The Index Investor

Invest Wisely…Get an Impartial Second Opinion.

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This Month's Issue: Key Points

This month's feature article explores in depth a conversation we have had quite often (and with too little data) in recent years. How do Anglosphere countries (which we define as Australia, Canada, Ireland, New Zealand, the United Kingdom and the United States) compare along multiple criteria that are relevant to future returns on real return bonds, nominal government bonds, and equities? We found it a fun article to research, and we guarantee that after reading it you'll never sound the same at a cocktail party again. Bottom line: We're a lot more excited about the medium term prospects for Australia and Canada than we are about those for New Zealand and the U.K., with Ireland and the U.S. falling somewhere in between.

This month's first product and strategy note look at new ETF products. The Barclays iPath Currency Carry ETF (ICI) is a new competitor for DBV; the Rydex Alternative Strategies Allocation Fund gives you the opportunity to pay a high price for something you could do on your own at a much lower cost. The new State Street non-U.S. Dollar inflation indexed bond ETF (WIP) is an intriguing product, but not as a substitute for an allocation to domestic real return bonds. Rather, it might be used to implement an allocation to foreign currency bonds, provided you have a taste for emerging market bonds (which we do not). Finally, we give three cheers to Barclays for launching ACWI, which tracks the Morgan Stanley All Country World

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Index – for investors just starting out and wanting "one stop" diversification across the world's equity markets, there's no better product on the market today.

This Month's Letters to the Editor

What do you think about the end of Bill Miller's streak at Legg Mason?

Statistical analysis of Bill Miller's track record leads us to conclude that his outstanding results over the years were most likely due to skill rather than luck. As we have noted in the past, active management success is based on superior forecasting skill (whether of fundamental values or the future behavior of other investors, or both), which in turn is based on some combination of superior information or a superior forecasting model. We have also noted that superior sources of information can dry up or become widely known (and thus less effective), while superior models can either be copied or have their assumptions invalidated by ongoing changes in the economy or investor psychology. The best active managers have a unique ability to keep these wolves at bay. Yet Miller's case proves that even for the best managers, this power is not infinite. Of course, there is another possible explanation for Miller's performance – his views may still be right, but unfortunately not proven within the calendar year performance measurement period which anchors the psychology of so many investors. In this regard, we're reminded of a famous quote from Julian Robertson (founder of Tiger Managemenet) in 2000, at the height of the internet bubble: "The current technology, internet and telecom craze, fueled by the performance desires of investors, money managers and even financial buyers, is unwittingly creating a Ponzi pyramid destined for collapse. The tragedy is, however, that the only way to generate short-term performance in the current environment is to buy these stocks. That makes the process self-perpetuating until the pyramid eventually collapses under its own excess." It may well be that Miller's forecasts are right, but that they won't be proven so until more time has passed. The final thought we have about Bill Miller is that his skill as an investment manager became obvious only over time and with hindsight. It remains extraordinarily difficult for an investor to accurately forecast (i.e., identify) the future Bill Millers and Warren Buffetts.

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How do you treat inflation in your model portfolio calculations?

We do not explicitly take future inflation into account in our model portfolio analyses. There are two reasons for this. First, we believe that investors are primarily interested in maintaining targeted levels of future real consumption. To put it differently, they want to be able to buy the same grocery basked regardless of the prices of the items. Hence, we assume that investors are primarily interested (consciously or not) in real (inflation adjusted) rather than nominal returns. The second reason we use real returns is that we assume we have a fallible crystal ball when it comes to projecting future inflation. Were we to attempt to forecast future inflation, and were our forecast to be wrong (which seems the most likely outcome, by far), if we used nominal returns in our calculations our conclusions could be invalidated. By eliminating an inflation forecast, we also eliminate one source of estimation error that could adversely affect the conclusions of our model portfolio analyses. We acknowledge that, based on the frequency with which we're asked this question, that thinking in real rather than nominal terms is a rather unnatural act for many investors. For example, we often have to explain that our assumptions about annual savings or portfolio withdrawals are expressed in real terms and must therefore be converted into nominal terms in the "real world." For example, a real annual savings or withdrawal of $10,000 in year one rises to $10,300 in year two after a year of inflation at 3%, and $10,815 if inflation rises to 5% in the third year. We recognize the need to help investors make these calculations more easily, and hope to make changes to our site in the future along these lines. However, we remain very strongly committed to the logic of expressing all our calculations in real terms, as that is what ultimately maintains an investor's purchasing power (and avoids disappointment) over time the long term.

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Global Asset Class Returns

YTD 31Mar08	In USD	In AUD	In CAD	In EURO	In JPY	In GBP	In CHF	In INR
Asset Held								
US Bonds	2.17%	-1.79%	5.98%	-6.21%	-10.07%	2.33%	-12.30%	3.93%
US Prop	2.12%	-1.84%	5.93%	-6.26%	-10.12%	2.28%	-12.35%	3.88%
US Equity	-9.50%	-13.46%	-5.69%	-17.88%	-21.74%	-9.34%	-23.97%	-7.74%
AUS Bonds	6.73%	2.77%	10.54%	-1.65%	-5.51%	6.89%	-7.74%	8.49%
AUS Prop	-14.00%	-17.97%	-10.20%	-22.38%	-26.25%	-13.85%	-28.47%	-12.25%
AUS Equity	-10.62%	-14.58%	-6.81%	-19.00%	-22.86%	-10.46%	-25.09%	-8.86%
CAN Bonds	1.43%	-2.53%	5.24%	-6.94%	-10.81%	1.59%	-13.04%	3.19%
CAN Prop	-10.09%	-14.06%	-6.28%	-18.47%	-22.34%	-9.94%	-24.56%	-8.34%
CAN Equity	-8.48%	-12.45%	-4.67%	-16.86%	-20.73%	-8.33%	-22.95%	-6.73%
Euro Bonds	12.50%	8.53%	16.30%	4.12%	0.25%	12.65%	-1.98%	14.25%
Euro Prop.	9.68%	5.71%	13.49%	1.30%	-2.57%	9.83%	-4.79%	11.44%
Euro Equity	-8.82%	-12.78%	-5.01%	-17.19%	-21.06%	-8.66%	-23.29%	-7.06%
Japan Bnds	14.54%	10.58%	18.35%	6.16%	2.29%	14.69%	0.07%	16.30%
Japan Prop	-11.39%	-15.35%	-7.58%	-19.77%	-23.63%	-11.23%	-25.86%	-9.63%
Japan Eqty	-6.92%	-10.89%	-3.11%	-15.30%	-19.17%	-6.77%	-21.39%	-5.16%
UK Bonds	1.97%	-1.99%	5.78%	-6.41%	-10.27%	2.13%	-12.50%	3.73%
UK Prop.	0.44%	-3.53%	4.25%	-7.94%	-11.81%	0.59%	-14.03%	2.19%
UK Equity	-10.47%	-14.43%	-6.66%	-18.84%	-22.71%	-10.31%	-24.94%	-8.71%
World Bnds	5.44%	1.47%	9.24%	-2.94%	-6.81%	5.59%	-9.04%	7.19%
World Prop.	-6.10%	-10.06%	-2.29%	-14.48%	-18.34%	-5.94%	-20.57%	-4.34%
World Eqty	-9.20%	-13.16%	-5.39%	-17.58%	-21.44%	-9.04%	-23.67%	-7.44%
Commod	9.19%	5.23%	13.00%	0.82%	-3.05%	9.35%	-5.28%	10.95%
Timber	-9.58%	-13.54%	-5.77%	-17.95%	-21.82%	-9.42%	-24.05%	-7.82%
EqMktNtrl	-3.25%	-7.22%	0.55%	-11.63%	-15.50%	-3.10%	-17.72%	-1.50%
Volatility	13.82%	9.86%	17.63%	5.44%	1.58%	13.98%	-0.65%	15.58%
Currency								
AUD	3.96%	0.00%	7.77%	-4.41%	-8.28%	4.12%	-10.51%	5.72%
CAD	-3.81%	-7.77%	0.00%	-12.19%	-16.05%	-3.65%	-18.28%	-2.05%
EUR	8.38%	4.41%	12.19%	0.00%	-3.87%	8.53%	-6.09%	10.14%
JPY	12.24%	8.28%	16.05%	3.87%	0.00%	12.40%	-2.23%	14.00%
GBP	-0.16%	-4.12%	3.65%	-8.53%	-12.40%	0.00%	-14.63%	1.60%
USD	0.00%	-3.96%	3.81%	-8.38%	-12.24%	0.16%	-14.47%	1.76%
CHF	14.47%	10.51%	18.28%	6.09%	2.23%	14.63%	0.00%	16.23%
INR	-1.76%	-5.72%	2.05%	-10.14%	-14.00%	-1.60%	-16.23%	0.00%

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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. For this variable, we use two different values, 1% or 2%. Third, we also use two different values for the equity risk premium required by investors: 2.5% and 4.0%. Different combinations of all these variables yield high and low scenarios for both the future returns the market is expected to supply (dividend yield plus growth rate), and the future returns investors will demand (real bond yield plus equity risk premium). We then use the dividend discount model to combine these scenarios, to produce four different views of whether an equity market is over, under, or fairly valued today. The specific formula is (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. In our view, the greater the number of scenarios that point to overvaluation or undervaluation, the greater the probability that is likely to be the case.

Equity Market Valuation Analysis at 31 March 2008

Australia	**Low Demanded Return**	**High Demanded Return**
High Supplied Return	61%	91%

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Low Supplied Return	91%	124%

Canada	**Low Demanded Return**	**High Demanded Return**
High Supplied Return	77%	131%
Low Supplied Return	140%	207%

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Eurozone	**Low Demanded Return**	**High Demanded Return**
High Supplied Return	61%	97%
Low Supplied Return	98%	139%

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Japan	**Low Demanded Return**	**High Demanded Return**
High Supplied Return	71%	136%
Low Supplied Return	149%	234%

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United Kingdom	**Low Demanded Return**	**High Demanded Return**
High Supplied Return	30%	62%
Low Supplied Return	58%	96%

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United States	**Low Demanded Return**	**High Demanded Return**
High Supplied Return	67%	124%
Low Supplied Return	131%	202%

Switzerland	**Low Demanded Return**	**High Demanded Return**
High Supplied Return	50%	91%
Low Supplied Return	90%	204%

India	**Low Demanded Return**	**High Demanded Return**
High Supplied Return	114%	211%
Low Supplied Return	271%	418%

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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:

Bond Market Analysis as of 31Mar08

	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	2.52%	2.96%	5.48%	6.04%	0.56%	-5.12%
Canada	1.61%	2.40%	4.01%	3.44%	-0.57%	5.64%
Eurozone	2.07%	2.37%	4.44%	3.90%	-0.54%	5.29%
Japan	1.12%	0.77%	1.89%	1.28%	-0.61%	6.15%
UK	0.86%	3.17%	4.03%	4.35%	0.32%	-3.02%
USA	1.29%	2.93%	4.22%	3.43%	-0.79%	7.90%
Switz.	1.33%	2.03%	3.36%	2.93%	-0.43%	4.26%
India	2.26%	7.57%	9.83%	8.06%	-1.77%	17.64%

*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% in the United States. Were we to use this rate, the required rate of return would

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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. Higher risk aversion factors and lower time discount rates indicate more conservative attitudes on the part of the average investor in a given currency zone. Increasing conservatism raises the risk of sharp downward price moves and increases in volatility when they occur at a time when many asset classes appear to be overvalued. If this conservatism becomes excessive (which is admittedly very hard to gauge), undervaluations may result. In contrast, falling risk aversion and rising time discount factors may indicate a rising danger of overvaluations occurring in asset markets. The real rate formula is [Time Discount Rate + ((1/Risk Aversion Factor) x MFP Growth)].

Real Interest Rate Analysis at 31Mar08

Real Rate Analysis	AUD	CAD	EUR	JPY	GBP	USD
Risk Aversion Factor	3.5	4.5	4.0	5.5	6.0	5.5
Time Discount Rate	2.00%	1.50%	1.75%	1.00%	0.75%	1.00%
MFP Growth	1.60%	1.20%	1.40%	0.60%	1.40%	1.40%

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Theoretical Real Rate	2.46%	1.77%	2.10%	1.11%	0.98%	1.25%
Actual Real Rate	2.52%	1.61%	2.07%	1.12%	0.86%	1.29%

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. All else being equal, this would reduce any estimated overvaluation or increase any estimated undervaluation. For example, 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 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).

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	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 31 March 2008, the AAA minus 10 year Treasury spread was 2.05%. This is very significantly above the long-term average compensation for bearing liquidity and jump risk (assuming our model is correct), and reflects a clear market reaction to the severe liquidity problems that have roiled the markets since August and have yet to abate.

At the end of the month, the BBB minus AAA spread was 1.88%. This is finally significantly above the long-term average compensation for bearing credit risk. However, it still seems low given the continuing turmoil in credit markets. We still believe that it is more likely that credit risk is underpriced rather than overpriced today, and that corporate bonds remain overvalued rather than undervalued.

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

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expected medium to long-term changes in exchange rates are summarized in the following table:

Annual Exchange Rate Changes Implied by Bond Market Yields on 31Mar08

	To AUD	To CAD	To EUR	To JPY	To GBP	To USD	To CHF	To INR
From								
AUD	0.00%	-2.60%	-2.14%	-4.76%	-1.69%	-2.61%	-3.11%	2.02%
CAD	2.60%	0.00%	0.46%	-2.16%	0.91%	-0.01%	-0.51%	4.62%
EUR	2.14%	-0.46%	0.00%	-2.62%	0.45%	-0.47%	-0.97%	4.16%
JPY	4.76%	2.16%	2.62%	0.00%	3.07%	2.15%	1.65%	6.78%
GBP	1.69%	-0.91%	-0.45%	-3.07%	0.00%	-0.92%	-1.42%	3.71%
USD	2.61%	0.01%	0.47%	-2.15%	0.92%	0.00%	-0.50%	4.63%
CHF	3.11%	0.51%	0.97%	-1.65%	1.42%	0.50%	0.00%	5.13%
INR	-2.02%	-4.62%	-4.16%	-6.78%	-3.71%	-4.63%	-5.13%	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 future real growth rates for dividends (which over time should correlated with the real change in rental income) 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 an investor for the risk of securitized commercial property as an asset class. The following table shows the results of this analysis:

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Commercial Property Securities Analysis as of 31Mar08

Country	Real Bond Yield	Plus Commercial Property Risk Premium	Less Dividend Yield on Commercial Property Securities	Equals Implied Rate of Future Real Dividend Growth
Australia	2.5%	2.5%	7.8%	-2.7%
Canada	1.6%	2.5%	5.7%	-1.6%
Eurozone	2.1%	2.5%	3.7%	0.9%
Japan	1.1%	2.5%	2.2%	1.5%
Switzerland	1.3%	2.5%	4.0%	-0.2%
United Kingdom	0.9%	2.5%	3.1%	0.3%
United States	1.3%	2.5%	5.2%	-1.4%

If you think the implied real growth estimates in the last column are too high relative to your expectation for the future real growth in average rents, this implies commercial property securities are overvalued today. On the other hand, if you think the implied growth rate is 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 (with the possible exception of Australia), and therefore believe that the balance of business cycle and valuation evidence suggests that commercial property securities in many markets are likely 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 31 March 2008 closing value of 201.6 was more than four standard deviations above the long term 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). We are clearly in unchartered territory, whether due to speculation, a collective fear of high future inflation and/or a substantial decline in the value of the U.S. dollar versus many other currencies, and/or fundamental structural changes in commodity markets (e.g., the peak oil thesis, and the increasing use of agricultural commodities for fuel as well as food). Until the underlying

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factors driving the DJAIG higher become clearer, we continue to believe that the probability of a near term decline in the spot price of the DJAIG still seems much higher than the probability of a substantial further increase. At any given point in time, the current price of a commodity futures contract should equal the expected future spot price less some premium (i.e., expected return) the buyer of the future expects to receive for bearing the risk that this forecasted future spot price will be inaccurate. However, the *actual* return realized by the buyer of the futures contract can turn out to be quite different from the expected return. When it occurs, this 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 (i.e., the investor) 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. 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.

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

Growth Driver	**Assumption**
Biological growth of trees	This varies widely according to the type and maturity a given timber property (and, indeed, biological growth doesn't directly translate into returns as different trees and

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Growth Driver	**Assumption**
	growing arrangements also involve different costs. We assume 6% as the long term average.
Harvesting rate	In order to produce a timber REIT's dividend, a certain physical volume of trees must be harvested each year. This will vary over time; for example, when prices are high, a smaller volume will have to be cut to pay for a given level of dividends. As a long term average, we assume that 5% of tree volume is harvested each year.
In-growth of trees	This refers to the fact that as trees grow taller and wider, they are capable of producing products with substantially higher values. This so called "grade change" will cause an increase in value (and hence return) of timber even when prices within each product category are falling. We assume this adds 3% per year to the return on timber assets.
Change in prices of timber and land on which the trees are growing	We assume that over the long term prices will just keep pace with inflation. In the U.S. some data shows real price increases of 2% per year over the past 20 years; however, IMF data shows real price declines on a world timber price index. Hence, we assume the contribution of real timber price changes to long term timber returns is zero.
Diversification across countries	As in the case of commodities, that an investor in an internationally diversified portfolio of timber assets should earn a diversification return, similar to the one earned by investors in a well diversified portfolio of commodity futures contracts. In the interest of conservatism, we assume that in the case of timber this equals zero.
Carbon credits	In the future, investors in timberland may earn additional returns from the receipt and resale of carbon credits. However, since the future value of those credits is so uncertain, we have assumed no additional return from this source.

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

Given these assumptions, our assessment of the valuation of the timber asset class at 31 March 2008 is as follows:

Average Dividend Yield	4.45%
Plus Long Term Annual Biological Growth	6.00%
Less Percent Harvested Each Year	(5.00%)
Plus Average Annual Ingrowth Value Increase	3.00%
Plus Long Term Real Annual Price Change	0.00%
Plus Other Sources of Annual Value Increase (e.g., Carbon Credits)	0.00%
Equals Average Annual Real Return Supplied	**8.45%**
Real Bond Yield	1.29%
Plus Risk Premium for Timber	4.00%
Equals Average Annual Real Return Demanded	**5.29%**
Ratio of Returns Demanded/Returns Supplied Equals Valuation Ratio (less than 100% implies undervaluation)	**63.0%**

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 31 March 2008, the VIX closed at 25.61, about one standard deviation above the VIX's long term average value. However, we believe this level is too low in light of rising

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uncertainty in the world economy and continuing turmoil in financial markets. Hence, we conclude that equity volatility is likely still 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

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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. When the rolling returns on different strategies indicate different conclusions about the most likely direction in which the economy is headed, we place the greatest weight on bond market indicators. Why? We start from a basic difference in the psychology of equity and bond investors. The different risk/return profiles for these two investments produce a different balance of optimism and pessimism. For equities, the downside is limited (in the case of bankruptcy) to the original value of the investment, while the upside is unlimited. This tends to produce an optimistic view of the world. For bonds, the upside is limited to the contracted rate of interest and getting your original investment back (assuming the bonds are held to maturity). In contrast, the downside is significantly greater – complete loss of principal. This tends to produce a more pessimistic (some might say realistic) view of the world. As we have written many times, investors seeking to achieve a funding goal over a multi-year time horizon, avoiding big downside losses is arguably more important than reaching for the last few basis points of return. Bond market investors' perspective tends to be more consistent with this view than equity investors' natural optimism. Hence, when our rolling rotation returns table provides conflicting information, we tend to put the most weight on bond investors' implied expectations for what lies ahead.

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

Rolling 3 Month Returns Through	***31Mar08***			
Economy	Bottoming	Strengthening	Peaking	Weakening
Interest Rates	Falling	Bottom	Rising	Peak
Style and Size Rotation	Small Growth (DSG) **-9.90%**	Small Value (DSV) **-7.17%**	Large Value (ELV) **-8.79%**	Large Growth (ELG) **-9.88%**

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Rolling 3 Month Returns Through	***31Mar08***			
Economy	Bottoming	Strengthening	Peaking	Weakening
Interest Rates	Falling	Bottom	Rising	Peak
Sector Rotation	Cyclicals (IYC) **-6.94%** Technology (IYW) **-15.95%**	Basic Materials (IYM) **-3.56%** Industrials (IYJ) **-6.00%**	Energy (IYE) **-6.03%** Staples (IYK) **-5.23%**	Utilities (IDU) **-10.21%** Financials (IYF) **-13.27%**
Bond Market Rotation	Higher Risk (HYG) **-2.19%**	Short Maturity (SHY) **3.30%**	Low Risk (TIP) **5.40%**	Long Maturity (TLT) **4.18%**

The following table sums up our conclusions (based on the analysis summarized in this article) as to potential asset class under and overvaluations at the end of March 2008. The distinction between possible, likely and probable reflects a rising degree of confidence in our conclusion.

Probably Overvalued	Commodities, Corporate Bonds/Credit Risk, Equity Markets in Canada, Japan, the U.S. and India
Likely Overvalued	Commercial Property except Australia
Possibly Overvalued	India, U.S., Canada and Eurozone Govt Bonds
Possibly Undervalued	Australian Dollar and UK Pound Govt Bonds; UK Equity; Australia Commercial Property
Likely Undervalued	Euro, Canadian Dollar and Australian Dollar Real Return Bonds; U.K. Equity Market; Equity Volatility; Timber
Probably Undervalued	Non-U.S. Dollar Bonds (based on expected XR changes),

Investing in the Anglosphere: Who is the Fairest of Them All?

Over the past fifteen years or so, the concept of the Anglosphere has been growing more salient, after remaining somewhat dormant since Winston Churchill published A History of the English Speaking Peoples between 1956 and 1958. In our view, the spark that renewed interest in the concept was the publication of Samuel Huntington's essay "The Clash of Civilization" by the journal *Foreign Affairs* in 1993. This was followed at the turn of the 21s century by the

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publication of The Cousins War by Kevin Phillips, Special Providence by Walter Russell Mead (which drew on an earlier 1989 work by David Hackett Fischer, Albion's Seed), and "Canada's World Advantage" by James Bennett. All of these explored the long-term cultural impact of English roots. The recent publication of "Why Anglos Lead" by Lawrence Mead, and A History of the English Speaking Peoples Since 1900 by Andrew Roberts are a further continuation of this trend.

The initial enthusiasm with which these works were greeted could be put down, perhaps, to concerns about what lay ahead in a globalizing, post Cold War world in which English had surpassed French as the world's most popular second language. Later on, it undoubtedly gained momentum from the apparent triumph of the Anglo Saxon model of financial capitalism, and the innovations it produced, such as the originate, package and securitize model of mortgage lending and housing finance, the development of credit and other derivative markets, and the widespread adoption of mark-to-market accounting. However, we are now in a situation in which these latter three innovations have combined to produce the worst global financial crisis in years, and new models of state capitalism (whether of the Chinese or Islamic Oil Exporter variety) appear to be gaining adherents around the world. It therefore seems like a good time to take a closer look at the current state of affairs in the Anglosphere, and in particular to make some estimates of future real interest rates, nominal government bond returns, and equity market performance in Australia, Canada, Ireland, New Zealand, the United Kingdom and the United States.

Let's start with some basic information (from 2006) about these six economies, including their population, Gross Domestic Product, and GDP per capita, expressed in U.S. Dollars.

Country	**GDP (US$ billions)**	**Population (millions)**	**GDP/Capita in USD**
Australia	$756	20.6	$36,699
Canada	$1,275	32.6	$39,110
Ireland	$219	4.2	$52,153
New Zealand	$105	4.1	$25,610
United Kingdom	$2,399	60.6	$39,587
United States	$13,195	299.4	$44,071

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Real Interest Rates

Now let's move on to future returns on real return bonds. 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 time 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 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, but only with considerable 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 (unfortunately, neither Ireland nor New Zealand issues real return bonds, so we estimated the real rate from nominal yields and inflation forecasts). We then try to back out estimates for risk aversion and the time discount rate from the observed real rate, given the OECD's estimate of multifactor productivity growth for each country (MFP is the increase in annual output that is achieved without any increase in labor or capital inputs). Higher risk aversion factors and lower time discount rates indicate more conservative attitudes on the part of the average investor in a given location. The real rate formula is [Time Discount Rate + ((1/Risk Aversion Factor) x MFP Growth)]. The result of this analysis is shown in the following table, with data as of March, 2008.

Country	**AUD**	**CAD**	**IRL**	**NZL**	**GBP**	**USD**
Risk Aversion	3.5	4.5	4.0	2.5	6.0	5.5
Time Discount	2.00%	1.50%	1.75%	2.50%	0.75%	1.00%

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Country	AUD	CAD	IRL	NZL	GBP	USD
MFP Growth	1.40%	1.00%	2.10%	0.40%	1.20%	1.50%
Estimated Real Rate	2.40%	1.72%	2.28%	2.66%	0.95%	1.27%
Actual Real Rate	2.52%	1.61%	2.27%	3.00%	0.86%	1.29%

The next question is to ask how the two main drivers of the real rate – risk aversion and multifactor productivity – are likely to change over the next year.

Risk aversion (or, more technically, risk appetite) appears to be affected by both structural and cyclical factors. Structurally, theory suggests that the degree of risk aversion is related to the variability of real household consumption spending (see, for example, "The Determinants of the Variability of Stock Market Prices" by Grossman and Shiller). A key assumption is that people prefer to avoid large changes in their consumption spending over time. Hence, when consumption spending is more exposed to exogenous shocks, the more people will save in order to smooth out their impact. A further implication of this view is that savers will be willing to accept lower yields on (or, equivalently, pay higher prices for) assets whose payoff is higher when adverse shocks would otherwise cause consumption spending to fall. Conversely, they will demand a higher return to hold an asset that tends to fall in value when overall consumption declines. This theory implies that, all else being equal, risk aversion should be highest in those countries with the highest variability of real household consumption spending. The following table shows the ratio of the standard deviation to the average change in real household consumption spending between 1987 and 2006, and the implied risk aversions from the table above. All else being equal, one would expect high values of the ratio (i.e., high relative variability of household consumption) to coincide with high levels of risk aversion. However, as you can see, current data suggest some exceptions to this general rule.

Country	AUD	CAD	IRL	NZL	GBP	USD
Std Dev/Avg Change in Real Household Consumption	.39	.50	.46	.72	.65	.33
March 2008 Implied Risk Aversion Factor	3.5	4.5	4.0	2.5	6.0	5.5

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Perhaps the most glaring of these exceptions is the case of New Zealand, which simultaneously appears to have the highest variability of real household consumption and the lowest level of risk aversion among its Anglosphere peers. That this is not a statistical fluke is born out in the following table, which shows the ratio of household debt to annual disposable income in 2005:

Country	AUD	CAD	IRL	NZL	GBP	USD
Household Debt/Disposable Income	173%	126%	141%	181%	159%	135%

Further evidence of New Zealand's counterintuitive low level of risk aversion is found in a July 2007 report by the Reserve Bank of New Zealand, ""Why are New Zealand Interest Rates So Persistently High by International Standards?" The report notes that "national savings in New Zealand have been relatively weak for a prolonged period (below the OECD average). This weakness has been particularly apparent in the household sector…There is little in the data to explain why New Zealand households would be so much less willing to save, and so much more willing to borrow, at any particular interest rates than households in similar countries such as Australia, Canada, the United Kingdom and the United States."

A possible answer to this question lies in New Zealand's housing market data. At 6.3 times median household income in September 2007, New Zealand's median house price multiple was (along with Australia's) higher than any other Anglosphere country's (the UK was at 5.5, Ireland at 4.7, the U.S. at 3.6 and Canada at 3.1). Moreover, New Zealand also topped the Anglosphere league in the proportion of mortgage debt to total household debt (at about 90%). In sum, it looks to us as though one of the worst cases of housing bubble excess has occurred in New Zealand, with debt fueling a sharp rise in house prices and those asset price increases causing a fall in risk aversion and a consequent rise in real interest rates.

At the opposite end of the spectrum, we have the United States, where real consumption spending has been far less variable than in New Zealand, but where risk aversion is now quite high. Given the recent traumas in America's housing and financial markets in recent months, this strikes us as a normal cyclical reaction (for an interesting analysis that finds it is changes in the income of affluent households that drive changes in risk aversion and risk premiums, see "The Human Capital That Matters" by Campbell and Korniotis of the U.S. Federal Reserve).

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There is also evidence that changes in the U.S. real rate generate spillover effects in other currency zones (logically through the risk aversion channel), though these are most pronounced in Canada, the U.K. and Eurozone (which includes Ireland) and less so in Japan, Australia and, presumably, New Zealand (see "The Ties that Bind: Measuring International Bond Spillovers Using Inflation-Indexed Bond Yields" by Bayoumi and Swiston of the IMF).

Now let us move on to changes in multifactor productivity (which is also, as we shall see, an important driver of future equity market returns). As noted above, multifactor productivity growth is the change in output that is not due to changes in the inputs of either capital or labor. Researchers broadly agree that MFP growth is due to innovations in methods of production due to improvements in technology and/or organization. However, there is considerable disagreement as to the drivers of improvements in technology and organization. That said, there are some points that seem quite clear. For example, the level and effectiveness of R+D spending no doubt has an impact on the rate of technology improvement in a country. The following table shows R+D spending (averaged over 2000-2003) as a percentage of GDP. As one measure of effectiveness, it also shows the revenue earned from licensing and royalties per capita in 2003, expressed in U.S. dollars. It appears that the U.K. and U.S. have an advantage in this area, followed at some distance by Canada and Ireland.

Country	AUD	CAD	IRL	NZL	GBP	USD
R+D/GDP	1.6%	1.9%	1.1%	1.2%	1.9%	2.6%
Licensing and Royalty Revenue/Capita	$24	$95	$54	$25	$202	$178

Turning to human capital, there can be little doubt that a well educated, healthy workforce likely contributes to the rate of technology adoption and organizational innovation. The following tables compare Anglosphere companies using different metrics in these two areas.

Country	AUD	CAD	IRL	NZL	GBP	USD
PISA Science Literacy Score (15 year olds, 2006)	527	534	508	530	515	489
PISA Math Literacy Score (15 year olds, 2006)	520	527	501	522	495	474
Percent of Population 25-64 With Some University Education (2002)	31%	43%	25%	30%	27%	38%

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Country	AUD	CAD	IRL	NZL	GBP	USD
Life Expectancy, 2005 male/female	79/84	78/83	77/81	77/82	77/81	75/80
Mortality/100,000 from non-communicable disease	362	388	484	423	434	460
Mortality from cardiovascular disease	140	141	214	175	182	188
Mortality from cancer	127	138	151	139	143	134
Mortality from injuries	35	34	35	37	26	47
Suicide Rate (per 100,000)	11.1	10.6	11.1	12.0	6.3	10.2

In terms of educational quality and quantity, Australia, Canada and New Zealand lead the Anglosphere, while the former two lead in producing a healthy population (for more on the critical importance of these variables, see "Sources of Lifetime Inequality" by Huggett, Ventura and Yaron).

Beyond R+D, education and health, differences in countries' institutions has also been suggested as a key contributor to differences in multifactor productivity growth. In particular, laws and regulations that restrict the flexibility of product, labor and capital markets seem to be particularly important, as they inhibit the natural cycles of "creative destruction" (to use Joseph Schumpeter's term) that lie at the heart of innovation and productivity growth. The following tables show a number of metrics that provide some insight into this issue:

Country	AUD	CAD	IRL	NZL	GBP	USD
Number of Days of Effort Required to Start a Business (World Bank)	2	3	19	12	18	5
GDP (USD billions)	$ 756	$ 1,275	$ 219	$ 105	$ 2,399	$ 13,195
Venture Capital Investment/GDP (2005)	0.05%	0.10%	0.06%	0.04%	0.30%	0.20%

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Country	AUD	CAD	IRL	NZL	GBP	USD
Estimated Value of Annual Venture Investment (USD millions)	$378	$1,275	$131	$42	$7,197	$26,390
Union Membership (% of Workforce) in 2006 (and decline since 1970)	23% (22%)	28% (7%)	35% (18%)	22% (33%)	29% (16%)	12% (11%)
Firing Costs (number of weeks wages)	4	28	49	0	22	0
Average Unemployment Benefit (% of wages replaced)	52%	50%	70%	66%	63%	31%
Average Unemployment Rate (1997-2006)	6.4%	7.5%	5.4%	5.3%	5.5%	4.9%
Total Taxes/GDP (2004)	31.2%	33.5%	30.1%	35.6%	36.0%	25.5%
Average Annual MFP Growth (1995-2002)	1.40%	1.00%	2.10%	0.40%	1.20%	1.50%

While no single indicator in the above table is conclusive, they seem to support the conventional wisdom that making labor markets more flexible, strengthening the incentives to work and invest, and supporting a health venture capital industry all contribute to a higher rate of multifactor productivity growth (for four interesting papers on this, see "Does Technological Diffusion Explain Australia's Productivity Performance?" by Thierry Tressel of the IMF; "Why Haven't Economic Reforms Increased Productivity Growth in New Zealand?" by Debasis Bandyopadhyay; "Show Me the Money" by Vladimir Klyuev of the IMF – on how a weak venture capital system has hurt Canada's productivity growth; and "Recent Great Depressions: Aggregate Growth in New Zealand and Switzerland" by Kehoe and Ruhl of the Federal Reserve Bank of Minneapolis on the cause of sharp falls in MFP growth in these two countries).

Let us now turn to conclusions about the likely direction in which structural forces should logically cause real rates to change around the Anglosphere (note that the impact of structural trends will in the short term inevitably be confounded by cyclical factors). The

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following table assumes risk aversion factors in line with the observed relative variability of real personal consumption, and but not change in the recent rates of multifactor productivity growth.

Country	**AUD**	**CAD**	**IRL**	**NZL**	**GBP**	**USD**
Risk Aversion	2.5	3.5	3.0	6.0	5.0	2.0
Time Discount	2.50%	2.00%	2.25%	0.75%	1.25%	2.75%
MFP Growth	1.40%	1.00%	2.10%	0.40%	1.20%	1.50%
Estimated Real Rate	3.06%	2.29%	2.95%	0.82%	1.49%	3.50%
Actual Real Rate	2.52%	1.61%	2.27%	3.00%	0.86%	1.29%

As you can see, in the medium term, structural forces should lead to rising real rates in all countries except New Zealand, where a return to a more logical level of risk aversion should ultimately cause the real rate to fall from its currently high level. All else being equal, these rate increases would produce negative returns for bondholders, while investors in New Zealand bonds would profit from a fall in yields.

However, we must once again emphasize it has also been shown, particularly in times of crisis, that global factors tend to have a greater impact on risk aversion (risk appetite) than do local factors (see, for example, "Investors' Risk Appetite and Global Financial Market Conditions" by Brenda Gonzalez-Hermosillo of the IMF). Hence, in the face of cyclically worsening global economic performance and rising risk premiums (especially in the United States), continued falls in real rates (and therefore positive returns for inflation protected bondholders) seem more likely in the short term across the Anglosphere.

Nominal Return Government Bonds

The nominal return on government bonds is equal to the real rate of return on inflation protected bonds, plus currently expected future inflation, plus a premium for bearing the risk of unexpected future inflation. Having discussed the likely drivers and developments affecting future real rates, we will now move on to the outlook for future inflation across the Anglosphere countries.

The starting point for this discussion must be the possible causes of inflation. We will concentrate on two that could affect countries differently. These include, (1) a sharp fall in the exchange rate caused by a worsening current account deficit and external debt position; and (2)

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a sharp increase in domestic government debt financed by an expansion of the money supply to cover the cost of worsening budget deficits, which in turn could be driven by the cost of a housing sector bailout, or unfunded liabilities related to health care and/or retirement income security.

Let us start by looking at the structure of demand in the Anglosphere economies in 2006, their current account deficits, and the current size of their external indebtedness.

Country	**AUD**	**CAD**	**IRL**	**NZL**	**GBP**	**USD**
GDP (USD billions)	$ 756	$ 1,275	$ 219	$ 105	$ 2,399	$ 13,195
Private Consumption/GDP	56%	56%	44%	60%	64%	70%
Government Consumption/GDP	18%	19%	16%	19%	22%	16%
Savings/GDP	26%	25%	40%	21%	14%	14%
Investment/GDP	27%	22%	28%	24%	18%	20%
(of which, housing, as a percent of GDP)	(7%)	(7%)	(14%)	(7%)	(4%)	(6%)
Exports/GDP	21%	37%	81%	28%	30%	11%
Imports/GDP	22%	34%	69%	31%	34%	17%
Current Account/GDP	(1%)	3%	12%	(3%)	(4%)	(6%)
External Debt/GDP	100%	60%	841%	48%	436%	93%

This table contains a number of interesting points. Based on the size of its current account deficit, both absolutely (i.e., the dollar amount of financing that must be raised from foreign private and official sources each year to cover it) and relative to GDP, the United States seems to be the country facing the greatest risk of a sharp increase in inflation caused by a collapse in the value of its currency. Indeed, this process is already underway; over the past year, private foreign investors have ceased to provide financing for the U.S. current account deficit, which now depends wholly on official sources (e.g., further increases in foreign central banks' dollar denominated reserves). That the U.S. hasn't suffered a sharp drop in the value of the dollar and a sharp increase in inflation is due to a political decision on the part of other governments that it is not (at least yet, perhaps) in their national interest to allow this to happen.

The next most exposed countries would appear to be the U.K., given its relatively low savings rate, high current account deficit, and accumulated stock of external debt. Ireland clearly has a large stock of external debt; however, its savings rate is very high, its current

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account position is strong, and, as a member of the Eurozone, the value of its currency is determined by factors that go well beyond its domestic economic conditions.

Let us now move on to the other major source of inflation risk, a sharp increase in government spending, financed by the issue of domestic debt and an expansion in the domestic money supply. The following table attempts to capture the risk of a sharp increase in government spending associated with the collapse of housing bubbles. The first row shows 2006 new residential investment as a percentage of GDP; the second, the ratio of the median house price to median household income in September, 2007; and the third household debt to disposable income.

Country	AUD	CAD	IRL	NZL	GBP	USD
New Housing Investment/GDP	7%	7%	14%	7%	4%	6%
Median House Price/Median Household Income	630%	310%	470%	630%	550%	360%
Household Debt/Disposable Income	173%	126%	141%	181%	159%	135%

Taken together, these metrics indicate that Australia and New Zealand are at the greatest risk of a sharp increase in government housing bailout costs, followed by the U.K. and Ireland, and trailed at some distance by the U.S. and Canada.

Let's now look at the potential cost to different governments of their unfunded liabilities for future health care expenditures. The following table shows four statistics that are relevant to this issue: (1) the ratio of all healthcare spending to GDP in 2004; (2) total healthcare spending per capita that same year, expressed in U.S. dollars; (3) the percentage of total healthcare spending paid for by the government; and (4) the percentage of population aged 65 or more in 2000.

Country	AUD	CAD	IRL	NZL	GBP	USD
Healthcare Spending/GDP	9.5%	9.8%	7.5%	8.5%	8.1%	15.2%
Healthcare Spending per Capita in USD	$3,128	$3,161	$2,742	$2,122	$2,560	$6,037

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Country	AUD	CAD	IRL	NZL	GBP	USD
Percent of Healthcare Spending Paid for by Government	67%	70%	78%	77%	86%	45%
Percent of Population Aged 65+	13%	14%	12%	12%	16%	13%

At first glance, the country that appears most at risk for a sharp increase in government healthcare spending is the U.K, due to its faster aging population and high public share of total healthcare expenditures. However, the United States may be in an even worse position. The current unfunded liability for Medicare (the U.S. public healthcare system that covers the aged) was recently estimated at $34,100 billion (see "U.S. Financial Condition and Fiscal Future Briefing, January 2, 2008" by David M. Walker, Comptroller General of the United States), or over 2.5 times the nation's annual GDP. At the same time, private health insurance premiums (paid by both employers and individuals) have also been rising rapidly, causing the subject of national healthcare to rise to the top of election year polls asking voters to identify the issues most critical to them. At some point, it seems inevitable that the United States will have to bite the bullet and create a rational system of universal healthcare for all its citizens. Unfortunately, rather than taking the obvious (if politically impossible) step of outsourcing its management to another Anglosphere nation (all of which seem to be able to achieve better health outcomes and far lower cost), it will have to create its system to satisfy the needs and expectations of a population that has become used to higher utilization rates and far more capital intensive treatments than is the case in other countries. The potential impact of such a system on U.S. government budgets and inflation risk cannot be ignored.

From a policy perspective, we believe that, in order to minimize the inflation risk it generates, a national healthcare system should contain some key elements, including, (a) provision of services by suppliers who compete on quality and efficiency in order to maximize their economic benefits (which includes surplus maximization in the case of not-for-profits); (b) a mix of public funding for basic care, and private funding for "luxury" healthcare expenditures (where to draw this line will always be a legitimate source of political debate); and (c) provision of adequate information on providers and some type of price signal (e.g., an annual deductible scaled to income) to consumers, to prevent overutilization (i.e., the

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perception that national health care is a costless "free good"). While no Anglosphere healthcare system currently meets all these tests, most are arguably moving in this direction, albeit at different speeds. If we had to point to those that have made the most progress, we would cite Australia, New Zealand, Ireland (but for the lack of more private hospitals) and some Canadian provinces (e.g., Alberta).

Now let's move on to the inflation risk posed by future government spending to provide retirement incomes. The next table shows the following data: (a) percentage of population aged 65+; (b) median age of the population; (c) average annual fertility rate, between 2000 and 2005; (d) average employment rate; (e) legal and illegal immigrants estimated share of the population in 2005; (f) annual growth in multifactor productivity; (g) percent of average earnings replaced by pension schemes (public and private) with mandatory contributions; and (h) aggregate value of all pension savings, for mandatory and voluntary schemes, as a percentage of GDP.

Country	**AUD**	**CAD**	**IRL**	**NZL**	**GBP**	**USD**
Percent of Population Aged 65+	13%	14%	12%	12%	16%	13%
Median Age	37.1	39.1	34.3	34.2	39.6	36.6
Fertility Rate	1.75	1.51	1.94	1.96	1.66	2.04
Employment Rate (pct 15-64 year olds employed in 2004)	70%	73%	66%	74%	73%	71%
Immigrants' Share of Population	20%	19%	14%	16%	9%	13%
Average Annual MFP Growth (1995-2002)	1.40%	1.00%	2.10%	0.40%	1.20%	1.50%
Percent of Earnings Replaced by Mandatory Pension Schemes	44%	45%	32%	40%	30%	42%
Aggregate Value of Pension Savings, percent of GDP	73%	52%	43%	11%	65%	95%

The risk of inflation caused by high future government outlays to support retirees' incomes is a function of both the size of the potential burden and the speed at which it is arriving (since sooner arrival constrains the range of potentially effective policy alternatives). The table indicates that the biggest problems may lie in the U.K., Ireland and New Zealand,

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because of their relatively low replacement rates and relatively low pension savings. Australia may well be at the other end of the spectrum, due to its instigation of mandatory contributions to defined contribution pension (superannuation) plans.

Obviously, economic growth can help to reduce the size of this problem. However, economic growth is a function of increases in the size of the labor force and improvements in its productivity. Broadly, labor force growth can come from three sources: a higher birth rate, higher participation in the labor force, and higher immigration rates. As you can see in the table, apart from the U.S., fertility rates are below replacement rates throughout the Anglosphere. What about getting more people into the labor force? Apart from Ireland (where there appears to be some room for gains), all of these rates are already quite high. That leaves immigration, particularly of skilled workers who can help raise the rate at which multifactor productivity grows. There are two issues here. The first is the system by which immigration is managed – for example, while Australia, Canada and New Zealand rigorously rate potential migrants on their skills, Ireland and the U.K., are constrained in their ability to do this by their membership in the European Union, with its internal open borders policy. And the United States' unwillingness or inability to control illegal immigration is well known. The second issue is a country's cultural capacity to absorb large numbers of new immigrants. In our view, this is a function of both the cultural similarity of new immigrants (e.g., UK citizens moving to Australia versus Mexicans moving to the United States) and the country's underlying ideological and historical traditions when it comes to national identity (e.g., new world nations – whose sense of identity is based on adherence to a set of ideals – find it easier to absorb immigrants than old world nations where identity is rooted in one's historical attachment to the land and cultural traditions). On this score, we view Ireland and the U.K.'s capacity to absorb immigrants as relatively lower than other countries in the Anglosphere. Finally, the retirement liability funding benefit from expanding a nation's pool of workers also depends on the rate at which multifactor productivity grows. From this perspective, Canada may have a problem in the medium term, due to its combination of low fertility, high existing levels of employment participation and migrants in its population, and low productivity growth (though raising the latter has rightfully become a top national policy priority).

So, to sum up, where does the risk of future unexpected inflation appear to be the highest today? The following table provides some historical perspective. It shows average

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inflation between 1997 and 2006, its standard deviation, and, as a proxy for risk, the ratio of the standard deviation to the average rate.

Country	AUD	CAD	IRL	NZL	GBP	USD
Average Inflation 1997-2006	2.59%	2.05%	3.10%	2.06%	1.51%	2.54%
Standard Deviation	1.39%	0.54%	1.29%	1.04%	0.42%	0.68%
STD/Avg	.54	.26	.42	.50	.28	.27

On this historical measure, Australia and New Zealand, with Ireland trailing a bit further behind, appear to have the highest risk of unexpected inflation. However, based on our forward looking analysis, we reach another conclusion, with the U.K., New Zealand and United States appearing to be the Anglosphere countries most likely to generate nasty inflation surprises in the future.

Equity Markets

The future supply of equity market returns is equal to the current dividend yield plus the rate at which dividends are expected to grow in the future. In our market valuation analyses, we have used multifactor productivity as our proxy for the long term rate at which dividends will grow. This yields the following initial estimate of future local currency real equity returns in different Anglosphere markets:

Country	AUD	CAD	IRL	NZL	GBP	USD
Dividend Yield, March 2008	4.4%	2.2%	3.8%	6.6%	4.0%	2.1%
Average Annual MFP Growth (1995-2002)	1.4%	1.0%	2.1%	0.4%	1.2%	1.5%
Expected Supply of Local Currency Real Equity Returns	5.8%	3.2%	5.9%	7.0%	5.2%	3.6%

Of course, cross border investors have to adjust these returns for expected exchange rate changes. While in theory these should equal the difference between prevailing nominal interest rates, in practice they rarely do (e.g., because of future inflation surprises). Moreover, the future returns a market is likely to supply have to be balanced against those a rational investor should demand, which are equal to the real rate of interest plus an equity risk premium on the

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order of four percent. The following table shows this calculation, as of the end of March, 2008, as well as the difference between the supply and demand of expected equity returns:

Country	AUD	CAD	IRL	NZL	GBP	USD
Real Rate	2.5%	1.6%	2.3%	3.0%	0.9%	1.3%
Equity Risk Premium	4.0%	4.0%	4.0%	4.0%	4.0%	4.0%
Required Rate of Return on Equity Market Investment	6.5%	5.6%	6.3%	7.0%	4.9%	5.3%
Expected Supply of Local Currency Real Equity Returns	5.8%	3.2%	5.9%	7.0%	5.2%	3.6%
Difference (positive indicates possible overvaluation)	0.7%	2.4%	0.4%	0%	(0.3%)	1.7%

In terms of factors that could affect the long term supply of local currency equity returns, the key uncertainty is the rate at which dividends will grow in the future, or, in our framework, how MFP will evolve. In addition to the factors noted in our analysis of future real rates of interest, the following table provides more indicators that may be relevant to this issue:

Country	AUD	CAD	IRL	NZL	GBP	USD
Investment to GDP, Excluding Housing	20%	15%	14%	17%	14%	14%
Ranking of Companies' Adaptability, per 2006 World Competitiveness Yearbook	7	12	3	15	20	4
Ranking of Management Entrepreneurship, per 2006 World Competitiveness Yearbook	9	7	5	13	26	3

Based on this table's criteria, the United States, Ireland, and Australia seem the best candidates for raising their dividend growth rates in the future, with the U.K and New Zealand less likely to achieve this outcome. However, as noted in our analysis of the MFP issue in the real rate of interest section above, the U.S. benefits from high levels of relatively effective R+D spending, and a strong venture capital industry, while Australia and Ireland lag in these areas.

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On the other hand, Australia and Ireland's educational systems appear to be producing better human capital than the United States'. In addition, Australia has taken great strides towards making its economy more flexible in recent years (while Ireland still lags behind in this area – a situation that may only be compounded by membership in the European Union, where agreement on labor market reforms have proven hard to achieve). On balance, we conclude that Australia seems likely to grow dividends marginally faster than the United States in the future, with Ireland's rate of growth (following an impressive period of catch up) likely to slow unless it implements more reforms to make its economy more flexible.

Conclusions

Taking all of our analysis of the six Anglosphere countries into account, the two whose prospects make us the most nervous today are New Zealand and the U.K. At the other end of the spectrum, we find Australia and Canada the two most attractive countries for Angloshere oriented investment, though both are not without their risks. In Australia, the way the deflation of the housing bubble is managed warrants close attention, as do continuing efforts to expand venture capital, improve adaptability and grow productivity, which should help wean the economy from its dependence on resource exports to China and other Asian markets. In the short term, Canada faces the problem of what may well be a considerably overvalued equity market; going forward, its ability to add to its skilled labor force, improve productivity growth, and address retirement income funding issues will also be critical.

Ireland and the United States lie in the middle of the pack. They both have obvious strengths that are balanced by equally obvious shortcomings. Ireland must manage the pension income funding issue while also taking steps to further liberalize its economy and thereby keep productivity growing as its "catch up" period (and a prolonged housing boom) comes to a close. In contrast, the great strengths of the United States are its flexibility and ability to manage the "creative destruction" that lies at the heart of sustained productivity growth. However, it also faces very difficult and hard to resolve challenges in improving the quality of its educational and health care systems.

The following table sums up the investment implications of this analysis:

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Country	AUD	CAD	IRL	NZL	GBP	USD
Real Interest Rates and Real Return Bonds	Modest rise should occur as risk aversion returns to logical level	Modest rise should occur as risk aversion returns to logical level	Modest rise should occur as risk aversion returns to logical level	Should fall after housing bubble deflates and risk aversion returns to its logical level	Modest rise should occur as risk aversion returns to logical level	Should eventually rise significantly as risk aversion returns to its logical level
Nominal Return Government Bonds	Lowest risk of unexpected increase in inflation	Moderate risk of unexpected increase in inflation.	Moderate risk of unexpected increase in inflation	Significant risk of unexpected increase in inflation	Significant risk of unexpected increase in inflation	Significant risk of unexpected increase in inflation
Equities	Minimum Risk of overvaluation today	Significant risk of overvaluation today. In medium term upside productivity surprise is possible.	Minimum risk of overvaluation today	Minimum risk of overvaluation today. In medium term, upside productivity surprise is possible.	May be undervalued today	Significant risk of over valuation today

Product and Strategy Notes

New Products

A number of interesting new products have been launched over the last month. Barclays Global Investors launched the iPath Optimized Currency Carry Exchange Traded Note (ICI). With a .65% annual expense fee, it is ten basis points cheaper than the comparable PowerShares DB G10 Currency Harvest Exchange Traded Fund (DBV). Both of these products employ active currency trading strategies that are intended to generate returns that have low correlations with those on major asset classes. For example, over the 60 months ended in February, 2008, the returns on ICI had a theoretical correlation of (.04) versus the Dow Jones AIG Commodity Index, .07 versus the Lehman Brothers Aggregate Bond Market Index, .33 versus the S&P 500 and .29 versus the MSCI EAFE equity index. One major difference between them is that technically, an investor takes Barclays credit risk when investing in ICI, while DBV is an ETF without credit risk. Going forward, it will be interesting to see how the returns on ICI track those on DBV and whether they are essentially substitutes for each other.

Another new product of note comes from Rydex. The Alternative Strategies Allocation Fund (RYFOX) isn't cheap (1.76% annual expenses, and $25,000 minimum investment) –

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especially when you could get most of its components at a far lower cost. Twenty one percent of its assets are invested in none other than DBV. Another 14% track a commodities index. And about 17.5% were in commercial real estate. Frankly, the only interesting product to which the fund allocates its assets is the Rydex Managed Futures Strategy Fund (RYMFX). It isn't cheap either (1.77% annual expenses and a $25,000 minimum investment). It tracks the Standard and Poor's Diversified Trends Indicator Index, which is an active momentum based long/short product that gives commodity futures contracts a 50% weight (energy 18.75%, metals, 10.25%, and agriculturals 21.00%) and financial futures a 50% weight (35% to currencies and 15% to interest rate products). Like ICI and DBV. Frankly, we don't believe the extra benefits, if any, that this fund generates relative to other uncorrelated alpha strategies (e.g., like DBV, ICI, JAMNX, HSGFX, OGNAX, and ANGLX) are worth the much higher cost.

Elsewhere, State Street has launched a new ETF that tracks the performance of a portfolio of non-U.S. dollar inflation indexed government bonds. The DB International Government Inflation Protected Bond ETF (WIP) has annual expenses of .50%, and a portfolio allocated about 33% to Euro denominated issues, 18% to UK Pound Sterling issues, about 6% to Canadian Dollar issues and about 5% each to Swedish Krona and Japanese Yen issues. So where, you ask, is the remaining 33% or so? In interesting issues denominated in currencies issued by Korea, Brazil, Mexico, Israel and Turkey. So what is a good index investor to make of this new product? A good place to start is with the dynamics of real interest rates. As a recent research report from the IMF makes clear ("The Ties That Bind: Measuring International Bond Spillovers Using Inflation Indexed Bond Yields" by Bayoumi and Swiston), changes in U.S. real interest rates have a substantial impact on changes in real rates in other countries (with Australia and Japan being the least affected of the major markets). However, this is much less true in the case of inflation, where local factors dominate. Why is this important? Because in theory, changes in exchange rates (which will affect a U.S. dollar based investor's U.S. dollar return on WIP) are determined by differences between nominal exchange rates in two countries, which themselves are based on the real rate plus expected inflation plus a premium for bearing the risk of unexpected inflation over the life of the bond. That means that WIP is not a good substitute for an investor's allocation to U.S. Dollar denominated real return bonds. On the other hand, this product might well be a very good substitute for an investor's allocation

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to BWX, RPIBX, PFBDX or other products that invest in nominal return foreign currency bonds. There is, however, a catch. These three products invest in bonds issued by developed country governments. With WIP you are building in a 33% allocation to emerging markets bonds. As we have noted in the past, we aren't big fans of emerging markets bonds, as we believe that they expose an investor to many of the same risks as emerging markets equities, while providing much less potential upside (this is the same argument that underlies our dislike for high yield bonds in the United States, compared to U.S. equity). So, to answer our question, does this new product belong in a U.S. dollar based investor's portfolio? At best, maybe. But it is clearly not for everyone.

Finally, three cheers for Barclays, for having launched a new ETF (ACWI) that tracks the MSCI All Countries World Index (ticker ACWI, .35% expenses). Why do we like this fund? We are often asked about how best to meet the challenge facing an investor with relatively little investable capital, but with a commitment to diversification across multiple asset classes. More so than any product thus far introduced, ACWI provides one stop exposure to the world's equity markets. Granted, a sophisticated investor may not like the underlying exposures (42% to the U.S., 43% to EAFE, 11% to Emerging Markets, and 4% to Canada, which isn't in the EAFE). However, that is less of a concern for an investor just starting out, and a product like this was long overdue. Congrats to BGI for finally launching it.

More Criticisms of Private Equity

The editors at the *Financial Times* apparently share our skepticism about the benefits (at least for investors) of private equity. In March, they published two blistering OpEd critiques. The first was by Steve Rattner, a capital markets and public policy veteran who runs his own investment firm. He noted that, "amid last year's breathless coronation of the 'buyout kings', private equity acquired the luster of mythology. In fact, reduced to its essence, private equity is more prosaic – being simply leveraged equity." To a great extent, any higher returns that private equity delivers (and it often fails to achieve this goal), are due to leverage and the acceptance of more liquidity risk (as investments in private equity funds, unlike hedge funds, are typically "locked up" for long periods of time). Perhaps giving operating executives more upside and more closely supervising their performance (which, we note, is not to be confused

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with adding value to that performance) might add a bit more to return. But the real drivers are additional risk premiums for bearing higher leverage and liquidity risk.

This was the point made in a second OpEd by Michael Gordon, the head of Institutional Investment at Fidelity International. He rather acidly (yet accurately, in our view) observed that "as investors are increasingly bruised by the recognition that reality has once again triumphed over hope, the private equity barons are having to confess that the benefits of superior management, alignment of interest and, of course, the superior reward structure [touted by private equity advocates] counted for very little…Private equity as we have come to know it is all about debt – lock, stock and sinking barrel…That [private equity investors] were happy to pay high fees for simple leveraged equity structures that could have been assembled in a do-it-yourself fashion seems remarkable now."

Elsewhere in the Search for Alpha…

We've also read a number of very interesting research papers this month on the broad topic of (certain) investor's never ending search for alpha, and the traps and pitfalls that lie along the way. On the hedge fund front, in "Why Does Hedge Fund Alpha Decrease Over Time?", Ken Zhong finds that it is "not due to an increasing percentage of funds with unskilled managers and negative alphas as suggested by the hedge fund bubble hypothesis [i.e., that a greater percentage of unskilled managers are now running hedge funds]. Instead, it is due to a decrease in the proportion of funds capable of producing large, positive alphas. This evidence is consistent with the prediction of the capacity constraint hypothesis" [i.e., that successful hedge fund managers cannot maintain their performance as their assets under management grow because the supply of alpha that can be captured by their strategies is finite].

However, another paper raises questions about this conclusion. In "The Hedge Fund Game: Incentives, Excess Returns, and Piggy-Backing", Foster and Young show how derivative markets can be used to generate "fake alpha" by selling insurance against rare events. This is a point we have also often made in our writing. The authors make the point that it is very hard for hedge fund investors to structure incentive compensation plans that distinguish between real and fake alpha. The authors conclude that "it is extremely difficult for investors to tell whether a given series of excess returns [alpha] was generated by skill, by mere

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luck or by duplicity. Because it is easy to fake excess returns and earn a lot of money in the process, mediocre managers and con artists could be attracted to the market."

Another paper ("Does Risk Shifting Affect Mutual Fund Performance" by Huang, Sialm, and Zhang) sheds further (unflattering) light on active manager behavior. The authors note that "some mutual funds change their risk levels significantly over time" for two possible reasons. The first it to take advantage of time varying investment opportunities (i.e., risk/return relationships). The second is to "manipulate their expected distribution of returns in the hopes of gaining an advantage [over other managers] in the tournament among mutual funds." The authors then ask whether the observed risk shifting has an impact on performance. If the fund shifts occur for the first reason, one would expect to see higher risk adjusted returns by risk shifting fund managers. Instead, the authors find worse returns among risk shifting fund managers than among funds with more consistent risk profiles, leading them to conclude that the observed risk shifting is consistent with opportunistic manager behavior, rather than the presence of true alpha generating skill.

As we have repeatedly noted, for most investors, the pursuit of active management success is unlikely to succeed. After ten years of studying this question, we are more convinced than ever that the most prudent, "reasonable man" strategy for the average investor is to allocate his or her funds to a diversified portfolio of broad asset class index products. A new paper by Ken French ("The Cost of Active Investing") provides further support to this position. French concludes that, "averaging over 1980 to 2006, investors spend .67% of the aggregate value of the market each year searching for superior returns." As we have repeatedly shown, most of these investors are doomed to fail in their quest, particularly as the time horizon over which they play the active management game lengthens. French logically asks, "Why do active investors continue to play a negative sum game?" Answering this question, he suggests that "perhaps the dominant reason is a general misperception about investment opportunities. Many [investors] are unaware that the average active investor would increase is return if he switched to a passive strategy. Financial firms certainly contribute to this confusion. Although a few occasionally promote index funds as a better alternative, the general message from Wall Street is that active investing is easy and profitable. This message is reinforced by the financial press, which offers a steady flow of stories about undervalued stocks and successful fund managers…Overconfidence is probably the other major reason investors are willing to incur the

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extra fees, expenses and transaction costs of active strategies. Investors who are overconfident in their ability to produce superior return are unlikely to be discouraged by the knowledge that the average active investor must lose." Harsh, but no doubt accurate. I guess we'll keep waiting for our invitation to appear on CNN or MSNBC…

Model Portfolios Update

Our model portfolios are constructed using a simulation optimization methodology. They assume that an investor understands the long-term compound real rate of return he or she needs to earn on his or her portfolio to achieve his or her long-term financial goals. We use SO to develop multi-period asset allocation solutions that are "robust". They are intended to maximize the probability of achieving an investor's compound annual return target under a wide range of possible future asset class return scenarios. More information about the SO methodology is available on our website. Using this approach, we produce model portfolios for six different compound annual real return targets: 7%, 6%, 5%, 4%, 3%, and 2% We produce two sets of these portfolios: one assumes only investments in broad asset class index funds. These are our "all beta" portfolios. The second set of model portfolios includes equity market neutral (uncorrelated alpha) funds as a possible investment. These assume that an investor is primarily investing in index funds, but is willing to allocate up to ten percent of his or her portfolio to equity market neutral investments.

We use two benchmarks to measure the performance of our model portfolios. The first is cash, which we define as the yield on a one year government security purchased on the last trading day of the previous year. For 2008, our U.S. cash benchmark is 3.97% (in nominal terms). The second benchmark we use is a portfolio equally allocated between the ten asset classes we use (it does not include equity market neutral). This portfolio assumes that an investor believes it is not possible to forecast the risk or return of any asset class. While we disagree with that assumption, it is an intellectually honest benchmark for our model portfolios' results.

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

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