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EXCHANGE TRADED FUNDS AND E-MINI STOCK INDEX FUTURES

DAVID LERMAN



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PREFACE

Incredulously, on May 5, 1997, I found myself standing in line at 6:00 A.M. with hundreds of other folks. On this beautiful spring morning, we were waiting to file into the Aksarben Coliseum just outside Omaha, Nebraska. The doors would not open for another hour, and the meeting would not start until 9:30. When the meeting began, the place was packed with about 9,000 attendees. A typical corporate annual meeting attracts a few hundred, perhaps a thousand, investors. But this was no typical annual meeting. It was the “capitalists’ Woodstock”: the annual meeting of Warren Buffett’s Berkshire Hathaway. And the venue was a hockey rink! When the greatest investor in the history of civilization entered the building, a thunderous applause broke out.

Warren took his customary place next to Berkshire Hathaway’s vice chairman, Charlie Munger, and the formalities of the annual meeting took the usual ten minutes. Meeting over. At this point the real reason for the gathering began: the Q&A session. You see, the question-and-answer portion of the Berkshire Hathaway annual meeting is when investors—many of them richly rewarded for holding their shares—get to ask the ultimate investing expert any question imaginable. And Warren aims to please, since the Q&A sessions usually run four to six hours. A dozen or so microphones were placed around the coliseum, and the faithful lined up for the greatest teaching thrill of their investment lives. This year, one of the first questions came from a middle-aged woman who wanted Buffett’s opinion regarding high investment fees relative to performance in the mutual fund arena. Buffett prefaced his reply by saying, “The typical investment manager, even some of the good ones, have little chance of beating the S&P 500 over the long run.” Jaws dropped, and heads turned. Many in attendance that day were in fact money managers. Berkshire also held a boat-load of Salomon common stock, one of the world’s premier investment banks that also managed billions in assets. Here was the world’s greatest stock picker, a man with a thirty-five-year track record that had smashed the S&P 500 to bits—and he was talking about the great

advantages of indexing. The irony exploded across Aksarben. Class was in session.

As Buffett was amassing one of the great track records of all time, John Bogle was quietly amassing an extraordinary track record of a different kind, a thousand miles away in Valley Forge, Pennsylvania. The Vanguard Group's flagship fund, the Vanguard Index Trust, which tracks the S&P 500 Composite Index, was slowly, but inexorably fulfilling the Oracle of Omaha's prediction. Over the past quarter of a century, the S&P 500 Index, and thus the Vanguard Index Trust, had handily beat most active managers (i.e., stock pickers). The fund commenced operations 25 years earlier with \$11 million in assets. By the end of 1999, the fund had surpassed \$100 billion in assets and shortly after had become the largest mutual fund in the United States.

Buffett was right: the majority of investment managers fail to outperform their benchmark over the long run. That is likely to continue. To be sure, there will be periods when they will prevail. But the past 30 years has shown them to be on the losing end of a very tough comparison. Today more than \$2.5 trillion are indexed (passively managed) worldwide—about \$1.4 trillion in the United States.

At a recent seminar that I gave to hundreds of attendees, someone asked if I thought that indexing had “lost some of its momentum.” When I responded that the evidence pointed to the contrary, the questioner replied, “How do you figure?” I rattled off the following in rapid-fire succession:

- There is nearly \$70 billion invested in exchange traded funds (ETFs), up from zero eight years ago!
- The S&P 500 Depositary Receipts (also known as SPDRs or Spiders) trade 7 million shares a day and usually are at the top of the American Stock Exchange's list of most active issues.
- The QQQ, an ETF that tracks the Nasdaq-100 index, traded over 2.5 million shares on its first day less than two years ago. It usually is the most active issue on the American Stock Exchange (and now trades 20 times that amount).
- Average daily volume in the Chicago Mercantile Exchange's new E-Mini S&P 500 Index futures contract has grown over, 1000 percent (from under 10,000 a day to over 100,000 per day) in the past three years.
- The Chicago Mercantile Exchange's new E-Mini Nasdaq-100 Index futures contract traded 2,400 contracts at its inception in

June 1999. Average daily volume now exceeds 80,000 contracts—a 33-fold increase in less than 18 months! (The mini S&P and mini Nasdaq now trade over 100,000 contracts per day.)

- In the past few months, Barclays Global Investors has successfully launched dozens of new ETFs, called iShares, to help investors create index strategies. These funds duplicate a host of well-known indexes such as the Russell 2000, S&P/Barra Growth and Value Indexes, and dozens more.

In short, these new index products have far exceeded the most optimistic expectations and indicate that, at least for now, the momentum for index investing is on the increase. I asked the gentleman if he was clear on the momentum issue. He replied, “Crystal!”

As the indexing revolution continues, these new stock index products such as ETFs and CME’s E-mini stock index futures are starting to grab the attention of investors large and small. Unfortunately, these products are so new and encompass so many different indexes that some investors, especially novices, are having difficulty keeping up with the changing landscape. The aim of this book is to provide a comprehensive view of these new stock index products—how they work, how traders can use them, and how long-term investors can use them. I will also go into:

- How individuals can use these products to mimic some of the indexing strategies of the largest institutional investors and obtain excellent returns.
- Asset allocation and related strategies, such as the core-satellite approach, which allow combining indexing strategies using ETFs, with the seemingly hereditary desire to pick stocks (after all, there is a little Warren Buffett in all of us!).
- Trading, hedging, and spreading strategies using the popular E-mini stock index futures at Chicago Mercantile Exchange.

Although this book is aimed at the beginning- to intermediate-level investor, I believe it offers investors, advisers, and traders of all experience levels several benefits. I hope to challenge you, even quiz you, so that when you are finished, you’ll be able to make informed decisions regarding short-term and long-term strategies using these new stock index products.

Class is in session!

ACKNOWLEDGMENTS

Many thanks to the individuals and institutions below that played a part in the writing of this book.

First to Jim McNulty, the CEO of Chicago Mercantile Exchange Inc. for giving permission to move forward on the project. Rick Redding, Brett Vietmeier, and Gail Moss (also at CME) played important roles.

Thanks also to Nicholas Lopardo and Gus Fleites at State Street Global Advisors for reading parts of the manuscript and making important suggestions.

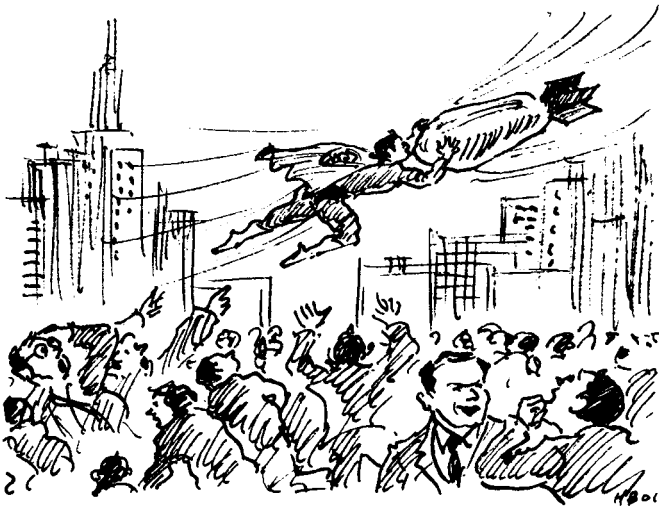
At the AMEX, Mike Babel and Diane Fezza provided helpful information along the way.

Jay Baker from Spear, Leeds & Kellogg also explained some of the critical details of market making and the creation/redemption process. Tim Jarvis from JP Morgan/Chase and Tom Centrone from the Bank of New York also filled in crucial details on these products. Rick Rosenthal of Sydan and Jon Peabody of Rock Island Securities provided great input in terms of the Chicago Stock Exchange's role in Exchange Traded funds.

And finally, thanks to those folks at John Wiley and Sons. Pam van Giessen and Claudio Campuzano for orchestrating this whole project, the copyeditors and typesetters who took the manuscript with all its flaws and created the finished project.

Part I

FROM RANDOM WALK TO A TRILLION-DOLLAR PHENOMENON



“Yeah, but can he beat
the S & P 500?”

Credit: Hank Blaustein

1

FROM RANDOM WALK TO A TRILLION-DOLLAR PHENOMENON: WHY INDEXING WORKS SO WELL

In 1973, Burton Malkiel published the first of seven editions of *A Random Walk Down Wall Street*. The book, which I urge all investors to read, describes how investors are better off buying and holding a passive index fund rather than trying to buy and sell individual securities or actively managed mutual funds. *Random walk*, a term coined by academicians, states that the short-term fluctuations in the stock market cannot be predicted and argues that analysts' reports, newsletter touts, and chart formations are useless in gauging long-term market trends. In fact, random walkers are convinced that a monkey throwing a dart at the stock pages of a newspaper could choose a portfolio of stocks as well as most of the Harvard M.B.A. types on The Street.

Malkiel goes on to describe a virtual “wrestlemania” between the academic world and Wall Street. In the academic corner, we have modern portfolio theory (MPT), the capital asset pricing model (CAPM), and a stable of Nobel laureates. In Wall Street's corner, there are the fundamental analysts, the technical analysts, and some very highly paid investment managers. Over the past 30 or so years, observers have witnessed these forces beating each other over the head with an endless stream of beta coefficients, alphas, earning upgrades and downgrades, reiterated buy recommendations, and outside-day inside-day false breakouts!

Malkiel goes so far as to say, “Financial forecasting appears to be a science that makes astrology look respectable.”¹ This unflattering

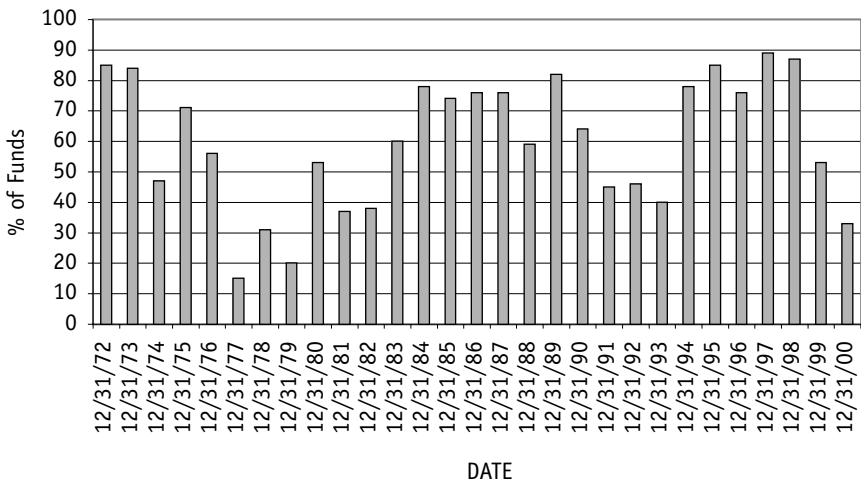
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statement reminds me of a popular analyst who recently recommended purchase of Yahoo! common stock while at the same time setting a price target well above its then current price. Not only did Yahoo! fail to hit that target, but it proceeded to lose over 60 percent of its value in the next four months! Another analyst recently downgraded a dot-com stock—*after* it lost 95 percent of its value. To be sure, there are some great money managers, traders, and analysts, and some academic studies have made great contributions to the investing world. But the fact remains that the S&P 500 index has beaten most of the stock-picking profession. And for those who claim that active management stacks up more favorably against a broader benchmark, such as the Wilshire 5000, I urge them to examine the evidence in Exhibit 1.1 and Exhibit 1.2.

What further conclusions can we draw?

- Markets are, for the most part, efficient (inefficiencies can usually be arbitrated away, and inadequate liquidity or profit potential makes them unexploitable).
- The average manager still cannot beat the appropriate benchmarks, and thus is not likely to add value in the long run.

Exhibit 1.1 The Case for Indexing: Percentage of Mutual Funds Outperformed by the S&P 500, 1972–2000



Note: The funds referred to are general equity mutual funds.

Source: CME Marketing/Standard & Poor's/The Vanguard Group.

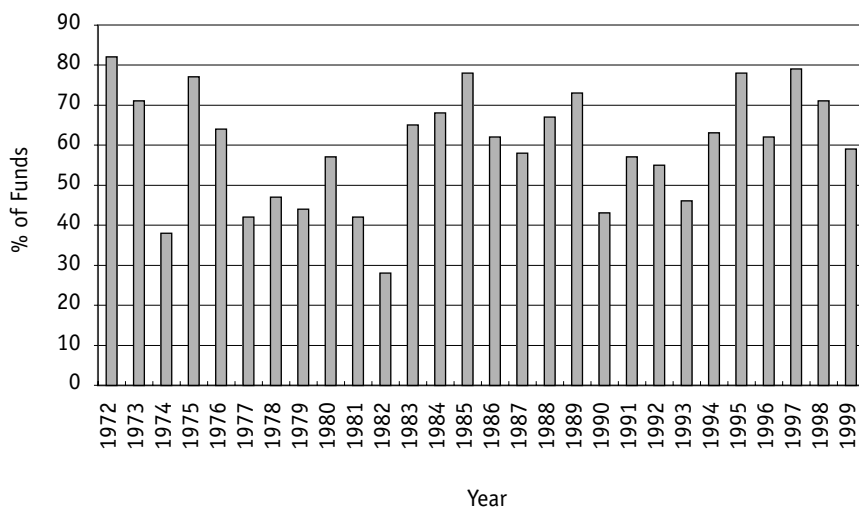
- Some active managers can obtain returns above the benchmarks, but investors must possess tremendous skills and resources to identify them. Warren Buffett, Bill Miller (manager of the Legg Mason Value Trust), Ralph Wanger (manager of the Acorn Funds), and a handful of other great managers can and do beat their benchmarks on a consistent basis.

Some win, some lose, but on average, they're average.²

Barton Waring, Barclays Global Investors

About the same time as the publication of Malkiel's book and a few years after the random walkers began to insult active managers, the seeds of the indexing revolution were planted. Bill Fouse and John McQuown, both working at Wells Fargo Bank, were the first to implement indexing. The first indexed portfolio was constructed in 1971 by Fouse and McQuown for the pension fund of a large corporation and was actually based on the New York Stock Exchange (NYSE) Composite index. The NYSE Composite is basically every issue traded on the

Exhibit 1.2 Percentage of Mutual Funds Outperformed by the Wilshire 5000 Index, 1972–1999



Note: The funds referred to are general equity mutual funds.

Source: CME, Standard & Poor's, The Vanguard Group.

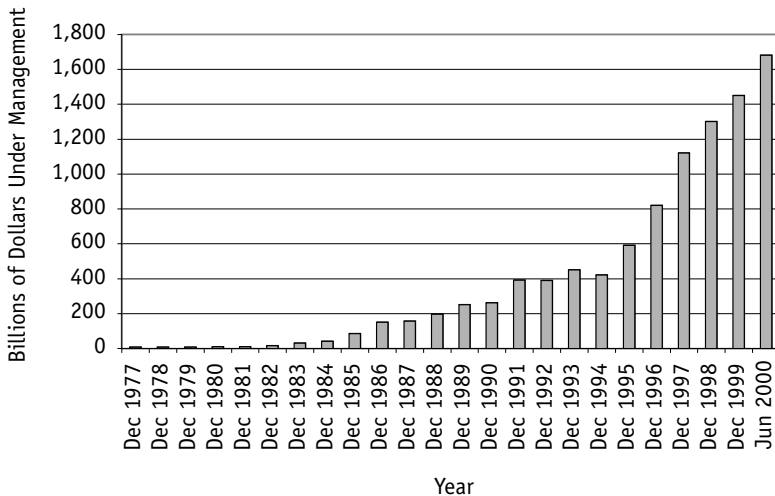
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NYSE; hence, the number of stocks is enormous. Outright purchase of every stock proved cumbersome and it is easy to imagine the custodial headaches that ensued. Remember, too, that there was no SuperDot system (for electronic order routing to the NYSE specialist), and automation was a far cry from the technology we now take for granted. Wells later abandoned indexing using the NYSE Composite and in 1973 began to index based on the S&P 500 Composite. The first clients were Wells's own pension fund and the pension plan of Illinois Bell.

Wells had some company in the early 1970s. Batterymarch Financial Management and American National Bank both indexed client money in 1974, and adherents to efficient market theory recognized the beginning of a new investment vehicle. In December 1975, John Bogle, who had just started the Vanguard Group, introduced the first indexed mutual fund. Its name: *First Index Investment Trust*. The fund began operations with \$11 million in assets. No one could have predicted what was to unfold for indexed investments over the next quarter of a century, but one thing can be said for certain: Investors are noticing now and opening their wallets . . . big time.

How can you explain the numbers in Exhibit 1.3? How has this “if you can't beat 'em, join em” philosophy of investing gathered so much

Exhibit 1.3 Growth of Indexing of U.S. Tax-Exempt Institutional Assets, Year End 1977–June 30, 2000



Source: Data from Pension and Investments Annual Survey.

momentum in so little time? The answer is simple: It works. After all is said and done, indexed investors have more money left in their pockets over time than if they had invested the same money in a typical actively managed mutual fund. We have established unequivocally that the S&P 500 composite outperforms most mutual fund managers over time. However, we must gain an understanding of why this occurs and then examine some of the other reasons that indexing has become a trillion-dollar phenomenon.

Why is the S&P 500 such a formidable competitor? There are basically six reasons that this benchmark has trumped the competition:

1. Investment management fees
2. Transaction costs and portfolio turnover
3. Taxes
4. Cash drag
5. Mid-cap and small-cap holding bias
6. Additional costs

INVESTMENT MANAGEMENT FEES

The average annual expense ratio for a typical equity mutual fund is about 1.40 percent per year (or 140 basis points). You can find the fund's annual expense ratio in its prospectus, but if you wish to avoid being lulled to sleep reading a prospectus, I urge you to visit Morningstar's Web site (www.morningstar.com) to find a whole range of data on just about any mutual fund, including annual expense ratios (although a little due diligence might not hurt—a fund's prospectus is full of facts, and you may learn something about your investments!). The annual expense ratio expresses the percentage of assets *deducted* each fiscal year for fund expenses including management fees, administrative fees, operating costs, 12b-1 fees, and all total costs incurred by the fund. Brokerage costs and transaction fees, as well as all sales loads, front- or back-ended, *are not included* in the annual expense ratio. Since bull markets idolize active stock pickers (in bear markets, they are tarred and feathered), some of the gods of investing make appearances at retail money shows, where they fill ritzy hotel ballrooms with thousands of people clamoring to get stock "picks." But these portfolio managers do not come cheap. Many have salaries and bonuses in the high six-figures. Some earn even more. Peter Lynch, the legendary manager at Fidelity, easily earned his salary by blowing past his benchmark for over 15 years. Most, however, are not as fortunate. These costs are one part of the total annual expenses paid out of a

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fund's assets. All the mailings, the annual reports, the ability to call a fund representative at 2:00 A.M. and Web access cost money. You have to determine if these costs are worth the returns.

Now, 140 basis points might not sound like a lot, but over time, it is a considerable cost. The average index fund is at least 100 basis points cheaper, and the average exchange traded fund (ETF) is cheaper still. What is a 1.0 percent cost advantage worth? If you start with \$10,000 and obtain a return of 10 percent, after 25 years you will have \$108,340. The same \$10,000 with a return of 11 percent will have grown to \$135,854. The difference is about \$27,500—a major sum here, enough for a fully loaded Ford Explorer, a down payment on a typical house in the United States (excluding Silicon Valley), or a trip around the world for two with first-class Airfare and five-star hotel accommodations. ETFs and index funds in general, however, have a tremendous advantage in that annual expense ratios are a fraction of those of a typical fund. There are no star managers here (although Vanguard's Gus Sauter, who runs most of Vanguard's index funds, including the largest mutual fund in the United States, does receive a great deal of press and adeptly finds a way to *beat* his benchmarks sometimes. More on Sauter later.). No gigantic research staff trying to find the next Cisco or Microsoft. No Cray Y-MP supercomputers looking for strange market anomalies to try to exploit. No bloated costs. Simple. Advantage: Passive guys win this one.

TRANSACTION COSTS AND PORTFOLIO TURNOVER

It used to be that if you bought 100 shares of a stock, you would pay about \$90 at a full-service firm. Then the discounters arrived and brought commissions to the \$25 to \$50 range. Then the deep discounters, and later, in the 1990s, the on-line brokers came on board charging \$5 to \$10 for the same 100 shares. Institutions such as pension fund managers and mutual funds managers obviously pay far less in brokerage commissions since they buy huge numbers of shares—usually in blocks of 10,000 to 100,000 shares and up. Nevertheless, despite extremely low commissions, these costs add up. The estimated transaction costs to a fund are between 0.5 percent and 1.0 percent per annum. In a recent presentation to the Investment Analysts Society, John Bogle said the transaction costs represent about 0.7 percent of a fund's assets, or 70 basis points.³ Hence, when transaction costs are added to the aforementioned expenses, you have a whopping 200 to 210 basis point drag on a portfolio every year. Unfortunately, there are even

Exhibit 1.4 Turnover Rates and Expense Ratios, Selected Funds

Fund	Turnover Rate		Expense Ratio	
	1988	1998	1988	1998
Evergreen Income and Growth	81%	133%	1.01%	1.25%
Invesco Blue Chip Growth	116	153	.81	1.04
Templeton Growth	11	48	.69	1.08
Fidelity Magellan	101	34	1.14	.61
Vanguard 500 Index	10	6	.22	.18

Source: Morningstar Mutual Fund 500, 2000 Edition.

more costs to the investor. Some managers buy stocks and hold them for quite some time. Buffett's favorite holding period is "forever." Many of his holdings have been in Berkshire's portfolio for at least a decade. Washington Post Co. has been in the portfolio since 1974. His turnover rate is extremely low. In light of this, one would think that funds would have a powerful incentive to lower turnover and thus transaction fees. Surprisingly, though, part of the industry seems to be doing the opposite. In the mid 1970s, turnover for most funds was at the 30 percent level. A quarter-century later, turnover for a general equity mutual fund now stands at 108 percent. As Exhibit 1.4 shows, while some funds have held the line or even reduced their turnover and expense ratios, others have gone in the opposite direction.

True, some commissions will be incurred. It's part of the business, and there's nothing wrong with that. But when managers become so short term oriented that they turn over their entire portfolio in a little more than a year, the costs start to become burdensome. The old adage, "You can never go broke taking a profit," rings true. But continue adding cost after cost, and soon the take by various financial intermediaries becomes too large to overcome, even for the above-average stock picker. And one of the biggest costs has yet to be brought to the discussion. It comes in a three-letter acronym that seizes every American investor: the IRS.

The investment success of investors in the aggregate is defined—not only over the long-term but every single day—by the extent to which market returns are consumed by financial intermediaries.

John Bogle, speaking to the Investment Analysts Society of Chicago⁴

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TAXES

Some of us have had the pleasure of filling out form 1040—Schedule D for Capital Gains and Losses. It is a simple form if you buy or sell a couple of stocks throughout the year. My Schedule D used to take about an hour of work. Then I decided to invest in (and later sell) some mutual funds. For the 1999 filing year, it took almost three hours just for the Schedule D portion. I can think of better things to do than figure the average cost basis of my mutual fund shares (although many funds actually calculate your tax basis for you). Worse, you then have to pay taxes on any income, as well as realized gains the fund had during the year. This can be a substantial drag on returns, and the IRS is one financial intermediary that will sooner or later get its cut. The one bright side to paying taxes is that you have made money! But to give more than your fair share is un-American. The only sport more popular than our national pastime is tax avoidance (Notice I said tax *avoidance*, which is legal, as opposed to tax *evasion*, which is illegal.) Sadly, this is one sport that many mutual funds and investment managers fail to participate in. In fact, there is little or no discussion of the tax issues surrounding mutual fund investment. Large ads in the financial press tout a particular fund as the number one performer during a particular period. I have yet to see an ad proudly displaying after-tax returns. Most discussions in prospectuses center around the general statement that the shareholder will pay taxes on all income distributions and capital gains distributions.

How big is the IRS's cut? The Chicago presentation at which Jack Bogle spoke provided a wealth of knowledge, and I took copious notes. According to the Bogle Financial Markets Center, the impact of taxes on an actively managed portfolio is roughly 160 basis points. I couldn't believe it. I have been in this industry for awhile, but like many other investors, I never paid close attention. Since I had heard some estimates that were somewhat lower and some that were 100 basis points higher, I decided to find out for myself where in that range things really fall. I paged through the 2000 edition of the Morningstar 500 booklet and chose a few of the larger, more well-known funds. Exhibit 1.5 illustrates the results of this informal experiment.

The 172 basis points was in the same ballpark as Bogle's figure. Then I pulled out my tax records for the last couple of years and computed the amounts with my personal holdings in the Mutual Qualified fund and the Acorn International fund. Averaging my tax burden over the past two years for Mutual Qualified and one year for the Acorn International, I came up with 1.78 percentage points, or 178 basis points.

Exhibit 1.5 Pretax vs. After-Tax Returns, Selected Funds

Fund	10-Year Annualized Return	10-Year Annualized Return, Tax Adjusted	Tax Impact in Basis Points
T. Rowe Price Blue			
Chip Growth	28.28	27.82	46
AIM Constellation	21.16	20.33	83
Vanguard 500	18.07	16.97	110
Gabelli Asset	16.31	14.36	195
Fidelity Growth			
Company	23.63	21.39	224
Janus Fund	20.58	18.11	247
Mutual Qualified	14.25	11.25	300
Average			172 or 1.72%

Note: All data are for ten years ending December 31, 1999, except T. Rowe Price, which is five years, ending December 31, 1999.

Source: Morningstar Mutual Fund 500, 2000 Edition.

(Morningstar's computation reflects the maximum capital gains rate of 39.6 percent. Many Americans do not fall into that tax bracket. Too, many Americans do not hold funds 10 years either.)

The tax implications alone are enormous. Every time a fund manager sells a stock, he or she incurs transaction costs. Every time a fund manager sells a stock, he or she creates a taxable event (unless it is sold at a loss). Every time a fund manager creates a taxable event, the IRS wants to be part of that event. Let's summarize:

Annual expenses	140 basis points
Transaction costs	70 basis points
Taxes	170 basis points
<i>Subtotal (there is more to come)</i>	<i>380 basis points</i>

CASH DRAG

Most equity investment managers are paid to invest in equities, but even the most aggressive among them are rarely 100 percent in stocks. They always hold some cash reserves for picking up stocks in the future

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or to meet redemptions should an investor cash out shares. A very small subset of funds is 100 percent invested (index funds among them).

Others are 90 percent or more invested in stocks. Some less. The remaining allocation, which can range from 1 percent to 30 percent depending on the fund, may be in bonds, and some may be in cash—Treasury bills (T-bills), repurchase agreements, and other money market instruments. Cash is a great thing to have on hand in a bear market. However, for most of the past eighteen years, investors have had an amazing run. Any investor holding even small amounts of cash suffered from cash drag—the drag on a portfolio’s performance in a rising market due to holding excessive cash. Cash returns have been in the 4–7 percent range for most of the past few years. Imagine holding 10 percent of your assets in cash earning single-digit returns while the S&P 500 was up over 20 percent each year from 1995 to 1999. That is cash drag, and almost every investor, small and large, experiences it. It is also very hard to determine the overall impact since cash levels change so much. It also depends on market returns. Suffice it to say that the impact is between 20 basis points and over 200 basis points. If cash balances are at 10 percent or greater, then it is entirely possible, given the returns of the past few years, that the drag could reach 200 basis points. Given long-run returns of 11 percent to 13 percent in the equity markets and cash levels between 5 percent and 10 percent, the cash drag should be approximately 40 to 50 basis points.

MID-CAP AND SMALL-CAP BIAS

Another reason that investment managers have a hard time beating their benchmark is their style of investing. Many general equity mutual funds have a healthy dose of middle-capitalization and small-capitalization (midsize and small-size stocks) issues. The S&P 500 is primarily a large-capitalization index. Therefore, if mid- and small-size stocks lag the overall market, the manager will lag too. When the active camp claims victory over the S&P 500, it is usually in an environment when midsize and small-cap stocks have substantial rallies.

ADDITIONAL COSTS

In addition to the layers of costs already painfully detailed, there are costs associated with upfront sales charges levied by some mutual funds. Sales charges, or *loads* as they are called, vary from 1.00 percent

to 8.75 percent. Some fixed-income funds even charge a 6.75 percent (or greater) load. Usually, funds sold by brokers are of the load variety, and it is from that sales charge that they are paid their commission. Sometimes the load is paid upfront, and sometimes loads are back-ended, meaning you pay the load when you sell the fund. The annual expense ratio of a fund *does not include loads of any kind!* So if you use brokers and purchase funds with front- or back-end loads, this is another layer of cost. The longer you hold a loaded fund, however, the lower the per-annum cost of the sales charge.

In addition, the tax costs reflect only federal taxes, not state or local taxes. In some states with certain types of investors, this would add yet more costs. And one other item can hurt the performance of a fund: Poor stock picking! There are some managers on the street who just do not possess stock picking acumen.

Given that the mid-cap bias is hard to measure and that not all funds have sales charges, we will eliminate these costs from our final tally of various fund costs:

Annual expenses	140 basis points
Transaction costs	70 basis points
Taxes	170 basis points
Cash drag	40 basis points

Total costs **420 basis points, or 4.2 percentage points**

Now we will go one step further and put this in dollar terms. But first we have to set the ground rules and make some assumptions in terms of time, rate of return, and so on.

Over the past 75 or so years, the returns of the U.S. stock market as measured by the S&P 500 have averaged about 11.3 percent. This is a very representative period; it includes several major wars, one depression, one severe and dozens of minor recessions, a few S&L and banking crises, Watergate, Monica-gate, and Chad-gate. Stock market returns over the past 50 years have averaged about 13.3 percent (and this time frame includes the fabulous fifties, the best decade for stocks in the past 70 years—even better than the nineties) and the past 40 years about 12.0 percent. Over the past 20 years, the market has returned on average just shy of 18 percent. But the past 20 years have been extraordinarily kind to investors, and to assume the next 20 years will be just as generous is a real stretch.

So in my illustration, I use 11.3 percent returns for the market and a 40-year time horizon—about the same length of time many of us will

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be accumulating money (ages 25 to 65). Lets further assume that before expenses, the average fund outperforms the market by 100 basis points, or 1.00 percentage point per year (a very generous assumption). John Bogle has some data demonstrating that equity funds outperformed the Wilshire 5000 over the past 15-year period by 50 basis points.⁵ However, the study did not account for “survivorship bias,” which would certainly have eradicated that 50 basis points and a lot more. When you look at the group that beat the market by 50 basis points, you are looking only at funds that were around or survived the whole 15-year period. Many funds that existed at the start of the study (but did not make it to the end) do not appear in the data. They may have merged or been liquidated, but no matter where they went, the funds that failed to deliver adequate returns are gone. Had they been included, they would certainly have lowered the returns of the group as a whole.

In a similar study, Burton Malkiel found that from 1982 to 1991, the survivors experienced annual returns of 17.1 percent.⁶ But all funds—survivors and those that did not make it to the end—provided returns of only 15.7 percent, a 1.4 percent bias. A similar study with a 15-year period ending in 1991 showed a survivorship bias of over 4.2 percent.⁷ So to award mutual funds a 100 basis point advantage is truly an act of kindness.

In addition, I will not include cash drag costs, loads, and mid- and small-cap bias since they are harder to gauge. I include only expenses, transaction fees, and taxes.

We'll start with \$10,000 and compound it at 11.3 percent (return of S&P 500 or the market). Then we will compound at 12.3 percent (for the fund—again, before expenses). Exhibit 1.6 shows how much costs matter—how much the intermediaries and the IRS take as their cut. Clearly, in Exhibit 1.6, the indexer has almost a quarter of a million more dollars at the end of the period, adjusting for costs, and that's after spotting the active manager 100 basis points.

Now you can understand why Buffett has held some of his stocks for decades. Less turnover means fewer “taxable events.” Less turnover means fewer transaction fees. Now you can also see why the active investment management community has such a hard time beating the S&P 500. Those little boxes that appear at the lower right-hand corner of your CNBC telecast continuously display updated levels of the major indexes, including the S&P 500. That number does not have to pay taxes, does not have expenses, does not have brokerage commissions, does not charge a load, and could not care less about midsize stocks, upgrades, downgrades, or anything else. Yes, an index fund designed to

Exhibit 1.6 Impact of Costs on Investment Returns

Index Fund		
\$10,000		
@ 11.3%	for 40 years, no expenses or taxes	becomes \$724,100
@ 11.1%	[11.3 – .20% expenses = 11.10%] ^a	becomes \$673,800
@ 10.25%	[11.1 – .85% taxes = 10.25%] ^a	becomes \$495,600
Average Fund		
\$10,000		
@ 12.3%	for 40 years, no expenses or taxes	becomes \$1,035,600
@ 10.2%	[12.3% – 2.1% expenses = 10.2%]	becomes \$ 486,700
@ 8.5%	[10.2% – 1.7% taxes = 8.5%]	becomes \$ 261,300

^aThe typical index fund is about twice as tax efficient as its passive counterpart. The Vanguard 500 has an annual expense ratio of .18 percent and virtually no turnover costs. The average fund has 1.4 percent annual management fee plus .7 percent in turnover costs, for a total expense of 2.1 percent.

mimic the S&P 500 would incur costs. However, the costs would be substantially lower than the average investment manager. Costs matter. They matter so much that a couple of trillion dollars (up from virtually nothing 20 years ago) has been sucked into indexing like a huge vacuum. But the story gets better, as we will see in Parts II and III. Exchange traded funds and E-mini stock index futures can be even cheaper than index funds.

2

THE PLAYERS

While ETFs and E-mini stock index futures owe their birth to a few individuals, it was really a panoply of institutions that made them the success they are now. To the institutionally inclined, they are household names. To the retail investor, they may be only vaguely familiar. So that you can really appreciate and gain a full understanding of these great products, you should know something about the players behind them.

INSTITUTIONAL MANAGERS OF ETFs

The three institutions highlighted here are the managers of most of the ETFs listed so far in the United States.

Barclays Global Investors

Perhaps the largest institutional money manager in the world, and certainly the largest indexer on the planet, Barclays Global Investors (BGI) had \$833 billion under management as of June 2000. Headquartered in San Francisco, BGI is the world's largest provider of structured investment strategies such as indexing, tactical asset allocation, and quantitative active strategies. While BGI is known for being involved primarily in passive indexing strategies, it derives nearly 40 percent of

its revenues from active money management. This giant money manager has evolved over the years, as have many other financial corporations in the United States, through a series of brilliant mergers. The current form of BGI is an amalgam of Wells Fargo Investment Management (which in the early 1970s pioneered the first indexing strategies using the NYSE composite index, and later the S&P 500), Nikko Securities, and BZW Investment Management (the investment management arm of Barclays Bank PLC). In 1990, Wells Fargo Investment advisers merged with Nikko Securities to form Wells Fargo Nikko Investment Advisors (WFNIA). Then in 1996, Barclays Bank PLC bought WFNIA and merged it with its own investment management division, BZW Investment Management. The combined entity was named Barclays Global Investors. Continuing a quarter-century of innovation in quantitative investment management, BGI launched its WEBS ETF (World Equity Benchmark Securities) in 1996. It launched iUnits or Canadian ETFs in 1999 and then continued with a huge rollout of its iShares ETF products in the United States in mid-2000. Patricia Dunn is BGI's CEO. Interestingly, Dunn started out as a temporary secretary at Wells Fargo Investment advisers in 1976 and worked her way to the top spot at BGI. *Fortune* named her to the number 11 spot in its top 50 female executives. Lee Kranefuss is BGI's managing director in charge of the iShares product.

State Street Global Advisors

State Street Global Advisors (SSgA), the sixth largest money manager in the world and the first (and world's largest) manager of ETFs, is the investment management arm of State Street Corporation located in Boston. As of June 2000, SSgA had \$720 billion in assets under management and was named the number 2 indexer in *Pension and Investments'* annual update on indexing.¹ In addition, SSgA is the dominant player in the custody services business and has over \$7 trillion (yes trillion with a capital "T") in custodial assets. If you own a mutual fund, chances are that that fund does business with SSgA or its parent. Considered the leader in the ETF market, in 1993 SSgA partnered with the American Stock Exchange and launched the first ETF—the Standard & Poor's 500 Depositary Receipts or SPDR, now the largest ETF, with assets of nearly \$24 billion. As of late 2000, SSgA had over a 50 percent market share in the ETF market (in terms of assets) and is manager of the S&P Select Sector SPDRs. SSgA launched streetTRACKS ETFs in 2000 based on Dow Jones, Morgan Stanley, Fortune, and Wilshire indexes. Of the 78 ETFs launched in the United States as of November