China's trading partners (with attendant domestic political consequences in them), further growth in

China's foreign exchange reserves (which leads to further credit creation and storing up of bad loan problems in the banking system), and continued over-investment in many industries (which creates oversupply and deflationary pressures in many sectors of the global economy). At this point, a key uncertainty is whether the Chinese leadership will, in essence, try to keep the current system intact through the 2008 Olympics, or whether, in the face of growing pressures, it will risk a more radical change before then (e.g., appreciation of the currency, banking reforms, and more infrastructure and social safety net spending) that, while alleviating some of the concerns of the poor, may increase dissension among the middle class.

The second group we have focused on is young middle class Iranians, and whether through their actions they will force moderation of the radical course embarked upon by President Mahmoud Ahmadinejad following his election in June, 2005, which seems likely to result in increased conflict with the west. Heavy deficit spending by the Ahmadinejad government has led to sharply higher inflation, while U.N. sanctions have further isolated the country, slowed economic growth, and increased unemployment for educated middle class youth for whom emigration remains very difficult (due to sanctions). The government's ability to improve this situation through higher spending has been circumscribed by limited oil revenues, which account for the bulk of government income. This has been caused by a combination of falling oil prices and reduced physical production capacity, as sanctions have limited investment. Clearly, dissatisfaction with Ahmadinejad is building, as evidenced by the widespread losses suffered by the candidates he supported in the December municipal elections. On the other hand, the conditions facing him have seemed to make Ahmadinejad even more strident in his nuclear rhetoric and ambitions – clearly, counting conflict with the west helps keep the oil price high, while possibly tapping into Iranian nationalism as a last source of domestic political support. It is easy to see how this could get out of hand, and lead to a far more serious conflagration in the Middle East, with attendant consequences for world oil prices, economic growth, and political stability. The Iranian middle class is quite large, and relatively young. How they will react to these conflicting pressures remains a critical uncertainty facing the world economy.

The third group whose actions we believe to be critical to the future of global financial markets is the American middle class. On this front, the news has also been mixed. Clearly, negative pressures have been rising, with growing concerns about real wage stagnation (even

as productivity and corporate profits rise), widening inequality, falling confidence in the health insurance system, and newly elected Democratic majorities in the federal House and Senate that seem intent on exploiting the populist political possibilities these trends present, regardless of the risks to the world economy (e.g., in the case of increased trade sanctions against China, or a precipitous retreat from Iraq that triggers a bloody Sunni/Shia civil war that spills over into the wider Middle East). That being said, there are also indications that this outcome is not inevitable. Specifically, two recent reports ("Talking Past Each Other" by Kusnet, Mishel and Teixeira and "The Economic Disconnect" by Greenberg, Hogan, Lake, Gotoff and Proser) find that both U.S. political parties are out of touch with middle class concerns. While Republicans tend to underestimate the growing concern about the difficulties many face in maintaining a middle class standard of living, the Democrats err in treating the middle class as victims, which runs contrary to many voters' optimistic view of their own individual future. In sum, when it comes to the future behavior of the American middle class, substantial uncertainty continues to exist.

　　　　More broadly, the following table updates our economic early warning indicators through the end of 2006:

Indicator	Dangerous Trend	Recent Observations
Real Return Bond Yields	Declining (lack of investment relative to savings)	Still abnormally low. In many cases, they have been declining in recent months.
Yield on Nominal Return Ten Year U.S. Treasury Bond	Rising (increases probability of rising mortgage rates, weakening housing markets, consumer credit problems and economic recession)	Rising. Housing prices are down, and mortgage delinquencies up.
Oil Prices	Historically high (Since oil price functions as a tax on consumers, higher prices raise probability of economic slowdown)	Have fallen from mid-year highs, probably due to a combination of unseasonably warm weather, weakening economic conditions and the withdrawal of some speculative capital from oil futures markets.

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Indicator	Dangerous Trend	Recent Observations
U.S. /Euro Exchange Rate	Weakening (should lead to higher U.S. interest rates, and economic slowdown)	Euro is at historically strong levels versus the dollar. Also, there is growing evidence of gradual shift of reserves away from dollar and into Euro.
Domestic Private Demand (consumption and investment) Growth in Japan and Eurozone	Weakening (world growth remains overdependent on U.S. consumer spending)	Has been strengthening in both regions.
Private Consumption Spending in China	No Increase (world remains overdependent on U.S. consumers; danger of overinvestment and deflationary pressure in many industries)	While acknowledged as a priority by Chinese leaders, no progress yet.
Political Instability and Increased Repression in China	Increase signifies higher probability of sharp economic slowdown in China and/or higher global tensions	Seems to have calmed somewhat since last year. Arrest of Shanghai mayor on corruption charges may have helped defuse growing tensions.
Iranian Rhetoric and Actions on Nuclear Issue	Aggressive rhetoric and actions raise probability of dangerously destabilizing military clash between Iran and West.	Growing evidence of domestic economic problems in Iran may push Ahmadinejad toward more aggressive international stance.
Policy Solutions Gaining Popularity with American Middle Class	Protectionist trade measures and punitive taxes increase likelihood of a longer and deeper economic slowdown	With Democrats running Congress, threat of protectionist trade measures being passed has increased.
Human-to-Human Transmission of H5N1 Virus, and Associated Mortality Rate	Easier human-to-human transmission without a significant decline in the current mortality rate	Evidence in Indonesia and Egypt of increased transmission rates and Tamiflu resistance, with high mortality rate especially among young people. Transmission rates have not yet risen to pandemic levels. However, while virus has continued to evolve in a dangerous direction, public's complacency about H5N1

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Indicator	Dangerous Trend	Recent Observations
		(e.g., "the pandemic that wasn't") could magnify reaction to adverse developments in this area. This remains a serious wild card facing the world economy and financial markets.

Our general outlook for financial markets in 2007 remains pessimistic. We continue to put our faith in the timeless observation that things that can't continue eventually don't continue. The big themes we have noted in the past remain unchanged: unprecedented international imbalances, compression of risk premiums below historic norms and overvaluation of multiple asset classes caused by a combination of deflationary pressures in the real economy and extremely high levels of global liquidity. We continue to believe that the most likely future scenario is for a sharp fall in the dollar and U.S. economic growth, triggering problems in China and a deflationary contagion, which will most likely be followed by a concerted reflation policy across the OECD, as politicians decide to sacrifice nominal bondholders instead of middle class voters. Yet, as noted above, our pessimism about what lies ahead is tempered with a health respect for the capacity of all complex adaptive systems, including the world's financial markets, to creatively develop new structures that prevent them from falling into a costly and often times destructive period of chaotic dynamics. In sum, while we think we know what is coming, we do not know when it will arrive. In light of these conditions, our general view of global asset class valuations (from a U.S. dollar based investor's perspective, on a three year time horizon) is as follows:

Probably Overvalued	Commodities, Corporate Bonds
Likely Overvalued	Commercial Property, Most Equity Markets
Possibly Overvalued	
Possibly Undervalued	
Likely Undervalued	Equity Volatility
Probably Undervalued	Non-U.S. Dollar Bonds

Product and Strategy Notes

Four New "Active Index" ETFs from Claymore Securities

Just in case you thought there weren't already enough actively quantitative strategies masquerading as index exchange traded funds, Claymore has launched four more. They include funds which track the performance of corporate spin-offs (ticker CSD); "defensive equities" (DEF); "green eco-friendly equities" (GRN); and companies with high ratios of patents to book value (OTP). Regular readers already know our opinion about products like these: if they don't have a low correlation with returns on broad asset class index funds – that is, if they aren't substantially market neutral – they aren't worth adding to your portfolio. None of these seem likely to meet that test. Of course, you might still want to buy one or more of them if you believe you have some special forecasting skill that gives you better (and earlier) insight than most other investors into the future performance of a subsegments relative to the overall equity market. However, history shows that the additional gains earned via active management don't offset, and are frequently quite inferior to, the additional costs involved. In sum, caveat emptor.

SEC Raises the Bar For Investing in Hedge Funds

The United States Securities and Exchange Commission has recently issued a proposed rule change that will, according to some estimates, cut by more than eighty percent the number of individual investors who can invest in hedge funds. Up to now, to qualify as an "accredited investor" who can invest in sophisticated products like hedge funds, and individual had to have either an annual income of $200,000 or $1 million in assets (including the net equity value of the investor's permanent residence). The SEC proposes to change the definition of an accredited investor to someone with at least $2.5 million in investable assets, excluding the net value of the investor's principal residence. Issuance of the new regulation was prompted by the SEC's growing concern over the "retailization" of hedge funds in the United States.

We are of two minds about this change. On the one hand, we think it makes sense. Too many retail investors chase performance, with too little concern for the level of risk they are taking on in their portfolios. At the same time, too many hedge fund managers have very

strong incentives to take on high levels of risk, to maximize their rewards under their "2 and 20" compensation structures (2% of the assets under management, plus 20% of the annual profits above a minimum return threshold). The potential for abuse seems clear, and the SEC is right to be concerned about it. On the other hand, we have frequently noted the potential advantages of including actively managed market neutral products in a portfolio. Granted, there are risks involved, with the biggest being an investor's ability to identify a skilled market neutral manager (which is why we limit actively managed market neutral products to no more than a 10% weight in our model portfolios). In so far as most market neutral products are structured as hedge funds rather than mutual funds or ETFs, the SEC's new rules could, at the margin, limit some investor's potential to improve their long-term portfolio performance. On balance, however, provided that sufficient market neutral products are available in non-hedge fund forms, we support the SEC's proposed change.

Some Fascinating New Papers on Financial Planning and Investor Behavior

Two recent papers by Annamaria Lusardi and Olivia Mitchell make the strongest case we've yet seen for the importance of financial planning. In "Financial Literacy and Planning: Implications for Retirement Wellbeing", they begin by noting that "only a minority of American households feels confident about retirement saving adequacy, but little is known about why people fail to plan for retirement and whether planning and information costs might affect retirement savings patterns." The authors report on the results of a new data collection tool they built to explore this issue, which was used in the 2004 version of the annual U.S. Health and Retirement Study. This analysis found that "only half of the age 50+ respondents could correctly answer two simple questions regarding interest compounding and inflation, and only one-third correctly answered these two questions and a question about risk diversification…Fewer than one-third of age 50+ respondents ever tried to devise a retirement plan, and only two-thirds of those who tried actually claim to have succeeded. Overall, fewer than one-fifth of the respondents believed they engaged in successful retirement planning." The authors also found that "financial knowledge and planning are clearly interrelated: people who displayed financial knowledge were more likely to plan and to succeed in their planning. Moreover, those who did plan were more likely to rely on formal methods such as retirement calculators, retirement seminars, and financial experts, and less likely to rely on

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family/relatives or co-workers. Most importantly, those who display higher financial literacy are more likely to save and invest."

In "Baby Boomer Retirement Security: The Roles of Planning, Financial Literacy, and Housing Wealth", Lusardi and Mitchell compare the wealth holdings of two groups of investors aged 51 to 56: one whose situation was captured by the 1992 Health and Retirement Survey, and people of the same age from the 2004 HRS.   The following table shows total net worth for investors in the 25th, 50th and 95th percentiles, as well as housing equity's contribution to these amounts.

	1992	**2004**
25th percentile's Net Worth in 2004 dollars (percent housing equity)	$40,660 (17%)	$36,000 (19%)
50th percentile's Net Worth in 2004 dollars (percent housing equity)	$136,260 (44%)	$152,000 (45%)
95th percentile's Net Worth in 2004 dollars (percent housing equity)	$1,218,500 (24%)	$1,327,000 (32%)

Lusardi and Mitchell note that "housing equity is a key component of retirement assets" and caution that "the concentration of wealth in one asset leaves many Boomers vulnerable to fluctuations in the housing market." They also find that "holders of stocks, IRAs, and business equity are concentrated in the top quartiles of the wealth distribution." In seeking explanations for these different outcomes, the authors conclude that "financial literacy influences planning behavior and that planning , in turn, increases wealth holdings, even after controlling for many sociodemographic factors." (For a good example of the kind of planning mistake even relatively sophisticated investors can make, see "The Trade-Off Between Mortgage Prepayments and Tax Deferred Retirement Savings" by Amromin, Huang and Sialm. The authors find that 38% of a sample of investors violate the rule that you should contribute to a tax deferred pension instead of prepaying a mortgage when the return on the former is higher than the after-tax borrowing cost on the latter).

Clearly, improving investors' financial literacy and planning capability is critical – and not just in the United States. In a recent paper published by Norwich Union in the U.K.,

("Rethinking Financial Capability: Lessons from Economic Psychology and Behavioral Finance"), Mike Dixon complements the Lusardi and Mitchell papers with an outstanding summary of recent research on the obstacles that must be overcome to improve financial literacy among investors, and how this might be accomplished.

More insight into the variation in the observed levels of retirement savings is provided in paper by Martin Salm of the University of Mannheim, titled "Can Subjective Mortality Expectations and States Preferences Explain Varying Consumption and Saving Behaviors Among the Elderly?" Salm uses the same Health and Retirement Study data as Lusardi and Mitchell, and merges it with data from other surveys on respondents' actual consumption patters. He finds that differences in saving levels are consistent with differences in subjective mortality expectations (i.e., investors' own estimates of their remaining years of life) – which have been shown in other research to be impressively accurate – as well as differences in investors' level of risk aversion. Essentially, the highest level of consumption (and the lowest level of savings) is found among investors who don't expect to live for many more years and are not very risk averse (i.e., worried about the accuracy of their life expectancy forecast). At the other end of the spectrum, investors who expect to live for a long time and are risk averse have the lowest relative levels of consumption and highest savings levels.

One potential problem with these studies, and indeed with many approaches to financial planning, lies with the concept of "risk aversion." A number of other recent papers reinforce this point. In "Risk Aversion and Expected Utility Theory: A Calibration Exercise", Laura Schecter finds that, contrary to theory, individuals tend to treat individual risky decisions in isolation, and that an individual's level of "risk aversion" is not a static concept. Like others before her, Schecter concludes that the theory of expected utility that underlies much finance theory is badly flawed and in need of replacement. In practice, this is a critical point, as many mainstream financial planning methodologies begin with an attempt to identify an investor's "risk preference" and then use this to constrain the asset allocation decision. In effect, this "backs in" to the goals that an investor has a reasonable chance of achieving. As we have repeatedly noted in our writing, we take a different view, and believe that, in the case of decisions related to their long-term financial health, individuals take a more sophisticated approach, trading off future living standards, savings rates, retirement dates, asset allocation

decisions and the level of risk they are willing to assume over different time frames. In our view, risk preference is one consideration, but not the dominant one.

Three other papers also find that "risk" is a far more complicated subject that the way the investment profession too often portrays it. In "A Model of Reference Dependent Preference" and "Reference Dependent Risk Attitudes" Koszegi and Rabin propose a new theory of decision making in the face of uncertainty. Their starting point is Prospect Theory, in which an investor is more risk averse for decisions made in the zone of gains above a reference point (i.e., when the value of a security is higher than its cost basis), but less risk averse in the zone of losses. Koszegi and Rabin's key insight is that in practice, the reference point is an investor's expectation of the likely outcome of a decision. Hence, the investor's "environment, through its effect on expectations, heavily influences [the investor's] attitude toward risk" at any point in time. In other words, the authors conclude that there is a sound theoretical basis for the practical conclusion reached by many planners that when it comes to their clients' views, "risk" is a moving target. While we're on this subject, we can't help but mention another paper, "Seemingly Irrelevant Events Affect Economic Perceptions and Expectations" by Dohmen, Falk, Huffman and Sunde. These authors trace the impact of the performance of the German team during the 2006 FIFA World Cup on German investor's perceptions of economic conditions. They find that wins and losses by the German team had a measurable and statistically significant impact on those perceptions. More evidence that the challenges facing financial advisers are far from easy!

In "A Dual Self Model of Impulse Control", Fudenberg and Levine note that recent research has found that impulsive behavior is associated with different areas of the brain than planned behavior. Hence, many decision problems should be viewed as "a game between a sequence of short-run, impulsive selves, and a long-run, patient self." This is consistent with another paper, "Beyond Risk Seeking and Risk Aversion: Personality and the Dual Nature of Economic Risk Taking" by Tomasz Zaleskiewcz. He finds a crucial difference between risk-taking that is rational, forward looking, and related to an achievement motive and risk taking that is more short term in orientation and related to a need for stimulation. Interestingly, he finds that the two are only moderately correlated. Hence we should not be surprised to occasionally encounter careful financial planners who also like scuba and skydiving.

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Invest Wisely…Get an Impartial Second Opinion

In yet another paper, ("Childhood Determinants of Risk Aversion"), Hryshko, Luengo-Prado, and Sorensen look for deeper seated sources of differences in investors' level of risk aversion. They find that lower risk aversion (in the rational sense, as opposed to sensation seeking) is associated with higher parental education, growing up in a town with relatively higher average educational and income levels, and growing up with both parents, among other factors. Interestingly, people from the Western United States were also found to be less risk averse than average, while those from the Midwest and South were more risk averse.

In sum, these papers lead us to conclude that while improving investors' financial literacy and planning skills is undoubtedly important, successful financial advisers must, as they always have, combine sound analytics with a healthy measure of psychology and practical insight into the "normally irrational" behavior of clients.

World Wealth Distribution

A fascinating new paper by Davies, Sandstrom, Sharrocks and Wolff ("The world Distribution of Household Wealth") provides data that will be of interest to many of our readers. In 2000, to be in the top one percent of the world wealth distribution, an investor needed net worth of U.S. $514,512. The minimum for the top five percent was $150,145, and the top ten percent was $61,041. While most of us probably compare out station in life to more narrowly based national or regional indicators, these global cut-offs make it clear how lucky most of us are, relative to the six billion people with whom we share this planet.

The following table provides more data from the report, showing different countries' share of global wealth, and the percentage of wealth <u>within</u> a country that is controlled by the top ten percent of the population.

Country	Share of Global Wealth in 2000	Share of National Wealth Controlled by Top 10%
Australia	1.1%	45%
Canada	1.7%	53%
China	8.7%	41%

Country	Share of Global Wealth in 2000	Share of National Wealth Controlled by Top 10%
France	3.4%	61%
Germany	4.6%	44%
India	4.1%	53%
Japan	9.8%	39%
Switzerland	0.6%	71%
United Kingdom	4.7%	56%
United States	25.3%	70%

2006-2007 Model Portfolios Year-to-Date Nominal Returns

We offer over 2,000 model portfolio solutions for subscribers whose functional currencies (that is, the currency in which their target income and bequest/savings are denominated) include Australian, Canadian, and U.S. Dollars, Euro, Yen, Pounds-Sterling, Swiss Francs and Indian Rupees. In addition to currency, each solution is based on input values for three other variables:

- The target annual income an investor wants her or his portfolio to produce, expressed as a percentage of the starting capital. There are eight options for this input, ranging from 3 to 10 percent.

- The investor's desired savings and/or bequest goal. This is defined as the multiple of starting capital that one wants to end up with at the end of the chosen expected life. There are five options for this input, ranging from zero (effectively equivalent to converting one's starting capital into a self-managed annuity) to two.

- The investor's expected remaining years of life. There are nine possible values for this input, ranging from 10 to 50 years.

We use a simulation optimization process to produce our model portfolio solutions. A detailed explanation of this methodology can be found on our website. To briefly summarize its key points, in order to limit the impact of estimation error, our assumptions about future asset class rates of return, risk, and correlation are based on a combination of historical data and the outputs of a forward looking asset pricing model. For the same reason, we also constrain the maximum weight that can be given to certain asset classes in a portfolio. These maximums include 30% for foreign equities, 20% for foreign bonds, domestic and foreign commercial property, and commodities (including a sub-limit of 10% on timber), and 10% for emerging markets equities. There are no limits on the weight that can be given to real return and domestic bonds, and to domestic equities.

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Each model portfolio solution includes the following information: (a) The minimum real (after inflation) internal rate of return the portfolio must earn in order to achieve the specified income and savings/bequest objectives over the specified expected lifetime. (b) The long-term asset allocation strategy that will maximize the probability of achieving this return, given our assumptions and constraints. (c) The recommended rebalancing strategy for the portfolio. And (d) the probability that the solution will achieve the specified income and savings/bequest goals over the specified time frame.

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 2006, our U.S. cash benchmark is 4.40% (in nominal terms). The second benchmark we use is a portfolio equally allocated between the ten asset classes we use (it does not include equity market neutral). This portfolio assumes that an investor believes it is not possible to forecast the risk or return of any asset class. While we disagree with that assumption, it is an intellectually honest benchmark for our model portfolios' results.

The year-to-date nominal returns for all these model portfolios can be found here: http://www.retiredinvestor.com/Members/Portfolio/USA.php