The Index Investor

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Global Asset Class Returns

YTD 31Aug04	In USD	In AUD	In CAD	In EURO	In JPY	In GBP
Asset Held						
US Bonds	3.10%	9.54%	4.36%	6.30%	4.81%	2.18%
US Prop.	13.90%	20.34%	15.16%	17.10%	15.61%	12.98%
US Equity	0.30%	6.74%	1.56%	3.50%	2.01%	-0.62%
AUS Bonds	-6.25%	0.19%	-4.99%	-3.06%	-4.55%	-7.17%
AUS Prop.	6.29%	12.73%	7.54%	9.48%	7.99%	5.37%
AUS Equity	1.30%	7.74%	2.56%	4.50%	3.01%	0.38%
CAN Bonds	1.63%	8.07%	2.89%	4.83%	3.34%	0.71%
CAN Prop.	1.92%	8.36%	3.18%	5.12%	3.63%	1.00%
CAN Equity	0.20%	6.64%	1.46%	3.40%	1.91%	-0.72%
Euro Bonds	0.42%	6.86%	1.68%	3.62%	2.13%	-0.50%
Euro Prop.	19.49%	25.93%	20.75%	22.68%	21.20%	18.57%
Euro Equity	-2.30%	4.14%	-1.04%	0.90%	-0.59%	-3.22%
Japan Bonds	-2.24%	4.20%	-0.98%	0.96%	-0.53%	-3.16%
Japan Prop.	19.98%	26.42%	21.23%	23.17%	21.68%	19.06%
Japan Equity	3.50%	9.94%	4.76%	6.70%	5.21%	2.58%
UK Bonds	3.27%	9.71%	4.53%	6.47%	4.98%	2.35%
UK Prop.	20.95%	27.40%	22.21%	24.15%	22.66%	20.04%
UK Equity	2.40%	8.84%	3.66%	5.60%	4.11%	1.48%
World Bonds	1.40%	7.84%	2.66%	4.60%	3.11%	0.48%
World Prop.	15.20%	21.64%	16.46%	18.40%	16.91%	14.28%
World Equity	0.90%	7.34%	2.16%	4.10%	2.61%	-0.02%
Commodities	11.50%	17.94%	12.76%	14.70%	13.21%	10.58%
Hedge Funds	-0.29%	6.15%	0.97%	2.91%	1.42%	-1.21%
A$	-6.44%	0.00%	-5.18%	-3.25%	-4.73%	-7.36%
C$	-1.26%	5.18%	0.00%	1.94%	0.45%	-2.18%
Euro	-3.20%	3.25%	-1.94%	0.00%	-1.49%	-4.11%
Yen	-1.71%	4.73%	-0.45%	1.49%	0.00%	-2.63%
UK£	0.92%	7.36%	2.18%	4.11%	2.63%	0.00%
US$	0.00%	6.44%	1.26%	3.20%	1.71%	-0.92%

Model Portfolios Update

The objective of our first set of model portfolios is to deliver higher returns than their respective benchmarks over a one-year holding period, 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 August, this benchmark had returned 6.2%, while our model portfolio had returned 7.2%. 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 7.9%.

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 4.7%, while our model portfolio had returned 5.6%, and the global benchmark had returned 8.4%.

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 1.7%, while our model portfolio had returned 3.9% and the global benchmark 9.5%.

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 over a one-year holding period. 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 6.2%, while our model portfolio had returned 5.2%. 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 7.9%.

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 4.7%, while our model portfolio had returned 3.7%, and the global benchmark had returned 8.4%. 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 1.7%, while our model portfolio had returned 3.2% and the global benchmark 9.5%.

The objective of our third set of model portfolios is not to outperform a benchmark index over a one year holding period, but rather to maximize the probability of achieving a minimum level of compound annual real return over a twenty-year period while taking on as little risk as possible. Through last month, our 7% target real return portfolio had returned, in nominal terms, 9.2% year-to-date, our 5% target real return portfolio had returned, in nominal terms, 9.6%, and our 3% target real return portfolio had returned, in nominal terms, 8.7%.

Our fourth set of model portfolios are also target real return portfolios; however, they include the possibility of investing in a hedge fund index, in addition to the asset classes used in our other portfolios. For more information on these portfolios, please see our January, 2004 issue. Through last month, our 7% target real return HF portfolio had returned, in nominal terms, 8.9% year-to-date, our 5% target real return HF portfolio had returned, in nominal terms, 8.8%, and our 3% target real return HF portfolio had returned, in nominal terms, 8.6%.

Equity and Bond Market Valuation Update

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

Country	Real Risk Free Rate Plus	Equity Risk Premium Equals	Required Real Return on Equities	Expected Real Growth Rate* plus	Dividend Yield Equals	Expected Real Equity Return**
Australia	2.99%	4.00%	6.99%	4.90%	3.70%	8.60%
Canada	2.21%	4.00%	6.21%	2.10%	1.90%	4.00%
Eurozone	1.90%	4.00%	5.90%	2.50%	2.70%	5.20%
Japan	0.64%	4.00%	4.64%	2.70%	0.90%	3.70%
U.K.	1.84%	4.00%	5.84%	2.50%	3.20%	5.70%
U.S.A.	1.83%	4.00%	5.83%	4.50%	1.70%	6.20%

**High Productivity Growth Scenario. See Asset Class Review, in our June 2003 Issue, for assumptions used in both productivity growth scenarios for each region.*
*** 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*	Current Index Value	(Under) or Overvaluation in High Growth Scenario	(Under) or Overvaluation in Low Growth Scenario
Australia	177.03	100.00	-77%	-20%
Canada	46.23	100.00	54%	63%
Eurozone	79.41	100.00	21%	45%
Japan	48.91	100.00	51%	68%
U.K.	95.81	100.00	4%	34%
U.S.A.	127.82	100.00	-28%	27%

**High productivity growth scenario.*

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	3.70%	2.99%	3.29%	4.61%	5.61%
Canada	1.90%	2.21%	4.31%	0.79%	1.79%
Eurozone	2.70%	1.90%	3.20%	1.80%	3.30%
Japan	0.90%	0.64%	3.74%	2.06%	3.06%
United Kingdom	3.20%	1.84%	2.64%	2.36%	3.86%
United States	1.70%	1.83%	4.13%	3.37%	4.37%

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	2.99%	2.96%	5.95%	5.59%	-0.36%	3.46%
Canada	2.21%	2.40%	4.61%	4.59%	-0.02%	0.19%
Eurozone	1.90%	2.37%	4.27%	4.02%	-0.25%	2.43%
Japan	0.64%	0.77%	1.41%	1.54%	0.13%	-1.27%
UK	1.84%	3.17%	5.01%	4.92%	-0.09%	0.86%
USA	1.83%	2.93%	4.76%	4.12%	-0.64%	6.32%

It is important to note that this analysis looks only at 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%	-1.00%	-1.57%	-4.05%	-0.67%	-1.47%
C$	1.00%	0.00%	-0.57%	-3.05%	0.33%	-0.47%
EU	1.57%	0.57%	0.00%	-2.48%	0.90%	0.10%
YEN	4.05%	3.05%	2.48%	0.00%	3.38%	2.58%
GBP	0.67%	-0.33%	-0.90%	-3.38%	0.00%	-0.80%
US$	1.47%	0.47%	-0.10%	-2.58%	0.80%	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. The basic logic is that you earn high returns by investing today in the styles and sectors that will perform best in the next stage of the economic cycle. 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 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 good indication of how investors in different sectors expect the economy to perform in

the near future (i.e., the highest returns in a give row indicate that most investors are anticipating the economic and interest rate conditions noted at the top of the next column).

Year-to-Date Returns on Classic Rotation Strategies

Economy	Bottoming	Strengthening	Peaking	Weakening
Interest Rates	Falling	Bottom	Rising	Peak
Style	Growth (IWZ) **-4.90%**	Value (IWW) **2.30%**	Value (IWW) **2.30%**	Growth (IWZ) **-4.90%**
Size	Small (IWM) **-2.20%**	Small (IWM) **-2.20%**	Large (IWB) **-0.60%**	Large (IWB) **-0.60%**
Style and Size	Small Growth (DSG) **-2.60%**	Small Value (DSV) **0.10%**	Large Value (ELV) **2.20%**	Large Growth (ELG) **-4.50%**
Sectors	Cyclicals (IYC) **-4.20%** Technology (IYW) **-14.00%**	Basic Materials (IYM) **-1.20%** Industrials (IYJ) **2.10%**	Energy (IYE) **15.70%** Staples (IYK) **2.60%**	Utilities (IDU) **7.10%** Financials (IYF) **3.50%**
Bond Mkt	High Risk (VWEHX) **4.00%**	Short Maturity (SHY) **-0.30%**	Low Risk (TIP) **5.50%**	Long Maturity (TLT) **2.70%**

This Month's Letters to the Editor

I have a difficult question regarding asset allocations that could provide protection in the event of significant terrorist attacks. Are there any asset classes that would likely hold up well in the event of such a catastrophic occurrence?

This is not an easy question to ask, or to answer. So much depends on the nature of the attack and its aftermath.

While the short term consequences (in the financial markets at least) are reasonably predictable across a range of scenarios -- flight out of riskier asset classes, and into government bonds, particularly real return bonds, and particularly U.S. real return bonds -- the medium term consequences are less so.

Consider a few scenarios. (1) A dirty nuclear weapon attack on the Saudi oil fields that cuts the world supply of oil for a prolonged period of time. Initially, this would certainly send oil prices skyrocketing, and economic growth falling. But it would also stimulate an offsetting market response -- conservation in the short term, and a faster move to the hydrogen economy in the medium term. So in this scenario it isn't clear that the medium term asset allocation should necessarily be different from the one in a portfolio today.

(2) A nuclear device explodes in New York or Washington, causing substantial destruction. In this case, the short-term flows would probably be less toward U.S. government bonds, and more toward European government bonds and gold. The impact on the U.S. economy is hard to discern. Will all the back- up systems work? Can the human capital easily be replaced? In this case, it seems reasonable to conclude that U.S. (and world) economic growth would be slower, but not necessarily for a prolonged period of time. The returns on U.S. assets would like be relatively lower than would be the case in the absence of the attack, while those on European assets (and perhaps Japanese ones) relatively higher. However, other regions might also suffer due to the fear that a similar attack would soon take place there. All in all, this is a scenario in which returns on equities, property, and commodities would probably be lower, and those on fixed income assets, real return bonds, and gold probably higher than we have assumed in our current asset allocations.

(3) A successful biological attack (or, alternatively, another flu pandemic that springs from natural, as opposed to malicious causes) that causes widespread global casualties. This would sharply reduce global GDP growth, perhaps for a prolonged period. Returns on virtually all asset classes (except, perhaps, physical gold) would be lower than those we have assumed. Even government bonds would become suspect (particularly in those regions where government debt currently is high relative to GDP) as concerns about falling taxes and the ability to repay (except through using inflation to reduce the debt's real value) increased. Again, real return bonds and physical gold would seem to be the best bets under this scenario.

In the medium term, those countries less affected, and those with relatively higher fertility rates relative to their stock of capital -- e.g., the U.S. -- might produce relatively better returns in the bonds, property, and equity asset classes.

In sum, while the specific attack scenario has a large differential impact, as a general principle we think real return government bonds and physical gold are probably the asset classes that would best weather a range of major terrorist attack scenarios.

This Month's Issue: Key Points

Our semi-annual review of academic and practitioner research looks at the impact of recently published papers on the case for active management by a third party (e.g., a mutual or hedge fund manager). Fundamentally, this case depends on the joint probability that four propositions are all true. First, an investor can successfully forecast the future returns and/or risk within one or more asset classes. In this article, we will use equities as an example; however, the questions need to be asked of each asset class in which you are investing. Second, it is possible for an investor to profitably act on his or her forecast insights. Third, it is possible to identify skilled active managers in advance (that is, managers who will outperform an investment in a comparable index fund). And fourth, the active manager you choose to manage your money will generate returns that are greater than the costs you will pay for his or her service. We find that theoretical and empirical research findings show that the probability of the first two propositions being true is much higher than the last two.

This month's product and strategy notes look at five issues. In our June, 2004 issue we wrote about the growing phenomenon of "active indexing." One aspect of this was the introduction of "index funds" that track an "index" that itself represents nothing more or less than the results achieved through the consistent (i.e., mechanical) application of an active investment management (in this case, stock selection) strategy. This trend recently received a large boost when PowerShares registered twenty-five new "active index" ETF products with the U.S. Securities and Exchange Commission. We reach the same conclusion as before: caveat emptor! Our next note looks at an unusual lawsuit that was recently filed in the United States by the Financial Planning Association against the Securities and Exchange Commission. The heart of the issue is this: under the Investment Advisers Act of 1940,

Registered Investment Advisers have a fiduciary duty to put the client's interest above their firm's interest. However, despite calling themselves "financial consultants" or "financial advisers", employees of brokerage firms are not held to this requirement, provided that their provision of investment advice is "incidental" to selling stocks, bonds, and mutual or hedge funds to their customers. The Financial Planning Association thinks this is wrong, and we agree.

Our third note examines the recently introduced exchange traded funds that track the Morningstar Indexes. We find that they generally compare favorably to their closest competitors, the ETFs that track the Dow Jones Indexes. Our next note looks at whether active investors' ability to exploit index reconstitutions affects the case for using index funds. We find that it does not. Last but not least, we look at a new research study that analyzes whether large advertisers have any influence on the fund recommendations made by magazines and newspapers. We conclude that our decision to reject advertising and rely solely on subscription revenue still makes a lot of sense.

Research Roundup: Making the Case for Active Management

August is usually the month in which we present the second of our semi-annual reviews of the latest academic and practitioner research in the areas of asset pricing and investing. However, this month we are going to take a slightly different approach, and use these research findings to make the best case we can for active investment management. No, you didn't read that wrong! A while back someone challenged us to do this, as a way of demonstrating our intellectual honesty. That's the kind of challenge we love, so here we go.

Fundamentally, the case for active management rests on four propositions. First, an investor can successfully forecast the future returns and/or risk within one or more asset classes. Second, it is possible for an investor to profitably act on his or her forecast insights. If you are actively investing yourself, you only have to believe (with a sufficient amount of confidence) in these two propositions. However, if you are hiring an active manager or managers, you also have to believe in two additional propositions. The third (of the four propositions) is that it is possible to identify skilled active managers in advance (that is, managers who will outperform an investment in a comparable index fund). The fourth

proposition is that the active manager you choose to manage your money will generate returns that are greater than the costs you will pay for his or her services.

In this article, we will look at the theoretical justification and the supporting evidence for each of these four propositions.

Is Successful Forecasting Possible?

Broadly speaking asset class returns and risks arise from the interaction of three different processes. The first is the actual economic process generating the returns. For example, a basic equity valuation model equates the fair market price to the discounted present value of the current dividend adjusted for its future growth. Algebraically, this can be expressed as Fair Value (i.e., the price of a stock) = Dividend/(Required Rate of Return on Equity less Expected Dividend Growth Rate). Within this equation, the Required Rate of Return is equal to the risk free rate on a government bond, plus an additional premium that reflects the additional risk of owning an equity instead of a government bond (that is, an "equity market risk premium"). Within this equation, variations over time in the risk free rate, the equity market risk premium, and/or the expected dividend growth rate will affect the fair market value, and thus the return on a stock, or on the overall stock market.

Simple as it initially appears, over the years the "right way" to practically implement this equation has generated an enormous amount of debate. In particular, agreement on two issues has proven to be elusive. First, what is the right way to describe and quantify the additional risk premium that an investor should require for investing in the stock market? More specifically, does it arise from a single factor, or from multiple factors? In other words, is there a single equity risk premium, or is it more accurate to say there are multiple equity risk premia? The first approach is exemplified by the familiar Capital Asset Pricing Model (or CAPM for short). It claims that there is a single equity risk premium for the overall market, and that the premium for an individual stock is proportional to the extent to which its return varies with the overall market. From this perspective, investors should demand a higher risk premium to hold stocks whose returns are more volatile than the overall market, and a lower premium to hold stocks with lower-than-average volatility.

While many "multi-factor" models exist, one of the best known examples is the "Fama French" (FF) model, which claims that separate risk premia exist for small capitalization and low market-to-book (so called "value") stocks, in addition to the overall market premium. Extensions of the FF model include additional factors related to stock momentum, information availability, and liquidity. In practice, different stocks have different weightings for each of these factors. The expected return on the stock is therefore equal to the factor weights times the relevant factor risk premia, plus an additional return that is unrelated to systematic risk (also known as "alpha"), plus a randomly distributed error term (popularly known to most of us as "luck").

In addition to the "right" way to quantify the equity risk premium (or premia) a second major controversy involves disagreement over the economic factors which drive variation in either a stock's loading on different risk factors, variation in the risk premia associated with those factors, and/or a stock's idiosyncratic return, or "alpha." Many different economic drivers have been proposed, including the current rate of return on short term Treasury Bills, the so-called "term spread" (the difference in the yield on short and long-term government bonds), the so-called "default spread" (the difference in the yield on risky corporate bonds and risk-free government bonds of the same maturity), and the overall dividend yield (dividends/price) for the stock market.

In light of these controversies, it is easy to understand the second major contributor to stock returns: the process by which investors over time develop a more (or less) accurate picture of different risk factor loadings, risk premia associated with them, and the economic factors that cause variation over time in these variables. Many different studies have shown that this gradual investor learning process has an important impact on returns. For example, in "Stock Price Volatility and the Equity Premium", Brennan and Xia show how gradual learning leads to higher stock price volatility. In another paper, "Rational Momentum Effects", Tim Johnson shows how investor learning can give rise to stock return momentum.

The third process that gives rise to stock returns is investors gradually learning over time (and with much uncertainty) about the likely behavior of other investors. For example, in "Inference, Arbitrage, and Asset Pricing", Tobias Adrian shows how this can result in a small amount of new information having an outsized impact on prices, if investors believe that other investors will react to it. Similarly, in "Order Book Characteristics and the

Volume-Volatility Relationship", Naes and Skeltorp show how this inter-investor learning process intensifies the basic relationship between stock price trading volume and price and return volatility.

As you can see, the process generating the stock returns observed by investors is very complex. However, in order for investor forecasts to have a degree of accuracy beyond luck, this process must contain at least some regularities. So a key question we must ask is whether there are one or more theoretical reasons to expect such regularities to exist. Let's start with the basic economic return generating process, and then move on to the investor level learning processes.

There are a number of factors that could lead a reasonable person to conclude that regularities in the basic economic return generating process are likely to exist. First, history has shown a repeated pattern of short-term business cycles, and perhaps longer- term cycles as well (e.g., forty year Kondratieff cycles). Second, tax laws produce regularities, such as end of the year tax selling. Third, information tends to diffuse in predictable ways (e.g., see "The Epidemiology of Macroeconomic Expectations" by Christopher Carroll). Finally, at the level of individual firms, the cycle of innovation and competition also produces regularities. Successful innovations that generate higher than average profits typically attract competitors, whose activities eventually force profits back down to average levels.

Certain aspects of human thinking and behavior may also cause regularities in the investor learning process that manifest themselves in regularities in stock price returns. For example, there may be investors in the market whose behavior is predictable because it does not attempt to maximize returns. An oft-cited example of this is central banks, which may accumulate assets (e.g. U.S. government bonds) to achieve national policy goals (e.g., holding down their exchange rates versus the dollar). In addition, as we have noted, in trying to forecast future stock returns, investors face an inference problem that is beyond the capacity of either the human mind or current computing power to completely resolve. This causes them to use thinking short-cuts (also known as "heuristics") which often cause predictable biases in their thinking. For example, in their paper "Good Rationales Sell", Barber, Heath and Odean show how people have a tendency to prefer stocks with good rationales, which they identify as including being on Fortune's "Most Admired Companies" list, having strong sales growth, and having high three year returns. In a related 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." However, 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 appear to be making predictable valuation errors.

Other recent papers make additional points about the predictable impact of investor learning processes. In "Capacity Constrained Learning and Asset Price Co-Movement", Peng and Xiong show how the allocation of scarce investor attention to a limited number of common factors causes correlations between the returns on different stocks to be higher than what their fundamentals would suggest. And in "Properties of Asset Prices Under Alternative Learning Schemes", Guidolin and Timmerman find that learning leads to serial correlation (that is, a predictable relationship between this year's returns and previous returns) and volatility clustering (that is, predictable variation over time in the volatility of stock returns).

Thus far, we have seen that while the processes generating stock returns are very complex, there are factors within them that theoretically should give rise to predictability. This leads to another question: are there theoretical reasons for believing that investors will be able to exploit this predictability to produce forecasts that are more accurate than luck? The answer is almost certainly yes. First, humans are naturally highly skilled when it comes to pattern recognition. Second, both information and computing power are cheaper today than ever before. Finally, humans are greedy, and the rewards for successfully forecasting future returns are very high indeed.

So, having explored the theoretical aspects of this issue, let's move on to what the evidence says about predictability and the probability that forecasting skill exists. This has been a very hot topic in academia in the last decade, and much research has been produced. These studies have used a wide range of independent variables to predict future stock returns and risks, including dividend yield, total cash flow yield (essentially dividends plus stock repurchases plus acquisitions), the term and default spreads, and many more. Moreover, they have been done for a range of asset classes (e.g., see "Corporate Credit Risk Changes: Common Factors" by Avramov, Jostova, and Philipov). Many of these studies have found

that, at least with the benefit of hindsight, predictability exists. Within the equities asset class, while the evidence with respect to the predictability of returns is somewhat equivocal, the evidence for the predictability of volatility (i.e., changes in the standard deviation of returns over time) is much stronger.

Consider some of the most interesting of the recent studies in this area. In "Financial Asset Returns, Direction of Change Forecasting, and Volatility Dynamics", Christoffersen and Diebold note that "financial economic theory suggests that asset returns should not be easily forecast using readily available information and forecasting techniques, and a broad interpretation of four decades of empirical work suggest the data support the theory." However, they go on to note that "profitable trading strategies may [still] result if one is successful at forecasting market direction, quite apart from whether one is successful at forecasting returns themselves…[and] there is substantial evidence that sign forecasting can often be done with surprising success." In their paper, the authors "characterize in detail the relationships among three phenomena: conditional mean independence, sign dependence, and conditional volatility dependence." They show that "conditional mean independence [that is, the inability to accurately forecast returns] and conditional volatility dependence are entirely compatible" and that "volatility dependence produces sign dependence, so long as expected returns are non-zero." However, the "nature of sign dependence is highly non-linear, and hence isn't likely to be found via standard statistical tests." The authors conclude that "market timing strategies linked to volatility are likely to be successful." A similar conclusion is reached in a different context by Cheung, Chinn and Pascual. Their paper, “Empirical Exchange Rate Models of the Nineties” generally finds that “models which work well in one period will not necessarily work in another period…[Consequently] no model consistently oupterforms a random walk [when it comes to forecasting foreign exchange rates]. However, along the direction of [sign] change dimension, some models do outperform a random walk.”

In "Variance Risk Premia", Carr and Wu show that many professional investors act as though they agree with this conclusion. They note the relatively "recent introduction of many products with payoffs tied to estimates of future realized variance or volatility," and find the risk premia associated with variance risk is negative. "Buyers are willing to suffer negative average excess returns to hold an asset that hedges away the potential impact of an upward move in index return variance." This finding is confirmed in "The Cross-Section of Voatility

and Expected Returns" by Ang, Hodrick, Xing and Zhang, who find that stocks with high sensitivity to changes in aggregate volatility have lower returns. Finally, Arzu Ozuguz from Insead business school in France reaches a closely related conclusion in his paper "Good times or Bad Times? Investors' Uncertainty and Stock Returns." Using the implied volatility of the S&P 500 index (the VIX index), he finds that unanticipated changes in volatility are a priced systematic risk factor in equity returns.

However many of these studies have been criticized on at least one of four different grounds. First, they use an enormous range of different models and variables to reach their conclusions, and do not agree on the answers to some very important questions: (a) which independent variables should be used to predict future returns or volatility? (b) How many factors should be used to characterize the additional risk associated with investing in equity? (c) Should a stock's loadings on these factors be stable or vary over time? (d) Should the risk premia associated with these factors be stable or vary over time? (e) Should one use a linear or non-linear model? In his paper "Stock Return Predictability and Model Uncertainty", Doron Avramov uses a Bayesian approach (a statistical technique) to analyze the evidence on return predictability in the presence of uncertainty about the right forecasting model to use. He finds that model uncertainty is quite important, and taking it into account reduces the explanatory power of many, but not all, economic variables.

Another set of criticisms questions the statistical tests that have been used to validate the findings of many predictability studies. Eric Ghysels reviews these arguments in his paper "On Stable Factor Structures in the Pricing of Risk." In another paper, "Efficient Tests of Return Predictability", Campbell and Yogo find much to criticize in the tests used by previous studies, but using new (and better) tests find that some predictability remains for variables like the term spread.

A third criticism is that many of the studies claiming to support the hypothesis that returns can be forecast in advance do not adequately take the integration between different dependent variables into account. In "Specification Error, Estimation Risk and Conditional Portfolio Rules", Carlson, Chapman, Kaniel and Yan note that many models that claim to forecast returns assume constant volatility, which is at odds with the historical data. And in "Risk, Return, and Dividends", Ang and Liu note that given a dividend forecasting process (a feature of many models), specifying one of the processes determining future returns,

volatility, or the dividend yield fully determines the other two. They note that because many of the models used in other studies focus on just one of these outcome variables, they "often place strong implicit, and sometimes inconsistent, restrictions ion the dynamics of [the other variables]."

A fourth criticism of the studies which have claimed to find evidence of the predictability of future returns is that they often don't work well when used with data not included in the sample upon which they are based. In short, hindsight seems to work better than foresight. One explanation that has been proposed for this is that the underlying processes giving rise to returns aren't "stationary", but are themselves changing over time. For example, in their paper "Detecting Multiple Breaks in Financial Market Volatility Dynamics", Andreou and Ghysels find evidence of multiple "structural breaks" in recent years in the volatility generating process. A good critical paper is "A Comprehensive Look at The Empirical Performance of Equity Premium Prediction" by Goyal and Welch. They note that "economists have suggested a whole range of variables that investors could or should use to predict the future equity premium…the typical paper reports that the variable predicted well in an in-sample regression, implying forecasting ability. Our paper explores the out-of-sample performance of these variables, and finds that not a single one would have helped a real-world investor outpredict the then-prevailing historical equity premium mean. Most would have outright hurt." In other words, "any presumed equity premium forecasting ability was a mirage." Handa and Tiwari, in their paper "Does Stock Market Return Predictability Imply Improved Asset Allocation and Performance" reach a similar conclusion that "the market timing capability of conditioning variables is unstable over time and only marginally better than a random coin toss." This conclusion is also echoed by Cooper, Gutierrez and Marcum in their paper "On the Predictability of Stock Returns in Real Time." They find that "the market is difficult to beat in real time, and that the current notion of predictability found in the literature is exaggerated."

There are, however, two other important points to make about these studies. First, most of them are focused on the effectiveness of models that use publicly available data to predict the systematic portion of future equity returns. The vast majority of them do not address the predictability of volatility, and those that do find it to be much higher. Second, it must be remembered that the return on a specific stock is related not only to its exposure to

systematic risks, but also to factors unique to the company in question (e.g., idiosyncratic factors which will affect the rate at which its dividends grow, and hence its fair value). These idiosyncratic risk exposures give risk to "alpha", that is, the additional return above (or below) what one receives for bearing systematic risk. In this regard, it is not necessary to have a superior forecasting model to predict future alpha; superior information not available to other investors will produce the same result. Three recent papers ("Conditional Betas" by Santos and Veronesi; "Bad Beta, Good Beta" by Campbell and Vuolteenaho; and "Dividend Yield, Risk, and Mispricing" by Shanken and Tamayo) look at the relative sensitivity of companies stock prices to changes in future cash flow growth compared to changes in discount rates. They all generally find that the stock prices for the majority of companies are more sensitive to changes in their expected growth rate.

Finally, other studies have found that some aspects of investor behavior appear to be predictable. For example, in "Systematic Noise", Barber, Odean and Zhu find that trading by individual investors is predictable, due to the impacts of limited attention and overconfidence. They note that their "empirical results provide strong evidence that individual investors are net buyers of attention grabbing stocks, and prefer to buy stocks with strong past returns." And in their paper "Predicting Stock Price Movements from Past Returns", Grinblatt and Moscowitz find that tax related trading plays an important role in predictability.

So, on the basis of theory and the accumulated evidence, what are we to conclude about predictability, and the possibility of successful forecasting, either of future returns or future risk? On balance, we think a reasonable person would have to conclude that both are likely to exist.

Can Investors Profitably Act on Their Forecast Insights?

Assuming at least some investors are capable of skillful forecasting -- that is, of producing forecasts whose accuracy exceeds luck alone -- the next logical question is whether they can profitably act on them.

On the one hand, theory says that the drastic fall in transaction costs in recent years – due to the deregulation of trading commissions and the development of online brokerages and internet based trading – should make it easier to profitably exploit an accurate forecast. These

technological changes have also increased transaction speed, and more than ever before taken human beings "out of the loop." This has reduced the opportunity for other investors to copy an informed investor's actions, and potentially increased the returns that result from an active forecast.

On the other hand, we also observe that many traditional actively managed funds face constraints that limit the maximum profit they can earn from their forecasts. For example, many mutual fund managers must maintain a portion of their portfolio in cash to satisfy fund shareholders' liquidity needs (because these funds earn lower returns, this phenomenon is known as "cash drag"). Moreover, many managers are prohibited from shorting stocks, taking overly-concentrated positions, or using leverage and derivatives to increase their returns. By limiting these managers to "long-only" positions, and by evaluating their performance once per year (versus a benchmark index), fund investors potentially limit the returns they can earn from the manager's successful forecasts. However, these restrictions generally don't apply to hedge funds, which are able to take full advantage of whatever forecasting advantages their managers may possess.

Moving beyond theory to look at the evidence, quite a few studies conclude that at least some investors are able to profit from their superior forecasts. For example, in their paper "Can Individuals Beat the Market?", Coval, Hirschleifer, and Shumway analyze a sample of trading over six years in accounts at a discount broker. They find that the top ten percent of accounts earn positive returns (alpha) after adjusting for systematic risk as defined by four factors: size, market/book, momentum, and the overall market. They note that their "results suggest that skillful individual investors exploit market inefficiencies to earn abnormal profits, above and beyond any profits available from well-known strategies based on size, value, or momentum." As an explanation for this, they note that "while few would expect individual traders to be, on average, better informed than mutual fund managers, there are compelling reasons to believe that individual traders are better positioned than mutual funds to exploit a given informational advantage." Specifically, they trade smaller positions (and hence their trades have a smaller impact on price), and they are less constrained (than mutual fund managers) to hold diversified portfolios or stay within a tracking error limit relative to an index benchmark.

A number of other studies find that at least some mutual fund managers are also able to profitably exploit their accurate forecasts. In his paper "Mutual Fund Performance", Russ Wermers finds that stocks held by actively managed funds outperformed broad index by about 1.3% per year between 1975 and 1994. However, in his subsequent study "Is Money Really Smart?" he finds that momentum effects driven by cash inflows into funds with top past performance are responsible for most of this outperformance. He concludes that "this casts doubt on previous studies that found that managers have talents in choosing stocks that beat their benchmarks."

On the other hand, in their study "Can Mutual Fund Stars Really Pick Stocks?", Kosowski, Timmerman, White and Wermers find that, after "controlling for luck, [about 5% of managers] pick stocks well enough to more than cover their costs" [before taxes]. In another interesting study, "Should Investors Avoid All Actively Managed Mutual Funds?", Baks, Metrick and Wachter combine evidence with a range of prior views about the probability that superior active managers exist. They find that, unless an investor has very skeptical prior views about the potential efficacy of active management, at least some of his or her portfolio should be invested in actively managed funds.

A subsequent study, "Mutual Fund Performance With Learning Across Funds" by Jones and Shanken criticizes the methodology used by Baks, Metrick and Wachter. Specifically, Jones and Shanken note that survivorship bias (that is, the failure to include in the study data results for funds that have closed) added from 40 to 60 basis points to the former's estimate of the average risk adjusted return ("alpha") for actively managed funds (one basis point is equal to one one-hundredth of one percent). Jones and Shanken also note that investors learn about the average abilities of active managers not on a fund-by-fund basis, but by cumulatively over time. Using the same highly skeptical prior view about the likelihood of finding truly skilled active managers, Jones and Shanken find an average estimated fund alpha of between (.69%) and (.74%). On the other hand, this same analysis shows a maximum expected alpha of between 1.86% and 4.22%, before taxes. So, even when historical fund performance data is combined with quite skeptical prior views, Jones and Shanken conclude that at least some skilled active managers exist.

Jeffrey Busse's study, "Volatility Timing in Mutual Funds" is more encouraging. He finds that a significant percentage of active managers reduce their market exposures during

periods of high expected volatility. In a closely related paper, "The Economic Value of Volatility Timing", Fleming, Kirby and Ostdiek" find significant potential benefits to volatility timing -- around 1.70% per year. Finally, in their paper "A Closer Examination of Investment Manager Herding Behavior", Fong, Gallagher, Gardner, and Swan find that in Australia "brokers pass their best, most timely information to their largest clients first, and later disseminate that information to their smaller clients. This generates higher returns for managers who are sufficiently active to rank as the broker's best client." So from these and other studies it would appear that there is considerable evidence that at least some individual and institutional investors are able to profitably exploit the potential advantages provided by their accurate forecasts of future returns and/or risk.

However, many of these studies suffer from a key limitation, called the “dual hypothesis” problem by Professor Gene Fama. In his paper "Efficient Capital Markets -- II", Professor Fama notes that “since multi-factor models offer at best vague predictions about the variables that are important in returns, there is the danger that measured relations between returns and economic factors are spurious." In other words, the accuracy of the alpha estimates used in many studies of investor performance depends on the accuracy of their estimates of risk factors, factor loadings, and risk premia. If any of these are inaccurate (as seems likely to be the case, in at least some studies), then their conclusions regarding managers' ability to profitably exploit their forecasts (that is, their estimates of managers' alphas) will also be inaccurate.

However, some recent studies have taken steps to avoid this problem. In their paper "Can Mutual Fund Managers Pick Stocks?", Baker, Litov, Wachter, and Wugler "compare fund holdings and trades prior to company earnings announcements with the [subsequent] returns realized after those events.” Consistent with managerial skill, they “find that, on average, stocks that funds buy earn significantly higher returns at subsequent earnings announcements than stocks they sell." In their paper "Does Trade Motivation Matter?", Alexander, Cici, and Gibson distinguish between fund trades driven by shareholder liquidity needs versus trades drive by fund a fund manager’s valuation insights. They find that “valuation motivated buys outperform their benchmarks by economically and statistically significant margins, while liquidity motivated buys underperform." This effect is less pronounced, but still present for stock sales. Finally, in their paper "Do Mutual Funds Time

the Market?", Jiang, Yao, and Yu use a holdings-based methodology and find strong evidence of market timing ability among fund managers that contributes 1.23% per year to the median fund's return. However, they also find that "fund managers seem to rely on conditioning information other than those return-predictive economic variables documented in academic studies." This would appear provide further support for the hypothesis that many active managers try to use volatility timing and/or superior information rather than return forecasting models to generate alpha.

In conclusion, there appears to be enough evidence to support the conclusion a relatively small percentage of active investors are truly skilled -- able to produce accurate forecasts and to profitably act on them.

Can You Identify Skilled Active Managers in Advance?

As we noted at the beginning of this article, if you are actively investing yourself, you only have to believe (with a sufficient amount of confidence) in the two propositions we have just reviewed. However, if you are hiring an active manager or managers to invest on your behalf, you also have to believe in two additional propositions, to which we now turn. The first of these is that it is possible to identify skilled active managers in advance (that is, managers who will outperform an investment in a comparable index fund).

There is precious little theory to support the belief that this can be done. As we noted, an active investor's inference problem is very complex – he or she must not only assess the process generating asset returns, but also his or her own learning about this first process, and his or her learning about the likely behavior of other investors. Choosing to use a fund manager does not eliminate this inference problem; rather, it just shifts it to a different level. And, as in the case of selecting securities, the complexity of this inference causes investors to use heuristics (i.e., "mental shortcuts") to evaluate fund managers' relative potential. This leads to "rules of thumb", such as the much repeated belief that the keys to selecting superior managers are evaluating their theory of how to create value; evaluating the "capacity" of this strategy (that is, its ability to keep generating superior returns even in the face of large fund inflows); the presence of a consistent implementation process; and a stable team of people, who are motivated with proper incentives.

If the theory of how to select future superior managers in advance isn't reassuring, the evidence isn't much better. There are plenty of studies that find past performance not to be useful for forecasting a fund manager's future risk-adjusted returns. For example, in his classic study "On Persistence in Mutual Fund Performance", Mark Carhart found that momentum accounted for most of the observed persistence in fund returns. Chen, Jegadeesh, and Wermers reached the same conclusion in their paper "The Value of Active Mutual Fund Management." In addition, two major studies, one by the Australian Securities and Investment Commission ("A Review of Research on the Past Performance of Managed Funds") and the other by the U.K. Financial Services Authority ("Past Imperfect: The Peformance of UK Equity Managed Funds") both concluded that past fund performance was of no help in identifying future winners.

Unfortunately, other approaches to identifying future winners don't seem to fare any better. In their paper "Morningstar Ratings and Mutual Funds", Blake and Morey found "no statistical difference between the future performance of three, four, and five star rated funds." On the other hand, they found that a low star rating did a relatively better job of predicting poor future performance. However, in a related paper, "Star Power: The Effect of Morningstar Ratings on Mutual Fund Flows" Del Guerico and Tkac find that in spite of their lack of predictive ability, Morningstar ratings have a significant impact on investor flows into and out of different mutual funds.

In another paper "An Investigation into the Performance of Recommended Funds", Sawicki and Thomson looked at the performance of funds on research companies' "approved" lists in Australia. They found that "investors will, on average, not be aided by following [these] lists." Finally, in their paper, "Do Ads Influence Editors?", Reuter and Zitzewitz found "a strong positive correlation between the amount of advertising a fund family does and the probability that its funds receive favorable mentions" in a number of personal finance publications. Overall, the authors concluded that the publications in their sample showed "limited ability to predict future fund performance." On the other hand, they also found that these publications' fund recommendations had "an economically significant impact on investor flows." They conclude that "if we interpret this causally…a non-trivial share of the return to advertising in [the personal finance magazines they analyzed] comes via biased [fund] recommendations."

In addition to the challenge of successfully identifying skilled mutual fund managers in advance, there is also the problem of said managers later leaving to manage hedge funds, where they face fewer constraints on their investment strategy, and theoretically can earn much more money. In other words, even if you believe you have identified a mutual fund manager with superior skills, there is no guarantee that he or she will remain with the fund in question. On the other hand, this is much less of a problem with hedge fund managers, who usually have substantial amounts of their own capital at risk in the funds they manage.

Finally, multiple studies have shown that fund inflows tend to follow superior fund performance rather than lead it, suggesting that the majority of investors lack an effective means of identifying future top performers in advance.

On the other hand, two more recent studies are somewhat more optimistic. In "Improved Forecasting of Mutual Fund Alphas and Betas", Mamaysky, Spiegel, and Zhang acknowledge that “past studies of mutual fund returns have found little if any evidence that portfolio managers can predictably outperform the market.” However, they note that "two underlying estimation problems may be responsible for these negative results…Correcting for these allows one to find at least some funds that can produce risk adjusted abnormal returns." The second study, "Investing in Mutual Funds When Returns are Predictable" by Avramov and Wermers, posits that predictability in stocks and market implies that mutual fund returns should also be predictable. The authors find that "incorporating predictability [and in particular, predictable variation over time in manager market timing and stock selection skills] makes actively managed equity funds appear more attractive relative to index funds."

To conclude this section, both theory and the available evidence suggest that the likelihood of identifying a future top performing actively managed fund in advance is, at best, not much better than what luck alone would predict.

Will My Active Manager Generate Returns Above Costs?

Let's assume that an investor believes he or she has identified a fund manager who will outperform (on a risk-adjusted basis) a comparable index fund over some future period. In order to justify using active management, this investor must believe that the costs charged

by the fund manager will be lower than the additional returns he or she is expected to produce. How likely is this?

The relatively sparse theoretical work that has examined this question is not encouraging. Perhaps the best known paper in this area is "Mutual Fund Flows and Performance in Rational Markets" by Berk and Green. They describe a logic that causes the returns on previously successful funds to decline in the future. If the successful fund is a closed-end fund, investors will bid up its price, and thereby drive down its expected future returns. If it is an open-ended fund, successful performance will lead to cash inflows, and rising assets under management. This confronts the fund manager with two challenges: finding increasing numbers of profitable investment opportunities (even as more and more other fund managers are trying to copy your moves), while limiting the adverse price impact of the larger trades you are making (e.g., your purchases causing the price of a share to rise before you can complete your investment). Berk and Green conclude that "this process necessarily implies that investors cannot expect to make positive excess returns going forward, which also implies that superior fund performance cannot be predictable in advance."

The evidence on this point isn't much more encouraging. Numerous studies over the years have shown that, after expenses and taxes, the majority of actively managed funds fail to outperform comparable index funds. Moreover, the proportion of underperforming active funds grows with the length of the investment holding period. In his paper "Mutual Fund Performance", Russ Wermers quantified the different factors that lead to this result. On the positive side, he found that stocks held by actively managed funds outperformed the relevant index by about 1.3% per year on average. However, this was more than offset by an average cash drag of (0.7%), expenses of (1.0%), and transaction costs of (0.6%). Taken together, these costs caused a net underperformance of (1.0%) per year. And this was before investor level taxes. Since actively managed funds typically trade more frequently than index funds, they generate higher taxes for investors, which further widens the active versus index fund performance gap.

On the other hand, many of these studies of mutual fund performance suffer from the previously noted "dual hypothesis" problem. In attempting to measure risk-adjusted fund manager performance, they implicitly assume that the way they are measuring risk is accurate.

As we have seen, there is plenty of room for reasonable doubts that this is true. Moreover, all of these studies find that at least a few managers do, in fact, outperform index funds, even after expenses (and, less frequently, taxes) are taken into account.

Finally, we also note that investors in hedge funds appear to be quite cognizant of this issue, and have often structured manager compensation arrangements to take it into account (e.g., allowing "clawbacks" of previously paid performance-related incentive fees in the case of future underperformance).

To conclude on this question, while it is not impossible that an active manager you believe to be superior will deliver superior risk-adjusted returns after expenses and taxes, it is likely to be quite rare, particularly over longer holding periods.

So where does this leave us? As we noted at the beginning of this article, the case in favor of active management rests on four propositions. First, an investor can successfully forecast the future returns and/or risk within one or more asset classes. Second, it is possible for an investor to profitably act on his or her forecast insights. If you are actively investing yourself, you only have to believe (with a sufficient amount of confidence) in these two propositions. However, if you are hiring an active manager or managers, you also have to believe in two more propositions. The third (of the four propositions) is that it is possible to identify skilled active managers in advance (that is, managers who will outperform an investment in a comparable index fund). The fourth proposition is that the active manager you choose to manage your money will generate returns that are greater than the costs you will pay for his or her services.

In choosing whether to use an active management approach within a given asset class, the key question is the degree of confidence you attach to each of these four propositions. For example, if you are 95% sure that each of them is true, then your overall confidence in the use of active management is 95% x 95% x 95% x 95% = 81%. On the other hand, if you are 99% confident in the first two propositions, but only 67% sure of the last two, your overall confidence that active management will produce higher returns than an index approach is only 44%. In sum, the case for or against the use of active management is not clear cut, and instead is highly dependent on the asset class in question, the time horizon involved, and the information available to a specific investor.

Finally, contradictory though it may seem at first, recent research has also shown that believing in both active management and in the efficient market may not be mutually exclusive. In their paper "On the Emergent Properties of Artificial Stock Markets", Chen and Yeh use an agent based simulation model to study the dynamics of an artificial stock market. They find it to be a "complex adaptive system", the hallmark of which is the interaction of different agents producing "emergent behavior" at the aggregate level that could not have been predicted in advance from the decision rules being used by individual agents.

In Chen and Yeh's model, individual investors believe successful forecasting is possible, and constantly seek better forecasting rules (that take into account both an uncertain stock return generating process and the uncertain behavior of other investors). This leads to periods during which stock returns are relatively predictable, sometimes due to investors accurately forecasting the return generating process, and sometimes due to their accurately forecasting each other's behavior. However, these periods are transitory, because of investors' constant search for better forecasting models, which change investor behavior when they are used. Most interesting is Chen and Yeh's finding that at the aggregate level, these dynamics produce a market that is efficient -- that is, one in which the total market return is impossible to forecast in advance.

A similar conclusion is reached in "A Study of Neo-Austrian Economics Using an Artificial Stock Market", a paper by Benink, Gordillo, Pardo, and Stephens. As orginally posited by Friedrich Hayek, the authors note that "markets are continuously evolving from one inefficiency to another, never attaining perfect, efficient equilibrium, yet strongly attracted to it." In this environment, the authors describe how "creative investors track and exploit profit opportunities generated by continuous information shocks [e.g., the introduction of new information into the market] in a never ending cycle…[However], these investors' actions produce signals to other investors, triggering actions that reduce the market's disequilibrium" and move it back towards efficiency. The authors note that while "short term regularities" (that imply predictability) can emerge in this system, they are transitory. In other words, fund managers can sometimes "beat the market", but they can't do so systematically. Over time, this should lead to a fall-off in the number of managers whose cumulative performance is superior that of an index fund. And that is exactly what multiple studies of actual fund performance data have shown to be the case.

Product and Strategy Notes

Still More "Active Index" ETFs Launched

In our June, 2004 issue we wrote about the growing phenomenon of "active indexing." One aspect of this was the introduction of so-called "index funds" that track an "index" that itself represents nothing more or less than the results achieved through the consistent (i.e., mechanical) application of an active investment management strategy. This trend recently received a large boost when PowerShares registered twenty-five new "active index" ETF products with the U.S. Securities and Exchange Commission. They will cover not only the usual categories (e.g., six Large, Mid, and Small Cap growth and value ETFs, and sixteen industry sector ETFs), but also some new ones, including the Value Line Timeliness and Safety Index, a high dividend paying companies index, a China Index, and a large companies index published by Zacks. We repeat what we wrote in June about this phenomenon: from our perspective, it is not indexing at all, but rather active management, with all the advantages and disadvantages that implies. And also with one new disadvantage (at least for ETFs): the PowerShares ETFs are structured to include the payment of a 2% front-end load by investors. While this will no doubt make these products more attractive to brokers to sell to their (unsuspecting) customers, it certainly won't help those customers' returns. In sum, caveat emptor!

Planners and Brokers Head to Court

Once upon a time, there were two different businesses. Securities brokers accepted customers' orders to buy and sell securities. They legally acted as their customers' agents and charged them commissions to execute these transactions. In contrast, investment advisers provided investment advice to their clients. They typically charged their client a fee for their services (e.g., calculated on a per hour basis or as a percentage of the value of their client's assets). Under the Investment Advisers Act of 1940, they had a clear fiduciary duty to put the client's interest above the interests of their own firms. In the 1990s, however, two big

changes came along. With the future of Social Security looking increasingly doubtful, and many employers shifting from defined benefit to defined contribution pension plans, many more people were seeking advice about how to invest their savings. At the same time, traditional brokers found their revenues under pressure from new entrants into their business (so called "discount brokers"), who offered customers far fewer services but charged them much lower commissions. As a result of these changes, the traditional brokers' business suffered, while the advisers' business boomed. Naturally, this didn't sit too well with the traditional brokers. So they decided to enter the advisers' business. They started calling their stockbrokers "financial consultants" or "financial advisers." They also started to offer their customers pricing plans that charged fees based on the value of customer assets held in their newly renamed "investment accounts", rather than traditional commissions. Finally, in 1999 they went to the regulatory authorities (the Securities and Exchange Commission) and received an exemption from the Investment Advisers Act of 1940. The brokers convinced the SEC to issue a "proposed rule" that let them look like a duck and quack like a duck, without being regulated like a duck. This ruling enabled them to avoid having their brokers held to the higher fiduciary standards under which Registered Investment Advisers must operate). The key provisions of this very strange ruling were that any investment advice provided by brokers to their customers had to be "purely incidental to the provision of brokerage services" and that customers had to be informed that their accounts with the broker were still, in legal terms, brokerage accounts. Despite many protests (e.g, from the Consumers Federation of America), the SEC began to enforce the proposed rule, even though it was never formally adopted. Needless to say, the new rules have allowed brokers to attract a large amount of new customer assets into the "investment accounts" offered by their "financial consultants." Naturally enough, this has rather miffed the financial planning industry, which believes that all ducks should be regulated as ducks under the Investment Advisers Act of 1940. So this past month, after five years of fruitless lobbying, the Financial Planning Association sued the SEC to help bring this about. And what do you know? The SEC reopened the comment period for the "proposed" rule. Now we're getting somewhere.

New Morningstar Index Funds

Last month, nine new exchange traded funds that track the Morningstar size and style indexes started trading on the New York Stock Exchange. The nine funds are based on Morningstar's familiar size (large, mid and small cap) by style (growth, core, and value) index matrix.

The current index products that the Morningstar funds most resemble are those from Dow Jones. As we have written before, there are basically two ways to construct an index: you can fix the number of stocks it contains, or you can fix the percentage of total market capitalization that it covers. Both Morningstar and Dow Jones take the latter approach. The Morningstar U.S. Market Index (upon which the nine size/style box funds are based) covers 97% of total U.S. public equity market capitalization, while the Dow Jones U.S. Total Market Index covers 95%. In 2003, the return on the Morningstar U.S. Market Index was 30.73%, while the return on the Dow Jones Total Market Index was 30.75%.

In both cases, "large cap" refers to the top 70% of the total market capitalization, and "mid-cap" refers to the next 20%. However, for Morningstar, "small cap" refers to the next 7% of market capitalization (i.e., it excludes the bottom 3% of the market), while for Dow Jones it refers to the next 5%. In contrast to these indexes, the Wilshire 5000 Index covers 100% of the market capitalization of the U.S. public equity market.

Both Morningstar and Dow Jones use a factor model to classify stocks into the "growth" and "value" styles. Morningstar's model uses ten factors, while Dow Jones' uses six. Unlike other index providers, both Morningstar and Dow Jones exclude some stocks from their respective growth and value indexes if they are not a sufficiently good fit with either one. Morningstar assigns these stocks to its "core" style category. Dow Jones does not have a similar style category for the stocks it excludes from growth and value. The style classification approach used by both Morningstar and Dow Jones should produce a greater difference between the returns on the growth and value funds, and thus be more attractive to style-based investors.

The following table compares the 2003 returns on the Morningstar and Dow Jones size/style indexes:

	Morningstar	**Dow Jones**
Large Cap Growth	30.65%	29.52%
Large Cap Value	26.26%	25.88%
Small Cap Growth	52.64%	48.48%
Small Cap Value	48.87%	43.66%

As you can see, in 2003 the Morningstar approach produced higher returns than the Dow Jones approach within each style category. However, when it comes to the cross-style difference in returns within each size category (e.g., Large Growth less Large Value), Morningstar produced a larger return difference only in large caps, while Dow Jones produced a larger return difference in small caps.

Finally, comparing their expenses, the exchange traded funds that track the Dow Jones indexes are five basis points cheaper than those that track the Morningstar indexes. The former's large cap ETFs carry annual expense loads of .20%, while the latter's charge .25%. Dow Jones' small cap ETFs charge .25% per year, while Morningstar's charge .30%.

On balance, both the Morningstar and Dow Jones offerings are solid products. However, the former's size/style classification approach seems marginally more attractive, and, if 2003 is any guide to the long-term, worth the additional five basis points in annual expense charged on the Morningstar ETFs.

How Big Are Index Reconstitution Losses?

We occasionally hear the assertion that "index reconstitution effects" somehow negate the case for indexing. Let's look at this argument in more detail. First, what is "index reconstitution?" It is when the provider of an index changes the companies that it contains, forcing index funds to make adjustments in the securities they hold. Because these changes are announced in advance, they provide an opportunity for actively managed funds to profit at index funds' expense. The former can purchase the new additions immediately after they are announced, while the latter have to wait until they become effective, in order to minimize

tracking error versus their target index. In the paper "Pre-Announced Index Changes and Losses to Investors in S&P 500 and Russell 2000 Index Funds", Chen, Noranha and Singal find that reconstitution effects cost investors in the former 0.10% annually, and investors in the latter a much larger 1.84% annually. In another paper, "The Price Response to S&P 500 Index Additions and Deletions" the same authors note that the response to changes in the index isn't symmetric. Companies added to the index usually see their returns increase by a larger amount than those dropped see theirs decline. Another paper by Denis, McConnell, Ovtchinnikov and Yu finds that a company's addition to an index apparently provides new information to investors, which in turn may explain the asymmetric price response.

A key point with respect to the .10% and 1.84% reconstitution cost estimates is that they are based on a fund that simply replicates the companies in the index. In point of fact, most index funds employ a range of strategies to reduce these reconstitution costs (e.g., using sampling rather than replication to construct their portfolios). Finally, the index providers are well aware of the problems caused by reconstitution, and have recently taken steps to limit them, including the move to free float index weighting, as well as the institution of buffer zones between, for example, large, mid and small cap indices in the same family. In sum, we don't see the existence of reconstitution costs -- which are declining -- as having much of a negative effect on the overall case for index investing.

Why We Don't Accept Advertising

When we started The Index Investor in 1997, one of our role models was Cooks Illustrated Magazine (www.cooksillustrated.com), which accepts no advertising, and is entirely supported by subscription revenue. As readers, we always admired Cook's objectivity, and the sense that it was writing for us and not to keep its advertisers happy. A recently published working paper, "Do Ads Influence Editors? Advertising and Bias in the Financial Media" by Reuter and Zitzewitz confirms that our instincts were right on target. The authors of this paper evaluate the impact of advertising revenues on the mutual fund recommendations made by Kiplingers Personal Finance, Money Magazine, and Smart Money (all magazines), and by the New York Times and Wall Street Journal newspapers between 1996 and 2002. They find that "the [mutual fund] recommendations of these publications have an

economically significant impact on investor flows but little ability to predict future returns." Specifically, the authors estimate that "a single positive media mention for a fund is associated with inflows ranging from 10 to 26 percent of its assets over the following 12 months." Unfortunately, they also find "evidence of a positive correlation between who has advertised in a publication over the prior 12 months and who receives positive media mentions for all three personal finance magazines in [their] sample, but not [thankfully!] for either national newspaper." The authors conclude that "if we interpret this correlation causally, a non-trivial share of [a fund company's] return to advertising in a personal finance magazine comes via biased [fund] recommendations." You'll be happy to know we're sticking with our subscription-based approach!

Model Portfolios Year-to-Date Performance

These portfolios seek to maximize return while matching their benchmark's risk (standard deviation)			
	YTD 31Aug04	**Weight**	Weighted Return
	In A$		In A$
High Risk Portfolio			
Asset Classes			
Australia Benchmark			
Australian Equity	7.7%	**80%**	**6.2%**
Australian Bonds	0.2%	**20%**	**0.0%**
		100%	**6.2%**
Global Benchmark			
U.S. Equity	6.7%	**40%**	**2.7%**
Non-U.S. Equity	7.9%	**40%**	**3.2%**
U.S. Bonds	9.5%	**10%**	**1.0%**
Non-U.S. Bonds	10.4%	**10%**	**1.0%**
		100%	**7.9%**
Recommended			
Australian Equity	7.7%	**30%**	**2.3%**
Foreign Equity (US)	6.7%	**23%**	**1.6%**
Foreign Equity (EAFE)	8.1%	**18%**	**1.5%**
Australian Bonds	0.2%	**19%**	**0.0%**
Commodities	17.9%	**10%**	**1.8%**
		100%	**7.2%**

These portfolios seek to maximize return while matching their benchmark's risk (standard deviation)			
	YTD 31Aug04	**Weight**	Weighted Return
	In A$		In A$
Medium Risk Portfolio			
Asset Classes			
Australia Benchmark			
Australian Equity	7.7%	**60%**	**4.6%**
Australian Bonds	0.2%	**40%**	**0.1%**
		100%	**4.7%**
Global Benchmark			
U.S. Equity	6.7%	**30%**	**2.0%**
Non-U.S. Equity	7.9%	**30%**	**2.4%**
U.S. Bonds	9.5%	**20%**	**1.9%**
Non-U.S. Bonds	10.4%	**20%**	**2.1%**
		100%	**8.4%**
Recommended			
Australian Equity	7.7%	**25%**	**1.9%**
Foreign Equity (US)	6.7%	**14%**	**0.9%**
Australian Bonds	0.2%	**40%**	**0.1%**
Commodities	17.9%	**10%**	**1.8%**
Foreign Equity (EAFE)	8.1%	**11%**	**0.9%**
		100%	**5.6%**

These portfolios seek to maximize return while matching their benchmark's risk (standard deviation)			
	YTD 31Aug04	**Weight**	**Weighted Return**
	In A$		In A$
Low Risk Portfolio			
With suggested US Index Funds			
Australia Benchmark			
Australian Equity	7.7%	**20%**	**1.5%**
Australian Bonds	0.2%	**80%**	**0.2%**
		100%	**1.7%**
Global Benchmark			
Foreign Equity (US)	6.7%	**10%**	**0.7%**
Non-U.S. Equity	7.9%	**10%**	**0.8%**
U.S. Bonds	9.5%	**40%**	**3.8%**
Non-U.S. Bonds	10.4%	**40%**	**4.2%**
		100%	**9.5%**
Recommended			
Australian Equity	7.7%	**10%**	**0.8%**
Foreign Equity (US)	6.7%	**8%**	**0.5%**
Australian Bonds	0.2%	**60%**	**0.1%**
Global Bonds	7.8%	**8%**	**0.6%**
Foreign Equity (EAFE)	8.1%	**7%**	**0.6%**
Commodities	17.9%	**7%**	**1.3%**
		100%	**3.9%**
Global Bond Index = 50% US$ plus 50% Non-US$ Bonds			

These portfolios seek to minimize risk while matching their benchmark's returns.			
	YTD 31Aug04	**Weight**	**Weighted Return**
	In A$		In A$
High Return Portfolio			
Asset Classes			
Australia Benchmark			
Australian Equity	7.7%	**80%**	**6.2%**
Australian Bonds	0.2%	**20%**	**0.0%**
		100%	**6.2%**
Global Benchmark			
U.S. Equity	6.7%	**40%**	**2.7%**
Non-U.S. Equity	7.9%	**40%**	**3.2%**
U.S. Bonds	9.5%	**10%**	**1.0%**
Non-U.S. Bonds	10.4%	**10%**	**1.0%**
		100%	**7.9%**
Recommended			
Australian Equity	7.7%	**11%**	**0.9%**
Foreign Equity (US)	6.7%	**19%**	**1.3%**
Australian Bonds	0.2%	**45%**	**0.1%**
Foreign Equity (EAFE)	8.1%	**15%**	**1.2%**
Commodities	17.9%	**10%**	**1.8%**
		100%	**5.2%**

These portfolios seek to minimize risk while matching their benchmark's returns.			
	YTD 31Aug04	**Weight**	**Weighted Return**
	In A$		In A$
Medium Return Portfolio			
Asset Classes			
Australia Benchmark			
Australian Equity	7.7%	60.0%	4.6%
Australian Bonds	0.2%	40.0%	0.1%
		100%	4.7%
Global Benchmark			
U.S. Equity	6.7%	30%	2.0%
Non-U.S. Equity	7.9%	30%	2.4%
U.S. Bonds	9.5%	20%	1.9%
Non-U.S. Bonds	10.4%	20%	2.1%
		100%	8.4%
Recommended			
Australian Equity	7.7%	10%	0.8%
Foreign Equity (US)	6.7%	7%	0.5%
Foreign Equity (EAFE)	8.1%	5%	0.4%
Australian Bonds	0.2%	60%	0.1%
Global Bonds	7.8%	13%	1.0%
Commodities	17.9%	5%	0.9%
		100%	**3.7%**

These portfolios seek to minimize risk while matching their benchmark's returns.			
	YTD 31Aug04	**Weight**	**Weighted Return**
	In A$		In A$
Low Return Portfolio			
Asset Classes			
Australia Benchmark			
Australian Equity	7.7%	20.0%	1.5%
Australian Bonds	0.2%	80.0%	0.2%
		100%	1.7%
Global Benchmark			
U.S. Equity	6.7%	10.0%	0.7%
Non-U.S. Equity	7.9%	10.0%	0.8%
U.S. Bonds	9.5%	40.0%	3.8%
Non-U.S. Bonds	10.4%	40.0%	4.2%
		100%	9.5%
Recommended			
Australian Equity	7.7%	12.0%	0.9%
Emerging Mkt Equity	7.0%	3.0%	0.2%
Australian Bonds	0.2%	60.0%	0.1%
Global Bonds	7.8%	25.0%	2.0%
		100%	**3.2%**
Global Bond Index = 50% US$ plus 50% Non-US$ Bonds			

These portfolios seek to maximize the probability of achieving at least the target real return over twenty years, at the lowest possible risk.			
	YTD 28May04	**Weight**	**Weighted Return**
	In A$		In A$
7% Target Real Return	*YTD Returns are Nominal*		
Asset Classes			
Australian Real Return Bonds	4.3%	0%	**0.0%**
Australian Bonds	-2.2%	3%	**-0.1%**
Global Bonds	3.8%	7%	**0.3%**
Commercial Property	11.0%	3%	**0.3%**
Commodities	18.0%	17%	**3.1%**
Australian Equity	3.9%	25%	**1.0%**
Foreign Equity (USA)	6.5%	21%	**1.4%**
Foreign Equity (EAFE)	7.3%	16%	**1.2%**
Emerging Equity	3.6%	8%	**0.3%**
Hedge Funds	5.7%	0%	**0.0%**
		100%	**7.4%**
	YTD 28May04	**Weight**	**Weighted Return**
	In A$		In A$
5% Target Real Return	*YTD Returns are Nominal*		
Asset Classes			
Australian Real Return Bonds	4.3%	17%	**0.7%**
Australian Bonds	-2.2%	5%	**-0.1%**
Global Bonds	3.8%	2%	**0.1%**
Commercial Property	11.0%	3%	**0.3%**
Commodities	18.0%	20%	**3.6%**
Australian Equity	3.9%	18%	**0.7%**
Foreign Equity (USA)	6.5%	17%	**1.1%**
Foreign Equity (EAFE)	7.3%	13%	**0.9%**
Emerging Equity	3.6%	5%	**0.2%**
Hedge Funds	5.7%	0%	**0.0%**
		100%	**7.6%**

	YTD 28May04	Weight	Weighted Return
	In A$		In A$
3% Target Real Return	*YTD Returns are Nominal*		
Asset Classes			
Australian Real Return Bonds	4.3%	56%	**2.4%**
Australian Bonds	-2.2%	10%	**-0.2%**
Global Bonds	3.8%	7%	**0.3%**
Commercial Property	11.0%	0%	**0.0%**
Commodities	18.0%	12%	**2.2%**
Australian Equity	3.9%	5%	**0.2%**
Foreign Equity (USA)	6.5%	6%	**0.4%**
Foreign Equity (EAFE)	7.3%	4%	**0.3%**
Emerging Equity	3.6%	0%	**0.0%**
Hedge Funds	5.7%	0%	**0.0%**
		100%	**5.5%**

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These portfolios seek to maximize the probability of achieving at least the target real return over twenty years, at the lowest possible risk.		***Unlike the other target real return portfolios, these allow investment in a hedge fund index.***	
	YTD 28May04	**Weight**	**Weighted Return**
	In A$		In A$
7% Target Real Return	*YTD Returns are Nominal*		
Asset Classes			
Australian Real Return Bonds	4.3%	0%	**0.0%**
Australian Bonds	-2.2%	2%	**0.0%**
Global Bonds	3.8%	7%	**0.3%**
Commercial Property	11.0%	15%	**1.6%**
Commodities	18.0%	8%	**1.4%**
Australian Equity	3.9%	21%	**0.8%**
Foreign Equity (USA)	6.5%	15%	**1.0%**
Foreign Equity (EAFE)	7.3%	12%	**0.9%**
Emerging Equity	3.6%	15%	**0.5%**
Hedge Funds	5.7%	5%	**0.3%**
		100%	**6.8%**

	YTD 28May04	Weight	Weighted Return
	In A$		In A$
5% Target Real Return	*YTD Returns are Nominal*		
Asset Classes			
Australian Real Return Bonds	4.3%	0%	**0.0%**
Australian Bonds	-2.2%	8%	**-0.2%**
Global Bonds	3.8%	10%	**0.4%**
Commercial Property	11.0%	12%	**1.3%**
Commodities	18.0%	12%	**2.2%**
Australian Equity	3.9%	25%	**1.0%**
Foreign Equity (USA)	6.5%	13%	**0.8%**
Foreign Equity (EAFE)	7.3%	10%	**0.7%**
Emerging Equity	3.6%	8%	**0.3%**
Hedge Funds	5.7%	2%	**0.1%**
		100%	**6.6%**

	YTD 28May04	Weight	Weighted Return
	In A$		In A$
3% Target Real Return	*YTD Returns are Nominal*		
Asset Classes			
Australian Real Return Bonds	4.3%	65%	**2.8%**
Australian Bonds	-2.2%	5%	**-0.1%**
Global Bonds	3.8%	3%	**0.1%**
Commercial Property	11.0%	4%	**0.4%**
Commodities	18.0%	5%	**0.9%**
Australian Equity	3.9%	3%	**0.1%**
Foreign Equity (USA)	6.5%	7%	**0.5%**
Foreign Equity (EAFE)	7.3%	6%	**0.4%**
Emerging Equity	3.6%	0%	**0.0%**
Hedge Funds	5.7%	2%	**0.1%**
		100%	**5.3%**