

The Index Investor

Why Pay More for Less?

Global Asset Class Returns

Our December issue included a summary table showing how different asset classes performed in 2002 in terms of different currencies. We didn't realize it would be such a big hit with our readers! In response to requests from many of you, we will now be including an update of this table in each month's issue, showing year-to-date returns for each asset class.

	<u>In USD</u>	<u>In AUD</u>	<u>In CAD</u>	<u>In EURO</u>	<u>In JPY</u>	<u>In GBP</u>
US Equity	(4.20%)	(12.47%)	(9.73%)	(6.85%)	(4.65%)	(2.05%)
US Bonds	1.40%	(6.87%)	(4.13%)	(1.25%)	0.95%	3.55%
AUS Equity	2.30%	(5.97%)	(3.23%)	(0.35%)	1.85%	4.45%
AUS Bonds	8.92%	0.65%	3.39%	6.27%	8.47%	11.07%
CAN Equity	5.90%	(2.37%)	0.37%	3.25%	5.45%	8.05%
CAN Bonds	5.85%	(2.42%)	0.32%	3.20%	5.40%	8.00%
Euroland Equity	(7.40%)	(15.67%)	(12.93%)	(10.05%)	(7.85%)	(5.25%)
Euroland Bonds	4.90%	(3.37%)	(0.63%)	2.25%	4.45%	7.05%
Japan Equity	(1.60%)	(9.87%)	(7.13%)	(4.25%)	(2.05%)	0.55%
Japan Bonds	1.05%	(7.22%)	(4.48%)	(1.60%)	0.60%	3.20%
UK Equity	(8.40%)	(16.67%)	(13.93%)	(11.05%)	(8.85%)	(6.25%)
UK Bonds	(0.09%)	(8.36%)	(5.62%)	(2.74%)	(0.54%)	2.06%
World Equity	(5.15%)	(13.42%)	(10.68%)	(7.80%)	(5.60%)	(3.00%)
World Bonds	2.30%	(5.97%)	(3.23%)	(0.35%)	1.85%	4.45%
Commodities	22.50%	14.23%	16.97%	19.85%	22.05%	24.65%

Model Portfolio Update

The objective of our first set of model portfolios is to deliver higher returns than their respective benchmarks, while taking on no more risk. The benchmark for the first portfolio in this group is an aggressive mix of 80% domestic equities, and 20% domestic bonds. Through the end of February, this benchmark had returned (4.6%) in pounds sterling, while our model portfolio had returned (0.2%). We have also compared our model portfolios to a set of global benchmarks. In this case, the global benchmark is a mix of 80% global equities, and 20% global bonds. Through the end of last month, it had returned (1.5%).

The benchmark for the second portfolio in this group is a mix of 60% domestic equities and 40% domestic bonds. Through the end of last month, it had returned (2.9%), while our model portfolio had returned 0.6%, and the global benchmark had returned 0.0%.

The benchmark for the third portfolio in this group is a conservative mix of 20% domestic equities and 80% domestic bonds. Through the end of last month, it had returned 0.4%, while our model portfolio had returned 1.7% and the global benchmark 3.0%.

The objective of our second set of model portfolios is to deliver less risk than their respective benchmarks, while delivering at least as much return. The benchmark for the first portfolio in this group is an aggressive mix of 80% domestic equities, and 20% domestic bonds. Through the end of last month, this benchmark had returned (4.6%), while our model portfolio had returned (1.6%). We have also compared our model portfolios to a set of global benchmarks. In this case, the global benchmark is a mix of 80% global equities, and 20% global bonds. Through the end of last month, it had returned (1.5%).

The benchmark for the second portfolio in this group is a mix of 60% domestic equities and 40% domestic bonds. Through the end of last month, it had returned (2.9%), while our model portfolio had returned 1.9%, and the global benchmark had returned 0.0%.

The benchmark for the third portfolio in this group is a conservative mix of 20% domestic equities and 80% domestic bonds. Through the end of last month, it had returned 0.4%, while our model portfolio had returned 2.9% and the global benchmark 3.0%.

The objective of our third set of model portfolios is not to outperform a benchmark index, but rather to deliver a minimum level of compound annual return over a ten-year period. Through last month, our 12% target return portfolio has returned (1.1%) year-to-date, our 10% target return portfolio has returned (2.0%) our 8% target return portfolio has returned (0.7%), and our 6% target return portfolio has returned 1.8%.

Equity Market Valuation Update

As we have previously noted, our valuation analysis rests on two fundamental assumptions: that over the long term, labor productivity growth in our six major regions will converge to between 2.5% and 3.5% per year, and that the long term real equity risk premium is 4.0% per year. Given those assumptions, here is our updated market valuation analysis at 28 February, 2003:

Country	Real Risk Free Rate	Equity Risk Premium	Required Real Return on Equities	Expected Real Growth Rate*	Div Yield	Expected Real Equity Return
Australia	2.93%	4.0%	6.93%	4.3%	4.1%	8.4%
Canada	3.03%	4.0%	7.03%	4.1%	2.1%	6.2%
Eurozone	1.80%	4.0%	5.80%	3.5%	3.8%	7.3%
Japan	2.00%	4.0%	6.00%	3.2%	1.1%	4.3%
U.K.	1.99%	4.0%	5.99%	3.5%	3.9%	6.4%

Country	Real Risk Free Rate	Equity Risk Premium	Required Real Return on Equities	Expected Real Growth Rate*	Div Yield	Expected Real Equity Return
U.S.A.	2.44%	4.0%	6.44%	4.4%	1.9%	6.3%

**This reflects not only 3.5% productivity growth, but also expected labor force growth.*

Country	Implied Index Value*	Current Index Value at 2/28/03	Current/Implied (productivity growth @3.5%)	Current/Implied (productivity growth at 2.5%)
Australia	320.02	205.28	64%	89%
Canada	153.65	214.38	140%	187%
Eurozone	175.18	106.03	61%	87%
Japan	29.04	73.93	255%	345%
U.K.	362.81	231.64	64%	89%
U.S.A.	320.14	343.73	107%	160%

** Assuming 3.5% future productivity growth*

A final market valuation note: The OECD has praised Australia's "exceptional economic performance" in its just released survey of that country. The OECD noted that "income growth is brisk, employment is expanding, inflation is under control, and public finances are healthy. All indications are that the continuing effects of previous reforms will continue to help the economy to combat shocks in the immediate future." Real economic growth is forecast to be 3.25% this year and 3.75% in 2004. The major risk to this forecast identified by the OECD is Australia's housing boom, which, if it reaches bubble proportions and bursts, would reduce consumer spending and growth.

Product and Strategy Notes

At Last! A New Commodity Index Fund

Last December saw the initial introduction of a new commodity index fund from Pacific Investment Management (PIMCO) called the Commodity Real Return Strategy Fund. Only institutional shares are traded now (ticker PCRIX), but retail ones are on the way. This is a good time to compare this new offering to the Oppenheimer Real Assets Fund, which up to now has had the field to itself.

While we don't yet know the sales load the PIMCO fund will carry, we do know that the load on the Oppenheimer fund is steep: 5.75% on the Class A shares (the Class B shares carry a deferred load which declines to zero if the shares are held for more than six years, while the Class C shares carry a 1% deferred sales load for the first year they are owned). The annual expenses on the Oppenheimer Fund are also relatively high: 1.68% per year for the Class A shares, 2.45% per year for the Class B shares (for the first six years, after which they convert to Class A shares), and 2.45% per year (forever) on the Class C shares. (Note that if the shares are held for five or more years, the Class B shares are the least expensive to own, and the Class C shares the most expensive).

At this point, all we can do is compare the expense levels on the institutional shares that are available for both the Oppenheimer Real Assets fund and the PIMCO Commodity Real Return Strategy Fund, which are 1.27% per year on the former, and only .74% per year on the latter.

The other major difference between these two funds is the underlying index they track. Oppenheimer tracks the Goldman Sachs Commodity Index (GSCI), while PIMCO tracks the Dow Jones-AIG Commodity Index (DJ-AIGCI). There are significant differences between these two indexes, and between them and the third major commodity index, which is produced by Standard and Poor's (the SPCI). While futures contracts are

available for all three indexes, no mutual fund tracking the SPCI has been launched to date.

The most important difference between these three indexes is their approach to weighting the different commodity groups they include. Weights in the GSCI are based on the value of the amounts of different commodities that are produced. The SPCI uses weights based on the relative value of the futures contracts outstanding for different commodities. And the DJ-AIGCI uses a combination of both of these approaches. The impact of these approaches can be seen in the following table, which shows the relative importance of different commodity groups in each of the three indexes:

February 2003 Weights

Commodity Group	GSCI Weight	DJ-AIGCI Weight	SPCI Weight
Energy	72%	39%	53%
Grains	11%	17%	18%
Base Metals	5%	17%	0%
Precious Metals	2%	8%	7%
Softs	4%	10%	14%
Livestock	6%	9%	8%

These different approaches to weighting give rise to different return/risk results for these indexes, as can be seen in the following table:

	GSCI	DJ-AIGCI	SPCI
Annualized return since 31Dec1990	3.4%	4.5%	5.0%
Annualized Standard Deviation since 31Dec1990	16.5%	12.3%	11.8%
Return per unit of risk	.21%	.37%	.42%

Finally, while the returns on all three of these commodity indexes are highly correlated with each other (averaging .85), they also have very low correlations with U.S. equities and bonds (less than .10).

Given this data, our preferred choice would be a mutual fund that tracks the SPCI; however, since none is available, the PIMCO fund (which tracks the DJ-AIGCI) looks more attractive than the Oppenheimer fund (which tracks the GSCI) due to both its lower expense loading and the superior characteristics of the commodity index it tracks. There is, however, one caveat to this point of view. Because of the higher volatility of the GSCI that it tracks, the Oppenheimer Real Assets Fund is more likely to have both positive and negative annual returns that are higher than those on the other two funds. For example, through February, 2003, the Oppenheimer Fund has delivered total returns of 19.48% (in U.S. dollars), while the PIMCO Fund has delivered total returns of only 15.22%. Assuming that one invests in commodities as an asset class primarily because of their low correlation of returns with other asset classes, one would look to commodities to offset a portion of the returns being earned on other asset classes, such as equities and bonds. Given this fundamental risk management goal, one could also make the argument that the Oppenheimer Fund is the preferred vehicle for investing in commodities, because it is more likely to deliver higher returns when the returns on other asset classes in your portfolio are low or negative. Still, the most important point is this: regardless of the approach you take, it is great news that investors now have more than one commodity index fund to choose from.

Shark Tank Update

As part of their settlement with Credit Suisse First Boston and Citicorp/Salomon regarding conflicts of interest related to their securities research, recent reports say that U.S. regulators (including the New York Attorney General, the Securities and Exchange Commission, and the National Association of Securities Dealers) will allege that both firms committed securities fraud. Citicorp/Salomon (or its insurance company) will also be paying \$400 million in fines, while CSFB will pay \$200 million.

Last month, following a six month investigation, the SEC formally asked the National Association of Securities Dealers and the Investment Company Institute to set up a task force to stop the overcharging of sales commissions on investors who make mutual fund purchases of \$250,000 or more.

Finally, the SEC has started a website that shows how easy it is to be taken in by hedge fund frauds. Check it out at www.growthventure.com/grdi.

Interesting Mutual Fund Data, and Its Consequences

Did you also know that the average expenses charged by an actively managed U.S. mutual fund investing in large capitalization equities was 1.5% last year? For actively managed funds investing in small cap companies it was 1.6%, and for funds investing in international equities it was 1.72%. Finally, at actively managed U.S. bond funds, expenses averaged 1.02% of the value of assets under management. Regular readers know that these figures are way above the average expenses charged by index funds. So it should come as no surprise that last month U.S. Representative Mike Oxley and Richard Baker called on the General Accounting Office to produce an in-depth study of mutual fund fees. We look forward to its publication, and are sure it will make interesting reading...

Finally, a 529 Plan With Index Funds

We have written in the past about the advantages for U.S. residents of using Section 529 plans for college savings (see our June, 2000 issue). We have also complained about these plans' reluctance to offer index funds. Finally, our prayers have been answered: the state of Nevada's 529 plan (which is open to residents of all states) now offers an extensive range of Vanguard Index Funds. You can learn more about this program at www.vanguard.com.

New China ETF Launched

Barclays Global Investors (BGI) has filed a prospectus with the SEC to launch a new iShare Exchange Traded Fund that will track the FTSE/Xinhua Hong Kong China 25 Index, which features the largest, most liquid Chinese equities available to foreign investors. While China is included in the companies covered by the Vanguard Emerging Markets Index Fund (VEIEX), this ETF will make it possible for investors to increase their allocation to this region beyond its weight in the MSCI Emerging Markets Select Free Index that the Vanguard fund tracks. What we'd like to see next is the launch of an ETF that tracks an Indian index, as shares from this key country are still not included in the VEIEX.

Warren Buffet On Derivatives

This year's annual report for Berkshire Hathaway warns that derivative instruments are "financial instruments of mass destruction" because of the way they have concentrated credit of risk in the hands of relatively few dealers. We wrote about this issue, and the threat it poses, in our September, 2000 issue. It is gratifying to see that we're now in such good company!

Hedge Fund Index Vehicle On the Way?

Rydex Capital Partners and Plus Funds recently signed an agreement with Standard and Poor's to introduce an investment product based on the latter's Hedge Fund Index. This product will be the first of its kind offered in the United States, and will be made available through both Registered Investment Advisors and directly to investors. No launch date was given for the new product. In light of this development, we think it may be a good time to re-read our April, 2002 article, "Are Hedge Funds for You?"

More Bad News for Active Managers

At the end of January, Standard and Poor's released its 2002 results for its "Standard and Poor's Indices Versus Active Funds Scorecard" product (also known as SPIVA). One of the key features of this offering is that it corrects for survivorship bias, which is the tendency of some analyses to only take into account the results of surviving funds. For example, if funds that had merged or closed had not been included in S&P's database, the average three year returns for large, mid and small cap actively managed funds would have been, respectively, 8.6%, 2.8%, and 4.9% higher. So the bottom line is that SPIVA is an analytically sound comparison of active management versus indexing.

The report did not provide encouraging news for people who believe in active management. S&P noted that "conventional wisdom in the index versus active debate holds that active management tends to outperform passively managed investments in bear markets [on a gross basis, if not net of expenses and taxes]. The SPIVA report debunks that myth as results show that almost 54% of all large cap equity funds proved unable to beat the S&P 500 benchmark over the last three year bear market run. Mid cap and small cap active managers also had difficulty beating their index benchmarks, with only 23% of mid cap managers beating the S&P MidCap 400 index, and only 28% of small cap active managers beating the S&P SmallCap 600 index."

Semi-Annual Review of Academic Research

Every six months we summarize for our readers key findings from recent academic research that are related to asset allocation, indexing and related topics. This time, we have a bumper crop to review. We will start with research into individual investor behavior, then move onto the impact of various structural factors, and finish up with the behavior of aggregate market returns. We will provide the titles and authors for the works we discuss; copies of the papers themselves can usually be obtained by searching on either www.google.com or www.ssrn.com.

Individual Behavior

In his paper "From Efficient Market Theory to Behavioral Finance", Robert Shiller (the author of Market Volatility and Irrational Exuberance) provides an excellent introduction to the new approach to financial economics. He succinctly notes that "There is a clear sense that the level of volatility of the overall stock market cannot be well explained with any variant of the efficient markets model in which stock prices are formed by looking at the present discounted value of future returns...After all the efforts to defend the efficient markets theory there is still every reason to think that, while markets are not totally crazy, they contain quite substantial noise, so substantial that it dominates the movements in the aggregate market. The efficient markets mode, for the aggregate stock market, has still never been supported by any study effectively linking stock market fluctuations with subsequent fundamentals."

One of the key premises of behavioral finance is that investors' have limited attention and cognitive processing power. In "Limited Attention, Information Disclosure, and Financial Reporting", Hirshleifer and Teoh show that one of the consequences of these limitations is that "informationally equivalent disclosures [e.g., about the value of stock options given to employees] can have very different effects on investor perceptions, actions, and market prices." Barber and Odean also focus on cognitive limitations in their paper "All That Glitters: The Effect of Attention and News on the Buying Behavior of Individual and Institutional Investors." Utilizing three measures of how likely a stock is to catch investors' attention (abnormal trading volume, returns, or news announcements), they find that individual investors tend to be net purchasers of a stock on high attention days. In contrast, institutional investors tend to be net buyers on low attention days.

Del Guerico and Tkac from the Federal Reserve Bank of Atlanta take a similar tack, but look at flows into mutual funds. They find that mutual fund investors are heavily influenced by a fund's recent total returns relative to other funds, and not by more sophisticated measures of its risk adjusted returns. A closely related paper, "Mutual

Fund Performance and Stock Return Momentum: How "Smart" is Money?" by Sapp and Tiwari concludes that rather than earning abnormal risk adjusted returns, "investors who chase past performance receive fair compensation for the additional risk factor (momentum) they are taking on."

In their paper "Good Rationales Sell", Barber, Heath and Odean take a different approach to cognitive limitations by focusing on the way people make decisions. They note that broadly speaking, there are two approaches to deciding between two or more alternatives: quantitatively evaluating the trade-offs between the alternatives, or qualitatively describing the reasons in favor of each alternative, and choosing the one with the best rationale. Due to the cognitive effort involved in the first approach, people typically prefer the second. The authors show how when it comes to investing, people have a tendency to prefer stocks with good rationales, which they identify as including being on Fortune's "Most Admired Companies" list, having relatively strong sales growth, and having relatively high three year returns. This is especially true when investors have to justify their decisions to someone else. The authors' key point is that "good rationales are also expensive rationales", and typically do not lead to superior investment returns because "people neglect the fact that the stocks with the best rationales will have their prices bid up until they are likely to perform no better as an investment than the stocks of poorly managed firms." Their conclusion? "The best advice for most investors is to invest in [an index] mutual fund that mimics the performance of the whole stock market at a low cost."

Two papers focus on the nature of the underlying preferences that motivate investor decision making, specifically the tendency to measure one's success relatively, based on a comparison to the achievements of others. This is known as "keeping up with the Joneses" preference. In "Catching Up with the Joneses: Heterogenous Preferences and the Dynamics of Asset Prices", Chan and Kogan note that the combination of heterogenous beliefs about the value of different assets and keeping up with the Joneses preference leads over time to shifts in the distribution of wealth, and, consequently, to shifts in different investors' preference for risk (e.g., investors will be more willing to take

investment risks when their wealth falls below that of their peers). The authors show how a market made up of these investors generates very interesting dynamics, including the time varying volatility (also known as volatility clustering) that has long defied explanation. In "Keeping, Not Catching up with the Joneses", Gomez, Priestly, and Zapatero show how this preference can also lead to a bias toward investing in home country instead of foreign stocks, because returns on the former have a higher correlation with changes in the average wealth of home country investors.

Another important behavioral cause of apparently irrational market movements is the overconfidence found in most investors. In "I'll See It When I Believe It", Leeat Yariv explores the factors that give rise to this condition. She begins with the assumption that people derive satisfaction not only from the results of their actions, but also from the consistency of their beliefs. Psychological experiments demonstrate that people prefer consistency, and are inclined to interpret new evidence in ways that confirm their pre-existing beliefs (this is known as the confirmation bias). Overconfidence arises when people attach a high importance to belief consistency, and then receive new information they perceive to be both highly reliable and consistent with their prior beliefs. She also shows how this preference for belief consistency can subsequently lead some people to avoid seeking out additional reliable information that would force them to act in a way that was inconsistent with their prior beliefs (i.e., they prefer to avoid what is known as cognitive dissonance). Here's a case in point: how many people do you know today who are reluctant to open up their brokerage account or 401k statements?

In "Analyzing the Analysts: When Do Recommendations Add Value?", Asquith, Mikhail, and Au provide a further example. They find that sell side analysts (that is, those that work at investment banks and brokerage houses) usually recommend "glamour stocks" that typically have positive returns momentum, high revenue growth, high trading volume, and relatively expensive valuation multiples. The authors further find that the level of the analysts' recommendations on these stocks (eg., buy, strong buy, etc.) does not provide any value (that is, information relevant to estimating the future returns on the

stock) beyond the information already contained in the previously cited quantitative measures. Unsurprisingly, given both their human preference for belief consistency and the financial incentives they are facing, a key reason for the low value of the level of the analysts' recommendations is their failure to quickly downgrade stocks. The authors find that analyst recommendations fail to incorporate the predictive power of most so-called "contrarian" indicators. Painfully, the authors find that "in the case of seven of our eight [quantitative] contrarian signals, the correlation with analysts' stock recommendations is directionally opposite to the variable's correlation with future returns." However, the authors did find that a change in the level of the consensus analyst recommendation on a stock is a robust return predictor that contains information not contained in the quantitative measures. This makes sense, as it indicates that sufficient information has been accumulated by the analyst to overcome their preference for consistency in their beliefs (and, for downgrades, the strong economic incentives against making such a change).

Structural Factors

In addition to cognitive and behavioral factors at the individual level, observed departures from efficient markets theory may also be caused by structural factors. One of these is the fact that not all investors gain access to information at the same time. In "The Epidemiology of Macroeconomic Expectations" Christopher Carroll uses models from the world of medicine to study expectations formation. Only a small set of agents formulate their own expectations, which then spread through the population in a manner analogous to the spread of a disease. He shows that since people absorb the content of these messages probabilistically (e.g., due to the number of times the message is repeated and its degree of dissonance with prior beliefs), it takes quite some time for news of changed circumstances to penetrate to all agents in the economy. This model gains further support from a new book [The Influentials](#) by Keller and Roberts from the market research firm RoperASW. These authors find that fifty seven percent of Americans over the age of eighteen believe "people" are the best source of information about retirement planning, saving, and investments.

Another structural factor that has received much attention in the past is the potential impact of market rules which make it difficult to short stocks (that is, to borrow and sell for later delivery a stock you do not currently own, in the expectation that its price will go down and you can buy it later to earn a profit). In "Differences of Opinion and the Cross Section of Stock Returns", Diether, Malloy, and Scherbina start with the observation that stocks with higher dispersion in analyst forecasts earn lower future returns than otherwise similar stocks. They find that this is "consistent with the hypothesis that prices will reflect the optimistic view whenever investors with the lowest valuations do not trade", such as when "investors with negative views are kept out of the market by high short sale costs." They conclude that "the larger the dispersion of views about the stock's value, the higher the market price is likely to be relative to the stock's true value, and the lower its future returns are likely to be" assuming the existence of short sale constraints.

In "Short Sale Constraints and Overvaluation", Boehme, Danielson, and Sorescu find that "high short interest is predictive of future underperformance only when shares are difficult to borrow and the dispersion of investor opinions is high." They also find that "the presence of exchange traded options mitigates, but does not eliminate, the mispricing that can result from short sales constraints."

In the face of short sales constraints, the observed prices in the market will not contain all of the information available to investors about the true value of a stock, and will, in fact, be biased towards the views of more optimistic individuals. In "Rational Trend Followers and Contrarians", Masahiro Watanabe shows how in this situation, less informed investors (such as many individuals) rationally behave like trend followers (buying), while better informed agents (such as institutions) follow contrarian strategies (selling). In "Overconfidence and Speculative Bubbles", Sheinkman and Xiong model a market in which "overconfidence generates disagreements among investors regarding fundamental stock values. With short sale constraints, an investor buying a stock receives an option to resell it to another overconfident investor who has even more

optimistic beliefs." The authors show how this leads to prices above fundamental values, excess volatility and, ultimately, to bubbles and crashes.

It is safe to say that the various behavioral and structural factors that have been analyzed by researchers collectively give rise to a level of market volatility that is higher than that one would expect to find if all investors were fully informed and possessed unlimited and rational cognitive processing capability. This begs the question, however, of whether the apparent deviations from efficient markets theory are so large as to create profit opportunities that can justify the additional fees charged by active managers compared to those charged by index funds. The starting point for such a justification must be that to some degree, behavioral and structural factors make future market returns predictable in a way that can be exploited in real time by active managers, and not just identified in retrospect by academic researchers. Unfortunately (if you are an active manager), recent research does not offer an encouraging answer to this question.

In "Does Stock Return Predictability Imply Improved Asset Allocation and Performance?", Handa and Tiwari look at the economic significance of U.S. stock return predictability data over the 1954-1998 period. They find that "the market timing capability of the conditioning variables is unstable over time and only marginally better than a random coin toss...The performance of the prediction based strategy performs no better than [indexing] strategy in most subperiods." The authors stress that "it is important to note that to the extent that [in our study] we allow the predictor investor to use a set of forecasting variables that has survived extensive academic scrutiny, our study stacks the deck in favor of finding superior performance from this [prediction based] strategy. Viewed from this angle, the absence of superior performance is even more significant." They conclude that their findings "suggest that investment strategies based on a belief in predictability should be tempered with caution."

Cooper, Gutierrez and Marcum, look at the same issue. In "On the Predictability of Stock Returns in Real Time", they make the realistic assumption that at any point in time an investor has no idea which of many possible variables will do the best job of predicting the next period's asset returns. Consequently, their study explores a variety of decision rules that an investor might actually use in "real time" to select the model to use to predict future returns. They find "the market was difficult to beat in real time, and that the current notion of predictability found in the literature is exaggerated." Their conclusion? "Real time [predictive] portfolios do not outperform index funds."

Two other studies address why predicting future returns is so hard, even in a market that so obviously departs from strong notions of efficiency. In "Structural Change and the Predictability of Stock Returns", Rapach and Wohar "find, in the period since World War Two, evidence of structural breaks in seven of the eight predictive models for the S&P 500" that they study. They note that these breaks occur for many reasons, including changes in political conditions (e.g., war), economic conditions (e.g., monetary or tax policy), and financial market conditions (e.g., bubbles). The net result is "significant parameter uncertainty in the use of predictive models."

In "Anomalies and Market Efficiency", William Schwert notes that "the evidence shows that the size effect, the value effect, the weekend effect, and the dividend yield effect seem to have weakened or disappeared after the papers that highlighted them were published, and practitioners began investment vehicles that implemented these strategies....All of these findings raise the possibility that anomalies are more apparent than real...Even if the anomalies existed in the sample period in which they were first identified, the activities of practitioners who implement strategies to take advantage of anomalous behavior can cause the anomalies to disappear, as research findings cause the market to become more efficient." In other words, once everyone starts using a predictive technique, it ceases to work.

Where does this leave us? In "Rebels, Conformists, Contrarians and Momentum Traders", Gatev and Ross use a very interesting approach and ask whether it is more dangerous to believe that future returns are predictable, or that they are not, assuming one's belief is incorrect. They find that investors who wrongly believe in predictability (call them active managers) will suffer from both lower returns and higher risks than those (call them index investors) who wrongly believe the market is not predictable. In short, assuming the market is unpredictable and becoming an index investor is the more rational approach.

Two further studies look at other interesting aspects of markets' performance in recent years. In "The Rise of Comovement Across National Stock Markets", Brooks and Del Negro from the International Monetary Fund note that "the degree of comovement [correlation of returns] across national stock markets has increased dramatically since the mid-1990s," and ask "whether this is a permanent phenomenon driven by greater economic and financial integration, or a temporary effect associated with the recent stock market bubble?" They find that "at the global level, industry effects have significantly outgrown country effects in explaining international return variation. Our data suggest that global industry effects have become close to twice as important as country effects since the late 1990s...However, this result is driven by a relatively narrow segment of the data. We find that beyond the telecomm, media, biotech and information technology sectors, and outside the United States, there is no evidence to suggest that industry effects have been growing systematically over time. Instead, our results point to a cyclical pattern, by which industry effects became temporarily more important around period of stock market distress such as October, 1987 and March, 2000." They go on to note, however, that their "regional analysis yields a very different picture. In Europe, there has been a broad based and sustained increase in the importance of industry effects, as the trend toward European economic and financial integration gathers force. [However], there is no similar evidence of increasing industry effects in other regions, such as the Americas or the Far East, where economic integration efforts have been less comprehensive. In fact, there is evidence that country effects have become stronger relative to industry effects in the latter area in recent years."

In "The Illusory Nature of Momentum Profits", Lesmond, Schill, and Zhou find that the returns from momentum investing (that is, buying stocks that have recently gone up in price, and selling those whose price has recently declined) "are concentrated among low priced, poorly performing stocks." This means that "momentum strategies require heavy trading among particularly costly stocks such that trading costs are much larger than previously acknowledged. Our evidence suggests that stocks that generate momentum returns are precisely those stocks with high trading costs. We conclude that the momentum effect is more precisely a friction effect caused by the costs of arbitrage, creating an illusion of trading profit opportunities when , in fact, none exist."

The impact of investor mistakes is not confined to the financial markets. In "The Real Effects of Investor Sentiment", Polk and Sapienza note that "managers of overvalued companies at the margin invest in projects with negative net present value, while managers in undervalued companies forego positive NPV projects. Overpriced firms tend to overinvest and have lower returns, and vice versa...Misallocation of resources is most likely to occur when firms' investment projects are hard to evaluate (e.g., firms with higher research and development spending relative to sales), and/or they have investors with a very short term focus (firms with high share turnover)." On the other hand, in "Market Timing and Managerial Portfolio Decisions", Dirk Jenter finds that one must also note what managers are doing with their own money. He finds that when insiders believe their firm is overvalued, they not only make certain corporate decisions (such as issuing new equity and pursuing mergers and stock based acquisitions), but also sell company shares from their personal portfolios. Jenter finds that it is these insider share sales that are most consistent with lower subsequent returns on the company's stock.

Actively Managed Mutual Funds

A great deal of recent research has been focused on the behavior of actively managed mutual funds. In their paper "Does Fund Size Erode Performance?", Chen, Hong, Huang, and Kubik investigate the effect of fund size on the performance of actively managed mutual funds. They "find that fund returns, both before and after fees, decline

with fund size, even after controlling for other fund characteristics. They also find that this effect is most pronounced for small cap funds, which suggests that liquidity (that is, the price impact of trades) is an important reason why fund size erodes performance. The authors also argue that organizational diseconomies related to hierarchy costs may also play a role in the underperformance of large funds. On the other hand, they also find that the size of the family the fund belongs to does not affect fund returns beyond the impact of the size of the fund itself; in fact, if anything performance increases with family size, because larger families allow for better utilization of marketing and administrative costs. Diseconomies are at the fund level, where more staff must be hired to identify, execute, and monitor more ideas as the fund's assets under management increase. The authors also suggest that increasing size moves funds toward more of a quantitative investment style, which makes it harder for them to process qualitative information. This view is supported by their finding that smaller funds do better at investing in smaller and local stocks, where qualitative (also known as "soft") information is most important. The authors therefore conclude that performance differences between small and large funds also have something to do with their relatively different abilities to invest in local stocks."

The advantages of mutual funds investing in local companies are further explored in two other papers. "The Geography of Investment" by Coval and Moskowitz "find that active mutual fund managers overweight firms located nearby in their portfolios and earn substantial abnormal returns from these local holdings. They also find that a firm's degree of local ownership (which they view as evidence of trading by investors with superior information) is positively related to expected returns, even when controlling for other factors." In "Thy Neighbor's Portfolio" by Hong, Kubick, and Stein, the authors find that "a mutual fund manager is more likely to buy or sell a particular stock in any quarter if other managers from different fund families located in the same city are buying or selling the same stock." Indirectly, this paper also provides further support for the previously mentioned "epidemic model" of information transmission.

In "Copycat Funds: Information Disclosure Regulation and the Returns to Active Management in the Mutual Funds Industry", Myers, Porterba, Shackelford, and Shoven note that "for actively managed funds, one cost of the required disclosure of their portfolio holdings is a potential reduction in the returns from research they undertake on the value of different assets. This paper tries to quantify the cost of this disclosure by testing whether copycat funds (that purchase the same assets as actively managed funds as soon as those asset holdings are disclosed) can earn returns that are similar to those of the actively managed funds. Copycat funds don't incur the research expenses of the fund they are mimicking, but they miss the opportunity to invest in the assets that managers identify as positive return opportunities between disclosure dates. The authors find that while returns before expenses are significantly higher for the actively managed funds relative to the copycat funds, after expenses the latter earn statistically indistinguishable, and possibly higher returns." Seen in this context, one can well understand the resistance on the part of actively managed funds to more frequent disclosure of their asset holdings. Indirectly, this paper also makes another important point: whatever its shortcomings, the U.S. equity market is efficient enough to rather quickly eliminate the profit opportunities that are created by various behavioral and structural factors.

"Offsetting Incentives: Risk Shifting and the Benefits of Benchmarking in Money Management" by Basak, Pavlova and Shapiro looked at the impact of the incentives facing the managers of actively managed mutual funds. They found that "mutual fund managers are rewarded for increasing the value of assets under management. This gives a mutual fund manager an implicit incentive to manipulate his or her risk exposure to maximize fund inflows, which are linked to the fund's performance. This in turn leads the manager to manage the fund in line with his or her own risk preferences, rather than those of the investors in the fund. The authors conclude that this policy results in economically significant deviations from investors' desired risk exposure, substantially impairing them."

Two other studies take a look at one of our favorite issues: the persistence of superior and inferior returns. As we have written many times, it is not enough to say that some actively managed funds will beat the after-tax return earned by an index fund. You also have to be able to pick those funds in advance in order to justify using an active management approach. These two studies do not support the view that this is possible.

In "Judging Fund Managers by the Company They Keep", Cohen, Coval, and Pastor develop a new performance evaluation approach "in which a fund manager's skill is judged by the extent to which his investment decisions (i.e., recent changes in his or her holdings) resemble the decisions of managers with superior past performance records. According to this approach, a manager is skilled if he or she tends to buy (sell) stocks that are being concurrently purchased (sold) by other managers who have performed well. To analyze performance persistence, at the end of each quarter between the years 1975 and 2000, funds were sorted in to deciles using this performance measure as well as some traditional measures of past performance. The results reveal no significant persistence in fund performance...We conclude that past performance is a poor indicator of future performance in our sample of U.S. mutual funds."

A similar result was obtained by Blake and Morey. In "Morningstar Ratings and Mutual Funds", they found "no statistical difference between the future performance of three, four, and five star rated funds." On the other hand, they did find that a low star rating did a better job of predicting poor future performance.

This finding is in line with those from another study, "The Evolution of Risk in High Velocity Settings" by Hendersen and Brenner. They find that "gains and losses, rather than being seen as two sides of the same coin, are seen by most (corporate) managers as separate and distinct concepts, and are treated differently. They note that firms learn to avoid large losses a younger ages than they learn to sustain large gains, because whereas

the former requires basic management disciplines, the latter requires the development of relatively rare and difficult to imitate competencies."

Do all these findings mean that nobody can beat the market? No, they don't. In their paper, "Can Individual Investors Beat the Market?", Coval, Hirshleifer, and Shumway examined the trading records of individual retail investors at a discount brokerage firm. They found that "the top ten percent of traders earned excess returns of 12 - 15 basis points per day during the week following their trades, while the bottom ten percent of traders lost 11 - 12 basis points per day during week following their trades." They also found that the superior traders results were driven by stock selection rather than market timing. Moreover, their results were helped by the fact that their trades were smaller than those of a typical institutional investor (and so had less adverse impact on share prices), and, unlike a mutual fund manager, the individual traders were not constrained by limits on their turnover, positions, or returns relative to a benchmark. Finally, despite this superior performance by some traders, the authors found that net of costs, individual investors as a group on average lost money from trading.

In summary, while recent academic research provides ample evidence that the financial markets are not as rational and efficient as some theories have suggested, they also show that it is extremely difficult for active managers to outperform index funds over the long term, and impossible to identify successful active managers in advance.

Model Portfolio Performance

<i>These portfolios seek to maximize return while matching their benchmark's risk (standard deviation)</i>					
	Ticker	YTD 28Feb03	Weight	Weighted Return	
		in Pounds		In Pounds	
High Risk Portfolio					
<i>Suggested US Index Funds</i>					<i>Suggested UK Index Funds</i>
<u>UK Benchmark</u>					
UK Equity ETF	EWU	-6.3%	80%	-5.0%	iShares FTSE ETF; HSBC FTSE 250; L&G UK Index; Virgin UK Index
UK Bond Index	JPM UK	2.1%	20%	0.4%	L&G All Stocks Gilt Index
			100%	-4.6%	
<u>Global Benchmark</u>					
US Equity Index (DJTMI ETF)	IYY	-2.1%	40%	-0.8%	Vanguard World Index
Vanguard Total International Market	VGTSX	-4.0%	40%	-1.6%	Vanguard World Index
Vanguard Total U.S. Bond Market Index	VBMFX	3.5%	10%	0.4%	Vanguard Global Government Bond Index
TRP International (Non US\$) Bond Fund	RPIBX	5.3%	10%	0.5%	Vanguard Global Government Bond Index
			100%	-1.5%	
<u>Recommended</u>					
UK Equity ETF	EWU	-6.3%	32%	-2.0%	iShares FTSE ETF; HSBC FTSE 250; L&G UK Index; Virgin UK Index
Euro Area Equity ETF	EZU	-5.3%	15%	-0.8%	HSBC or L&G European Index
US Equity Index (DJTMI ETF)	IYY	-2.1%	18%	-0.4%	iShares S&P 500 ETF; Vanguard S&P 500; L&G US Index
UK Bond Index	JPM UK	2.1%	25%	0.5%	L&G All Stocks Gilt Index
Oppenheimer Real Asset Fund	QRABX	24.6%	10%	2.5%	iShares Resources ETF
			100%	-0.2%	

<i>These portfolios seek to maximize return while matching their benchmark's risk (standard deviation)</i>					
	Ticker	YTD 28Feb03	Weight	Weighted Return	
		in Pounds		In Pounds	
Medium Risk Portfolio					
<i>Suggested US Index Funds</i>					<i>Suggested UK Index Funds</i>
<u>UK Benchmark</u>					
UK Equity ETF	EWU	-6.3%	60%	-3.8%	iShares FTSE ETF; HSBC FTSE 250; L&G UK Index; Virgin UK Index
UK Bond Index	JPM UK	2.1%	40%	0.8%	L&G All Stocks Gilt Index
			100%	-2.9%	
<u>Global Benchmark</u>					
US Equity Index (DJTMI ETF)	IYY	-2.1%	30%	-0.6%	Vanguard World Index
Vanguard Total International Market	VGTSX	-4.0%	30%	-1.2%	Vanguard World Index
Vanguard Total U.S. Bond Market Index	VBMFX	3.5%	20%	0.7%	Vanguard Global Government Bond Index
TRP International (Non US\$) Bond Fund	RPIBX	5.3%	20%	1.1%	Vanguard Global Government Bond Index
			100%	0.0%	
<u>Recommended</u>					
UK Equity ETF	EWU	-6.3%	27%	-1.7%	iShares FTSE ETF; HSBC FTSE 250; L&G UK Index; Virgin UK Index
Euro Area Equity ETF	EZU	-5.3%	12%	-0.6%	HSBC or L&G European Index
US Equity Index (DJTMI ETF)	IYY	-2.1%	14%	-0.3%	iShares S&P 500 ETF; Vanguard S&P 500; L&G US Index
UK Bond Index	JPM UK	2.1%	37%	0.8%	L&G All Stocks Gilt Index
Oppenheimer Real Asset Fund	QRABX	24.6%	10%	2.5%	iShares Resources ETF
			100%	0.6%	

<i>These portfolios seek to maximize return while matching their benchmark's risk (standard deviation)</i>					
	Ticker	YTD 28Feb03	Weight	Weighted Return	
		in Pounds		In Pounds	
Low Risk Portfolio					
<i>Suggested US Index Funds</i>					<i>Suggested UK Index Funds</i>
<u>UK Benchmark</u>					
UK Equity ETF	EWU	-6.3%	20%	-1.3%	iShares FTSE ETF; HSBC FTSE 250; L&G UK Index; Virgin UK Index
UK Bond Index	JPM UK	2.1%	80%	1.6%	L&G All Stocks Gilt Index
			100%	0.4%	
<u>Global Benchmark</u>					
US Equity Index (DJTMI ETF)	IYY	-2.1%	10%	-0.2%	Vanguard World Index
Vanguard Total International Market	VGTSX	-4.0%	10%	-0.4%	Vanguard World Index
Vanguard Total U.S. Bond Market Index	VBMFX	3.5%	40%	1.4%	Vanguard Global Government Bond Index
TRP International (Non US\$) Bond Fund	RPIBX	5.3%	40%	2.1%	Vanguard Global Government Bond Index
			100%	3.0%	
<u>Recommended</u>					
UK Equity ETF	EWU	-6.3%	8%	-0.5%	iShares FTSE ETF; HSBC FTSE 250; L&G UK Index; Virgin UK Index
Euro Area Equity ETF	EZU	-5.3%	8%	-0.4%	HSBC or L&G European Index
US Equity Index (DJTMI ETF)	IYY	-2.1%	7%	-0.1%	iShares S&P 500 ETF; Vanguard S&P 500; L&G US Index
Vanguard Emerging Markets	VEIEX	-1.6%	10%	-0.2%	Gartmor Emerging Markets Fund (not an index fund)
UK Bond Index	JPM UK	2.1%	60%	1.2%	L&G All Stocks Gilt Index
Oppenheimer Real Asset Fund	QRABX	24.6%	7%	1.7%	iShares Resources ETF
			100%	1.7%	
<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>					
	Ticker	YTD 28Feb03	Weight	Weighted Return	
		in Pounds		in Pounds	
High Return Portfolio					
<i>Suggested US Index Funds</i>					<i>Suggested UK Index Funds</i>
<u>UK Benchmark</u>					
UK Equity ETF	EWU	-6.3%	80%	-5.0%	iShares FTSE ETF; HSBC FTSE 250; L&G UK Index; Virgin UK Index
UK Bond Index	JPM UK	2.1%	20%	0.4%	L&G All Stocks Gilt Index
			100%	-4.6%	
<u>Global Benchmark</u>					
US Equity Index (DJTMI ETF)	IYY	-2.1%	40%	-0.8%	Vanguard World Index
Vanguard Total International Market	VGTSX	-4.0%	40%	-1.6%	Vanguard World Index
Vanguard Total U.S. Bond Market Index	VBMFX	3.5%	10%	0.4%	Vanguard Global Government Bond Index
TRP International (Non US\$) Bond Fund	RPIBX	5.3%	10%	0.5%	Vanguard Global Government Bond Index
			100%	-1.5%	
<u>Recommended</u>					
UK Equity ETF	EWU	-6.3%	20%	-1.3%	iShares FTSE ETF; HSBC FTSE 250; L&G UK Index; Virgin UK Index
Euro Area Equity ETF	EZU	-5.3%	18%	-0.9%	HSBC or L&G European Index
US Equity Index (DJTMI ETF)	IYY	-2.1%	17%	-0.3%	iShares S&P 500 ETF; Vanguard S&P 500; L&G US Index
UK Bond Index	JPM UK	2.1%	35%	0.7%	L&G All Stocks Gilt Index
Oppenheimer Real Asset Fund	QRABX	2.1%	10%	0.2%	iShares Resources ETF
			100%	-1.6%	

<i>These portfolios seek to minimize risk while matching their benchmark's returns.</i>					
	Ticker	YTD 28Feb03	Weight	Weighted Return	
		in Pounds		in Pounds	
Medium Return Portfolio					
<i>Suggested US Index Funds</i>					<i>Suggested UK Index Funds</i>
<u>UK Benchmark</u>					
UK Equity ETF	EWU	-6.3%	60%	-3.8%	iShares FTSE ETF; HSBC FTSE 250; L&G UK Index; Virgin UK Index
UK Bond Index	JPM UK	2.1%	40%	0.8%	L&G All Stocks Gilt Index
			100%	-2.9%	
<u>Global Benchmark</u>					
US Equity Index (DJTMI ETF)	IYY	-2.1%	30%	-0.6%	Vanguard World Index
Vanguard Total International Market	VGTS X	-4.0%	30%	-1.2%	Vanguard World Index
Vanguard Total U.S. Bond Market Index	VBMFX	3.5%	20%	0.7%	Vanguard Global Government Bond Index
TRP International (Non US\$) Bond Fund	RPIBX	5.3%	20%	1.1%	Vanguard Global Government Bond Index
			100%	0.0%	
<u>Recommended</u>					
UK Equity ETF	EWU	-6.3%	15%	-0.9%	iShares FTSE ETF; HSBC FTSE 250; L&G UK Index; Virgin UK Index
Euro Area Equity ETF	EZU	-5.3%	16%	-0.8%	HSBC or L&G European Index
US Equity Index (DJTMI ETF)	IYY	-2.1%	5%	-0.1%	iShares S&P 500 ETF; Vanguard S&P 500; L&G US Index
UK Bond Index	JPM UK	2.1%	44%	0.9%	L&G All Stocks Gilt Index
Global Bond Index	Custom	4.4%	10%	0.4%	Vanguard Global Government Bond Index
Oppenheimer Real Asset Fund	QRABX	24.6%	10%	2.5%	iShares Resources ETF
			100%	1.9%	

<i>These portfolios seek to minimize risk while matching their benchmark's returns.</i>					
	Ticker	YTD 28Feb03	Weight	Weighted Return	
		in Pounds		in Pounds	
Low Return Portfolio					
<i>Suggested US Index Funds</i>					<i>Suggested UK Index Funds</i>
<u>UK Equity ETF</u>					
UK Equity ETF	EWU	-6.3%	20%	-1.3%	iShares FTSE ETF; HSBC FTSE 250; L&G UK Index; Virgin UK Index
UK Bond Index	JPM UK	2.1%	80%	1.6%	L&G All Stocks Gilt Index
			100%	0.4%	
<u>Global Benchmark</u>					
US Equity Index (DJTMI ETF)	IYY	-2.1%	10%	-0.2%	Vanguard World Index
Vanguard Total International Market	VGTSX	-4.0%	10%	-0.4%	Vanguard World Index
Vanguard Total U.S. Bond Market Index	VBMFX	3.5%	40%	1.4%	Vanguard Global Government Bond Index
TRP International (Non US\$) Bond Fund	RPIBX	5.3%	40%	2.1%	Vanguard Global Government Bond Index
			100%	3.0%	
<u>Recommended</u>					
UK Equity ETF	EWU	-6.3%	5%	-0.3%	iShares FTSE ETF; HSBC FTSE 250; L&G UK Index; Virgin UK Index
Euro Area Equity ETF	EZU	-5.3%	9%	-0.5%	HSBC or L&G European Index
UK Bond Index	JPM UK	2.1%	55%	1.1%	L&G All Stocks Gilt Index
Global Bond Index	Custom	4.4%	25%	1.1%	Vanguard Global Government Bond Index
Oppenheimer Real Asset Fund	QRABX	24.6%	6%	1.5%	iShares Resources ETF
			100%	2.9%	
<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 return over ten years, at the lowest possible risk.</i>					
	Ticker	YTD 28Feb03	Weight	Weighted Return	
		in Pounds		in Pounds	
<i>Suggested US Index Funds</i>					<i>Suggested UK Index Funds</i>
12% Target Return					
<u>Recommended</u>					
Euro Area Equity ETF	EZU	-5.3%	16%	-0.8%	HSBC or L&G European Index
US Equity Index (DJTMI ETF)	IYY	-2.1%	41%	-0.8%	iShares S&P 500 ETF; Vanguard S&P 500; L&G US Index
Vanguard Emerging Markets	VEIEX	-1.6%	8%	-0.1%	Gartmor Emerging Markets Fund (not an index fund)
UK Bond Index	JPM UK	2.1%	35%	0.7%	L&G All Stocks Gilt Index
			100%	-1.1%	
10% Target Return					
<u>Recommended</u>					
UK Equity ETF	EWU	-6.3%	13%	-0.8%	iShares FTSE ETF; HSBC FTSE 250; L&G UK Index; Virgin UK Index
Euro Area Equity ETF	EZU	-5.3%	18%	-0.9%	HSBC or L&G European Index
US Equity Index (DJTMI ETF)	IYY	-2.1%	35%	-0.7%	iShares S&P 500 ETF; Vanguard S&P 500; L&G US Index
Vanguard Emerging Markets	VEIEX	-1.6%	6%	-0.1%	Gartmor Emerging Markets Fund (not an index fund)
Vanguard Pacific	VPACX	-0.6%	3%	0.0%	HSBC or L&G Japan Index
UK Bond Index	JPM UK	2.1%	22%	0.5%	L&G All Stocks Gilt Index
Global Bond Index	Custom	4.4%	3%	0.1%	Vanguard Global Government Bond Index
			100%	-2.0%	

<i>These portfolios seek to maximize the probability of achieving at least the target return over ten years, at the lowest possible risk.</i>					
	Ticker	YTD 28Feb03	Weight	Weighted Return	.
		in Pounds		in Pounds	
<i>Suggested US Index Funds</i>					<i>Suggested UK Index Funds</i>
8% Target Return					
<i>Recommended</i>					
UK Equity ETF	EWU	-6.3%	30%	-1.9%	iShares FTSE ETF; HSBC FTSE 250; L&G UK Index; Virgin UK Index
Euro Area Equity ETF	EZU	-5.3%	9%	-0.5%	HSBC or L&G European Index
Vanguard Emerging Markets	VEIEX	-1.6%	2%	0.0%	Gartmor Emerging Markets Fund (not an index fund)
UK Bond Index	JPM UK	2.1%	40%	0.8%	L&G All Stocks Gilt Index
Global Bond Index	Custom	4.4%	19%	0.8%	Vanguard Global Government Bond Index
			100%	-0.7%	
6% Target Return					
<i>Recommended</i>					
UK Equity ETF	EWU	-6.3%	13%	-0.8%	iShares FTSE ETF; HSBC FTSE 250; L&G UK Index; Virgin UK Index
Euro Area Equity ETF	EZU	-5.3%	3%	-0.2%	HSBC or L&G European Index
UK Bond Index	JPM UK	2.1%	42%	0.9%	L&G All Stocks Gilt Index
Global Bond Index	Custom	4.4%	42%	1.9%	Vanguard Global Government Bond Index
			100%	1.8%	
<i>Global Bond Index = 50% US\$ plus 50% Non-US\$ Bonds</i>					