The Index Investor

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This Month's Issue: Key Points

September is the month for one of our semi-annual economic updates. Both of our scenarios begin with the major problem facing the world economy today: the large current account deficit in the United States, and its counterpart current account surpluses in other countries (principally in Asia and more recently in OPEC). the world economy has become very dependent for its demand growth on the United States and China. However, domestic demand growth in the United States has been based on a combination of consumer and government borrowing (along with relatively loose monetary policy) that is, in the long run, unsustainable. Quite simply, neither U.S. consumers, nor government, and certainly not both together can forever spend beyond their means by borrowing from the rest of the world. Unfortunately, domestic demand growth in China looks even less stable. Behind the 7.8% private sector balance lie enormous internal imbalances.

The essence of the problem confronting the world economy -- and investors -- is this: we all know the current system must come to an end. What we don't know is how or when this will happen (although the sharp rise in oil prices seems to be hastening that day's arrival). In the back of everyone's mind is an optimistic scenario one might call "the grand bargain." In it,

the governments of the world come together, and agree to the following: (a) a reduction in the U.S. public and private deficits; (b) a fall in the U.S. exchange rate; (c) an increase in exchange rates and domestic demand in the Eurozone, Japan, and NICs; and (d) hope that this keeps the wheels from coming off in China. We don't put too much stock in the "grand bargain" scenario, for the simple reason that too many things have to go right for it to work -- and the joint probability of all those things happening appears to be quite low. This is especially true given the political pain that many of these measures would entail. If it happens at all, we think it will take a severe crisis to get leaders to seriously consider it, and by then events may have gotten too far out of control for a grand bargain to work. That leaves us with our two principal scenarios.

In our "conventional wisdom" scenario, the global economy continues to "muddle through" for a while longer without a major crisis. Logically, this requires continued demand growth in the United States and China, which fundamentally depends on the continued willingness of foreign investors (especially Asian central banks) to keep accumulating dollar denominated assets to finance the United States current account deficit.

Our most dangerous scenario is characterized by a sudden rush out of dollar investments. There is no telling for sure what could cause this to happen. It might be a sharp drop in U.S. consumer spending, triggered by the rise in oil prices or a slowdown in the increase in housing crises (for an example of the latter, one need look no further than what is happening in Australia or the Netherlands today). Or it might be caused by foreign (and some domestic) investors' declining confidence in the ability of U.S. political leaders to resolve that country's fiscal problems (particularly those related to the exploding costs of Social Security and Medicare).

We think the most interesting question is how the "end game" of that crisis would play out. Suppose you are a U.S. political leader, and you are faced with this choice. One way to get out of the deep recession (and quite possibly deflation) I'm facing is to crank up the money supply and inflation. This will hurt bondholders (at least those who own nominal return bonds), but will help all those voters who bought their houses with fixed rate mortgages. The other alternative is to maintain monetary discipline (and the wealth of bondholders), even if it means the economy must endure a prolonged recession (which will cause a lot of voters to lose their homes when they lose their jobs and can't make payments on their mortgages). If push

comes to shove, our view has been that the vast majority of political leaders will choose the inflationary route out of the crisis.

We review the options that are available to investors wishing to hedge their downside exposure to potentially overvalued asset classes, and to the impact of our most dangerous scenario. We conclude that put options and cash both have limitations, given our uncertainty about how much longer the current imbalances will continue before they are reversed. Stop loss orders have a lower cost, but present challenges in setting the stop loss price at a level that will not be triggered too early by normal day to day price changes. Finally, we note that while rebalancing to below target weights in overvalued asset classes (and above target weights in asset classes that will do well under our downside scenario) makes sense, it probably makes sense to defer this until we publish our revised model portfolios later this year.

Among other subjects, our product and strategy notes compare oil exchange traded funds to existing commodity index products. We continue to prefer the latter. We also review the trade-off between capped and uncapped indexes in smaller country markets. We find that the choice depends on the extent to which an investor's portfolio is diversified internationally.

This Month's Letters to the Editor

Do you consider convertible bonds a separate asset class? -- Subscriber, Italy

This is a question we have debated for years. On the one hand, since convertibles are a combination of a fixed rate bond and a call option on a stock, regressing their returns on the returns on bonds, equity, and equity volatility (which is embedded in the convertible's call option) generates a very high "R-squared" (i.e., the three independent variables largely explain the dependent variable's return). On the other hand, there are quite a few actively managed convertible bond funds out there, and converts are also much beloved by hedge fund managers. However, there are not, to our knowledge, any retail funds available that attempt to track a convertible bond index. On balance, these considerations have led us to conclude that we will not treat convertible bonds as a separate asset class.

Do you consider my defined benefit pension or Social Security as a separate asset class? --
Subscriber, USA

This is a very interesting issue, about which reasonable people can disagree. One approach would be to treat a pension as a fixed income asset. However, it cannot, like a bond, be traded in a market, since the payment stream it provides is tied to the lifetime of the pension beneficiary and, in some cases, his or her surviving spouse. While some annuities are structured with minimum payment periods and enhanced transferablility features, most pensions are not. Hence, our approach is to subtract expected pension income from an investor's target post-retirement income as part of the process of arriving at the investors goal for the amount of income that he or she wants his or her portfolio to provide after retirement.

I notice in the August issue that you have an exchange rate table showing that going from one
country (A) to another country (B) was listed as the same as going from country(B) back to (A)
with only a sign change. However, when I ran those numbers, I found that's not the case. Am I
crazy? -- Subscriber, USA

No, you aren't crazy. The fact that exchange rate changes look slightly different from either end of the transaction is called "Siegel's Paradox." In developing our model portfolios, we take this into consideration, so that the perspective, say, of a Euro based investor on the Euro/US Dollar exchange rate isn't just the opposite of the U.S. investor's view. However, in the example at the beginning of last month's article we decided to keep things simple, and avoid confusing people with Siegel's Paradox.

Global Asset Class Returns

YTD 30Sep05	In USD	In AUD	In CAD	In EURO	In JPY	In GBP
Asset Held						
US Bonds	1.70%	4.28%	-1.54%	13.00%	11.29%	9.55%
US Prop.	10.00%	12.58%	6.76%	21.30%	19.59%	17.85%
US Equity	3.70%	6.28%	0.46%	15.00%	13.29%	11.55%
AUS Bonds	-2.96%	-0.38%	-6.20%	8.34%	6.63%	4.89%
AUS Prop.	1.44%	4.02%	-1.80%	12.74%	11.03%	9.29%
AUS Equity	17.43%	20.01%	14.19%	28.73%	27.02%	25.28%
CAN Bonds	9.45%	12.03%	6.21%	20.75%	19.04%	17.30%
CAN Prop.	22.58%	25.16%	19.34%	33.88%	32.17%	30.44%
CAN Equity	24.75%	27.34%	21.51%	36.05%	34.34%	32.61%
Euro Bonds	-6.40%	-3.82%	-9.64%	4.90%	3.19%	1.45%
Euro Prop.	18.53%	21.11%	15.29%	29.83%	28.12%	26.38%
Euro Equity	5.95%	8.53%	2.71%	17.25%	15.54%	13.80%
Japan Bonds	-9.07%	-6.49%	-12.31%	2.23%	0.52%	-1.22%
Japan Prop.	16.88%	19.46%	13.64%	28.18%	26.47%	24.73%
Japan Equity	11.63%	14.21%	8.39%	22.93%	21.22%	19.48%
UK Bonds	-2.94%	-0.36%	-6.18%	8.36%	6.65%	4.91%
UK Prop.	-0.82%	1.76%	-4.06%	10.48%	8.77%	7.03%
UK Equity	4.81%	7.39%	1.57%	16.11%	14.40%	12.66%
World Bonds	-2.20%	0.38%	-5.44%	9.10%	7.39%	5.65%
World Prop.	9.27%	11.85%	6.03%	20.57%	18.86%	17.12%
World Equity	7.25%	9.83%	4.01%	18.55%	16.84%	15.10%
Commodities	25.20%	27.78%	21.96%	36.50%	34.79%	33.05%
Timber	7.59%	10.18%	4.35%	18.89%	17.18%	15.45%
Hedge Funds	2.10%	4.68%	-1.14%	13.40%	11.69%	9.95%
Volatility	-10.31%	-7.73%	-13.55%	0.99%	-0.72%	-2.45%
A$ Currency	-2.58%	0.00%	-5.82%	8.72%	7.01%	5.27%
C$	3.24%	5.82%	0.00%	14.54%	12.83%	11.09%
Euro	-11.30%	-8.72%	-14.54%	0.00%	-1.71%	-3.45%
Yen	-9.59%	-7.01%	-12.83%	1.71%	0.00%	-1.74%
UK£	-7.85%	-5.27%	-11.09%	3.45%	1.74%	0.00%
US$	0.00%	2.58%	-3.24%	11.30%	9.59%	7.85%

Equity and Bond Market Valuation Update

Our market valuation analyses are based on the assumption that markets are not perfectly efficient and always in equilibrium. This means that it is possible for the supply of future returns a market is expected to provide to be higher or lower than the returns investors logically demand. In the case of an equity market, we define the future supply of returns to be equal to the current dividend yield plus the rate at which dividends are expected to grow in the future. We define the return investors demand as the current yield on real return government bonds plus an equity market risk premium. As described in our May, 2005 issue, people can and do disagree about the "right" values for these variables. Recognizing this, we present four valuation scenarios for an equity market, based on different values for three key variables. First, we use both the current dividend yield and the dividend yield adjusted upward by .50% to reflect share repurchases. Second, we define future dividend growth to be equal to the long-term rate of total (multifactor) productivity growth, which is equal to either 1% or 2%. Third, we use two different values for the equity risk premium required by investors: 2.5% and 4.0%. Different combinations of these variables yield high and low scenarios for both the future returns the market is expected to supply, and the future returns investors will demand. We then use the dividend discount model to combine these scenarios, to produce four different views of whether an equity market is over, under, or fairly valued today.   The specific formula is (Current Dividend Yield x 100) x (1+ Forecast Productivity Growth) divided by (Current Yield on Real Return Bonds + Equity Risk Premium - Forecast Productivity Growth). Our valuation estimates are shown in the following tables, where a value greater than 100% implies overvaluation, and less than 100% implies undervaluation:

Australia	**Low Demanded Return**	**High Demanded Return**
High Supplied Return	73%	109%
Low Supplied Return	112%	153%

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Canada	Low Demanded Return	High Demanded Return
High Supplied Return	97%	167%
Low Supplied Return	190%	283%

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Eurozone	Low Demanded Return	High Demanded Return
High Supplied Return	50%	96%
Low Supplied Return	97%	152%

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Japan	Low Demanded Return	High Demanded Return
High Supplied Return	84%	182%
Low Supplied Return	226%	374%

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United Kingdom	Low Demanded Return	High Demanded Return
High Supplied Return	51%	92%
Low Supplied Return	92%	139%

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United States	Low Demanded Return	High Demanded Return
High Supplied Return	100%	166%
Low Supplied Return	188%	273%

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

	Current Real Rate	Average Inflation Premium (89-03)	Required Nominal Return	Nominal Return Supplied (10 year Govt)	Return Gap	Asset Class Over or (Under) Valuation, based on 10 year zero
Australia	2.56%	2.96%	5.52%	5.37%	-0.15%	1.46%
Canada	1.58%	2.40%	3.98%	3.97%	-0.01%	0.06%
Eurozone	1.13%	2.37%	3.50%	3.15%	-0.35%	3.41%
Japan	0.78%	0.77%	1.55%	1.49%	-0.06%	0.61%
UK	1.40%	3.17%	4.57%	4.29%	-0.28%	2.76%
USA	1.78%	2.93%	4.71%	4.33%	-0.38%	3.67%

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

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

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

Finally, for an investor contemplating the purchase of foreign bonds or equities, the expected future annual percentage change in the exchange rate is also important. Study after study has shown that there is no reliable way to forecast this. At best, you can make an estimate that is justified in theory, knowing that in practice it will not turn out to be accurate. That is what we have chosen to do here. Specifically, we have taken the difference between the

yields on ten- year government bonds as our estimate of the likely future annual change in exchange rates between two regions. This information is summarized in the following table:

Annual Exchange Rate Changes Implied by Bond Market Yields

	To A$	To C$	To EU	To YEN	To GBP	To US$
From						
A$	0.00%	-1.40%	-2.22%	-3.88%	-1.08%	-1.04%
C$	1.40%	0.00%	-0.82%	-2.48%	0.32%	0.36%
EU	2.22%	0.82%	0.00%	-1.66%	1.14%	1.18%
YEN	3.88%	2.48%	1.66%	0.00%	2.80%	2.84%
GBP	1.08%	-0.32%	-1.14%	-2.80%	0.00%	0.04%
US$	1.04%	-0.36%	-1.18%	-2.84%	-0.04%	0.00%

Sector and Style Rotation Watch

The following table shows a number of classic style and sector rotation strategies that attempt to generate above index returns by correctly forecasting turning points in the economy. This table assumes that active investors are trying to earn high returns by investing today in the styles and sectors that will perform best in the next stage of the economic cycle. The logic behind this is as follows: Theoretically, the fair price of an asset (also known as its fundamental value) is equal to the present value of the future cash flows it is expected to produce, discounted at a rate that reflects their relative riskiness. Current economic conditions affect the current cash flow an asset produces. Future economic conditions affect future cash flows and discount rates. Because they are more numerous, expected future cash flows have a much bigger impact on the fundamental value of an asset than do current cash flows. Hence, if an investor is attempting to earn a positive return by purchasing today an asset whose value (and price) will increase in the future, he or she needs to accurately forecast the future value of that asset. To do this, he or she needs to forecast future economic conditions, and their impact on future cash flows and the future discount rate. Moreover, an investor also needs to do this before the majority of other investors reach the same conclusion about the asset's fair value, and

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through their buying and selling cause its price to adjust to that level (and eliminate the potential excess return).

We publish this table to make an important point: there is nothing unique about the various rotation strategies we describe, which are widely known by many investors. Rather, whatever active management returns (also known as "alpha") they are able to generate is directly related to how accurately (and consistently) one can forecast the turning points in the economic cycle. Regularly getting this right is beyond the skills of most investors. In other words, most of us are better off just getting our asset allocations right, and implementing them via index funds rather than trying to earn extra returns by accurately forecasting the ups and downs of different sub-segments of the U.S. equity and debt markets. That being said, the highest year-to-date returns in the table give a rough indication of how investors employing different strategies expect the economy to perform in the near future. The highest returns in a given row indicate that most investors are anticipating the economic and interest rate conditions noted at the top of the next column. Similar returns in multiple columns (within the same strategy) indicate a relative lack of agreement between investors about the most likely future state of the economy.

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

YTD 30Sep05

Economy	Bottoming	Strengthening	Peaking	Weakening
Interest Rates	Falling	Bottom	Rising	Peak
Style Rotation	Growth (IWZ)	Value (IWW)	Value (IWW)	Growth (IWZ)
	2.05%	**5.24%**	**5.24%**	**2.05%**
Size Rotation	Small (IWM)	Small (IWM)	Large (IWB)	Large (IWB)
	3.49%	**3.49%**	**4.48%**	**4.48%**
Style and Size Rotation	Small Growth (DSG)	Small Value (DSV)	Large Value (ELV)	Large Growth (ELG)
	5.88%	**3.80%**	**3.09%**	**-0.79%**
Sector Rotation	Cyclicals (IYC)	Basic Materials (IYM)	Energy (IYE)	Utilities (IDU)
	-4.57%	**-3.06%**	**42.78%**	**21.90%**
	Technology (IYW)	Industrials (IYJ)	Staples (IYK)	Financials (IYF)
	0.52%	**-0.90%**	**2.04%**	**-1.89%**
Bond Market Rotation	High Risk (VWEHX)	Short Maturity (VBISX)	Low Risk (VIPSX)	Long Maturity (VBLTX)
	1.40%	**0.70%**	**2.60%**	**4.20%**

Semi-Annual Economic Update

The month of September is always an important one when it comes to understanding what is happening in the world economy. It is not only the month when the IMF publishes its semi-annual World Economic Outlook (WEO), and annual Global Financial Stability Report (GFSR), but also one that usually sees important analysis from other institutions (e.g., the Bank for International Settlements, the Centre for Economic Policy Research, the Levy Economics Institute, the Institute for International Finance) and global publications (e.g., *The Economist* and the *Financial Times*).

This analysis will begin with a brief summary of our two baseline economic scenarios, as they existed at the beginning of September. We will then review this past month's developments, and discuss their impact on our scenarios. We will then conclude with a discussion of the implications of our scenarios for asset allocation decisions.

Both of our scenarios begin with the major problem facing the world economy today: the large current account deficit in the United States, and its counterpart current account surpluses in other countries (principally in Asia and more recently in OPEC). By definition, the current account balance equals the difference between domestic savings and investment in a country. Where domestic savings exceed domestic investment, a current account surplus will result, as surplus savings are sold to buy the foreign currency needed to make investments abroad. This depresses the exchange rate, and makes exports from the surplus country more competitive in the global economy, while making imports more expensive. The result is a current account surplus. Many Asian countries have been in this situation in recent years.

In contrast, where domestic investment exceeds domestic savings, a current account deficit results, as foreign savings are used to buy the domestic currency needed for domestic investment. The resulting appreciation of the savings-short country's exchange rate makes its exports less competitive, while making imports cheaper, leading to a current account deficit. Many Anglo Saxon countries, and above all the United States, have been in this situation in recent years.

The balance between domestic savings and investment can be further divided into the net balances in the public sector and the private sector (households and business). For example, the IMF projects a 2005 current account deficit in the United States equal to an

astounding (6.1%) of its Gross Domestic Product (GDP). In turn, this reflects the combination of a public sector deficit equal to (3.7%) of GDP, and a private sector deficit equal to (2.4%) of GDP. The public sector deficit reflects the combination of tax cuts with heavy increases in defense and social spending, made worse by the cost of recovering from hurricanes Katrina and Rita. The private sector deficit primarily reflects the continued borrowing by American consumers (often secured against the rising value of their houses) to finance the spending upon which the world economy has become dangerously dependent.

The imbalances that exist in the world economy today can be summed up in the following table, which summarizes the state of play in regions that account for about two thirds of the world's Gross Domestic Product.

Country	GDP % of World GDP	Domestic Demand Growth in 2005	Public Sector Balance in 2005 (% of GDP)	Private Sector Balance in 2005 (% of GDP)	Current Account Balance in 2005 (% of GDP)
United States	20.9%	3.5%	(3.7%)	(2.4%)	(6.1%)
Eurozone	15.3%	1.4%	(3.0%)	3.4%	0.4%
China	13.2%	3.5%	(1.7%)[1]	7.8%	6.1%
Japan	6.9%	2.0%	(6.7%)	10.0%	3.3%
Asian NICs[2]	3.5%	3.1%	(1.5%)	7.0%	5.5%
United Kingdom	3.1%	1.6%	(3.2%)	1.3%	(1.9%)
Canada	1.9%	4.6%	0.5%	1.0%	1.5%
Australia	1.6%	3.2%	1.3%	(7.0%)	(5.7%)

[1]China only includes central government, and is therefore probably underestimated
[2]Newly Industrialized Countries = S. Korea, Hong Kong, Singapore, and Taiwan

As you can see, the world economy has become very dependent for its demand growth on the United States and China. However, domestic demand growth in the United States has been based on a combination of consumer and government borrowing (along with relatively loose monetary policy) that is, in the long run, unsustainable. Quite simply, neither U.S. consumers,

nor government, and certainly not both together can forever spend beyond their means by borrowing from the rest of the world.

Unfortunately, domestic demand growth in China looks even less stable. Behind the 7.8% private sector balance lie enormous internal imbalances. Over the past few years, domestic investment in China has been growing at a torrid pace. However, much of this has been financed by state-owned banks, whose primary goals have been more political (maintain fast economic growth, which is the only remaining basis for the Communist Party's claim to leadership legitimacy) than economic (make good loans at a profit). The result has been an accumulation of uncompetitive investments, and a matching mountain of non-performing loans on the books of China's state owned banks. Those with even moderately long memories (which, sadly, rules out too many hedge fund managers) recall that they've seen this movie before: say, in Japan in the run up to its crash and depression, and in the run up to the late nineties crashes in the Asian NICs. The dynamic at work isn't new: excessive lending leads to overcapacity, which leads to falling prices, recession, debt deflaton, and depression. Unfortunately, in China this process will only be made worse by the household sector's already very high savings levels, which reflect the rising costs of education, healthcare, and housing, along with a rapidly aging population and only rudimentary government old age pensions. Unfortunately, given the apparent commitment of the Communist Party leadership to retain power at any cost, the triggering of a vicious downward economic cycle could easily lead to an attack on Taiwan (it's also an old story: when threatened, focus the people's attention on an external enemy).

The essence of the problem confronting the world economy -- and investors -- is this: we all know the current system must come to an end. What we don't know is how or when this will happen (although the sharp rise in oil prices seems to be hastening that day's arrival). In the back of everyone's mind is an optimistic scenario one might call "the grand bargain." In it, the governments of the world come together, and agree to the following: (a) a reduction in the U.S. public and private deficits; (b) a fall in the U.S. exchange rate; (c) an increase in exchange rates and domestic demand in the Eurozone, Japan, and NICs; and (d) hope that this keeps the wheels from coming off in China. We don't put too much stock in the "grand bargain" scenario, for the simple reason that too many things have to go right for it to work -- and the joint probability of all those things happening appears to be quite low. This is especially true given the political pain that many of these measures would entail. If it happens at all, we think

it will take a severe crisis to get leaders to seriously consider it, and by then events may have gotten too far out of control for a grand bargain to work. That leaves us with our two principal scenarios.

In our "conventional wisdom" scenario, the global economy continues to "muddle through" for a while longer without a major crisis. Logically, this requires continued demand growth in the United States and China, which fundamentally depends on the continued willingness of foreign investors (especially Asian central banks) to keep accumulating dollar denominated assets to finance the United States current account deficit.

Our most dangerous scenario is characterized by a sudden rush out of dollar investments. There is no telling for sure what could cause this to happen. It might be a sharp drop in U.S. consumer spending, triggered by the rise in oil prices or a slowdown in the increase in housing crises (for an example of the latter, one need look no further than what is happening in Australia or the Netherlands today). Or it might be caused by foreign (and some domestic) investors' declining confidence in the ability of U.S. political leaders to resolve that country's fiscal problems (particularly those related to the exploding costs of Social Security and Medicare). There has been some debate over the likely results of a rush out of U.S. dollar assets. The dominant view seems to be that is would lead to a sharp rise in nominal U.S. interest rates (as bonds are sold, their prices fall, which causes their yields to rise). Domestically, this would either trigger or reinforce a fall in housing values, leading to a wave of bankruptcies by heavily leveraged consumers and a crash stop in their spending, which would plunge the U.S. into a deep, and quite possibly deflationary recession. Internationally, this would trigger a sharp drop in export demand in all those other regions whose growth is heavily dependent on the United States. Most dangerously, this would include China, where the sharp slowdown in growth could easily trigger the bursting of domestic property bubbles and increased social unrest, with very unpredictable consequences.

A minority view was recently put forth in a paper by Joseph Gagnon of the U.S. Federal Reserve ("Currency Crashes and Bond Yields in Industrial Countries"). He notes that a sharp rise in interest rates doesn't necessarily have to accompany a currency crash, provided that investors have sufficient confidence in the Central Bank's commitment to keeping inflation under control. Unfortunately, upon closer examination, his argument seems to weaken. First, numerous analysts have pointed out that even a sharp depreciation of the U.S. dollar cannot, on

its own, significantly reduce the current imbalances. You simply cannot escape the need for increased domestic demand growth in the Eurozone and Asia to offset a reduction in U.S. domestic demand. Absent the former (and the increase in U.S. exports it would generate), the necessary reduction in U.S. domestic demand would be so deep as to practically guarantee the development of a global crisis (for two good recent analyses of this issue, see "The End of Large Current Account Deficits" by Sebastian Edwards of UCLA, and "The U.S. and Her Creditors: Can the Symbiosis Last?" by Godley, Papadimitriou, Dos Santos and Zezza).

We think the most interesting question is how the "end game" of that crisis would play out. Suppose you are a U.S. political leader, and you are faced with this choice. One way to get out of the deep recession (and quite possibly deflation) I'm facing is to crank up the money supply and inflation. This will hurt bondholders (at least those who own nominal return bonds), but will help all those voters who bought their houses with fixed rate mortgages. The other alternative is to maintain monetary discipline (and the wealth of bondholders), even if it means the economy must endure a prolonged recession (which will cause a lot of voters to lose their homes when they lose their jobs and can't make payments on their mortgages). If push comes to shove, our view has been that the vast majority of political leaders will choose the inflationary route out of the crisis.

Finally, in addition to our main scenarios, we have been increasingly concerned with the actions of microscopic actors who could also have a sharp to severe negative impact on the world economy in the months ahead. We refer, of course, to the H5N1 strain of influenza virus, more commonly known as "bird flu." Recent developments in this area are mixed. On the one hand, more and more governments seem to be taking quite seriously the threat of a global flu pandemic. On the other hand, there are many questions as to whether government actions add up to "too little, too late." And in the meantime, H5N1 seems to be progressing (or, more accurately, evolving) towards the pandemic stage (for a good summary of recent developments, see www.recombinomics.com).

As a means of identifying in advance the scenario that may be developing, we have developed this list of early warning indicators:

Indicator to Watch	Dangerous Trend
Real Interest Rates	Falling trend (sign of worry about long term economic growth slowdown)
Oil Prices	Remain high and/or rise higher (raises probability of global growth slowdown)
U.S. Ten Year Treasury Bond Nominal Yield	Rising trend (raises probability of housing and demand slowdown)
U.S. Dollar Exchange Rate	Falling trend (weakening dollar, which should trigger higher U.S. interest rates and slowing economy)
Price Instability in China	Excessive inflation or deflation is a leading indicator of rising economic pressures with high potential for crisis.
Political Instability in China	Reports of growing political unrest, which could also lead to sharp economic slowdown and/or more external tension with United States and/or Japan
Real Domestic Demand Growth in the Eurozone	Falling trend (no sign of region replacing U.S. as global growth engine)
Real Domestic Demand Growth in Japan	Falling trend (no sign of region replacing U.S. as global growth engine)
H5N1 Pandemic Influenza	Signs of increased communicability between humans, with no reduction in currently high mortality rates. Pandemic could result in sharp, and possibly prolonged reduction in global economic growth.

Now let's look at what has happened in the past few weeks. On the good news front, China has made its exchange rate slightly more flexible, which should, if nothing else, moderate the rising political voices in the United States calling for protectionist measures. The election in Japan seemed to give Prime Minister Koizumi a clear mandate to aggressively move forward with reforms that may lead to increased domestic demand. The continued restructuring of Japan's financial sector will also help in this regard. Another piece of good news was the release of another Federal Reserve Board report ("Assessing High House Prices: Bubbles, Fundamentals, and Misperceptions" by Himmelberg, Mayer and Sinai) making the case that, for the most part, housing prices in the United States had not yet reached "bubble" territory.

Unfortunately, that was pretty much it on the good news front (unless you count rising government interest in flu preparedness). There were also more than a few pieces of bad news. The German elections seemed to guarantee a slowdown in that nation's structural reform efforts, and hence made a recovery in domestic demand less likely. Oil prices continued to rise, which cannot help but lead to reductions in domestic demand at some point in the future. Rising oil prices will also put upward pressure on inflation, which, along with rising government deficits in the Eurozone, will probably make an interest rate cut by the European Central Bank even less likely than it was before. Oh, and did I mention that migratory birds are bringing H5N1 to Europe? To put it mildly, the signs do not point to a rise in domestic demand in that region. In Japan, Koizumi's re-election triumph was balanced by the release of a new survey by the Bank of Japan showing that deep pessimism among the Japanese public that their nation's economic recovery could be sustained. In China, Xinhua news agency ran a number of stories noting a slowdown in domestic demand, and growing signs of deflation caused by overcapacity in many industries. Rising oil prices have caused increases in inflation in Southeast Asian nations, which has led some Central Banks in the region to raise interest rates. That makes increased domestic demand growth in this region less likely than before. And if any place has an H5N1 problem today, it is Southeast Asia.   On balance, we'd say that there was more bad than good news over the past month.

Now let's take a look at what the IMF had to say about the condition of the global economy today. The September World Economic Outlook begins by noting that while "the [global] expansion remains broadly on track…risks are still slanted to the downside…Global current account imbalances -- a key medium term risk to the outlook -- have increased yet

again…Associated with this, growth divergences across regions remain wide. The expansion has continued to be led by the United States and China, where the growth momentum has remained robust.   Growth projections for 2005 in most other regions have been marked downward, with the important exceptions of Japan and India. The renewed weakness in the euro area is of particular concern…Oil prices have continued their ascent, hitting a new nominal high of $65 a barrel in late August…Markets remain concerned that the current very low spare production capacity will be insufficient to meet demand growth next winter…High and volatile oil prices remain a significant global risk…The tentative expansion in the euro area has faltered once again…[with] domestic demand growth slowing considerably…The consistent overestimation of the strength of the expansion in the euro area in recent eyares, as well as the fact that corporations as yet show little sign of investing their now substantial profits, underscore the risks of a more extended period of weakness…Progress with structural reforms to boost domestic demand in Japan and the euro area has been limited…Among the major industrial countries…fiscal pressures from aging populations remain a serious concern, especially for health care."   In sum, the IMF seems to have the same overall view as everyone else: while the problems are clear, it remains uncertain when and how they will eventually be resolved.

Elsewhere in the World Economic Outlook, the IMF presents a very interesting analysis of an issue near and dear to our hearts: why, in many countries, the real interest rate is so far below its long term average. The dominant view of the problem is known as the "savings glut" theory. It posits that the cause of real interest rates has been an increase in the supply of savings, primarily in Asia, reflecting the ongoing reaction of that region to the sharp financial crisis it experienced at the end of the 1990s. The IMF's analysis reaches a different conclusion. In addition to an increase in Asian savings, it finds that two other forces were also at work. The first was a fall in the savings rate in many industrial countries. This was due to a fall in both public savings (i.e., a rise in public sector deficits), and in private savings. The former reflects these governments continuing political inability to balance pressures to spend with their capacity to generate tax revenue. The fall in private savings seems to have been significantly affected by the increased availability of credit and the rise in housing values (with rising asset value substituting for savings out of income).

However, more important than changes in savings levels has been a fall in the overall level of investment. As the IMF notes, "investment rates have fallen across virtually all industrial country regions, although this has been most noticeable in Japan and the euro area countries, where they reached historic lows in 2002…Investment rates in the United States are broadly unchanged from their levels in 1997, although they remain below the peak in 2000." To some extent, this "decline in investment rates over time reflects the fact that capital goods have become relatively less expensive -- mainly owing to the extensive…productivity growth in the capital goods sector." Outside the industrial countries, "with the exception of China and a handful of other countries, investment rates have fallen in emerging market economies since the Asian financial crisis -- in east Asia, by more than ten percent of GDP since their peak in the mid 1990s -- and have not rebounded." The IMF concludes that "investment appears to be below the levels that would usually be associated with this stage of the economic cycle, and this may be an important factor in explaining both the current low level of real long-term interest rates, and the shift of emerging market economies from being net importers to net exporters of savings."

In our view, you have to go back to the late 19th century to find a situation that is analogous to the one we face today (with the clear caveat that history never exactly repeats itself). That was the age of rapid industrialization, that saw the U.S. economy faced with a supply shock. This triggered a glut of goods, falls in prices and investment, and eventually a depression brought on by debt deflation (the process by which deflation raises the real burden of debt, causing more people and businesses to go bankrupt, which further decreases demand). In our era, this process has been building for years, and reached its zenith with the explosion of new investment in China, which resulted in dramatic productivity gains as reasonably well-educated and organized workers suddenly had a lot more capital to use. The consequence was an explosion of supply, price pressures, and declining investment in a growing number of industries. To be sure, the actions of western governments (especially the United States' aggressive fiscal and monetary policies) have delayed the day of reckoning brought on by the relatively sudden entry of China into the world economy. But they have not eliminated its necessity, whatever form it will take.

This brings us to another fascinating research paper, that provides food for thought about financial markets' reaction to our current global situation. In "Rare Events and the Equity

Premium", Robert Barro from Harvard finds that, if investors take into consideration events that have very low probabilities but very serious negative consequences, this can explain the simultaneous existence of very low real rates of return and a quite high equity market risk premium. As the probability for an extreme event increases, the value of risk free assets increases. People will pay more to own them, raising their price and depressing their yield. By the same logic, they will demand a higher risk premium to hold equities. This raises an obvious question: we know that real bond yields are very low today. But how high are required equity risk premiums?

To answer this question, we turn to another of our favorite topics, the global market portfolio. In September, the IMF also publishes the Global Financial Market Stability Report, which contains its estimate of the market value of different segments of the global capital market. We have combined the IMF data with information from other sources (e.g., the BIS and Venture Economics) to produce the following estimate of asset class weights in the global market portfolio at the end of 2004:

December, 2004	U.S. $ Billions	Percent
Fixed Income[1]		
Australia	$ 479	*0.43%*
Canada	$ 1,055	*0.94%*
Eurozone	$ 15,816	*14.08%*
Japan	$ 9,163	*8.16%*
Switzerland	$ 488	*0.43%*
United Kingdom	$ 2,444	*2.18%*
United States	$ 22,540	*20.07%*
Other Developed Mkts	$ 2,319	*2.06%*
Emerging Mkts	$ 3,659	*3.26%*
Total Fixed Income	**$ 57,963**	**51.60%**
Commercial Property		
North America	$ 5,300	*4.72%*
Europe	$ 5,200	*4.63%*

December, 2004	U.S. $ Billions	Percent
Asia Pacific	$ 3,100	*2.76%*
Latin America	$ 400	*0.36%*
	$ **14,000**	**12.46%**
Commodities (Notional Value of Principal O/S)[2]	$ **2,000**	**1.78%**
Timberland (Investable)	$ **500**	**0.45%**
Public Equity		
Australia	$ 825	*0.73%*
Canada	$ 933	*0.83%*
Eurozone	$ 5,356	*4.77%*
Japan	$ 3,208	*2.86%*
Switzerland	$ 996	*0.89%*
United Kingdom	$ 3,683	*3.28%*
United States	$ 18,792	*16.73%*
Other Developed Mkts	$ 1,167	*1.04%*
Emerging Mkts	$ 2,208	*1.97%*
Total Equity	$ **37,168**	**33.09%**
Private Equity		
Buyout	$ 490	*0.44%*
Venture Capital	$ 210	*0.19%*
Total Private Equity	$ **700**	**0.62%**
Global Market Portfolio	$ **112,331**	**100.00%**

[1]Real Return and High Yield Bonds are included in each geography
[2]Includes both Over the Counter and Exchange Traded derivative contracts

It is important to understand what this represents -- and what it does not. The first important point is that, because of data measurement problems and differences in the timing of when different data are collected, this is at best a rough estimate of the "true" value (and weights within) of the global market portfolio.

Second, it is not the case that the global market portfolio necessarily represents an "optimum" portfolio for any given investor. While it reflects the aggregation of millions of investor's decisions, it does not follow that all those investors are the same. As Professor William Sharpe noted in his Princeton Lectures in Finance last year, investors differ along three fundamental dimensions: positions, preferences, and predictions. Positions refer to differences between investors' goals, timing, capital, and expected future income and savings. Differences in each of these areas can result in two investors wanting to hold portfolios with different asset allocations.   Preferences refer to factors such as an investor's willingness to take risk, aversion to regret, and desire to substitute current for future consumption. Once again, differences in these areas will also give rise to differences in investors' allocations to different asset classes, even when the only available investments are index funds. Finally, predictions refer to differences between investors' forecasts. For example, one investor may believe it is impossible to identify skilled active managers who will consistently outperform an index fund in the future. Another investor may believe he possesses that skill, but only in a certain asset class (e.g., buyout funds). Hence, the second investor may choose to allocate a larger portion of her portfolio to the asset class in which she believes she possesses distinctive forecasting skill.

Third, if you know the asset class weights in the global market portfolio, and have an estimate of the covariance of their respective returns, you can make inferences about the future asset class returns that "the market" (i.e., investors in the aggregate) expects. To be sure, this analysis rests on a number of assumptions, any one of which can be challenged. It assumes that the market is efficient, and no asset class is significantly over or undervalued. It also assumes that the historical covariance matrix (the covariance of two securities equals the product of the standard deviations of their respective historical returns, times the correlation between those returns) is accurate. And it assumes that one can accurately estimate the risk aversion coefficient of the "average investor." As I said, all of these can be challenged, so the analysis that follows is necessarily an uncertain estimate. Still, it provides interesting food for thought.

The following table shows, in local current terms, the estimated future real returns on different asset classes that we derived from the global market portfolio and our historical 1989-2004 covariance matrices (for the technically inclined, we assumed a risk aversion coefficient of 2, which, while at the low end of the normal range of assumptions, seemed appropriate given conditions -- e.g., very tight credit spreads -- at the end of 2004).

	Real Return Bonds (current yield)	**Domestic Nominal Return Investment Grade Bonds**	**Domestic Commercial Property**	**Domestic Equity**
AUD	2.55%	11.35%	12.57%	14.21%
CAD	1.60%	4.33%	6.45%	7.09%
EUR	1.14%	7.50%	7.87%	8.23%
JPY	0.79%	9.65%	13.33%	11.90%
GBP	1.42%	6.12%	8.02%	7.35%
USD	1.75%	3.21%	4.60%	6.51%

This table makes some interesting points. Consistent with our view of the balance of risks in the global economy (i.e., a rising probability of an extreme downside event) and Professor Barro's paper, our estimates of the expected future returns implicit in the global market portfolio shows quite high equity market risk premia (i.e., the difference between the implied real return on domestic equity and the current yield on real return bonds).

That being said, while many of the implicit returns seem intuitively reasonable, some of them do not (e.g., Australian bonds, although one can hope). Whether this reflects estimation errors in our covariance matrix, inefficiencies (over or undervaluations) in certain segments of the global capital market, or some other problem (e.g., inaccurately measured data), we cannot say. Along with other inputs (e.g., historical results, and the predictions of a theoretical asset pricing model), these inferences are but one of the inputs we will consider when making the assumptions we will use in our asset allocation model for this year's rebalancing of our model portfolios.

This brings us to another difficult question: what are the implications of our analysis for the asset allocation in your portfolio? Experience has taught us the folly of being ideologues

when it comes to market timing. Rather, we distinguish between the goal one is pursuing in trying to time markets, and the way one goes about it.

Conceptually, some people try to time markets because they are trying to generate higher returns (alpha) than their long-term strategic asset allocation policy is expected to produce. Other people time markets because they are trying to limit their risk. The former approach is heavily dependent on foresight about the relative returns an investor expects different asset classes to earn in the future. And as we have just shown, accurately forecasting future returns is not something many of us have the skill to do consistently well. In theory, if one expects to earn superior returns from market timing, one's forecast should be superior to the market's conventional wisdom, in either its magnitude or timing. It one's views align with those of the market, it will be hard to earn superior returns other than through luck.

On the other hand, people who attempt to time markets to limit their risk typically base their decisions on hindsight -- the current valuation of an asset class relative to the historical record. In our experience, hindsight tends to be more accurate than foresight; hence, we believe that, in the absence of superior forecasting skill, investors should limit their episodic market timing to avoidance of extreme overvaluations.

I say "episodic" because there are two broad ways to implement a market timing strategy. Episodic market timing refers to conscious decisions, often involving significant portfolio re-allocations or hedging decisions, made on the basis of specific valuation conclusions (based on either foresight or hindsight). In contrast, systematic market timing decisions are made automatically. Let's look at two examples this approach. A decision to invest in index funds contains an element of momentum, in so far as an index fund that uses market capitalization weighting will increase the weight of assets whose relative value is appreciating at the fastest rate. In contrast, a regular rebalancing strategy systematically sells recent winners and reallocates the proceeds to other asset classes that have not performed as well (i.e., it reduces holdings in asset classes above their target weights, while adding to those below their target weights). Similarly, employing dollar cost averaging when adding funds to a portfolio is another systematic approach to risk reduction. It may also be possible to systematically earn slightly higher returns. If you assume (as we do) that markets tend not to be in equilibrium, then they will have a tendency to overshoot and undershoot their fair value, and then correct. This suggests that, at the margin, it may be possible to generate small amounts of

alpha by rebalancing overweight asset classes to a level somewhat below their target weight (e.g., from 15% to 5% instead of 10%), and underweight asset classes to slightly over their target weight (e.g., from 5% to 15% instead of 10%).

However, the situation before us today is clearly one of episodic market timing based on hindsight-based conclusions about the reasonableness of current valuations in one or more asset classes. As noted above, the problem we face is that while we know what must eventually occur (a reduction in the imbalances in the global economy today), we don't know exactly how or when this will happen. In this way, the current situation is somewhat similar to the U.S. equity market in the late 1990s. Unfortunately, we don't know whether today is more like 1998 (imbalances will persist, and we'll muddle through for a while longer) or 2000.

Given the heavy dependence of all bubbles on human emotion, and the rapidity with which they can reverse and herd into a crash, we are suspicious of anyone who believes they will be able to "get out at the top". This suggests that it would be wise under the current circumstances to consider putting some downside protection in place. However, this raises the question of the form that protection should take. While one could buy put options, they are not available for all asset classes, and they cost money, which adds up if the expected downturn arrives late (as anyone who started buying them in 1998 and then threw in the towel in 2000 can tell you). One could also switch some assets into cash. However, again as anyone who did this in 1998 can tell you, the emotional impact of opportunity costs (watching an asset class rise in value while you are in cash) can also be severe, depending on the internal trade-off one makes between fear and greed. This leaves stop-loss orders. Since they cost nothing until executed, they are more attractive than put options for hedging an existing position. And unlike a move into cash, they allow an investor to continue to earn positive returns, in the case that the downturn arrives later than expected. However, there remains the key issue of how low below the current price of an investment to place a stop loss order. In essence, you want to set it low enough that you avoid having it triggered by "normal volatility" (i.e., the regular ups and downs that characterize a market). For example, the following table shows the standard deviation of monthly nominal returns on different U.S. dollar asset classes between 1989 and 2004:

Asset Class	Standard Deviation of Monthly Returns
Real Return Bonds	1.60%
Investment Grade Bonds	1.15%
Foreign Currency Bonds	2.61%
Domestic Commercial Property	3.66%
Foreign Commercial Property	5.57%
Commodities	5.43%
Timberland	4.34%
Domestic Equity	4.22%
Foreign Equity	4.84%
Emerging Equity	6.81%

These give a rough idea of how big a downside move would have to be in order to be statistically significant. Assuming normally distributed returns, 95% of the time monthly returns should be less than two standard deviations below the mean; hence a quick and dirty estimate of a big downside move would be two standard deviations or more in a month. However, this estimate is subject to three important limitations. First, unlike statistics that describe the results of an unchanging physical process, those that describe asset class returns (which result from a process that tends to change over time) contain a lot of estimation error. Second, most asset class returns aren't normally distributed. Close, typically, but not quite. Rather, they often have slightly "fatter tails" than a normal distribution, which means that there will typically be more big downside moves than would be the case if the returns were normally distributed. Third, on a daily (or, more accurately, intraday) basis (which is the relevant one for triggering a stop loss order), returns have even fatter tails than they do on a monthly one. All of these considerations argue for setting the trigger price on a stop loss order well below the current market price on an investment -- say 15% to 20% below as a rough guide -- to avoid the risk of incurring unnecessary transaction costs.

Finally, we'll repeat what we wrote in our March 2005 issue. With trouble on the horizon, now would be a good time to rebalance one's portfolio to levels below one's target weights for asset classes that seem overvalued (e.g., many equity markets and arguably commodities except perhaps for gold) and to above target weights for those assets that would

probably perform well under either a U.S. dollar decline and/or a global flu pandemic scenario (e.g., real return bonds, non-U.S. dollar bonds, short maturity U.S. government bonds, timber, and commercial property). However, having said that, we will also note that we will be concluding our biennial asset allocation review and announcing our rebalanced model portfolios at the beginning of November. So, assuming you believe (as we do), that the world economy will probably keep muddling along with out any major shocks for at least another six months (if not longer), it makes sense to hold off on this rebalancing until the end of the year.

Tom Coyne
Editor

Product and Strategy Notes

Oil ETF vs. Commodity Indexes

With the introduction of an ETF based on the price of Brent Crude Oil launched in London, and similar products on the way in the United States, we compared the simulated historical performance of an oil ETF to the Goldman Sachs Commodity Index and the DowJones AIG Commodities Index.

While much more information about the GSCI and DJAIG indexes is available on our website, for the purpose of this analysis, the key points to keep in mind are as follows. The GSCI contains twenty-four different commodities, and weights them on the basis of the average quantity of each that is produced in a given year. The DJAIG believes that pure production weighting underestimates the relative importance of storable commodities (e.g., gold) to the world economy, and overestimates the importance of non-storable commodities (e.g., live cattle). Hence, it uses a weighting scheme based on a combination of production volume and the volume of futures contract trading for each of the nineteen commodities it contains. This difference in weighting schemes leads to one key difference between the GSCI and DJAIG: the weight of energy commodities in the former is almost 80%, while in the latter they are only 33%.

The following table shows the average annual return and standard deviation data in U.S. dollars for the three alternative commodity vehicles, between 1991 (when the DJAIG's simulated history begins) and the end of 2004.

	Brent Crude	**GSCI**	**DJAIG**
Average Return	4.39%	4.73%	4.53%
Std. Deviation	29.94%	16.90%	11.35%

The next table shows the correlation of returns between these three alternatives over the same 1991 - 2004 period.

	Brent Crude	**GSCI**	**DJAIG**
Brent Crude	1.00		
GSCI	.53	1.00	
DJAIG	.43	.87	1.00

The next table shows the correlation of real returns between the different commodity alternatives and U.S. investment grade bonds, commercial property, and equity, over the 1991-2004 period.

	Brent Crude	**GSCI**	**DJAIG**
U.S. Bonds	.02	.02	.02
U.S. Comm. Prop.	(.03)	.07	.14
U.S. Equity	(.14)	.04	.11

Based on this analysis, we aren't too enthusiastic about the oil ETF. As you can see, investing in it instead of one of the broader commodity indexes would have generated about the same return, with significantly more risk and somewhat lower correlation with U.S. commercial property and U.S. equity. While, like all statistics based on historical financial returns, these inevitably contain estimation errors, the difference between oil's standard deviation and those on the GSCI and DJAIG is very large. We suspect that it more than offsets any potential diversification benefit from oil versus the other two alternatives in a portfolio. To be sure, we will test this in our upcoming portfolio rebalancing. However, for now our preference for the Dow Jones AIG index remains unchanged.

While on the subject of commodity index products, we should also mention two others that sometimes appear in the media. What was formerly called the "Rogers Raw Materials Index" is now known as the "Rogers International Commodities Index", or RICIX. It includes 34 different commodities, with energy products (crude, heating oil, unleaded gasoline, and natural gas) receiving a fixed 44% weighting. To our knowledge, the only way to invest in the RICIX is through a privately placed security, which means higher costs, plus giving up the liquidity of a publicly traded product. We do not believe the RICIX offers benefits that justify these additional costs. If and when a retail product is introduced that tracks the RICIX, we will reconsider our opinion of it.

The other product is the Commodity Research Bureau Index, which, since June, 2005 has been known as the Reuters Jeffries CRB Index. This index has been around since 1957, but has gone through many changes to both the commodities it includes, and its weighting scheme. The most recent change to the latter came this past summer, which raised energy's weight in the overall index from 17.6% to 33%. While a futures contract on the index trades in the United States, there are no retail products that track it. Between 1991 and 2004 (the same period we used to compare the other indexes), the CRB index delivered average annual real U.S. dollar returns of 1.47%, with a standard deviation of 8.26%. Its correlation of returns with those on other indexes were as follows: GSCI, .63, DJAIG, .80, Brent Crude, .29, U.S. domestic bonds, (.03), U.S. commercial property, .22, and U.S. equity, .18. However, since the index weights were considerably changed in June, these statistics are not a valid estimate of the future performance of the RJCRB index.

Some Follow Ups from Previous Articles

We regularly receive comments from readers on the articles we write, some of which offer interesting pieces of information that we wish we had included. Here are some of those:

- The minimum investment for a single foreign currency certificate of deposit at Everbank is only $10,000. The $20,000 minimum applies to their index CDs that track baskets of different currencies.

- On the same subject, there is a futures contract on the trade-weighted U.S. dollar index, known as the USDX contract. Thus far, there is not a retail fund that is based on these contracts.

- Our article on equity volatility as an asset class drew a question from a European reader, who wanted to know how closely the VSTOXX index (which tracks implied volatility on the Dow Jones STOXX European Shares Index) is related to the VIX (which tracks the implied volatility on the S&P 500).   We ran the numbers, and found that between January, 1999 and December, 2004 the correlation of the returns on these two indexes was .84. That makes them pretty close substitutes. Unfortunately, we have yet to see any fund products for retail investors based on either of these two indexes. For now, if you want to invest in this asset class, you have to purchase, and continuously rollover, the futures contracts on them.

- Following our article on private equity, another reader called our attention to a new product from Van Kampen funds (in the United States) which will track the IPOX-30 Index. The IPOX is a product developed by Josef Schuster, who was formerly on the faculty of the London School of Economics. It tracks the performance of initial public offerings for 1,000 days after they are launched. The IPOX-30 includes the 30 largest companies in the IPOX, based on their market capitalization (for more information on the index, see [www.ipoxschuster.com)](www.ipoxschuster.com). While we find the concept of the index intriguing, we have some concerns about the Van Kampen product. First, while its expenses are relatively low (at 32 basis points), it carries a hefty 4.95% front end sale load (commission). Second, it is clear that the fund may not always be able to buy new issues at their IPO price; hence, the performance of the fund may significantly diverge from the performance of the underlying index.   In our view, it would be wise to wait and see how the fund performs before considering its use to gain exposure to venture capital as an asset class.

Active Versus Passive Investing Results in Canada

Standard and Poor's is gradually expanding their Index Versus Active Funds Scorecard (SPIVA) reports to geographies outside the United States. The most recent report covers

Canada, and raises some interesting issues. As in other small countries, there are a few large companies in Canada (e.g., Nortel) that account for a very large percentage of the overall market index. To minimize the risk this presents for investors (as Nortel's recent history makes clear), in many smaller countries the local equity market index comes in two forms: one based on pure market capitalization, and another that limits ("caps") the maximum weight of any single company. On the one hand, this logic makes sense, if one believes that markets are not always efficient, and as a result companies can become substantially over and undervalued. However, it leaves one with the question about the appropriate level for the cap on any company's weight in the index. On the other hand, an efficient market purist would reject this approach, and say that market capitalization weighting is the right approach to use. They might note that if Microsoft had been established in Vancouver instead of Redmond, Washington, a cap would have deprived Canadian investors of a lot of upside returns, even though Microsoft would have dominated the Canadian market index.

The SPIVA data make this trade-off clear. Over the past five years, 39 percent of active managers of Canadian equity (pure) funds (i.e., those that primarily invest in Canadian companies) outperformed the uncapped Canadian equity index, while only 8.7% of these managers outperformed the S&P/TSX Capped Composite Index. On balance our view on the capped versus uncapped issue is a pragmatic one. In so far as small countries are likely to have more densely connected social networks, their local markets may therefore be more prone to herding, and therefore to more severe over and undervaluations. At the same time, investors will tend to differ in terms of their degree of home bias, or the extent to which they resist diversifying their equity holdings internationally. This leads us to conclude that if one has a portfolio that is significantly diversified internationally, one should probably invest in funds that track the uncapped index. While this can lead to a heavy weight on a few companies in the context of the local market, in terms of this investor's overall portfolio this will not be the case. On the other hand, an investor who is less diversified internationally should probably prefer products that track a capped index.

Model Portfolios Update

We produce three different types of model portfolios. Each of these is based on a different portfolio construction methodology.

We use a "rule of thumb" approach (or, to use the more formal term, a "heuristic approach") to construct our benchmark portfolios. More specifically, we use three "rules of thumb" that are often cited in news stories a mix of 80% equities and 20% debt (for our high risk/high return portfolios); a mix of 60% equities and 40% debt (for our moderate risk/moderate return portfolios); and a mix of 20% equities and 80% debt (for our low risk/low return portfolios). Using different terminology, somebody else might call these three portfolios aggressive, balanced, and conservative. We implement these three rules of thumb in two different ways (to construct six different benchmark portfolios). The first uses just two asset classes: domestic investment grade bonds and domestic equity. The second uses a broader mix of asset classes: domestic and foreign investment grade bonds, and domestic and foreign (including emerging market) equity. In addition to these 80/20, 60/40, and 20/80 portfolios, we also provide our "couch potato" portfolio. This portfolio is equally allocated to all of the asset classes we use. More formally, this is known as the "1/N heuristic," which research has shown is an approach used by a significant proportion of retirement plan investors. This portfolio implicitly assumes that it is impossible to accurately forecast future asset class risk and return; consequently, the best approach is to equally divide one's exposure to different sources of return (and risk). While we disagree with this assumption, intellectual honesty compels us to include the "couch potato" portfolio as one of our benchmarks. Finally, each year we also benchmark all our portfolios against the return from holding cash. We define this return as the yield to maturity on a one-year government security purchased at the end of the previous year. For 2005, the U.S. cash benchmark return is 2.75% (nominal).

The goal of our second set of model portfolios is to either deliver more return than the domestic benchmark portfolios, while taking on no more risk, or to deliver the same level of return while taking on less risk. To develop these model portfolios, we use a methodology known as "mean/variance optimization" or MVO. This approach uses three variables for each asset class (its expected return, standard deviation of returns, and correlation of returns with

other asset classes) to construct different combinations of portfolios which maximize return per unit of risk (another way of looking at this is that they minimize risk per unit of return). The MVO technique has some significant limitations. While it is a good approach to single year portfolio optimization problems, in multiyear settings it fails to adequately take into account the fact that poor portfolio performance in early years can substantially reduce the probability of achieving long term goals. It also fails to adequately account for most people's intuitive understanding of risk: what's important isn't standard deviation (the dispersion of annual returns around their mean), but rather the chance that I will fall short of my long-term goals. Given these limitations, our MVO portfolios are most appropriate for managers whose performance is evaluated on an annual basis in comparison to one of our benchmarks.

Our third set of model portfolios uses a simulation optimization methodology. It assumes that an investor understands the long-term compound real rate of return he or she needs to earn on his or her portfolio to achieve his or her long-term financial goals. We use SO to develop a multi-period asset allocation solutions that are "robust". They are intended to maximize the probability of achieving an investor's compound annual return target under a wide range of possible future asset class return scenarios. More information about the SO methodology is available on our website. Using this approach, we produce model portfolios for three different compound annual real return targets: 7%, 5%, and 3%. We produce two sets of these portfolios: one includes hedge funds as a possible asset class, and one does not.

The year-to-date results for all these model portfolios are shown in the tables on the following pages.

Model Portfolios Year-to-Date Performance

These portfolios seek to maximize return while matching their benchmark's risk (standard deviation)			
	YTD 30Sep05	Weight	Weighted Return
	In U.S. $		In U.S. $
High Risk/Return Portfolio			
Asset Classes			
U.S. Benchmark			
U.S. Equity	3.7%	80%	2.96%
U.S.Bonds	1.7%	20%	0.34%
		100%	3.30%
Global Benchmark			
U.S. Equity	3.7%	40%	1.48%
Non-U.S. Equity	10.8%	40%	4.32%
U.S. Bonds	1.7%	10%	0.17%
Non-U.S. Bonds	-6.1%	10%	-0.61%
		100%	5.36%
Recommended			
U.S. Equity	3.7%	55%	2.04%
Foreign Equity (EAFE)	9.2%	25%	2.30%
Emerging Mkts Equity	23.3%	7%	1.63%
Commercial Property	10.0%	3%	0.30%
Commodities	25.2%	10%	2.52%
		100%	8.79%

These portfolios seek to maximize return while matching their benchmark's risk (standard deviation)			
Medium Risk/Return Portfolio			
Asset Classes			
U.S. Benchmark			
U.S. Equity	3.7%	60%	2.220%
U.S.Bonds	1.7%	40%	0.680%
		100%	**2.900%**
Global Benchmark			
U.S. Equity	3.7%	30%	1.11%
Non-U.S. Equity	10.8%	30%	3.24%
U.S. Bonds	1.7%	20%	0.34%
Non-U.S. Bonds	-6.1%	20%	-1.22%
		100%	**3.47%**
Recommended			
U.S. Equity	3.7%	47%	1.74%
Foreign Equity (EAFE)	9.2%	10%	0.92%
U.S.Bonds	1.7%	12%	0.20%
U.S. High Yield Bonds	1.4%	5%	0.07%
Non-U.S. Bonds	-6.1%	5%	-0.31%
Commercial Property	10.0%	6%	0.60%
Emerging Mkts Equity	23.3%	5%	1.17%
Commodities	25.2%	10%	2.52%
		100%	**6.91%**

These portfolios seek to maximize return while matching their benchmark's risk (standard deviation)			
Low Risk/Return Portfolio			
Asset Classes			
U.S. Benchmark			
U.S. Equity	3.7%	20%	0.74%
U.S.Bonds	1.7%	80%	1.36%
		100%	**2.10%**
Global Benchmark			
U.S. Equity	3.7%	10%	0.37%
Non-U.S. Equity	10.8%	10%	1.08%
U.S. Bonds	1.7%	40%	0.68%
Non-U.S. Bonds	-6.1%	40%	-2.44%
		100%	**-0.31%**
Recommended			
U.S. Equity	3.7%	16%	0.59%
U.S. Bonds	1.7%	55%	0.94%
U.S. High Yield Bonds	1.4%	3%	0.04%
Real Return Bonds	2.6%	10%	0.26%
Commercial Property	10.0%	5%	0.50%
Foreign Equity (EAFE)	9.2%	6%	0.55%
Commodities	25.2%	5%	1.26%
		100%	**4.14%**

These portfolios seek to minimize risk while matching their benchmark's returns.			
	YTD 30Sep05	Weight	Weighted Return
	In U.S. $		In U.S. $
High Risk/Return Portfolio			
Asset Classes			
U.S. Benchmark			
U.S. Equity	3.7%	80%	2.96%
U.S.Bonds	1.7%	20%	0.34%
		100%	**3.30%**
Global Benchmark			
U.S. Equity	3.7%	40%	1.48%
Non-U.S. Equity	10.8%	40%	4.32%
U.S. Bonds	1.7%	10%	0.17%
Non-U.S. Bonds	-6.1%	10%	-0.61%
		100%	**5.36%**
Recommended			
U.S. Bonds	1.7%	5%	0.09%
Commercial Property	10.0%	10%	1.00%
U.S. Equity	3.7%	58%	2.15%
Foreign Equity (EAFE)	9.2%	17%	1.56%
Commodities	25.2%	10%	2.52%
		100%	**7.32%**

These portfolios seek to minimize risk while matching their benchmark's returns.			
Medium Risk/Return Portfolio			
Asset Classes			
U.S. Benchmark			
U.S. Equity	3.7%	60%	2.22%
U.S.Bonds	1.7%	40%	0.68%
		100%	**2.90%**
Global Benchmark			
U.S. Equity	3.7%	30%	1.11%
Non-U.S. Equity	10.8%	30%	3.24%
U.S. Bonds	1.7%	20%	0.34%
Non-U.S. Bonds	-6.1%	20%	-1.22%
		100%	**3.47%**
Recommended			
U.S. Equity	3.7%	45%	1.67%
Foreign Equity (EAFE)	9.2%	10%	0.92%
U.S. Bonds	1.7%	29%	0.49%
U.S. High Yield Bonds	1.4%	5%	0.07%
Commercial Property	10.0%	6%	0.60%
Commodities	25.2%	5%	1.26%
		100%	**5.01%**

Low Risk/Return Portfolio			
Asset Classes			
U.S. Benchmark			
U.S. Equity	3.7%	20%	0.74%
U.S.Bonds	1.7%	80%	1.36%
		100%	**2.10%**
Global Benchmark			
U.S. Equity	3.7%	10%	0.37%
Non-U.S. Equity	10.8%	10%	1.08%
U.S. Bonds	1.7%	40%	0.68%
Non-U.S. Bonds	-6.1%	40%	-2.44%
		100%	**-0.31%**
Recommended			
U.S. Equity	3.7%	10%	0.37%
Foreign Equity (EAFE)	9.2%	8%	0.74%
Commercial Property	10.0%	4%	0.40%
U.S.Bonds	1.7%	40%	0.68%
Real Return Bonds	2.6%	25%	0.65%
U.S. High Yield Bonds	1.4%	8%	0.11%
Commodities	25.2%	5%	1.26%
		100%	**4.21%**

These portfolios seek to maximize the probability of achieving at least the target real return over twenty years, at the lowest possible risk.			
	YTD 30Sep05	**Weight**	**Weighted Return**
	In US$		In US$
7% Target Real Return	*YTD Returns are Nominal*		
Asset Classes			
Real Return Bonds	2.6%	3%	0.08%
U.S. Bonds	1.7%	3%	0.05%
Non-U.S. Bonds	-6.1%	29%	-1.77%
Commercial Property	10.0%	10%	1.00%
Commodities	25.2%	13%	3.28%
U.S. Equity	3.7%	25%	0.93%
Foreign Equity (EAFE)	9.2%	0%	0.00%
Emerging Mkt. Equity	23.3%	17%	3.96%
Hedge Funds	2.1%	0%	0.00%
		100%	7.52%
	YTD 30Sep05	**Weight**	**Weighted Return**
	In US$		In US$
5% Target Real Return	*YTD Returns are Nominal*		
Asset Classes			
Real Return Bonds	2.6%	2%	0.05%
U.S. Bonds	1.7%	15%	0.26%
Non-U.S. Bonds	-6.1%	22%	-1.34%
Commercial Property	10.0%	13%	1.30%
Commodities	25.2%	6%	1.51%
U.S. Equity	3.7%	27%	1.00%
Foreign Equity (EAFE)	9.2%	5%	0.46%
Emerging Mkt. Equity	23.3%	10%	2.33%
Hedge Funds	2.1%	0%	0.00%
		100%	5.57%

	YTD 30Sep05	Weight	Weighted Return
	In US$		In US$
3% Target Real Return	*YTD Returns are Nominal*		
Asset Classes			
Real Return Bonds	2.6%	40%	1.04%
U.S. Bonds	1.7%	25%	0.43%
Non-U.S. Bonds	-6.1%	8%	-0.49%
Commercial Property	10.0%	8%	0.80%
Commodities	25.2%	7%	1.76%
U.S. Equity	3.7%	7%	0.26%
Foreign Equity (EAFE)	9.2%	3%	0.28%
Emerging Mkt. Equity	23.3%	2%	0.47%
Hedge Funds	2.1%	0%	0.00%
		100%	4.54%

These portfolios seek to maximize the probability of achieving at least the target real return over twenty years, at the lowest possible risk.		These portfolios are the same as our other target real return portfolios, except that they can also invest in hedge fund index products.	
	YTD 30Sep05	Weight	Weighted Return
	In US$		In US$
7% Target Real Return	*YTD Returns are Nominal*		
Asset Classes			
Real Return Bonds	2.6%	3%	0.08%
U.S. Bonds	1.7%	0%	0.00%
Non-U.S. Bonds	-6.1%	27%	-1.65%
Commercial Property	10.0%	13%	1.30%
Commodities	25.2%	10%	2.52%
U.S. Equity	3.7%	20%	0.74%
Foreign Equity (EAFE)	9.2%	0%	0.00%
Emerging Mkt. Equity	23.3%	12%	2.80%
Hedge Funds	2.1%	15%	0.32%
		100%	**6.10%**

	YTD 30Sep05	Weight	Weighted Return
	In US$		In US$
5% Target Real Return	*YTD Returns are Nominal*		
Asset Classes			
Real Return Bonds	2.6%	5%	0.13%
U.S. Bonds	1.7%	20%	0.34%
Non-U.S. Bonds	-6.1%	22%	-1.34%
Commercial Property	10.0%	7%	0.70%
Commodities	25.2%	10%	2.52%
U.S. Equity	3.7%	20%	0.74%
Foreign Equity (EAFE)	9.2%	0%	0.00%
Emerging Mkt. Equity	23.3%	6%	1.40%
Hedge Funds	2.1%	10%	0.21%
		100%	**4.70%**

	YTD 30Sep05	Weight	Weighted Return
	In US$		In US$
3% Target Real Return	*YTD Returns are Nominal*		
Asset Classes			
Real Return Bonds	2.6%	42%	1.09%
U.S. Bonds	1.7%	16%	0.27%
Non-U.S. Bonds	-6.1%	11%	-0.67%
Commercial Property	10.0%	10%	1.00%
Commodities	25.2%	7%	1.76%
U.S. Equity	3.7%	7%	0.26%
Foreign Equity (EAFE)	9.2%	2%	0.18%
Emerging Mkt. Equity	23.3%	2%	0.47%
Hedge Funds	2.1%	3%	0.06%
		100%	**4.43%**

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	YTD 30Sep05	Weight	Weighted Return
	In US$		In US$
Equally Weighted Portfolio	*YTD Returns are Nominal*		
Asset Classes			
Real Return Bonds	2.6%	12.5%	0.33%
U.S. Bonds	1.7%	12.5%	0.21%
Non-U.S. Bonds	-6.1%	12.5%	-0.76%
Commercial Property	10.0%	12.5%	1.25%
Commodities	25.2%	12.5%	3.15%
U.S. Equity	3.7%	12.5%	0.46%
Foreign Equity (EAFE)	9.2%	12.5%	1.15%
Emerging Mkt. Equity	23.3%	12.5%	2.91%
		100.0%	**8.70%**