

# Retired Investor

*Invest Wisely...Get an Impartial Second Opinion.*

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## This Month's Issue: Key Points

This month's year-end issue covers a wide range of topics. Our lead article continues last month's model portfolio update, and shows, for our all our target internal real rate of return portfolios, how adding equity market neutral and volatility to our base case ten asset class portfolios affects the probability of achieving an investor's bequest target.

Our next set of articles cover a range of product and strategy issues. While new sub-sector ETFs now being introduced have some potentially interesting uses, they may also tempt individual investors to pursue active trading strategies, which research shows lose money in the aggregate. We next review a recent IRS ruling that, in the short term at least, creates frustration for investors in commodity index funds. We strongly recommend that readers join us in writing to the U.S. Congress to urge changes in the relevant legislation by June 30, 2006.. Commodity index funds are too important a source of diversification benefits to have them derailed by the IRS. We next move on to a discussion of new ETF products in Canada, and, in particular, one that tracks Canadian income trusts (which have been growing

rapidly, and today account for ten percent of the market cap of the Toronto Stock Exchange). Converting a corporation into an income trust offers substantial tax advantages, provided the organization pays out virtually all of its earnings in excess of its annual depreciation charge. The high yields that result make these products popular with many investors. However, we identify two issues they raise. The first is the valuations companies receive upon their initial conversion from corporate to income trust status. In some cases, they appear to be higher than the tax advantages would warrant. The second issue is the fact that income trusts are not without risk. It may well be the case that the requirement that they pay out most of their earnings makes it harder for them to make the investments needed to maintain or improve their long-term competitive advantage.

Our next product and strategy note focuses on new funds from PowerShares and PIMCO that both aim to exploit Bob Arnott's finding that, historically, portfolios of companies weighted by revenue, cash flow, or book asset value have outperformed those weighted by the market capitalization of their equity. We explore the possible causes of this "fundamental indexation" anomaly, and whether it is likely to continue to exist in the future. In a market that is strongly attracted to efficiency, we suspect it won't, which makes us skeptical about the alleged benefits of these new funds.

Our last note summarizes a recent Financial Times analysis of the pros and cons of investing in private equity. Like us, The FT concludes that "fans of private equity argue it is a superior form of ownership. Skeptics, rightly, point out that it has no clear advantages."

The last article in this month's issue is our regular quarterly economic warning indicators update. We conclude that while we successfully muddled through 2005 without a major crisis, the underlying imbalances in the world economy continued to worsen. Global economic growth remains dangerously dependent on the continued willingness of lenders to finance the U.S. housing and Chinese investment booms (or, perhaps, bubbles). When the day of reckoning comes, as we believe it must, we expect it will include a sharp drop in the U.S. dollar, a prolonged global economic slowdown, and, eventually, a substantial increase in inflation (with the U.S. leading the way). We also highlight three "unpredictable but potentially significant" developments that we could see in 2006. If nothing changes, the Iranian nuclear program may reach a critical point around March. Al Qaeda has apparently

shifted its targeting to the world's oil industry. And H5N1 influenza appears to be slowly improving its human-to-human transmissibility.

## **This Month's Letters to the Editor**

*Why can't I just do a multiyear asset allocation using mean variance optimization, but substituting the geometric return for an asset class for the annual return?*

Your question is one which reasonable people can and do argue about. For a single period optimization problem, the arithmetic average is the right one to use, and mean variance optimization produces a good answer. However, MVO falls short in multiyear problems, in which variance/standard deviation becomes relatively more important, as a number of below average returns in early years can sharply reduce the probability of achieving a long term goal, which is usually specified as a compound rate of return (i.e., either a geometric average for an accumulation problem, or an internal rate of return for a decumulation problem).

One way people have approached this problem is to substitute a geometric average return for an asset class for the arithmetic average, and then continuing to use mean variance optimization to derive an optimal asset allocation. The problem here is that while the combination of an arithmetic average and a standard deviation (which measures the dispersion of returns around the arithmetic average) makes theoretical sense, the combination of a geometric average and the same standard deviation does not. At best, this approach preserves the ease of use of MVO models (which are basically simple linear optimization methodologies), while generating an answer that, one hopes, is "in the right ballpark." Given the prevalence of estimation errors in the input assumptions, some will argue that this is a reasonable trade-off. On the other hand, our approach -- simulation (or, as it is also known, stochastic) optimization produces results that are theoretically more defensible, if computationally more difficult and time consuming to generate.

*Can you explain again how rebalancing works in your model portfolios?*

In our asset allocation model, when the rebalancing trigger is exceeded (e.g., if the trigger is 10% and an asset class with a target weight of 15% is at 26%), a general rebalancing ensues, in which all asset classes are rebalanced back to their target weights, subject to the over/under adjustment (if any) on those asset classes whose weights are farthest away from their targets. For example, if the adjustment factor was 2.5%, and at 26% the aforementioned asset class was the farthest above its target weight, it would be rebalanced back to 12.5% (15% less 2.5%).

*Why have you changed from a broad hedge fund index to equity market neutral?*

In our 2003 asset allocation review, we used a general hedge fund index, since the few then-available index-like hedge fund products contained a broad mix of hedge fund types. At that time, we also noted that both our analysis and a number of academic papers had found that a mix of EMN and Global Macro funds was superior to a broad hedge fund index, especially in a portfolio containing other asset classes. This year we have moved more explicitly toward the alpha/beta separation approach, in which EMN best represents uncorrelated alpha (Global Macro is, as you would expect, quite correlated with returns on many asset classes, although these correlations aren't stable over time). The appearance in recent years of more mutual funds that use hedge fund like approaches (and seek to be close to market neutral) has made this easier to implement. In addition, our use of a dynamic rebalancing strategy (e.g., a 10% trigger and 2.5% over/under adjustment) to some extent captures the underlying approach used by Global Macro funds. That being said, we're not uncomfortable with the same mix of EMN and Global Macro we have used in the past. As we note, the assumptions we use in our analysis (like everyone else's) contain estimation errors of unknown sizes. As such, it is hard to say with any confidence that a 50/50 mix of EMN and Global Macro is inferior or superior to using EMN on its own.

*What funds can a U.S. investor use to implement an allocation to foreign commercial property?*

In the absence of a proper index product, there are at least two actively managed products available to U.S. investors: the Fidelity International Real Estate Fund (FIREX) and the Cohen and Steers International Realty Fund (IRFAX). An exchange-traded alternative (that is global, rather than simply non-U.S. in focus) is the Cohen and Steer Worldwide Realty Income Fund (RWF). We hope to see an index product introduced in this asset class before our next asset allocation review in 2007.

*Was there a typo in your October issue? The historical compound return for U.S. real return bonds seems too low.*

Ouch! You're right, there was. The correct geometric average return for real return bonds is 4.2%, not 2.1%. And while we're on the subject, equity market neutral should be 7.6%, not 5.1%. We apologize for not catching this.

*I'm confused by some of your new asset allocations. The asset class weights don't seem to increase linearly. Why is that?*

You ask the same questions we did when we reviewed the results of the analysis. There are two explanations for this. Both start with the fact that we are dealing with a very complex (or hard, in the technical mathematical sense) combinatorial optimization problem (e.g., with multiple possible values for our asset class weights and rebalancing strategy variables, and many interacting constraints on the values they may take, as well as on the feasibility of a solution). An analogy to this is the difference between finding the highest peak on a plane with only one mountain on it, versus finding the highest peak in the middle of a very rugged and mountainous landscape. In the first situation, the tall peak is clear from all parts of the landscape, and it is therefore easy to get to its location. The search goal can be attained using a simple rule: from wherever you are, move uphill. In contrast, that search strategy will not work in the rugged landscape, where it can trap you on a relatively low peak. To find the highest peak in these circumstances, you have to search in different directions, and, as each search progresses, make some educated guesses as to whether to press on or focus your search in a different area. As we emphasize in our writing, it is impossible (absent access to the

computing power available at the National Security Agency or a nuclear weapons lab) to solve the kind of complex search problem we face through brute force (i.e., testing all possible combinations) in a reasonable period of time. And even then, there would be some residual uncertainty about the solution caused by the fact that our estimated probability that a given asset allocation will achieve the specified income and bequest targets relies on simulation of inherently uncertain variables (asset class returns).

We therefore approach this problem using evolutionary optimization algorithms (technically, we use scatter/tabu search, which is similar to a genetic algorithm). This approach cannot be said to produce the optimum solution, in the sense that one can be confident there is not another solution that is better. What it can do is produce solutions that are superior to most, and "robust", in the sense that they have a reasonable probability of achieving the specified income and bequest targets. This creates the possibility that our algorithm can miss a potentially superior solution. As a check on this, we compare each solution to its predecessor -- for example, we check to see if the 5% target internal rate of return solution has a higher probability of achieving our 4% target than the solution generated by our software. None of our solutions flunked this test, so we concluded that this wasn't the cause of the somewhat anomalous asset allocation differences you noted in your email. We therefore concluded that the most likely explanation for the results we observed was the structure of the problem itself, or, more specifically, the nature of its many interactions (e.g., between goals and constraints and our assumptions about asset class risk, return, and correlations).

While the change from a 5% to a 4% internal rate of return target may seem slight, given the structure of the problem (i.e., the constraint that any solution that maximizes the probability of achieving the bequest target must also deliver at least a 95% probability of achieving the income target over a multi-year time horizon), it is not. Hence, the non-linear changes in asset class weights are not illogical, in the mathematical sense, even though they do not fit the pattern we would naturally expect to see. That being said, we also emphasize the imprecision associated with our asset class input assumptions, due to either estimation error (for those derived from historical data) or model error (for those derived from our forecasting model). For this reason, we cannot say with any certainty that the linear pattern you allude to in your email does not, in fact, represent the "right" answer. Only in hindsight

will be know which asset allocation is truly optimal for a given set of income and bequest goals (and time horizon). That is why we emphasized in the article the need to weigh the potential incremental gains from revising one's asset allocation (which, in foresight, can only be estimated) with the very real tax and transaction costs they would incur. As we wrote, there is no easy or necessarily "right" answer to this problem; we try to help people think it through logically before making what are, inescapably, judgments in the face of uncertainty.

## Global Asset Class Returns

YTD 30Dec05	In USD	In AUD	In CAD	In EURO	In JPY	In GBP
Asset Held						
US Bonds	2.40%	8.85%	-0.65%	15.30%	15.52%	12.78%
US Prop.	11.90%	18.35%	8.85%	24.80%	25.02%	22.28%
US Equity	6.00%	12.45%	2.95%	18.90%	19.12%	16.38%
AUS Bonds	-5.31%	1.15%	-8.35%	7.59%	7.81%	5.07%
AUS Prop.	1.53%	7.98%	-1.52%	14.42%	14.64%	11.91%
AUS Equity	16.63%	23.08%	13.58%	29.53%	29.74%	27.01%
CAN Bonds	10.02%	16.47%	6.97%	22.92%	23.14%	20.40%
CAN Prop.	25.58%	32.04%	22.54%	38.48%	38.70%	35.96%
CAN Equity	27.52%	33.98%	24.48%	40.42%	40.64%	37.91%
Euro Bonds	-8.71%	-2.26%	-11.76%	4.19%	4.41%	1.67%
Euro Prop.	11.96%	18.41%	8.91%	24.86%	25.08%	22.34%
Euro Equity	8.78%	15.23%	5.73%	21.67%	21.89%	19.16%
Japan Bonds	-12.48%	-6.03%	-15.53%	0.42%	0.64%	-2.10%
Japan Prop.	51.33%	57.78%	48.28%	64.23%	64.45%	61.71%
Japan Equity	24.34%	30.79%	21.30%	37.24%	37.46%	34.72%
UK Bonds	-3.38%	3.07%	-6.43%	9.52%	9.74%	7.00%
UK Prop.	8.18%	14.63%	5.13%	21.08%	21.30%	18.56%
UK Equity	5.91%	12.36%	2.86%	18.81%	19.03%	16.29%
World Bonds	-2.90%	3.55%	-5.95%	10.00%	10.22%	7.48%
World Prop.	14.79%	21.24%	11.74%	27.69%	27.91%	25.17%
World Equity	10.80%	17.25%	7.75%	23.70%	23.92%	21.18%
Commodities	19.00%	25.45%	15.95%	31.90%	32.12%	29.38%
Timber	6.65%	13.11%	3.61%	19.55%	19.77%	17.03%
Hedge Funds	2.28%	8.73%	-0.77%	15.18%	15.40%	12.66%
Volatility	-9.18%	-2.73%	-12.23%	3.72%	3.94%	1.20%
A\$ Currency	-6.45%	0.00%	-9.50%	6.44%	6.66%	3.93%
C\$	3.05%	9.50%	0.00%	15.94%	16.16%	13.43%
Euro	-12.90%	-6.44%	-15.94%	0.00%	0.22%	-2.52%
Yen	-13.12%	-6.66%	-16.16%	-0.22%	0.00%	-2.73%
UK£	-10.38%	-3.93%	-13.43%	2.52%	2.73%	0.00%
US\$	0.00%	6.45%	-3.05%	12.90%	13.12%	10.38%



## Equity and Bond Market 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  $(\text{Current Dividend Yield} \times 100) \times (1 + \text{Forecast Productivity Growth})$  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:

<i>Australia</i>	<b>Low Demanded Return</b>	<b>High Demanded Return</b>
<b>High Supplied Return</b>	62%	96%
<b>Low Supplied Return</b>	97%	136%

<i>Canada</i>	<b>Low Demanded Return</b>	<b>High Demanded Return</b>
<b>High Supplied Return</b>	92%	162%
<b>Low Supplied Return</b>	183%	276%

<i>Eurozone</i>	<b>Low Demanded Return</b>	<b>High Demanded Return</b>
<b>High Supplied Return</b>	60%	109%
<b>Low Supplied Return</b>	112%	171%

<i>Japan</i>	<b>Low Demanded Return</b>	<b>High Demanded Return</b>
<b>High Supplied Return</b>	91%	204%
<b>Low Supplied Return</b>	273%	459%

<i>United Kingdom</i>	<b>Low Demanded Return</b>	<b>High Demanded Return</b>
<b>High Supplied Return</b>	46%	88%
<b>Low Supplied Return</b>	88%	137%

<i>United States</i>	<b>Low Demanded Return</b>	<b>High Demanded Return</b>
<b>High Supplied Return</b>	114%	180%
<b>Low Supplied Return</b>	207%	294%

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:

	<b>Current Real Rate</b>	<b>Average Inflation Premium (89-03)</b>	<b>Required Nominal Return</b>	<b>Nominal Return Supplied (10 year Govt)</b>	<b>Return Gap</b>	<b>Asset Class Over or (Under) Valuation, based on 10 year zero</b>
Australia	2.22%	2.96%	5.18%	5.21%	0.03%	-0.32%
Canada	1.46%	2.40%	3.86%	3.98%	0.12%	-1.15%
Eurozone	1.32%	2.37%	3.69%	3.30%	-0.39%	3.88%
Japan	0.71%	0.77%	1.48%	1.48%	0.01%	-0.05%
UK	1.16%	3.17%	4.33%	4.09%	-0.24%	2.30%
USA	2.05%	2.93%	4.98%	4.40%	-0.58%	5.69%

It is important to note some important limitations of this analysis. First, it uses the current yield on real return government bonds. Over the past forty years or so, this has averaged around 3.00%. Were we to use this rate, bond markets would generally look even more overvalued. It also uses historical inflation as an estimate of expected future inflation. This may not produce an accurate estimate, if the historical average level of inflation is not a good predictor of average future inflation levels.

Second, this analysis looks only at ten-year government bonds. The relative valuation of non-government bond markets is also affected by the extent to which their respective credit spreads (that is, the difference in yield between an investment grade or high yield corporate bond and a government bond of comparable maturity) are above or below their historical averages (with below average credit spreads indicating potential overvaluation). Today, in many markets credit spreads are at the low end of their historical ranges, which would make non-government bonds appear even more overvalued.

Third, if one were to assume a very different scenario, involving a prolonged recession, accompanied by deflation, then one could argue that government bond markets are actually undervalued.

Finally, 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 A\$	To C\$	To EU	To YEN	To GBP	To US\$
From						
<b>A\$</b>	0.00%	-1.23%	-1.91%	-3.73%	-1.12%	-0.81%
<b>C\$</b>	1.23%	0.00%	-0.68%	-2.50%	0.11%	0.42%
<b>EU</b>	1.91%	0.68%	0.00%	-1.82%	0.79%	1.10%
<b>YEN</b>	3.73%	2.50%	1.82%	0.00%	2.61%	2.92%
<b>GBP</b>	1.12%	-0.11%	-0.79%	-2.61%	0.00%	0.31%
<b>US\$</b>	0.81%	-0.42%	-1.10%	-2.92%	-0.31%	0.00%

**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 year-to-date returns in the table give a rough indication of how investors employing different strategies 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.

*Year-to-Date Returns on Classic Rotation Strategies in the U.S. Markets*

**YTD 30Dec05**

<b>Economy</b>	Bottoming	Strengthening	Peaking	Weakening
<b>Interest Rates</b>	Falling	Bottom	Rising	Peak
<b>Style Rotation</b>	Growth (IWZ) <b>5.01%</b>	Value (IWW) <b>6.52%</b>	Value (IWW) <b>6.52%</b>	Growth (IWZ) <b>5.01%</b>
<b>Size Rotation</b>	Small (IWM) <b>4.40%</b>	Small (IWM) <b>4.40%</b>	Large (IWB) <b>6.25%</b>	Large (IWB) <b>6.25%</b>
<b>Style and Size Rotation</b>	Small Growth (DSG) <b>8.75%</b>	Small Value (DSV) <b>5.16%</b>	Large Value (ELV) <b>4.96%</b>	Large Growth (ELG) <b>2.75%</b>
<b>Sector Rotation</b>	Cyclicals (IYC) <b>-2.33%</b> Technology (IYW) <b>2.75%</b>	Basic Materials (IYM) <b>4.06%</b> Industrials (IYJ) <b>4.03%</b>	Energy (IYE) <b>34.61%</b> Staples (IYK) <b>1.50%</b>	Utilities (IDU) <b>13.63%</b> Financials (IYF) <b>5.17%</b>
<b>Bond Market Rotation</b>	High Risk (VWEHX) <b>2.70%</b>	Short Maturity (VBISX) <b>1.30%</b>	Low Risk (VIPSX) <b>2.60%</b>	Long Maturity (VBLTX) <b>5.30%</b>

## **Asset Allocation: The Impact of Adding Equity Market Neutral and Volatility**

In various articles this year, we have explored the use of four new asset classes in our model portfolios: foreign commercial property, timber, equity market neutral strategies, and equity market volatility. In the analysis that follows, we present three different cases. The first uses ten asset classes: real return bonds, domestic investment grade bonds, foreign currency investment grade bonds, domestic commercial property, foreign commercial property, commodities, timber, domestic equity, foreign developed market equity, and emerging markets equity.

The second case adds equity market neutral to the first ten asset classes. Our logic here is based on the growing trend toward separating alpha from beta investing. The returns on traditional long-only actively managed funds are compensation for taking both systemic (non-diversifiable) asset class risk (also known as “beta”), and non-systematic security-specific risk (also known as “alpha”). The problem is that the high fees charged by these funds cover both beta and alpha returns. With the growth of index products (mutual and exchange traded funds, unit trusts, etc.) it is now possible to pay much less for beta. This has led to what is known as the separation of alpha and beta investing. In this emerging approach, investors divide their portfolios between a mix of low-cost asset class index funds and funds that focus only on generating alpha returns (and charge much higher prices for doing this). The key attraction of these “pure alpha” funds is that they say that their returns have a low correlation with those on various asset class beta products. As our proxy for this strategy, we have used the average return on equity market neutral hedge funds. (For more on this, please see “Fund of Hedge Funds Portfolio Selection: A Multi-Objective Approach” by Davies, Kat and Lu. It reaches the same conclusion we do about the relative attractiveness of EMN compared to other hedge fund strategies).

The third case we use adds the return on the implied volatility of the Standard and Poor’s 500 (“equity market volatility”) to the original ten plus equity market neutral. This return is calculated as the change in the value of the VIX index. The potential attraction of this asset class is its negative correlation with other types of equity; its drawback is its very

high volatility. While no retail volatility funds are available today, we expect that they will be introduced before our next asset allocation review in two years time; hence, we are including volatility as one of this year's model portfolios.

There is one important point for non-U.S. dollar based investors to keep in mind about our portfolios that include EMN and volatility. Today, most equity market neutral products, and by far the deepest market for equity volatility products, are U.S. dollar based. For this reason, we have used them to generate our model portfolios. However, a comparison of all of our model portfolios across different currencies shows that EMN and volatility provide the most benefit to our U.S. dollar portfolios. This suggests to us that the potential benefits of using locally focused versions these asset classes may be underestimated in our non-U.S. dollar portfolios. Unfortunately, we will not be able to test this hypothesis until more data on local versions of these asset classes become available in non-U.S. dollar markets.

The following tables show, for our all our target internal real rate of return portfolios, how adding equity market neutral and volatility to our base case ten asset class portfolios affects the probability of achieving an investor's bequest target. All portfolios also assume at least a 95% probability of achieving the portfolio income withdrawal target.



<b>7% Internal Real Return Target</b>	<b>10 Asset Classes</b>	<b>10 plus EMN</b>	<b>10 plus EMN and Volatility</b>
Rebalancing Trigger	20.0%	10.0%	0.0%
Rebalancing Adjustment	0.0%	0.0%	0.0%
Real Return Bonds	0%	0%	0%
Domestic Bonds	0%	0%	0%
Foreign Bonds	5%	5%	0%
Domestic Commercial Prop.	0%	0%	0%
Foreign Commercial Prop.	15%	0%	0%
Commodities	10%	10%	10%
Timber	10%	10%	10%
Domestic Equity	55%	55%	60%
Foreign Equity	0%	0%	0%
Emerging Markets Equity	5%	10%	10%
Equity Market Neutral		10%	0%
Equity Volatility			10%
<i>Total</i>	100%	100%	100%
Probability of Achieving Bequest Target	50%	56%	62%

<b>6% Internal Real Return Target</b>	<b>10 Asset Classes</b>	<b>10 plus EMN</b>	<b>10 plus EMN and Volatility</b>
Rebalancing Trigger	20.0%	10.0%	0.0%
Rebalancing Adjustment	0.0%	0.0%	0.0%
Real Return Bonds	0%	5%	0%
Domestic Bonds	0%	0%	0%
Foreign Bonds	5%	0%	0%
Domestic Commercial Prop.	0%	0%	0%
Foreign Commercial Prop.	15%	0%	0%
Commodities	10%	10%	10%
Timber	10%	10%	10%
Domestic Equity	55%	55%	60%
Foreign Equity	0%	0%	0%
Emerging Markets Equity	5%	10%	10%
Equity Market Neutral		10%	0%
Equity Volatility			10%
<i>Total</i>	100%	100%	100%
Probability of Achieving Bequest Target	62%	67%	71%

<b>5% Internal Real Return Target</b>	<b>10 Asset Classes</b>	<b>10 plus EMN</b>	<b>10 plus EMN and Volatility</b>
Rebalancing Trigger	20.0%	0.0%	0.0%
Rebalancing Adjustment	2.5%	0.0%	0.0%
Real Return Bonds	5%	0%	0%
Domestic Bonds	5%	5%	0%
Foreign Bonds	15%	5%	0%
Domestic Commercial Prop.	0%	0%	0%
Foreign Commercial Prop.	5%	0%	0%
Commodities	10%	10%	10%
Timber	10%	10%	10%
Domestic Equity	35%	50%	45%
Foreign Equity	10%	0%	5%
Emerging Markets Equity	5%	10%	10%
Equity Market Neutral		10%	10%
Equity Volatility			10%
<i>Total</i>	100%	100%	100%
Probability of Achieving Bequest Target	65%	70%	76%

<b>4% Internal Real Return Target</b>	<b>10 Asset Classes</b>	<b>10 plus EMN</b>	<b>10 plus EMN and Volatility</b>
Rebalancing Trigger	0.0%	0.0%	0.0%
Rebalancing Adjustment	2.5%	5.0%	0.0%
Real Return Bonds	0%	0%	0%
Domestic Bonds	15%	0%	5%
Foreign Bonds	20%	30%	10%
Domestic Commercial Prop.	0%	0%	0%
Foreign Commercial Prop.	0%	0%	0%
Commodities	10%	10%	10%
Timber	10%	10%	10%
Domestic Equity	30%	30%	25%
Foreign Equity	10%	0%	10%
Emerging Markets Equity	5%	10%	10%
Equity Market Neutral		10%	10%
Equity Volatility			10%
<i>Total</i>	100%	100%	100%
Probability of Achieving Bequest Target	80%	82%	88%

<b>3% Internal Real Return Target</b>	<b>10 Asset Classes</b>	<b>10 plus EMN</b>	<b>10 plus EMN and Volatility</b>
Rebalancing Trigger	10.0%	0.0%	0.0%
Rebalancing Adjustment	2.5%	0.0%	0.0%
Real Return Bonds	10%	0%	0%
Domestic Bonds	15%	15%	10%
Foreign Bonds	15%	30%	5%
Domestic Commercial Prop.	0%	0%	0%
Foreign Commercial Prop.	0%	0%	0%
Commodities	15%	10%	10%
Timber	5%	10%	10%
Domestic Equity	25%	15%	20%
Foreign Equity	10%	0%	15%
Emerging Markets Equity	5%	10%	10%
Equity Market Neutral		10%	10%
Equity Volatility			10%
<i>Total</i>	100%	100%	100%
Probability of Achieving Bequest Target	90%	94%	96%

<b>2% Internal Real Return Target</b>	<b>10 Asset Classes</b>	<b>10 plus EMN</b>	<b>10 plus EMN and Volatility</b>
Rebalancing Trigger	10.0%	0.0%	0.0%
Rebalancing Adjustment	2.5%	0.0%	0.0%
Real Return Bonds	10%	5%	0%
Domestic Bonds	15%	10%	10%
Foreign Bonds	15%	30%	10%
Domestic Commercial Prop.	0%	0%	0%
Foreign Commercial Prop.	0%	0%	0%
Commodities	15%	10%	10%
Timber	5%	10%	10%
Domestic Equity	25%	10%	20%
Foreign Equity	10%	5%	10%
Emerging Markets Equity	5%	10%	10%
Equity Market Neutral		10%	10%
Equity Volatility			10%
<i>Total</i>	100%	100%	100%
Probability of Achieving Bequest Target	95%	98%	99%

## **The Uses and Misuses of Subsector Index ETFs**

The end of 2005 saw the introduction of a slew of new index products around the world, particularly those using an exchange traded fund (ETF) structure. In theory, giving consumers more choice is usually a good thing. However, there are times when additional choice can cause consumer confusion, leading to either additional costs (paying for advice on the right choice to make), or, worse, inferior decisions. We have an uneasy feeling that some of the latest index product introductions fall into this latter category. Specifically, the U.S. market has recently seen the launching or registration of new "sub-sector" ETFs, focused, for example, on insurance, oil and gas exploration and production, or biotech companies.

Let's start with the strongest positive argument for using these new sub-sector products. In the past, we have written about the relationship of an investor's labor income and the allocation of financial assets in his or her portfolio. In theory, the introduction of sub-sector ETFs should make it easier to construct an allocation to domestic equity that avoids "double exposure" to the industry sub-sector in which an investor generates his or her labor income (e.g., the case of an employee at ExxonMobil). This includes a situation in which part of an investor's compensation includes restricted shares (which cannot be sold) in his or her company.

A less convincing, though still positive argument in favor of sub-sector ETFs is that they make it easier for an investor to (legally) take advantage of active investment insights he or she may develop in the course of his or her work. It stands to reason that the area in which most people are most likely to develop an active management insight is the industry where they work. It is the one where they start with the deepest knowledge base, and add to it the most timely information. Clearly, some of this is "material, price sensitive, non-public" so-called "insider" information that it is illegal to trade on (e.g., information that your company is about to make an acquisition). But some of it is not; often this takes the form of a conclusion (e.g., "this industry's profit outlook is improving -- or worsening -- faster than most people realize") that results from the combination of different small bits of information. In these cases, a sub-sector ETF may make it easier to profit from that active management insight (i.e., from the fact that your forecast differs from the apparent "market consensus" forecast).

However, this also raises a strong argument against sub-sector ETFs – their existence may also tempt more investors to become active traders, in the belief that they can earn higher risk adjusted returns than those on a broad-based index fund. Consider a simple, but telling example. Your Uncle Carl calls you up and tells you he’s “going to beat the market by investing in these new biotech ETFs.” Does that make sense?

As always, it depends. First, you have to clarify whether “beat the market” simply means “earn a higher return than a broad market index fund” or “earn a higher risk adjusted return.” As readers of *The Index Investor* know, it isn’t hard to earn higher (or lower) than average market returns if you take on higher (or lower) than market risk. Unfortunately, too many investors don’t consider the amount of risk they are taking on when they are trying to “beat the market.”

But let’s say that Uncle Carl claims that he plans on beating the market on a risk adjusted basis. This implies that Carl believes that he is in possession of a forecast that is superior to the market’s consensus forecast. Broadly speaking, he must have superior insight into either the rate at which biotech cash flows will grow in the future, and/or into the relative riskiness of those cash flows. Assuming Carl believes he will beat the market because the biotech ETFs are undervalued, he must believe that biotech cash flows will grow faster than expected, and/or they are less risky than most people think.

Let’s further assume that Carl believes that biotech cash flows will grow faster than the market’s consensus forecast. You should then ask him, “by how much, and why?” If Carl is a punter, and simply says, “I have a good feeling about this one,” you might want to think twice about taking investment advice from him. On the other hand, if Carl has a PhD. in molecular biology and works in the biotech industry, you might want to consider his arguments. But here is the key point: there are a lot of uncle Carls out there. But very few of them work in the biotech industry. And even fewer of them can answer the all important (to truly skilled active investors) “by how much, and why” questions. Everyone else is a speculator, pure and simple.

The negative effects of this behavior have been amply detailed in a series of outstanding research papers by Professors Brad Barber and Terrance Odean. In their paper “All that Glitters,” Barber and Odean show that in the United States, “individual investors are net buyers of attention grabbing stocks – e.g., stocks in the news, stocks experiencing



abnormal trading volume, and stocks with extreme one day returns.” They also find that “stocks bought by individual investors on high-attention days tend to subsequently underperform stocks sold by those investors.”

In their paper “Systematic Noise” (co-authored with Ning Zhu), Barber and Odean “document that the trading of individuals is more coordinated than one would expect by mere chance”, and show that they tend to “buy stocks with strong past returns, concentrate their buying in relatively few stocks, and buy stocks with unusually high trading volume.”

Of course, this might all make sense if the data showed that individual investors were herding behind some insightful “lead investors.” Unfortunately, in “Do Noise Traders Move Markets?” Barber, Odean and Zhu show that this is not the case. In fact, they find that “among stocks heavily traded by individual investors, the spread in returns between stocks bought and stocks sold is [negative] 13.5 percent the following year.” This finding is confirmed by Barber and Odean (along with Yi-Tsung Lee and Yu-Jen Liu) using a separate (and very rich) set of data covering the trading history of all investors in Taiwan. In “Who Loses from Trade? Evidence from Taiwan”, the authors find that, as a result of their trading, “the aggregate portfolio of [all] individual investors suffers an annual performance penalty of 3.8 percent – an amount equal to 2.8 percent of Taiwan’s total GDP.”

In sum, while under certain circumstances sub-sector ETFs may play a sensible role in a long-term asset allocation, their existence may also tempt individual investors to engage in additional active trading, which, in aggregate, will almost certainly reduce their long-term portfolio returns. The bottom line: think long and hard before you use them.

## **Did the IRS Just Kill Commodity Index Funds?**

Well, if you listen to some commentators, that is what you might think. But it’s not true. Here’s the real story. On December 16<sup>th</sup>, 2005 the U.S. Internal Revenue Service recently issued its first “Revenue Ruling” of 2006 (don’t ask us about the dating issue!). It deals with a very narrowly defined issue: does income from a specific type of derivative contract count as “qualifying income” for a Registered Investment Company (a legal term for a mutual fund) under IRS regulations?

The derivative contract in question is a commodity swap. Broadly speaking, in a swap contract, two counterparties agree to exchange payments with each other on certain dates for an agreed length of time. These payments are based on some “notional principal” amount of money. Here is an example. The earliest swap contracts were based on interest rates, with one party (say, Company A that had issued fixed rate bonds, but thought that rates were going to decline) exchanging interest payments with another (say, Company B that had issued floating rate loans, but thought interest rates were going to increase). These two would enter into a swap agreement, according to which each quarter Company A would pay LIBOR (the London Interbank Offer Rate, a basic floating reference rate) times \$500 million to Company B, and receive 8% (the fixed rate) times \$500 million. In practice, the amounts these companies owed to each other were netted, and only a single payment was made to the party owed money.

Now let’s move on to one of the first examples of a commodity swap, which our editor worked on a long time ago in a galaxy far, far away. This time, Company One is a copper producer that has financed its mine with floating rate loans. Since the price of copper fluctuates, its CFO worries that the price of copper will fall faster than interest rates, resulting in a decline in profits (or worse). Company Two operates in a very competitive industry, and uses a lot of copper to produce its products. Its biggest fear is a rise in the price of copper that will (because it cannot easily raise its own prices) cause its profits to fall. And Company Three has issued fixed rate debt, but believes interest rates will fall in the future. In this case, given their respective fears, a three-way swap can make all three companies better off.

Here’s how the deal works. Company One makes payments (to the bank arranging the swaps) that are based on the floating price of copper (times a notional principal amount of the metal). In return, its payments are based on a floating interest rate times a notional principal amount of money). Company Two receives a payment based on the floating price of copper, and makes a payment based on a fixed rate of interest. And Company Three (entering into a classic interest rate swap) receives a payment based on a fixed rate of interest, while making a floating rate based payment.

Now that you understand how commodity swaps work in principle (and I have compressed about five years of corporate finance history into a few paragraphs), let’s move on to the IRS Revenue Ruling that is causing all the trouble.

PIMCO operates a commodity index fund (PCRD<sub>X</sub>) that tracks the performance of the Dow Jones AIG Commodities Index. As we have discussed in the past, commodities index funds invest in derivative contracts tied to the performance a given commodities index. However, because these contracts can be purchased on margin (that is, for an initial amount less to their full face value), commodity index funds invest the balance of their money in bonds. At PIMCO, they usually use real return bonds, which is consistent with their overall view of commodities index funds as an inflation hedge. The IRS Ruling turns on the question of the type of commodities derivative contract used by PIMCO. One option would be to invest in exchange traded futures contracts based on the Dow Jones AIG index. The basic problem here is that the trading volume in these futures contracts has been growing more slowly than the inflow of money into PCRD<sub>X</sub>. If there was no other way to obtain exposure to the Dow Jones AIG index, a rising demand for the DJ AIG futures contracts relative to their supply would force up their price, and drive down returns for investors in PCRD<sub>X</sub>. Because they are a first-class operation, PIMCO logically looked for other options that would impose a lower cost on investors in PCRD<sub>X</sub>. Commodity swaps were the answer, because the market for them is much deeper (and therefore cheaper to access) than the market for exchange traded futures contracts. Specifically, PCRD<sub>X</sub> entered into swaps where it made payments based on a floating interest rate, and received payments based on changes in the Dow Jones AIG Commodities Index. So far, so good.

However, these swap contracts raised a legal question, as to whether the payments received by PCRD<sub>X</sub> were “qualified income” that counted towards its ability to be classified as a Registered Investment Company for tax purposes. Not meeting this requirement would cause adverse tax consequences for PCRD<sub>X</sub> and its investors. In its Revenue Ruling, the IRS essentially decided that, because the commodity swap contracts were not tied to the underlying securities (real return bonds) held by PCRD<sub>X</sub>, the income from them was not “qualified income.” Fortunately, the IRS decided that this ruling would only start to apply on July 1, 2006, and that it would have no retroactive effect. In other words, if you own PCRD<sub>X</sub> today, there is no adverse tax consequence.

So where does this leave matters? PIMCO (and anyone else considering the launch of a commodities index fund) has three non-exclusive options. The first (and least likely) is to persuade the IRS to change their ruling. The second (which would, as noted above, increase

costs and decrease investor returns) would be to switch from commodity index swaps to the use of commodity index futures contracts (on which profits and losses are considered “qualifying income” by the IRS). The third (which we support) would be to lobby for the passage of new legislation that makes income from commodity index swaps “qualifying income” under IRS regulations. To this end, we will be writing to the chairmen of the U.S. Senate Finance and U.S. House of Representatives Ways and Means Committees to register our opinion that, in light of the considerable diversification benefits commodity index funds offer to individual investors (who, after all, are being asked to bear more of the risk associated with retirement saving), it is imperative that the IRS regulations be changed before the July 1, 2006 deadline. We hope that you will join us in writing these letters. The relevant addresses are as follows:

Representative Bill Thomas  
Chairman  
Committee on Ways and Means  
U.S. House of Representatives  
Washington, DC 20515  
(202) 225-3625

Senator Chuck Grassley  
Chairman  
Committee on Finance  
United States Senate  
Washington, DC 20510  
(202) 224-4515

## **And What’s Up with Canadian Income Trusts?**

In late December, Barclays Global Investors announced the launch of four new Canadian exchange traded funds. They include one (XMA) based on the materials sector of the Toronto Stock Exchange Index, one (XDV) based on the Dow Jones Canadian Select Dividend Index, one (XRB) based on the Scotia Capital Markets Real Return Bond Index, and the subject of this article, XTR, which is based on the Toronto Stock Exchange Income Trust Sector Index (and which carries a not inexpensive annual charge of .55%).

Let's start with the basics: what is a Canadian Income Trust? It is a legal form of organization very similar to a U.S. Real Estate Investment Trust, which provides substantial tax benefits to corporations and individuals, provided the former pays out substantially all of its earnings (except for an amount equal to depreciation) to investors. The ancestors of today's income trusts were so-called "royalty" and "depletion" trusts, which were used by companies to fund the exploitation of natural resource deposits (e.g., an oil reservoir) whose life was limited. Not that these were without risk. In order to value them, you had to estimate the amount of the resource left in the ground, the future cost of extracting it, future prices for it, and future interest rates and equity risk premia (to determine the rate at which future cash flows should be discounted to their present value). Rather than reducing risk, what these trust structures really provided was a way to reduce taxes. Today's income trusts are no different. A recent analysis by the C.D. Howe Institute ("Unfinished Business: Achieving Neutral Taxation of Corporations and Index Trusts") showed how, under the current Canadian tax regime, conversion from corporate status to an income trust could, due to tax benefits, raise a company's market value by 48%. Moreover, even under proposed new corporate tax laws, the valuation advantage of income trust status is still estimated to be on the order of 35%. Given the size of this potential benefit, it is no surprise that Canada has recently seen a wave of income trust conversions, to the point that they now represent about ten percent of the total capitalization of the Toronto Stock Exchange. Given the high yields that result from income trusts' required earnings payouts, as well as the appreciating value of the Canadian dollar (or Petro-Loonie, as it is known to its fans), it is no surprise that we have seen rising interest in them by foreign investors (often retirees), and now a new ETF.

However, in the midst of all this excitement, a couple of very important points may have been overlooked by many investors. As was true of royalty and depletion trusts, and is still true of REITS, income trusts' attractive tax treatment does not mean they are without business risk. A struggling company that converts from a corporate structure to an income trust is still a struggling company. In fact, it may face an even bigger struggle after the conversion. Why? Because of the tax rules that force it to payout the majority of its earnings to investors. In the aggregate, Canada's productivity growth has lagged behind many other OECD countries, in no small part due to underinvestment in information and communication technology. Forcing a substantial portion of Canada's companies to payout most of their

earnings will not help to change this. Why? Income trusts can only retain earnings equal to their depreciation, which is generally reinvested to maintain the productive capacity of their existing assets. Financing new investments would require them to issue new debt or equity. And as anyone who has had to approve information technology investments can tell you, the expected returns on many of them are at best uncertain, and often can only be fully appreciated in hindsight. In other words, they are not ones easily explained to people from whom you are trying to raise money, and are much easier to finance out of internal cash flow. But since income trusts have to payout most of their earnings, is it reasonable to expect them to make these kinds of productivity enhancing investments? There is an analogy here to the old depletion trusts, where you could never be sure how much oil could be recovered from the reservoir you owned, and how much it would cost. Given the incentive for an income trust to underinvest in its business, how long can you expect it to stay competitive (apart from cutting price, and therefore your earnings)?

The second worrisome issue raised by Canadian income trusts is the valuations many of them have received upon their conversion from corporate status. To put it simply, in many cases, they have appeared excessive in light of the potential tax benefits on offer (which themselves are a function of the company's expected future competitiveness and earnings power). There's an old saying: when the sell-side loves a product, it usually pays the buy-side to be wary of it. We don't think the current craze for Canadian income trusts is an exception to this rule.

## **New Products Based on Bob Arnott's Fundamental Indexing Theory**

Bob Arnott is a very smart man. He edits the Financial Analysts Journal, and manages the PIMCO All Asset Fund (PASAX), which seeks to earn high real returns by tactically shifting between most of the asset classes we use in our model portfolios (e.g., real return bonds, foreign bonds, commercial property and commodities). In many ways, it is as close as a retail investor can come to a global macro-style hedge fund. However, in 2005, Bob Arnott was best known for the turmoil he created in the indexing industry with the publication of his paper on "Fundamental Indexation" (co-authored by Jason Hsu and Phillip Moore). In essence, Arnott found that a portfolio of companies weighted by various measures of size

(e.g., revenues, cash flows, book asset value) outperformed (in the past, at least) a portfolio weighted by companies' equity market capitalization. Arnott's findings imply that, in aggregate, investors have been systematically undervaluing large companies (based on sales, assets, and/or cash flow) relative to small companies.

However, if one believes that financial markets are generally efficient, this shouldn't happen, as market capitalization based weighting should provide the best estimate of future returns. So what is going on? In our search for potential explanations for the phenomenon (or "anomaly") identified by Arnott, we'll start with the basic valuation equation. The market price of a company's stock is a function of (a) the current dividend (or, if you prefer, cash flows to equity holders), (b) the rate at which these cash flows are expected to grow in the future; (c) expected future risk free interest rates; and (d) expected future equity risk premiums (for the overall market and for the company relative to the market). Since the current dividend and risk free rate are known, the most likely sources of valuation errors are estimates of the future growth rate of a company's cash flow, and/or estimates of the relative riskiness of those cash flows. This leads to four (not mutually exclusive) possible sources of the systematic valuation error captured by Arnott's fundamental indexation approach: (1) overestimate of smaller companies' future growth rates; (2) underestimate of larger companies future growth rates; (3) overestimate of larger companies' relative risk; and/or (4) underestimate of smaller companies' relative risk.

While there is, as yet, no definitive answer as to the relative importance of these four possible explanations, we have a hunch that the first two are the most important. In another excellent paper ("Bad Beta, Good Beta") Campbell and Vuolteenaho have shown how a company's sensitivity to news about future growth rates and future discount rates can be distinguished. They found that the value effect reflects the higher sensitivity of these companies to news about future cash flow growth rates. In other words, the value premium provides compensation for taking on higher risk. And in "The Level and Persistence of Growth Rates", Chan, Karceski and Lakonishok showed how it was extremely difficult to forecast future growth with any accuracy beyond pure chance. Under the latter condition, normal human over-optimism and overconfidence should have an affect on growth estimates. More specifically, it may well have been the case that they combined with a broadly held investor belief that large companies find it harder to grow than smaller companies (beliefs that

many corporate managers might challenge). This would have produced relatively higher market capitalizations for smaller companies relative to larger ones. However, it may also have been the case that, thanks to the pressures of globalization, demanding shareholders, aggressive acquirers and visionary leaders like Jack Welch, more than a few large companies have, especially in recent times, exceeded investors growth expectations. If this, in fact, has been what has happened, it would have produced the relatively higher returns for larger companies that Arnott found. But, as we said, this is only one possible explanation; surely, there are others.

However, from an investor's point of view, this is not the really important question. In December, a new ETF was launched in the United States (ticker PRF, annual expenses .60%) that tracks Bob Arnott's Fundamental Index. This follows the launch of an "enhanced index fund" by PIMCO (ticker PIXAX; annual expenses 1.14%) that obtains exposure to the Fundamental Index using derivative contracts, and then attempts to add extra return by actively trading an intermediate term bond portfolio. Should you invest in these products?

Here is our take. While it is clear that Bob Arnott, with hindsight, has discovered a theoretically profitable anomaly, what basis is there for assuming it will continue in the future, now that it has been publicized? In order to believe that PRF will outperform the S&P 500 (its stated benchmark), you have to believe in two assumptions: (a) that whoever has been making the valuation errors that gave rise to the superior historical returns will continue making them, and (b) other investors will not arbitrage away the potential excess returns by bidding up the price of larger companies' stocks. While we have often stated that we don't believe financial markets are perfectly efficient, we believe they are strongly attracted to efficiency. If this were not the case, we would not see so many hedge funds – run by smart people with very strong financial incentives to deliver excess returns – going out of business each year. For this reason, we do not believe that, in the future, Bob Arnott's Fundamental Index will deliver the superior performance it has in the past.

## **The Financial Times Shares Our Skepticism About Private Equity**

Earlier this year we noted our doubts about the widely claimed virtues of investing in private equity. In its December 23, 2005 issue, the Financial Times reached a similar conclusion.



The FT's views are worth quoting at length: "The data are murky, but private equity may account for a fifth of the equity capital employed in Europe and the United States...This shift from public to private ownership will accelerate. The industry has raised \$250 billion this year...Serially acquiring public companies at premiums [over market value] without industrial synergies is a textbook strategy for value destruction. Should private equity be any different?" The FT notes the two advantages claimed by private equity funds: the stronger performance incentives (relative to public companies) they provide for managers in the companies they acquire, and the higher amounts of debt they use to capitalize these companies. The FT notes that the potential tax benefits of using more debt are not large relative to the premiums often paid by private equity acquirers. The FT concludes that "fans of private equity argue it is a superior form of ownership. Skeptics, rightly, point out that it has no clear advantages." In fact, 2006 "could see a reckoning. Leverage has reached new highs. Debt repayment schedules may begin to bite. [And] some valuations are becoming circular – premised on selling out to other private equity funds on an ever higher multiple of capital employed." If this conclusion is correct – and we have no reason to disagree with it – look for more "private equity" vehicles to be offered to retail investors in 2006.

## **December, 2005 Quarterly Warning Indicators Update**

By Tom Coyne  
Editor

We are the first to admit that the performance of the global economy and most financial markets in 2005 was a pleasant, and rather (for us at least) an unexpected surprise. But then again, so was the performance of the U.S. equity market in 1999. To make a long story short, rather than seeing the beginning of a correction, 2005 saw a further expansion of the imbalances that plague the global economy. The world remained overly dependent on U.S. consumption, and, ultimately, on the growing bubble in U.S. house prices that was financing it. It also remained overly dependent on Chinese investment, and the continuing lack of credit skills and discipline displayed by that country's (state owned) banking system (did they go to a U.S. mortgage bankers course?). To be sure, there were further analyses presented in 2005 that tried to make the case that "this time it's different." Some suggested that the de facto

existence of a “Bretton Woods II” arrangement, whereby Asian countries would continue to finance the U.S. current account deficit in order to ensure continued markets for their exports, which drive their own economic growth and help ensure their political stability (see “The Revived Bretton Woods System: Alive and Well” by Dooley, Folkerts-Landau, and Garber). Others suggested that, if the U.S. expected to increase its share of world output in the years ahead, perhaps its large current account deficit could be justified (see “The U.S. Current Account Deficit: a Re-Examination of the Role of Private Saving” by Charles Engel).

Still, in our opinion, the analyses on the other side of the argument – that an adjustment of global imbalances is inevitable, and it will be a painful one – still seem more compelling (see, for example, “Will the Bretton Woods II Regime Unravel Soon?” by Roubini and Stetser, and “Is the U.S. Current Account Deficit Sustainable?” by Sebastian Edwards).

To be sure, there have recently been some positive developments. The Japanese economy is showing more vitality than it has in years. However, it is still heavily dependent on exports, including a large proportion of capital goods that are dependent on Chinese demand. And it is still among the fastest aging of the world’s developed countries, which must eventually have a negative impact on economic vitality. Similarly, the Eurozone appears, once again, to be making tentative moves toward reforms that could increase domestic efficiency and demand. Yet it too remains very dependent on exports for overall economic growth.

Absent faster growth in domestic demand in Japan and the Eurozone, the world economy remains heavily dependent on the United States and China. Over the last quarter of 2005, it became increasingly apparent that strains in the latter are growing more severe. The shooting of protesting Chinese villagers in Shanwei by Chinese security forces marked the first time since Tiananmen Square in 1989 that this had happened. As has often been the case, the apparent cause of the protest was the seizure of farmers’ land for industrial development (in this case, a power project) without compensation being paid. Earlier in 2005, the Chinese government admitted that around 75,000 similar demonstrations had been recorded in the country in recent years. Apparently, money is allocated to compensate people for the loss of their land, but it ends up being siphoned off by corruption at various levels of government, to the point that little or nothing is left for its intended beneficiaries. On the other hand, growth

continues unabated, financed with a mounting pyramid of bad loans to many projects of questionable economic viability. Such growth is necessary to provide jobs and rising incomes to the increasing number of workers leaving the land for the cities, and their promise of rising standards of living. Externally, the accumulation of such projects leads to oversupply and declining prices in many industries, along with substantial job losses at competitors located in developed countries. It is, to put it simply, an explosive mixture. Clearly, China needs to keep growing to maintain what remains of its political stability. To do so, it will probably remain quite willing to continue recycling its export earnings to finance the U.S. current account deficit. But the key point is this: China cannot bear this burden alone. Indeed, the surpluses of all the Asian countries together are insufficient to the financing task. Continued financing of the U.S. current account deficit by investors in other developed countries (e.g., Europe and the U.K.) are also needed to keep the current “Bretton Woods II” system afloat. The real question, and the ultimate uncertainty, is when these investors will decide that they’ve had enough, and stop the music.

And then what happens? Sebastian Edwards’ paper concludes that a substantial decline in global GDP is inevitable, in addition to a sharp depreciation of the U.S. dollar. In the past, we have noted our conclusion that this could easily trigger widespread deflation, which in turn would stimulate move by the United States to reflate. This belief is based on analysis that shows the political benefits that such a renewed period of inflation would have. As described by Doepke and Schneider in their paper “Real Effects of Inflation Through the Redistribution of Nominal Wealth”, “the middle class would gain at the cost of the rich and the poor. In addition, inflation would favor the young over the old, and hurt foreigners” who now hold large amounts of fixed rate U.S. dollar denominated debt. The authors conclude that “financial innovation and foreign borrowing have recently increased the potential welfare gains from inflation, to the point that these gains are now substantially larger than conventional estimates.”

The last quarter of 2005 has also seen a number of worrying developments in the category of “uncertain but potentially very significant” issues. Iran’s nuclear program seems to be a lot further along than anyone had realized; some estimates suggest uranium enrichment facilities will reach a critical stage of development around March 2006. Given the radical pronouncements of Iranian president Mahmoud Ahmadinejad, we suspect that a crisis

of some sort could occur around this date. This crisis may be complemented by Deputy Al Qaeda head Ayman al-Zawahiri's apparent call on his organization in late 2005 to focus their efforts on the world's oil infrastructure. Given the lack of slack in the world oil market today (amply demonstrated by Hurricane Katrina), any disruption would further increase prices and take even more steam out of a global economy already slowing due to interest rate rises throughout 2005 by the U.S. Federal Reserve and more recently by the European Central Bank.

Finally, in yet another "unpredictable but very likely significant" development, we note recent indications from Indonesia and Turkey that H5N1 avian influenza may be increasing its capability for human-to-human transmission. There are two critical uncertainties here. The first is whether and when H5N1 will develop into a full-fledged global pandemic. The second is how severe will be that pandemic's effects. The U.S. Congressional Budget Office recently produced an analysis of this second question. It based its "severe pandemic" scenario on assumptions it believes reflect the impact of the 1918 pandemic: 30% of the population would become infected, and 2.5% of infected population would die. Up to now, the death rate for people infected with H5N1 has been higher than this; however, implicit in the CBO's analysis is the assumption (also made by other researchers) that there is a trade-off between an influenza strain's transmissibility and its deadliness. As the former increases, the latter declines. It remains to be seen whether that is indeed the case with H5N1. Assuming the CBO's severe pandemic scenario develops, it concludes "it would produce a short-run impact on the worldwide economy similar in depth and duration to that of an average post-war recession in the United States. However, it also notes "there is little evidence available to use to determine which theoretical prediction best describes the long-term impact of an influenza pandemic."

On balance, our fundamental view of the world remains the same as those discussed in our March, June, and September 2005 economic outlooks. While we may continue to muddle through for some time, the day of economic reckoning seems inevitable, and will be more severe the longer imbalances grow larger without a substantial adjustment occurring. Neither we nor anyone else can conclusively forecast which asset classes will do best in future years. Our best estimate today is that real equity returns will be substantially lower than those in recent years. Due to the likely depreciation of the dollar (except, perhaps, in the case of a

severe bird flu pandemic or wider Middle East war), for U.S. investors, foreign bonds seem likely to do relatively well. On the other hand, for non-U.S. investors U.S. bonds are likely to disappoint. If one assumes a return to high inflation at some point in the future, then inflation hedges like timber and commodities should do well. Both, however, should suffer in the short term as real economic demand declines. There is also an important question about the extent to which speculative activity has driven the price of commodity index funds in particular above reasonable valuation levels.

Domestic commercial property will also provide, to some degree, a hedge against the eventual inflation we expect, but is likely to suffer in the intervening economic downturn. Again, for U.S. investors, foreign commercial property looks potentially attractive, given our estimate of future dollar depreciation. Historically, this asset class has provided higher returns than foreign currency bonds, without too much additional risk. On the other hand, looking to the future, foreign commercial property may not perform as well as foreign government bonds in a worldwide economic downturn.

With the exception of Australia, real return bonds today present a clear dilemma. Real yields are at extremely low levels, reflecting the imbalance between high global saving and low global investment demand. Neither a global recession nor a global influenza pandemic (which, by reducing the size of the labor force, would potentially increase the return to labor, and reduce the return to capital) would improve this situation. On balance, given a choice, we would underweight real return bonds today relative to their target portfolio weights, while favoring intermediate term nominal return government bonds.

Equity market neutral – our proxy for investments in uncorrelated alpha strategies – is also problematic, given our outlook. We are of an age that understands the meaning of the old saying “don’t confuse investment skill with a bull market.” We don’t believe that many of today’s hedge funds will perform well if our downside scenario comes to pass. So we wouldn’t be overweighting EMN either. Finally, the equity volatility asset class presents yet another dilemma. In a largely uneventful market, it earned negative returns for U.S. investors, and slightly positive ones for those foreign investors who benefited from the U.S. dollars unexpected appreciation (thanks to the Federal Reserve’s raising rates faster than those in other countries). Still, its role in a portfolio is not to be a source of steady returns. Rather, its role is to provide a cushion that protects capital against a sudden drop in multiple markets. It

is, in essence, crisis insurance, along with domestic and foreign currency government bonds. For that reason, investors who can access it should keep it in their portfolios (sadly, there are, as yet, no retail index funds available that invest in this asset class).

## 2005 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, and Pounds-Sterling. 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 (from 1971 to 2002) 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 20% for foreign bonds and foreign equities, and 10% each for commercial property, commodities, and emerging markets equities. There are no limits on the weight that can be given to real return and domestic bonds, and to domestic equities.

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.

The following tables show how asset allocations with different target internal real rate of return objectives have performed year-to-date:

	<b>YTD 30Dec05</b>	<b>Weight</b>	<b>Weighted Return</b>
	In US\$		In US\$
<b>7% Target Real Return</b>	<i>YTD Returns are Nominal</i>		
<u>Asset Classes</u>			
Real Return Bonds	2.6%	0%	<b>0.0%</b>
U.S. Bonds	2.4%	0%	<b>0.0%</b>
Non-U.S. Bonds	-8.2%	20%	<b>-1.6%</b>
Commercial Property	11.9%	10%	<b>1.2%</b>
Commodities	19.0%	10%	<b>1.9%</b>
U.S. Equity	6.0%	50%	<b>3.0%</b>
Foreign Equity (EAFE)	13.3%	0%	<b>0.0%</b>
Emerging Mkt. Equity	32.1%	10%	<b>3.2%</b>
		<i>100%</i>	<b>7.7%</b>

±

	<b>YTD 30Dec05</b>	<b>Weight</b>	<b>Weighted Return</b>
	In US\$		In US\$
<b>6% Target Real Return</b>	<i>YTD Returns are Nominal</i>		
<u>Asset Classes</u>			
Real Return Bonds	2.6%	0%	<b>0.0%</b>
U.S. Bonds	2.4%	0%	<b>0.0%</b>
Non-U.S. Bonds	-8.2%	20%	<b>-1.6%</b>
Commercial Property	11.9%	10%	<b>1.2%</b>
Commodities	19.0%	10%	<b>1.9%</b>
U.S. Equity	6.0%	45%	<b>2.7%</b>
Foreign Equity (EAFE)	13.3%	5%	<b>0.7%</b>
Emerging Mkt. Equity	32.1%	10%	<b>3.2%</b>
		<i>100%</i>	<b>8.0%</b>

±



	<b>YTD 30Dec05</b>	<b>Weight</b>	<b>Weighted Return</b>
	In US\$		In US\$
<b>5% Target Real Return</b>	<i>YTD Returns are Nominal</i>		
<u>Asset Classes</u>			
Real Return Bonds	2.6%	0%	<b>0.0%</b>
U.S. Bonds	2.4%	0%	<b>0.0%</b>
Non-U.S. Bonds	-8.2%	20%	<b>-1.6%</b>
Commercial Property	11.9%	10%	<b>1.2%</b>
Commodities	19.0%	10%	<b>1.9%</b>
U.S. Equity	6.0%	30%	<b>1.8%</b>
Foreign Equity (EAFE)	13.3%	20%	<b>2.7%</b>
Emerging Mkt. Equity	32.1%	10%	<b>3.2%</b>
		<i>100%</i>	<b>9.1%</b>

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	<b>YTD 30Dec05</b>	<b>Weight</b>	<b>Weighted Return</b>
	In US\$		In US\$
<b>4% Target Real Return</b>	<i>YTD Returns are Nominal</i>		
<u>Asset Classes</u>			
Real Return Bonds	2.6%	5%	<b>0.1%</b>
U.S. Bonds	2.4%	35%	<b>0.8%</b>
Non-U.S. Bonds	-8.2%	20%	<b>-1.6%</b>
Commercial Property	11.9%	10%	<b>1.2%</b>
Commodities	19.0%	10%	<b>1.9%</b>
U.S. Equity	6.0%	5%	<b>0.3%</b>
Foreign Equity (EAFE)	13.3%	10%	<b>1.3%</b>
Emerging Mkt. Equity	32.1%	5%	<b>1.6%</b>
		<i>100%</i>	<b>5.7%</b>

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	<b>YTD 30Dec05</b>	<b>Weight</b>	<b>Weighted Return</b>
	In US\$		In US\$
<b>3% Target Real Return</b>	<i>YTD Returns are Nominal</i>		
<u>Asset Classes</u>			
Real Return Bonds	2.6%	75%	<b>2.0%</b>
U.S. Bonds	2.4%	0%	<b>0.0%</b>
Non-U.S. Bonds	-8.2%	10%	<b>-0.8%</b>
Commercial Property	11.9%	10%	<b>1.2%</b>
Commodities	19.0%	5%	<b>1.0%</b>
U.S. Equity	6.0%	0%	<b>0.0%</b>
Foreign Equity (EAFE)	13.3%	0%	<b>0.0%</b>
Emerging Mkt. Equity	32.1%	0%	<b>0.0%</b>
		100%	<b>3.3%</b>

±

	<b>YTD 30Dec05</b>	<b>Weight</b>	<b>Weighted Return</b>
	In US\$		In US\$
<b>2% Target Real Return</b>	<i>YTD Returns are Nominal</i>		
<u>Asset Classes</u>			
Real Return Bonds	2.6%	85%	<b>2.2%</b>
U.S. Bonds	2.4%	0%	<b>0.0%</b>
Non-U.S. Bonds	-8.2%	10%	<b>-0.8%</b>
Commercial Property	11.9%	5%	<b>0.6%</b>
Commodities	19.0%	0%	<b>0.0%</b>
U.S. Equity	6.0%	0%	<b>0.0%</b>
Foreign Equity (EAFE)	13.3%	0%	<b>0.0%</b>
Emerging Mkt. Equity	32.1%	0%	<b>0.0%</b>
		100%	<b>2.0%</b>

This year, we are also introducing two new benchmarks that can be used to evaluate the returns on our model portfolios. The first is the return on holding all of one's assets in cash. We define this return as the yield to maturity on a one-year government security purchased at the end of the previous year. For 2005, the U.S. cash benchmark return is 2.75% (nominal).

The second benchmark is a portfolio that is equally allocated to all of the asset classes we use in our other model portfolios. This benchmark portfolio implicitly assumes that it is impossible to accurately forecast future asset class risk and return. Consequently, the best approach is to equally divide one's exposure to different sources of return (and risk). While we disagree with this assumption, intellectual honesty compels us to include this "couch potato" portfolio as one of our benchmarks.

	<b>YTD 30Dec05</b>	<b>Weight</b>	<b>Weighted Return</b>
	In US\$		In US\$
<b>Equally Weighted</b>	<i>YTD Returns are Nominal</i>		
<i>Asset Classes</i>			
Real Return Bonds	2.6%	12.5%	<b>0.3%</b>
U.S. Bonds	2.4%	12.5%	<b>0.3%</b>
Non-U.S. Bonds	-8.2%	12.5%	<b>-1.0%</b>
Commercial Property	11.9%	12.5%	<b>1.5%</b>
Commodities	19.0%	12.5%	<b>2.4%</b>
U.S. Equity	6.0%	12.5%	<b>0.8%</b>
Foreign Equity (EAFE)	13.3%	12.5%	<b>1.7%</b>
Emerging Mkt. Equity	32.1%	12.5%	<b>4.0%</b>
		<i>100%</i>	<b>9.9%</b>