

The Index Investor

Invest Wisely...Get an Impartial Second Opinion.

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This Month's Issue: Key Points

Should you tilt your equity (or even your bond) allocation toward socially responsible investments? For better or worse, the answer to that question seems to lie more in the realm of values than it does financial economics. To be sure, some of the criteria used to identify "socially responsible" companies seem to be associated with higher shareholder returns. Foremost among these seem to be some of the criteria associated with corporate governance. Unfortunately, as with all successful active management screening criteria, now that this has been publicized an efficient market should eliminate the future potential for excess returns, by bidding up the price of well-governed companies. However, the majority of criteria used to identify "socially responsible" companies do not seem to have a clear link to shareholder value creation. If you believe that a tilt toward "socially responsible" companies will produce superior risk adjusted returns, you will likely be disappointed.

This does not necessarily mean that you should avoid funds that invest in socially responsible funds. If you derive non-monetary satisfaction from investing in companies identified as "socially responsible" under some set of criteria, and are willing to sacrifice

some financial returns to obtain this satisfaction, there is nothing wrong with that. However, if you choose to go this route, we would strongly suggest doing it using socially responsible index funds. Being socially responsible does not make active management any less challenging. Fortunately, there is a growing number of socially responsible index products available around the world. We prefer the ones that employ an optimization methodology that tries to keep the fund's returns and risk close to those of an underlying conventional benchmark index (e.g., the Russell 1000 for the new KLD ETF, and the Russell 3000 for the TCSCX mutual fund in the United States). However, the maximum tracking error versus the benchmark index that these funds allow (2% in the case of KLD) is very large in the world of index funds. Also, most actively managed funds take on tracking error risk in order to generate higher returns (alpha). In this case, tracking error is being taken on to generate a higher social responsibility score. This raises an interesting question: how many people would take the risk of paying 2% more in interest just to get a mortgage from a socially responsible bank?

When all is said and done, we remain unconvinced that for most people the level of non-monetary satisfaction that accompanies socially responsible investing exceeds the amount that comes from investing in a conventional broad market index fund, and contributing the higher earnings on this investment (ideally along with your time) to a charitable cause whose benefits you can observe and enjoy first-hand.

In this month's product and strategy notes, we look at the wide range of 2004 results for different hedge fund indexes. They seem to confirm predictions that hedge fund returns would decline as more capital was committed to similar strategies and less talented managers. We also review some interesting studies that have recently been published. One from Standard and Poor's reinforces the case for indexing public equity investments. Another from the Federal Reserve Bank of New York concludes that there is not a housing bubble in the United States. New research at Yale University has made great progress toward systematically analyzing art as an asset class. Finally, we review Bob Arnott's widely discussed new paper ("Fundamental Indexation"). He finds that equity indexes weighted by size metrics (e.g., sales or assets) outperform those weighted by market capitalization. From an economic point of view, Arnott's approach biases the index toward companies whose competitive advantages (and strategies for leveraging them) have been very successful up to now. In contrast, a

market capitalization index is based on inherently more uncertain estimates about which strategies are likely to be most successful in the future. For this reason, Arnott calls his index a "Main Street" rather than a "Wall Street" measure. However, this also makes the critical but implicit assumption that these companies' success will continue in the future. Unfortunately, a glance at the turnover in the Fortune 500 (or a similar list) over the past fifty years shows that this assumption often turns out to be overoptimistic. To rather glibly sum up, the choice between size and market cap weighting is a choice between a past track record that may not continue, or future expectations that may not come to pass.

Finally, this month we introduce two new benchmark portfolios. The first is the one year return on cash. The second is a portfolio that gives equal weight to all asset classes. This portfolio implicitly assumes that it is impossible to accurately forecast future asset class risk and return; consequently, the best approach is to equally divide one's exposure to different sources of return (and risk). While we disagree with this assumption, intellectual honesty compels us to include the "couch potato" portfolio as one of our benchmarks.

This Month's Letters to the Editor

The following is a copy of an invite I received from the American Association of Individual Investors (AAII): "Few realize that indexing—i.e., investing in funds that track the S&P 500 or other broad market indexes—was a unrewarding strategy in the years preceding 1982. For 16 years starting in 1966 there was no net appreciation in the indexes and some 10 swings of over 20%. Only in the great bull market from the summer of 1982 to March of 2000 did indexing provide positive returns. Our speaker believes that the critical issue is whether current conditions parallel 1966 or are closer to 1982. He will address this question and the strategies that the individual investor should employ should indexing no longer be viable." What do you think?

The fact that broad equity market indexes did not generate stellar returns between 1966 and 1982 does not in any way support the argument that "active equity management is superior to indexing." If we were sitting at Delmonicos in lower Manhattan in 1965, the case for active

management would still be the same as it is today (of course, given that the first index fund wasn't launched until 1976, this example is an exercise in speculative history).

Fundamentally, the case for active management rests on four propositions: (1) it is possible for a manager to accurately forecast future returns; (2) it is possible for a manager to profitably act on these forecasts; (3) it is possible to identify this skilled manager in advance; and (4) the skilled manager's fees will be less than his or her added risk adjusted performance over that of an index fund. As we have pointed out in the past, you can adjust a subjective probability (actually, a degree of belief) in each of these; the resulting joint probability is your degree of belief in the case for active management (I'll leave the right standard of proof -- preponderance of the evidence, clear and convincing evidence, or beyond a reasonable doubt - out of this for now!).

If we were sipping our martinis at Delmonicos in 1965, at the height of the "nifty fifty" era, we'd both probably attach a high probability to (1). Of course, the fact that there was no S.E.C. Reg. FD then, and that insider trading enforcement was rather lax might also have affected our views on the issue. And I'm sure we would never for a minute have suspected that the underlying returns generating process was about to change (e.g., due to inflation, the oil shocks, etc.). We also probably would have attached a relatively high probability to (2), despite (very high, by today's standards) fixed commissions. There were plenty of hotshot active fund managers making money back then in a market that was much less efficient than it is today.

We might even have been confident about (3), given all those managers who were turning in great returns via the nifty fifty, and by investing in the great conglomerators (ITT, Textron, etc.). I'm not sure we would have had the foresight to pick out Warren Buffet, but that's another matter. Finally, given our confidence in propositions (1), (2), and (3), we might also be fairly confident about (4). So, by the end of our no doubt very enjoyable lunch, we would probably have agreed to put our money in an actively managed fund.

As the AAI invite points out, come 1982 we would not, had we met again, been very happy with our returns on the U.S. equity asset class. We'd no doubt be drinking beer rather than martinis! However, this says nothing about whether we would have been relatively happier with the performance of our actively managed fund or with an index fund. Certainly, the comparative performance of index funds versus active funds since both have been

available suggests that we probably would have been happier with the index fund (although, as I noted, allowances must be made for the fact that active managers had a much easier go of it back then).

Therefore, I conclude that, regardless of the performance of broad U.S. equity market indexes between 1966 and Mexican Finance Minister Jesus Silva Herzog's arrival in Washington in August, 1982, the current case for index investing remains unchanged. Again, thank you for sending a most interesting question. It made our day

I was surprised at your conclusion in last month's article on debt market investing not to include emerging market debt in model portfolios. While I agree with your assessment of the risks, I am wondering if you have missed a portfolio issue related to the correlation of emerging market debt with other asset classes. David Swenson in Pioneering Portfolio Management argues that the low correlation of emerging market debt makes it a strong candidate for inclusion in portfolios..

Let me start by saying that one criticizes David Swenson (who has delivered enviable returns for Yale University's endowment) at one's peril. However, I am about to do just that, to some degree. When it comes to EM debt, our concern is that the available index returns data (and the correlations they produce) are too short in length to adequately capture the underlying risks and returns of this asset class. For example, they only start in the middle of what has been the greatest bull market in bonds of the 20th century. I think that the true risk of EM debt default is more highly correlated with changes in developed market economies than we have thus far seen in the data. I expect that this will change if and when developed countries enter a serious recession. Only time will tell if we are right on this point.

Global Asset Class Returns

YTD 31Jan05	In USD	In AUD	In CAD	In EURO	In JPY	In GBP
Asset Held						
US Bonds	0.60%	1.74%	4.03%	4.70%	1.55%	2.36%
US Prop.	-8.50%	-7.36%	-5.07%	-4.40%	-7.55%	-6.74%
US Equity	-2.70%	-1.56%	0.73%	1.40%	-1.75%	-0.94%
AUS Bonds	-1.90%	-0.76%	1.54%	2.20%	-0.94%	-0.14%
AUS Prop.	-2.06%	-0.92%	1.37%	2.04%	-1.11%	-0.30%
AUS Equity	0.78%	1.92%	4.21%	4.88%	1.73%	2.54%
CAN Bonds	-2.47%	-1.33%	0.96%	1.63%	-1.52%	-0.71%
CAN Prop.	-0.01%	1.12%	3.42%	4.08%	0.94%	1.75%
CAN Equity	-0.47%	0.67%	2.97%	3.63%	0.49%	1.29%
Euro Bonds	-2.91%	-1.77%	0.52%	1.19%	-1.96%	-1.15%
Euro Prop.	-4.96%	-3.82%	-1.53%	-0.87%	-4.01%	-3.20%
Euro Equity	-2.20%	-1.06%	1.23%	1.89%	-1.25%	-0.44%
Japan Bonds	-0.40%	0.74%	3.03%	3.70%	0.55%	1.36%
Japan Prop.	4.99%	6.13%	8.43%	9.09%	5.95%	6.75%
Japan Equity	-3.02%	-1.88%	0.41%	1.08%	-2.07%	-1.26%
UK Bonds	-1.71%	-0.57%	1.72%	2.39%	-0.76%	0.05%
UK Prop.	-4.45%	-3.31%	-1.01%	-0.35%	-3.49%	-2.69%
UK Equity	-2.43%	-1.29%	1.00%	1.67%	-1.48%	-0.67%
World Bonds	-0.50%	0.64%	2.93%	3.60%	0.45%	1.26%
World Prop.	-4.60%	-3.46%	-1.17%	-0.50%	-3.65%	-2.84%
World Equity	-2.20%	-1.06%	1.23%	1.90%	-1.25%	-0.44%
Commodities	0.80%	1.94%	4.23%	4.90%	1.75%	2.56%
Hedge Funds	-0.47%	0.67%	2.96%	3.63%	0.48%	1.29%
A\$	-1.14%	0.00%	2.29%	2.96%	-0.19%	0.62%
C\$	-3.43%	-2.29%	0.00%	0.66%	-2.48%	-1.67%
Euro	-4.10%	-2.96%	-0.66%	0.00%	-3.15%	-2.34%
Yen	-0.95%	0.19%	2.48%	3.15%	0.00%	0.81%
UK£	-1.76%	-0.62%	1.67%	2.34%	-0.81%	0.00%
US\$	0.00%	1.14%	3.43%	4.10%	0.95%	1.76%

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. 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	2.76%	4.00%	6.76%	4.90%	3.48%	8.38%
Canada	1.99%	4.00%	5.99%	2.10%	1.84%	3.94%
Eurozone	1.43%	4.00%	5.43%	2.50%	2.61%	5.11%
Japan	0.48%	4.00%	4.48%	2.70%	0.97%	3.77%
U.K.	1.71%	4.00%	5.71%	2.50%	3.14%	5.64%
U.S.A.	1.69%	4.00%	5.69%	4.50%	1.68%	6.18%

*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	187.30	100.00	53%	82%
Canada	47.26	100.00	212%	266%
Eurozone	89.11	100.00	112%	170%
Japan	57.91	100.00	173%	276%
U.K.	97.94	100.00	102%	150%
U.S.A.	141.41	100.00	71%	130%

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

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

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

	Current Dividend Yield	Current Real Bond Yield	Implied Future Real Growth Rate, Assuming 4% ERP	Implied ERP, Assuming Low Future Growth Scenario	Implied ERP, Assuming High Future Growth Scenario
Australia	3.48%	2.76%	3.28%	4.62%	5.62%
Canada	1.84%	1.99%	4.15%	0.95%	1.95%
Eurozone	2.61%	1.43%	2.82%	2.18%	3.68%
Japan	0.97%	0.48%	3.51%	2.30%	3.30%
United Kingdom	3.14%	1.71%	2.57%	2.43%	3.93%
United States	1.68%	1.69%	4.01%	3.49%	4.49%

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	2.76%	2.96%	5.72%	5.41%	-0.31%	2.96%
Canada	1.99%	2.40%	4.39%	4.22%	-0.17%	1.67%
Eurozone	1.43%	2.37%	3.80%	3.54%	-0.26%	2.53%
Japan	0.48%	0.77%	1.25%	1.33%	0.09%	-0.84%
UK	1.71%	3.17%	4.88%	4.60%	-0.28%	2.67%
USA	1.69%	2.93%	4.62%	4.14%	-0.48%	4.69%

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%	-1.19%	-1.87%	-4.08%	-0.81%	-1.27%
C\$	1.19%	0.00%	-0.68%	-2.89%	0.38%	-0.08%
EU	1.87%	0.68%	0.00%	-2.21%	1.06%	0.60%
YEN	4.08%	2.89%	2.21%	0.00%	3.27%	2.81%
GBP	0.81%	-0.38%	-1.06%	-3.27%	0.00%	-0.46%
US\$	1.27%	0.08%	-0.60%	-2.81%	0.46%	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

<i>Economy</i>	Bottoming	Strengthening	Peaking	Weakening
<i>Interest Rates</i>	Falling	Bottom	Rising	Peak
<i>Style Rotation</i>	Growth (IWZ) -3.17%	Value (IWW) -2.10%	Value (IWW) -2.10%	Growth (IWZ) -3.17%
<i>Size Rotation</i>	Small (IWM) -4.06%	Small (IWM) -4.06%	Large (IWB) -2.19%	Large (IWB) -2.19%
<i>Style and Size Rotation</i>	Small Growth (DSG) -2.80%	Small Value (DSV) -5.30%	Large Value (ELV) -2.28%	Large Growth (ELG) -3.05%

Economy	Bottoming	Strengthening	Peaking	Weakening
Interest Rates	Falling	Bottom	Rising	Peak
Sector Rotation	Cyclicals (IYC)	Basic Materials (IYM)	Energy (IYE)	Utilities (IDU)
	-3.50%	-2.74%	3.42%	1.43%
Bond Market Rotation	Technology (IYW)	Industrials (IYJ)	Staples (IYK)	Financials (IYF)
	-5.88%	-3.04%	0.49%	-2.83%
Bond Market Rotation	High Risk (VWEHX)	Short Maturity (VBISX)	Low Risk (VIPSX)	Long Maturity (VBLTX)
	-0.20%	0.00%	0.00%	2.50%

Socially Responsible Investing

The launch in the United States last month of the iShares KLD Select Social Index Fund (ticker KLD; .50% expense ratio) makes this an appropriate time to examine the logic behind what is known as "socially responsible investing." We will first consider the theoretical basis for SRI: What does it mean for a company to be "socially responsible?" Should we expect socially responsible companies to deliver superior risk adjusted returns? If not, then why invest in them? We will then look at the way SRI works in practice, starting with the companies that rate "social responsibility", the indexes that are derived from these ratings, and the performance of funds that only invest in socially responsible companies. Finally, we will answer a simple question: should you tilt your equity allocation towards socially responsible companies?

The Theoretical Basis for SRI

When examining the logic behind socially responsible investing, the first, and ultimately the most difficult challenge one encounters, is defining what constitutes a "socially responsible" company. Writing in 1776, Adam Smith quite clearly equated "socially responsible" with "profit maximizing" in his famous book, An Inquiry Into the Nature and Causes of the Wealth

of Nations. Assuming that all externalities (e.g., the indirect costs of pollution) are taken into account (i.e., either included in prices or via taxes and regulations imposed by government), an economy in which firms pursue their own self-interest (by seeking to maximize their profits) will also be one that maximizes the overall welfare of its citizens. Either because they disagree with Smith's conclusion, or because they doubt that all externalities are fully taken into account, ever since 1776 people have advocated alternative views about the proper social role of the corporation. The most recent manifestation of this controversy is found in calls for "corporate social responsibility" and "socially responsible investing."

Unfortunately, beyond disagreeing with Smith, the people and organizations calling for CSR and SRI don't completely agree on what it means. In general, classification as a "socially responsible firm" is the result of a two step process. The first stage is a "negative screen" that eliminates companies that operate in certain, presumably "socially irresponsible" industries. However, the firms that assign "social responsibility" ratings don't agree on which industries belong in this category, which usually contains some mix of alcohol, gambling, tobacco, weapons manufacturing, nuclear power, and sometimes chemicals. As you can see, ultimately any such characterization has to be based on values about which people can and do disagree. Moreover, these "negative screens" also raise questions about where to draw the line, so to speak. For example, while tobacco companies are out, banks that lend to them can still be considered "socially responsible." The same is true for the difference between chemical companies and companies in other industries that use chemicals as inputs into their production process.

The second stage of the "socially responsible" classification is a so-called "positive screen" that assigns points for behaviors and practices that, based on some criteria, are considered "socially responsible." Unfortunately, there is no agreement on what these are. For example, consider the differences in criteria used by two firms that assign social responsibility ratings to firms. One's list includes community relations, employee relations, workforce diversity, environment, human rights, and product quality and safety; the other's includes governance and ethics, safe and health work environment, environment, product safety and impact, international operations and human rights, indigenous peoples' rights, and community relations.

Assuming one has settled on a definition of the characteristics of a "socially responsible" company, the next question is whether there is any evidence that social responsibility (so defined) is associated with superior risk adjusted returns. Perhaps the strongest evidence is found in the area of corporate governance. In theory, this is not surprising. The separation of ownership and management in a modern corporation creates what is called an "information asymmetry", which gives rise to "principal-agent conflicts." In practical terms, this means that managers can potentially take advantage of shareholders because they have better information about what is going on at the company. The purpose of "corporate governance" is to minimize these conflicts, through a variety of means (e.g., eliminating anti-takeover defenses, using more outside directors, improving accounting disclosures and the like). Multiple academic studies have found a significant positive relationship between good corporate governance and higher shareholder returns (e.g., see "Corporate Governance and Equity Prices" by Gompers, Ishii and Metrick). Yet even within this area, there is disagreement about the specific factors that are causing the observed beneficial effects. For example, in "Corporate Governance and the Returns on Investment" by Gugler, Mueller and Yurtoglu, the authors find that being located in a country that uses a common law (English) based legal system has a substantial impact. However, in another paper ("What Matters in Corporate Governance?" by Bebchuk, Cohen, and Ferrell), the authors find that only six factors (all related to the degree to which management is entrenched) have strong correlations with shareholder returns.

Beyond corporate governance, there is also substantial evidence linking firm performance to some of the other factors included under some definitions of "social responsibility", including certain employee relations, health and safety, and quality practices. However, it is equally legitimate to argue that these practices are also the hallmarks of good management, which maximizes profits.

The real difference of opinion between Adam Smith and the leaders of the CSR/SRI school is about factors for which no strong link to shareholder value creation has been demonstrated. For example, one firm that rates companies on their "social responsibility" takes into consideration such factors as whether "the company's chief executive officer is a woman or a member of a minority group," whether the company "has implemented notably progressive policies toward its gay and lesbian employees," and whether "the company has as

part of its basic mission the provision of products and services for the economically disadvantaged." To our knowledge, there is no body of research that demonstrates a statistically significant link between these factors and superior risk adjusted returns.

Using factors like these, which lack a clear link to value creation, as criteria for identifying "socially responsible" companies, implies a value judgement that they are worth pursuing, even if they worsen risk adjusted returns. For some, this undermines the case for socially responsible investing (see, for example, "The Myth of Social Investing" by Jon Entine). Others, however, make two additional arguments in support of SRI.

The first argument is often called "stakeholder theory." Its advocates propose that a company's managers owe allegiance not just to shareholders, but to other "stakeholders" as well, including customers, suppliers, employees, communities and governments. Unfortunately, stakeholder theory does not provide a criterion (like maximizing shareholder value) for making trade-offs between the competing interests these groups. Critics argue that this opens the door to bigger agency problems (and lower equity returns), as managers maximize their personal satisfaction by spending resources owned by shareholders on other stakeholder groups (see, for example, "Value Maximization, Stakeholder Theory, and the Corporate Objective Function" by Michael Jensen). They also point out that in many countries, the law is quite clear that the primary obligation of managers and people who invest other people's money is to maximize risk-adjusted returns.

The second argument used to justify corporate consideration of theoretically weak social responsibility criteria is based on a particular view of investors. Specifically it assumes that, rather than simply seeking to maximize their risk adjusted returns, investors actually derive their satisfaction from a mix of financial returns and the "warm glow" that comes from being a shareholder in a socially responsible firm (see, for example, "A Modigliani-Miller Theory of Corporate Social Responsibility" by Small and Zivin). If this argument is true, then these investors should be willing to accept lower returns in exchange for a higher level of social responsibility spending by the companies in which they invest. Indeed, the "activist" school of socially responsible investing claims that investors (and others) should undertake political action to force companies to do this. While acknowledging the theoretical elegance of this argument, critics note that it does not appear to be supported by the data. For example, there has not been a great inflow of funds into socially responsible investment funds that

deliver performance significantly below their less responsible benchmarks. In fact, poor performance by these funds has led to outflows of assets. Moreover, other research has found that investors in socially responsible funds are more, rather than less performance sensitive than other investors (see, for example, "Socially Responsible Investors and Performance Sensitivity" by Bollen and Cohen). This suggests that for many people, socially responsible investing is more of a luxury good than a necessity.

Investing in SRI Funds

Let's now move on to the practical issues associated with socially responsible investing. As previously noted, one key issue in this area is the profusion of firms that are rating companies on their "social responsibility", and the different criteria that they use. A closely related problem is the inherently subjective nature of this process, involving as it does "active management" type decisions about (1) the screening criteria to use, (2) the weight to give each criteria, and (3) the inherently subjective nature of a company's "score" on many of these criteria.

A recent report ("Values for Money: Reviewing the Quality of SRI Research") by Mistra, a foundation established by the government of Sweden, highlighted other problems: "Company disclosure was by far the most significant single source of information [for firms assigning SRI ratings], accounting for 40% to 80% of the information input [into the ratings process]." Not only was this information hard to verify, but "one of the most common comments made by companies about the SRI research organizations is the time it takes to respond to numerous requests for information." Many of these companies reported that they were suffering from "questionnaire fatigue." Another comment often raised by companies was that "many SRI research organizations do not understand [the company's] business, and that the [SRI ratings] methodologies are not focusing on key company and sector specific issues."

After they have been identified (on the basis of a set of screening criteria), socially responsible companies are often combined into a "socially responsible" index. There is no shortage of such indexes available today, from both global providers (e.g., the Dow Jones Sustainability Indexes and the FTSE4Good indexes), and national or regional ones (e.g., the

Calvert and KLD/Domini indexes in the United States). The most common approach is to use market capitalization weighting. If one believes that socially responsible companies will generate superior risk adjusted returns, then market capitalization weighting maximizes the financial benefit to an investor. We note, however, that if you believe that corporate social responsibility is valuable in its own right, even if it results in lower financial returns, then one should logically use a weighting scheme based on companies' "social responsibility" scores. The KLD Select Social Index (upon which the iShares ETF is based) uses a variant of this approach. It is constructed using an optimization model (pioneered by TIAA-CREF) that maximizes the "social responsibility score" of the index, subject to a maximum tracking error constraint (in this case, 2% per year) versus an external benchmark (in this case, the Russell 1000 Index). This raises another key point about socially responsible indexes: most of them contain very different risk exposures than the non-socially responsible indexes against which they are often benchmarked. For example, at the end of December, 2004, the FTSE4Good global index had, relative to the FTSE Developed Countries Index, 5.4% more exposure to the financial sector and 3.6% more exposure to non-cyclical services, but 4.7% less to general industrials and 2.6% less to resources. It also had 7.9% less exposure to the United States, but 6.4% higher exposure to the UK, and 2.3% higher exposure to France. Other studies have shown similar differences in socially responsible indexes' exposure to other risk factors, including small versus large capitalization shares, and value versus growth style shares.

Numerous studies have examined the performance record of socially responsible investment funds. Unfortunately, many of them have been criticized for employing questionable methodologies. The stronger studies have taken into account the differing risk factor exposures (e.g., to the market, small caps, value, or momentum) of socially responsible funds. This makes it possible to see whether the socially responsible screens themselves (as opposed to the differing factor risk exposures they produce) had any impact on the funds' performance (technically, they test to see if the SRI screens produced any alpha). In most cases, they find that they do not. For example, in "International Evidence on Ethical Mutual Fund Performance and Investment Style", Bauer, Koedijk, and Otten review performance in Germany, the U.K. and the U.S. and "find little evidence of significant differences in risk adjusted returns between ethical and conventional funds for the 1990 - 2001 period." They also find that actively managed socially responsible funds failed to outperform the socially

responsible indexes over this period. In "Socially Responsible Investments in Germany, Switzerland and the United States," Michael Schroeder reaches the same conclusion.

In "Canadian Ethical Mutual Funds: Performance and Ethical Style Analysis," Bauer, Derwall and Otten find that their "Canadian results are consistent with the perception that the performance differential between ethical mutual funds and their non-ethical peers is statistically insignificant." And in "Ethical Investing in Australia," Bauer, Otten and Rad find that "Australian ethical mutual funds underperform [on a risk adjusted basis] both their relevant indices and their conventional peers between 1992 and 2003." Finally, in "The Performance of Socially Responsible Bond Funds", Derwall and Koedijk find "a positive but statistically insignificant performance differential between socially responsible bond funds and their conventional peers over the period 1987 to 2003" in the United States.

While not adjusted for their differing factor exposures, the following comparison between different socially responsible U.S. index funds and the Vanguard Total Market Index Fund is also interesting. The data cover the three years ended December 31, 2004.

Fund	Calvert Social Index Fund	Domini Social Equity Fund	TIAA-CREF Social Choice Equity Fund	Vanguard Total Market Index Fund
Ticker	CSXAX	DSEFX	TCSCX	VTSMX
Expense Ratio	.75%	.95%	.27%	.20%
Selection Universe	Index selected from Russell 1000 (large cap tilt)	350 large companies, plus 50 other companies with "particularly strong social characteristics" (large cap tilt)	Index selected from Russell 3000 (broad market index)	Tracks Wilshire 5000 (broad market index)
Average Annual Return (nominal)	1.68%	3.28%	5.01%	5.32%
3 Year Standard Deviation	16.89%	15.82%	15.54%	15.62%

As you can see, the Vanguard Total Market Index Fund outperformed all of the socially responsive index funds. However, the difference between it and the TIAA-CREF Social Choice Equity Fund does not appear statistically significant. This is not surprising. Both CSXAX and DSEFX are market capitalization weighted funds. In contrast, TCSCX employs an optimization methodology intended to maximize the fund's weighted social responsibility score within the constraint that its return and risk don't deviate too far from the Russell 3000 (which includes about 98% of U.S. equity market capitalization, versus 100% in the Wilshire 5000). This is the same approach used by the new iShares KLD Select Social Index ETF. However, rather than using the broad Russell 3000 as its benchmark, it takes a large cap tilt and uses the Russell 1000. Also, at .50%, its expense ratio is also somewhat higher than the TIAA-CREF fund.

Conclusion

Should you tilt your equity (or even your bond) allocation toward socially responsible investments? For better or worse, the answer to that question seems to lie more in the realm of values than it does financial economics. To be sure, some of the criteria used to identify "socially responsible" companies seem to be associated with higher shareholder returns. Foremost among these seem to be some of the criteria associated with corporate governance. Unfortunately, as with all successful active management screening criteria, now that this has been publicized an efficient market should eliminate the future potential for excess returns, by bidding up the price of well-governed companies. However, the majority of criteria used to identify "socially responsible" companies do not seem to have a clear link to shareholder value creation. If you believe that a tilt toward "socially responsible" companies will produce superior risk adjusted returns, you will likely be disappointed.

This does not necessarily mean that you should avoid funds that invest in socially responsible funds. If you derive non-monetary satisfaction from investing in companies identified as "socially responsible" under some set of criteria, and are willing to sacrifice some financial returns to obtain this satisfaction, there is nothing wrong with that. However, if you choose to go this route, we would strongly suggest doing it using socially responsible index funds. Being socially responsible does not make active management any less

challenging. Fortunately, there is a growing number of socially responsible index products available around the world. We prefer the ones that employ an optimization methodology that tries to keep the fund's returns and risk close to those of an underlying conventional benchmark index (e.g., the Russell 1000 for the new KLD ETF, and the Russell 3000 for the TCSCX mutual fund in the United States). However, the maximum tracking error versus the benchmark index that these funds allow (2% in the case of KLD) is very large in the world of index funds. Also, most actively managed funds take on tracking error risk in order to generate higher returns (alpha). In this case, tracking error is being taken on to generate a higher social responsibility score. This raises an interesting question: how many people would take the risk of paying 2% more in interest just to get a mortgage from a socially responsible bank?

When all is said and done, we remain unconvinced that for most people the level of non-monetary satisfaction that accompanies socially responsible investing exceeds the amount that comes from investing in a conventional broad market index fund, and contributing the higher earnings on this investment (ideally along with your time) to a charitable cause whose benefits you can observe and enjoy first-hand.

Product and Strategy Notes

Fund Changes

As we have noted in the past, there is considerable research evidence that suggests potential benefits from internationally diversifying one's allocation to commercial property. In Australia, Deutsche Asset Management recently launched two new actively managed funds that help investors do just this. The Deutsche Global (Ex-Australia) Property Securities Fund will invest in US, Asia and Europe, while The Deutsche Global Property Securities Fund invests in the same regions plus Australia.

The Vanguard Energy Fund (VGENX) recently closed to new investors. Fortunately, we understand that the broader-based PIMCO Commodity Real Return Fund (PCRDY) is available through Vanguard Brokerage. Given a choice, we still prefer the latter as the way to implement an allocation to commodities.

Completing its shift to indexes from Morgan Stanley Capital International, Vanguard has also announced that it is changing the benchmark for its total market fund (VTSMX) and associated ETF shares (VTI) from the Wilshire 5000 to the MSCI Broad Market Index. The latter includes the large cap 300, midcap 450, small cap 1,750, and microcap 2,500 indexes. It covers 99.5% of total U.S. equity market capitalization, or one half of one percent less than the Wilshire 5000. In performance terms, the impact should be very slight.

Standard and Poor's SPIVA Shows Advantage of Index Investing

Over the past few months, Standard and Poor's has been expanding the geographic scope of their excellent series of SPIVA reports (short for Standard and Poor's Indices Versus Active Funds Scorecard). The results are not encouraging for active managers. Over the five years ended December 31, 2004, the S&P 500 Index delivered higher returns than 58.7% of U.S. large cap equity funds. The MidCap 400 Index outpaced 84.2% of comparable active funds over the same period, while the S&P 600 outperformed 72.4% of actively managed small cap funds. Through the five years ended September, 30, 2004, the S&P/TSX Composite Index outperformed 69.6% of actively managed pure large cap Canadian equity funds (i.e., those that have minimal investments in the United States), while the Capped Composite Index outpaced 91.3% of pure large cap equity funds. Over the same period, the S&P/TSX Small Cap Index delivered higher returns than 65.7% of actively managed small cap funds. Finally, in the five years ended June 30, 2004, the S&P Japan 500 Index outperformed 73.7% of actively managed large cap equity funds, while the S&P Japan Small Cap 250 Index outperformed 76.6% of actively managed small cap funds.

Is There A Housing Bubble in the U.S.?

Not according to two economists from the Federal Reserve Bank of New York. In their paper "Are Home Prices the Next Bubble?" McCarthy and Peach find "little evidence to support the existence of a national home price bubble. Rather, it appears that home prices have risen in line with increases in personal income and declines in nominal interest rates. Moreover, expectations of rapid price appreciation do not appear to be a major factor behind the strong

housing market. Our observations also suggest that home prices are not likely to plunge in response to deteriorating fundamentals to the extent envisioned by some analysts. Real home prices have been less volatile than other asset prices, such as equity prices. Several reasons have been cited for the lower volatility, including the cost to speculate in the housing market. However, there have been examples of extreme home price volatility where it presumably has been costly to speculate, such as in Japan in the late 1980s and the 1990s. Therefore, we prefer instead to emphasize that the lower volatility of national home prices likely stems from the disjointed nature of the U.S. housing market. Furthermore, our state-level analysis of home prices finds that while prices have risen much faster recently for some states than for the nation, the supply of housing in those states appears to be inelastic, making prices there more volatile. We therefore conclude that much of the volatility at the state level is the result of changing fundamentals rather than regional bubbles. Nevertheless, weaker fundamentals have caused home price declines in those areas with inelastic supply. If the past is any guide, however, that phenomenon is unlikely to plunge the U.S. economy into a recession.”

More specifically, the authors note that their evidence “suggests that changing demand fundamentals should cause prices to fluctuate more in California and the northeast than in other areas. Therefore, the strong home price appreciation over 1999-2003 in those areas is a consequence of improving economic conditions combined with relatively unresponsive supply. Our evidence also implies that recent state price fluctuations can be explained through an expanded model of fundamentals. This conclusion is in contrast to [other researchers] who suggest that unusually strong price appreciation in some states (compared with the predictions of a simple pricing model) indicates home price bubbles in those regions.”

Also on the housing front, another interesting paper (“The Long Run Relationship Between House Prices and Rents” by Joshua Gallin of the Federal Reserve Board) finds “that periods in which house prices are high relative to rents appear to be followed by periods in which real rent growth is faster than usual, and real house-price growth is slower than usual, and that the response of prices dominates that of rents.” In other words, the rent/price ratio acts in a very similar manner to the dividend/price ratio in equity markets.

Thinking Systematically About Art as an Asset Class

In some publications, “collectibles” are included as an asset class. This immediately poses the problem of how to compare collectibles to other asset classes, since the underlying works are often non-standardized, have little in common with each other, and few objective bases for valuation analysis. An innovative paper recently published by Yale University has begun to make inroads into solving this problem, at least when it comes to works of art. In their paper “Beauty is in the Bid of the Beholder: An Empirical Basis for Style”, Goetzmann, Walden, Maggioni and Jones work backward from the prices for different works of art in the auction market. Using a new clustering algorithm, they define five different styles in terms of their price dynamics. They authors then make preliminary associations between these “investment styles” and the “artistic styles” of the artists whose works are included in the data series. While this paper is not the last word on how to include collectibles in asset allocation analyses, it certainly makes for interesting reading.

Hedge Fund Index Confusion

In our January, 2004 issue we analyzed the pros and cons of investing in hedge funds. As we noted, from a technical point of view, these are not a separate asset class; rather, they are investment strategies within one or more asset classes. The question of whether or not to invest in hedge funds is further muddled by the differing results for indexes meant to track their performance. Consider the final 2004 results (following revisions) for a number of widely tracked indexes. We have always liked the CSFB/Tremont index because it uses market capitalization weighting and a methodology that limits the impact of a number of serious issues like survivorship bias. For 2004, it was up 9.64% in nominal U.S. dollar terms. However, because not all hedge funds are open to new investors, CSFB/Tremont has also produced an “investable” hedge fund index, covering a smaller number of funds still open to qualified investors (but with the same style weights as its broad index). For 2004, this was up only 5.24%. A similar phenomenon is seen in the results for Morgan Stanley Capital International's hedge fund indexes. In 2004, its broad (asset weighted) index was up 7.28% in nominal U.S. dollar terms, while its investable (Hedge-Invest) index was up only 3.23%.

Finally, Standard and Poor's investable hedge fund index (SPHINX) was up 3.88% on the year. These data suggest two interesting points. First, it would appear that funds still open to new investors (at least the ones included in the investable indexes) are generating lower returns than some of the funds that have been closed. Second, even the CSFB/Tremont Index' 9.64% return was below that on many asset classes in 2004. Both of these are in line with a prediction made by many observers (us included) that the returns to many hedge fund strategies would fall as more and more capital was committed to them, and to less talented managers.

Thoughts on Bob Arnott's "Fundamental Indexation"

Bob Arnott is indisputably a very smart man. He is the editor of the Financial Analyst's Journal, and manages the PIMCO All Asset Fund (PASAX). Along with co-authors Jason Hsu and Phillip Moore, he has recently published a very interesting paper on "Fundamental Indexation." The main argument of the paper is as follows: "we examine a series of equity market indexes weighted by fundamental metrics of size, rather than market capitalization. We find that these indexes deliver consistent and significant benefits relative to standard capitalization-weighted market indexes. These indexes exhibit similar beta, liquidity and capacity compared to capitalization-weighted equity market indexes and have very low turnover. They show annual returns that are on average 213 basis points higher than equivalent capitalization-weighted indexes over the 42 years of the study. They contain most of the same stocks found in the traditional equity market indexes, but the weights of the stocks in these new indexes differ materially from their weights in capitalization-weighted indexes. Selection of companies and their weights in the indexes are based on simple measures of firm size such as book value, income, gross dividends, revenues, sales, and total company employment."

We have a number of thoughts on this very provocative paper. First, we think it is important to note that Arnott's basic argument focuses on the issue of the best way to construct an equity index. He does not question the underlying argument for indexing itself. He does, however, question whether a market cap weighted index the best one to use within the equity asset class. From our perspective, the best index to use is the one that best measures

the changes in the economic value being created within a given asset class. As we noted in last month's article on "Investing in Debt Markets", it is not automatically the case that market capitalization is the best solution. However, in the case of equities, finance theory teaches us that economic value equals the present value of future cash flows that investors expect to receive.

In investing terms, this is approximated by the dividend discount model, which equates current market value to the current dividend discounted at (the current required return on equity less the expected growth rate of dividends). As we have repeatedly written, this equation is deceptively simple. While two of the variables it contains can be obtained from the newspaper (dividend yield and the current yield on real return bonds), the other two (the equity premium and the expected dividend growth rate) are two of the most hotly contested issues in finance. Here we come to Arnott's observation that "the genesis of our non-capitalization weighted market indexes stems from a concern that market capitalization is a particularly volatile way to measure a company's true fair value. If so, capitalization weighting may lead to sub-optimal portfolio return characteristics because prices are too noisy relative to fundamentals."

Let's look at this contention in a little more detail. To simplify, let's say that an active manager can take two approaches to forecasting future returns. Alternatively, he can try to forecast fundamental value (using assumptions for the equity risk premium and future dividend growth) and "back into" the expected return, or he can try to directly forecast returns.

In the case of this latter approach, the future returns on a stock are a function of three factors. First, the portion of return is compensation for bearing risk factors that are systematic. Different models use different variables to describe this risk (e.g., the market return alone, as in CAPM, or that plus size and value as in Fama French). The second portion of return is compensation for bearing risks that are unique to the stock in question -- idiosyncratic risk. Theoretically, the positive and negative returns associated with idiosyncratic risks average out to zero in a well-diversified portfolio. And the third portion of return is compensation for bearing risk related to the (possibly unreasonable, if not irrational) behavior of other investors. While this risk has no official name, active managers are very conscious of it. In addition, its impact can also be seen in various academic papers, which have variously identified risk

factors associated with momentum, liquidity, and the relative availability of information (as well as its quality, as evidenced by the dispersion of analyst earnings forecasts).

In sum, given the underlying uncertainties, it isn't surprising that stock prices are, as Arnott notes, a noisy indicator of economic value creation. Moreover, he is also correct that, at any point in time, "mathematically, capitalization weighting...gives additional weight to stocks that are currently overpriced relative to their (unknowable) discounted future cash flows (the true fair value), and reduces weights in stocks that are currently trading below that true fair value." The key question is whether or not these over and undervaluations are in any way systematic. If they are, it raises some interesting questions.

Some analyses suggest that such systematic biases occur. For example, in their paper, "The Level and Persistence of Growth Rates", Chan, Karceski and Lakonishok note that "most of the cross-sectional variation [in market/book ratios] reflects differences in expected [dividend] growth rates." In addition, the large variation in market/book ratios seems to indicate "a widespread belief among market participants that future earnings growth is highly predictable." The authors note that, exactly as the theory of competitive markets predicts, "there is no persistence in long-term earnings growth beyond chance." Hence, they conclude that at least some investors in high market/book stocks (commonly known as growth stocks) appear to be making systematic valuation errors. Why these systematic valuation errors occur is the subject of a growing literature on the behavioral causes of the value effect.

In addition, there is also some evidence that momentum also works asymmetrically, with positive moves stretching out over a longer period time than corrections, which happen more quickly. However studies in both of these areas leave unresolved an important question: if at least some investors are systematically making valuation errors, why aren't others systematically arbitraging away the resulting profit opportunities? This is the subject of another burgeoning literature on the "barriers to arbitrage." Finally, these behavioral critiques have to be balanced against another group of papers that claims the additional returns to value and momentum stocks represent additional compensation for bearing certain types of risk in an efficient market.

It is in this context that we have to look at Arnott's finding that indexes based on measures of size other than market capitalization outperform market cap-based products. In terms of the dividend discount model, Arnott's "fundamental indexes" effectively remove

expected dividend growth from the equation. In terms of the direct return forecasting model, it eliminates the expected behavior of other investors. As we have noted, these are two of the main sources of uncertainty (albeit in different models) when it comes to determining the market value of a company. Instead, Arnott's fundamental indexes are based on measures of current, rather than expected future size. From an economic point of view, this effectively biases the index toward those companies whose competitive advantages (and strategies for leveraging them) have been very successful up to now. In contrast, a market capitalization index is based on inherently more uncertain estimates about which strategies are likely to be most successful in the future. For this reason, Arnott calls his index a "Main Street" rather than a "Wall Street" measure. However, to continue Arnott's analogy, his "Main Street" index also makes the critical but implicit assumption that these companies' success will continue in the future. Unfortunately, a glance at the turnover in the Fortune 500 (or a similar list) over the past fifty years shows that this assumption often turns out to be overoptimistic. To rather glibly sum up, the choice between size and market cap weighting is a choice between a past track record that may not continue, or future expectations that may not come to pass.

Arnott's paper implies that the superior performance of his fundamental indexes means that, given a choice, it is better to bet on the past rather than the future. As Arnott admits, the performance advantage of his "fundamental index" is due to its underweighting of growth and small cap stocks (relative to a market cap-based index), which imparts a de-facto large cap value tilt to the resulting index portfolio. And as he also admits, this brings us right back to the ongoing debate over the nature of the value effect. Does it reflect systematic behavioral factors and obstacles to arbitrage, or does it represent compensation for some type of additional systematic risk? In regard to the latter view, it is interesting to note that Arnott finds that the returns on his "fundamental index" have slightly higher kurtosis (i.e., extreme event risk) than the returns on the comparable market cap based index.

In sum, we think Arnott's paper makes a very valuable contribution to the ongoing and unresolved debate, not only about the best way to implement an indexing strategy in the equities asset class, but also about the underlying nature of the value premium.

Model Portfolios Update

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

We use a "rule of thumb" approach (or, to use the more formal term, a "heuristic approach") to construct our benchmark portfolios. More specifically, we use three "rules of thumb" that are often cited in news stories a mix of 80% equities and 20% debt (for our high risk/high return portfolios); a mix of 60% equities and 40% debt (for our moderate risk/moderate return portfolios); and a mix of 20% equities and 80% debt (for our low risk/low return portfolios). Using different terminology, somebody else might call these three portfolios aggressive, balanced, and conservative. We implement these three rules of thumb in two different ways (to construct six different benchmark portfolios). The first uses just two asset classes: domestic investment grade bonds and domestic equity. The second uses a broader mix of asset classes: domestic and foreign investment grade bonds, and domestic and foreign (including emerging market) equity. In addition to these 80/20, 60/40, and 20/80 portfolios, we also provide our "couch potato" portfolio. This portfolio is equally allocated to all of the asset classes we use. More formally, this is known as the "1/N heuristic," which research has shown is an approach used by a significant proportion of retirement plan investors. This portfolio implicitly assumes that it is impossible to accurately forecast future asset class risk and return; consequently, the best approach is to equally divide one's exposure to different sources of return (and risk). While we disagree with this assumption, intellectual honesty compels us to include the "couch potato" portfolio as one of our benchmarks. Finally, each year we also benchmark all our portfolios against the return from holding cash. We define this return as the yield to maturity on a one-year government security purchased at the end of the previous year. For 2005, the GBP cash benchmark return is 4.47% (nominal).

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

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

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

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

Model Portfolios Year-to-Date Performance

<i>These portfolios seek to maximize return while matching their benchmark's risk (standard deviation)</i>			
	YTD 31Jan05	Weight	Weighted Return
	in Pounds		In Pounds
High Risk Portfolio			
<i>Asset Classes</i>			
<i>UK Benchmark</i>			
UK Equity	-0.7%	80%	-0.5%
UK Bonds	0.1%	20%	0.0%
		100%	-0.5%
<i>Global Benchmark</i>			
U.S. Equity	-0.9%	40%	-0.4%
Non-U.S. Equity	0.1%	40%	0.0%
U.S. Bonds	2.4%	10%	0.2%
Non-U.S. Bonds	0.2%	10%	0.0%
		100%	-0.1%
<i>Recommended</i>			
UK Equity	-0.7%	32%	-0.2%
Foreign Equity (US)	-0.9%	22%	-0.2%
Foreign Equity (Pacific)	0.0%	5%	0.0%
Foreign Equity (Eurozone)	-0.4%	6%	0.0%
UK Bonds	0.1%	25%	0.0%
Commodities	2.6%	10%	0.3%
		100%	-0.2%

<i>These portfolios seek to maximize return while matching their benchmark's risk (standard deviation)</i>			
	YTD 31Jan05	Weight	Weighted Return
	in Pounds		In Pounds
Medium Risk Portfolio			
<i>Asset Classes</i>			
<i>UK Benchmark</i>			
UK Equity	-0.7%	60%	-0.4%
UK Bonds	0.1%	40%	0.0%
		100%	-0.4%
<i>Global Benchmark</i>			
U.S. Equity	-0.9%	30%	-0.3%
Non-U.S. Equity	0.1%	30%	0.0%
U.S. Bonds	2.4%	20%	0.5%
Non-U.S. Bonds	0.2%	20%	0.0%
		100%	0.2%
<i>Recommended</i>			
UK Equity	-0.7%	27%	-0.2%
Foreign Equity (US)	-0.9%	17%	
Foreign Equity (Pacific)	0.0%	4%	0.0%
Foreign Equity (Eurozone)	-0.4%	5%	0.0%
UK Bonds	0.1%	37%	0.0%
Commodities	2.6%	10%	0.3%
		100%	0.1%

<i>These portfolios seek to maximize return while matching their benchmark's risk (standard deviation)</i>			
	YTD 31Jan05	Weight	Weighted Return
	in Pounds		In Pounds
Low Risk Portfolio			
<i>Asset Classes</i>			
<i>UK Benchmark</i>			
UK Equity	-0.7%	20%	-0.1%
UK Bonds	0.1%	80%	0.0%
		100%	-0.1%
<i>Global Benchmark</i>			
U.S. Equity	-0.9%	10%	-0.1%
Non-U.S. Equity	0.1%	10%	0.0%
U.S. Bonds	2.4%	40%	0.9%
Non-U.S. Bonds	0.2%	40%	0.1%
		100%	0.9%
<i>Recommended</i>			
UK Equity	-0.7%	8%	-0.1%
Foreign Equity (US)	-0.9%	10%	-0.1%
Foreign Equity (Pacific)	0.0%	2%	0.0%
Foreign Equity (Eurozone)	-0.4%	3%	0.0%
Emerging Mkt. Equity	1.7%	10%	0.2%
UK Bonds	0.1%	60%	0.0%
Commodities	2.6%	7%	0.2%
		100%	0.2%
<i>Global Bond Index = 50% US\$ plus 50% Non-US\$ Bonds</i>			

<i>These portfolios seek to minimize risk while matching their benchmark's returns.</i>			
	YTD 31Jan05	Weight	Weighted Return
	in Pounds		in Pounds
High Return Portfolio			
<i>Asset Classes</i>			
<i>UK Benchmark</i>			
UK Equity	-0.7%	80%	-0.5%
UK Bonds	0.1%	20%	0.0%
		100%	-0.5%
<i>Global Benchmark</i>			
U.S. Equity	-0.9%	40%	-0.4%
Non-U.S. Equity	0.1%	40%	0.0%
U.S. Bonds	2.4%	10%	0.2%
Non-U.S. Bonds	0.2%	10%	0.0%
		100%	-0.1%
<i>Recommended</i>			
UK Equity	-0.7%	20%	-0.1%
Foreign Equity (US)	-0.9%	23%	-0.2%
Foreign Equity (Pacific)	0.0%	6%	0.0%
Foreign Equity (Eurozone)	-0.4%	6%	0.0%
UK Bonds	0.1%	35%	0.0%
Commodities	2.6%	10%	0.3%
		100%	-0.1%

<i>These portfolios seek to minimize risk while matching their benchmark's returns.</i>			
	YTD 31 Jan 05	Weight	Weighted Return
	in Pounds		in Pounds
Medium Return Portfolio			
<i>Asset Classes</i>			
<i>UK Benchmark</i>			
UK Equity	-0.7%	60%	-0.4%
UK Bonds	0.1%	40%	0.0%
		100%	-0.4%
<i>Global Benchmark</i>			
U.S. Equity	-0.9%	30%	-0.3%
Non-U.S. Equity	0.1%	30%	0.0%
U.S. Bonds	2.4%	20%	0.5%
Non-U.S. Bonds	0.2%	20%	0.0%
		100%	0.2%
<i>Recommended</i>			
UK Equity	-0.7%	15%	-0.1%
Foreign Equity (US)	-0.9%	14%	
Foreign Equity (Pacific)	0.0%	3%	0.0%
Foreign Equity (Eurozone)	-0.4%	4%	0.0%
UK Bonds	0.1%	44%	0.0%
Global Bonds	1.3%	10%	0.1%
Commodities	2.6%	10%	0.3%
		100%	0.3%

<i>These portfolios seek to minimize risk while matching their benchmark's returns.</i>			
	YTD 31 Jan05	Weight	Weighted Return
	in Pounds		in Pounds
Low Return Portfolio			
<i>Asset Classes</i>			
<i>UK Benchmark</i>			
UK Equity	-0.7%	20%	-0.1%
UK Bonds	0.1%	80%	0.0%
		100%	-0.1%
<i>Global Benchmark</i>			
U.S. Equity	-0.9%	10%	-0.1%
Non-U.S. Equity	0.1%	10%	0.0%
U.S. Bonds	2.4%	40%	0.9%
Non-U.S. Bonds	0.2%	40%	0.1%
		100%	0.9%
<i>Recommended</i>			
UK Equity	-0.7%	5%	0.0%
Foreign Equity (US)	-0.9%	5%	0.0%
Foreign Equity (Pacific)	0.0%	2%	0.0%
Foreign Equity (Eurozone)	-0.4%	2%	0.0%
UK Bonds	0.1%	55%	0.0%
Global Bonds	1.3%	25%	0.3%
Commodities	2.6%	6%	0.2%
		100%	0.4%
<i>Global Bond Index = 50% US\$ plus 50% Non-US\$ Bonds</i>			

<i>These portfolios seek to maximize the probability of achieving at least the target real return over twenty years, at the lowest possible risk.</i>			
	YTD 31Jan05	Weight	Weighted Return
	In UK£		In UK£
7% Target Real Return	<i>YTD Returns are Nominal</i>		
<i>Asset Classes</i>			
UK Real Return Bonds	0.2%	0%	0.0%
UK Bonds	0.1%	12%	0.0%
Global Bonds	1.3%	23%	0.3%
Commercial Property	-2.7%	0%	0.0%
Commodities	2.6%	7%	0.2%
UK Equity	-0.7%	51%	-0.3%
Foreign Equity (US)	-0.9%	0%	0.0%
Foreign Equity (Pacific)	0.0%	0%	0.0%
Foreign Equity (Eurozone)	-0.4%	0%	0.0%
Emerging Mkt. Equity	1.7%	7%	0.1%
Hedge Funds	1.3%	0%	0.0%
		100%	0.2%
	YTD 31Jan05	Weight	Weighted Return
	In UK£		In UK£
5% Target Real Return	<i>YTD Returns are Nominal</i>		
<i>Asset Classes</i>			
UK Real Return Bonds	0.2%	0%	0.0%
UK Bonds	0.1%	35%	0.0%
Global Bonds	1.3%	10%	0.1%
Commercial Property	-2.7%	13%	-0.3%
Commodities	2.6%	7%	0.2%
UK Equity	-0.7%	20%	-0.1%
Foreign Equity (US)	-0.9%	0%	0.0%
Foreign Equity (Pacific)	0.0%	0%	0.0%
Foreign Equity (Eurozone)	-0.4%	0%	0.0%
Emerging Mkt. Equity	1.7%	15%	0.2%
Hedge Funds	1.3%	0%	0.0%
		100%	0.1%

	YTD 31Jan05	Weight	Weighted Return
	In UK£		In UK£
3% Target Real Return	<i>YTD Returns are Nominal</i>		
<i>Asset Classes</i>			
UK Real Return Bonds	0.2%	32%	0.1%
UK Bonds	0.1%	27%	0.0%
Global Bonds	1.3%	20%	0.3%
Commercial Property	-2.7%	0%	0.0%
Commodities	2.6%	7%	0.2%
UK Equity	-0.7%	5%	0.0%
Foreign Equity (US)	-0.9%	7%	-0.1%
Foreign Equity (Pacific)	0.0%	0%	0.0%
Foreign Equity (Eurozone)	-0.4%	0%	0.0%
Emerging Mkt. Equity	1.7%	2%	0.0%
Hedge Funds	1.3%	0%	0.0%
		100%	0.4%

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

These portfolios are the same as our other target real return portfolios, except that they can invest in hedge fund index products.

	YTD 31Jan05	Weight	Weighted Return
	In UKE		In UKE
7% Target Real Return			
<u>Asset Classes</u>			
UK Real Return Bonds	0.2%	0%	0.0%
UK Bonds	0.1%	12%	0.0%
Global Bonds	1.3%	25%	0.3%
Commercial Property	-2.7%	5%	-0.1%
Commodities	2.6%	20%	0.5%
UK Equity	-0.7%	13%	-0.1%
Foreign Equity (US)	-0.9%	0%	0.0%
Foreign Equity (Pacific)	0.0%	0%	0.0%
Foreign Equity (Eurozone)	-0.4%	0%	0.0%
Emerging Mkt. Equity	1.7%	17%	0.3%
Hedge Funds	1.3%	8%	0.1%
		100%	1.0%

	YTD 31Jan05	Weight	Weighted Return
	In UKE		In UKE
5% Target Real Return			
<u>Asset Classes</u>			
UK Real Return Bonds	0.2%	0%	0.0%
UK Bonds	0.1%	27%	0.0%
Global Bonds	1.3%	18%	0.2%
Commercial Property	-2.7%	0%	0.0%
Commodities	2.6%	17%	0.4%
UK Equity	-0.7%	6%	0.0%
Foreign Equity (US)	-0.9%	8%	-0.1%
Foreign Equity (Pacific)	0.0%	2%	0.0%
Foreign Equity (Eurozone)	-0.4%	2%	0.0%
Emerging Mkt. Equity	1.7%	15%	0.2%
Hedge Funds	1.3%	5%	0.1%
		100%	0.9%

	YTD 31Jan05	Weight	Weighted Return
	In UK£		In UK£
3% Target Real Return			
<i>Asset Classes</i>	<i>YTD Returns are Nominal</i>		
UK Real Return Bonds	0.2%	46%	0.1%
UK Bonds	0.1%	5%	0.0%
Global Bonds	1.3%	17%	0.2%
Commercial Property	-2.7%	3%	-0.1%
Commodities	2.6%	10%	0.3%
UK Equity	-0.7%	8%	-0.1%
Foreign Equity (US)	-0.9%	3%	0.0%
Foreign Equity (Pacific)	0.0%	2%	0.0%
Foreign Equity (Eurozone)	-0.4%	2%	0.0%
Emerging Mkt. Equity	1.7%	2%	0.0%
Hedge Funds	1.3%	2%	0.0%
		100%	0.4%

	In UK£	Weight	Weighted Return
	In UK£		In UK£
Equally Weighted Portfolio	<i>YTD Returns are Nominal</i>		
<i>Asset Classes</i>			
UK Real Return Bonds	0.2%	12.5%	0.0%
UK Bonds	0.1%	12.5%	0.0%
Global Bonds	1.3%	12.5%	0.2%
Commercial Property	-2.7%	12.5%	-0.3%
Commodities	2.6%	12.5%	0.3%
UK Equity	-0.7%	12.5%	-0.1%
Foreign Equity (US)	-0.9%	8.0%	-0.1%
Foreign Equity (Pacific)	0.0%	2.5%	0.0%
Foreign Equity (Eurozone)	-0.4%	2.0%	0.0%
Emerging Mkt. Equity	1.7%	12.5%	0.2%
		100.0%	0.2%