

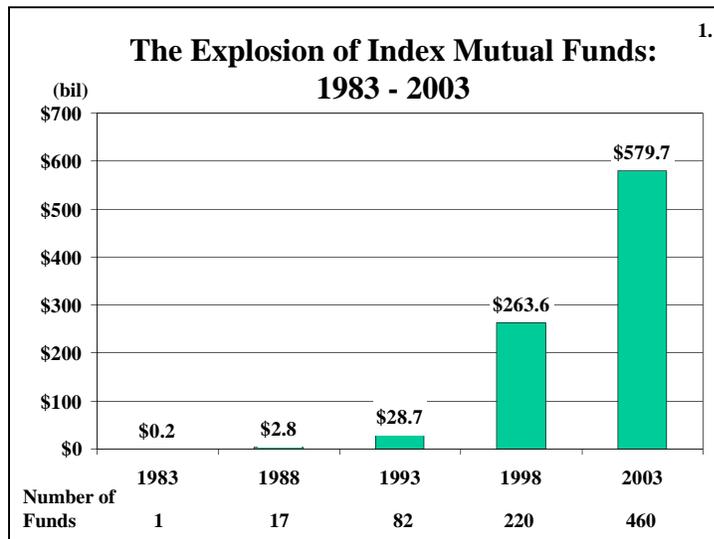
# As The Index Fund Moves from Heresy to Dogma . . . What More Do We Need To Know?

The Gary M. Brinson Distinguished Lecture  
by  
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Washington State University  
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September 2005, a little more than a year from now, will mark the thirtieth anniversary of the creation of the first index mutual fund. That fund—originally, and proudly, named First Index Investment Trust—is now, as Vanguard 500 Index Fund, the largest mutual fund in the world. But that is only one indication of the success of index investing. For the *heresy* that was indexing—passive portfolio management that invaded a kingdom ruled, indeed populated solely by, active portfolio managers—has now become *dogma*, part of the academic canon, taught almost universally in college finance courses and in business schools, and part of the daily discourse of investors.

The evidence on the triumph of indexing is overwhelming. In the mutual fund industry, total assets of equity index funds, barely \$1 billion in 1990, now total over \$550 billion, one-sixth of all equity fund assets. **(Chart 1)** While that first index fund of 1975 wasn't copied until 1984, nearly a decade later, there are now 430 equity index funds, and even 30 bond index funds. In the pension world, where the idea of indexing took hold several years earlier than in the fund field, the indexed assets of corporate and state and local retirement plans, \$900 billion in 1990, now total \$3½ trillion.



Combined indexed assets—linked to U.S. and international stock and bond indexes—of mutual funds and retirement plans now exceed \$4 trillion. Indeed, three of America's ten largest money

managers (State Street Global Advisors, Barclays Global Investors, and Vanguard, all overseeing from \$700 billion to \$1 trillion in assets) have reached this pinnacle largely on the basis of their emphasis on index strategies.

But the impact of indexing has gone far beyond the trillions of dollars of assets that rely on pure index strategies. “Closet index funds” that closely track the Standard and Poor’s 500 Index, for example, are rife, seeking to add value by making relatively modest variations in index stock weightings, all the while engaging in tight “risk control” by maintaining a high correlation with the movements in the market index itself. And rare is the active “buy-side” institutional portfolio manager who, seeking to minimize what has come to be called “benchmark risk,” fails to compare the weights of his portfolio holdings with those in the index. The icing on the cake of indexing: Wall Street’s “sell-side” analysts no longer recommend “buy, sell, or hold.” Today, “over-weight, under-weight and equal-weight” stocks relative to a firm’s share of the market’s total capitalization have become the profession’s words of art, itself a sort of closet indexing approach.

There can be no question that index-matching strategies—simple and broadly diversified, heavily weighted by stocks with large capitalizations, with low fees and low portfolio turnover—have changed the landscape of our financial markets, and set a new standard in the way we both measure and enjoy our investment returns. Yes, our focus has turned away from absolute return and toward relative performance—beating or falling short of the index benchmark. Of course, absolute performance is what investors can actually spend, but, to state the obvious, the fund that has the best *relative* performance is also the *absolute* champion.

### **The Intellectual Basis for Indexing**

While the clear triumph of indexing can hardly have surprised thoughtful observers of the financial scene, few commentators have recognized that two separate and distinct intellectual ideas form the foundation for passive investment strategies. Academics and sophisticated students of the markets rely upon the EMH—the *Efficient Market Hypothesis*—which suggests that by reflecting the informed opinion of the mass of investors, stocks are continuously valued at prices that accurately reflect the totality of investor knowledge, and are thus fairly valued.

But we don’t need to accept the EMH to be index believers. For there is a second reason for the triumph of indexing, and it is not only more compelling but unarguably universal. I call it the CMH—the *Cost Matters Hypothesis*—and not only is it all that is needed to explain why indexing must and does work, but it in fact enables us to quantify with some precision *how well* it works. *Whether or not the markets are efficient, the explanatory power of the CMH holds.*

More than a century has passed since Louis Bachelier, in his Ph.D. thesis at the Sorbonne in 1900, wrote: “Past, present, and even discounted future events are (all) reflected in market price.” Nearly half a century later, when Nobel Laureate Paul Samuelson discovered the long-forgotten thesis, he confessed that he “oscillated . . . between regarding it as trivially obvious (and almost trivially vacuous), and regarding it as remarkably sweeping.” In essence, Bachelier was, as far as he went, *right*: “The mathematical expectation of the speculator is zero.” By 1965, University of Chicago Professor Eugene F. Fama had performed enough analysis of the ever-increasing volume of stock price data to validate this “random walk” hypothesis, rechristened as the efficient market hypothesis. Today, the intellectual arguments against general thrust of the EMH religion are few. While it would seem extreme to argue that *all* stocks are efficiently priced *all* of the time, it would seem equally extreme to deny that *most* stocks are efficiently priced *most* of the time.

But whatever the consensus on the EMH, I know of no serious academic, professional money manager, trained security analyst, or intelligent individual investor who would disagree with the thrust of EMH: *The stock market itself is a demanding taskmaster*. It sets a high hurdle that few investors can leap. While the apostles of the new so-called “behavioral” theory present ample evidence of how often human beings make irrational financial decisions, it remains to be seen whether these decisions lead to predictable errors that create systematic mispricings upon which rational investors can readily (and economically) capitalize.

But while the precise validity of the EMH may be debatable, there can be *no* debate about the validity of the CMH. It posits a conclusion that is also, using Dr. Samuelson’s formulation, both “trivially obvious and remarkably sweeping” and it confirms that Bachelier’s argument had to be taken one step further. The mathematical expectation of the speculator is not zero; *it is a loss equal to the amount of transaction costs incurred*.

So, too, the mathematical expectation of the long-term investor also is a shortfall to whatever returns our financial markets are generous enough to provide. Indeed the shortfall can be described as precisely equal to the costs of our system of financial intermediation—the sum total of all those advisory fees, marketing expenditures, sales loads, brokerage commissions, transaction costs, custody and legal fees, and securities processing expenses. Intermediation costs in the U.S. equity market may well total as much as \$250 billion a year or more. If today’s \$13 trillion stock market were to provide, say, a 7% annual return (\$910 billion), costs would consume more than a quarter of it, leaving less than three-quarters of the return for the investors—those who put up 100% of the capital. We don’t need the EMH to explain the dire odds that investors face in their quest to beat the stock market. We need only the CMH. *Whether markets are efficient or inefficient, investors as a group must fall short of the market return by the amount of the costs they incur*.

Now for the *really* bad news. Investors pay their investment costs each year in nominal *current* dollars, but they measure their long run investment success in *real* dollars, almost inevitably eroded in value by inflation. The *nominal* long-term returns of about 10 percent on stocks that the financial intermediation system waves before the eyes of the naive investing public turn out to be about 6½ percent in *real* terms. **(Chart 2)** When we realize that in the mutual fund industry intermediation costs total at least 2½ percentage points annually, *they confiscate nearly 40% of the historical real rate of return on equities*. And when we subtract the cost of taxes (paid by taxable investors in current, nominal dollars),

| <b>Earning the Market’s Return</b> |                    | 2. |
|------------------------------------|--------------------|----|
|                                    | <u>Annual Rate</u> |    |
| Nominal Market Return              | 10.0%              |    |
| Less Inflation                     | <u>3.5</u>         |    |
| Real Market Return                 | 6.5%               |    |
| Less Fund Costs                    | <u>2.5</u>         |    |
| Net Fund Return                    | 4.0%               |    |
| Less Taxes                         | <u>2.0</u>         |    |
| Net After-Tax Return               | 2.0%               |    |
| Share of Nom. Mkt. Return          | 20%                |    |

the confiscation of real return rises to nearly 75%. In a coming era in which returns may well fall below historic norms, we must look at potential investment accumulations in a new and harsh light.

The academic and financial communities have dedicated enormous intellectual and financial resources to studying past returns on stocks, to regression analysis, to modern portfolio theory, to behaviorism, and to the EMH. It's high time we turn more of our attention to the CMH. We need to know just how much our system of financial intermediation has come to cost, to know the extent to which high turnover may pay, and to understand the *real* net returns that managers deliver to investors.

## Two Schools of Indexing—Quantitative and Pragmatic

All these years later, the distinctly different intellectual approaches of the EMH and the CMH illuminate the history of indexing. The *Quantitative School*, led by masters of mathematics such as Harry Markowitz, William Fouse, John McQuown, Eugene Fama, and William F. Sharpe did complex equations and conducted exhaustive research on the financial markets to reach the conclusions that led to the EMH. In essence, the “Modern Portfolio Theory” developed by the Quantitative School showed that a fully-diversified, unmanaged equity portfolio was the surest route to investment success, a conclusion that led to the formation of the first index *pension* account (for the Samsonite Corporation), formed by Wells Fargo Bank in 1971. That tiny \$6 million account was invested in an equal-weighted index of New York Stock Exchange equities. Alas, its implementation proved to be a nightmare, and in 1976 it was replaced with the market-capitalization-weighted Standard & Poor's 500 Common Stock Price Index, which remains the principal standard for pension fund indexing to this day.

While the Quantitative School developed its profound theories, what I'll call the *Pragmatic School* simply looked at the evidence. In 1974, the *Journal of Portfolio Management* published an article by Dr. Samuelson entitled “Challenge to Judgment.” It noted that academics had been unable to identify any consistently excellent investment managers, challenged those who disagreed to produce “brute evidence to the contrary,” and pleaded for someone, somewhere to start an index fund. A year later, in an article entitled *The Loser's Game*, Charles D. Ellis argued that, because of fees and transaction costs, 85% of pension accounts had underperformed the stock market. “If you can't beat the market, you should certainly consider joining it,” Ellis concluded. “An index fund is one way.”<sup>1</sup>

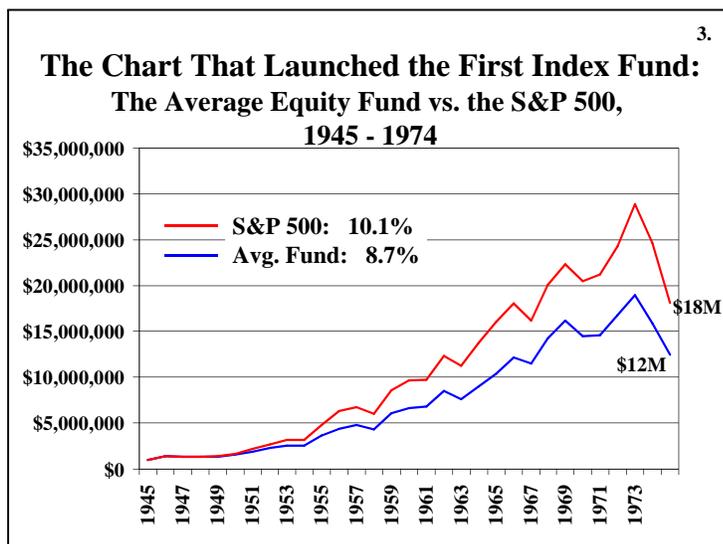
In mid-1975, I was both blissfully unaware of the work the quants were doing and profoundly inspired by the pragmatism of Samuelson and Ellis. I had just started a tiny company called Vanguard, and was determined to start the first index *mutual* fund. It was then that I pulled out all of my annual *Weisenberger Investment Companies* manuals, calculated by hand the average annual returns earned by equity mutual funds over the previous 30 years, and compared them to the returns of the Standard & Poor's 500 Stock Index: Result: annual returns, 1945-1975, S&P Index 10.1%; average equity fund, 8.7%.

As I mused about the reasons for the difference, the obvious occurred to me. The index was cost-free, and its 1.4% annual advantage in returns roughly approximated the total costs then incurred by the

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<sup>1</sup> I should note that one of the earliest calls for indexing came from a book that I did not read until many years later: *A Random Walk Down Wall Street*, by Princeton University Professor Burton S. Malkiel (W.W. Norton, 1973). Dr. Malkiel suggested “A New Investment Instrument: A no-load, minimum-management-fee mutual fund that simply buys the hundreds of stocks making up the market averages and does no trading (of securities) . . . Fund spokesmen are quick to point out, ‘you can't buy the averages.’ It's about time the public could.” He urged that the New York Stock Exchange sponsor such a fund and run it on a nonprofit basis, but if it “is willing to do it, I hope some other institution will.” In 1977, four years after he wrote those words, he joined the Board of Directors of First Index Investment Trust and the other Vanguard funds, positions in which he has served with distinction ever since.

average fund—the expense ratio plus the hidden costs of portfolio turnover. To illustrate the enormous impact of that seemingly small percentage difference, I calculated that a hypothetical initial investment of \$1,000,000 in 1945 would by 1975 have grown to \$18,000,000 in the Index, vs. \$12,000,000 in the average fund. **(Chart 3)** In September 1975, using those data and the Samuelson and Ellis articles, I urged a dubious Vanguard board of directors to approve our creation of the first index mutual fund. They agreed.



### How Vanguard Came to Start the First Index Mutual Fund

The idea of an index fund was hardly anathema to me. Way back in 1951, the anecdotal evidence that I had assembled in my Princeton University senior thesis on the then-miniscule mutual fund industry led me to warn against the “expectations of miracles from mutual fund management,” and shaped my conclusion that funds “can make no claim to superiority to the market averages.” When the newly-formed Vanguard began operations in May 1975, I had realized my dream of establishing the first truly *mutual* mutual fund complex, the idea of an index fund was at the top of my agenda.

Why? Because while the idea of an index fund would have hardly appealed to a high-cost fund manager whose very business depended on the conviction that, whatever his past record, he could outpace the market in the future, indexing would be a natural for us. We were organized as a shareholder-owned, truly *mutual*, mutual fund group, with low costs as our mantra. So while our rivals had the same opportunity to create the first index mutual fund, only Vanguard, like the prime suspect in a criminal investigation, had both the opportunity *and* the motive.

Our introduction of First Index Investment Trust was greeted by the investment community with derision. It was dubbed “Bogle’s folly,” and described as un-American, inspiring a widely-circulated poster showing Uncle Sam calling on the world to “Help Stamp Out Index Funds.” **(Chart 4)** Fidelity Chairman Edward C. Johnson led the skeptics, assuring the world that Fidelity had no intention of following Vanguard’s lead: “I can’t believe that the great mass of investors are going to be satisfied with just receiving average returns. The name of the game is to be the best.” (Fidelity now runs some \$38 billion in indexed assets.)



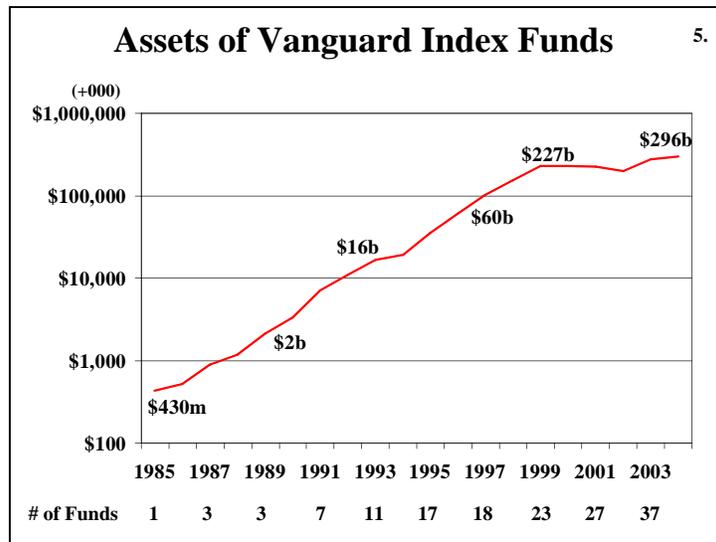
The early enthusiasm of the investing public for the novel idea of an unmanaged index fund designed to track the S&P 500 Index was as subdued as the admiration of our detractors. Its initial public offering in the summer of 1976 raised a puny \$11 million, and early growth was slow. Assets of First Index didn't top \$100 million until six years later, and only because we merged another Vanguard actively managed fund with it. But the coming of the Great Bull Market that began in mid-1982 started the momentum, and the fund's assets crossed the \$500 million mark in 1986.

From the outset, I realized that the 500 Index, by owning large-cap stocks that represented 75% to 80% of the value of total U.S. market, would closely parallel, but not precisely match, the stock market's return, since the Index excluded mid-cap and small-cap stocks. So in 1987, we started a fund called the Extended Market Fund, indexed to those smaller companies. If used in harness with the 500 Fund, it would provide a *total* market exposure. By year-end, combined assets of the two funds were nearly \$1 billion. In 1990, we added another "Institutional 500 Fund" designed for pension plans, and in 1991, a Total Stock Market Index Fund, modeled on the Wilshire Total (U.S.) Market Index, bringing total assets of these essentially all-market index funds to \$6 billion.

During 1994-1999, as the bull market continued, and as our index funds continued to outpace the overwhelming majority—upwards of 80%!—of actively-managed funds, asset growth accelerated—\$16 billion in 1993, \$60 billion in 1996, \$227 billion in 1999. (**Chart 5**) Much of this success, as I warned our index shareowners, "should under no circumstances be regarded either as repeatable or sustainable." *It wasn't*. But even in the ensuing bear market, the index funds outpaced more than 50% of their actively-managed peers, and solid growth continued. Assets of our four "all-market" index funds now total some \$200 billion, with our other 33 index funds bringing our total indexed assets to \$300 billion today.<sup>2</sup>

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<sup>2</sup> This figure includes our specialty index funds (small-cap, growth, value, Europe, Pacific, etc.) as well as a series of bond index funds and enhanced index funds. Their rationale and development, however, are stories for another day.

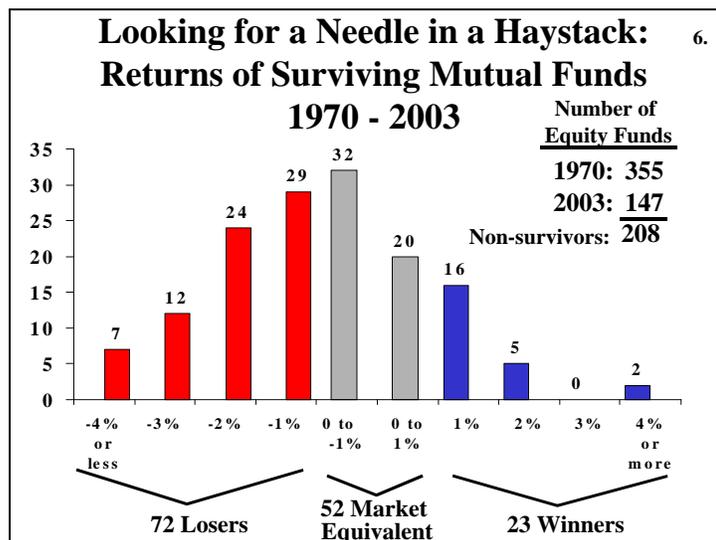


So indexing has enjoyed a considerable commercial success, drawing huge assets to Vanguard, and even larger amounts to other managers and pension funds. It has enjoyed that success, not only because of the sound and pragmatic foundation on which indexing relies, but because it has, over three decades now, worked effectively in providing superior returns. This is to say, indexing has not been merely a *commercial* success. It has been an *artistic* success. *Indexing worked!*

### Brute Facts

How *well* did it work? Thirty years ago in “Challenge to Judgment,” Dr. Samuelson wrote: “When (respected) investigators look to identify those minority groups endowed with superior investment process, they are quite unable to find them . . . (Even) a loose version of the ‘efficient market’ or ‘random walk’ hypothesis accords with the facts of life . . . any jury that reviews the evidence must at least come out with the Scottish verdict: Superior performance is unproved.” And so he issued his challenge: “The ball is in the court of those who doubt the random walk hypothesis. They can dispose of that uncomfortable brute fact in the only way that any fact is disposed of—by producing brute evidence to the contrary.”

So today, three decades later, let’s examine some brute evidence. Let’s go back to the era in which the Samuelson article was published, and see what lessons we can learn by examining the evidence on the ability of mutual fund managers to provide market-beating returns. In 1970, there were 355 equity mutual funds, and we have now had more than three decades over which to measure their success. We’re first confronted with an astonishing—and important—revelation: *Only 147 funds survived the period.* Fully 208 of those funds vanished from the scene, an astonishing 60% failure rate. **(Chart 6)**

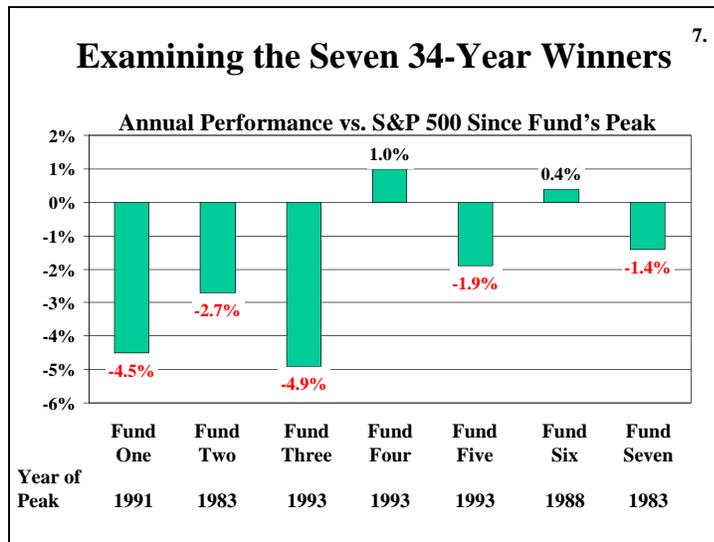


Now let's look at the records of the survivors—doubtless the superior funds of the initial group. Yet fully 104 of them fell short of the 11.3% average annual return achieved by the unmanaged S&P 500 Index. Just 43 funds that exceeded the index return. If, reasonably enough, we describe a return that comes within plus or minus a single percentage point of the market as statistical noise, 52 of the surviving funds provided a return roughly equivalent to that of the market. A total of 72 funds, then, were clear losers (i.e., by more than a percentage point), with only 23 clear winners above that threshold.

If we widen the “noise” threshold to plus or minus *two* percentage points, we find that 43 of the 50 funds outside that range were inferior and only seven superior—a tiny 2% of the 355 funds that began the period, and an astonishing piece of the brute evidence that Dr. Samuelson demanded. The verdict, then, is here, and it is clear. The jury has spoken. But its verdict is not “unproved.” It is “guilty.” *Fund managers are systematically guilty of the failure to add shareholder value.*

But I believe the evidence actually *over*-rates the long-term achievements of the seven putatively successful funds. Is the obvious *credibility* of those superior records in fact *credible*? I'm not so sure. Those winning funds have much in common. First, each was relatively unknown (and relatively *unowned* by investors) at the start of the period. Their assets were *tiny*, with the smallest at \$1.9 million, the median at \$9.8 million, and the largest at \$59 million. Second, their best returns were achieved during their first decade, and resulted in enormous asset growth, typically from those little widows' mites at the start of the period to \$5 billion or so at the peak, before performance started to deteriorate. (One fund actually peaked at \$105 billion!) Third, despite their glowing early records, most have lagged the market fairly consistently during the past decade, sometimes by a substantial amount. (**Chart 7**) The pattern for five of the seven funds is remarkably consistent: A peak in relative return in the early 1990s, followed by annual returns of the next decade that lagged the market's return by about three percentage points per year—roughly, S&P 500 +12%, mutual fund +9%.

In the field of fund management it seems apparent that “nothing *fails* like success”—the reverse of the threadbare convention that “nothing *succeeds* like success.” For the vicious circle of investing—good past performance draws large dollars of inflow, and having large dollars to manage crimps the very ingredients that were largely responsible for the good performance—is



almost inevitable in any winning fund. So even if an investor was smart enough or lucky enough to have selected one of the few winning funds at the outset, selecting such funds by hindsight—after their early success—was also largely a loser’s game. Whatever the case, the brute evidence of the past three decades makes a powerful case against the quest to find the needle in the haystack. *Investors would clearly be better served by simply owning, through an index fund, the market haystack itself.*

### More Brute Facts

In the field of investment management, relying on past performance simply *has not worked*. The past has *not* been prologue, for there is little persistence in fund performance. A recent study of equity mutual fund risk-adjusted returns during 1983-2003 reflected a randomness in performance that is virtually perfect. A comparison of fund returns in the first half to the second half of the *first* decade, in the first half to the second half of the *second* decade, and in the first full decade to the second full decade makes the point clear. Averaging the three periods shows that 25% of the top quartile funds in the first period found themselves in the top quartile in the second—*precisely* what chance would dictate. **(Chart 8)** Almost the same number of top quartile funds—23%—tumbled to the bottom quartile, again a close-to-random outcome. In the bottom quartile, 28% of the funds mired there during the first half remained there in the second, while slightly more—29%—had actually jumped to the top quartile.

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### Does Mutual Fund Performance Persist?

An Examination of Risk-Adjusted Returns

|                       |    | Second Period Quartile |      |      |      |      |
|-----------------------|----|------------------------|------|------|------|------|
|                       |    | 1Q                     | 2Q   | 3Q   | 4Q   |      |
| First Period Quartile | 1Q | 25%                    | 27%  | 25%  | 23%  | 100% |
|                       | 2Q | 21%                    | 25%  | 26%  | 28%  | 100% |
|                       | 3Q | 25%                    | 25%  | 29%  | 21%  | 100% |
|                       | 4Q | 29%                    | 23%  | 20%  | 28%  | 100% |
|                       |    | 100%                   | 100% | 100% | 100% |      |

Perfect randomness would distribute the funds in each performance quartile randomly in the succeeding period—sixteen blocks, each with a 25% entry. As the matrix shows, the reality comes close to perfection. In no case was there less than a 20% persistence or more than a 29% persistence. Simply picking the top performing funds of the past fails to be a winning strategy. What is more, even when funds succeed in outpacing their peers, they still have a way to go to match the return of the stock market index itself.

Yet both investors and their brokers and advisers hold to the conviction that they can identify winning fund managers. One popular way is through the *Star* system espoused by the Morningstar rating service. Indeed, over the past decade, fully 98%(!) of all investment dollars flowing in equity mutual funds in the nine Morningstar “style boxes” was invested in funds awarded five stars or four stars, the firm’s two highest ratings. (The ratings are heavily weighted by absolute fund performance, so we can hardly blame—or even credit—Morningstar for primarily being responsible for these huge capital inflows. Stars or not, high returns attract large dollars.)

But as Morningstar is first to acknowledge, its star ratings have little predictive value. The record bears out their caution. Academic studies show that the positive risk-adjusted returns (“Alpha”) that distinguish the four- and five-star funds *before* they gain the ratings typically turn negative *afterward*, and by a correlative amount. Data from *Hulbert’s Financial Digest* confirm this conclusion. *Following* their selection, the funds in the top-ranked Morningstar categories typically lag the stock market return by a wide margin. Over the past decade, for example, the average return of these “star” funds came to 6.9% per year, fully 4.1 percentage points behind the 11.0% return on the S&P 500 Index. What is more, that 37% shortfall in annual return came hand in hand with a risk (standard deviation) that was 4% *higher*. Even for the experts, picking winning mutual funds is hazardous duty.

## A Case Study

So the search for “long-term investment excellence” is an elusive one. A fine new book (*Capital*, with the foregoing words in its subtitle) by respected analyst Charles D. Ellis drives this point home. Mr. Ellis describes a firm of consummate professionals, serious about their trade, with an excellent investment *process*. But for all that obvious excellence, we also are given, perhaps inadvertently, an illustration of the wide gap between manager achievement and shareholder achievement, as well as a warning about casually accepting the assumption that the past is prologue.

The Ellis book is a history of The Capital Group Companies, a Los Angeles firm that may well be the most widely-respected investment manager in America. Certainly the accolades, from impartial observers and competitors alike, could hardly be more glowing: “one of the most outstanding investment firms ever created,” “one of the best firms in our business,” “a premier investment firm,” and “people with a passion for long-term investment success.” I would hardly disagree with these endorsements. Indeed, I’ve been singing my own praises of Capital since the early 1960s. (In my previous career at Wellington Management Company, I even explored the possibility of a merger of our firms!)

Yet despite their organizational integrity and investment focus, and despite the fact that the net returns they have delivered to their fund shareholders are clearly superior to those of most of their peers, the returns achieved by Capital can hardly be said to have been extraordinary relative to the stock market itself. The book documents the return of their flagship fund, the Investment Company of America (ICA) during 1973-2003 at +13.2% per year, or 1.8 percentage points over the 11.4% return on the S&P 500 Index. But, as nearly all fund comparisons do, it ignores the impact of the initial 8½% sales charge paid by investors. For a typical investor, such a cost would reduce that excess return by about 0.8% to a single percentage point, although even that small advantage is admirable in an industry that, as we now know, struggles and, ultimately fails, to match the stock market’s return.

But of course, like all comparisons, it is *time-dependent*. Other periods give rise to different, and less compelling, results. For example, during the past 25 years (1979-2003), ICA underperformed the market in 16 years. While it outpaced the market by 0.7% (14.5% vs. 13.8%) for the period, after adjusting for the sales charge, it fell slightly *behind*, with a *net* annual return of 13.7%. (**Chart 9**) Indeed since 1983—two full decades—no matter in which year we choose to begin the comparison, the results of the ICA have pretty much paralleled those of the market itself, with a correlation of a remarkable .95%. (To be fair, ICA is less volatile, significantly lagging as the bull market bubble inflated during 1998 to 1999, and then recouping the ground lost during the ensuing bear market.)

But in an industry which ultimately fails to match the market’s return, why not just salute ICA as equal or even preferable to an index fund? First, because, despite its long-term focus, it is relatively tax-inefficient. During the past 25 years, for example, federal taxes consumed an estimated 2.5 percentage points of its annual return, reducing it from 13.7% to 11.2% for taxable investors. While an S&P 500 index fund is hardly exempt from taxes, its passive market-matching strategy is highly tax-efficient.

|                               | <u>Annual Return</u> |              | Index<br>Advantage |
|-------------------------------|----------------------|--------------|--------------------|
|                               | ICA                  | S&P 500      |                    |
| <b>Unadjusted</b>             | <b>14.5%</b>         | <b>13.8%</b> | <b>-0.7%</b>       |
| <b>After Sales<br/>Charge</b> | <b>13.7%</b>         | <b>13.8%</b> | <b>+0.1%</b>       |
| <b>After Taxes</b>            | <b>11.2%</b>         | <b>12.9%</b> | <b>+1.7%</b>       |

During the same period, taxes on an index fund would have cost an estimated 0.9 percentage points, reducing its 13.8% pre-tax return to 12.9%, a net *after-tax* advantage over ICA of 1.7 percentage points per year. Not only do taxable investors pay high costs in fund advisory fees, operating expenses, and sales commissions when they buy active fund management, they also pay a remarkably high tax cost.

A second reason for caution before we salute is that, as our earlier evidence suggests, the past is rarely prologue. And not just because of the “random walk” that characterizes the returns typically achieved by active managers in highly efficient markets. Success—even perceived success—in investment management goes not unrecognized; indeed it is often hyped from the rooftops. It draws money, creating that vicious circle we described earlier. Warren Buffett warns us that “a fat wallet is the enemy of superior returns,” and the record clearly confirms his wisdom.

Today ICA’s assets total \$66 billion, an enormous sum compared to assets of \$1.3 billion 25 years ago. That exponential growth hardly makes the job of active management any easier. The number of investments large enough to make a meaningful impact on the portfolio shrinks, even as the difficulty and cost of buying and selling stocks escalates. What is more, the size of ICA is only the tip of the iceberg, for the fund is part of a \$500 billion investment complex, and many of its largest holdings are also held by Capital’s other funds and pension clients. The organization currently holds, for example, some 11% of Target Corp. and GM, and from 7% to 10% of Altria, FNMA, J.P. Morgan Chase, Eli Lilly, Bristol-Myers, Dow Chemical, Tyco, Texas Instruments, and Fleet Boston. Whether the massive growth in the assets Capital manages will impede the firm’s ability to turn their past into prologue, only time will tell.

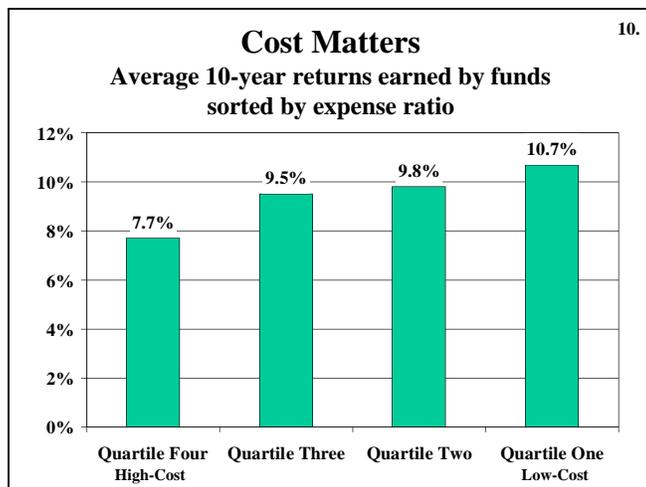
## What is the Intellectual Foundation for Active Management?

Let me summarize what I see as the intellectual basis for indexing: Even if the EMH is weak, the CMH remains a tautology—all the more important in the mutual fund arena where costs are so confiscatory. The brute evidence on the rarity of superior management goes far beyond the relatively few examples I've cited today. And the vicious circle of superiority generating growth, generating inferior returns—with few managers courageous and disciplined enough to defy it—has become a truism. That the typical fund portfolio manager holds his post for less than five years, furthermore, means that a long-term investor has to identify not only a superior manager, but bet on his longevity. And the astonishing fund failure rate that, at current rates, implies a 50-50 survival rate over the coming decade, is the icing on the cake of the case for indexing.

What, then, is the intellectual foundation for active management? While I've seen some evidence that managers have provided returns that are superior to the returns of the stock market *before costs*, I've *never* seen it argued that managers as a group can outperform the market *after* the costs of their services are deducted, nor that any *class* of manager (e.g., mutual fund managers) can do so. What do the proponents of active management point to? . . . Themselves! “We can do it better.” “We have done it better.” “Just buy the (inevitably superior performing) funds we that we advertise.” It turns out, then, that the big idea that defines active management is that there *is* no big idea. Its proponents offer only a few good anecdotes of the past and promises for the future.

Alas, it turns out that there is in fact one big idea that can be generalized without contradiction. *Cost* is the single statistical construct that is highly correlated with future investment success. The higher the cost, the lower the return. Equity fund expense ratios have a *negative* correlation coefficient of  $-0.61$  with equity fund returns. In the fund business, you get what you don't pay for. *You get what you don't pay for!*

If we simply aggregate funds by quartile, this correlation jumps right out at us. During the decade ended November 30, 2003, the lowest-cost quartile of funds provided an average annual return of 10.7%; the second-lowest, 9.8%; the second-highest, 9.5%; and the highest quartile, 7.7%. (**Chart 10**) The difference of fully three percentage points per year between the high and low quartiles, equal to a 30% increase in annual return! The same pattern holds irrespective of the time period, and essentially irrespective of manager style or market capitalization. But of course, with index funds carrying by far the lowest costs in the industry, there are few, if any, promotions by active managers of the undeniable relationship between cost and value.



## Changing Times and Circumstances

So it is the crystal-clear record of the past, an understanding of the present, and the realization that even the future returns of today's successful managers are unpredictable that together seem to make the search for the Holy Grail of market-beating returns a fruitless quest. It is the recognition of this reality that has carried indexing to its remarkable eminence and growth. But please don't imagine that I am sitting back and reveling in where indexing stands today. I press on in my mission as an apostle of indexing, not only because complacency doesn't seem a very healthy attitude and resting on one's laurels is too often the precursor of failure, but for three other reasons: First, because indexing has not yet adequately fulfilled its promise. Second, because we have subverted the idea of indexing, adding to its role as the consummate vehicle for long-term investing ("basic indexing") a new role as a vehicle for short-term speculation ("peripheral indexing"). And third, because not nearly enough individual investors have yet come to accept the extraordinary value that indexing offers.

The initial promise of indexing was reflected in an article that appeared in *Fortune* magazine in June 1976, smack in the middle of the launch of our First Index Investment Trust. Written by journalist A.F. Ehrbar, it was entitled, "Index Funds—An Idea Whose Time is Coming," and concluded that, "*index funds now threaten to reshape the entire world of money management.*" Yet nearly three decades later, while the influence of indexing has clearly been powerful, it has failed to reshape that world. This failure has been most abject in the mutual fund field, where active managers have largely ignored the lessons they should have learned from the success of indexing.

The reasons for that success are the essence of simplicity: 1) The broadest possible diversification, often subsuming the entire U.S. stock market; 2) a focus on the long-term, with minimal, indeed nominal, portfolio turnover (say, 3% to 5% annually); and 3) rock-bottom cost, with neither advisory fees nor sales loads, and minimal operating expenses. Rather than being inspired to emulate these winning attributes, however, the fund industry has largely turned its back on them.

Consider that only about 500 of the 3700 equity funds that exist today can be considered highly-diversified and oriented to the broad market, bought to be *held*. The remaining 3200 funds focus on relatively narrow styles, or specialized market sectors, or international markets, or single countries, all too likely bought to be sold on one future day. Portfolio turnover, at what I thought was an astonishingly high 37% in 1975 when the first index fund was introduced, now runs in the range of 100%, year after year.

While fund costs essentially represent the difference between success and failure for investors who seek to accumulate assets, they have gone *up* as index fees have come *down*. The initial expense ratio of our 500 Index Funds was 0.43%, compared to 1.40% for the average equity fund. (**Chart 11**) Today, it is 0.18% or less, while the ratio for the average equity fund has risen to 1.58%. Add in turnover costs and sales commissions and the all-in cost of the average fund is *at least* 2.5%, suggesting a future annual index fund advantage at least 2.3% per year.

| <b>The Index Fund Advantage:<br/>Then and Now</b> |                                 |                                  |                            |
|---|---------------------------------|----------------------------------|----------------------------|
|   | <b>Avg. Fund<br/>Exp. Ratio</b> | <b>Index Fund<br/>Exp. Ratio</b> | <b>Index<br/>Advantage</b> |
| <b>1976</b>                                       | <b>1.40%</b>                    | <b>0.43%</b>                     | <b>0.97%</b>               |
| <b>2004</b>                                       | <b>1.58%</b>                    | <b>0.18%</b>                     | <b>1.40%</b>               |

Pointedly, however, Vanguard’s actively managed funds *have* learned from the success of our index funds. Indeed, with low advisory fees paid to their external managers, relatively low portfolio turnover, and our reasonable, if sometimes erratic, success in selecting managers, these funds, according to a study in a forthcoming issue of the *Journal of Portfolio Management*<sup>3</sup>, have actually outpaced our index fund since its inception. (However, if *after-tax* returns, had been considered, or if the base date of the study had been 1989 rather than 1976, the index fund would have had the superior record.) While I cannot agree with the authors’ suggestion that I should take “*more joy*” in our active funds than in our index funds, be assured that I take great joy in the application of the principles that underlie the success of our index funds and managed funds alike.

### A Great Idea Gone Awry

My second concern is that the original idea of the index fund—own the entire U.S. stock market, own it at low cost, hang on to it forever—has been, to put it bluntly, bastardized. (**Chart 12**) The core idea of relying on the wisdom of long-term investing is being eroded by the folly of short-term speculation. And index funds are one of the principle instruments for this erosion. Why? Because the term “index fund,” like the term “hedge fund,” now means pretty much whatever we want it to mean.

In addition to 109 index funds now linked to a relative handful of *broad* market indexes (S&P 500, Wilshire Total Market, Russell 3000), there are 224 index funds linked to narrow market indexes—small cap-growth stocks, technology stocks, even South Korean stocks—funds that seem to be bought to be sold. (I confess that, for better or worse, I did my share in the creation of market segment index funds—growth, value, and small-cap, for example. But today’s segmented index funds are far narrower in scope.)

12.

**“Look What They’ve Done to My Song, Mom!”**  
**Equity Index Funds in 2004**

|                                     | Bought to<br>be held        | Bought to<br>be sold         |
|-------------------------------------|-----------------------------|------------------------------|
| <b>Broad-Mkt<br/>Index Funds</b>    | <b>96 Funds<br/>\$297 B</b> | <b>13 Funds<br/>\$90 B</b>   |
| <b>Specialized<br/>Index Funds*</b> | <b>21 Funds<br/>\$17 B</b>  | <b>203 Funds<br/>\$154 B</b> |

\*Broad international funds on left, sector funds on right.

Much of the expansion of the index fund marketplace has taken the form of “exchange-traded funds” (ETFs), essentially mutual funds that are designed to be traded in the stock market, often day after day, even minute-by-minute. The assets of ETF index funds now total \$150 billion, one-fourth of the index mutual fund total of \$550 billion. It seems logical, as far as it goes, to actively trade specialty funds, and 118 of them have come in ETF form, with assets of some \$60 billion. But, to my amazement

<sup>3</sup> “Index Fundamentalism Revisited,” by Kenneth S. Reinker and Edward Tower. Forthcoming in the Summer 2004 edition of the *Journal of Portfolio Management*.

and disappointment, the dominant form of ETF is not these narrow segment funds, but the broad market index funds, including the S&P 500 “Spiders” and iShares, the NASDAQ “Qubes,” and the Dow-Jones “Diamonds.” It is these ETFs that dominate the field, representing some \$90 billion of assets currently—index funds originally bought to be held, now bought to be sold.

“Bought to be sold” is hardly hyperbole. ETFs turn over at rates I could never have imagined. Each day, about \$8 billion(!) of Spiders and Qubes change hands, an annualized portfolio turnover rate of 3000%, representing an average holding period of just 12 days! (Turnover of *regular* mutual funds by their shareholders now runs in the 40% range, itself an excessive rate that smacks of speculation.) The extraordinary ETF turnover should hardly be surprising, however. The sponsor of the Spiders regularly advertises this product with these words: “Now, you can trade the S&P 500 Index all day long, in real time.” (To which I would ask, “What kind of a nut would do *that*?”)

So “What have they done to my song, Mom?” The simple broad market index fund of yore, which I believe is the greatest medium for *long-term investing* ever designed by the mind of man, has now been engineered for use in *short-term speculation*. What is more, it has also been joined by far less diversified index funds clearly designed for rapid speculation. Please don’t mistake me: the ETF *is* an efficient way to speculate, trading opportunistically in the entire market or its segments, and using them for such a purpose is surely more sensible (and less risky) than short-term speculation in individual stocks. But what’s the point of speculating—costly, tax-inefficient, and counterproductive as it is—an almost certain loser’s game. Mark me down as one whose absolute conviction is that long-term investing is the consummate winning strategy.

### **What More Do We Need To Know?**

My third concern is that, for all of the inroads made by indexing, it has achieved only a small fraction of the success that its clear investment merits deserve. *If heresy has turned to dogma, why hasn’t indexing become an even more important part of the financial scene?* Yes, the assets of index mutual funds now total over \$550 billion, representing nearly 15% of equity fund assets. Yes, investors have invested \$130 billion in index funds over the past three years, some 35% of the total cash flowing into equity funds.

But no, American families now hold \$8.0 trillion of equities, meaning that nearly \$7.5 *trillion* is *not* indexed. Indexing has achieved a far smaller share of individual equity investments than in the pension field. And yet its cost advantage is much larger in the highly-priced fund marketplace than in the competitively-priced pension marketplace. If we as a nation are going to rely even more heavily on individual retirement and thrift plans than on corporate pension plans and Social Security, the retirement savings of our citizens are going to be far less robust. *What more do we need to know in order to accept the superiority of index funds so that they earn the acceptance they clearly deserve?*

I, for one, don’t think we need more information. But the problem will not be easy to solve. The fund industry, like the insurance industry, is a marketing business, and in both cases the high costs of marketing represent a dead weight loss on the net returns that investors receive. The problem faced by low-cost, no-load index funds is that, as I have often observed, “(almost) all the darn money goes to the investor!” The more money that goes to the investor, of course, the less that goes to the manager and marketers, the brokers and advertisers, the marketing system that drives the world of financial intermediation. So we need to work, day after day, to get across the message of indexing to the “serious money” investors who, truth told, need it the most.

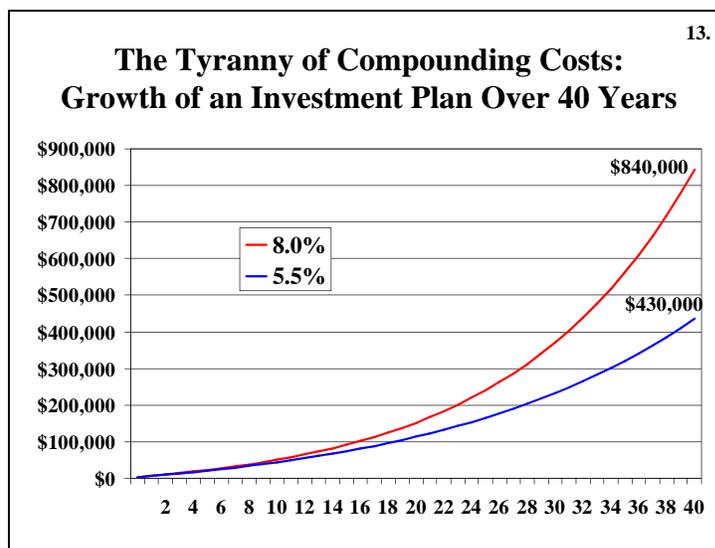
## Conclusion

There are lots of lessons to be learned from the issues I've discussed today. Broadly, I've suggested that, while innovation cannot be separated from luck, it can't be separated from intellectual discipline and determination either. I've also suggested that simple ideas can hold their own—or more—with complex concepts. When you get out in the business world, *Occam's Razor*—"when confronted with multiple solutions to a problem, choose the simplest one"—is worth keeping in mind.

I hope you also take note that it is indeed possible to gild to excess a sound innovation—in this case, the lovely lily of all-market indexing—which needs no gilding—as well noting the powerful forces that would like nothing better than to stop indexing in its tracks before it strikes at their wallets. Their only weapon is to use the records of their successful funds during their flowering periods and imply that such success will persist—and you now know how rarely that happens. Most of all, of course, I hope I've explained not only the universal mathematical logic of indexing—*gross return minus intermediation costs equals net return*—but also presented an overwhelming array of brute evidence that ought to persuade even the most skeptical among you of its worth as an investment strategy.

Now think of this in personal terms. What difference would an index fund make in your own retirement plan over, say, 40 years? Well, let's postulate a future long-term annual return of 8% on stocks. **(Chart 13)** If we assume that mutual fund costs continue at their present level of at least 2½% a year, an average mutual fund might return 5½%. Extending this tax-deferred compounding out in time on your investment of \$3,000 each year over 40 years, and investment in the stock market itself would grow to \$840,000, with the market index fund not far behind. Your actively managed mutual fund would produce \$430,000—only a little more than one-half as much.

Looked at from a different perspective, your retirement plan has earned a value of \$840,000 before costs, and donated \$410,000 of that total to the mutual fund industry. You have kept the remainder—\$430,000. *The financial system has consumed 48% of the return, and you have achieved but 52% of your earning potential.* Yet it was you who provided 100% of the initial capital; the industry provided none. Confronted by the issue in this way, would an intelligent investor consider this split to represent a fair shake? Merely to ask the question is to answer it: "No."



So when you begin your careers, begin your own families and begin to save for their future security, and consider the nest-egg you'll need forty or fifty years from now when you retire, I shamelessly commend to you using an all-market index fund—the lower the cost, the better—as the centerpiece of the savings you allocate to equities. If you do, as Dr. Samuelson has written, you will become “the envy of your suburban neighbors, while at the same time sleeping well in these eventful times.”

Finally, a word for those of you who will seek careers in investment management. Please don't be intimidated by the obvious odds against beating the market. Rather, learn, as so few fund managers seem to have done, from the reasons for the success of the index fund. It is long-term focus, broad diversification, and low cost that have been the keys to the kingdom in the past; active managers who learn both from the disciples of EMH and the apostles of CMH will have the best chance of winning the loser's game, or at least providing respectable long-term returns for their clients in the future. So whatever you do in your investment career—indeed whatever you do in *any* endeavor to which you may be called—*never fail to put your client first*. Placing service to others before service to self is not only an essential part of whatever success may be, it is the golden rule for a life well lived.

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