Retired Investor

Invest Wisely…Get an Impartial Second Opinion.

This Month's Issue: Key Points

This month's letter to the editor is from a subscriber in the U.K. who makes a very important point: retirees' living expenses can actually increase at a faster rate than the national consumer price index. He notes that this can be due to either retirees' consuming a different mix of goods, or living in a region of the country where prices are rising more quickly than the national average. As a result, a retiree facing rising real living expenses may need to choose a more aggressive asset allocation that can generate higher real returns.

Our feature article addresses a problem faced by many investors: whether to invest in index mutual funds from Dimensional Fund Advisers (DFA), even though this can only be done through financial advisers who usually charge a fee equal to one percent of the assets they manage. We compare the historical returns and risks of DFA and comparable Vanguard index mutual funds in different asset classes. In close cases, we perform simulation analysis to assess the impact of higher DFA fees on the probability of achieving a target portfolio withdrawal rate. We conclude that, as is so often the case when all-stars are compared, there is no clear winner when it comes to DFA versus Vanguard. Based on the performance data we have used in our analysis, we prefer the DFA offerings in Domestic Large Cap Value, Commercial Property, Large Cap International Value, International Small Cap, International Small Value, Emerging Markets Value and Emerging Markets Small Cap. We also prefer DFA for Microcap equity, where Vanguard lacks a comparable offering. On the other hand, we prefer Vanguard's products for Domestic Large Cap Equity, Domestic Small Cap and Small Cap Value, Large International, Broad Emerging Markets Equity and Fixed Income. We also prefer Vanguard for real return bonds, where DFA lacks a comparable offering. And we wish one or both of these firms would introduce products in the commodities and unhedged foreign currency bonds asset classes.

Our first product and strategy note looks at recent research into the extent and nature of people's bequest motives – that is, there desire to leave assets behind when they die, rather

than spending them down to zero. The authors of the paper we review find that the probability that a household with children has a bequest motive is 75 percent, while the probability of a bequest motive in households without children is 57 percent. Note that this is not equivalent to the probability of actually leaving a bequest; someone can have a bequest motive, yet be forced to spend down all their resources to pay unexpected health care costs; similarly, someone without a bequest motive can still leave one if they die earlier than expected. The authors also find that, all else being equal, households with a bequest motive spent between $4,000 and $9,000 less per year on consumption than those households without a bequest motive. These are significant amounts, as the average amount spent on consumption each year by the surveyed households was $22,455 between 1995 to 1998, and $19,673 per year between 1998 and 2000.

In another note, we review the source of returns on commodity index investments. Since these indices are based on investments in commodity futures contracts, their returns principally reflect compensation for bearing the risk of short-term price fluctuations. Hence, it is possible to earn a positive return on a commodity index even when the price of the underlying commodity is falling. We note another study by the IMF that finds that commodity price volatility steadily increased between 1862 and 1999, even as real prices declined by an average of one percent per year. The IMF finds that this slight real price decline was completely overwhelmed by the rise in price volatility. Hence the need for futures contracts that insure against this volatility, and the profitability of investing in them. We then relate these points to a discussion about the new gold exchange traded fund (ticker GLD) that was recently launched in the United States (similar products already exist in Australia, South Africa and the U.K.). The price of this ETF is equal to one-tenth the price of a troy ounce of gold. It is also backed by an amount of physical gold equal to ten percent of the notional ounces of gold represented by the market value of the ETF. We do not find the structure of this ETF as attractive as investing in either gold futures or physical gold coins. The former have a more reliable source of returns, while the latter are more useful as a store of value and medium of exchange in case of the "worst case scenario" which is on many people's minds when they invest in gold.

Nevertheless, the new gold ETF has quickly attracted over $1 billion in investment since it was launched in mid-November. The reason for this may have something to do with

our last product and strategy note, which reviews the current status of the economic scenario indicators we described in our September economic update. We conclude that the probability of our recession/deflation scenario developing has increased. Consequently, if we were currently in the process of changing to a new portfolio asset allocation, we would emphasize getting our investments in real return bonds and foreign currency bonds in place before focusing on other asset classes. We would also review our domestic bond investments to ensure that they were in high quality issues.

This Month's Letter to the Editor

We recently received a detailed email from a reader that made an essential point: retirees need to be very careful about the inflation assumption they use to estimate their future expenses. The writer described how, based on his calculations, his expenses were increasing much faster than the broad consumer price index; in other words, they were increasing in real terms. From an asset allocation perspective, this translated into a need for relatively higher real returns on his portfolio, compared to the returns needed if his expenses were merely increasing at the rate of inflation. The email is as follows: "Whereas my net pension increases by only approximately 60% of inflation, my essential expenses have been increasing on average by inflation plus 22% (over the last 9 years). [This leads to] disaster over the long term."

"The monthly inflation report issued by the [UK] Central Statistical Office includes form RPO1 which gives inflation numbers on 'All Items' of expenditure. I monitor this once a year and the latest one I have was published in February for the 12 months ending January 2004. The average inflation rate of all items - non-essential as well as essential - was 2.4% excluding mortgage interest. I have stripped out the non-essential items. The remaining essential items, for which every pensioner must pay, shows an annual inflation rate of 3.0%. So for the essential items the inflation rate is 25% more than the average….

"The situation becomes clearer when we look at the national average increases for some of the essential items in detail. Council tax - up 11.9%. Dwelling insurance up 7.9%. Water up 4.5%. Repairs and maintenance up 6.4%. Gas up 3.7%. Even food at a 2.6% increase is higher than the [overall] average of 2.4% Pensioners in my part of the [country] were even worse off because some our [regional] increases were above the national average.

For example, Council tax was up 15.4%, insurance 10.2%, and gas and electric 6.58%. This resulted in inflation of 3.79% on my own essential items - 58% above the [national consumer price index]."

"Over a period of the next 20 years my forecast shows that (with an inflation rate of 4%) my essential costs which are now 43% of my net pension will end up at 69% of net pension. If anyone is unfortunate enough to be in a pension scheme with nil increase in payment then eventually they will not have enough income to pay their bills."

"You see now why I think it is important for Retired Investor to consider pensioners expenses in greater detail than just applying [the national consumer price index]." We completely agree.

Global Asset Class Returns

YTD 30Nov04	In USD	In AUD	In CAD	In EURO	In JPY	In GBP
Asset Held						
US Bonds	3.30%	0.79%	-6.01%	-2.39%	-1.04%	-3.72%
US Prop.	24.70%	22.19%	15.39%	19.01%	20.36%	17.68%
US Equity	8.60%	6.09%	-0.71%	2.91%	4.26%	1.58%
AUS Bonds	6.18%	3.67%	-3.13%	0.49%	1.84%	-0.84%
AUS Prop.	20.41%	17.90%	11.11%	14.72%	16.08%	13.39%
AUS Equity	24.48%	21.97%	15.17%	18.78%	20.14%	17.45%
CAN Bonds	14.88%	12.37%	5.57%	9.19%	10.54%	7.86%
CAN Prop.	16.21%	13.70%	6.90%	10.51%	11.87%	9.18%
CAN Equity	21.19%	18.68%	11.89%	15.50%	16.86%	14.17%
Euro Bonds	12.47%	9.96%	3.16%	6.78%	8.13%	5.45%
Euro Prop.	39.52%	37.01%	30.21%	33.83%	35.18%	32.50%
Euro Equity	14.91%	12.40%	5.60%	9.21%	10.57%	7.88%
Japan Bonds	5.32%	2.81%	-3.99%	-0.37%	0.98%	-1.70%
Japan Prop.	28.73%	26.22%	19.42%	23.04%	24.39%	21.71%
Japan Equity	6.95%	4.44%	-2.36%	1.26%	2.61%	-0.07%
UK Bonds	13.29%	10.78%	3.98%	7.60%	8.95%	6.27%
UK Prop.	41.66%	39.15%	32.35%	35.96%	37.32%	34.63%
UK Equity	13.99%	11.48%	4.68%	8.30%	9.65%	6.97%
World Bonds	6.30%	3.79%	-3.01%	0.61%	1.96%	-0.72%
World Prop.	30.80%	28.29%	21.49%	25.11%	26.46%	23.78%
World Equity	12.15%	9.64%	2.84%	6.46%	7.81%	5.13%
Commodities	20.50%	17.99%	11.19%	14.81%	16.16%	13.48%
Hedge Funds	2.62%	0.11%	-6.69%	-3.07%	-1.72%	-4.40%
A$	2.51%	0.00%	-6.80%	-3.18%	-1.83%	-4.51%
C$	9.31%	6.80%	0.00%	3.62%	4.97%	2.29%
Euro	5.69%	3.18%	-3.62%	0.00%	1.35%	-1.33%
Yen	4.34%	1.83%	-4.97%	-1.35%	0.00%	-2.68%
UK£	7.02%	4.51%	-2.29%	1.33%	2.68%	0.00%
US$	0.00%	-2.51%	-9.31%	-5.69%	-4.34%	-7.02%

Equity and Bond Market Valuation Update

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

Country	Real Risk Free Rate Plus	Equity Risk Premium Equals	Required Real Return on Equities	Expected Real Growth Rate* plus	Dividend Yield Equals	Expected Real Equity Return**
Australia	2.70%	4.00%	6.70%	4.90%	3.63%	8.53%
Canada	2.19%	4.00%	6.19%	2.10%	1.89%	3.99%
Eurozone	1.67%	4.00%	5.67%	2.50%	2.72%	5.22%
Japan	0.60%	4.00%	4.60%	2.70%	0.99%	3.79%
U.K.	1.71%	4.00%	5.71%	2.50%	3.24%	5.74%
U.S.A.	1.77%	4.00%	5.77%	4.50%	1.70%	6.20%

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

Country	Implied Index Value[1]	Current Index Value	Current to Implied Value Under High Growth Scenario[2]	Current to Implied Value Under Low Growth Scenario
Australia	202.12	100.00	49%	77%
Canada	46.26	100.00	216%	269%
Eurozone	85.89	100.00	116%	172%
Japan	55.06	100.00	182%	283%
U.K.	101.09	100.00	99%	145%
U.S.A.	134.18	100.00	75%	133%

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

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

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

	Current Dividend Yield	**Current Real Bond Yield**	**Implied Future Real Growth Rate, Assuming 4% ERP**	**Implied ERP, Assuming Low Future Growth Scenario**	**Implied ERP, Assuming High Future Growth Scenario**
Australia	3.63%	2.70%	3.07%	4.83%	5.83%
Canada	1.89%	2.19%	4.30%	0.80%	1.80%
Eurozone	2.72%	1.67%	2.95%	2.05%	3.55%
Japan	0.99%	0.60%	3.61%	2.19%	3.19%
United Kingdom	3.24%	1.71%	2.47%	2.54%	4.04%
United States	1.70%	1.77%	4.07%	3.43%	4.43%

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

	Current Real Rate	**Average Inflation Premium (89-03)**	**Required Nominal Return**	**Nominal Return Supplied (10 year Govt)**	**Return Gap**	**Asset Class Over or (Under) Valuation, based on 10 year zero**
Australia	2.70%	2.96%	5.66%	5.23%	-0.43%	4.12%
Canada	2.19%	2.40%	4.59%	4.46%	-0.13%	1.21%
Eurozone	1.67%	2.37%	4.04%	3.79%	-0.25%	2.41%
Japan	0.60%	0.77%	1.37%	1.45%	0.08%	-0.81%
UK	1.71%	3.17%	4.88%	4.59%	-0.29%	2.76%
USA	1.77%	2.93%	4.70%	4.36%	-0.34%	3.28%

It is important to note that this analysis looks only at ten year government bonds. The relative valuation of non-government bond markets is also affected by the extent to which their respective credit spreads (that is, the difference in yield between an investment grade or high yield corporate bond and a government bond of comparable maturity) are above or below their historical averages (with below average credit spreads indicating potential overvaluation).

Finally, for an investor contemplating the purchase of foreign bonds or equities, the expected future annual percentage change in the exchange rate is also important. Study after

study has shown that there is no reliable way to forecast this. At best, you can make an estimate that is justified in theory, knowing that in practice it will not turn out to be accurate. That is what we have chosen to do here. Specifically, we have taken the difference between the yields on ten- year government bonds as our estimate of the likely future annual change in exchange rates between two regions. This information is summarized in the following table:

Annual Exchange Rate Changes Implied by Bond Market Yields

	To A$	To C$	To EU	To YEN	To GBP	To US$
From						
A$	0.00%	-0.77%	-1.44%	-3.78%	-0.64%	-0.87%
C$	0.77%	0.00%	-0.67%	-3.01%	0.13%	-0.10%
EU	1.44%	0.67%	0.00%	-2.34%	0.80%	0.57%
YEN	3.78%	3.01%	2.34%	0.00%	3.14%	2.91%
GBP	0.64%	-0.13%	-0.80%	-3.14%	0.00%	-0.23%
US$	0.87%	0.10%	-0.57%	-2.91%	0.23%	0.00%

Sector and Style Rotation Watch

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

conditions, and their impact on future cash flows and the future discount rate. Moreover, an investor also needs to do this before the majority of other investors reach the same conclusion about the asset's fair value, and through their buying and selling cause its price to adjust to that level (and eliminate the potential excess return).

We publish this table to make an important point: there is nothing unique about the various rotation strategies we describe, which are widely known by many investors. Rather, whatever active management returns (also known as "alpha") they are able to generate is directly related to how accurately (and consistently) one can forecast the turning points in the economic cycle. Regularly getting this right is beyond the skills of most investors. In other words, most of us are better off just getting our asset allocations right, and implementing them via index funds rather than trying to earn extra returns by accurately forecasting the ups and downs of different sub-segments of the U.S. equity and debt markets. That being said, the highest year-to-date returns in the table give a rough indication of how investors employing different strategies expect the economy 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

Economy	**Bottoming**	**Strengthening**	**Peaking**	**Weakening**
Interest Rates	**Falling**	**Bottom**	**Rising**	**Peak**
Style Rotation	Growth (IWZ) **2.84%**	Value (IWW) **12.88%**	Value (IWW) **12.88%**	Growth (IWZ) **2.84%**
Size Rotation	Small (IWM) **15.22%**	Small (IWM) **15.22%**	Large (IWB) **7.46%**	Large (IWB) **7.46%**
Style and Size Rotation	Small Growth (DSG) **10.21%**	Small Value (DSV) **14.82%**	Large Value (ELV) **9.52%**	Large Growth (ELG) **1.33%**

Economy	**Bottoming**	**Strengthening**	**Peaking**	**Weakening**
Interest Rates	**Falling**	**Bottom**	**Rising**	**Peak**
Sector Rotation	Cyclicals (IYC) **5.29%**	Basic Materials (IYM) **11.31%**	Energy (IYE) **35.32%**	Utilities (IDU) **19.31%**
	Technology (IYW) **-1.15%**	Industrials (IYJ) **12.89%**	Staples (IYK) **6.73%**	Financials (IYF) **8.42%**
Bond Market Rotation	High Risk (VWEHX) **7.30%**	Short Maturity (VBISX) **1.30%**	Low Risk (VIPSX) **6.70%**	Long Maturity (VBLTX) **5.70%**

DFA versus Vanguard: The All-Stars Compared

Life is filled with great dilemmas: boxers or briefs? Short skirt or long? Habs or Leafs? Man-U or Arsenal? Tokyo or Osaka? Aussie Rules, League, or Union? French or Italian food? And, of course, index mutual funds from Vanguard or Dimensional Fund Advisors?

Along with State Street Global Advisors and Barclays Global Investors, Vanguard and DFA are two of the world's leading managers of index investment products. Compared to the other three firms, DFA is in some ways unique. It has the strongest emphasis on indexed products, and perhaps the strongest association with very well-known academics, including Rex Sinquefield, Gene Fama, and Ken French. Moreover, there is a certain mystique about its retail mutual funds, which are only available through a select group of financial advisers. But is there anything to this, besides great marketing (which, of course, is nothing to sneeze at)? We've lost count of the number of times we've been asked this question. And that's why we've done the analysis in this article -- to see if we can settle the question once and for all. Our main approach will be an asset class by asset class comparison of the mutual fund products offered by DFA and Vanguard. We have deliberately left ETFs (and their main sponsors, BGI and SSGA) out of this analysis, because we wanted to do a mutual fund to mutual fund, apples to apples comparison.

We should also say up front that what we are doing, in essence, is comparing one all-star to another. Both DFA and Vanguard have well earned reputations for holding down their

fund expenses, and for using their size and skill to limit their trading costs (in a recent survey of asset management firms with the lowest average transaction costs, both DFA and Vanguard ranked in the top ten). Moreover, at the margin, both firms also take actions to slightly enhance returns, including lending shares and departing occasionally from the underlying index weightings. As DFA notes in its prospectus, "rather than replicate an index in mechanical fashion, we allow slight variations from precise market weightings. This flexibility allows us to take advantage of favorable trading costs." On the other hand, there are also some important differences between the two firms. Compared to Vanguard, DFA is a much stronger advocate of the wisdom of using small cap and value tilts within different equity asset classes (e.g., domestic, foreign, and emerging market). We have written before about the wisdom of taking these tilts (our articles on these subjects can be easily accessed via the home page of our website). To briefly sum them up, there are three issues: (1) Does the small size and/or value premium exist? (2) If it does, what has caused it in the past? And (3) will that cause persist in the future? With respect to the size premium, we have noted our doubts about its existence, except in the case of microcap stocks (generally, stocks included in the bottom 2% or so of total market capitalization). With respect to the value premium, while the evidence for its existence seems compelling, its underlying cause remains unclear.

One school of thought (and DFA is in this camp), believes that the value premium reflects an efficient market delivering higher returns for bearing higher risk than is found in the broad equity market index. Unfortunately, different academics have yet to reach agreement on the nature of this additional risk. In contrast, the other school of thought believes that the value premium is a behavioral phenomenon that results from defects in the way investors process information. As such, they believe that by taking a value tilt it may be possible to earn higher returns than the broad market index, while taking on less risk. However, the validity of this argument necessarily depends on the existence of what are called "barriers to arbitrage." Theoretically, not all investors in the market should act irrationally. Hence, some smart investors should recognize the mistake that the irrational ones are making, and bid up the price of value stocks to the point that the expected additional return premium disappears. If you believe that the value premium is likely to persist into the future, you also have to believe in the continued existence of some very powerful barriers to arbitrage.

Unfortunately, advocates of the "behavioral explanation" for the value premium have yet to make a convincing case to support this second argument.

It is interesting to note that DFA states that while its definition of value stocks is primarily based on the book/market ratio (consistent with Fama and French's research), it also notes that it may use other screening criteria, including price/cash flow and price/earnings, "as well as economic conditions and developments in the issuer's industry." Moreover, DFA's "criteria for assessing value are subject to change from time to time." In comparison, Vanguard uses indexes from Morgan Stanley Capital International (MSCI) in many of its funds. MSCI uses three criteria (book/market, price/earnings, and dividend/price to identify value stocks.

Over the long-term, we come down on the efficient market side of the argument, while recognizing that some investors can and do occasionally act irrationally. However, we find it hard to believe in a free lunch that lasts forever. In short, while taking a value tilt will, over the long-term, probably produce higher returns than the broad market index, it will also expose an investor to more risk, of one kind or another.

In talking about DFA's domestic equity funds, one of the terms you occasionally hear is the "CRSP Index. Before getting into our fund comparison, it will help to explain this index a bit more. As we have noted in other articles, when it comes to constructing an equity index, there are two basic approaches one can take. Either one include a fixed number of companies in the index, and vary the percentage of total market capitalization it covers, or one can take the opposite approach, targeting coverage of a fixed percentage of market cap, and letting the number of companies vary to achieve it. Indexes that start with a fixed number of companies (ranked by market capitalization) include those from Russell (e.g., the Russell 3000 Index), Standard and Poor's (e.g., the Standard and Poor's 500 Index), and Morgan Stanley Capital International (e.g., the MSCI Prime Market 750 Index). Indexes that start with a fixed percentage of market capitalization include those from Wilshire (e.g., the Wilshire 5,000, which covers 100% of market capitalization), Dow Jones (e.g., the Dow Jones Total Market Index covers 95% of market capitalization) and Morningstar (whose broad index covers 97% of market capitalization).

To put it charitably, the CRSP (which stands for the Center for Research in Securities Prices) takes a hybrid approach. It starts with the companies listed on the New York Stock

Exchange, ranked by market capitalization, and divides them into ten equal groups (e.g., 178 companies in each group). Next it determines the market cap "breakpoints" for each group (that is, the high and low market capitalizations that define each group's boundaries). Using these breakpoints, it then assigns companies from the American Stock Exchange and National Association of Securities Dealers Automated Quote System (the NASDAQ) to different groups, which it calls "deciles." Stocks in deciles 1 and 2 are often called "large caps", those in deciles 3 to 5, "mid-caps", those in deciles "6 to 8, "small-caps", and those in declies 9 and 10, "micro-caps." Unfortunately, this can easily create confusion, because the "deciles" contain neither equal percentages of total market capitalization, nor equal numbers of companies. The 1996 example shown on the CRSP website shows that the top decile contained 203 companies that accounted for 58.6% of total market capitalization, while the tenth decile contained 2,426 companies that accounted for 1.3% of total market capitalization. Confusing, no?

Also confusing (though "interesting" might be a better word) is DFA's description of its approach to market capitalization weighting in its small company, real estate, and international funds: "Market capitalization weighting means each security is generally purchased based on the issuer's relative market capitalization. Market capitalization will be adjusted by [DFA] for a variety of factors. [DFA] may consider factors such as free float, trading strategies, liquidity management and other factors determined to be appropriate by [DFA] given market conditions. [DFA] may exclude the stock of a company that meets applicable market capitalization criteria if [DFA] determines, in its best judgment, that the purchase of such stock is inappropriate in light of other conditions. These adjustments will result in a deviation from traditional market capitalization weighting." As a result, DFA notes that "the weightings of certain countries…may vary from their weightings in international indices, such as those published by …Morgan Stanley Capital International." In other words, it appears as though there might be a little bit of active management going on at DFA to improve some of its funds' performance.

One other issue that we need to address before going to the fund comparisons is financial adviser fees. As we noted, the only way an individual can invest in DFA funds is through a financial adviser. Vanguard funds can be directly purchased by individuals without having to go through a financial adviser. A survey done for DFA (available on its website)

showed that "91.2% of DFA advisers charge clients a 1% annual fee on accounts up to $1 million, as opposed to a flat fee." Given this, we have decided to present DFA fund results in three different ways: before fund expenses, after fund expenses only, and after fund expenses plus a 1% adviser fee.

Large Capitalization Equity

DFA and Vanguard both offer S&P 500 Index Funds. Apart from the DFA adviser fee, they are virtually identical. DFA also offers an "enhanced" S&P 500 index fund, which attempts to use a combination of equity futures and debt to deliver slightly more return than the S&P 500 with slightly less risk. It charges more than twice the expense load as DFA's basic S&P 500 fund, and delivers marginally better performance as the Vanguard product. Note that all the data in the following table are in nominal (i.e., including inflation) terms:

Fund Ticker	Average Return, 5 Years Ended Oct04 (higher and positive is better)	Average Standard Deviation, 5 years Ended Oct04 (lower is better)	Gross Return/Standard Deviation (higher is better)	Annual Expense Charge (lower is better)	Average Return Before Expenses	Average Return After Adviser Fee (DFA Only)
DFLCX	(2.37%)	16.20%	(.15)	0.15%	(2.22%)	(3.37%)
VFINX	(2.28%)	16.23%	(.14)	0.18%	(2.10%)	
DFELX (enhanced)	(2.07%)	15.98%	(.13)	0.36%	(1.71%)	(3.07%)

Vanguard also offers another large capitalization equity index fund. This one tracks the MSCI Prime Market 750 Index, which covers about 86% of the total capitalization of the U.S. public equity market. Because this fund recently switched to the MSCI index, we have used the index itself to estimate comparable five-year performance, which appears quite impressive (note that we have adjusted returns for fund expenses, but not the standard deviation):

Fund Ticker	Average Return, 5 Years Ended Oct04 (higher and positive is better)	Average Standard Deviation, 5 years Ended Oct04 (lower is better)	Gross Return/Standard Deviation (higher is better)	Annual Expense Charge (lower is better)	Average Return Before Expenses	Average Return After Adviser Fee (DFA Only)
VLACX	(0.71%)	17.08	(.05)	0.20%	(0.91%)	

Large Cap Value Equity

According to DFA, its Large Cap Value Portfolio "invests in companies that have a market capitalization in the largest 90% of the total market universe." Vanguard's offering is based on the MSCI Prime Market 750 Value Index, which covers about 86% of total market capitalization. In this category, the DFA product outperforms Vanguard, even after taking adviser fees into account (again, we have used the MSCI index to proxy the fund's five year performance) through the end of October, 2004:

Fund Ticker	Average Return, 5 Years Ended Oct04 (higher and positive is better)	Average Standard Deviation, 5 years Ended Oct04 (lower is better)	Gross Return/Standard Deviation (higher is better)	Annual Expense Charge (lower is better)	Average Return Before Expenses	Average Return After Adviser Fee (DFA Only)
DFLVX	6.97%	19.14%	0.36	0.30%	7.27%	5.97%
VIVAX	4.68%	14.38%	0.34	0.23%	4.91%	

Using the same historical annual return (before expenses), standard deviation and fee assumptions, we also conducted a simulation analysis of the two funds' performance over time. We took the perspective of two different investors. The first is accumulating funds for his retirement, and needs to achieve his goal must realize a compound nominal rate of return of at least 7.5% over the next five years. We used this rate of return because it is about the

required return on a portfolio composed of 60% U.S. equity and 40% U.S. government bonds. Based on initial savings of $10,000, our investor's accumulation goal after five years is $14,356. We used a five-year time horizon because it corresponds to the length of our historical data sample. This helps to minimize the impact of estimation error on our conclusions. Our accumulating investor is interested in two questions: whether a give fund has a higher expected compound return than 7.5%, and the probability that the value of the fund will be equal to or greater than $14,356 at the end of the five year period.

The second investor is already retired. She also starts with savings of $10,000, but for income must withdraw $400 each year (4% of her initial portfolio). For the sake of comparison, we assume that to meet her needs she can also invest in a portfolio of government bonds with a weighted yield of 5%. If she does this, at the end of five years her portfolio will be worth $10,329 (assuming no change in interest rates). Our retired investor is focused on two objectives: minimizing the rate at which her portfolio declines in value (or, ideally, maximizing the growth in its value), and maximizing the probability of having at least $10,329 at the end of the five year period.

Obviously, both of these situations are unrealistic, because no investor would hold just one fund in his or her portfolio. However, these examples enable us to illustrate two important concepts. The first is called either "variance drain" or "volatility drag." This is an important concept that too few investors clearly understand. The essence of it is that investors with multiyear objectives are ultimately interested in their compound rate of return, and the higher a fund's volatility (standard deviation), the smaller will be its compound return in comparison with its average annual return. Here's an example that should help make this clear. Consider an investment that over five years earns annual returns of 10%, 5%, (20%), (5%), and 25%. Over this five-year period, the arithmetic average return on this investment is 3.00%. The standard deviation of these returns is 16.81%. Because of this variability, the compound average annual return over the five year period is only 1.87%. Volatility drag accounts for the difference. In some cases, this drag can be so large that it causes a fund with a lower level of average annual return to have a higher probability of achieving a long-term goal.

The second important issue is opportunity cost. The key point here is that a fund with relatively higher expenses potentially causes you to lose twice: first in the year the fees are

charged, and then over time due to the additional returns you could have earned had the "excess" fees been invested in the fund.

The next table shows the following information for the DFA and Vanguard large cap value funds: (1) the expected compound annual return over five years for our "accumulating" investor; (2) the probability that, after five years, he will have achieved his goal; (3) the expected compound portfolio return for our retired investor, and (4) the probability that after five years she will have achieved her goal. Again, we show the DFA fund's results both without and with the 1% adviser fee:

Fund (Ticker)	Compound Annual Return for Accumulating Investor (higher is better)	Probability of Achieving Accumulation Goal (higher is better)	Compound Annual Return for Retired Investor Making Withdrawals (higher is better)	Probability of Achieving Retired Investor's Goal (higher is better)
DFLVX with adviser fee	4.37%	36%	(4.10%)	48%
DFLVX without adviser fee	5.55%	41%	(2.77%)	53%
VIVAX	3.86%	29%	(4.53%)	44%

As you can see, all of our analyses point to the same conclusion: in the large cap value category, the DFA offering is preferred to the one from Vanguard.

Small Capitalization Equity

Before looking at the performance of the two funds in this category, we note that they target somewhat different market capitalization ranges: the DFA fund theoretically covers the bottom 8% of market capitalization, while the Vanguard fund (which is based on the MSCI Small Cap 1750 Index) leaves out the bottom 2%, and covers the next 12% (that is, the 3rd through 14th percentiles). However, to limit trading costs, both funds also employ "buffer zones" which enable a company to temporarily move outside these target capitalization ranges

without being dropped from the fund. Hence, the DFA fund can have more than 10% of its capitalization in companies that are above the 8th percentile, while the Vanguard fund can contain companies slightly above and below its target range. Again, because of the change in the Vanguard fund's target index, we have used performance data for the index itself. Now let's move on to our two performance comparisons:

Fund Ticker	Average Return, 5 Years Ended Oct04 (higher and positive is better)	Average Standard Deviation, 5 years Ended Oct04 (lower is better)	Gross Return/Standard Deviation (higher is better)	Annual Expense Charge (lower is better)	Average Return Before Expenses	Average Return After Adviser Fee (DFA Only)
DFSTX	12.12%	25.73%	0.47	0.42%	12.54%	11.12%
NAESX	12.79%	20.34%	0.64	0.27%	13.06%	

Fund (Ticker)	Compound Annual Return for Accumulating Investor (higher is better)	Probability of Achieving Accumulation Goal (higher is better)	Compound Annual Return for Retired Investor Making Withdrawals (higher is better)	Probability of Achieving Retired Investor's Goal (higher is better)
DFSTX with adviser fee	8.57%	54%	0.39%	62%
DFSTXwithout adviser fee	9.53%	57%	1.46%	65%
NAESX	11.03%	66%	3.39%	75%

In the small cap category, based on our analysis we prefer the Vanguard offering.

Small Cap Value Equity

DFA offers two funds in this category. The small value fund (DFSVX) invests in stocks from within the lowest eight percentiles of market capitalization that meet DFA's value screening criteria. The small XM value fund (DFFVX) does not include microcap stocks (those in the lowest 2.5% of market capitalization), and instead invests in value stocks located in the next 10% of market capitalization (i.e., between 2.5% and 12.5%). The XM fund is therefore quite comparable to the Vanguard Small Value Index Fund, which tracks the MSCI Small Cap 1750 Value Index (again, because the fund switched target indexes, we have used the index returns in our analysis). On to our results, which in this case (because of the short data series for the XM fund), are based on the three years ended October 29, 2004:

Fund Ticker	Average Return, 3 Years Ended Oct04 (higher and positive is better)	Average Standard Deviation, 3years Ended Oct04 (lower is better)	Gross Return/Standard Deviation (higher is better)	Annual Expense Charge (lower is better)	Average Return Before Expenses	Average Return After Adviser Fee (DFA Only)
DFSVX	22.45%	24.27%	.93	0.56%	23.01%	21.45%
DFFVX	21.52%	24.77%	0.87	0.47%	21.99%	20.52%
VISVX	20.29%	15.63%	1.32	0.27%	20.56%	

Fund (Ticker)	Compound Annual Return for Accumulating Investor (higher is better)	Probability of Achieving Accumulation Goal (higher is better)	Compound Annual Return for Retired Investor Making Withdrawals (higher is better)	Probability of Achieving Retired Investor's Goal (higher is better)
DFSVX with adviser fee	18.59%	85%	11.57%	90%
DFSVX without adviser fee	19.89%	86%	12.97%	91%
VISVX	19.37%	96%	12.58%	98%
DFFVX with adviser fee	18.22%	83%	11.15%	88%
DFFVX without adviser fee	19.16%	85%	12.15%	89%

While the comparison is quite close in this category, on balance we prefer the Vanguard offering. As you can see, its substantially lower volatility more than makes up for its lower returns, enabling it to realize the highest probabilities of achieving our two investors' multi-year goals.

Microcap Equity

Theoretically, the benchmark for DFA's microcap fund is the CRSP 9-10 Index, which contains its bottom two "deciles" of companies. In recent years, about two thirds of the DFA fund's portfolio has been invested in companies in the lowest 2.5% of market capitalization, and one third in larger companies (i.e., those in the next 2.5% of market capitalization, up to the lowest 5%). As Vanguard does not yet offer a fund in this category (though MSCI has just launched its own microcap index), we have compared the DFA fund to the Bridgeway Ultra Small Company Fund, which aims to track the performance of the CRSP Decile 10 Index. While this fund is closed to new investors, it provides a good comparable for DFA's performance in this segment.

Fund Ticker	Average Return, 5 Years Ended Oct04 (higher and positive is better)	Average Standard Deviation, 5 years Ended Oct04 (lower is better)	Gross Return/Standard Deviation (higher is better)	Annual Expense Charge (lower is better)	Average Return Before Expenses	Average Return After Adviser Fee (DFA Only)
DFSCX	15.93%	30.29%	0.53	0.56%	16.49%	14.93%
BRSIX	24.85%	24.48%	1.02	0.67%	25.52%	

By default we prefer DFA in the microcap category because its fund is still open. However, the consequence of this is some performance dilution as the fund's growing size forces it to invest more of its capital in the stocks of slightly larger companies than those targeted by the Bridgeway microcap fund.

U.S. Commercial Property

Both Vanguard and DFA offer funds that track Real Estate Investment Trust Indexes. The former tracks the Morgan Stanley equity REIT Index, while the latter invests in shares of both equity and so-called "hybrid" REITs that invest in a mix of real estate equity and mortgages. As you can see in the following table, this slightly different focus gives the DFA product an edge, at least before adviser fees are charged.

Fund Ticker	Average Return, 5 Years Ended Oct04 (higher and positive is better)	Average Standard Deviation, 5 years Ended Oct04 (lower is better)	Gross Return/Standard Deviation (higher is better)	Annual Expense Charge (lower is better)	Average Return Before Expenses	Average Return After Adviser Fee (DFA Only)
DFREX	20.32%	15.97%	1.27	0.41%	20.73%	19.32%
VGSIX	19.43%	16.18%	1.20	0.24%	19.67%	

We call this category a toss-up, with no clear winner. On a before-adviser fees basis, the DFA product has the edge. It loses it, however, once adviser fees are taken into account.

Large Cap International Equity

In this category, one can see the impact of DFA's slightly more "active" approach to indexing. The Vanguard fund tracks the MSCI Europe, Asia and Far East (EAFE) Index.

Fund Ticker	Average Return, 3 Years Ended Oct04 (higher and positive is better)	Average Standard Deviation, 3 years Ended Oct04 (lower is better)	Gross Return/Standard Deviation (higher is better)	Annual Expense Charge (lower is better)	Average Return Before Expenses	Average Return After Adviser Fee (DFA Only)
DFALX	9.00%	16.02%	0.56	0.43%	9.43%	8.00%
VDMIX	9.30%	16.65%	0.56	0.34%	9.64%	

On balance, however, we prefer the Vanguard offering in this category.

Large Cap International Value Equity

Vanguard does not have an index product in this category. It does, however, offer an actively managed one. The comparison with the DFA product is not a pretty one.

Fund Ticker	Average Return, 5 Years Ended Oct04 (higher and positive is better)	Average Standard Deviation, 5 years Ended Oct04 (lower is better)	Gross Return/Standard Deviation (higher is better)	Annual Expense Charge (lower is better)	Average Return Before Expenses	Average Return After Adviser Fee (DFA Only)
DFIVX	6.76%	17.38%	0.39	0.52%	7.28%	5.76%
VTRIX	2.25%	17.62%	0.13	0.62%	2.87%	

No question about it. In international large cap value, we prefer DFA, hands down.

International Small Cap and Small Cap Value

Once again, Vanguard does not offer index products in these categories. It does, however, offer an actively managed fund that invests in international small cap companies. Once again, the clear winner is DFA.

Fund Ticker	Average Return, 5 Years Ended Oct04 (higher and positive is better)	Average Standard Deviation, 5 years Ended Oct04 (lower is better)	Gross Return/Standard Deviation (higher is better)	Annual Expense Charge (lower is better)	Average Return Before Expenses	Average Return After Adviser Fee (DFA Only)
DFISX - Int'l Small Cap	10.21%	16.07%	0.64	0.71%	10.92%	9.21%
DISVX -- Int'l Small Cap Value	13.58%	16.50%	0.82	0.81%	14.39%	12.58%
VINEX	7.69%	22.38%	0.34	0.73%	8.42%	

On balance, we prefer DFA's international small cap value fund in this category.

Emerging Markets Equity

It is important to note that, unlike the EEM Exchange Traded Fund, neither the DFA nor the Vanguard emerging markets equity product exactly tracks the MSCI Emerging Markets Index. DFA's emerging markets universe includes 16 countries. In comparison, Vanguard's includes 18. The key difference between them -- and it could be an important one -- is that DFA includes Malaysia but excludes China, India and Peru, while Vanguard includes these three but not Malaysia.

We are also including emerging markets small cap and emerging markets value funds in this category, which DFA offers but which Vanguard does not. Here is how they compare:

Fund Ticker	Average Return, 5 Years Ended Oct04 (higher and positive is better)	Average Standard Deviation, 5 years Ended Oct04 (lower is better)	Gross Return/Standard Deviation (higher is better)	Annual Expense Charge (lower is better)	Average Return Before Expenses	Average Return After Adviser Fee (DFA Only)
DFEMX -- Emerging Mkts	6.22%	23.21%	0.27	0.78%	7.00%	5.22%
VEIEX	6.64%	24.54%	0.27	0.53%	7.17%	
DFEVX -- Emerging Mkts Value	9.77%	24.24%	0.40	0.86%	10.63%	8.77%
DEMSX -- Emerging Mkts Small	9.22%	22.26%	0.41	1.12%	10.34%	8.22%

If we were looking only at broad Emerging Markets funds, we would prefer the Vanguard offering. However, if we include Emerging Markets value and small cap funds, we prefer DFA's emerging markets value (DFEVX) offering.

Fixed Income Offerings

We use up to three different fixed income asset classes in our model target return portfolios: real return bonds, unhedged foreign currency bonds, and domestic investment grade bonds. Vanguard offers a real return bond fund (VIPSX), while DFA does not. Unfortunately, neither company offers an unhedged foreign currency bond fund. As a result, we recommend either the T. Rowe Price International Bond Fund (RPIBX), or the PIMCO Unhedged Foreign Bond Fund (PFBDX). That leaves us with a comparison between their domestic fixed income offerings.

Before moving on to fund comparisons, however, it is important to clearly understand DFA's approach to fixed income management. First, DFA is quite dubious about the long-term likelihood of earning higher risk adjusted returns by taking on more duration risk (that is,

by investing in bonds with longer average maturities) beyond an intermediate point on the yield curve. They also believe that the bond markets are quite efficient, and that forecasting future interest rates (and hence consistently successful active bond management) is basically impossible. That being said, they also believe that , even in the absence of forecasting, "investors may be able to increase their risk adjusted returns [by employing]…a variable maturity strategy that shifts the maturities of the portfolio as the yield curve changes…[The approach] does not anticipate changes in the yield curve, rather it seeks to maximize risk-adjusted returns present in the [current] curve…In broad terms, this means shortening maturities in inverted curves [i.e., when short-term rates are higher than long-term rates], and extending them in [normal] upwardly sloped curves."

DFA also believes that while introducing foreign currency bonds into a fixed income portfolio can improve its risk/return trade-off, all foreign currency bond positions should be fully hedged against changes in exchange rates. They argue that "in our view, global bonds do not represent a separate and distinct asset class from domestic fixed income." Obviously, we disagree with this logic. However, for the sake of our comparison, we will accept it, and include currency-hedged foreign bond funds in our comparison.

We therefore evaluate the following DFA funds: Two-Year Global Fixed Income (DFGFX), Five-Year Global Fixed Income (DFGBX), Five-Year U.S. Government (DEFGX) which invests in securities that mature within five years, and Intermediate Term Government (DFIGX). This latter fund invests in dollar-denominated debt issued by both the U.S. Government, and in AAA rated dollar denominated debt issued by foreign governments and supranational agencies (e.g., the World Bank). This fund's average weighted maturity is between seven to ten years.

We compare these funds to two from Vanguard: VBMFX tracks the Lehman Brothers Aggregate U.S. Bond Market Index, which contains three types of investment grade bonds, of short, intermediate and long maturity: those issued by the U.S. government, those issued by corporations, and those backed by mortgages and other assets. We also include VBIIX, which tracks on index composed the same types of bonds, but with only intermediate maturities.

Fund Ticker	Average Return, 5 Years Ended Oct04 (higher and positive is better)	Average Standard Deviation, 5 years Ended Oct04 (lower is better)	Gross Return/Standard Deviation (higher is better)	Annual Expense Charge (lower is better)	Average Return Before Expenses	Average Return After Adviser Fee (DFA Only)
DFGFX	4.28%	1.42%	3.01	0.25%	4.53%	3.28 %
DFGBX	5.94%	3.77%	1.58	0.34%	6.28%	4.94 %
DFFGX	6.34%	4.32%	1.47	0.27%	6.61%	5.34 %
DFIGX	8.51%	6.74%	1.26	0.17%	8.68%	7.51%
VBMFX	7.10%	4.11%	1.73	0.22%	7.32%	
VBIIX	8.55%	6.02%	1.42	0.20%	8.75%	

Though it is a close call (at least before adviser fees), if our criterion is maximizing return, on balance we prefer the Vanguard offering (VBIIX) to DFIGX from DFA. On the other hand, if we were looking strictly at return per unit of risk, then we would prefer DFGFX.

Conclusion

As is so often the case when all-stars are compared, there is no clear winner when it comes to DFA versus Vanguard. Based on the performance data we have used in our analysis, we prefer the DFA offerings in Domestic Large Cap Value, Commercial Property, Large Cap International Value, International Small Cap, International Small Value, Emerging Markets Value and Emerging Markets Small Cap. We also prefer DFA for Microcap equity, where Vanguard lacks a comparable offering.

On the other hand, we prefer Vanguard's products for Domestic Large Cap Equity, Domestic Small Cap and Small Cap Value, Large International, Broad Emerging Markets Equity and Fixed Income (with the previously noted qualification). We also prefer Vanguard for real return bonds, where DFA lacks a comparable offering. We should also add two qualifications to these conclusions. First, due to short data series and changing underlying indexes, we have not done analyses to see if the differences in returns and volatility between

funds that we observe are statistically significant. In some cases, they probably are, but in others they probably are not. More importantly, we should always keep in mind that most investors would be better off with indexed products from either DFA or Vanguard than they would be with actively managed funds. Finally, we wish that either Vanguard or DFA (or both of them) would introduce products in the commodities and unhedged foreign currency bonds asset classes.

Product and Strategy Notes

ETF Tracking Error Problem Continues

One of the hazards of running an index fund is what is known as "tracking error." This is the amount by which the performance of your fund deviates from the performance of the index it is supposed to track. In an ideal world, the only tracking error that exists would be caused by the fund's expenses. We have noted in the past that other writers (e.g., Bill Bernstein from www.efficientfrontier.com) have criticized a number of Exchange Traded Funds for the size of their tracking errors, especially in comparison to index mutual funds based on the same index. We expressed our belief that the workings of the market (also known as the incentives to avoid mistakes and thereby keep your job) would shrink the size of these ETF tracking errors. Recently, an alert reader wrote to remind us that the market is apparently not functioning as efficiently as we had expected.

Specifically, the size of the tracking errors at the ETFs that track inflation protected U.S. Treasury Securities (ticker TIP) and the Lehman Brothers Aggregate U.S. Bond Market Index (AGG) have substantially underperformed similar index mutual funds offered by Vanguard. Specifically, for the period between 31Dec03 and 29Oct04, the total return (price change plus dividends) on TIP was (in USD) 4.0%, versus 6.6% on VIPSX. Similarly, the total return on AGG was 3.9%, compared to 4.4% on VBMFX. We admit that this surprised us. We will monitory this issue more closely in the future.

New Research on Bequest Motives

A recently published research paper ("To Leave or Not to Leave: The Distribution of Bequest Motives" by Wojciech Kopczuk of Columbia University and Joseph Lupton of the U.S.

Federal Reserve System) provides the most up-to-date insights about an important issue in post-retirement investing. The study is based on data from the U.S. AHEAD survey ("Asset and Health Dynamics Among the Oldest Old"), which includes people who were at least 69 years old in 1993. People originally interviewed were re-interviewed if they were still alive in 1995, 1998 and 2000.

Previous studies have struggled with two issues: first, some people may unintentionally leave bequests, because they simply died before they could spend all their money. Hence, directly studying bequest data is unlikely to provide a clear picture of true bequest motives. Second, people may simply save money as a hedge against potential future medical expenses. The innovation in this study was that the authors had access to data about households' income, wealth, health and expected medical expenses, and self-reported probability of leaving bequests of different sizes. The authors used these data, and in particular differences in household consumption levels, to develop insights into the extent and nature of post-retirement savings and bequest motives.

The authors find that the probability that a household with children has a bequest motive is 75 percent, while the probability of a bequest motive in households without children is 57 percent. Note that this is not equivalent to the probability of actually leaving a bequest; someone can have a bequest motive, yet be forced to spend down all their resources to pay unexpected health care costs; similarly, someone without a bequest motive can still leave one if they die earlier than expected.

The authors also find that, all else being equal, households with a bequest motive spent between $4,000 and $9,000 less per year on consumption than those households without a bequest motive. These are significant amounts, as the average amount spent on consumption each year by the surveyed households was $22,455 between 1995 to 1998, and $19,673 per year between 1998 and 2000. The authors also conclude that 53 percent of the household wealth owned by the people in their survey reflects the existence of a bequest motive (as opposed, for example, to expected consumption that has yet to occur).

The authors also note that little is known about why people leave bequests. They test three hypotheses that have been put forward by different authors: (1) Some people simply want to die with a positive net worth. This is called the "egoistic" motive for savings. (2) Some people want to leave money to benefit others. This is called the "altruistic" motive for

saving. And (3) some people may use bequests to compensate children or others for having provided care to them. This is called the "strategic" motive. While the authors find evidence that is consistent with the altruistic and strategic motives, it is not statistically significant. For example, as predicted by the altruistic hypothesis, the "presence of grandchildren significantly increases the probability of having a bequest motive, by roughly 20 to 36 percent." On the other hand, consistent with the strategic motive, "relative to the typical household, those with a child that lives within ten miles have roughly a ten percent higher probability of having a bequest motive." These findings lead the authors to conclude that, on balance, the egoistic motive for savings is probably the dominant one.

The Source of Commodities Index Returns

We were recently asked this question: "How can one justify such a large weighting (10%) of commodities in your model portfolios? Over the longer run (50-100 years), it seems most commodities stay fairly stable in price or drop in value."

We agree with the general thrust of this argument about the questionable wisdom of holding physical commodities. However, the question makes clear that we should more clearly specify that our allocation to commodities is based on an investment in commodities futures. Both of the commodity index funds available to investors today -- the Oppenheimer Real Assets Fund and the PIMCO Commodities Real Return Strategy Fund -- track indexes that are based on commodities futures (respectively, the Goldman Sachs Commodities Index and the Dow-Jones AIG Commodities Index). As described in the paper "Fact and Fantasies About Commodity Futures" by Gorton and Rouwenhorst (available on www.ssrn.com), the source of return from investing in commodities futures comes not from changes in the price of the commodities themselves, but from providing insurance against unexpected price changes. Given this, it is possible to earn positive returns from commodity futures even as the price of the underlying commodities is declining. The authors also found that the premium (above government bonds) for investing in commodities between July, 1959 and March, 2004 was about 3.5%, which approximately matched the premium on equities. More important was the authors' finding that over the period studied, commodity futures returns were negatively correlated with the returns on both U.S. equities and U.S. government bonds.

In addition, with respect to your point about long-term commodities price trends, a study by the International Monetary Fund ("The Long-Run Behavior of Commodity Prices" by Cashin and McDermott, available at www.imf.org) looked at real price trends between 1862 and 1999. The authors found a downward trend of about one percent per year over this period. However, this was also accompanied by rising price volatility. The authors conclude that "the downward price trend is of little practical relevance, since it is small and completely dominated by the [rising] variability of prices." In sum, it is the underlying volatility of commodity prices, rather than their level, that is the fundamental source of the returns from investing in commodity futures.

New Gold ETF

The long anticipated launch of a U.S. gold-based Exchange Traded Fund finally happened in November, and quickly attracted over $1 billion in assets. Trading under the ticker GLD, and with an expense ratio of just 0.48%, the new ETF resembles similar offerings already available in the U.K., Australia and South Africa. The ETFs are designed to trade at a price equal to ten percent of the prevailing price for an ounce of gold. In addition, they are backed by an amount of physical gold equal to ten percent of the notional physical volume represented by the ETF. For example, if the total value of the ETFs outstanding represent 1,000 ounces of gold, the shares would be backed by 100 ounces of physical gold. Supporters of this new product claim that it is much cheaper to own gold this way, because you avoid many costs associated with storing and safeguarding the physical product (e.g., gold coins you directly purchase and hold in a bank safety deposit box). Detractors claim that because the ETFs are only fractionally backed by gold there is still a large difference between this new financial product and, for example, having a pile of gold coins in your safety deposit box.

We also have concerns about this new product, but they are of a different nature. First, as described in this month's letter to the editor, there is a significant difference between the source of returns from owning a physical commodity versus owning a futures contract on that commodity. In our opinion, direct ownership of a physical commodity is a more speculative investment than a continuously rolled over futures position. In other words, as a financial investment, we'd be more comfortable with an ETF tied to the gold futures contract that trades on the New York Mercantile Exchange.

Our second concern is with the treatment of gold as a separate asset class. We have included it as part of the broader commodities asset class. Our reasoning is as follows. Between 1976 and 2000, the total return on gold, in U.S. dollars, had a very low correlation to the total return on other asset classes, including (as measured by the Goldman Sachs Commodities Index, in which gold has a very low weighting). The specific correlations were as follows: U.S. Investment Grade Bonds (-.01); U.S. High Yield Bonds (.03); U.S. Commercial Real Estate Investment Trusts (.05); Goldman Sachs Commodities Index (.25); U.S. Equities (.04); Foreign Equities (EAFE) (.22). These low correlations suggest that a strong argument can be made for gold as a separate asset class.

On the other hand, over the same period, the average annual return on gold was much lower, and the standard deviation of returns was much higher, than it was for these other asset classes. On balance, this more than offset the advantages of gold's low correlations, and caused most asset allocation software programs (including ours) to reject an allocation to gold. However, this still leaves unanswered the question of whether there exists a set of circumstances under which an allocation to gold would make sense.

As we have written, we like to think of the economy as being in one of three states: normal (cyclically varying real growth with low to moderate inflation), high inflation, and deflation. Traditionally, people looked at gold as a hedge against inflation. However, in recent years the total returns on gold have not been closely correlated with inflation. Broadly speaking, this has weakened the argument for investing in gold, and led people to look to commodities (more broadly defined) and real return bonds as hedges against inflation risk. The remaining question is therefore how gold would perform under a period of extended deflation. The traditional asset of choice for hedging against this risk is investment grade bonds. Moreover, as a commodity, one would generally expect to see the price of gold (and the returns on holding it) decline during a period of deflation.

However, this argument neglects gold's other historical role as a store of value and unit of exchange (note that this only applies to physical, monetary gold -- i.e., coins). One could therefore envision a scenario in which prolonged deflation (and expectations of an eventual sharp reflation) led people to lose faith in the long-term value of a currency (and/or a domestic debt market). Under these circumstances, in its role as a monetary unit, gold's attractiveness (and the returns earned by holding it) might sharply increase. Unfortunately, the

world's recent experience with deflation has, thankfully, been so limited that very little data is available to support or contradict this scenario. Given this, we will continue to view gold as a potential tilt within the larger commodities asset class, rather than a separate asset class in itself. Moreover, if one intends to take such a tilt, the most logical implementation strategies seem to be gold futures contracts or gold coins, rather than the current gold ETF.

Economic Indicators Update

A reader recently wrote to ask us to update the indicators we presented in our September economic update. Here is our assessment of recent events:

Indicator	**Most Dangerous Outcome**	**Current Assessment**
Real Interest Rates	Falling trend	· Falling
Oil Prices	Remain high and/or rise higher	· Falling recently, but still quite close to peak.
U.S. Ten Year Treasury Bond Nominal Yield	Rising trend	· Rising
U.S. Dollar Exchange Rate	Falling trend (weakening dollar)	· Falling, at an accelerating rate
Inflation in China and Southeast Asian Countries	Rising trend	· Chinese inflation fell sharply in October. · Asean inflation was rising through Q2, and looks like it will rise higher when Q3 data are released. Now letting currencies appreciate to reduce price pressure. However, this may slow export led growth.
Stability and Growth in China	Any indication of growing political unrest	· No major incidents · Government recently pledged more spending on agricultural sector to maintain stability

Indicator	Most Dangerous Outcome	Current Assessment
Real Economic Growth in the Eurozone	Falling trend	· Falling. Little progress toward structural reform.

On balance, we believe that the probability that our downside scenario will develop has risen since September. The world economy remains overly dependent on U.S. and Chinese domestic demand. China is trying (apparently with some success) to slow its economy somewhat to avoid overheating. For the United States, the best outcome was always a mix of dollar depreciation, domestic deficit reduction, and increased foreign demand growth (and, hence, U.S. export growth). Unfortunately, there is little cause for hope when it comes to renewed domestic demand growth in the Eurozone, and only somewhat more when it comes to growth in Japan and Southeast Asia. This will shift the brunt of the adjustment burden onto the dollar exchange rate, and, absent increases in foreign demand, onto reductions in U.S. demand. Given the highly leveraged state of the U.S. economy, this is a dangerous path to be on. It could easily lead to recession, debt implosion and deflation (e.g., one of the capitalist economy's periodic "cleansing storms" that will eliminate our current excessive debt levels), and then, as we have said in the past, the "mother of all attempts at relation." Perhaps that is why the new gold ETF has already attracted over $1 billion in assets.

Model Portfolios Year-to-Date Nominal Returns

We offer over 2,000 model portfolio solutions for subscribers whose functional currencies (that is, the currency in which their target income and bequest/savings are denominated) include Australian, Canadian, and U.S. Dollars, Euro, Yen, and Pounds-Sterling. In addition to currency, each solution is based on input values for three other variables:

- The target annual income an investor wants her or his portfolio to produce, expressed as a percentage of the starting capital. There are eight options for this input, ranging from 3 to 10 percent.
- The investor's desired savings and/or bequest goal. This is defined as the multiple of starting capital that one wants to end up with at the end of the chosen expected life. There are five options for this input, ranging from zero (effectively equivalent to converting one's starting capital into a self-managed annuity) to two.
- The investor's expected remaining years of life. There are nine possible values for this input, ranging from 10 to 50 years.

We use a simulation optimization process to produce our model portfolio solutions. A detailed explanation of this methodology can be found on our website. To briefly summarize its key points, in order to limit the impact of estimation error, our assumptions about future asset class rates of return, risk, and correlation are based on a combination of historical data (from 1971 to 2002) and the outputs of a forward looking asset pricing model. For the same reason, we also constrain the maximum weight that can be given to certain asset classes in a portfolio. These maximums include 20% for foreign bonds and foreign equities, and 10% each for commercial property, commodities, and emerging markets equities. There are no limits on the weight that can be given to real return and domestic bonds, and to domestic equities.

Each model portfolio solution includes the following information: (a) The minimum real (after inflation) compound annual rate of return the portfolio must earn in order to achieve the specified income and savings/bequest objectives over the specified expected lifetime. (b) The long-term asset allocation strategy that will maximize the probability of achieving this return,

given our assumptions and constraints. (c) The recommended rebalancing strategy for the portfolio. And (d) the probability that the solution will achieve the specified income and savings/bequest goals over the specified time frame.

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

	YTD 30Nov04	Weight	Weighted Return
	In US$		In US$
7% Target Real Return	*YTD Returns are Nominal*		
Asset Classes			
Real Return Bonds	6.3%	0%	**0.0%**
U.S. Bonds	3.3%	0%	**0.0%**
Non-U.S. Bonds	9.3%	20%	**1.9%**
Commercial Property	24.7%	10%	**2.5%**
Commodities	20.5%	10%	**2.1%**
U.S. Equity	8.6%	50%	**4.3%**
Foreign Equity (EAFE)	15.2%	0%	**0.0%**
Emerging Mkt. Equity	19.7%	10%	**2.0%**
		100%	**12.7%**

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	YTD 30Nov04	Weight	Weighted Return
	In US$		In US$
6% Target Real Return	*YTD Returns are Nominal*		
Asset Classes			
Real Return Bonds	6.3%	0%	**0.0%**
U.S. Bonds	3.3%	0%	**0.0%**
Non-U.S. Bonds	9.3%	20%	**1.9%**
Commercial Property	24.7%	10%	**2.5%**
Commodities	20.5%	10%	**2.1%**
U.S. Equity	8.6%	45%	**3.9%**
Foreign Equity (EAFE)	15.2%	5%	**0.8%**
Emerging Mkt. Equity	19.7%	10%	**2.0%**
		100%	**13.0%**

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	YTD 30Nov04	Weight	Weighted Return
	In US$		In US$
5% Target Real Return	*YTD Returns are Nominal*		
Asset Classes			
Real Return Bonds	6.3%	0%	**0.0%**
U.S. Bonds	3.3%	0%	**0.0%**
Non-U.S. Bonds	9.3%	20%	**1.9%**
Commercial Property	24.7%	10%	**2.5%**
Commodities	20.5%	10%	**2.1%**
U.S. Equity	8.6%	30%	**2.6%**
Foreign Equity (EAFE)	15.2%	20%	**3.0%**
Emerging Mkt. Equity	19.7%	10%	**2.0%**
		100%	**14.0%**

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	YTD 30Nov04	Weight	Weighted Return
	In US$		In US$
4% Target Real Return	*YTD Returns are Nominal*		
Asset Classes			
Real Return Bonds	6.3%	5%	**0.3%**
U.S. Bonds	3.3%	35%	**1.2%**
Non-U.S. Bonds	9.3%	20%	**1.9%**
Commercial Property	24.7%	10%	**2.5%**
Commodities	20.5%	10%	**2.1%**
U.S. Equity	8.6%	5%	**0.4%**
Foreign Equity (EAFE)	15.2%	10%	**1.5%**
Emerging Mkt. Equity	19.7%	5%	**1.0%**
		100%	**10.8%**

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	YTD 30Nov04	Weight	Weighted Return
	In US$		In US$
3% Target Real Return	*YTD Returns are Nominal*		
Asset Classes			
Real Return Bonds	6.3%	75%	**4.7%**
U.S. Bonds	3.3%	0%	**0.0%**
Non-U.S. Bonds	9.3%	10%	**0.9%**
Commercial Property	24.7%	10%	**2.5%**
Commodities	20.5%	5%	**1.0%**
U.S. Equity	8.6%	0%	**0.0%**
Foreign Equity (EAFE)	15.2%	0%	**0.0%**
Emerging Mkt. Equity	19.7%	0%	**0.0%**
		100%	**9.2%**

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	YTD 30Nov04	Weight	Weighted Return
	In US$		In US$
2% Target Real Return	*YTD Returns are Nominal*		
Asset Classes			
Real Return Bonds	6.3%	85%	**5.4%**
U.S. Bonds	3.3%	0%	**0.0%**
Non-U.S. Bonds	9.3%	10%	**0.9%**
Commercial Property	24.7%	5%	**1.2%**
Commodities	20.5%	0%	**0.0%**
U.S. Equity	8.6%	0%	**0.0%**
Foreign Equity (EAFE)	15.2%	0%	**0.0%**
Emerging Mkt. Equity	19.7%	0%	**0.0%**
		100%	**7.5%**