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# Active vs. Indexed Investment Management

Why Indexed Funds Outperform Active Managers



## Active vs. Indexed

### WHAT'S THE DIFFERENCE?

This position paper was written and edited as part of a collaborative effort between Savant Capital Management, Inc. of Rockford, Illinois and BHCO Capital Management, Inc. of Dallas, Texas. Savant and BHCO collectively manage in excess of \$400 million in client assets. Additionally, the two firms have provided fee-only financial planning advice on unmanaged assets well in excess of a billion dollars. Savant and BHCO are also founding members of Zero Alpha Group, LLC, a national organization of independent advisory firms that collectively manage over \$1.5 billion in client assets and share a common investment and planning philosophy. Both Savant and BHCO were recently recognized among the top 150 Wealth managers in the United States by *Bloomberg*, one of the most respected firms in finance. Savant has further been recognized as one of the nation's top 250 financial advisors by *Worth* magazine during each year since 1997. We would like to extend a special thanks to our many team members for their significant contributions to this project. The resulting intellectual capital contained within is truly borne from the unique teamwork exhibited within and between our firms.

An interesting debate continues on Wall Street. The debate centers on the question: **Do highly trained, well-paid, professional money managers earn their keep? Said another way, do the traditional, "active" money management techniques used by most managers actually add value?** This question is very important because the answer has far reaching implications for both individual and institutional investors.

There are basically two fundamental investment strategies available to investors. On Wall Street they are referred to as "Active" and "Indexed" strategies. Every investor should learn the difference between these strategies and make an informed decision as to which one to pursue. An overwhelming body of research emphasizes that this decision is one of paramount importance for the long-term investor.

Traditional or active investment management strategies seek to outperform the market by using "market timing" and "security selection" techniques. Classic market timing involves moving investment dollars in and out of the market so as to be fully invested during rising markets and out of the markets when prices are falling. Another form of market timing involves shifting investment dollars out of industries expected to perform poorly and into industries expected to outperform the overall market. The second technique, security selection, is sometimes called "stock picking." Using their allegedly superior knowledge and research, active managers select stocks they hope will perform better than the market as a whole.

Indexed and related passive investment management strategies, on the other hand, assume that markets are generally efficient. In other words, indexed strategies recognize that financial markets discover and distribute financial information so quickly that it is impossible, over the long run, for active managers to consistently outperform the overall market. Computers, the Internet, the media, analysts and advanced telecommunications ensure that stock prices reflect all publicly available information almost instantaneously. Proponents of indexed strategies contend that market efficiency makes it impossible for active managers, who attempt to exploit market inefficiencies, to justify their higher management costs. Instead of attempting to pick superior stocks or trying to predict when to be in or out of the market, indexed strategies buy and hold all or most of the stocks in a target index.

The purpose of this position paper is to explore the differences between active and indexed investment strategies and to present related evidence and research compiled by both the academic and professional community. Our purpose in presenting this research is to provide you with enough information to make a fully informed decision regarding your long-term investment strategy.

**Active Investment Strategies Attempt to "Beat the Market"**

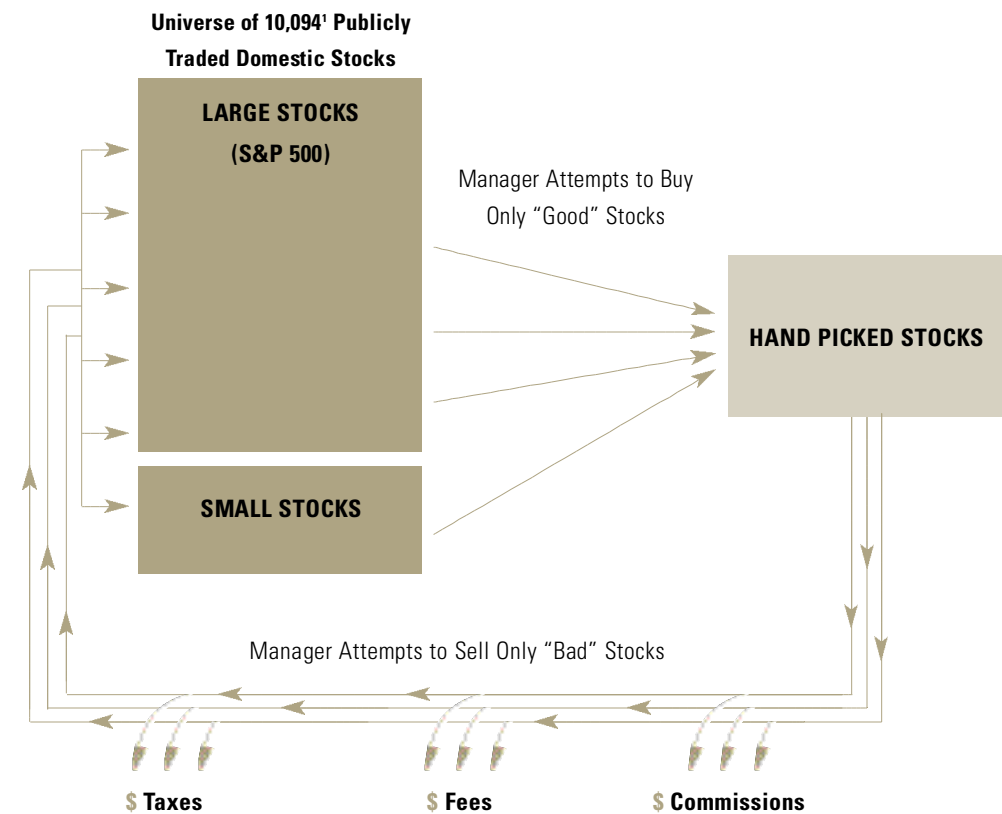
Active investment managers, brokers, mutual fund managers, and day traders allege that they have the ability to "beat the market." They believe their talent, training, education, and research capabilities enable them to pick superior investments. For example, an active manager, who specializes in U.S. large company stocks, would contend that he can consistently earn a higher rate of return than an indexed investor who simply buys and holds a diversified portfolio of U.S. large company stocks.

The illustration on the opposite page depicts the active investment management process. It also identifies the parties who benefit from the buy/sell cycle that is associated with active strategies. The active manager or broker begins the process by screening the universe of 10,094<sup>1</sup> publicly traded stocks. The manager then attempts to identify and purchase only the "good" stocks. He believes these "good" stocks are underpriced by the market, and therefore have potential for abnormally high appreciation. In other cases, the active manager may feel that while a stock may be expensive, it will go up even further in the near term. Once purchased, the manager routinely reviews these "good" stocks and sells those he thinks have gone "bad." Wall Street refers to this commission-generous buy/sell cycle as *portfolio turnover*.

The typical active U.S. stock fund manager turns over (buys and sells) 120%<sup>2</sup> of his clients' portfolio holdings each year. Even very conservative managers generally buy and sell at least 10-25% of their clients' portfolio holdings annually. Aggressive managers, in comparison often have portfolio turnover that exceeds 200%.

Many parties other than the investor benefit from this portfolio turnover. For example, investors often pay retail brokers or commissioned financial planners a 5-6%<sup>3</sup> sales commission (load) when they purchase actively managed mutual funds. In addition, retail investors pay fees to portfolio managers (i.e. mutual fund groups) that range from 0.7% to 3.1%<sup>4</sup> annually. On average, these "expense ratios" are more than 1.6%<sup>4</sup> per year. Sadly, these annual expenses do not even include "additional," hidden trading costs such as the bid/ask spread paid to traders and commissions paid to the Wall Street broker. These expenses often cost an additional 1% or more per year. The buy and sell cycle propagated by the portfolio managers also invites unnecessary participation by the IRS, to whom investors end up paying tax on capital gains that could have been deferred.

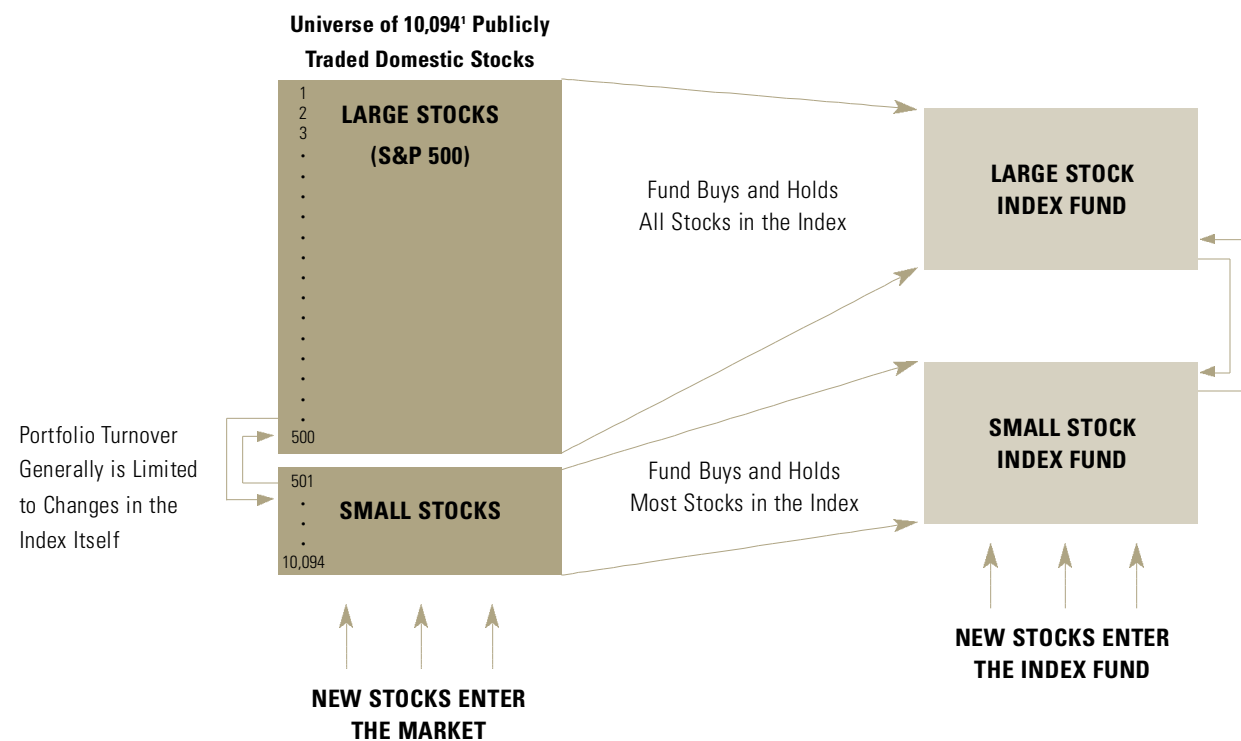
Active Investment Management Process



Parties Who Benefit From This Buy/Sell Cycle:	Your Performance Equals:
Local Broker	Gross Stock Returns
Mutual Fund Salesman	<b>Minus</b> Local Broker Commissions
Portfolio Manager	<b>Minus</b> Management Fees
Fund Company	<b>Minus</b> Administrative Fees
Wall Street Broker	<b>Minus</b> 12b(1) Fees
Wall Street Trader	<b>Minus</b> Wall Street Commissions
IRS (Taxes)	<b>Minus</b> Market Impact
	<b>Minus</b> Taxes
	<b>You Keep What is Left</b>

Portfolio Turnover Averages 120%<sup>2</sup> and varies from 14% to 263%<sup>2,3</sup> Annually  
 Annual Costs Typically Range from 0.7% to 3.1% + Trading Costs<sup>4</sup>  
 Average Expenses = 1.6%<sup>4</sup> (Expense Ratio) + Trading Costs

## Indexed Investment Management Process



**Parties Involved in the Buy/Sell Cycle:**

- Local Broker (No Longer Required)
- Portfolio Manager (Greatly Reduced)
- Wall Street Broker (Greatly Reduced)
- Wall Street Trader (Greatly Reduced)
- IRS (Greatly Reduced)

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**Your Return is Increased**

Portfolio Turnover Averages 6%<sup>5</sup> (Ranging from 4% to 9%<sup>5</sup> Annually)  
 Annual Costs Typically Range from 0.03% to 0.50%<sup>30</sup>  
 Average Index Fund Expense Ratio = 0.25%<sup>31</sup>

## Indexed Investment Strategies Seek to "Match the Market"

Advocates of indexed and passive investment strategies contend that it is impossible to consistently "beat the market". Financial markets are generally efficient because they discover and distribute financial information almost instantaneously. Active managers cannot consistently compete with the speed and efficiency of computers, the media, the Internet, and advanced telecommunications, which ensure that stock prices quickly reflect all publicly available information. Furthermore, active management is expensive. The high costs associated with active management actually cause portfolios to produce returns *lower* than those of index funds.

The illustration on the opposite page depicts the indexed investment management process. The goal of an index fund is to provide an investor with a return that matches the performance of a targeted market index minus very modest expenses. Originally, index funds were modeled after the *Standard & Poor's 500*<sup>TM</sup> stock index. Today, however, index funds are available for nearly every major asset class including: large-cap stocks, small-cap stocks, mid-cap stocks, growth stocks, value stocks, large and small-cap international stocks, real estate, U.S. bonds and emerging market stocks.

For example, the *Standard & Poor's 500*<sup>TM</sup> is an index that represents roughly the largest 500 companies in the United States. Instead of trying in vain to differentiate "good" stocks from "bad" stocks, an *S&P 500*<sup>TM</sup> index fund tries to replicate the performance of the *S&P 500*<sup>TM</sup> index by purchasing all 500 stocks based on their exact rank and weighting in the index. Once purchased, stocks remain in the indexed portfolio until the index itself changes. For example, the fund would sell stock #500 only when stock #501 grows larger than stock #500.

One significant benefit of an indexed investment strategy is its very low cost structure. An important reason for this is low portfolio turnover. For example, a typical index fund experiences only 4-9%<sup>5</sup> portfolio turnover per year. This is very low compared to the 120%<sup>2</sup> average annual turnover experienced by the average actively managed fund. Reduced portfolio turnover allows the indexed investor to drastically reduce brokerage commissions and other trading costs. Reduced portfolio turnover also significantly decreases taxes by allowing investors to defer most capital gains tax indefinitely. Furthermore, low portfolio turnover substantially reduces mutual fund administrative expenses.

Index funds also benefit from low expense ratios. Unlike active funds that are burdened by expensive managers, index funds allow the market to decide what assets are included.

It is worth noting that index funds are usually no-load. Unlike many actively managed funds that assess investors a significant front load or contingent deferred sales commission (load), most index funds allow investors to make sure that 100% of their original investment goes to work.

### How Do Active Managers Perform Compared to the Indexes?

It is a curious paradox that while the objective of active investment management is to “beat the market,” it rarely happens in the real world. In the 30 years since 1971, active managers of general U.S. stock funds failed to outperform the *Wilshire 5000*<sup>TM</sup> index (an index that represents the entire U.S. stock market) 70%<sup>6</sup> of the years. When holding periods were increased, the underperformance was even more significant. For example, over the last 15 years, 82%<sup>7</sup> of all active large-capitalization mutual fund managers failed to perform at the level of the unmanaged *Standard & Poor’s 500*<sup>TM</sup>.

Furthermore, the margin of active managements’ underperformance is substantial. Figure 1, at the top of the adjacent page, illustrates the historical returns for the four primary types of U.S. stock funds compared to the unmanaged *Standard & Poor’s 500*<sup>TM</sup> index and the *Standard & Poor’s Midcap 400*<sup>TM</sup> index (medium-sized U.S. stocks). We compare to each of these indexes because active stock funds generally own companies included in both of these indexes. For example, approximately 47%<sup>8</sup> of stocks included in Aggressive Growth Funds compare (in size) to companies in the *Standard & Poor’s Midcap 400*<sup>TM</sup> index. An additional 36%<sup>8</sup> of stocks are generally included in the *Standard & Poor’s 500*<sup>TM</sup> index. Between 1986 and 2000, active stock fund managers’ performance trailed the indexes by 1.5% to 4.5%<sup>9</sup> annually. Even Aggressive Growth Funds performed poorly – and these are the very funds that promise superior returns because they accept higher levels of risk.

Poor performance is not unique to active U.S. large stock fund managers. As shown in Figure 2, active foreign and U.S. small stock managers also fared poorly. During the 15-year period ending December 31, 2000, managers of foreign and U.S. small company stocks underperformed the *MSCI EAFE*<sup>TM</sup> index (large international stocks) and *Ibbotson U.S. Small Company* index by 0.9% and 1.7% respectively.<sup>10</sup>

Curiously, these charts reflect the performance of only those funds that are still in existence. Mutual fund companies often liquidate their worst funds or merge them with a larger, more successful fund, thereby eliminating their poor track record forever. If the above studies had included terminated funds, the average performance by active managers would be even worse. A paper published in the *Journal of Finance*,<sup>11</sup> using *Lipper*<sup>TM</sup> data, suggests that active management returns are up to 1.4% per year lower when poor performing “dead funds” are added back to the data.

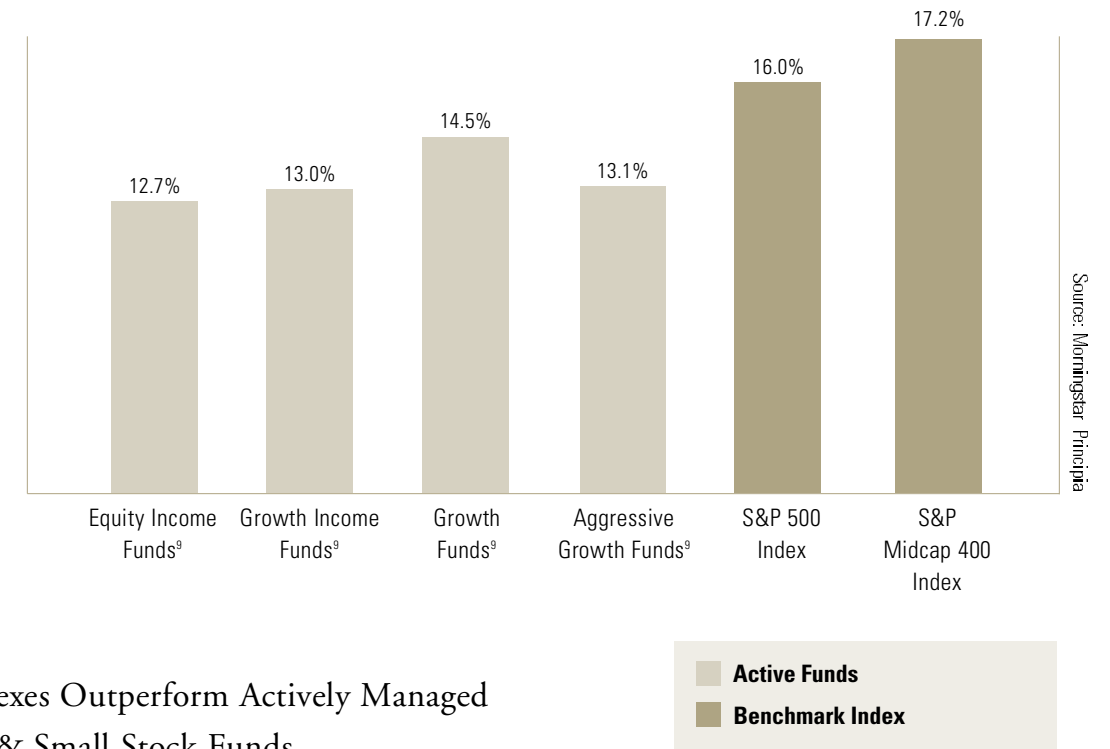
In another *Journal of Finance* article, which many consider to be the most comprehensive of all mutual fund studies, the average mutual fund underperformed the market by 1.8%<sup>12</sup> per year. This study covered time periods back to 1961 and accounted for both survivorship bias and common risk factors such as size and style.

These statistics evaluate only mutual fund performance. Similar studies reveal that actively managed bank trust funds, brokerage accounts, large pension funds, and privately managed accounts also consistently underperform the indexes, generally by even larger margins.

### The Indexes Outperform Actively Managed U.S. Large Company Stock Funds

(Annualized Returns 1986 – 2000)

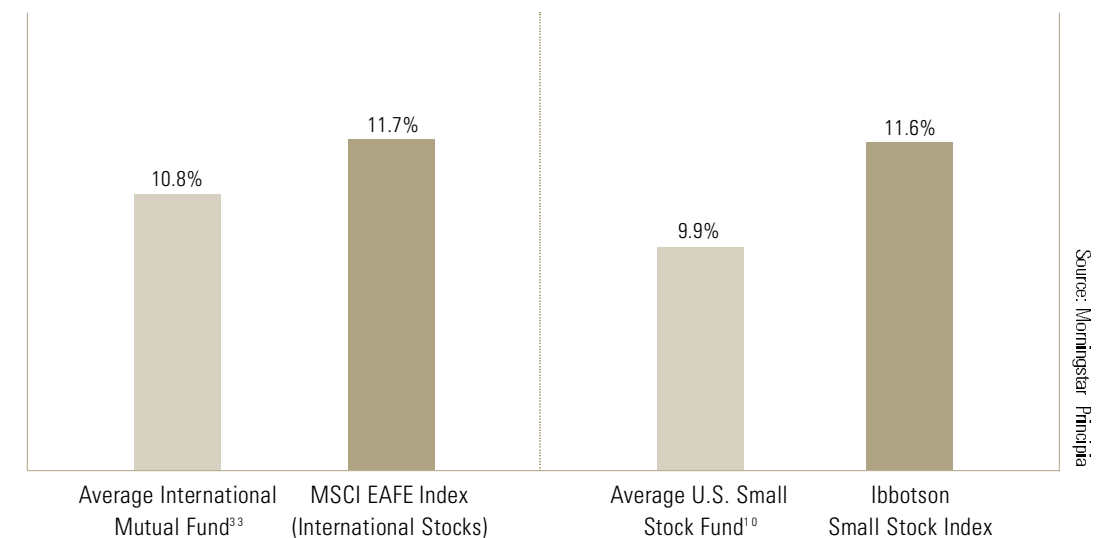
Figure 1



### The Indexes Outperform Actively Managed Foreign & Small Stock Funds

(Annualized Returns 1986 – 2000)

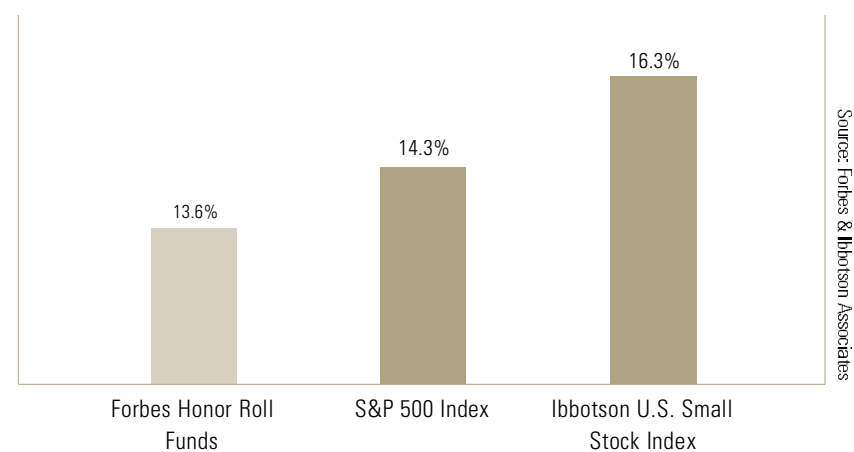
Figure 2



### Forbes Honor Roll Funds vs. the Indexes

(Annualized Returns 8/1973 – 6/1998)

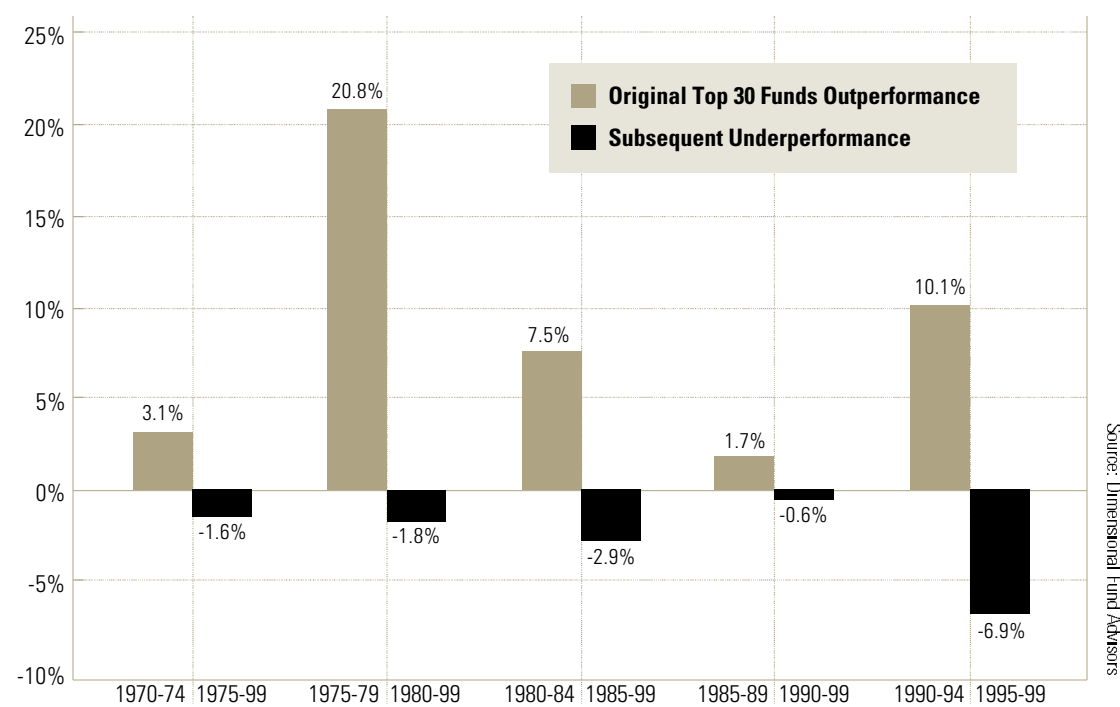
Figure 3



### Top 30 U.S. Stock Funds Perform Poorly in Subsequent Periods

(Returns Relative to S&P 500, 1970 – 1999)

Figure 4



### Historical Performance is Not Indicative of Future Performance

A common misconception held by many investors is that investment managers should be evaluated based on their historical performance. In other words, many investors believe that mutual funds and investment managers that performed well in the past will continue to perform well in the future.

Unfortunately, the financial media, brokerage firms, commissioned financial planners, insurance agents and active money managers aggressively sell this idea. In reality, however, many significant academic and professional studies conclude that superior historical performance may actually turn into *worse* than average future performance. Even more ironic is that, while every prospectus must say, “past performance is not indicative of future performance,” many investors still use past performance as the primary reason for buying.

A recent study by *Forbes* addresses this issue.<sup>13</sup> Each year, *Forbes* magazine prepares a list of top performing mutual funds. Based on historical performance, *Forbes* places the country’s top mutual funds on its select *Forbes Honor Roll* list. In its own analysis, *Forbes* computed the rate of return an investor would have earned if, in each year since August 1973, he purchased the funds on the magazine’s previous year’s *Forbes Honor Roll* list. As shown in Figure 3, the unmanaged *Standard & Poor’s 500*<sup>TM</sup> index (large U.S. stocks) outperformed the *Forbes Honor Roll* by 0.7% annually. The *Ibbotson U.S. Small Company*<sup>TM</sup> index (small U.S. stocks) outperformed the *Forbes Honor Roll* by 2.7% annu-

ally. It is also important to note that these statistics are not reduced by the sales commissions charged on many of the *Forbes Honor Roll* funds.

It is also worth noting that, while compared to most funds, the *Forbes Honor Roll* list did well (though it still underperformed) relative to the *S&P 500*<sup>TM</sup>, the probable reason for this is quite predictable. A key criterion for making the *Forbes Honor Roll* is having a low expense ratio – the same variable that helps index funds perform so admirably.

Another study,<sup>14</sup> shown in Figure 4, further substantiates the poor predictive value of historical performance. This study analyzed the subsequent period performance of the Top 30 U.S. stock funds for each five-year period since 1970. For example, had an investor identified and purchased the Top 30 funds from 1970-74 in advance, he would have beat the *S&P 500*<sup>TM</sup> by 3.1% per year. Unfortunately, no one can predict the 30 winners in advance. However, many investors use such historical track records to determine future fund purchases. As evidenced by the chart, this strategy is flawed. The same Top 30 funds from 1970-74 underperformed the *S&P 500*<sup>TM</sup> by 1.6% per year in the 25 years since (1975-99). And, as the chart indicates, this subsequent underperformance is not an isolated occurrence. To the contrary, subsequent period performances for Top 30 funds failed to outperform the *S&P 500*<sup>TM</sup> for every five-year period since 1970.

**Attempting to "Beat the Market" is a Risky Proposition**

Financial economists frequently assume that individuals are "risk averse." Said another way, rational people typically seek to avoid needless and uncompensated risk. When two investments are offered, both with 5% expected returns, and one has high risk while the other has low risk, rational investors always pick the low risk alternative – or at least in theory.

In daily life, people illustrate this tendency to avoid needless risk. They continuously make decisions on the basis of a simple question: *What do I have to gain vs. what do I have to lose?* When opportunities are presented that indicate more potential benefit than pain, people proceed. Likewise, people avoid situations when the potential loss exceeds the potential for gain. This is common sense. And, in most aspects of life, this rule usually keeps us out of trouble and misery. However, humans are not always as rational as the economists hypothesize. There are at least two areas of life where otherwise rational people ignore this rule: gambling and investing.

In gambling, whether in a Vegas casino or playing a state administered lottery, there is a "house" that gathers every gambler's antes. Depending on the game, a few individuals win big. The rest lose their ante – or several antes. On average, the house is assured of winning. Collectively, the gamblers always lose. The reason: no matter the game, the odds allow the house to get its cut off the top before the rest is distributed as winnings. By definition, winnings are always less than the sum of the antes. Accordingly, in gambling, there is always less to gain than there is to lose. Nevertheless, otherwise rational people continue to gamble in hopes of "striking it rich."

Active management is much the same – only this time the "house" is the mutual fund company. The ante is the individual's original investment, and the house's cut is the high annual fees charged by the fund manager. In total, the fund managers can only deliver the market return – that is all there is to distribute. After covering the high costs, the typical investor must lose. And, just as in gambling, people continue to ante up to active managers with the hope of big excess returns (i.e. beating the market).

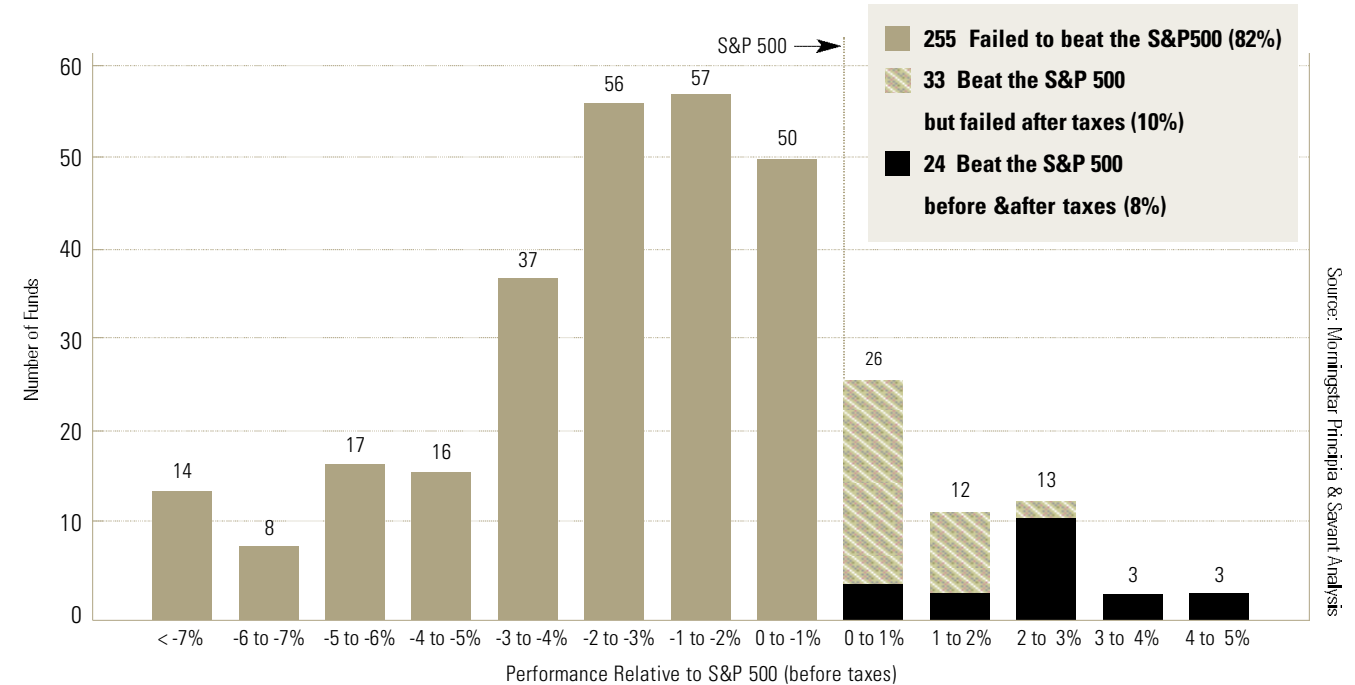
The real problem with this is that, unbeknownst to most investors, active management presents the same challenge as the casino. Their effort to "strike it rich" by outperforming the market, more often than not, leads to significant underperformance. Furthermore, gambling with active management adds a whole new dimension of risk – human judgment risk. This is the risk of doing much worse than average. Figure 5 illustrates this phenomenon.<sup>15</sup> While gambling with active management provided the opportunity to beat the market (57 funds beat the market before-tax while 24 did after-tax), the vast majority of funds still failed – and did so by a considerable margin.

In summary, as illustrated in Figure 6, if you play the active management gamble and win (8% chance after taxes), you were rewarded, on average, with a return about 1.4% above the market average. If you played and failed (82% chance), on average, you lost about 3% per year. If your luck ran dry and you errantly bought the worst 8% of funds, you gave up 9.7% per year. In gambling terms, you risked 9.7% to make a 1.4% potential payback.<sup>16</sup> Bad odds – even for Vegas!

Active Management Adds Considerable Risk

**ATTEMPTING TO "BEAT THE MARKET" WAS RISKY** S&P 500 vs. Large U.S. Stock Funds\* (Annualized Returns 1986 – 2000)

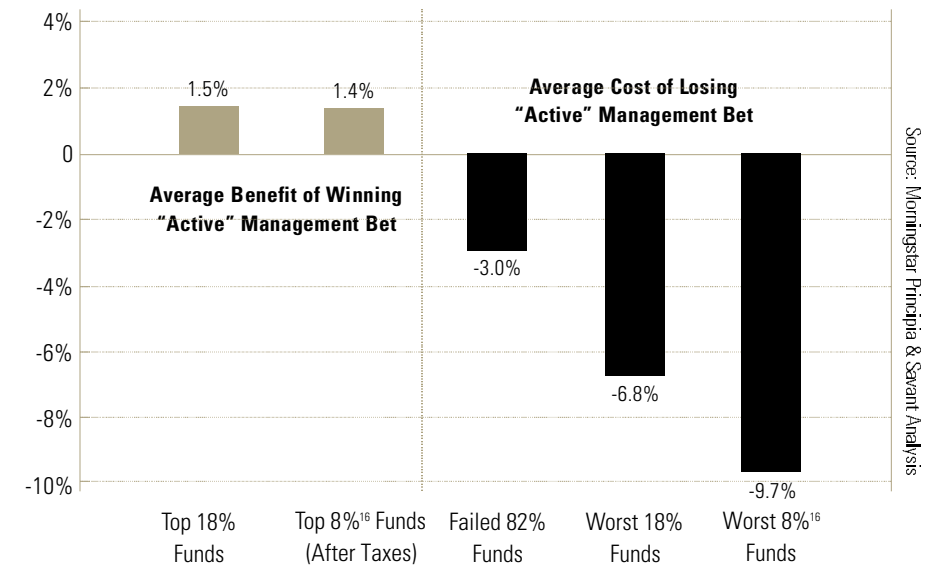
Figure 5



\*Includes only the 312 funds that survived the entire 15 year period. Many of the worst funds had already been liquidated or merged with better performing funds.

**ACTIVE MANAGEMENT OFFERS FAR WORSE ODDS THAN VEGAS** Performance of Active Funds Relative to S&P 500 (Annualized Returns 1986 – 2000)

Figure 6



Active Investment Management Expenses\*

Figure 7

FUND OR ACCOUNT TYPE	Front-End Sales Load	Back-End Sales Load	Annual Internal Expense Ratio	Annual 12b-1 Fees	Annual Expenses Over 5 YR. Holding Period
U.S. Stock Funds – “A” Shares	5.07 %	0.00 %	1.33 %	0.27 %	2.50* %
International Stock Fund – “A” Shares	5.09	0.00	1.77	0.27	2.95*
U.S. Stock Funds – “B” Shares	0.00	4.82	2.15	0.96	2.15*
U.S. Stock Funds – “C” Shares	0.14	0.86	2.16	0.96	2.19*
U.S. Stock Funds – No-Load, with 12(b)-1	0.00	0.00	1.51	0.35	1.51
U.S. Stock Funds – No-Load, No 12(b)-1	0.00	0.00	0.99	0.00	0.99
Wrap Fee Accounts	0.00	0.00	3.00	0.00	3.00

Source: Morningstar Principia

\*Assumes amortization of front load @ 5% risk free interest over five years. Also assumes no back-end sales charge on “B” shares or “C” shares.

Indexed Investment Management Expenses

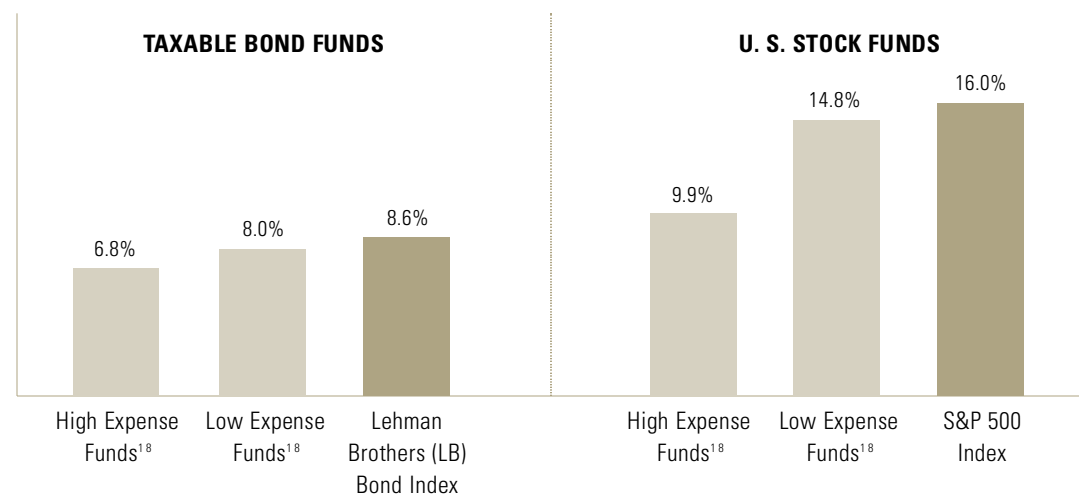
Figure 8

FUND OR ACCOUNT TYPE	Front-End Sales Load	Back-End Sales Load	Annual Internal Expense Ratio	Annual 12b-1 Fees	Annual Expenses Over 5 YR. Holding Period
S&P 500 Index Fund <sup>32</sup>	0.00 %	0.00 %	0.18 %	0.00 %	0.18 %
Small Company Stock Index Fund <sup>32</sup>	0.00	0.00	0.25	0.00	0.25
Bond Index Fund <sup>32</sup>	0.00	0.00	0.20	0.00	0.20
International Large Company Index Fund <sup>32</sup>	0.00	0.00	0.35	0.00	0.35

Source: Morningstar Principia

Taxable Bond Funds and U.S. Stock Funds vs. Indexes  
(Annualized Returns 1986 – 2000)

Figure 9



Source: Morningstar Principia

**High Costs of Active Management Hurt Portfolio Performance**

**W**hy do active investment managers fail? Fortunately, the answer to this question is quite simple. The high costs of active management make it impossible to outperform indexed investment strategies consistently.

Simple mathematics proves this point. A concise article written by Nobel Laureate William F. Sharpe demonstrated that the simple rules of arithmetic prove actively managed funds must underperform index strategies. Since, collectively, active managers can only earn a return equal to the market, Sharpe proved that after their higher costs, active managers as a group must fail.

Investment expenses fall into two main categories: “obvious” expenses and “hidden” expenses. The first category, obvious expenses, includes easily identifiable costs such as retail commissions, front and back loads, internal fund expenses, administration expenses, and mutual fund marketing expenses referred to as 12b-1 fees. The second category, hidden expenses, includes costs such as internal commissions, bid/ask spreads, and market impact.

The top two tables on the adjacent page, Figures 7 and 8, illustrate the first category of costs – obvious costs. The tables compare the costs of actively managed investment vehicles to index funds. It’s important to note these tables illustrate only easily identifiable costs. They do not include hidden bid/ask spreads, internal commissions, and market impact costs. These hidden costs are reviewed in the following section. As illustrated, easily identifiable costs associated with actively managed investment vehicles often approach

3% per year. Index funds, on the other hand, cost substantially less – annual expenses frequently range from 0.18% to 0.35%.<sup>32</sup>

A more recent trend in fund marketing is what we often refer to as “Alphabet Soup” funds. What used to be commonly known as front load funds are now renamed A-shares. New B-share funds say they don’t charge a front load but instead assess a “penalty” if an investor sells the fund in the subsequent 1-6 years.<sup>17</sup> C-share funds typically charge a small up front commission and often a small exit load upon redemption. Brokers and fund salesmen often refer to B & C-share funds as no-load or low-load funds. While this may seem true, as the adjoining chart shows, such funds are far from attractive. Their substantially higher annual expenses more than offset the claim of lower front-load commissions. It is important to remember, the salesperson always gets paid the commission up front!

Advocates of active investment strategies attempt to justify higher expenses. They claim that their “soon-to-be” superior performance offsets their higher costs. Figure 9, at the bottom of the adjacent page, compares the performance of high and low expense bond and stock funds to their related market indexes. For the 15-year period ending December 31, 2000, the performance of low expense funds was significantly better than high expense funds. On average, low expense stock funds earned 4.9% per year more than high expense stock funds.<sup>18</sup> More importantly, the indexes outperformed even low expense funds. Clearly, expenses do make a difference.

**High Portfolio Turnover Adds Enormous Hidden Costs**

Most investors are unaware of several very real hidden expenses. These hidden expenses are related to portfolio turnover and never show up on brokerage statements or in mutual fund prospectuses. Hidden expenses include: internal brokerage commissions, bid/ask spreads and market impact. These expenses strain performance as much as, or even more than, the obvious costs such as commissions and management fees that were reviewed in the previous section. Such hidden costs include:

- **Internal Brokerage Commissions:** Institutional investors (including mutual funds) typically pay 3 to 12 cents in commissions for each share of stock they buy or sell. Clearly, for higher turnover portfolios, internal brokerage commissions cause a large strain on performance.
- **Bid/Ask Spreads:** In Wall Street terms, investors purchase stock at the *ask* price and sell stock at the *bid* price. The *bid* price is always slightly lower than the *ask* price. For example, if an investor bought XYZ stock at the *ask* price of \$25 1/2 and then wished to sell the stock immediately, he would have to sell at a lower, *bid* price, such as \$25. The 50-cent-per-share spread between the *bid* and *ask* price is a very real transaction cost that investors pay in addition to brokerage commissions. Bid/ask spreads, paid to the trader, directly reduce performance.

- **Market Impact:** Fluctuations in “supply” and “demand” for a stock cause a phenomenon called “market impact.” In general, when there is an increase in demand for a product, prices will increase. Conversely, when there is an increase in supply, prices will fall. Likewise, when an active manager purchases a stock, he causes a temporary increase in demand for the stock. This generally causes the *ask* price of the stock to temporarily increase. The investor, therefore, purchases the stock at a premium. When an active manager sells a stock, he causes a temporary increase in supply of the stock. This generally causes the *bid* price of the stock to temporarily decrease. The investor, therefore, has to sell his stock at a discount. These premiums and discounts are particularly significant for small and/or thinly traded stocks.

Figure 10, at the top of the adjacent page, illustrates the estimated costs of bid/ask spreads for domestic stock portfolios. While these estimated costs are relatively insignificant for low turnover, large stock portfolios, they are substantial in high turnover strategies, particularly for portfolios of small and medium sized stocks. The costs in this chart do not include internal brokerage commissions and market impact.

Figure 11, at the bottom of the adjacent page, clearly shows that mutual funds with high portfolio turnover substantially underperform funds with low turnover. The poor returns of high turnover funds illustrate the real performance drag caused by internal brokerage commissions, bid/ask spreads, and market impact.

**Hidden Costs of Bid/Ask Spreads**

Estimate of Annual Expenses (%)

Figure 10

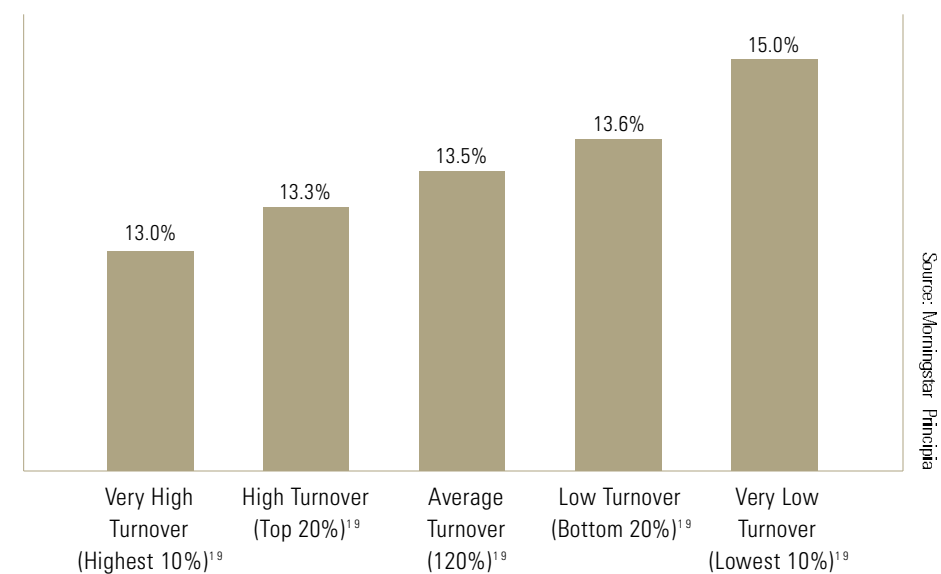
ANNUAL PORTFOLIO TURNOVER	Large Stocks (Deciles 1 – 2)	Medium Stocks (Deciles 3 – 5)	Small Stocks (Deciles 6 – 8)	Micro Stocks (Deciles 9 – 10)
300%	1.95 %	2.69%	3.47 %	9.24 %
200%	1.30	1.80	2.32	6.16
<b>120% (Average Fund)<sup>2</sup></b>	<b>0.78</b>	<b>1.08</b>	<b>1.39</b>	<b>3.70</b>
100%	0.65	0.90	1.16	3.08
50%	0.33	0.45	0.58	1.54
25%	0.16	0.22	0.29	0.77
10%	0.07	0.09	0.12	0.31
5%	0.03	0.04	0.06	0.15

Source: Bridge (March 17, 2001) & Savant Analysis

**Portfolio Turnover Directly Affects Long-Term Total Returns**

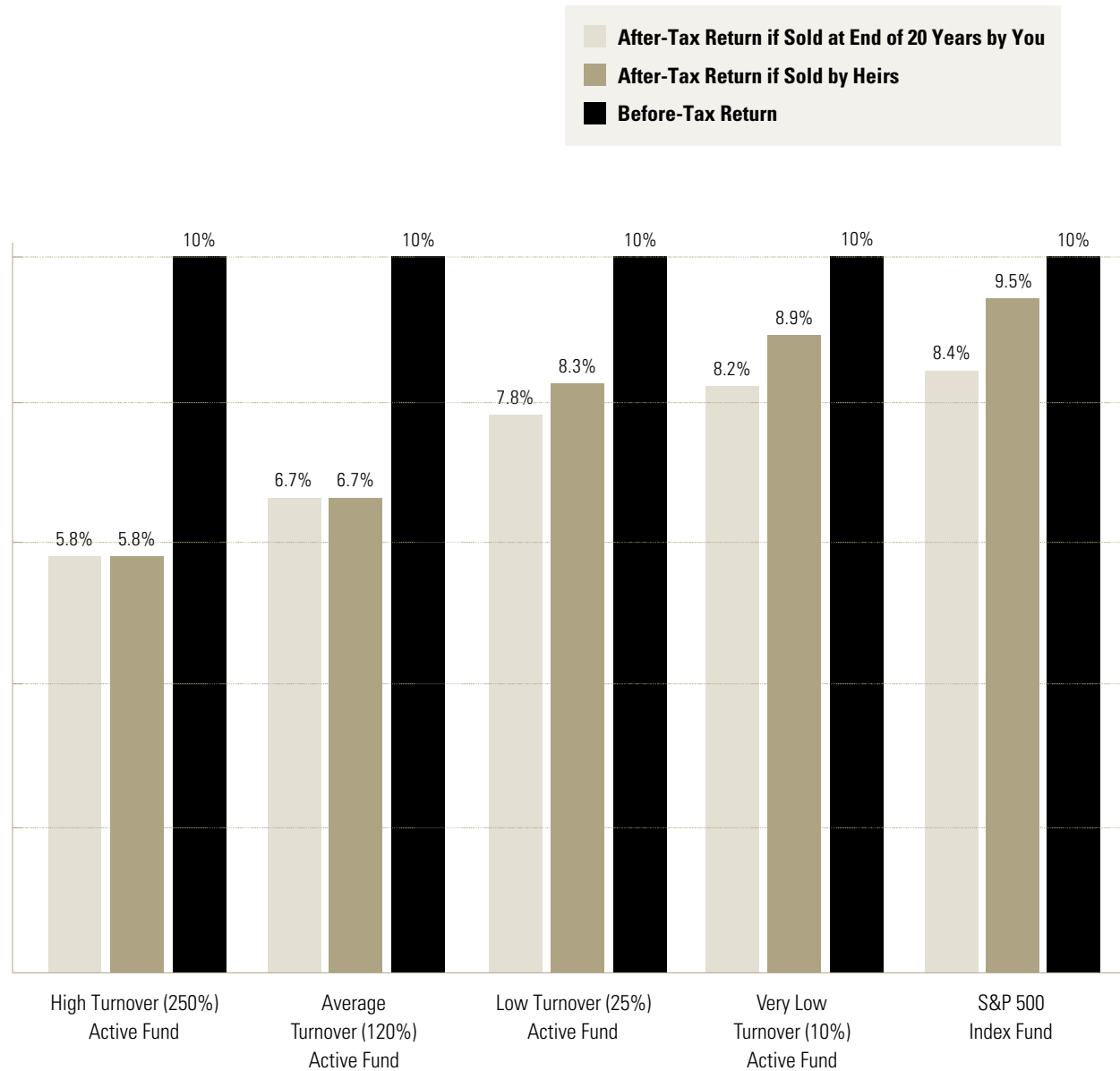
Annualized Stock Mutual Fund Returns 1986 – 2000<sup>19</sup>

Figure 11



Even if all stock funds earned the same before taxes, portfolio turnover reduces after-tax returns by increasing capital gains tax\*

Figure 12



Source: Morningstar Principia & Savant Analysis

\* Assumes equal 10% before-tax returns for 20 years. Investor is assumed to be in the 41.6% combined federal and state income tax bracket. The S&P 500 Index Fund after-tax return estimate is based on historical data derived from the Vanguard 500 Index Fund.

**High Portfolio Turnover Reduces After-Tax Returns**

An alarming number of mutual fund companies and investment managers fail to consider the tax ramifications of their trading decisions. Because active managers are generally evaluated on their published, before-tax returns, excess taxes become another one of the many hidden costs of active management. This is ironic. Taxable investors should be less worried about published returns, and more worried about what they have left after paying taxes. Published returns fail to tell the investor what he actually gets to keep.

Both individual stocks and stock mutual funds derive their returns from dividends (current income) and capital gains (appreciation in stock or mutual fund shares). Investors pay ordinary income tax – up to 38.6% or more<sup>20</sup> – on dividends in the year dividends are paid. Capital gains are taxable at a maximum tax rate of 20%.<sup>21</sup> Unlike dividends, most capital gains are taxable only when investors sell their stock. These rates do not include additional taxes assessed by many states.

Indexed portfolios get a major benefit from indefinite deferral of capital gains. This is because index funds rarely sell their holdings. By definition, index funds “buy” and “hold” investments. For example, the adjacent chart (Figure 12) shows that an investor who buys and indefinitely holds an S&P 500™ index fund is expected to lose only about 0.5% per year to tax (assuming a 10% annual before-tax return). Even if the fund is later sold, the investor still nets 8.4%<sup>22</sup> after all taxes.

While it is generally true that taxes eventually have to be paid on unrealized capital gains, investors in index and low turnover strategies can often permanently eliminate all accumulated capital gains tax. A frequently used strategy is to make charitable gifts of appreciated stocks or stock funds. This eliminates the taxable gain. Second, for investors who do not sell appreciated shares during their lifetime, taxes on accumulated capital gains may be forgiven at death. The law currently forgives tax on capital gains when an individual passes appreciated stock to heirs at death. This is called “step up in basis.” The benefit is that the index investor ends up realizing a 9.5%<sup>34</sup> net-of-tax return using either strategy. This is far greater than the net realized gains for higher turnover active strategies.

In contrast, active managers are “buy” and “sell” investors by nature. They continuously sell stocks that have accumulated capital gains to buy new stocks. Consequently, investors lose the advantage of capital gains tax deferral. The adjacent chart indicates that even very low turnover funds lose over 1% each year to taxes. The average manager, with a portfolio turnover of 120%,<sup>2</sup> will sacrifice 3.3%<sup>23</sup> to taxes annually.

Additionally, this study generously assumes that the active manager earns the same 10% before-tax return as the S&P 500™ index fund. As discussed earlier, the typical active manager underperforms the indexes by 2-3% annually. The negative tax ramifications of active management further exacerbate this underperformance.

### Our Position Regarding Indexed vs. Active Strategies

The evidence that active investment management does not and cannot consistently “beat the market” has not gone unnoticed. Institutional and individual investors are moving more and more of their investment assets to index funds. Assets held in index funds have grown tremendously. Estimates suggest that assets invested in indexed strategies may now exceed two trillion dollars.<sup>24</sup>

The majority of the largest corporate and public pension plans direct their assets to indexed holdings. In 1999, it was estimated that up to 40% of the institutional investor’s assets were held in index strategies.<sup>24</sup> The very institutions that once hired the best and brightest active managers have now relinquished that task in favor of indexed strategies.

Until a few years ago, institutional index funds were the exclusive domains of large corporate pension funds from companies such as *Exxon*, *IBM*, *Intel*, *AT&T*, *General Motors*, *Phillip Morris* and *PepsiCo*. More recently, individuals and small to medium-sized corporate investors have discovered the merits of indexed investing. From only one billion dollars 15 years ago, retail index funds have now grown to over \$313 billion in assets.<sup>25</sup> In fact, 37.6% of all new money is now being invested in index funds.<sup>26</sup> Needless to say, indexing has made major progress since the first institutional index fund became available in 1973.<sup>27</sup>

The most successful investors grow rich by not making mistakes. In his book *How to Play Your Best Golf All the Time*,<sup>28</sup> Tommy Armour says, “The best way to win is by making fewer bad shots.” The greatest investors can relate to

this simple adage; they have become successful by avoiding mistakes. The indexed approach to investing enables investors to excel by making fewer “bad shots” or decisions. The reason: indexing relies on several well-established facts. Index funds:

- eliminate sales charges and retail commissions.
- offer an extremely low cost structure and low trading costs.
- ensure maximum tax efficiency.
- consistently outperform active management strategies.
- eliminate the need to continuously evaluate portfolio holdings.
- allow investors to quit trying to outguess the market.
- achieve extremely broad diversification.
- avoid reliance on potentially erroneous human judgment.
- increase predictability – you maintain more control and earn more consistent returns.
- satisfy fiduciary responsibilities and prudent investor rules for trustees.

We believe that academic and professional research prove that indexed investment strategies provide long-term portfolio returns superior to those available from active managers. Index funds allow investors to most effectively maximize their assets, enhance the quality of their lives, and realize their personal and financial goals. The evidence is compelling!

### What Other Experts Say About the Indexing vs. Active Management Debate

“All the time and effort people devote to picking the right fund, the hot hand, the great manager, have in most cases, led to no advantage.”  
“Most investors would be better off in an index fund.”

**PETER LYNCH** Legendary Manager of Fidelity Magellan

“Most investors, both institutional and individual, will find that the best way to own common stocks is through an index fund that charges minimal fees. Those following this path are sure to beat the net results (after fees and expenses) delivered by the great majority of investment professionals.”

**WARREN BUFFET** Chairman, Berkshire Hathaway

“I believe the search for top-performing stock funds is an intellectually discredited exercise that will come to be viewed as one of the great financial follies of the late 20th century.” “Ignore market timers, Wall Street strategists, technical analysts, and bozo journalists who make market predictions...Admit to your therapist that you can’t beat the market.”

**JONATHAN CLEMENTS** Columnist, *Wall Street Journal*

“By day we write about “Six Funds to Buy NOW!”... By night, we invest in sensible index funds. Unfortunately, pro-index fund stories don’t sell magazines.”

**ANONYMOUS** *Fortune* Magazine Writer

“Fiduciaries and other investors are confronted with potent evidence that the application of expertise, investigation, and diligence in efforts to “beat the market” ordinarily promises little or no payoff, or even a negative payoff, after taking account of research and transaction costs.”

**THE AMERICAN LAW INSTITUTE** *Third Restatement of the Law, Trust, Prudent Investor Rule*

“I have a lot of friends who work in the securities business, and all of them just buy the stock market. I don’t know any of them who are stock pickers.”

**BENJAMIN STEIN** TV host of Win Ben Stein’s Money, *Smart Money*

“The statistical evidence proving stock index funds outperform between 80% and 90% of actively managed equity funds is so overwhelming that it takes enormously expensive advertising campaigns to obscure the truth from investors.”

**THE MOTLEY FOOL** *Internet Advisor*

“I’d compare stock pickers to astrologers, but I don’t want to bad-mouth astrologers.”

**EUGENE F. FAMA** Nation’s Top Published Financial Economist, University of Chicago

“The most efficient way to diversify a stock portfolio is with a low fee index fund. Statistically, a broad based stock index fund will outperform most actively-managed equity portfolios. Hardly ten of one thousand [money managers who pick stocks and time markets] perform in a way that convinces a jury of experts that a long term edge over indexing is likely.”

**PAUL A. SAMUELSON** Economist, Nobel Laureate

“When it comes down to how we are performing, we are trailing in the market’s wake. People ought to recognize that the average fund can never outperform the market in total”.

**JOHN FOSSEL** Former Chairman, The Oppenheimer Funds

“Identifying managers who can significantly, and consistently outperform the indexes over long periods of time is extremely tough.”  
“We think indexing is preferable to active management for the bulk of investor’s portfolios.”

**TYLER MATHISON** Executive Editor, *Money Magazine*

“I am a big believer in index funds.”

**JANE BRYANT QUINN** Columnist, *Newsweek*

“After nearly fifty years in this business, I do not know of anybody who has done it [market timing] successfully, and consistently. I don’t even know anybody who *knows* anybody who has done it successfully and consistently.”

**JOHN C. BOGLE, SR.** Former Chairman & Founder, The Vanguard Group

“Properly measured, the average actively managed dollar must underperform the average passively managed dollar, net of costs. Empirical analyses that appear to refute this principle are guilty of improper measurement.”

**WILLIAM F. SHARPE** Professor of Finance, Nobel Laureate

“Even in Japan, academic researchers and consulting firms have provided consistent evidence that the majority of actively managed funds fail to earn as good a rate of return as the index fund.”

**MAMORU AOYAMA** Professor of Finance, Yokohama University

“The connection between past and future performance has not been firmly established by the stars, historic star ratings or any raw data.”  
“We never intended to suggest that the stars could be used to predict short-term returns or to time fund purchases. They were just a way to sort funds according to past success.” “[Our] 5-star bond funds have posted lower aggregate returns than their peers.”

**MORNINGSTAR MUTUAL FUNDS** Industry Fund Researcher

## References and Methodology

- <sup>1</sup> As of 10/31/01, BigCharts.com listed 10,094 stocks on the NYSE, AMEX, NASDAQ and Bulletin Board exchanges.
- <sup>2</sup> Average turnover of 120% was calculated using the average turnover of all domestic stock funds included in Morningstar Principia as of 12/31/00. This average excluded funds with no reported turnover ratio, index and exchange traded funds, domestic and international hybrid funds, and convertible funds.
- <sup>3</sup> 5-6% is simply a general estimate of the sales commission (load) charged by many load mutual funds.
- <sup>4</sup> The range of expense ratios of 0.7% to 3.1% covers 90% of all the domestic stock funds tracked by Morningstar Principia as of 12/31/00. The remaining 10% of funds charge either higher or lower expenses. The average annual expense ratio of all funds using the same data was 1.6% per year. This dataset excludes funds with no reported expense ratios, qualified access funds, fund of funds, institutional, index and exchange traded funds, domestic and international hybrid funds, and convertible funds.
- <sup>5</sup> 4% to 9% typical index fund portfolio turnover is based on the actual lowest and highest one-year portfolio turnover incurred by the Vanguard Index 500 during the 10 years ending 12/31/00. The average turnover for the period was 6%.
- <sup>6</sup> Statistic based on a study performed by The Vanguard Group. Savant appended the study through 12/31/00 using data from Morningstar Principia and Wilshire Associates.
- <sup>7</sup> 255 of 312 (82%) funds that existed for the entire 15-year period ending 12/31/00 failed to perform better than the S&P 500. The dataset included all domestic equity funds included in Morningstar Principia, excluding small company funds.
- <sup>8</sup> 47% and 36% of aggressive growth funds were classified as mid-cap and large-cap funds respectively using Morningstar's style box methodology. Analysis based on 12/31/00 data from Morningstar Principia.
- <sup>9</sup> Average domestic equity returns for the 15-year period ending 12/31/00 using the prospectus objective as categorized in Morningstar Principia.
- <sup>10</sup> Average of the domestic small capitalization equity funds for the 15-year period ending 12/31/00 as included in Morningstar Principia. Funds have been categorized based on their prospectus objective. The average includes only those stock funds with median market capitalizations of 750 million or less. This median market cap is comparable to the Ibbotson Small Stock Index that tracks the performance of U.S. micro-cap stocks.
- <sup>11</sup> Burton G. Malkiel, *Journal of Finance*, *Efficient Capital Markets II*, December 1991.
- <sup>12</sup> Mark Carhart, *On Persistence in Mutual Fund Performance*, doctoral dissertation, University of Chicago, December 1994.
- <sup>13</sup> *Forbes*, August 24, 1998.
- <sup>14</sup> Study performed by Dimensional Fund Advisors. Study calculated the initial and subsequent returns on the top 30 U.S. stock funds for each non-overlapping five-year period beginning 1/1/70 and ending 12/31/99.
- <sup>15</sup> Range of returns study performed by Savant using Morningstar Principia data. Study includes 312 domestic equity funds that were in existence and survived the entire 15-year period ending 12/31/00. The study specifically excluded funds categorized by a prospectus as a small company fund, since the benchmark used for comparison purposes is the S&P 500 (a U.S. large company benchmark). We used Morningstar's calculated after-tax returns. The funds which beat the S&P 500 after taxes were determined by comparing their after-tax returns to the live after-tax returns of the Vanguard Index 500.
- <sup>16</sup> The 1.4% after-tax average benefit of winning the "active" management bet is based on the average net of tax performance advantage of the top 8% of funds in Morningstar Principia, after adjusting for taxes. The performance advantage is relative to the net of tax returns of the Vanguard Index 500 during the 15-year period ending 12/31/00. The average cost of losing the "active" management bet of 9.7% is based on the average performance disadvantage of the worst 8% of funds in Morningstar Principia. The underperformance is relative to the S&P 500 during the 15-year period ending 12/31/00.
- <sup>17</sup> "B" share funds have varying periods of contingent deferred sales charges. Some are as short as five years. Others are much longer. The time period depends on the fund and the fund family.
- <sup>18</sup> High and low expense fund performances are based on the performance of the most expensive 10% and least expensive 10% of general equity and taxable bond funds, ranked on expense ratios, for the 15-year period ending 12/31/00.
- <sup>19</sup> The study ranked domestic and international blend (Morningstar style box) stock funds with 15-year performance records from the highest to lowest rate of annualized portfolio turnover, using the most recent portfolio turnover figures included in Morningstar Principia, as of 12/31/00. The study then calculated the average return of the highest and lowest 10% of funds, the highest and lowest 20% of funds and the average fund (120% turnover) performance. The study specifically excluded fund-of-funds, domestic and international hybrid funds and convertible funds. The study focused specifically on blend funds (as opposed to growth or value funds) in order to avoid stylistic bias that would otherwise have been introduced had growth and value funds been included in the analysis.
- <sup>20</sup> The top marginal federal income tax rate in 2001 was 38.6%. Based on current tax law, this is scheduled to drop to 35% over the next several years. In addition, many states assess state income taxes on ordinary and capital gains income. The State of Illinois taxes residents 3%. Many states tax even higher. In contrast, Texas and Florida do not charge residents a state income tax.
- <sup>21</sup> The maximum federal tax on capital gains is 20% in 2001. In addition, many states assess state income taxes on ordinary and capital gains income. The State of Illinois taxes residents 3%. Many states are even higher. Other states, such as Texas and Florida, do not charge residents a state capital gains tax.
- <sup>22</sup> The 8.4% after-tax index fund return assumes a 10% gross return, 20-year holding period, a 41.6% combined state and federal tax return, current dividend yield of 1.05% (based on the 12/31/00 Vanguard Index 500 dividend yield) and assumptions that the hypothetical index fund realizes taxable capital gains consistent with the historical levels of the Vanguard Index 500.
- <sup>23</sup> The 6.7% after-tax return assumes that all capital gains are realized on an annual basis. This results from an average portfolio turnover of 120%—thus taxing all gains in the years they are realized. We assumed that 50% of such realized gains are taxed at short-term rates while 50% of gains are taxed at more advantageous long-term rates.
- <sup>24</sup> Pensions and Investments, September 6, 1999.
- <sup>25</sup> Estimate provided by Dimensional Fund Advisors using Morningstar Principia data as of 12/31/00.
- <sup>26</sup> Wall Street Journal, October 4, 1999.
- <sup>27</sup> Three institutions claim to have started the first index fund in 1973: Wells Fargo Bank, Battery March Financial Management of Boston, and American National Bank in Chicago.
- <sup>28</sup> Armour, Tommy, *How to Play your Best Golf All the Time*.
- <sup>29</sup> The typical range of portfolio turnover of 14% to 263% covers 90% of all the domestic stock funds tracked by Morningstar Principia as of 12/31/00. The remaining 10% of funds have either more or less turnover. This dataset excludes funds with no reported turnover ratio, fund of funds, index and exchange traded funds, domestic and international hybrid funds, and convertible funds.
- <sup>30</sup> Annual index fund costs of 0.03% to 0.5% per year based on the highest and lowest expense ratios on all domestic stock index funds tracked in Morningstar Principia as of 12/31/00. The dataset includes all index funds with net assets in excess of one billion dollars. The dataset also excluded fund of funds.
- <sup>31</sup> The average index fund expense ratio of 0.25% per year is based on the average of all domestic stock index funds tracked in Morningstar Principia as of 12/31/00. The dataset includes all index funds with net assets in excess of one billion dollars. The dataset excluded fund of funds.
- <sup>32</sup> Based on the 12/31/00 expense ratios of popular index funds offered by The Vanguard Group.
- <sup>33</sup> Average International Mutual Fund based on foreign stock funds, as categorized by prospectus objective, for the 15-year period ending 12/31/00, as included in Morningstar Principia.
- <sup>34</sup> The 9.5% net-of-tax index fund return assumes unrealized capital gains are eliminated at the end of 20 years by step-up-in basis or charitable gift. This assumes the current dividend yield of 1.05% (based on 12/31/00 Vanguard, 500 Index dividend yield) and assumption that the hypothetical index fund realizes taxable capital gains consistent with the historical levels of the Vanguard Index 500.

## BHCO Capital Management, Inc.

BHCO is an independent firm providing investment and financial advisory services. Our clients include financially established individuals, trust funds, retirement plans, non-profit organizations, and fiduciaries.

Our clients are not speculative, high-risk investors. All are concerned with preserving capital, growing assets, and avoiding the myriad of risks that abound in today's investment environment. To meet these objectives, we help clients use the same Nobel Prize winning strategies traditionally reserved for the nation's largest institutional investors.

As a **fee-only** advisor, BHCO does not receive benefits from brokerage services, commissions or finders fees. Whenever possible, we help clients eliminate commissions. This independence allows us to remain impartial. We secure specialized investment services from leading institutional providers.

Each client account is tailored to the individual client's needs, yet all clients share the goal of maximizing after-tax return at a controlled level of risk. Global diversification, based on sound asset allocation principles, is one of the most effective means toward this end. Therefore, we advocate the maintenance of portfolios using a wide variety of the world's capital markets.

Using sophisticated investment planning tools, we assist clients in determining the mix of financial assets best suited to their investment objectives, risk tolerance, and financial goals. For individual investors, we consider income tax status and we attempt to identify the most advantageous apportionment of investment assets among personal and tax-deferred retirement accounts. Our services also help individuals minimize the confiscatory effects of estate taxes.

BHCO follows highly structured, systematic, and disciplined investment strategies designed to maximize wealth in a conservative and well-thought-out manner. BHCO's investment process intuitively makes sense because it is based on investment theory that has stood the test of time in both theory and practice.

In addition to our fee-only structure, having a full staff of Certified Public Accountants puts us in the enviable position of being able to fully consider the tax ramifications of every investment decision, be it stock option analysis or sophisticated philanthropic planning. As a result, estate and tax planning don't become an afterthought to the financial planning process; they become an integral part of it.

Our planning oriented approach allows our clients to more effectively maximize their assets, enhance the quality of their lives, and realize personal and financial goals.