The Index Investor

Invest Wisely…Get an Impartial Second Opinion.

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This Month's Issue: Key Points

Our first article this month reviews new research findings in the area where three issues intersect: uncertainty, information, and active management. Perhaps the most fundamental assumption in investment management is that return represents compensation for bearing risk. However, there is a growing body of research that suggests that, at the very least, this isn't the whole story. The essence of this argument lies in the distinction between risk and uncertainty. The former represents a situation where the process (i.e., model) generating future outcomes is sufficiently well understood that probabilities can be given to different scenarios. For example, asset allocation models use statistical distributions (e.g., mean, standard deviation, correlation) to describe the probability that different future returns will occur. In contrast, uncertainty refers to outcomes whose probabilities we either do not know, or cannot forecast with any confidence (because of our poor understanding of the underlying process or model). An increasing number of studies find that investors are compensated for bearing uncertainty as well as risk. Moreover, rising uncertainty is also associated with declining liquidity and an increased potential for skilled active managers to

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generate alpha. However, the latter depends on a manager's ability generate superior information and accurate forecasts. Other recent studies we review find that the way active managers use information can provide insights into their relative skill.

Our second feature article reviews recent research on the value premium. There are three key conclusions. First, the balance of evidence now suggests that the value premium reflects mispricing, rather than compensation for risk. The second conclusion is that it is concentrated in a relatively small number of stocks that are distinguished by their low level of institutional trading. The final conclusion is that, due to increased arbitrage activity in recent years (e.g., by hedge funds), the value premium has sharply declined, and in fact may no longer exist.

This month's product and strategy notes review four diverse subjects, including the launch of 29 commodity based ETFs in London (too much of a good thing can be bad for you), why the distribution of retirement wealth is so wide (it's more complicated than you might think), the contrast between the perception of globalization at the Federal Reserve's Jackson Hole Conference and its practical impact on one small state in the United States (pressures on the political system are growing, with much uncertainty about how things will turn out), and Kets de Vries' latest paper on money and meaning (the older you get, the more many aphorisms make sense).

This Month's Letter to the Editor

"In the July, 2006 issue you expand upon the potential unraveling of the United States current account deficit and that it is increasingly likely to result in a nonlinear correction and a prolonged period of very high inflation. To what extent does the data used for your model portfolios reflect similar economic events? Since the unraveling could occur rapidly, how do you foresee these events impacting your model portfolios and will investors have time to react prior to sustaining substantial losses?"

As we have emphasized in our writing, as a general rule people tend to under-react to new information that conflicts with the views they currently hold. To put it more glibly, it often seems that it takes twice as much information to change an opinion as it does to form it in the

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first place. However, in the case of financial markets, that discordant information has been accumulating. Two examples of it are recent OpEds in the Financial Times by Nouriel Roubini and piece by Stephen Roach. To use a physical analogy, this is like the build up of stress that precedes an earthquake. Moreover, many institutional investors are returning from their holidays this month and will be considering the outlook for their funds' performance and their own compensation. To the extent that this compensation is based on performance relative to peers and/or an index, the advantages of "getting out early" may begin to look increasingly attractive to them. Hence, we believe that, as we move further into the autumn, the potential for significant financial market dislocations will significantly increase.

The asset class return and risk (standard deviation) assumptions we use in our models are based on a 50/50 weighted mix of historical data and the outputs from our asset pricing model (which assumes that, in equilibrium, different asset classes earn different risk premia over the return on inflation protected government bonds). The assumption we use about the correlation of returns between different asset classes is based on long-run historical results between 1989 and 2004. We use these input assumptions in a simulation (technically, a stochastic) optimization model that works as follows. First, a candidate asset allocation is selected. A series of annual asset class returns over a given holding period (e.g., 20 years) is then generated by sampling from the distribution defined by the return and risk assumptions for each asset class. These assumptions are constrained by the correlation assumption and by a slight year-to-year (serial) correlation assumption for the total return on inflation protected bonds. On the basis of these annual assumptions, we calculate the extent to which the asset allocation achieve an investor's specified goal(s) over the specified time horizon (e.g., a minimum required real rate of return, making target portfolio income withdrawals without running out of money, etc.). We then repeat this process at least 2,000 times (i.e., generate at least this many different scenarios) to build up a clear picture of the likely outcomes for the asset allocation we have chosen. Having done this for one asset allocation, we then choose another one and repeat this process. We then select the asset allocation that maximizes the probability of achieving the specified goals under the full range of possible asset class return scenarios.

We are under no illusions that this is a foolproof approach, as we explain at length on our site. For example, historical data may not cover the full range of possible market

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outcomes (i.e., it is subject to "estimation error"), while our asset pricing model may be incorrectly specified (i.e., it is subject to "model error"). Also, like most others, we assume that asset class returns are normally distributed, which greatly simplifies calculations. While this assumption is approximately correct, most asset classes have distributions with slightly fatter than normal tails. This "distribution error" causes our models to slightly underestimate the probability of extreme returns. Finally, as we have noted, financial markets seem to operate in two regimes, one with higher returns, lower standard deviations (volatility) and lower correlations between returns on different asset classes, and another characterized by the opposite conditions. In particular, given the increasing integration of the world economy and its financial markets, it is hard to say in advance how correlations will change under this latter, "turbulent" regime. While we have shown how they changed in the past (e.g., with correlations between foreign currency bonds and domestic equity markets usually falling while many other correlations rose), there is no guarantee that this will be the case in the future (e.g., deeper markets for inflation protected government bonds may absorb some of this effect). Hence, this "correlation error" is a fourth source of uncertainty in our asset allocation models.

So, regarding the question you asked, the narrow answer is that at least some of the scenarios we use to analyze each possible asset allocation contain extreme returns for different asset classes. In that sense, our model portfolios' asset allocations take the possibility of extreme situations into account, though in an uncertain manner due to the four sources of error noted above. However, there is also a broader answer. When saying that our model portfolios' asset allocations take extreme outcomes into account does not mean that they will necessarily achieve their goals under those conditions. That is why we complement our long-term (i.e., "strategic" or "policy") asset allocations with the asset class valuation updates we publish in each month's issue. As we have noted, we utilize two types of rebalancing strategy. One is automatic (systematic) and involves regularly reducing the weights of those asset classes that are above their strategic weights, and increasing the weights of those that are below their strategic weights. This is nothing more than a systematic approach to the "buy low, sell high" discipline.

The second rebalancing approach we use is what we term "episodic" and is focused on avoiding those asset classes which have become, in our estimation, seriously overvalued (as

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we note, while we believe that financial markets are drawn to equilibrium and efficiency, they are usually not in this state, thus leading to both over and undervaluations). The goal of this episodic approach is not to earn additional returns from market timing; rather, it is driven by prudent risk management, and the desire to avoid substantial losses. With that in mind, our June 2006 Economic Warning Indicators Update included the following:

1. "We don't see many signs that the global economic situation is becoming less fragile, or that the probability of a sharp downturn has declined. Like the Bank for International Settlements, we are somewhat surprised it hasn't happened yet. On the other hand, we also recognize that a surprising resiliency seems to be a signature characteristic of all complex adaptive systems. Still, we can't see how this false calm in the world economy can last much longer.

2. "The spike in volatility in June, following the sell-off in some emerging equities, high yield bond, and commodity markets in May suggests that a lot of professional investors are also getting nervous. However, we suspect that their compensation incentives – whether they are linked to an absolute return, a return relative to a peer group, or a return relative to a benchmark – are keeping them invested in risky assets longer than their guts tell them is sensible.

3. "If and when a significant change starts to gain momentum, it will most likely begin, once again, with some combination of a rise in the VIX [the index that measures the level of future equity market volatility implied by the current pricing of S&P 500 Index Options], falls in emerging markets, high yield bonds, and commodities (though the latter is complicated by the potential for political factors – read Iran or Venezuela – to keep oil prices high). At this point, we will be looking for any news about problems in any derivative market or hedge fund, or signs of disappearing liquidity in other markets. These are triggers that could easily accelerate the development of a crisis. The next logical step would be falling real return and government bond yields around the world, as money moves into safer assets. An interesting indicator at this point will be the U.S. equity and property markets. If a serious change is underway, values in these areas should fall faster than those in the U.K. and Europe, the dollar should fall versus the Swiss Franc, Euro and Pound, and perhaps the Canadian and Australian dollars too, and (from a U.S. dollar investor's perspective) foreign currency bond prices should rise and their local currency yields should fall (but returns, in dollar terms, may

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rise). At this point, gold should be rising and we would also expect to see rising prices for timber assets (PCL and RYN)."

As your question notes, changes in financial markets could happen very quickly. Hence, for some time we have been making three points: (1) investors not yet invested in an overvalued asset class but wanting to make this move should avoid it for the time being; (2) investors with positions in asset classes that appear to be overvalued should, at minimum, as part of their normal systematic rebalancing, reduce their weights to 5 to 10 percent below their normal long-term policy weights (while raising apparently undervalued asset classes to above their policy weights); and (3) investors contemplating stronger defensive moves (e.g., purchasing put options, moving into cash) need to balance the incremental costs of such a move (e.g., option premiums paid, capital gains taxes, transaction costs) against the potential benefits (e.g., with a 30% portfolio allocation to equities, a 25% fall in the equity market would produce a portfolio fall of only 7.5%, before taking any increases in other asset class values into account). In other words, a portfolio that is well-diversified across a range of asset classes already has a considerable degree of protection built into it, without requiring an investor to accurately forecast asset class overvaluations. That being said, if the incremental costs were not too great (e.g., if the asset classes perceived to be overvalued are held in tax-advantaged accounts), then moving out of the apparently most overvalued asset classes (e.g., commodities, risky bonds, emerging market equities) and into cash might well make sense.

Finally, we note that the current situation is once again making painfully clear that investing will always involve an irreducible level of uncertainty, and that fallible human judgment will always be required. Asset class returns are payment to an investor not only for risk (i.e., the range of possible outcomes whose probabilities we can quantify), but also for accepting some degree of uncertainty (which we can't quantify). The pursuit of higher returns inescapably requires the acceptance of more risk and uncertainty. Hence, achieving one's financial goals over the long term requires avoidance of both excessive enthusiasms and excessive prudence. This is surely not an easy time for investors; however, we believe that our subscribers are as well prepared for what lies ahead as it is possible to be under the circumstances.

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Global Asset Class Returns

YTD 31Aug06	In USD	In AUD	In CAD	In EURO	In JPY	In GBP	In CHF	In INR
Asset Held								
US Bonds	2.00%	-2.13%	-3.19%	-6.21%	1.53%	-8.66%	-4.63%	5.02%
US Prop.	21.50%	17.37%	16.31%	13.29%	21.03%	10.84%	14.87%	24.52%
US Equity	5.50%	1.37%	0.31%	-2.71%	5.03%	-5.16%	-1.13%	8.52%
AUS Bonds	-0.23%	-4.36%	-5.41%	-8.44%	-0.70%	-10.89%	-6.85%	2.79%
AUS Prop.	15.69%	11.56%	10.51%	7.48%	15.22%	5.03%	9.07%	18.71%
AUS Equity	14.51%	10.38%	9.33%	6.30%	14.04%	3.85%	7.89%	17.53%
CAN Bonds	7.44%	3.31%	2.25%	-0.77%	6.97%	-3.22%	0.81%	10.46%
CAN Prop.	16.35%	12.22%	11.17%	8.14%	15.88%	5.69%	9.72%	19.37%
CAN Equity	13.01%	8.88%	7.83%	4.80%	12.54%	2.35%	6.39%	16.03%
Euro Bonds	8.21%	4.08%	3.02%	0.00%	7.74%	-2.45%	1.58%	11.23%
Euro Prop.	27.97%	23.83%	22.78%	19.76%	27.50%	17.30%	21.34%	30.98%
Euro Equity	19.21%	15.08%	14.03%	11.00%	18.74%	8.55%	12.59%	22.23%
Japan Bonds	0.62%	-3.51%	-4.57%	-7.59%	0.15%	-10.04%	-6.01%	3.64%
Japan Prop.	6.73%	2.60%	1.54%	-1.48%	6.26%	-3.93%	0.10%	9.75%
Japan Equity	1.41%	-2.73%	-3.78%	-6.80%	0.93%	-9.26%	-5.22%	4.42%
UK Bonds	11.39%	7.26%	6.20%	3.18%	10.92%	0.73%	4.76%	14.41%
UK Prop.	33.05%	28.92%	27.86%	24.84%	32.58%	22.39%	26.42%	36.07%
UK Equity	18.78%	14.65%	13.60%	10.57%	18.31%	8.12%	12.16%	21.80%
World Bonds	3.55%	-0.58%	-1.64%	-4.66%	3.08%	-7.11%	-3.08%	6.57%
World Prop.	20.37%	16.24%	15.18%	12.16%	19.90%	9.71%	13.74%	23.39%
World Equity	9.55%	5.42%	4.36%	1.34%	9.08%	-1.11%	2.92%	12.57%
Commodities	1.10%	-3.03%	-4.09%	-7.11%	0.63%	-9.56%	-5.53%	4.12%
Timber	0.41%	-3.73%	-4.78%	-7.80%	-0.07%	-10.26%	-6.22%	3.42%
EqMktNeutral	4.70%	0.57%	-0.49%	-3.51%	4.23%	-5.97%	-1.93%	7.72%
Volatility	1.99%	-2.14%	-3.20%	-6.22%	1.52%	-8.68%	-4.64%	5.01%
Currency								
AUD	4.13%	0.00%	-1.05%	-4.08%	3.66%	-6.53%	-2.50%	7.15%
CAD	5.19%	1.05%	0.00%	-3.02%	4.71%	-5.48%	-1.44%	8.20%
EUR	8.21%	4.08%	3.02%	0.00%	7.74%	-2.46%	1.58%	11.23%
JPY	0.47%	-3.66%	-4.71%	-7.74%	0.00%	-10.19%	-6.16%	3.49%
GBP	10.66%	6.53%	5.48%	2.46%	10.19%	0.00%	4.04%	13.68%
USD	0.00%	-4.13%	-5.19%	-8.21%	-0.47%	-10.66%	-6.63%	3.02%
CHF	6.63%	2.50%	1.44%	-1.58%	6.16%	-4.04%	0.00%	9.65%
INR	-3.02%	-7.15%	-8.20%	-11.23%	-3.49%	-13.68%	-9.65%	0.00%

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Asset Class Valuation Update

Our market valuation analyses are based on the assumption that markets are not perfectly efficient and always in equilibrium. This means that it is possible for the supply of future returns a market is expected to provide to be higher or lower than the returns investors logically demand. In the case of an equity market, we define the future supply of returns to be equal to the current dividend yield plus the rate at which dividends are expected to grow in the future. We define the return investors demand as the current yield on real return government bonds plus an equity market risk premium. As described in our May, 2005 issue, people can and do disagree about the "right" values for these variables. Recognizing this, we present four valuation scenarios for an equity market, based on different values for three key variables. First, we use both the current dividend yield and the dividend yield adjusted upward by .50% to reflect share repurchases. Second, we define future dividend growth to be equal to the long-term rate of total (multifactor) productivity growth, 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	63%	96%
Low Supplied Return	97%	136%

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Canada	Low Demanded Return	High Demanded Return
High Supplied Return	70%	119%
Low Supplied Return	125%	185%

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Eurozone	Low Demanded Return	High Demanded Return
High Supplied Return	66%	111%
Low Supplied Return	114%	167%

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Japan	Low Demanded Return	High Demanded Return
High Supplied Return	93%	191%
Low Supplied Return	240%	388%

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United Kingdom	Low Demanded Return	High Demanded Return
High Supplied Return	47%	88%
Low Supplied Return	87%	135%

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United States	Low Demanded Return	High Demanded Return
High Supplied Return	117%	181%
Low Supplied Return	206%	288%

Switzerland	Low Demanded Return	High Demanded Return
High Supplied Return	84%	152%
Low Supplied Return	169%	240%

India	Low Demanded Return	High Demanded Return
High Supplied Return	137%	215%
Low Supplied Return	261%	368%

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

	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	2.28%	2.96%	5.24%	5.68%	0.44%	-4.10%
Canada	1.61%	2.40%	4.01%	4.10%	0.09%	-0.89%
Eurozone	1.72%	2.37%	4.09%	3.75%	-0.34%	3.35%
Japan	0.92%	0.77%	1.69%	1.63%	-0.06%	0.61%
UK	1.22%	3.17%	4.39%	4.51%	0.12%	-1.15%
USA	2.24%	2.93%	5.17%	4.74%	-0.43%	4.21%
Switz.	1.37%	2.03%	3.40%	2.47%	-0.93%	9.46%
India	3.14%	7.57%	10.71%	8.14%	-2.57%	26.47%

*Derived from ten year yield and forecast inflation

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

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

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

Real Rate Analysis	AUD	CAD	EUR	JPY	GBP	USD
Risk Aversion Factor	4.0	5.0	5.0	6.0	6.0	4.0
Time Discount Rate	2.00%	1.50%	1.50%	1.00%	1.00%	2.00%
MFP Growth	1.60%	1.20%	1.40%	0.60%	1.40%	1.40%
Theoretical Real Rate	2.40%	1.74%	1.78%	1.10%	1.23%	2.35%
Real Rate on 31Aug06	2.28%	1.61%	1.72%	0.92%	1.22%	2.24%

Our analysis also uses historical inflation as an estimate of expected future inflation. This may not produce an accurate valuation estimate, if the historical average level of inflation is not a good predictor of average future inflation levels. For example, if expected future inflation is lower than historical inflation, required returns will be lower. Also, if one were to assume a very different scenario, involving a prolonged recession, accompanied by deflation, then one could argue that government bond markets are actually undervalued today.

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Let us now turn to the subject of the valuation of non-government bonds. Some have suggested that it is useful to decompose the bond yield spread into two parts. The first is the difference between the yield on AAA rated bonds and the yield on the ten year Treasury bond. Because default risk on AAA rated companies is very low, this spread may primarily reflect prevailing liquidity and jump (regime shift) risk conditions. The second is the difference between BBB and AAA rated bonds, which may tell us more about the level of compensation required by investors for bearing default risk. For example, between August and October, 1998 (around the time of the Russian debt default and Long Term Capital Management crises), the AAA-Treasury spread jumped from 1.18% to 1.84%, while the BBB-AAA spread increased by much less, from .62% to .81%.

The following table shows the average level of these spreads between January, 1970 and December, 2005 (based on monthly Federal Reserve data), along with their standard deviations and 67% (average plus or minus one standard deviation) and 95% (average plus or minus two standard deviations) confidence range.

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

At 31 August, 2006 the AAA minus 10 year Treasury spread was 1.06%. This was above the long-term average compensation for bearing liquidity and jump risk (assuming our model is correct).

At the end of the month, the BBB minus AAA spread was .93%, basically unchanged since the end of May. This was below the long-term average compensation for bearing default risk. The stability of this spread in the face of other developments (e.g., rising concern over the future strength of the global economy) lead us to conclude that it is more likely that corporate bonds today are overvalued than undervalued.

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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 AUD	**To CAD**	**To EUR**	**To JPY**	**To GBP**	**To USD**	**To CHF**	**To INR**
From								
AUD	0.00%	-1.58%	-1.93%	-4.05%	-1.17%	-0.94%	-3.21%	2.46%
CAD	1.58%	0.00%	-0.35%	-2.47%	0.41%	0.64%	-1.63%	4.04%
EUR	1.93%	0.35%	0.00%	-2.12%	0.76%	0.99%	-1.28%	4.39%
JPY	4.05%	2.47%	2.12%	0.00%	2.88%	3.11%	0.84%	6.51%
GBP	1.17%	-0.41%	-0.76%	-2.88%	0.00%	0.23%	-2.04%	3.63%
USD	0.94%	-0.64%	-0.99%	-3.11%	-0.23%	0.00%	-2.27%	3.40%
CHF	3.21%	1.63%	1.28%	-0.84%	2.04%	2.27%	0.00%	5.67%
INR	-2.46%	-4.04%	-4.39%	-6.51%	-3.63%	-3.40%	-5.67%	0.00%

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

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Country	Real Bond Yield	Plus Commercial Property Risk Premium	Less Dividend Yield on Commercial Property Securities	Equals Expected Rate of Future Real Dividend Growth
Australia	2.28%	2.50%	6.3%	-1.5%
Canada	1.61%	2.50%	4.6%	-0.5%
Eurozone	1.72%	2.50%	2.7%	1.5%
Japan	0.92%	2.50%	1.3%	2.1%
Switzerland	1.37%	2.50%	1.5%	2.4%
United Kingdom	1.22%	2.50%	2.2%	1.5%
United States	2.24%	2.50%	4.0%	0.7%

A very rough way to test the reasonableness of these expected growth assumptions is to compare them to the expected real annual change in commercial rental income over the next five years. If you think the real growth estimates are too high, that implies overvaluation. On the other hand, if you think they are too low, that implies undervaluation. Since we expect a significant slowdown in the global economy over the next few years, we are inclined to view most of these implied real growth assumptions as too optimistic.

Our commodities asset class valuation analysis is focused on two drivers of near term returns: the "roll yield" (sale of futures contracts at close to the spot price as they mature, and reinvestment of the proceeds in a new, longer-dated contract) and unexpected changes in the spot price. With respect to the roll yield, the DJ AIG commodities index futures contract traded on the Chicago Board Options Exchange (CBOT) is currently contangoed, with a (3.6%) difference between the near and far term contract prices. With respect to the spot price, over the 1991 to 2005 period, the DJ AIG had an average value of 107.6, with a standard deviation of 21.9. The August 31 closing price of 170.88 was 2.9 standard deviations above the average. In light of history, the probability of a decline in the spot price seems much higher than the probability of a spot price increase. Hence, we conclude that the balance of evidence suggests that commodities are overvalued today.

Our approach to assessing the current value of volatility (as measured by the VIX index) is similar to our approach to commodities. Between January 2, 1990 and December

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30, 2005, the average value of the VIX was 19.45, with a standard deviation of 6.40. The one standard deviation (67% confidence interval) range was 13.05 to 28.85, and the two standard deviations (95%) range was from 6.65 to 32.25. On August 31, 2006, the VIX closed at 12.31. As you can see, this is more than one standard deviation below its long-term average value, and seems low in light of conditions in the economy and financial markets. Hence, we conclude that volatility is probably undervalued today.

Sector and Style Rotation Watch

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

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

We publish this table to make an important point: there is nothing unique about the various rotation strategies we describe, which are widely known by many investors. Rather, whatever active management returns (also known as "alpha") they are able to generate is directly related to how accurately (and consistently) one can forecast the turning points in the economic cycle. Regularly getting this right is beyond the skills of most investors. In other

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words, most of us are better off just getting our asset allocations right, and implementing them via index funds rather than trying to earn extra returns by accurately forecasting the ups and downs of different sub-segments of the U.S. equity and debt markets. That being said, the highest rolling three month returns in the table give a rough indication of how investors expect the economy and interest rates to perform in the near future. *The highest returns in a given row indicate that most investors are anticipating the economic and interest rate conditions noted at the top of the next column* (e.g., if long maturity bonds have the highest year to date returns, a plurality of bond investor opinion expects rates to fall in the near future). Comparing returns across strategies provides a rough indication of the extent of agreement (or disagreement) investors about the most likely upcoming changes in the state of the economy.

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

Rolling 3 Month Returns Through August, 2006

Economy	Bottoming	Strengthening	Peaking	Weakening
Interest Rates	Falling	Bottom	Rising	Peak
Style and Size Rotation	Small Growth (DSG) **-2.16%**	Small Value (DSV) **1.80%**	Large Value (ELV) **5.31%**	Large Growth (ELG) **0.76%**
Sector Rotation	Cyclicals (IYC) **-1.79%** Technology (IYW) **3.01%**	Basic Materials (IYM) **-3.05%** Industrials (IYJ) **-4.43%**	Energy (IYE) **1.85%** Staples (IYK) **5.76%**	Utilities (IDU) **10.23%** Financials (IYF) **3.18%**
Bond Market Rotation	Higher Risk (LQD) **3.59%**	Short Maturity (SHY) **1.65%**	Low Risk (TIP) **3.59%**	Long Maturity (TLT) **6.47%**

The next table describes the typical cycles in the markets for commercial property and commodities. However, rather than being leading indicators of future economic conditions, commercial property and commodity market returns tend to coincide with current economic and interest rate conditions (i.e., those at the top of the same column, rather than the next one

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to the right). When many investors share the same expectations about future economic conditions, one would expect to see alignment between bond and equity market year-to-date returns, and conditions in commodity and commercial property markets. However, we also note that this is when markets are must fragile; large moves can occur if something happens to change these closely aligned expectations. In contrast, when investors do not share the same expectations for the future, you would expect to see misalignment between year-to-date returns in bond, equity, commodity and commercial property markets.

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

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

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

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Uncertainty, Information and Active Management

"What makes active investment management so damn difficult?" While I heard that question at a party back in June, it has stuck with me all summer. One version of the answer to this question is that active investing is difficult because, like poker, it involves a mix of decision and game theory, but in a much more complex environment. To translate that into English, decision theory involves choosing between alternatives whose future payoffs depend on the probabilities that two or more different scenarios will develop. Game theory is about deciding how to behave in a competitive game, given the probabilities that other players will pursue different courses of action. Complexity refers to the fact that multiple relationships are involved, in which causes can be widely separated from effects, which themselves are often highly nonlinear. To put this in more practical terms, my decision to invest in shares of company X because I believe them to be undervalued reflects my forecast of its future risk, profitability, and growth rate (relative to its competitors, and relative to the overall market average), my forecast of how equities will perform relative to other asset classes, and my forecast of how other investors are likely to behave. But that is the long version. The short answer to the question of why active management is so difficult comes down to one word: uncertainty.

Perhaps the most fundamental assumption in investment management is that return represents compensation for bearing risk. However, there is a growing body of research that suggests that, at the very least, this isn't the whole story. The essence of this argument lies in the distinction between risk and uncertainty. The former represents a situation where the process (i.e., model) generating future outcomes is sufficiently well understood that probabilities can be given to different scenarios. For example, asset allocation models use statistical distributions (e.g., mean, standard deviation, correlation) to describe the probability that different future returns will occur. In contrast, uncertainty refers to outcomes whose probabilities we either do not know, or cannot forecast with any confidence (because of our poor understanding of the underlying process or model).

Rather than simply reflecting compensation for bearing risk, a growing number of researchers are concluding that returns also, and perhaps more importantly, reflect compensation for bearing uncertainty. This was the key conclusion of a recent paper by

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Anderson, Ghysels and Juergens. In "The Impact of Risk and Uncertainty on Expected Returns", the authors quantify uncertainty using the extent of disagreement between professional forecasters (a methodology that has been used with mixed success, as described in "The Relationship Between Expected Inflation, Disagreement and Uncertainty" by Rich and Tracy of the Federal Reserve Bank of New York). They note that "disagreement among forecasters is an indication of uncertainty regardless of whether it arises from [their] having different models, different information, or different beliefs (priors)." They further assume that investors choose not to simply combine these forecasts, "perhaps because they are not sure which [weights] should be used" (for a contrasting view that supports forecast combinations, see "Stock Return Predictability and Model Uncertainty" by Doron Avramov). Using this approach, Andersen, Ghysels and Juergens' analysis finds that "assets [whose returns] are correlated with [changes in] uncertainty carry a substantial [return] premium." They also find a relatively weak relationship between volatility (standard deviation or risk) and uncertainty, further confirming that these are significantly different factors. (For more discussion on risk versus uncertainty, see also, "A Simple Theory of Asset Pricing under Model Uncertainty" by Kogan and Wang, "An Equilibrium Model of Rare Event Premia" by Liu, Pan and Wang, and "Rare Disasters and Asset Markets in the Twentieth Century" by Robert Barro).

From another, but equally important perspective, Routledge and Zin (in "Model Uncertainty and Liquidity") find that increases in uncertainty result in falls in liquidity. They make the logical point that this is because market makers rely on models to control their risk exposures, and when confidence in these models falls, so too does their willingness to take risk and provide liquidity.

Finally, another set of papers finds that investors who take assets' differing uncertainty into account often hold different portfolios than those who only consider return and risk. Specifically, they tend to hold relatively smaller amounts of equity relative to other asset classes whose return generating processes are less uncertain (on this point, see Uppal and Wang, "Model Misspecification and Underdiversification" and "Asset Allocation Under Distribution Uncertainty" by Marcin Kacperczyk).

On balance, we believe these papers make a great deal of sense: when uncertainty increases and required returns rise, in part because of investors shifting out of riskier assets

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and in part because of falling liquidity. Yet at the same time, these conditions should also increase the number of profit opportunities for informed investors, who face less than the average amount of uncertainty.

This is the focus of a very good paper by Bardong, Bartram, and Yadav. In "Informed Trading, Information Asymmetry and Pricing of Information Risk", they analyze trading in 2000 New York Stock Exchange stocks over the 1997 to 2001 period. Their focus is on "the level of information asymmetry between informed investors with private information and uninformed investors" who lack it. They note that "we know surprisingly little about the informed trading that actually exists in the market; in particular, the extent of commonality in informed trading across stocks, or how informed trading varies with stock and market characteristics." They note that "information asymmetry can arise not just from hard 'inside' information, but also because of the existence of skilled information processors who generate 'private' information out of publicly available firm-specific and market-wide information." Given the influence of market-wide factors, the structural characteristics of a firm, and the way its stock typically trades, the authors calculate an expected 'normal' level of informed trading for each firm in their sample. They refer to occasions when informed trading exceeds the normal (predicted) level as evidence of "residual [unexplained] asymmetric information" or "RAIN" for short. The authors find that about 17% of the normal level of informed trading in the average stock in their sample can be explained by market wide factors, 50% by factors related to the structural characteristics of a firm, and 33% by the way its stock trades.

Regarding market wide factors, increases in the level of informed trading is associated with higher levels of volatility (as measured by the VIX index). Regarding firm structure, a high level of insider ownership is associated with higher levels of informed trading, as is smaller size. In terms of stock-specific trading, higher stock specific volatility, bid/ask spreads, order book imbalances and volumes are associated with more informed trading, especially for smaller stocks. However, the level of informed trading in a stock falls sharply if options are traded on its shares. The authors believe that because of lower options trading costs, informed trading tends to take place there rather than in the relatively more expensive stock market. Finally, the authors find that RAIN, in essence, the extent of uncertainty about information asymmetry associated with a stock (i.e., the inability to distinguish between random trades and trades driven by informed investors), is priced in its required rate of return.

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Two other recent papers attempt to capture the extent to which active managers make effective use of information to reduce their uncertainty and generate alpha. In "Fund Manager Use of Public Information: New Evidence on Managerial Skills", Kacperczyk and Seru argue "that to the extent that the value of a sophisticated investor derives from the private information he brings to the investment process, the crucial step in identifying his skill is to determine how much he relies on publicly available information." They measure this "by examining the sensitivity of [mutual fund portfolios] to changes in information in the public domain" (in this case, announced changes in analysts' forecasts for different stocks). They find that lower fund returns are associated with higher sensitivity to public information. Presumably, funds with higher returns are less sensitive because their managers have better private information. In addition, funds that display lower reliance on public information also receive higher inflows of new funds. Finally, the authors find that funds with a high reliance on public information take on more risk. They note that "this finding is consistent with the notion that managers with lower skills take on excessive risk to improve their investment record."

The second paper takes a different approach, but also provides some interesting insights. In "How Active is Your Fund Manager?", Cremers and Petajisto introduce a new metric they call "Active Share." It describes the extent to which a fund's holdings differ from those of its benchmark index. They combine Active Share with fund tracking error (the standard deviation of the difference between a fund's performance and that of its benchmark – i.e., its alphas) to classify funds in a two by two matrix. For example, consider a classic "stock picker" sector fund. It would have the same sector weights as the sector index, but a very different mix of stocks. This might result in a high Active Share and low Tracking Error. In contrast, consider a sector rotator, which shifted holdings between different sector index funds. Its Active Share might be quite low, while its Tracking Error might be quite high. To complete the matrix, a fund that makes both sector and stock selection bets would be high on both measures, while a "closet indexer" would be low on both.

When it comes to performance, the authors find that higher active share is positively related to returns, while tracking error is not. In so far as active share reflects superior private information, while tracking error alone reflects more of a dependence on public information, this study's findings line up well with those of Kacperczyk and Seru, as well as with our

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overall view of uncertainty and information. Cremers and Petajisto make a similar point when they conclude "economically, these results suggest that the most active stock pickers have enough skill to generate alphas that remain positive even after fees and transaction costs. In contrast, funds focusing on factor bets [that generate high Tracking Error but low Active Share] seem to have zero to negative skill, which leads to particularly bad performance after fees…It appears that there are some mispricings in individual stocks that the active managers can exploit, but broader factor portfolios are either too efficiently priced to allow any alphas or too difficult for the managers to predict." The authors also find that, among high Active Share funds, performance tends to decline as the fund grows in size (interestingly, the same conclusion is reached about institutional money managers in "Performance Persistence in Institutional Investment Management" by Busse, Goyal and Wahal).

If the Cremers and Petajisto study has a limitation, it is in the benchmark indexes it used, which include the Barra/S&P Growth and Value Indexes, which use only one criteria (book to market ratio) to classify stocks, and which include all stocks in either the growth or value index. The use of more sophisticated indexes (e.g., like those from Dow Jones/Wilshire, MSCI or Russell, which use multiple factors to classify stocks as growth or value, and which, in some cases, do not include all stocks in these categories) might have produced a benchmark that more closely matched the universe of stocks from which active managers in practice made their picks. On balance, this probably would have reduced the alphas reported by the authors, but not changed their basic conclusions.

Increasingly, this "benchmark uncertainty" issue is being more widely recognized by academics. An excellent recent paper on this subject is "Benchmarking Money Manager Performance: Issues and Evidence" by Chan, Dimmock, and Lakonishok. They show how the choice of benchmark can radically change an investor's evaluation of an active manager's performance. Moreover, ignorance or mismanagement of this uncertainty can impose significant costs on investors. For example, in "The Selection and Termination of Investment Management Firms by Plan Sponsors," Goyal and Wahal find that "plan sponsors hire investment managers after large positive excess returns [alphas] … However, this return chasing behavior does not deliver positive excess returns thereafter. Post-hiring excess returns are indistinguishable from zero. Moreover, the excess returns of fired managers are frequently positive." And to this performance difference one also needs to add the not

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inconsiderable transition costs associated with moving from one manager to another. In sum, when it comes to identifying truly skilled active managers, investors will always confront an irreducible level of uncertainty, and cannot avoid the need to make fallible human judgments.

Value Premium, R.I.P.?

Among most of the world's informed investors, it has been, for quite some time, an article of faith that "value" stocks outperform "growth" stocks. To be sure, there has been extensive disagreement over just how to define "value stocks", and whether the relatively higher return on them represents additional compensation for bearing higher risk (or uncertainty), or is caused by a combination of investor irrationality and barriers to arbitrage (in which case, it represents a free lunch). However, until recently, nobody has questioned the value premium's basic existence. That has now changed, and in a quite convincing manner.

"Asset Pricing" is the term used by academic researchers to describe what many investors call "return forecasting" (obviously, since changes in prices generate returns, the two terms are synonymous). The starting point for our story is a series of recent papers by academic heavyweights that have questioned the underlying rigor (and hence accuracy) of the statistical tests that have been used to establish the value and size premiums' existence. These papers include "Testing Factor Model Explanations of Market Anomalies" by Daniel and Titman, "A Skeptical Appraisal of Asset Pricing Tests" by Lewellen, Nagel and Shanken, and "Investor Psychology and Tests of Factor Pricing Models" by Daniel, Hirshleifer and Subrahmanyam.

It was in this context that Ludovic Phalippou of the University of Amsterdam published "Can Recent Risk-Based Theories Explain the Value Premium?" He began with the observation that a large number of different risk-based asset pricing models all claimed to "explain" the value premium. He then asked, "how is it possible that so many unrelated models offer a valid explanation to one phenomenon?" His hypotheses, like the one used in other papers, was that "the statistical tests employed in these studies lacked power" to discriminate between accurate and inaccurate pricing models. His innovation was to propose a more powerful approach, and to test it in a new way. Rather than dividing a universe of stocks into smaller groups based on their size (market capitalization) and book to market

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ratios, he used the percentage of institutional ownership and book to market. He found that when presented with these portfolios, all the major rational/risk-based asset pricing models that claim to explain the value premium were rejected.

This strongly supported the findings in 2005 papers by Stefan Nagel ("Short Sales, Institutional Investors, and the Cross-Section of Stock Returns") and Phalippou ("Institutional Ownership and the Value Premium") that what value premium exists is concentrated in a small percentage of stocks that are primarily owned by individual, rather than institutional investors. The latter found that the value premium was statistically significant only in stocks that represented 7% of market capitalization, and decreased significantly as institutional ownership rose. Phalippou concluded that "low institutional ownership stocks are more likely to be priced by an unsophisticated marginal investor", hence, "the value premium is more likely to arise from mispricing by individual investors than it is from compensation for risk." And Nagel noted, "prices of stocks with low institutional ownership underreact to bad cash flow news and overreact to good cash flow news, consistent with the idea that short-sale constraints hold negative opinions off the market for these stocks."

More recently, Tao Shu of the University of Texas has published a paper that further strengthens these conclusions. He begins with the key insight that it is not the compostion of a stock's owners that determines its price, but the composition of the investors who are actually trading a stock. However, in line with the Nagel and Phalippou studies, Shu finds that "the costs of information acquisition play an important role in the determination of trader composition…Stocks with lower fractions of institutional trading volumes [where information acquisition is most costly] underperform stocks with higher fractions of institutional volumes…Moreover, stock market anomalies, such as return momentum…and the value premium are much stronger in stocks with lower fractions of institutional volumes." He concludes "the finding that the value premium is significantly larger in stocks whose trades are dominated by individual investors is consistent with the assumption that the value premium is associated with mispricing rather than risk, and that such mispricing is related to the trading of individual investors."

That individual investors are subject to a range of biases and other cognitive shortcomings that can lead to asset mispricing has been documented in multiple papers and books (see, for example, (Beyond Greed and Fear: Understanding Behavioral Finance and the

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Psychology of Investing by Hersh Shefrin). Two very recent papers provide further evidence of this sad fact. In "Advertising and Portfolio Choice", Henrik Cronqvist of Ohio State University examines the extent to which advertising by mutual fund companies ($6 billion in the U.S. alone) affects investors' decisions. He finds that fund advertising "steers people into portfolios with lower expected returns (because of higher fees) and higher risk." In "Spam Works: Evidence from Stock Touts and Corresponding Market Activity", Frieder and Zittrain show how boosting penny stocks by sending out spam emails seems to be a depressingly profitable business for those originating these schemes, with the investors who fall for them paying the price. In addition, there is ample evidence competition does not quickly eliminate less-than-perfectly rational investors from financial markets (see "Natural Selection and Financial Markets" by Hongjun Yan of London Business School).

However, the existence of these investors does not automatically mean that they will have an impact on asset prices. Historically, barriers to arbitrage has been the necessary second part of the behavioral explanation for the value premium's existence. Many papers have attempted to identify these barriers. The most common explanation has been the high levels of idiosyncratic (stock-specific) risk associated with high book to market stocks. This is risk that cannot be hedged by selling short a market or sector index; hence, it represents a real potential cost for arbitrageurs who are betting that mispricing will soon be corrected. In some cases, this cost becomes too great for arbitrageurs to pay, and mispricing (and hence the value premium) persists (see, for example, "Arbitrage Risk and the Book-to-Market Anomaly by Ali, Hwang, and Trombley, "Costly Arbitrage and the Myth of Idiosyncratic Risk" by Jeffrey Pontiff, and "Costly Arbitrage and Idiosyncratic Risk" by Duan, Hu, and McLean).

This naturally leads to the question of whether, in the face of substantial financial market innovations (e.g., the rise of aggressive hedge funds, and the development of wider and deeper derivative markets for managing risk), arbitrage activity has increased in recent years. Two recent papers find that the barriers to arbitrage have indeed broken down, and that as a result, the value premium is disappearing. The first paper is "Do Investors Capture the Value Premium?" by Houge and Loughran. They find that over a long period, there is virtually no difference between average annual returns on small cap growth and small cap value mutual funds. The second is by Phallipou, In "Arbitrageurs and a Declining Value Premium," he finds that the value premium significantly decreased between 1963 and 2004,

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most likely because of an increase in arbitrage activity, particularly in those stocks with relatively lower idiosyncratic volatility. Most important, since 1984, the average value premium has not been statistically different from zero. Phalippou concludes that, on average, "the choice between value and growth funds did not matter much in the past, and should matter even less in the future."

And so it seems that, like the small cap premium before it, widespread recognition of the value premium's existence has led to its elimination, except in those cases where the potential cost of arbitraging it away is higher than the expected gain. That this has occurred should not come as a surprise – it is exactly what one would expect in a fiercely competitive market. Nor does it imply that there are no other sources of alpha still available to skilled active managers. Indeed, the rapid growth of complex quantitative alpha strategies, and the continued success of skilled fundamental stock pickers suggest that markets are still sufficiently inefficient to enable some skilled managers to succeed. As always, the truly daunting challenges lie in identifying these uniquely talented people and teams, and, perhaps even more difficult, having the courage to stick with them through the ups and downs that all successful strategies inevitably experience.

Product and Strategy Notes

New Commodity ETFs

ETF Securities has announced that it will launch 29 (yes, 29) new commodity ETFs in London. Nineteen of these will track individual commodities, while ten will track sub-groups of the DowJones AIG Commodities Index. In general, we are very unenthusiastic about investing in individual commodities (though we can see the merits of hedging your winter heating bill with natural gas options). That being said, we acknowledge that some will disagree with us on this point (see, for example, "Striking Oil: Another Puzzle?" by Driesprong, Jacobsen and Maat). On the positive side, the new products will allow an investor to evenly balance his or her exposure to agricultural, metals, and energy commodities, which should maximize the long term diversification return earned from an investment in commodity futures.

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Why is the Distribution in Retirement Wealth So Wide?

One of the most glaring facts about the United States (and, increasingly, other Anglo-Saxon countries as well) is the growing disparity between income levels, and, especially, wealth. With more people responsible for financing a significant portion of their post-retirement income, the challenge of understanding the causes of wealth disparities has become much more urgent. Three recent papers provide important insights into this issue. "Wealth Inequality: Data and Models" by Cagetti and DeNardi provides a basic overview of the size of the problem, and the various hypotheses that have been offered to explain it. They highlight how, at all levels of lifetime income, households end up with significant differences in wealth at retirement.

Two other papers provide more detail on mechanisms that are believed to be critical to this result. The first is "Entrepreneurship, Frictions and Wealth" by Cagetee and DeNardi. They find that not only is entrepreneurial activity a key driver of diverging wealth outcomes, but also that "voluntary bequests [friends and family funding, for you entrepreneurs out there] are an important channel that allows some high-ability workers to establish or enlarge entrepreneurial businesses." Absent this source of funding, there would be an even worse distribution of retirement wealth. The second paper, "Accounting for the Heterogeneity in Retirement Wealth" by Fang Yang notes that "households with similar characteristics, such as lifetime income, age, and family structure, hold very different amounts of wealth at retirement." This is contrary to the predictions of simple life-cycle income models. In Yang's model, "households save to self-insure against labor earning shocks and lifespan risk, and possibly to leave bequests [both intentional and unintended] to their children." In addition, through a variety of means (e.g., parenting and schooling quality), parents are able to pass along to their children part of their relative earning capacity. These conditions give rise to different dynamics. For households with lower lifetime incomes, differences in the timing of labor income shocks and funding constraints that limit entrepreneurial activity drive the disparity in retirement wealth. For households with higher lifetime incomes, differences in the

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size and timing of bequests also have a large impact.

Jackson Hole and Globalization

Every year, the Federal Reserve Bank of Kansas City hosts its Economic Symposium at Jackson Hole, Wyoming. It is, in many ways, the premier conference for Central Bankers and macroeconomists. This year's focus was on an issue that has gradually been gaining more traction in the OECD economies: the costs and benefits of globalization, and how to better manage the dislocations is causes. The focal issue underlying this rising concern seems to be the observation that in many cases significant increases in productivity over the past few years have not translated into rising real wages, as they have in the past. As a result, distributions of income and wealth have continued to widen, putting more pressure on politicians and political institutions. The speeches and papers presented at the Symposium are quite interesting (they are available at http://www.kc.frb.org/PUBLICAT/SYMPOS/2006/sym06prg.htm) .

However, after reading through them (and one other, "Comparative Advantage and Heterogenous Firms" by Bernard, Redding and Schott which is also excellent), we kept coming back to a recent story about TACO, a pump and valve manufacturer located in Rhode Island, USA. Over the past ten years, this small state has lost a lot of manufacturers, as production moved to Asia. But TACO stayed, and has succeeded in the face of strong international competition. Over the past ten years, its sales have risen from about $50 million to about $170 million, in a market that has seen sharp declines in unit pricing. How did it manage this feat? TACO's story contains many of the elements so easily cited by politicians, but so hard for CEOs to actually implement. TACO invested heavily in worker training and team building, provided more and higher quality capital per worker, reorganized to get the most from these investments, and relentlessly focused on building strong customer relationships. But on a net basis, it neither added nor fired workers. Most of its dramatic labor productivity gains went to lower prices, and what was left more often went into increasing benefit (health care) costs, rather than higher real wages. Most of the company's profits were reinvested in capital equipment, and not paid out as dividends. And that is what a successful manufacturer looks like. Many others went out of business, or moved their

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operations offshore. But what happened to their workers?

Those that remained in Rhode Island often ended up in one of two places: working for the government, or in the service industry – in other words, in jobs not threatened by foreign competition. However, in both cases the upside potential for real wage and benefit growth was much lower. Consider a service employer, like a nursing home or retail store. As we have seen, sustainable increases in real wages require some combination of increased (or higher quality) capital per worker, improved worker quality, and/or improved organization, plus an absence of strong price competition. But since both the nursing home and the retail case require some services to be provided face-to-face, there is a limit on how much labor productivity can be increased at these employers. It is almost certain that the limit on output per worker growth (and thus real wages and benefits) in these industries is much lower than the limit at TACO. Moreover, in a world of flat real wages, people are much more sensitive about the prices they pay in retail stores, and the amount they pay in taxes (which funds a substantial portion of nursing home revenue). Indeed, it is only by reducing taxes and prices that flat real wages can generate higher purchasing power, and to some extent maintain social and political peace. Hence, there is also pressure at the nursing home and retail store to use productivity gains to hold down price rises, rather than increasing real wages and/or benefits. While the papers presented at Jackson Hole were insightful, so too are the examples from Rhode Island, and the sense they give that we have yet to see the full effect of the pressure globalization is placing on political systems around the world.

On Money and Meaning

Kets de Vries (from INSEAD) has recently published a provocative paper on money, and our relationship to it. In "Making Sense of 'Fuck-You Money and Beyond" (we kid you not), de Vries succinctly pulls together many points all of us have probably heard over the years, but nonetheless benefit from seeing repeated. As de Vries notes, "it's easy to say that money isn't everything as long as we have enough of it. Unfortunately, though, the typical scenario is that the more money we have, the more we want." He goes on to review "the many different roles money can play in a person's internal world, and the various meanings it can take on." In particular, our experience with money as children can have very powerful and lasting impacts

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throughout our lives. Lacking it during childhood can lead to a lifelong pursuit of money as source of emotional security and control. De Vries also notes that even those people who did not lack money as children can still "flaunt it as adults as a vehicle to deal with other hurts from childhood." However, he also cautions that too often, the result of this singular pursuit of money "is a stunted life. The quest for wealth doesn't make for the kind of security and peace of mind that most people imagine money will bring them."

At the other end of the spectrum, de Vries also notes that growing up with too much money can be equally debilitating for a child, particularly if his or her parents use it as a substitute for love and care, and/or if it prevents them from developing an appreciation for how the rest of the world lives. He notes a paradox: "being rich is having money, while being wealthy is having time…Lost money can be replaced; lost time is lost forever." De Vries reminds us that "our true wealth lies in family and friends who care about us, and about whom we care. Having intimate, deep relations is what life is all about." So how to manage the challenges posed by money? In answer to this question, de Vries cites the common wisdom of many of the word's philosophical and religious traditions: "people who want less may be far richer than people who forever want more." Just as important is what we do with money after we've made it: "put it to work, and let it do good in the world. Rich is not the person who has much, but the person who gives much." Read the whole paper – it's worth it.

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2006-2007 Model Portfolios Update

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

We use two benchmarks to measure the performance of our model portfolios. The first is cash, which we define as the yield on a one year government security purchased on the last trading day of the previous year. For 2006, our Australian Dollar cash benchmark is 5.25% (in nominal terms). The second benchmark we use is a portfolio equally allocated between the ten asset classes we use (it does not include equity market neutral). This portfolio assumes that an investor believes it is not possible to forecast the risk or return of any asset class. While we disagree with that assumption, it is an intellectually honest benchmark for our model portfolios' results.

The year-to-date nominal returns for all these model portfolios are shown in the tables on the following pages. Mutual and exchange traded funds that can be used to implement these model portfolios' asset allocations are listed on our website.

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These portfolios seek to maximize the probability of achieving at least the target real return over twenty years, at the lowest possible risk.			
	YTD 31Aug06	Weight	Weighted Return
	In A$		In A$
7% Target Real Return	*YTD Returns are Nominal*		
Asset Classes			
Australian Real Return Bonds	3.2%	0.0%	**0.0%**
Australian Bonds	-4.4%	25.0%	**-1.1%**
Global Bonds	-0.6%	0.0%	**0.0%**
Domestic Commercial Property	11.6%	10.0%	**1.2%**
Foreign Commercial Property	16.6%	0.0%	**0.0%**
Commodities	-3.0%	10.0%	**-0.3%**
Timber	-3.7%	10.0%	**-0.4%**
Australian Equity	10.4%	20.0%	**2.1%**
Foreign Equity (USA)	1.4%	7.5%	**0.1%**
Foreign Equity (EAFE)	10.3%	7.5%	**0.8%**
Emerging Equity	5.4%	10.0%	**0.5%**
Equity Market Neutral	0.6%	0.0%	**0.0%**
		100.0%	**2.9%**

	YTD 31Aug06	Weight	Weighted Return
	In A$		In A$
6% Target Real Return	*YTD Returns are Nominal*		
Asset Classes			
Australian Real Return Bonds	3.2%	0.0%	**0.0%**
Australian Bonds	-4.4%	27.5%	**-1.2%**
Global Bonds	-0.6%	2.5%	**0.0%**
Domestic Commercial Property	11.6%	2.5%	**0.3%**
Foreign Commercial Property	16.6%	0.0%	**0.0%**
Commodities	-3.0%	15.0%	**-0.5%**
Timber	-3.7%	2.5%	**-0.1%**
Australian Equity	10.4%	22.5%	**2.3%**
Foreign Equity (USA)	1.4%	9.0%	**0.1%**
Foreign Equity (EAFE)	10.3%	8.5%	**0.9%**
Emerging Equity	5.4%	10.0%	**0.5%**
Equity Market Neutral	0.6%	0.0%	**0.0%**
		100.0%	**2.4%**

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	YTD 31Aug06	Weight	Weighted Return
	In A$		In A$
5% Target Real Return	*YTD Returns are Nominal*		
Asset Classes			
Australian Real Return Bonds	3.2%	12.5%	**0.4%**
Australian Bonds	-4.4%	15.0%	**-0.7%**
Global Bonds	-0.6%	10.0%	**-0.1%**
Domestic Commercial Property	11.6%	12.5%	**1.4%**
Foreign Commerical Property	16.6%	0.0%	**0.0%**
Commodities	-3.0%	15.0%	**-0.5%**
Timber	-3.7%	5.0%	**-0.2%**
Australian Equity	10.4%	12.5%	**1.3%**
Foreign Equity (USA)	1.4%	5.0%	**0.1%**
Foreign Equity (EAFE)	10.3%	5.0%	**0.5%**
Emerging Equity	5.4%	7.5%	**0.4%**
Equity Market Neutral	0.6%	0.0%	**0.0%**
		100.0%	**2.8%**

	YTD 31Aug06	Weight	Weighted Return
	In A$		In A$
4% Target Real Return	*YTD Returns are Nominal*		
Asset Classes			
Australian Real Return Bonds	3.2%	17.5%	**0.6%**
Australian Bonds	-4.4%	17.5%	**-0.8%**
Global Bonds	-0.6%	7.5%	**0.0%**
Domestic Commercial Property	11.6%	7.5%	**0.9%**
Foreign Commercial Property	16.6%	0.0%	**0.0%**
Commodities	-3.0%	15.0%	**-0.5%**
Timber	-3.7%	2.5%	**-0.1%**
Australian Equity	10.4%	15.0%	**1.6%**
Foreign Equity (USA)	1.4%	6.5%	**0.1%**
Foreign Equity (EAFE)	10.3%	6.0%	**0.6%**
Emerging Equity	5.4%	5.0%	**0.3%**
Equity Market Neutral	0.6%	0.0%	**0.0%**
		100.0%	**2.6%**

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	YTD 31Aug06	Weight	Weighted Return
	In A$		In A$
3% Target Real Return	*YTD Returns are Nominal*		
Asset Classes			
Australian Real Return Bonds	3.2%	17.5%	**0.6%**
Australian Bonds	-4.4%	20.0%	**-0.9%**
Global Bonds	-0.6%	10.0%	**-0.1%**
Domestic Commercial Property	11.6%	10.0%	**1.2%**
Foreign Commercial Property	16.6%	0.0%	**0.0%**
Commodities	-3.0%	10.0%	**-0.3%**
Timber	-3.7%	10.0%	**-0.4%**
Australian Equity	10.4%	17.5%	**1.8%**
Foreign Equity (USA)	1.4%	2.5%	**0.0%**
Foreign Equity (EAFE)	10.3%	2.5%	**0.3%**
Emerging Equity	5.4%	0.0%	**0.0%**
Equity Market Neutral	0.6%	0.0%	**0.0%**
		100.0%	**2.2%**

	YTD 31Aug06	Weight	Weighted Return
	In A$		In A$
2% Target Real Return	*YTD Returns are Nominal*		
Asset Classes			
Australian Real Return Bonds	3.2%	45.0%	**1.4%**
Australian Bonds	-4.4%	17.5%	**-0.8%**
Global Bonds	-0.6%	5.0%	**0.0%**
Domestic Commercial Property	11.6%	0.0%	**0.0%**
Foreign Commercial Property	16.6%	0.0%	**0.0%**
Commodities	-3.0%	10.0%	**-0.3%**
Timber	-3.7%	7.5%	**-0.3%**
Australian Equity	10.4%	10.0%	**1.0%**
Foreign Equity (USA)	1.4%	0.0%	**0.0%**
Foreign Equity (EAFE)	10.3%	0.0%	**0.0%**
Emerging Equity	5.4%	5.0%	**0.3%**
Equity Market Neutral	0.6%	0.0%	**0.0%**
		100.0%	**1.4%**

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	YTD 31Aug06	Weight	Weighted Return
	In A$		In A$
Equally Weighted Portfolio	*YTD Returns are Nominal*		
Asset Classes			
Australian Real Return Bonds	3.2%	10.0%	**0.3%**
Australian Bonds	-4.4%	10.0%	**-0.4%**
Global Bonds	-0.6%	10.0%	**-0.1%**
Domestic Commercial Property	11.6%	10.0%	**1.2%**
Foreign Commercial Property	16.6%	10.0%	**1.7%**
Commodities	-3.0%	10.0%	**-0.3%**
Timber	-3.7%	10.0%	**-0.4%**
Australian Equity	10.4%	10.0%	**1.0%**
Foreign Equity (USA)	1.4%	5.0%	**0.1%**
Foreign Equity (EAFE)	10.3%	5.0%	**0.5%**
Emerging Equity	5.4%	10.0%	**0.5%**
Equity Market Neutral	0.6%	0.0%	**0.0%**
Total		100.0%	**4.1%**

These portfolios seek to maximize the probability of achieving at least the target real return over twenty years, at the lowest possible risk.

Unlike the other target return portfolios, these allow investment in uncorrelated alpha (equity market neutral) funds.

	YTD 31Aug06	Weight	Weighted Return
	In A$		In A$
7% Target Real Return	*YTD Returns are Nominal*		
Asset Classes			
Australian Real Return Bonds	3.2%	0.0%	**0.0%**
Australian Bonds	-4.4%	27.5%	**-1.2%**
Global Bonds	-0.6%	0.0%	**0.0%**
DomesticCommercial Property	11.6%	10.0%	**1.2%**
Foreign Commercial Property	16.6%	0.0%	**0.0%**
Commodities	-3.0%	5.0%	**-0.2%**
Timber	-3.7%	10.0%	**-0.4%**
Australian Equity	10.4%	20.0%	**2.1%**
Foreign Equity (USA)	1.4%	9.0%	**0.1%**
Foreign Equity (EAFE)	10.3%	8.5%	**0.9%**
Emerging Equity	5.4%	7.5%	**0.4%**
Equity Market Neutral	0.6%	2.5%	**0.0%**
		100.0%	**2.9%**

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	YTD 31Aug06	Weight	Weighted Returr
	In A$		In A$
6% Target Real Return	*YTD Returns are Nominal*		
Asset Classes			
Australian Real Return Bonds	3.2%	5.0%	**0.2%**
Australian Bonds	-4.4%	22.5%	**-1.0%**
Global Bonds	-0.6%	2.5%	**0.0%**
Domestic Commercial Property	11.6%	7.5%	**0.9%**
Foreign Commercial Property	16.6%	0.0%	**0.0%**
Commodities	-3.0%	12.5%	**-0.4%**
Timber	-3.7%	5.0%	**-0.2%**
Australian Equity	10.4%	22.5%	**2.3%**
Foreign Equity (USA)	1.4%	7.5%	**0.1%**
Foreign Equity (EAFE)	10.3%	7.5%	**0.8%**
Emerging Equity	5.4%	5.0%	**0.3%**
Equity Market Neutral	0.6%	2.5%	**0.0%**
		100.0%	**3.0%**

	YTD 31Aug06	Weight	Weighted Returr
	In A$		In A$
5% Target Real Return	*YTD Returns are Nominal*		
Asset Classes			
Australian Real Return Bonds	3.2%	10.0%	**0.3%**
Australian Bonds	-4.4%	22.5%	**-1.0%**
Global Bonds	-0.6%	7.5%	**0.0%**
Domestic Commercial Property	11.6%	10.0%	**1.2%**
Foreign Commercial Property	16.6%	0.0%	**0.0%**
Commodities	-3.0%	12.5%	**-0.4%**
Timber	-3.7%	5.0%	**-0.2%**
Australian Equity	10.4%	12.5%	**1.3%**
Foreign Equity (USA)	1.4%	6.5%	**0.1%**
Foreign Equity (EAFE)	10.3%	6.0%	**0.6%**
Emerging Equity	5.4%	5.0%	**0.3%**
Equity Market Neutral	0.6%	2.5%	**0.0%**
		100.0%	**2.2%**

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	YTD 31Aug06	Weight	Weighted Returr
	In A$		In A$
4% Target Real Return	*YTD Returns are Nominal*		
Asset Classes			
Australian Real Return Bonds	3.2%	15.0%	**0.5%**
Australian Bonds	-4.4%	17.5%	**-0.8%**
Global Bonds	-0.6%	5.0%	**0.0%**
Domestic Commercial Property	11.6%	7.5%	**0.9%**
Foreign Commercial Property	16.6%	0.0%	**0.0%**
Commodities	-3.0%	12.5%	**-0.4%**
Timber	-3.7%	2.5%	**-0.1%**
Australian Equity	10.4%	17.5%	**1.8%**
Foreign Equity (USA)	1.4%	4.0%	**0.1%**
Foreign Equity (EAFE)	10.3%	3.5%	**0.4%**
Emerging Equity	5.4%	5.0%	**0.3%**
Equity Market Neutral	0.6%	10.0%	**0.1%**
		100.0%	**2.6%**

	YTD 31Aug06	Weight	Weighted Returr
	In A$		In A$
3% Target Real Return	*YTD Returns are Nominal*		
Asset Classes			
Australian Real Return Bonds	3.2%	7.5%	**0.2%**
Australian Bonds	-4.4%	27.5%	**-1.2%**
Global Bonds	-0.6%	12.5%	**-0.1%**
Domestic Commercial Property	11.6%	10.0%	**1.2%**
Foreign Commercial Property	16.6%	0.0%	**0.0%**
Commodities	-3.0%	7.5%	**-0.2%**
Timber	-3.7%	10.0%	**-0.4%**
Australian Equity	10.4%	15.0%	**1.6%**
Foreign Equity (USA)	1.4%	2.5%	**0.0%**
Foreign Equity (EAFE)	10.3%	2.5%	**0.3%**
Emerging Equity	5.4%	0.0%	**0.0%**
Equity Market Neutral	0.6%	5.0%	**0.0%**
		100.0%	**1.4%**

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	YTD 31Aug06	Weight	Weighted Returr
	In A$		In A$
2% Target Real Return	*YTD Returns are Nominal*		
Asset Classes			
Australian Real Return Bonds	3.2%	35.0%	**1.1%**
Australian Bonds	-4.4%	15.0%	**-0.7%**
Global Bonds	-0.6%	7.5%	**0.0%**
Domestic Commercial Property	11.6%	5.0%	**0.6%**
Foreign Commercial Property	16.6%	0.0%	**0.0%**
Commodities	-3.0%	10.0%	**-0.3%**
Timber	-3.7%	7.5%	**-0.3%**
Australian Equity	10.4%	7.5%	**0.8%**
Foreign Equity (USA)	1.4%	0.0%	**0.0%**
Foreign Equity (EAFE)	10.3%	0.0%	**0.0%**
Emerging Equity	5.4%	5.0%	**0.3%**
Equity Market Neutral	0.6%	7.5%	**0.0%**
		100.0%	**1.5%**

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