

The Index Investor

Invest Wisely...Get an Impartial Second Opinion.

Global Asset Class Returns

YTD 30Sep04	In USD	In AUD	In CAD	In EURO	In JPY	In GBP
Asset Held						
US Bonds	3.20%	6.99%	0.76%	4.46%	5.79%	1.87%
US Prop.	13.60%	17.39%	11.16%	14.86%	16.19%	12.27%
US Equity	2.00%	5.79%	-0.44%	3.26%	4.59%	0.67%
AUS Bonds	-2.45%	1.34%	-4.89%	-1.19%	0.13%	-3.78%
AUS Prop.	9.95%	13.74%	7.51%	11.21%	12.53%	8.62%
AUS Equity	8.70%	12.49%	6.26%	9.96%	11.29%	7.37%
CAN Bonds	6.21%	10.00%	3.77%	7.47%	8.80%	4.88%
CAN Prop.	7.13%	10.92%	4.70%	8.40%	9.72%	5.81%
CAN Equity	8.50%	12.29%	6.06%	9.76%	11.09%	7.17%
Euro Bonds	3.07%	6.86%	0.63%	4.33%	5.66%	1.74%
Euro Prop.	22.25%	26.03%	19.81%	23.51%	24.83%	20.92%
Euro Equity	1.70%	5.49%	-0.74%	2.96%	4.29%	0.37%
Japan Bonds	-2.24%	1.55%	-4.68%	-0.98%	0.35%	-3.57%
Japan Prop.	15.15%	18.94%	12.72%	16.42%	17.74%	13.83%
Japan Equity	0.60%	4.39%	-1.84%	1.86%	3.19%	-0.73%
UK Bonds	4.80%	8.59%	2.36%	6.06%	7.39%	3.47%
UK Prop.	23.96%	27.75%	21.52%	25.23%	26.55%	22.63%
UK Equity	4.80%	8.59%	2.36%	6.06%	7.39%	3.47%
World Bonds	2.10%	5.89%	-0.34%	3.36%	4.69%	0.77%
World Prop.	12.50%	16.29%	10.06%	13.76%	15.09%	11.17%
World Equity	3.25%	7.04%	0.81%	4.51%	5.84%	1.92%
Commodities	18.90%	22.69%	16.46%	20.16%	21.49%	17.57%
Hedge Funds	0.33%	4.12%	-2.11%	1.59%	2.92%	-1.00%
A\$	-3.79%	0.00%	-6.23%	-2.52%	-1.20%	-5.12%
C\$	2.44%	6.23%	0.00%	3.70%	5.02%	1.11%
Euro	-1.26%	2.52%	-3.70%	0.00%	1.32%	-2.59%
Yen	-2.59%	1.20%	-5.02%	-1.32%	0.00%	-3.91%
UK£	1.33%	5.12%	-1.11%	2.59%	3.91%	0.00%
US\$	0.00%	3.79%	-2.44%	1.26%	2.59%	-1.33%

Model Portfolios Update

The objective of our first set of model portfolios is to deliver higher returns than their respective benchmarks over a one-year holding period, while taking on no more risk. The benchmark for the first portfolio in this group is an aggressive mix of 80% domestic equities, and 20% domestic bonds. Through the end of September, this benchmark had returned 5.6%, while our model portfolio had returned 5.3%. We have also compared our model portfolios to a set of global benchmarks. In this case, the global benchmark is a mix of 80% global equities, and 20% global bonds. Through the end of last month, it had returned 0.6%.

The benchmark for the second portfolio in this group is a mix of 60% domestic equities and 40% domestic bonds. Through the end of last month, it had returned 5.1%, while our model portfolio had returned 5.8%, and the global benchmark had returned 0.4%.

The benchmark for the third portfolio in this group is a conservative mix of 20% domestic equities and 80% domestic bonds. Through the end of last month, it had returned 4.2%, while our model portfolio had returned 6.1% and the global benchmark (0.1%).

The objective of our second set of model portfolios is to deliver less risk than their respective benchmarks, while delivering at least as much return over a one-year holding period. The benchmark for the first portfolio in this group is an aggressive mix of 80% domestic equities, and 20% domestic bonds. Through the end of last month, this benchmark had returned 5.6%, while our model portfolio had returned 5.0%. We have also compared our model portfolios to a set of global benchmarks. In this case, the global benchmark is a mix of 80% global equities, and 20% global bonds. Through the end of last month, it had returned 0.6%.

The benchmark for the second portfolio in this group is a mix of 60% domestic equities and 40% domestic bonds. Through the end of last month, it had returned 5.1%, while our model portfolio had returned 4.2%, and the global benchmark had returned 0.4%. The benchmark for the third portfolio in this group is a conservative mix of 20% domestic equities and 80% domestic bonds. Through the end of last month, it had returned 4.2%, while our model portfolio had returned 3.1% and the global benchmark (0.1%).

The objective of our third set of model portfolios is not to outperform a benchmark index over a one year holding period, but rather to maximize the probability of achieving a minimum level of compound annual real return over a twenty-year period while taking on as little risk as possible. Through last month, our 7% target real return portfolio had returned, in nominal terms, 4.7% year-to-date, our 5% target real return portfolio had returned, in nominal terms, 5.0%, and our 3% target real return portfolio had returned, in nominal terms, 6.8%.

Our fourth set of model portfolios are also target real return portfolios; however, they include the possibility of investing in a hedge fund index, in addition to the asset classes used in our other portfolios. For more information on these portfolios, please see our January 2004 issue. Through last month, our 7% target real return HF portfolio had returned, in nominal terms, 2.9% year-to-date, our 5% target real return HF portfolio had returned, in nominal terms, 4.9%, and our 3% target real return HF portfolio had returned, in nominal terms, 7.5%.

Equity and Bond Market Valuation Update

Our equity market valuation analysis rests on two fundamental assumptions. The first is that the long term real equity risk premium is 4.0% per year. The second is the average rate of productivity growth an economy will achieve in the future. As described in our June 2003 issue, because future growth rates are uncertain, we use both high and a low productivity growth assumptions for each region. Given these assumptions, here is our updated market valuation analysis at the end of last month:

Country	Real Risk Free Rate Plus	Equity Risk Premium Equals	Required Real Return on Equities	Expected Real Growth Rate* plus	Dividend Yield Equals	Expected Real Equity Return**
Australia	2.81%	4.00%	6.81%	4.90%	3.60%	8.50%
Canada	2.32%	4.00%	6.32%	2.10%	2.00%	4.10%
Eurozone	1.80%	4.00%	5.80%	2.50%	2.70%	5.20%
Japan	0.63%	4.00%	4.63%	2.70%	1.00%	3.80%
U.K.	1.80%	4.00%	5.80%	2.50%	3.30%	5.80%
U.S.A.	1.80%	4.00%	5.80%	4.50%	1.70%	6.20%

*High Productivity Growth Scenario..

** When required real equity return is greater than expected real equity return, theoretical index value will be less than actual index value – i.e., the market will appear to be overvalued.

Country	Implied Index Value ¹	Current Index Value	Current to Implied Value Under High Growth Scenario ²	Current to Implied Value Under Low Growth Scenario
Australia	188.48	100.00	53%	81%
Canada	47.39	100.00	211%	261%
Eurozone	81.82	100.00	122%	178%
Japan	54.64	100.00	183%	283%
U.K.	100.00	100.00	100%	145%
U.S.A.	130.77	100.00	76%	135%

¹High productivity growth scenario. ²Values below 100% indicate undervaluation; more than 100% indicates overvaluation

Our valuation estimate is based on the relationship between the returns an equity market is expected to supply, and those investors are likely to demand. The rate of return the equity market is expected to supply in the future equals current dividend yield plus the expected rate of real long-term economic growth. To be sure, changes in the market price/dividend (or price/earnings) ratio also affect the returns supplied. However, because this is driven by psychological factors which we have no basis for predicting, we do not include future price/dividend ratio changes in our analysis.

We define the future equity market return that investors demand to be equal to the current yield on long term real return bonds, plus a four percent long term equity market risk premium. As you can see, the good news is that two of the factors in our model -- current dividend yields and the real bond return -- are easily obtained from the daily paper. The bad news is that the other two -- the expected rate of dividend growth and the "correct" equity market risk premium -- are two of the most contentious issues in finance. However, if you assume that an equity market is currently in equilibrium (that is, neither under or overvalued), by assuming a value for one of these variables, you can derive an estimate of the market's current expectation for the other. Specifically, the market's current implied rate of future dividend growth equals the current real bond yield plus the four percent equity market risk premium less the current dividend yield. Similarly, the market's current implied equity market risk premium equals the current dividend yield plus our estimated future growth rate less the current real bond yield. These estimates are shown in the following table:

	Current Dividend Yield	Current Real Bond Yield	Implied Future Real Growth Rate, Assuming 4% ERP	Implied ERP, Assuming Low Future Growth Scenario	Implied ERP, Assuming High Future Growth Scenario
Australia	3.60%	2.81%	3.21%	4.69%	5.69%
Canada	2.00%	2.32%	4.32%	0.78%	1.78%
Eurozone	2.70%	1.80%	3.10%	1.90%	3.40%
Japan	1.00%	0.63%	3.63%	2.17%	3.17%
United Kingdom	3.30%	1.80%	2.50%	2.50%	4.00%
United States	1.70%	1.80%	4.10%	3.40%	4.40%

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

	Current Real Rate	Average Inflation Premium (89-03)	Required Nominal Return	Nominal Return Supplied (10 year Govt)	Return Gap	Asset Class Over or (Under) Valuation, based on 10 year zero
Australia	2.81%	2.96%	5.77%	5.47%	-0.30%	2.88%
Canada	2.32%	2.40%	4.72%	4.62%	-0.10%	0.96%
Eurozone	1.80%	2.37%	4.17%	3.99%	-0.18%	1.74%
Japan	0.63%	0.77%	1.40%	1.45%	0.05%	-0.49%
UK	1.80%	3.17%	4.97%	4.83%	-0.14%	1.34%
USA	1.80%	2.93%	4.73%	4.14%	-0.59%	5.81%

It is important to note that 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).

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						
A\$	0.00%	-0.85%	-1.48%	-4.02%	-0.64%	-1.33%
C\$	0.85%	0.00%	-0.63%	-3.17%	0.21%	-0.48%
EU	1.48%	0.63%	0.00%	-2.54%	0.84%	0.15%
YEN	4.02%	3.17%	2.54%	0.00%	3.38%	2.69%
GBP	0.64%	-0.21%	-0.84%	-3.38%	0.00%	-0.69%
US\$	1.33%	0.48%	-0.15%	-2.69%	0.69%	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. The basic logic is that you earn high returns by investing today in the styles and sectors that will perform best in the next stage of the economic cycle. 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 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 good indication of how investors in different markets expect the economy to perform in

the near future (i.e., 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).

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

<i>Economy</i>	Bottoming	Strengthening	Peaking	Weakening
<i>Interest Rates</i>	Falling	Bottom	Rising	Peak
<i>Equity Style</i>	Growth (IWZ) -3.30%	Value (IWW) 3.90%	Value (IWW) 3.90%	Growth (IWZ) -3.30%
<i>Equity Size</i>	Small (IWM) 2.80%	Small (IWM) 2.80%	Large (IWB) 0.10%	Large (IWB) 0.10%
<i>Equity Style and Size</i>	Small Growth (DSG) 1.00%	Small Value (DSV) 3.60%	Large Value (ELV) 2.10%	Large Growth (ELG) -3.80%
<i>Equity Sectors</i>	Cyclicals (IYC) -2.10% Technology (IYW) -11.40%	Basic Materials (IYM) 3.40% Industrials (IYJ) 4.90%	Energy (IYE) 26.20% Staples (IYK) -0.40%	Utilities (IDU) 7.40% Financials (IYF) 2.50%
<i>Bond Mkt</i>	High Risk (VWEHX) 5.30%	Short Maturity (SHY) -0.50%	Low Risk (TIP) 5.70%	Long Maturity (TLT) 3.30%

As you can see from this table, there appears to be a substantial amount of confusion among investors about whether the U.S. economy will weaken or strengthen in the coming months.

This Month's Letters to the Editor

Hedge funds seem to be a way of raising the average return on a portfolio. Why aren't you a stronger proponent of using them?

Here's the short answer: we aren't strong proponents of investing in hedge funds because we don't think they are a "magic bullet" solution to investors' search for higher

portfolio returns at an acceptable risk level. Now for the long answer. Let's start with some basics. First, what is a hedge fund? Like a mutual fund, it is a pool of funds, run by a professional investment manager. However, unlike a mutual fund, hedge funds can employ a much wider range of investing strategies (e.g., shorting, using leverage, and using derivatives); investors have less access to their money (e.g., it can only be withdrawn from the fund once each year); and the fund manager is much better compensated (e.g., earning 2% of the assets under management each year, plus 20% of the fund's profits). Hedge funds are not, in themselves, an asset class, because they do not represent a direct claim on productive assets like stocks, bonds, property or commodities. However, because the investing strategies they employ are so different from those used by typical "long only" mutual funds, hedge funds are often treated as a separate asset class in asset allocation analyses.

The key arguments for including hedge funds in a portfolio are as follows: (1) The best active managers are likely to be found at hedge funds. (2) Hedge funds are supposed to be an efficient way to add additional return to a portfolio (i.e., use index funds to take broad asset class, or "beta" risk, and hedge funds to take additional risks in the hope of earning incremental returns, or "alpha"). And (3), the use of hedge funds can improve a portfolio's overall risk profile (e.g. because of their low correlations of returns with other asset classes).

However, there are also some strong arguments against using hedge funds: (1) The case for hedge funds is built on very questionable data. Specifically, the return series dates back to only 1994, and is filled with a variety of biases (see our January, 2004 issue for more on these). When these are removed, hedge fund returns are lower and their risks are higher. (2) Because hedge funds employ complex strategies, the distribution of their expected returns is very different from the normal "bell curve" distribution that more or less characterizes the returns on other asset classes. This means that traditional measures like average return to volatility (i.e., the standard deviation of returns) don't fully capture the true risk of investing in hedge funds. When more sophisticated measures are used (e.g., that capture the skewness and kurtosis of returns), it looks like the high returns on many hedge fund strategies are really just compensation for taking on higher levels of "extreme event" risk (i.e., the risk of a big loss) than you would find in a mutual fund.

In addition, (3) because hedge funds are active management strategies, they suffer from all the limitations of that approach. Specifically, you have to ask how long a hedge fund manager's advantage will last, whether it is based on superior information (which is hard to consistently obtain) or on a superior model (which is either invalidated by a changing economy, or discovered by other managers). Recent performance data certainly seem to support the view that hedge fund returns have been declining as more and more managers get into the game, and more capital (US \$800 billion plus at last count) is being managed using the same strategies.

Finally, (4) a number of studies have shown that the returns on many hedge fund strategies reflect not just alpha, but also beta risk, for which investors have been paying very high "alpha" prices. In other words, investors could have been getting a substantial portion of their hedge fund return at a much lower price by investing in index funds (perhaps on a leveraged basis if they wanted to seek higher returns).

On balance, we believe that the arguments against using hedge funds are generally stronger than the arguments in their favor. However, as you can see from our site, we are not completely against their use, and provide a set of target real return model portfolios that incorporate them. Specifically, we have found that at least two hedge fund strategies (or "styles" as they are sometimes referred to) have the potential (subject to the aforementioned uncertainties about the historical data and future performance) to enhance the risk/return characteristics of some of our target real return model portfolios. These hedge fund styles are Equity Market Neutral (which is a true alpha strategy), and Global Macro (which, as we wrote last month, seems best placed to profitably exploit the predictability of sign changes and volatility in many asset classes). However, to improve liquidity and to reduce the risk that any individual active manager's skills will not last, we also strongly favor investing in these strategies via hedge fund style indexes. For better or worse, these are not yet available to most individual investors. Until they are, we would resist the temptation to plunge into the hedge fund pool.

This Month's Issue: Key Points

In our semi-annual economic update, we conclude that we are facing some of the most unsettled and uncertain circumstances in recent times. Sharp swings between inflation and deflation (and back to inflation again) may occur, depending on how six risk factors develop. These include (1) a major new terrorist attack; (2) rising oil prices; (3) falls in housing market values; (4) a sharp economic slowdown in China; (5) cessation of Asian countries' financing of the U.S. (and Anglosphere's) current account deficits; and (6) Eurozone and Anglosphere governments' efforts to address the potential public sector costs of aging populations. In our analysis, we summarize our most likely and most dangerous scenarios for the future. The key indicators we will watch to see which is developing include the following:

Indicator	Dangerous Outcome
Real Interest Rates	Falling trend
Oil Prices	Stay high, or rise higher
U.S. Ten Year Treasury Bond Nominal Yield	Rising trend
U.S. Exchange Rate	Falling trend (weakening dollar)
Inflation in China and Southeast Asian Countries	Rising trend
China Stability and Growth	Any indication of political unrest
Eurozone Real Economic Growth Rate	Falling trend

Given the uncertain economic situation we face, proper portfolio diversification is more important than ever. At this point, we do not believe that a deviation from our model portfolios' long-term asset allocations is warranted, as it is possible that our currently benign circumstances could continue for one or two more years. That being said, neither do we believe that investors should be increasing their risk profiles at this time (e.g., by raising the minimum required long-term rate of return their portfolios must deliver to achieve their goals). In short, it is a time for cautious patience.

Semi-Annual Global Economic Update

Twice each year, in our March and September issues, we present an overview of the world economy for our readers. The March issue presents our own views, while the September issue is based on similar reviews that are released in September (e.g., by the IMF). For those of you who are reading this for the first time, let us assure you that our purpose is not to encourage market timing! Rather, our main objective is to provide early warning of any asset class overvaluations that seem substantial enough to warrant a short-term deviation from our model portfolios' asset allocation weights.

Our secondary objective is to provide you with a framework that can help reduce the information overload we all face, in the form of the deluge of statistics, daily market reports, and competing opinions we hear and read each day. To put it slightly differently, we are trying to help you cut through all the noise and focus on the key signals that provide the clearest indication about the likely direction of the global economy.

At the outset, it is important to make clear the models and assumptions that underlie the conclusions we will reach in this article. Anybody trying to develop an estimate of what may happen in the future inevitably struggles with four questions. (1) What variables are important in determining the future outcomes that are the focus of my analysis? (2) How are these variables related to each other? (3) What are the likely future values for these variables? (4) How confident should I be in my answers to the first three questions?

While psychological factors and investor behavior undoubtedly have an impact in the short-run, over longer periods of time trends in the real economy drive the returns on different asset classes. Our basic framework for analyzing the demand side of the global economy is the Economic Balance Equation. Most people are familiar with the concept of a corporate or household balance sheet, in which assets are by definition equal to the sum of liabilities plus net worth. The Economic Balance Equation is a similar tool for understanding the economy.

By definition, two economic accounts must always be equal. These are known as the "domestic balance" and the "current account balance." The domestic balance is equal to domestic savings less investment. It can be broken down further into a private sector balance (households plus businesses) and public sector balance. The private sector balance is equal to private savings less investment. Private savings equals total output (i.e., GDP) less private

consumption (by households and businesses), while private investment includes business capital spending and inventory changes, as well as household fixed investment (e.g., in new houses). The public sector balance is equal to government spending (for both consumption and investment) less taxes. A negative balance, in either the private or public sector, stimulates total demand for goods and services; in contrast, a positive balance shows that savings are greater than investment, which reduces demand for goods and services. Negative and positive balances affect the supply of financial assets. A sector with a negative balance (that is, one that is investing more than it saves) issues financial claims (in the form of debt or equity) to raise funds. A sector with a positive balance either pays off its own claims or accumulates claims from others. For example, when a household spends more than it earns, it issues claims on its future earnings to other parties (e.g., it takes on credit card or mortgage debt). However, when it spends less than it earns, it either repays its debts, or invests in claims issued by others (e.g., purchasing bonds issued by a government that is running a deficit).

Now let's move to the current account, which tracks a country's relations with the rest of the world. When people refer to the "balance of payments" this is usually what they are talking about. The easiest way to understand the current account is to ask what happens when a nation's domestic savings are greater than its domestic investment. What happens to the surplus savings? They are invested in other countries, where domestic savings are less than domestic investment. So far, so good. But hold on, because things get a little trickier at this point.

Consider a world in which just two countries exist, that historically have had the same levels of domestic savings and investment. However, something changes, and next year the first country has relatively more domestic savings than investment, and the second country has just the opposite. As we have seen, the first country's surplus savings will flow to the second country. However, because the two countries have different currencies, the flow of savings from the surplus to the deficit country will mean that savers in the former will have to sell their currency to enable them to invest in the deficit country. In other words, on the foreign exchange market, the supply of the surplus country's currency will increase relative to the demand for it. As a result, its value will depreciate relative the value of the deficit country's currency. However, things don't stop there.

Consider what happens domestically if the price of one company's product falls relative to the price of a similar product made by a second company. Demand for the now cheaper product tends to increase, while demand for the now more expensive product tends to decrease. The same thing happens internationally when a change in exchange rates causes a change in the relative prices of goods produced by two countries. The country with the depreciating currency (that is, the country with surplus domestic savings) will see an increase in international demand for its (now relatively cheaper) goods and services, while just the opposite will happen in the country with the appreciating currency (that is, the currency with the domestic savings shortfall). To put it a bit more formally, a country with domestic savings greater than domestic investment by definition will have a positive balance on its "current account" which measures the value of its exports of goods and services less its imports of the same. Conversely, a country whose domestic investment is greater than its domestic savings will run a current account deficit.

An important point to keep in mind about the Economic Balance Equation is that it measures flows within a period, not the stocks of financial asset and liabilities that are affected by the flows. However, these stocks are the ultimate constraints on the system. For example, consider a country that attempts to stimulate demand growth by investing more than it saves (that is, whose private consumption spending, private investment spending, and government deficit adds up to more than 100% of its output). For a while, this strategy can work quite well. In fact, if other countries are willing to keep accumulating financial claims on the savings-short country, it can go on for many years. However, at some point, people in the savings surplus country will call a halt to the process, once the perceived risk of default by the savings-short country passes a certain point. In many cases, this point is reached once the ratio of the savings-short country's external debt to its GDP or to its export revenues rises above a certain "danger threshold."

At this point, the changes required to bring the system back into balance can be difficult and painful. In the short-term, a sharp reduction in savings exports from the savings-surplus country would cause a rise in its exchange rate, and a fall in the exchange rate of the savings-short country. As we have noted before, these would cause sharp changes in relative prices between the two countries. Unfortunately, if the structure of domestic demand is different in the two countries, this may not be sufficient to bring about the necessary changes

in their respective current account balances. For example, suppose our savings-surplus country had focused its export industry on consumer electronics, which had caused a sharp reduction in the size of the savings-short country's domestic consumer electronics production capacity. Faced with an increase in the price of consumer electronics caused by the depreciation of their currency, people in the savings-short country might keep on buying them nonetheless, assuming their demand for them was relatively insensitive to price changes.

In this case, achieving the necessary adjustment in the current account would necessitate a substantial drop in total demand (income) in the savings-short country. In this case, purchases of consumer electronics would fall, not only because their price rose, but also because people simply no longer had the money to spend on them.

To put it differently, in this case, structural changes in the two countries' economies would make it difficult for the price mechanism (changes in the exchange rate) to bring about the necessary adjustments. The only alternative would be changes in aggregate demand, which is much more painful adjustment process. The important point here is that the savings-short country faces painful changes when it is told by its creditors that the party is over, and that the time has come to pay back some of its external debt. Turning a current account deficit into a current account surplus inescapably requires some combination of cuts in private spending and investment, and/or cuts in government budget deficits.

However, as we have noted, the changes in the savings-surplus country can be equally painful. If the savings-short country is to pay down its debt, the savings-surplus country has to become a savings-short country, and run a deficit on its current account. To do this, it will have to make difficult changes to increase domestic private consumption and/or investment spending, and/or to increase the size of its government deficit, while simultaneously reducing its exports and increasing its imports of goods and services.

This simple example sets the context for our overview of the current economic situation. First, let's briefly review how we got to where we are today. At the end of the 1990s, the world economy was heavily dependent on the United States as its main "growth engine." While the U.S. government budget was in surplus, its private sector balance was heavily in deficit, due to heavy corporate investment in information technology, and heavy consumer spending financed through a combination of debt accumulation and the spending of gains from rising equity values. When this bubble burst in 2001, and was followed later in the

year by the 9/11 terrorist attacks, the world economy faced the stark prospect of a fall into a global recession that some worried might turn into a prolonged, Japan-style period of low growth and deflation. A de-facto three-part strategy was formulated to maintain global growth. In the United States, interest rate reductions and government fiscal policy were used to stimulate aggregate demand. In the Eurozone, it was hoped that aggressive structural reforms and government fiscal policy would have the same effect. Finally, to stimulate faster domestic demand growth in Japan, more aggressive structural reforms would be undertaken (to make the corporate sector more efficient, and to improve the banking system's credit quality) and a much looser monetary policy would be used to eliminate deflation.

The result was a "good news/bad news" story. The good news was that for the past three years, the world has avoided recession and deflation, principally because the U.S. government and consumers kept borrowing and spending, which helped to trigger a second source of demand growth: an investment boom in China. The bad news is that the original growth strategy was only partially implemented, and as a result the world economy today is probably even more dangerously unbalanced than it was in 2001.

In the United States, the corporate sector moved very aggressively to cut costs and strengthen its balance sheet. Much of this cost cutting reflected realization of the productivity improvements long promised by earlier investments in information technology. For example, the widespread deployment of Enterprise Resource and Planning (ERP) systems led to the elimination of many middle management jobs whose primary purpose had been the collection, aggregation, and analysis of internal corporate information. Many businesses were also able to cut costs by moving significant production operations to China and Southeast Asia, as information technology enabled the creation of globally integrated supply chains. However, in the household sector, the biggest story was not retrenchment, but continued spending, financed in no small part by the refinancing of home mortgages as interest rates fell. At the same time, the public sector saw an enormous and unprecedented shift in the fiscal balance, from a substantial surplus (1.3% of GDP in 2000) into a substantial deficit (negative 4.9% of GDP in 2004). With the sharp reduction in the private sector's balance, and with substantial military action inevitable after 9/11, the plain truth of the matter was that the U.S. government could not afford to have the global economy fall into what could easily become a prolonged deflationary recession. The net result of these changes in the private and public sector

balances was a sharp increase in the United States' current account deficit. To varying degrees, the same current account story has played out elsewhere in the Anglosphere (i.e., Australia, Canada, New Zealand, the UK and the USA). For example, in the U.K., the public sector balance has fallen from 3.9% of GDP in 2000 to negative (3.0%) by 2004. The exception has been Canada, where higher initial external debt levels caused the country to take advantage of favorable conditions to run private, public and current account surpluses.

With the Anglosphere growing domestic demand faster than domestic production (as evidenced by its current account deficits), the main geographic beneficiary has been Asia. To understand why, we have to go back twenty years or so, and start with the broad outlines of the development strategy that many of these nations have been following. One of the most important challenges these countries face is how to maintain political stability in the face of rapidly growing populations. More specifically, the key challenge has been how to absorb large numbers of new workers into the labor force (due to both high historical birthrates and the shift out of agricultural employment) while at the same time meeting their expectations for a rising standard of living. Given that the "Latin American" approach to this challenge (characterized by protectionism, often-times inefficient import substitution investments by the public and private sectors, large current account deficits and heavy reliance on foreign bank loans) had proven relatively unsuccessful, the Asian countries largely copied a different approach that had been pioneered by post World War Two Japan.

The key elements of this development model were an emphasis on high levels of human capital (i.e., education), high domestic savings, smaller current account deficits (or even surpluses) and a focus on large export markets. Serving the latter offered a much bigger potential source of demand growth than relatively underdeveloped domestic markets. Equally as important, because they were much more competitive than import substitution, export markets would provide the stimulus for rapid increases in productivity (output per hour worked) and output. Finally, high productivity growth over time would be made possible by the combination of well-educated workers and increasing amounts of capital investment. In general, this Asian approach to economic development proved to be much more successful than the Latin American model. However, over the course of the 1990s its weaknesses began to show.

The core problems seemed to be the mechanism chosen for allocating high domestic savings to investment projects, and the way that foreign exchange rates were managed. In the case of the former, most Asian countries heavily relied on the banking system to allocate savings, and had relatively underdeveloped domestic bond and equity markets. At the same time, these countries' bank regulatory capabilities did not keep pace with the growth of their banking systems. In retrospect, the results were predictable: growing amounts of relatively inefficient investment (e.g., lending for property speculation, or for inefficient, "me-too" export projects), growing reliance by banks on external funding (e.g., U.S. dollar denominated deposits from foreign banks), and growing numbers of non-performing loans. However, while these problems were developing, pressures were slowly building up in the foreign exchange markets, where strong export performance had led to inflows of foreign capital. With exchange rates essentially pegged to the U.S. dollar (to help export competitiveness), these foreign capital inflows resulted in increases in the domestic money supply, which led to increases in both domestic asset prices and domestic prices (and remember that the latter reduces export competitiveness). In 1997, this Asian development model broke down in many countries. Growing doubts about the creditworthiness of domestic banks and the competitiveness of exports led to growing capital outflows. In addition, exchange rate depreciation increased the value of countries' dollar denominated foreign debt relative to both their export earnings and GDP. As this crisis spread beyond Thailand (where it first appeared), more and more countries were forced to dramatically slow the growth of their economies (and increase the risk of political unrest) to get the situation back under control.

The sharp setback experienced by the Asian countries seven years ago had a number of consequences. First, the contraction in domestic demand (and particularly in investment) moved their private sector balances into very strong surpluses, which has caused their current accounts to also move into surplus. Investment in these countries (except for China, as described below) has yet to return to its pre-crisis level. Second, the shock changed the way in which the U.S. dollars (and other foreign currencies) earned from export sales are managed. Rather than having foreign exchange risk born by the private sector (in this case, by holding foreign currency denominated assets, or, to put it differently, by exporting surplus savings), this function has shifted to the public sector. Specifically, the central banks of many Asian countries now hold substantial foreign exchange reserves that are invested in U.S. government

debt obligations. This has been the genesis of one of the key dynamics at work in the global economy today: domestic U.S. demand is greater than domestic production, with much of the difference made up by imports from Asia. This results in a large current account deficit (and the accumulation of more and more dollar denominated external debt) which is being financed by the reserve accumulations of Asian central banks.

Arguably, the tremendous stimulus to global demand growth provided by the Anglosphere has afforded the Eurozone (and, to a lesser extent, Japan) the luxury of being able to lag in their implementation of the global growth strategy. Despite some progress, the Eurozone countries have generally failed to enact the structural reforms (e.g., deregulation, privatization, etc.) needed to increase their productivity and domestic growth capacity. The region's productivity growth rates still lag behind the rates found in most Asian and Anglosphere countries. As a result, the increase in the Eurozone's exports and government deficits (e.g., the latter increased from negative 0.9% of GDP in 2000 to negative 2.9% of GDP by 2004) has not led to appreciable increases in private consumption and domestic spending. Moreover, the relatively anemic growth that was achieved rather quickly fed through to price increases (i.e., jumps in inflation) rather than increases in output. As the European Central Bank (ECB) sees its primary mandate to be the control of inflation, this has led to a far more cautious monetary policy (i.e., relatively higher interest rates) than in the United States. Over the past year, this situation has deteriorated, as many private investors' increasing worries about the United States' rapidly growing external debt have caused them to shift funds into Euro-denominated assets. The resulting appreciation of the Euro/U.S. dollar exchange rate has caused the Eurozone's exports, and hence the region's overall growth, to weaken from their already unimpressive levels.

All of these trends can be seen in the International Monetary Fund's latest forecast for how the Economic Balance Equation is expected to turn out in 2005 in various regions of the world:

Country or Region	2004 GDP in US\$ Billions at PPP ¹ Exchange Rates	% of World GDP in 2004 at PPP Exchange Rates	Expected 2005 Real GDP Growth	2005 Private Sector Balance (% GDP) +	2005 Public Sector Balance (% GDP) =	2005 Current Account Balance (% GDP)
Australia	582	1%	3.4%	(5.4%)	0.5%	(4.9%)
Canada	1,018	2%	3.1%	1.5%	0.9%	2.4%
Eurozone	8,246	16%	2.2%	3.0%	(2.5%)	0.5%
Japan	3,611	7%	2.3%	9.7%	(6.5%)	3.2%
New Zealand	87	0.2%	2.5%	(7.0%)	2.6%	(4.4%)
U.K.	1,665	3%	2.5%	1.0%	(2.9%)	(1.9%)
U.S.A.	11,175	21%	3.5%	(0.8%)	(4.3%)	(5.1%)
China	6,912	13%	7.5%	4.8%	(2.0%)	2.8%
Asian NICs*	1,752	3%	4.0%	8.9%	(2.4%)	6.5%

*Newly Industrialized Countries = S.Korea, Hong Kong, Singapore, and Taiwan

¹ Purchasing Power Parity (i.e., the exchange rate that would make a common product, such as a Big Mac, cost the same in every country)

This table tells a very interesting and very important story. Let's start with the second column. While the war against Islamic extremists dominates the headlines, the longer-term story is the emergence of three different economic groupings in the global economy, and their divergent strategies and performance. The smallest of these is the Eurozone, which accounts for 16% of global Gross Domestic Product (i.e., total world demand). Relative to other regions of the world its growth is expected to be slow in 2005. Its demand stimulus is coming from its exports (as evidenced by its slightly positive current account surplus) and public sector fiscal policy (as evidenced by its negative public sector balance).

The two largest groupings are the Anglosphere and Asia. Both now account for about 27% of world GDP. This number for Asia includes only China, Japan, South Korea, Hong Kong, Singapore, Taiwan, Indonesia, Malaysia, Philippines and Thailand. If the countries of South Asia (e.g., India and Pakistan) are also included, Asian GDP is larger than that of the Anglosphere. As you can see, while growth rates have been higher in Asia and the Anglosphere than in the Eurozone, the strategies employed have been different, but

complimentary. As we have noted, the Anglosphere countries have tended to grow domestic demand faster than domestic output, with the difference coming from the Asian countries which have done just the opposite.

The good news is that despite its uneven implementation, the strategy that was put in place in 2001 has thus far kept the world from falling into a global (and possibly deflationary) recession. The bad news is that the current approach remains very unbalanced, which means that beneath the surface, pressures for change continue to build up. Hence the critical questions are how much longer the current system can continue, and what is most likely to replace it when it reaches its inevitable end.

While there is no shortage of candidates when it comes to fault lines that could set off an earthquake in the global economy, we will look at six of the most likely candidates in rough order of the possible time to their impact: (1) a major new terrorist attack; (2) rising oil prices; (3) falls in housing market values; (4) a sharp economic slowdown in China; (5) cessation of Asian countries' financing of the U.S. (and Anglosphere's) current account deficits; and (6) Eurozone and Anglosphere governments' efforts to address the potential public sector costs of aging populations.

A major terrorist attack might take many forms; however, the one that seems both relatively probable and the most worrisome to us is an incident that would slow or stop the operation of the ports of Los Angeles/Long Beach or Seattle/Tacoma. These are the two major West Coast ports through which the majority of Asia's exports enter the United States. An attack which severely disrupted these ports would have serious consequences for the two economic groups which up to now have been keeping the global economy out of recession.

This year's rise in oil prices is another major threat to the global economy. While far smaller than the large hikes in 1973 and 1979 (which raised oil prices by 252% and 179%, versus the most recent 29% increase), it nonetheless has a twofold negative impact on oil importing countries. First, an oil price rise functions as a tax that directly reduces the money that can be spent on other forms of consumption and investment. Second, if oil price increases lead to higher inflation, they may also cause central banks to raise interest rates, which would further reduce consumption and investment spending. The taxation effect of oil price increases is particularly pronounced in Asia, which is far less efficient in its use of oil (e.g., energy used per dollar of GDP produced) than the Eurozone or Anglosphere countries. With

respect to interest rates, the Asian Development Bank recently noted that "consumer credit expansion has been strong [in recent years in many countries] leading to higher household indebtedness. [The combination of] lower real incomes due to higher oil prices and higher interest rates would significantly raise the debt servicing burden of households, possibly leading to a substantial rise in default rates in some countries. At the same time, business investment would suffer a setback."

Besides the direct impact of the oil price rise on growth, there remains the important question as to how the producing countries will invest their increased oil revenues. A decision to invest them in the Euro, Pound or the Yen, instead of the U.S. dollar could have serious consequences. Further appreciation of the Euro versus the USD would further reduce the Eurozone's already weak growth. Given its current account deficit, appreciation of the U.K. pound would also be less than helpful, while appreciation of the Yen would severely hurt Japan's already fragile and export-dependent growth. But how likely is it that oil prices will remain high?

In its September World Economic Outlook, the IMF notes that the most recent run-up in oil prices was caused by both demand and supply side factors. "Perhaps most important, as the global economic recovery has taken hold over the past year...both the level and the growth in the global demand for oil have consistently outpaced expectations." On the supply side, recent years have seen no major new discoveries of large oil reservoirs that can be exploited at low cost. During the same period, relatively low oil prices have held back development of oil supplies that while plentiful are much more expensive to recover (e.g., Canada tar sands and Venezuelan heavy oil deposits). That has led to the current condition in which demand and supply are finely balanced, with the latter subject to not-inconsiderable political risks (e.g., in Iraq, Saudi Arabia, Russia and Venezuela). As the IMF notes, "while proven reserves remain plentiful, the key issue in the global oil market appears to be low excess production capacity and the adequacy of existing capacity expansion projects relative to the potential increase in global demand."

So how likely is it that the current high oil prices will continue? One argument says that with so many other factors likely to slow down the world economy over the next year, the current price rise will likely be short lived. Another argument is that higher prices will lead to both demand reduction (e.g., the fall in sales of sport utility vehicles in the United States) and

supply increases, due to more intensive exploration efforts, and the introduction of new technologies (e.g., not only for exploiting marginal deposits, but also for getting much more oil out of existing reservoirs). A third argument notes that the recent run-up in oil prices will only speed the transition to the hydrogen economy that is now well underway (e.g., witness the number of hybrid and fuel cell vehicles and power plants now nearing commercialization). On the other hand, given the political and economic uncertainties associated with new capacity development, no less an authority than David O'Reilly, the Chairman of ChevronTexaco has warned (in an interview with the Financial Times) that "there is the potential for an underlying shift in the value of the oil price. It is possible that we are at the same place that we were in the late 1970s."

Even if it is not sustained, the recent increase in oil prices could still be sufficient to cause other negative reactions in the world economy, particularly if it triggers a rise in inflation that forces an increase in interest rates. The undeniable fact is that the household sector is probably the biggest weak point in the global economy today because of the amount of debt on its balance sheet. Both the Bank for International Settlements (BIS) and the IMF have recently examined different aspects of this problem. In June, the BIS published a new study titled "The Macroeconomic Implications of Rising Household Debt." It noted that, following financial system liberalization, "household borrowing has grown considerably in many countries over the past two decades, both in absolute terms and relative to household incomes." Like others, the study notes that most of this increase has been in the form of mortgage debt associated with investment in residential property. It also notes that rising property values have helped to hold up private consumption expenditures in many countries since 2001.

However, the BIS study also notes that the rise in household sector debt "has raised concerns about...the possible implications for the financial system and the macroeconomy if it is not sustainable. While household debt has increased relative to both income and household assets in most countries, the interest cover or debt service ratio of households does not show a clear upward trend. The increase in household indebtedness has been offset by the decline in borrowing rates, so that on average, households are not devoting any greater share of their incomes to debt service than in the past. However, debt service is close to historical highs in some countries. With interest rates at historically low levels, debt service costs will

rise further as rates increase when the interest rate cycle turns." The study notes that the impact on private consumption should be most severe in those countries where a substantial percentage of mortgage debt carries variable rather than fixed rates. These countries include Australia, Ireland, Spain, Sweden, Switzerland, and the U.K.

However, even those countries where fixed rate mortgages predominate may also be affected by rising rates. In these countries, a high percentage of mortgage debt has been securitized by the originating banks (i.e., mortgages have been packaged and resold as some type of mortgage backed bond), and sold to institutional investors, like pension funds. So when interest rates rise, these institutions' holdings of mortgage backed securities will decline in value. However, it may be the case that these institutions have taken steps to hedge their exposure to this risk by purchasing interest rate derivatives (essentially insurance contracts that payoff when rates rise). However, the capital losses caused by rising interest rates don't disappear -- in this case, they are simply shifted to whoever it was that sold the derivative contract to the pension fund. And therein lies one of the biggest (if unacknowledged) risks facing the financial system: the creditworthiness of the parties who are left holding this risk. If enough of these turn out to be weaker than expected (i.e., unable to make the payments called for under the derivative contracts they have sold), it will undoubtedly be a nasty shock to the economy. Unfortunately, we suspect that more than a few highly leveraged hedge funds have been boosting their returns by selling interest rate derivatives. So we won't be surprised if the "derivatives credit shock" eventually occurs if rates keep rising.

A closely related question is whether house prices have become seriously overvalued in some countries. If this is the case, then a substantial fall in house values could make any economic downturn that happens much deeper and more prolonged. In its September World Economic Outlook, the International Monetary Fund analyzed this issue. Like others who have also explored it (e.g., see the September 11, 2004 issue of "The Economist"), the IMF came to a worrying conclusion. The IMF began by constructing a model that attempts to explain the increase in house prices across a sample of 18 countries over the 1971 - 2003 period. Over this period, house prices have grown at a real rate of 1.75% per year, with a standard deviation of 7.0% (Note: assuming constant 4:1 leverage, this equates to real growth of 7.0% per year). However, there are significant country-to-country variations within this average. For example, average real house price growth has been higher in the UK and

Australia than in Canada, the United States, and New Zealand. It has also varied widely within the Eurozone, with average growth in Spain, Ireland and the Netherlands much higher than in other countries.

As one would expect, the study's authors found that the growth rate of house prices was affected by economic fundamentals, including population growth, real income growth, interest rates, and the growth of credit. While there was a low contemporaneous correlation between changes in stock prices and changes in house prices, this was not true over time, as changes in stock prices tended to lead changes in house prices. The IMF also found that the growth in house prices had a high degree of serial correlation (coefficient of .5); in other words, there was a high probability that a positive change in one year would be followed by a positive change the next year. However, over longer periods, the "growth rate of real house prices also showed fundamental reversion: if house prices are out of line with income, there is a gradual tendency for this misalignment to be corrected (by about 15 percent every year)." The IMF also found that changes in house prices were increasingly correlated across countries (the recent average correlation equals .4), and that changes in global GDP growth had a surprisingly large impact. However, the extent to which this was due to permanent linkages (e.g., the globalization of trade and financial markets) versus the recent dominant role of the United States (in driving world GDP growth) remains open to debate. It is also interesting to note that the same phenomenon has been observed in the global commercial property market. In essence, even a diversified property portfolio will still contain quite a strong exposure to a single risk factor: global GDP growth.

A particularly interesting aspect of the IMF study is the extent to which its model explains the growth in house prices between 1997 and 2003 across different countries. Any house price growth in excess of that predicted by the model suggests the presence of speculative price increases not warranted by changes in demographic and economic fundamentals. On this measure, the greatest indicators of speculative excess were found in Ireland, the UK, Spain, and Australia. Worryingly, these are also countries where floating rate mortgage debt predominates. As the IMF notes, in these countries "there is a danger that higher interest rates could trigger a large downward adjustment of house prices, with...severe consequences for [real GDP growth]." The IMF study concludes "the strength of the housing market has played an important role in supporting [global GDP growth].... By the same

token, the outlook for the housing market will play a key role in shaping the extent and nature of [the global economy] going forward.... Just as the upswing in house prices has been mostly a global phenomenon, it is likely that any downturn would also be highly synchronized, with corresponding implications for global economic activity. In particular, higher global interest rates will result in a slowdown in house prices, the extent of which will differ across countries."

As we noted in our March 2004 Economic Update, China has played a very important role in world economic growth since 2001. In effect, it has become the engine driving growth in Asia. China's growing exports to the United States have triggered a sharp increase in domestic investment as well as strong export growth (and further domestic investment) in the many Asian countries that supply China with raw materials and intermediate goods. In our March 2004 issue, we also noted the many risks to the continuation of strong Chinese growth, and the potentially severe consequences for the world economy of a sharp slowdown in China. In this September's World Economic Outlook, the IMF also addressed this issue.

The IMF study notes that "China's economic growth has been marked by periods of cyclical surges in economic activity and inflation, followed by periods of retrenchment. In the 1980s, two cycles ended with hard landings characterized by sharp slowdowns in growth. These periods were often influenced by political changes and typically began with an early relaxation of monetary and fiscal policies to support state-owned enterprises, leading to a significant increase in inflation. The authorities eventually responded with a heavy reliance on direct controls and other administrative measures. Inflation was quickly brought under control, but growth slowed sharply...This general pattern was [again] repeated in the 1991-1997 cycle. In 1992, an easing in monetary and fiscal policies led to an investment boom with real GDP growth exceeding 14 percent and an acceleration in inflation. Early attempts at tightening policies hit state-owned enterprises hard, prompting a relaxation of policies. This easing, and a devaluation of the official exchange rate, resulted in inflation rising to a peak of over 24 percent in 1994. The authorities eventually achieved a soft-landing of the economy, with inflation in the single digits by 1996 and only a modest slowdown in growth. Factors contributing to this included structural reforms to increase the market orientation of the economy, the buildup of excess capacity that put downward pressure on prices, and a tightening of monetary policy."

"However, this episode is directly linked to the key current problems in China's financial sector, as the rapid pace of credit growth [bank lending] in 1992-1996 contributed to the weakness of the financial sector today...Many of the non-performing loans in the banking system date from this period...The current cycle (2002-2004) bears some of the characteristics of the previous overheating cycles, such as high GDP growth, rapid credit growth, and high investment rates...The authorities moved to tighten monetary policies beginning in mid-2003...However, investment has remained high, and inflation has increased. In the current circumstances, a soft-landing, which would maintain underlying growth momentum, appears achievable. However, this will require taking into account the lessons learned from previous cycles. In addition to the early action to rein in credit and investment growth already undertaken by the [Chinese] authorities, these include the consistent implementation of monetary tightening actions to contain inflation and mitigate the non-performing loans problem and introducing greater interest rate liberalization and hard budget constraints for state-owned enterprises to support the effectiveness of monetary policy. In the near term, it will also be important to avoid the tendency seen in earlier cycles to loosen policies prematurely."

In light of this, Chinese President Hu Jintao's recent launch of a new campaign to rid the Chinese Communist Party (CCP) of corruption strikes us as a critically important indicator of what may lie ahead. As we noted in March 2004, letting the already very high level of party corruption continue unchecked seemed sure to lead to a political crisis at some point. However, given the importance of rapid economic growth to the CCP's perceived legitimacy, we do not see how Hu Jintao can simultaneously undertake both an economic slowdown and aggressive anti-corruption campaign. In short, we think the odds of an eventual hard landing in China have recently gotten higher.

If there is a silver lining in this, it would seem to be its impact on any thoughts that Asian countries (including China) may have about the continued wisdom (at least in the short term) of their current policy of funding the U.S. current account deficit, and, therefore, their own export sales. Falling Chinese domestic demand would increase the relative importance of exports to the U.S., and thus their incentives to keep accumulating U.S. Treasury Bonds in their central banks. There have always been two schools of thought on this issue. One has been forcefully argued in a series of papers by Dooley, Folkerts-Landau and Garber, who see

the symbiotic relationship between Asia and the United States as relatively stable new Bretton Woods System. According to this view, the system of de facto fixed exchange rates versus the dollar will lead to the rapid development of Asian economies, and eventually faster domestic demand growth. This in turn will enable them to gradually reduce the size of their current account surpluses, while enabling the United States to repay its external obligations to them by running current account surpluses. To put it another way, in contrast to our earlier framework of a world consisting of three main economic groupings (i.e., the Eurozone, Asia, and the Anglosphere), this view posits that for all practical purposes Asia and the United States are today functioning as a single currency bloc.

The opposing view has been well stated by Barry Eichengreen, in his paper "Global Imbalances and the Lessons of Bretton Woods." He argues that the combination of four factors will soon bring an end to the current system. First, the current system for "sterilizing" the impact of large dollar inflows into Asian countries (e.g., eliminating their tendency to increase the domestic money supply) does not work perfectly. Over time, this will manifest itself in rising inflation that undermines external competitiveness and/or unsustainable increases in asset prices (e.g., in property and equity markets) that undermine financial systems. Second, this process will be accelerated by inflows from international investors who are tempted to speculate on the eventual appreciation of Asian currencies versus the U.S. dollar. Third, as Asian central banks gradually lose confidence in the commitment of the United States government to maintaining the value of the nominal return bonds they hold (e.g., as evidenced by increasing inflation in the United States), they will reach a "tipping point" at which the expected losses on their foreign exchange reserves begin to outweigh the expected value of the future benefits produced by exports to the United States. Finally, when that point is reached, the Euro provides a ready alternative reserve currency into which they can shift their reserves.

Another excellent paper arguing that the current system cannot go on much longer is "The U.S. as a Net Debtor: The Sustainability of the U.S. External Imbalances" by Roubini and Setser. In essence, they argue that in the absence of policy changes, the size of the U.S. current account deficit will exceed the Asian countries' ability to finance it within the next three to four years. A related paper, "The Transpacific Imbalance: An East Asian Perspective" by Wha Lee, McKibbin and Park uses econometric analysis to make a key point:

plausible changes in U.S. dollar/Asian currency exchange rates won't significantly reduce the U.S. current account deficit. Changes in the U.S. private and public sector balances will also be needed.

On balance, we think that in the short term the Asian countries will continue to purchase U.S. Treasury Bonds and fund their own export sales to the United States. First, given the current uncertainties surrounding the Eurozone Stability and Growth Pact (which in theory ensures fiscal stability, but which countries have recently violated without being sanctioned), how the expansion of the European Union will work out (including the fate of the proposed European Constitution), and the Eurozone's relatively weak domestic demand growth (and hence the size of the potential market for Asian exports), we question the extent to which Asian central banks at this point view the Euro as a viable alternative to the U.S. dollar. Second, by gradually switching their Treasury Bond holdings into Treasury Inflation Protected Securities, Asian central banks now have the opportunity to hedge at least a portion of their valuation risk (undoubtedly, this is one of the reasons we have seen such a large increase in TIPS issuance). Third, as we have noted, given the uncertainties about future domestic demand growth in China, there are strong incentives to keep financing exports to the United States. Finally, as we noted in March 2004, we need to keep in mind the long-term national security strategy of the biggest kid on the Asian block. Chinese leaders have made no secret of their ambition to replace the United States and the dominant player in Asia, and, indeed, to compete with the U.S. as equals on the global stage. Given the wide disparities between the two nation's military power, other means must be found to weaken the United States. It doesn't require a large mental leap to see how encouraging the United States to keep living beyond its means and accumulating (inflation protected) U.S. foreign debt in Asian hands contributes to the achievement of this long-term goal.

Of course, this brings us to the major factor driving the long-term tendency of the United States current account to remain in deficit: the growing pressure on the public sector balance caused by the costs associated with an aging population. We covered this topic in depth in our May 2004 issue. Here, we will simply say that if developed countries in the Eurozone and Anglosphere do not find better ways to control rising health care costs and the costs of national "pay as you go" pension plans, it is hard to see how their public sector balances can avoid going into (or remaining in) substantial deficits. This is especially true of

the Eurozone, where efforts at reform have been more limited, and where productivity growth has been lower than in the Anglosphere countries. In point of fact, the latter actually offer some rather good examples of what could be done to address the problem. In comparison to other countries, Australia seems to have been particularly successful at addressing these twin threats to the public sector balance (not that an Australian would ever brag about this, mind you!). On the healthcare front, the country has put in place a healthcare system that provides a basic level of universal coverage paid for with public funds, complimented by optional additional coverage that is paid for via private insurance. In effect, Australia has separated "healthcare" into two goods: one a universally available, tax financed necessity, and the other a privately paid for luxury item. In addition, the Australian system stimulates efficiency on the supply side by encouraging competition between private providers of healthcare services. The results are indeed impressive: both Australia's healthcare outcomes and its healthcare spending as a percentage of GDP compare quite favorably with most other developed countries.

On the pensions front, Australia has already implemented what strikes us as the long-term solution other countries must eventually adopt. It has two parts. First, everyone must contribute a certain percentage of earnings to a defined contribution pension plan (known as a "superannuation plan" in Australia). Upon retirement, the balance in this plan must be used to purchase a life annuity. Second, the state also provides a means-tested benefit to ensure that everyone will have at least a minimum level of retirement income. However, because of the mandatory superannuation plans, the ultimate cost to the public sector of these means-tested "top up" payments is not expected to be onerous. Frankly, we think it is time to stop referring to Australia as "the lucky country," and start calling it "the smart country" instead. Unfortunately, much as they might agree with this sentiment in private, no Australian will ever agree to it in public!

More broadly, as the IMF notes in its September World Economic Outlook, "the policies to tackle the impact of demographic change [i.e., aging] will inevitably involve difficult tradeoffs, will take time to agree and implement, and will need to be phased in to allow people sufficient time to adjust their behavior. This is most clearly true in pension reforms - which affect the welfare of the elderly and threaten benefits that people believe they are entitled to - but also of healthcare. Therefore, while the full impact of demographic

change will not be felt in most countries for a number of years, the process of planning a response should not be delayed. This is particularly true for advanced countries where reforms to pension and health care systems will become increasingly difficult to implement as the population ages. Policymakers therefore need to take advantage of the current strong global economic rebound to advance the reform agenda before the window of opportunity begins to close."

What, then, are the implications of these various risk factors for the future of the global economy? Perhaps the best way to look at this is to define what needs to go right in order for global growth to continue at its current healthy rate. The following table sums up the assumptions that underlie any optimistic forecast about the future:

Risk Factor	Outcome
Terrorism	<ul style="list-style-type: none"> No major attacks, particularly one that would affect U.S./Asia trade
Oil Prices and U.S. Dollar Recycling	<ul style="list-style-type: none"> Recent oil price increase is not sustained, and has no negative impact on world growth, inflation, interest or exchange rates.
Housing Markets	<ul style="list-style-type: none"> Interest rate rises are sufficient to cool overvalued housing markets (e.g., falls in market volumes, with stagnant prices) but do not lead to rising unemployment, falling house prices, and rising mortgage defaults.
China	<ul style="list-style-type: none"> Achieves "soft landing." No sharp fall in economic growth and no political crisis.
Asian Recycling of U.S. Dollars	<ul style="list-style-type: none"> Continues unabated, until it is gradually reversed due to rising domestic demand growth in Asia and positive shifts in U.S. private, public, and current account balances.
Economic Adjustment in Anglosphere	<ul style="list-style-type: none"> Successfully address healthcare and pensions issues, which enables positive improvements in public sector balances.

Risk Factor	Outcome
Economic Adjustment in Eurozone	<ul style="list-style-type: none"> • Structural reforms are implemented that enable faster domestic demand growth without triggering inflation. Rising productivity enables governments to address healthcare and pensions issues. Changes in private and public balances cause current account to move into deficit, which facilitates Anglosphere's adjustment.

While some of these outcomes seem more likely than others, the joint probability that all of them, or indeed, even most of them will come to pass seems rather low. It thus seems reasonable to conclude that we are most likely looking at some rather rough water ahead.

More specifically, we believe that the most likely scenario is a global growth slowdown that could easily trigger a period of deflation because of (1) the continuing surplus capacity in many industries; (2) the high level of leverage in the household sector; and (3) the substantial amounts of "hidden leverage" and potential for a deflationary debt implosion implied by the growth of hedge funds and the size of the worlds' derivatives markets (e.g., swaps, options, and futures). Along these lines, we note the recent publication of two recent working papers by the Board of Governors of the U.S. Federal Reserve: "Monetary Policy at the Zero Bound" by Bernanke, Reinhart and Sack, and "The Scope of Monetary Policy Actions Authorized by the Federal Reserve Act" by Small and Clouse. Both directly focus on the policy options open to the Federal Reserve in a period deflation.

As we have said before, we do not believe that any deflation could politically be allowed to persist for long. Governments in the Eurozone and Anglosphere could not simply sit idly by while real returns to bondholders skyrocket and middle class voters are destroyed by rising real debt burdens and unemployment. It therefore seems likely that any period of global deflation would not last long before the Eurozone and Anglosphere governments very aggressively attempted a coordinated reflation. In sum, while in the short term it seems that the current, relatively benign global economic environment can continue for a while longer (perhaps a year or two), our most likely medium term scenario is for a relatively severe global recession that will be followed by an aggressive, coordinated attempt at reflation. In contrast,

our most dangerous scenario is one in which initial attempts at reflation fail, and we are stuck in a highly damaging deflationary period for a longer period of time.

Up to now, we have only looked at the demand side of the global economy. However, as we noted at the outset, real returns on financial assets result from the interaction of demand supply in the real economy. So it is to the supply side that we now turn. The first problem you confront in this area is the fact that supply side data are harder to observe, are noisy (that is, they are measured less precisely than demand side data) and usually only appear with a lag. For example, while unemployment data are collected, they don't include people who have stopped looking for work. Nor do they explicitly show the percentage of people who could do much more than they are in their current jobs (a condition known as "underemployment"). Finally, unemployment alone doesn't tell you much about the relative quality of the workers involved -- they make no distinction between an unemployed computer programmer and an unemployed ditch digger. Data on the capital side of the supply equation are just as problematic. For example, capacity utilization data tells you precious little about the nature of unused capacity -- under what conditions would it again be put into use, and how likely are those to occur (e.g., now that China has emerged as a major supplier in many industries)?

Fortunately, there is a way around these problems: we can directly observe the result of the interaction of real supply with real demand conditions in the form of the real interest rate. Until recently, this was at best a noisy observation, as the real rate itself had to be inferred from current nominal rates interest and some estimate of future inflation. However following the widespread introduction of government real return bonds we can now directly observe real rates of interest. To be sure, this is still a bit of an uncertain measure. For example, it can be distorted a bit by factors unique to a specific bond market (e.g., if a real return bond issue is perceived to be somewhat illiquid, it will command a premium over the "true" real rate), or there may be some risk discount applied to government debt versus the "true" real rate for the overall economy. Still, these are relatively minor shortcomings, and the government real return bond yield is still an extremely useful measure of what is happening on the supply side of the economy.

So how should we interpret the current yield on real return bonds? Let's start with the basic concept behind the real rate of interest. It is the basic building block of the financial system, to which various risk premia are added to obtain expected returns on different asset

classes. But what does it represent? It is the additional compensation that an investor should expect to receive in exchange for postponing consumption for one year. And how much should that compensation be? Logically, it should represent the additional output that can be produced by investing the saved capital rather than consuming it. This additional output equals the expected real growth rate of the economy, which we already know is a function of the increase in the labor force and the increase in labor productivity. Why should the real rate on government bonds proxy for this? Because the government can't sell its debt for very long if it is offering substantially lower risk adjusted real returns than those available from investing in the economy as a whole. As labor force and productivity growth rates vary somewhat across countries, so too should real interest rates.

However, all of the above statements assume that no unexpected surprises occur, which we know isn't the case. And when these happen, the observed real rate of interest (the yield on real return government bonds) can substantially diverge from its theoretical value (the rate of labor force growth times the rate of productivity growth). For example, a sharp increase in domestic demand could, all else being equal, cause the observed real return to exceed the theoretical one. This would be a clear sign of building inflationary pressures. On the other hand, a supply side shock could cause the opposite to happen. In this case, actual real rates would be below their theoretical values. In point of fact, this is exactly what seems to have happened over the past few years, due not only to the impact of information and communication technology, but also due to the entry into the world economy of China and India as major players in multiple industries.

So let's take a look at how big these real return gaps are today. The data in the following table are from the IMF, except for the Real Bond Yields, which are as of September 2004:

Country	Forecast Labor Force Growth x	Productivity Growth 95- 04 =	Equilibrium Real Rate	(less) Real Bond Yld Sep04	(equals) Gap
Australia	0.80%	3.00%	3.82%	2.81%	-1.01%
Canada	0.60%	1.10%	1.71%	2.32%	0.61%
Eurozone	0.00%	3.30%	3.30%	1.80%	-1.50%
Japan	-0.30%	2.10%	1.79%	0.63%	-1.16%
UK	0.00%	2.10%	2.10%	1.80%	-0.30%
USA	0.90%	4.10%	5.04%	1.80%	-3.24%

As you can see, with the exception of Canada and perhaps the U.K., inflation-linked government bond markets seem to be sending a clear signal that on balance, the greater risk we face is one of deflation, rather than inflation. An alternative interpretation of current real returns would be that our future productivity growth assumptions are too high (or, in the case of Canada, too low), and that the markets are in fact in equilibrium. While in some cases this interpretation seems somewhat reasonable (e.g., implying relatively low long-term productivity growth of around 1.80% per year in many regions), in Japan and the U.S. the implied productivity growth rates seem much too low. Hence, on balance we conclude that real interest rates are consistent with our view that deflation, rather than inflation, is the biggest risk we face today.

Unfortunately, when it comes to asset allocation, these scenarios do not at this point translate into clear signals that the time has come to implement short-term deviations from some of our model portfolios' long-term asset class weights. At the strategic level (what may happen, and why), our confidence in our estimate of possible future scenarios is reasonably high; unfortunately, when it comes to market timing, strategic insights are less useful than operational ones (how events will happen) and especially tactical ones (where and when events will happen). At the operational and tactical level, the number of possible outcomes grows exponentially. Because of this, at these levels of detail it becomes much, much harder to make forecasts with any degree of accuracy. Forecast confidence levels consequently decline. One need only think back to the late 1990s for a good example of this. While there

were many people who were strategically right about the extreme overvaluation of the U.S. equity market, many of them also lost a lot of money hedging against a decline that didn't occur until 2001 (by which point quite a few previous hedgers had thrown in the towel). As always, market timing remains a very difficult game to play consistently well.

At this point, we believe the main implications of our economic outlook for different asset classes are as follows:

Asset Class	Implications
Real Return Bonds	<ul style="list-style-type: none"> • Provided they limit capital reduction during deflationary periods (as do U.S. TIPS), these seem likely to provide relatively attractive returns under both the deflation and reflation scenarios.
Investment Grade Bonds	<ul style="list-style-type: none"> • These seem likely to be increasingly treacherous waters. In the short term, inflation and interest rates may well rise, causing capital losses, particularly at longer maturities. However, in a deflation, high credit quality bonds will provide attractive returns. But these will quickly disappear once reflation kicks in. This is probably why the world's bond markets have recently appeared confused. However, one thing seems rather clear: at this point, trading credit quality for higher yields seems unusually risky.
Foreign Currency Bonds	<ul style="list-style-type: none"> • The most important issue here is the extent of one's exposure to U.S. dollar denominated debt. On the one hand, it undoubtedly carries a rising risk of foreign exchange losses at some point. On the other hand, in a period of global turmoil, U.S. government bonds (see TIPS above) are also a safe haven.

Asset Class	Implications
Commercial Property	<ul style="list-style-type: none"> As we have previously noted, all commercial property is exposed to a global growth risk factor; a period of deflation will cause not only low growth but rising real debt burdens (most commercial property is highly leveraged), which should lower returns. On the other hand, property (particularly that supported by fixed rate debt) will provide attractive returns when reflation kicks in.
Residential Property	<ul style="list-style-type: none"> Like commercial property, but with the added threat posed by apparent overvaluations in some countries.
Commodities	<ul style="list-style-type: none"> In the short-term, continued strong global growth should mean high returns. However, any downturn, particularly in China, should cause returns to fall. In a severe deflationary period, gold may be an exception to this, and could deliver attractive returns. In a reflation, commodities should do well.
U.S. Equities	<ul style="list-style-type: none"> For foreign investors, the risk of suffering exchange losses as the USD depreciates is clearly high. Also, a growth slowdown will have a negative impact on returns. However, longer-term U.S. economic growth rates should provide relatively attractive returns.
Other Anglosphere Equities	<ul style="list-style-type: none"> In the short-term, overvaluation of housing markets could worsen any economic downturn in Australia and the UK (but not Canada or New Zealand). In the long term, relatively more aggressive structural reforms in these markets have probably raised productivity growth rates (and hence equity returns) relative to the Eurozone.

Asset Class	Implications
Eurozone Equities	<ul style="list-style-type: none"> The region's failure to move more aggressively to implement structural reforms (in both the private sector and on the public health and pensions front) has held down productivity and economic growth rates, and hence long-term expected equity returns relative to other regions.
Asian Equities	<ul style="list-style-type: none"> In the short term, underdeveloped local capital markets (and continued over-reliance on the banking system), along with rising oil prices and inflation make returns problematic. Over the long-term, however, the combination of fast rising productivity and large domestic markets (particularly in China, India and Indonesia) suggest relatively high returns. In Japan, the continuation of structural reform (e.g., in the corporate and banking sectors) and its impact on long-term productivity growth is a key uncertainty.
Other Emerging Market Equities	<ul style="list-style-type: none"> It really depends on the country. In some cases, institutional and structural reforms have been undertaken that seem likely to lead to relatively high long-term growth rates (e.g., Mexico). In other countries, these still are lacking (e.g., Argentina and Venezuela). A diversified portfolio is probably the best approach. However, in a global slowdown emerging markets that are relatively dependent on external savings (i.e., those that run large current account deficits) will see substantial falls in economic growth and equity returns.

Finally, these are the key indicators we will be monitoring to help us determine what scenario is developing:

Indicator	Dangerous Outcome
Real Interest Rates	Falling trend
Oil Prices	Stay high, or rise higher
U.S. Ten Year Treasury Bond Nominal Yield	Rising trend
U.S. Exchange Rate	Falling trend (weakening dollar)
Inflation in China and Southeast Asian Countries	Rising trend
China Stability and Growth	Any indication of political unrest
Eurozone Real Economic Growth Rate	Falling trend

In sum, we are facing some of the most unsettled and uncertain circumstances in recent times in the global economy and financial markets. Sharp swings between inflation and deflation (and back to inflation again) may occur. Under these circumstances, ensuring proper portfolio diversification is more important than ever. Investors who have recently experienced unexpected gains in wealth confront a critical choice: they can either maintain their current asset allocations while raising their goals (e.g., shortening their time to retirement, increasing their target retirement income, or cutting future savings), or maintain their goals while shifting to a more conservative asset allocation (as the minimum required rate of return needed to achieve their current goals has fallen as a result of their unexpected gains). In light of the current uncertainties facing the global economy, the latter seems to be the much more prudent approach.

Conversely, people who have recently experienced an unexpected reduction in their wealth should not be taking on more risk (e.g., a more aggressive asset allocation policy) to achieve their goals. Rather, the more prudent course of action in this case is to adopt a more conservative set of goals (e.g., lengthening the time to retirement, increasing annual savings, or aiming for a lower level of post-retirement income).

Last but not least, investors who have a large lump sum of cash to invest should not do so all at once, but rather should slowly implement their asset allocation policy over time to minimize their risk of capital loss.

Hesh Reinfeld: Forecasting Marital Compatibility

(Editor's Note: We thought our readers would enjoy a bit of levity after this month's global economic update. With that in mind, here's another column by our favorite financial humorist).

As a follow up to my last column ([Irreconcilable Differences](#), July 04 issue), I received an e-mail from a reader asking how she could insure, ahead of time, investment compatibility with a future spouse.

Unfortunately, like most issues in life, the direct approach does not work. Asking him, "Sweetie, how will you invest our 401(K) funds?" will only result in getting the answer he thinks you want.

"Honey, what ever you think is best," will be the answer you will hear. The thought that different investment strategies could result in irreconcilable harm to your future relationship seems remote to him. But we know better.

He will say what ever you want in order to move the conversation to supposedly more important questions like, "How many kids do you want, five or six?" Or, "What religion should we raise the kids in?"

We all know, however, as index investors, that our *Investment Gestalt (IG)* is the key predictor of future happiness. Fortunately, I have developed a test that will increase the probability of matching your *IG* with that of a prospective partner.

This is the scenario: Your friend, (and I would keep the relationship at a platonic stage until after this first test of compatibility) is driving and you approach a toll on the New Jersey turnpike. It's 5.30 PM, and traffic is backed up a quarter mile.

Now watch carefully, as your friend selects one of ten lanes to approach the tollbooths. Does he scan the mass of opportunities and abruptly cut across eight lanes of traffic to get into the shortest lane? So far, so good, correct? No, don't jump to any conclusions, yet. Wait and see his behavior as his lane stops dead. Does he pull out and squeeze into the fastest moving lane two rows to your left? Even worse does this behavior continue for the next ten minutes as he chases the best performing lane?

Stay away from this person! Don't give him a kiss good night and don't take his calls in the future. His approach is strictly *short-term*. He chases short-term performance (and he is rude too).

Still confused? The most suitable mate, the one with a similar *IG* would have randomly selected a lane and not wavered. He realizes that the lane that moves the fastest cannot be determined ahead of time and that short-term performance has no statistical significance to the final outcome. Your Mister Right would have selected a lane and stayed in it. He would have used the extra time to find your favorite CD and asks how your mom is feeling.

Stay close to this guy.

(Please note: with the introduction of express toll booths the validity of the above test has been challenged in the literature.)

My question to our readers: what are the habits, quirks of personality that help you identify a person with a similar *IG*? Please share your perspectives with us.

Is it the kind of car he drives? Or, the kind of dog he walks? Or, how neat he keeps his apartment? Is it important that he calls his mom each night?

Or, is it totally counterintuitive? Are Indy 500 or Formula One drivers more likely to be index investors, while librarians take very large positions in hedge funds?

Please e-mail me with your insights so that I can share them with our readers...

Hesh Reinfeld

hesh1@comcast.net

Investment humorist

Model Portfolios Year-to-Date Performance

<i>These portfolios seek to maximize return while matching their benchmark's risk (standard deviation)</i>			
	YTD 30Sep04	Weight	Weighted Return
	In C\$		In C\$
High Risk Portfolio			
<i>Asset Classes</i>			
<i>Canadian Benchmark</i>			
Canadian Equity	6.1%	80%	4.9%
Canadian Investment Grade Bonds	3.8%	20%	0.8%
		100%	5.6%
<i>Global Benchmark</i>			
U.S. Equity	-0.4%	40%	-0.2%
Non-U.S. Equity	2.1%	40%	0.8%
U.S. Bonds	0.8%	10%	0.1%
Non-U.S. Bonds	-1.4%	10%	-0.1%
		100%	0.6%
<i>Recommended</i>			
Canadian Equity	6.1%	25%	1.5%
Foreign Equity (US)	-0.4%	28%	-0.1%
Canadian Investment Grade Bonds	3.8%	5%	0.2%
Foreign Equity (EAFE)	2.0%	22%	0.4%
Commodities	16.5%	20%	3.3%
		100%	5.3%

<i>These portfolios seek to maximize return while matching their benchmark's risk (standard deviation)</i>			
	YTD 30Sep04	Weight	Weighted Return
	In C\$		In C\$
Medium Risk Portfolio			
<i>Asset Classes</i>			
<i>Canadian Benchmark</i>			
Canadian Equity	6.1%	60%	3.6%
Canadian Investment Grade Bonds	3.8%	40%	1.5%
		100%	5.1%
<i>Global Benchmark</i>			
U.S. Equity	-0.4%	30%	-0.1%
Non-U.S. Equity	2.1%	30%	0.6%
U.S. Bonds	0.8%	20%	0.2%
Non-U.S. Bonds	-1.4%	20%	-0.3%
		100%	0.4%
<i>Recommended</i>			
Canadian Equity	6.1%	25%	1.5%
Foreign Equity (US)	-0.4%	20%	-0.1%
Foreign Equity (EAFE)	2.0%	15%	0.3%
Canadian Investment Grade Bonds	3.8%	20%	0.8%
Commodities	16.5%	20%	3.3%
		100%	5.8%

<i>These portfolios seek to maximize return while matching their benchmark's risk (standard deviation)</i>			
	YTD 30Sep04	Weight	Weighted Return
	In C\$		In C\$
Low Risk Portfolio			
<i>Asset Classes</i>			
<i>Canadian Benchmark</i>			
Canadian Equity	6.1%	20%	1.2%
Canadian Investment Grade Bonds	3.8%	80%	3.0%
		100%	4.2%
<i>Global Benchmark</i>			
Foreign Equity (US)	-0.4%	10%	0.0%
Non-U.S. Equity	2.1%	10%	0.2%
U.S. Bonds	0.8%	40%	0.3%
Non-U.S. Bonds	-1.4%	40%	-0.6%
		100%	-0.1%
<i>Recommended</i>			
Canadian Equity	6.1%	20%	1.2%
Foreign Equity (US)	-0.4%	12%	-0.1%
Canadian Investment Grade Bonds	3.8%	39%	1.5%
Foreign Equity (EAFE)	2.0%	9%	0.2%
Commodities	16.5%	20%	3.3%
		100%	6.1%
<i>Global Bond Index = 50% US\$ plus 50% Non-US\$ Bonds</i>			

<i>These portfolios seek to minimize risk while matching their benchmark's returns.</i>			
	YTD 30Sep04	Weight	Weighted Return
	In C\$		In C\$
High Return Portfolio			
<i>Asset Classes</i>			
<i>Canadian Benchmark</i>			
Canadian Equity	6.1%	80%	4.9%
Canadian Investment Grade Bonds	3.8%	20%	0.8%
		100%	5.6%
<i>Global Benchmark</i>			
U.S. Equity	-0.4%	40%	-0.2%
Non-U.S. Equity	2.1%	40%	0.8%
U.S. Bonds	0.8%	10%	0.1%
Non-U.S. Bonds	-1.4%	10%	-0.1%
		100%	0.6%
<i>Recommended</i>			
Foreign Equity (US)	-0.4%	23%	-0.1%
Foreign Equity (EAFE)	2.0%	18%	0.4%
Canadian Investment Grade Bonds	3.8%	39%	1.5%
Commodities	16.5%	20%	3.3%
		100%	5.0%

<i>These portfolios seek to minimize risk while matching their benchmark's returns.</i>			
	YTD 30Sep04	Weight	Weighted Return
	In C\$		In C\$
Low Return Portfolio			
<i>Asset Classes</i>			
<i>Canadian Benchmark</i>			
Canadian Equity	6.1%	20%	1.2%
Canadian Investment Grade Bonds	3.8%	80%	3.0%
		100%	4.2%
<i>Global Benchmark</i>			
U.S. Equity	-0.4%	10%	0.0%
Non-U.S. Equity	2.1%	10%	0.2%
U.S. Bonds	0.8%	40%	0.3%
Non-U.S. Bonds	-1.4%	40%	-0.6%
		100%	-0.1%
<i>Recommended</i>			
Foreign Equity (US)	-0.4%	5%	0.0%
Foreign Equity (EAFE)	2.0%	4%	
Emerging Mkts Equity	3.8%	2%	0.1%
Canadian Investment Grade Bonds	3.8%	55%	2.1%
Global Bonds	-0.3%	28%	-0.1%
Commodities	16.5%	6%	1.0%
		100%	3.0%
<i>Global Bond Index = 50% US\$ plus 50% Non-US\$ Bonds</i>			

<i>These portfolios seek to maximize the probability of achieving at least the target real return over twenty years, at the lowest possible risk.</i>			
	YTD 30Sep04	Weight	Weighted Return
	In C\$		In C\$
7% Target Real Return	<i>YTD Returns are Nominal</i>		
<i>Asset Classes</i>			
Canadian Real Return Bonds	11.4%	0%	0.0%
Canadian Investment Grade Bonds	3.8%	18%	0.7%
Global Bonds	-0.3%	27%	-0.1%
Commercial Property	4.7%	0%	0.0%
Commodities	16.5%	20%	3.3%
Canadian Equity	6.1%	0%	0.0%
Foreign Equity (USA)	-0.4%	9%	0.0%
Foreign Equity (EAFE)	2.0%	6%	0.1%
Emerging Equity	3.8%	20%	0.8%
Hedge Funds	-2.1%	0%	0.0%
		100%	4.7%
	YTD 30Sep04	Weight	Weighted Return
	In C\$		In C\$
5% Target Real Return	<i>YTD Returns are Nominal</i>		
<i>Asset Classes</i>			
Canadian Real Return Bonds	11.4%	10%	1.1%
Canadian Investment Grade Bonds	3.8%	27%	1.0%
Global Bonds	-0.3%	23%	-0.1%
Commercial Property	4.7%	0%	0.0%
Commodities	16.5%	13%	2.1%
Canadian Equity	6.1%	5%	0.3%
Foreign Equity (USA)	-0.4%	7%	0.0%
Foreign Equity (EAFE)	2.0%	5%	0.1%
Emerging Equity	3.8%	10%	0.4%
Hedge Funds	-2.1%	0%	0.0%
		100%	5.0%

	YTD 30Sep04	Weight	Weighted Return
	In C\$		In C\$
3% Target Real Return	<i>YTD Returns are Nominal</i>		
<i>Asset Classes</i>			
Canadian Real Return Bonds	11.4%	30%	3.4%
Canadian Investment Grade Bonds	3.8%	33%	1.2%
Global Bonds	-0.3%	15%	-0.1%
Commercial Property	4.7%	3%	0.1%
Commodities	16.5%	12%	2.0%
Canadian Equity	6.1%	0%	0.0%
Foreign Equity (USA)	-0.4%	4%	0.0%
Foreign Equity (EAFE)	2.0%	3%	0.1%
Emerging Equity	3.8%	0%	0.0%
Hedge Funds	-2.1%	0%	0.0%
		100%	6.8%

<i>These portfolios seek to maximize the probability of achieving at least the target real return over twenty years, at the lowest possible risk.</i>		<i>Unlike the other target return portfolios, these allow investment in a hedge fund index.</i>	
	YTD 30Sep04	Weight	Weighted Return
	In C\$		In C\$
7% Target Real Return	<i>YTD Returns are Nominal</i>		
<i>Asset Classes</i>			
Canadian Real Return Bonds	11.4%	0%	0.0%
Canadian Investment Grade Bonds	3.8%	3%	0.1%
Global Bonds	-0.3%	27%	-0.1%
Commercial Property	4.7%	0%	0.0%
Commodities	16.5%	13%	2.1%
Canadian Equity	6.1%	4%	0.2%
Foreign Equity (USA)	-0.4%	9%	0.0%
Foreign Equity (EAFE)	2.0%	6%	0.1%
Emerging Equity	3.8%	20%	0.8%
Hedge Funds	-2.1%	18%	-0.4%
		100%	2.9%
	YTD 30Sep04	Weight	Weighted Return
	In C\$		In C\$
5% Target Real Return	<i>YTD Returns are Nominal</i>		
<i>Asset Classes</i>			
Canadian Real Return Bonds	11.4%	10%	1.1%
Canadian Investment Grade Bonds	3.8%	7%	0.3%
Global Bonds	-0.3%	23%	-0.1%
Commercial Property	4.7%	4%	0.2%
Commodities	16.5%	13%	2.1%
Canadian Equity	6.1%	13%	0.8%
Foreign Equity (USA)	-0.4%	7%	0.0%
Foreign Equity (EAFE)	2.0%	5%	0.1%
Emerging Equity	3.8%	13%	0.5%
Hedge Funds	-2.1%	5%	-0.1%
		100%	4.9%

	YTD 30Sep04	Weight	Weighted Return
	In C\$		In C\$
3% Target Real Return	<i>YTD Returns are Nominal</i>		
<i>Asset Classes</i>			
Canadian Real Return Bonds	11.4%	50%	5.7%
Canadian Investment Grade Bonds	3.8%	10%	0.4%
Global Bonds	-0.3%	15%	-0.1%
Commercial Property	4.7%	0%	0.0%
Commodities	16.5%	8%	1.3%
Canadian Equity	6.1%	2%	0.1%
Foreign Equity (USA)	-0.4%	4%	0.0%
Foreign Equity (EAFE)	2.0%	3%	0.1%
Emerging Equity	3.8%	2%	0.1%
Hedge Funds	-2.1%	6%	-0.1%
		100%	7.5%