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Includes SPDRs, QQQs, E-mini S&P 500 and E-mini Nasdaq-100 futures, iShares, streetTRACKS, and HOLDERS

DAVID LERMAN

More praise for *Exchange Traded Funds* and *E-mini Stock Index Futures*

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Senior Business Relationship Manager,
Lind-Waldock & Co.

“Lerman is one of the most detailed-intensive market researchers I know. This book demonstrates his uncanny ability to understand the true guts of the markets.”

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Cook Investments

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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.

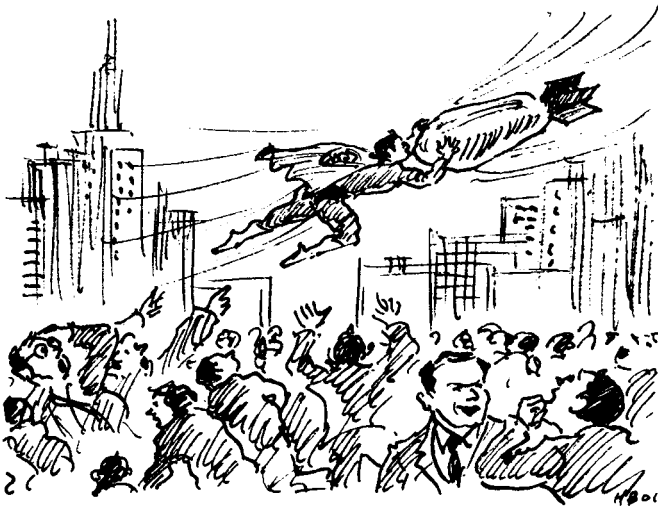
At the AMEX, Mike Babel and Diane Fezza provided helpful information along the way.

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

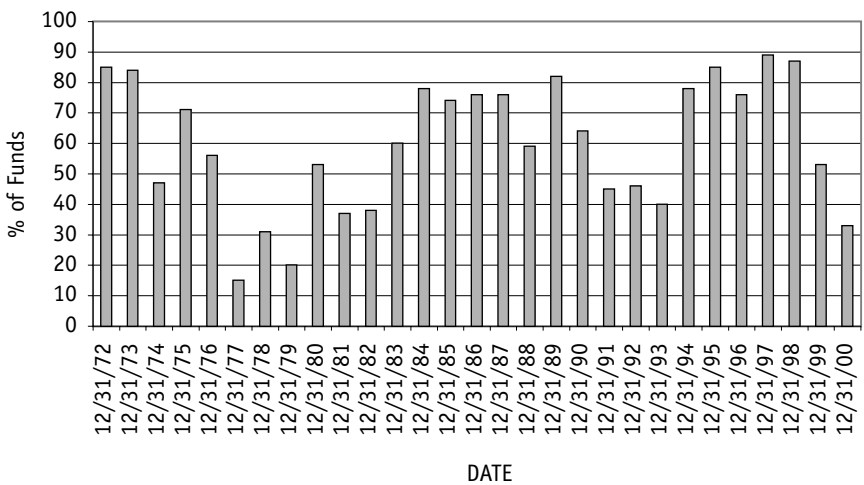
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statement reminds me of a popular analyst who recently recommended purchase of Yahoo! common stock while at the same time setting a price target well above its then current price. Not only did Yahoo! fail to hit that target, but it proceeded to lose 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.

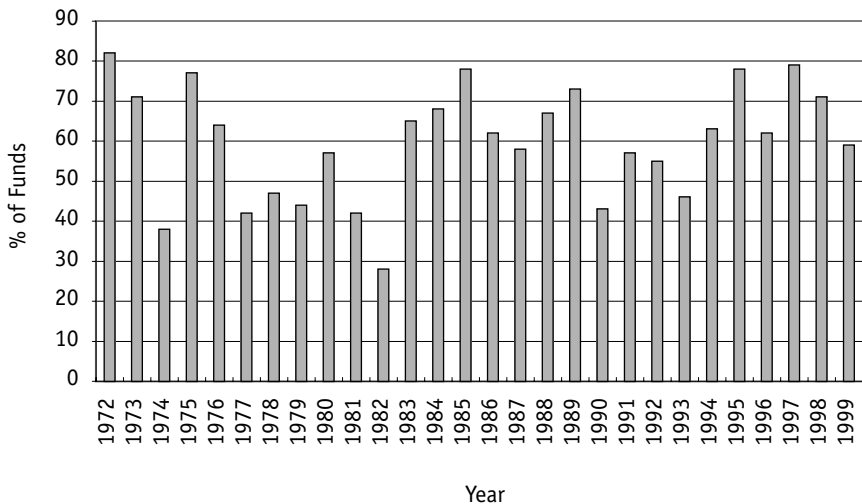
- Some active managers can obtain returns above the benchmarks, but investors must possess tremendous skills and resources to identify them. Warren Buffett, Bill Miller (manager of the Legg Mason Value Trust), Ralph Wanger (manager of the Acorn Funds), and a handful of other great managers can and do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

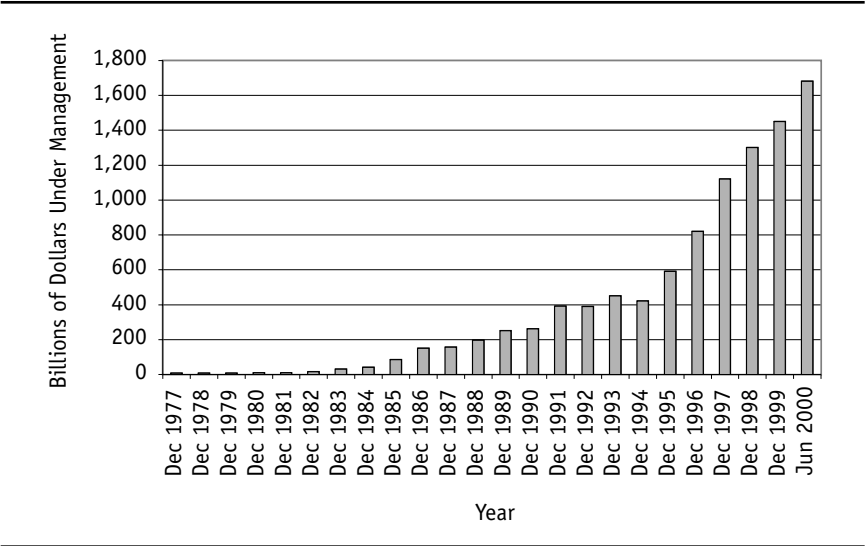
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NYSE; hence, the number of stocks is enormous. Outright purchase of every stock proved cumbersome and it is easy to imagine the custodial headaches that ensued. Remember, too, that there was no SuperDot system (for electronic order routing to the NYSE 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

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). Let's 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

29, 2000, 19 are managed by SSgA. Nick Lopardo is SSgA's CEO. Gus Fleites, a principal of SSGA, is in charge of, among other responsibilities, SSgA's exchange-traded products.

Bank of New York

The Bank of New York (BNY) is the oldest U.S. bank in existence today. In 1784, Alexander Hamilton, then a prominent New York attorney, helped forge the new business in an era when banking was in its infancy. (Hamilton went on to become the first secretary of the treasury under George Washington.) Over the next 216 years, the BNY left its fingerprints on government, Wall Street, and the business world at large. The first loan obtained by the new U.S. government was arranged with BNY. When the NYSE was formed in 1792, the first corporate stock to be traded was BNY. It is now a major player in trust management, custodial services, fund administration and accounting, transfer agent services, and passive investment management. It manages the hugely successful Nasdaq-100 Index Shares (the QQQ) ETF and the S&P MidCap 400 (mid-cap SPDRs, or spiders; ticker symbol: MDY) ETF. The QQQ and the MDY are the second and third largest ETFs in terms of asset size. BNY also manages the popular Merrill Lynch HOLDRS (Holding Company Depositary Receipts). In fact, it is the world's largest depositary for American and global depositary receipts, allowing non-U.S. companies to offer dollar-denominated securities to investors in the United States and Europe. BNY accounts for approximately two-thirds of all public-sponsored depositary receipt programs. Tom Centrone, a vice president at BNY, is responsible for the passive investment management of the QQQ and S&P MidCap 400 ETFs. He also headed the group that helped launch the Nasdaq-100 ETF.

THE EXCHANGES AND MARKET MAKERS

ETFs owe their success to more than the trust managers. The exchanges that provide the forum for trading and the market makers and specialists who provide liquidity have also made vital contributions to these great instruments.

American Stock Exchange

For much of its history, the American Stock Exchange (AMEX) traded mostly stocks. During the 1970s and 1980s, the AMEX gained more

prominence as many of the companies listed on the exchange were involved in energy. As energy prices spiked in the late 1970s, volume too rose significantly. But as the energy boom of the late 1970s turned to bust, volume declined and remained unremarkable for many years. Then the AMEX got into the derivatives business and started trading options on stocks and stock indexes. The exchange thrived, and volume soared, as did seat prices. Then an interesting octogenarian named Nathan Most had a brilliant idea to blend certain aspects of mutual funds and the trading liquidity of stocks into one instrument. Although it took a while for the idea to catch on with the regulators and lawyers, as well as the AMEX development team (the entire new-products team consisted of Most and coworker Steve Bloom), in 1993 the AMEX launched the first ETF: the Standard & Poor's 500 Depositary Receipts, or SPDRs. As this new market began to attract interest, traders combined the SPDR abbreviation with the AMEX exchange ticker symbol SPY. As a result, the instrument was affectionately referred to as SPYDERS, or SPIDERS. The fund now had all the ingredients for a raging success: easy to remember, simple in design, the name recognition of the underlying S&P 500, gobs of liquidity. The rest is history. The AMEX now has a virtual lock on the ETF market. In the late 1990s, the AMEX's upward momentum was so strong that Nasdaq, which itself had just overtaken the NYSE in volume, decided to merge with the AMEX.

Chicago Mercantile Exchange Inc.

Until 1972, Chicago Mercantile Exchange Inc. (CME) traded traditional commodity futures on livestock such as pork bellies and live cattle. Then, in 1972, under the direction of Leo Melamed and guidance from the Nobel laureate economist Milton Friedman, the CME launched futures contracts based not on livestock or grains but on currencies. With the first financial futures contracts, a new era was born. In the early 1980s, the CME introduced interest rate and stock index futures products as well. The Eurodollar futures contract went on to become the most extraordinary futures contract in the history of finance, trading 500,000 to 700,000 contracts per day (each with a \$1 million notional value). The Eurodollar contract helped establish CME as a global powerhouse in risk management. In April 1982, CME launched S&P 500 stock index futures. Within a few years, average daily dollar volume in S&P 500 futures had overtaken that of the NYSE. The S&P 500 had reached critical mass.

But by 1997, after 15 years of rising markets, the notional value of the S&P 500 futures contract had reached an unprecedented \$400,000.

Most futures contracts have notional values that are far less. A mere 1 percent move in the contract was equal to \$4,000—far greater than the usual one-day move in beans, cattle, or crude futures. More important, the upfront performance bond margin (a deposit that futures traders must place when trading futures, see Part III) was becoming too large for the average trader, and some switched to competing products. Of several possible solutions suggested by CME's board of governors, one was to launch a smaller, more investor-friendly-size contract. It would be similar to its bigger brother in all respects except two: It would be one-fifth the size or "mini-size," and it would trade exclusively on CME's GLOBEX₂ electronic trading system. Hence, the E-mini S&P 500 was launched in September 1997. The E-mini S&P 500 futures contract far exceeded even the most optimistic projections. Within two years, average daily dollar volume exceeded the S&P 500 SPDRs at the AMEX, and within three years volume had exploded 1,000 percent from its launch. The mini went on to become one of CME's largest volume futures contracts, second only to Eurodollar futures. Lightning struck twice when CME launched a mini version of its successful Nasdaq-100 futures contract (for many of the same reasons) in June 1999. Astoundingly, the E-mini Nasdaq 100 grew faster than the E-mini S&P 500, and within one year of trading, it had pulled ahead of the QQQ at the AMEX in terms of average daily dollar volume. Clearly, CME's equity index complex was firing on all cylinders.

Spear, Leeds & Kellogg

One comment heard universally from large institutions and retail investors is the depth of the market in many ETFs. Where deep, liquid markets do exist, some of the credit goes to the specialist firms on the AMEX floor and other regional exchanges.

Spear, Leeds & Kellogg (SLK) is the largest specialist firm on the floors of both the NYSE and AMEX. As a specialist, it is responsible for making markets in each of its assigned companies. Markets are to be fair, orderly, and efficient. In addition, SLK tries to make these markets as deep and liquid as possible. Recently bought by Goldman Sachs, SLK has about \$2 billion in capital and over 2,000 employees. It is the specialist for many of the AMEX's exchange-traded funds, including the SPY, S&P Select Sector SPDRs, and DIAMONDS, to name just a few. SLK routinely quotes deep markets (100,000 shares and up) at very narrow bid-offer spreads. Only in the most volatile of markets will these spreads widen. And when something this liquid widens, it usu-

ally means that spreads all across the financial spectrum are similarly expanding.

Part of the reason for the deep liquid markets in ETFs is the ability of specialists to hedge their market-making activities in other markets such as S&P 500 futures. In fact, SLK has direct lines to all major trading floors, including CME's S&P 500 futures pit. If, as part of its market-making activity, SLK suddenly finds itself long a few hundred thousand SPY and thinks the exposure might cause losses should the market fall (even temporarily) before it can unload the position, the firm could mitigate this risk with an appropriate position in S&P 500 futures or another vehicle such as S&P 500 options. Thus, although some view ETFs and futures as "competitive" instruments, they can actually complement each other.

Susquehanna Partners

Susquehanna Partners (SP) is a powerhouse of another sort on the street. Unlike Goldman Sachs, Morgan Stanley, JP Morgan, and the other investment banks on Wall Street that trade and engage in underwriting and a host of other activities, SP pretty much sticks to trading—and in a huge way. Underwriting initial public offerings and bonds is not SP's specialty; trading in securities, options, and futures is. SP, with some of the best personnel in the business, accounts for 2 percent of NYSE volume and 10 percent of the volume cleared through the Options Clearing Corporation (the clearinghouse that clears equity options and options on cash indexes). It also is one of the largest index arbitrageurs in the marketplace. It has specialist privileges in 400 to 500 equity options and is a force in over-the-counter currency options market as well. With all this trading acumen, it comes as no surprise that SP was chosen to be the specialist in many ETFs, including the QQQ, the S&P Midcap 400 (MDY), and several of Merrill Lynch's HOLDR trusts such as the Biotech HOLDRS (BBH), Internet HOLDRS (HHH), and the B2B Internet HOLDRS (BHH), to name a few. These markets too possess good liquidity and depth of market, depending on market conditions. SP is also very active in overseas markets and trades in the financial markets of 20 countries.

Hull Group, L.L.C.

The Hull Group is a quantitatively oriented, technology-driven market maker in equities and equity derivatives that is also involved in

transaction services.* Founded by Blair Hull in 1985, Hull built the proprietary trading firm into a worldwide market player. Like Susquehanna and other major market makers, Hull takes the “other side” of just about any exchange-based trade. Superb financial engineering and electronic systems have helped it create an edge that allows it to be one of the major players worldwide and thus was assigned to be the specialist for many ETFs, particularly the BGI iShares. Hull is the market maker in the iShares S&P 500, iShares S&P MidCap 400, the iShares Russell 1000 Index and Russell 1000 Value index, and many others. (It is interesting to note that Goldman Sachs purchased SLK in 2000. Shortly before the SLK purchase, Goldman Sachs acquired Hull Trading Group. Hence, two of the major players in ETFs are now owned by Goldman Sachs.)

Other Important Firms

Spear Leeds, Susquehanna Partners, and Hull Trading are the specialists for the majority of the ETFs listed on the AMEX. Other important firms too have contributed to the success of the 100 or so ETF products launched as of March 2001. They are listed here with a sampling of some of the ETFs that they make markets in. In addition, the Chicago Stock Exchange (CSX) trades a significant amount of ETF volume. Some of the CSX’s specialists are also listed along with a sampling of some of the ETFs they make markets in.

Wolverine Trading/AMEX

Broadband HOLDRS

Dow Jones U.S. LargeCap Growth streetTRACKS

Dow Jones U.S. SmallCap Value streetTRACKS

Morgan Stanley Internet streetTRACKS

KV Execution Services L.L.C./AMEX

Fortune e50 Index

Pharmaceutical HOLDRS

*I remember receiving a call from someone representing Hull Trading many years ago in response to sending a resumé. The gentleman asked if I had expertise in stochastics and multivariate analysis. I said no. He asked if I could program in C and in Pascal languages. Starting to feel totally unqualified by this time, I said no. He asked if I had experience in statistical arbitrage. I said no. Did I get an interview? No! But watching Hull’s meteoric rise in the trading markets was not too much of a surprise after learning that it tends to look for those who are adept with technology and mathematics.

Select Sector SPDR Consumer Staples
Morgan Stanley High-Tech 35 Index streetTRACKS
Select Sector SPDR Basic Industries
Dow Jones U.S. LargeCap Value streetTRACKS
Dow Jones U.S. SmallCap Growth streetTRACKS
Dow Jones Global Titans streetTracks
Market 2000 HOLDRS

AIM Securities/AMEX

MSCI iShares Australia
MSCI iShares Austria
MSCI iShares Canada
MSCI iShares Italy
MSCI iShares Malaysia

AGS/STR/OTA/AMEX

Telecommunication HOLDRS
Software HOLDRS
Select Sector SPDR Utilities
Select Sector SPDR Industrial

Rock Island/CSX

Financial Sector SPDR
Energy Sector SPDR
Technology Sector SPDR
Biotech HOLDRS

Sydan/CSX

SPDRs
Pharmaceutical HOLDRS
Wireless HOLDRS
Morgan Stanley Internet streetTRACKS

Dempsey/CSX

Nasdaq 100 Index Shares
Russell 2000 Value
Russell 2000 Growth

In Part II detailed information tables show each ETF, along with a comprehensive display of data, rankings, and information.

MAJOR PLAYERS IN INDEXING OVERALL

ETFs and mini stock index futures are only two (albeit important) aspects of the trillion-dollar indexing phenomenon. Several other very large participants, although not currently involved in the ETF or futures side of indexing, play a dominant role that cannot be ignored. Some have been mentioned already. Exhibit 2.1 gives a picture of how big some of the players are.

We also cover some of the major equity derivatives players—those that are active in index arbitrage and program trading—in the section on index arbitrage.

Exhibit 2.1 Leading Passive and Enhanced Index Managers, June 30, 2000

Company	Total U.S. Institutional Tax-Exempt Assets (billions of dollars)
Barclays Global Investors	\$525.6
State Street Global Advisors	337.5
TIAA-CREF	110.7
Vanguard Group	92.7
Deutsche Asset Management	92.4
Mellon Capital	74.6
Northern Trust Quantitative	59.9
J.P. Morgan	48.1
Fidelity	46.1
Dimensional Fund	24.8
Alliance Capital	24.7
Prudential Insurance	20.7
PIMCO (Pacific Investment Management)	20.5
Lincoln Capital	20.2
Merrill Lynch Asset Management	19.1
World Asset Management	16.8

Source: Data from Pension and Investments, September 4, 2000.

3

THE INDEXES

As of March 1, 2001, there were approximately 100 ETFs and HOLDERS. Many cover key industry benchmarks such as the Standard & Poor's Indexes, Russell Indexes, and Dow Jones Products. Others are less well known, cover narrow-based sectors, or are so new that they do not yet have much operating history. Given time and the right market conditions, the volume and asset bases of these products will grow substantially. In this chapter, I give some details of the major indexes that are either key benchmarks or have ETFs tied to them that have attracted a large number of assets or trading volume. For example, the SPY, which tracks the Standard & Poor's 500 Composite Index, is the largest of the ETFs, with assets of nearly \$25 billion. Its average daily volume is about 7 million shares. The S&P 500 is also a key benchmark and has the most money indexed to it, so it will obviously get more attention than other less established indexes.

STANDARD & POOR'S

Standard & Poor's is the financial services segment of the McGraw-Hill Companies, which have provided independent and objective financial information, analysis, and research for nearly 140 years. It is also recognized as a leading provider of equity indexes. Investors around the globe use S&P indexes for investment performance measurement and

as the basis for a wide range of financial instruments, such as index funds, futures, options, and, of course, ETFs. Its flagship index, the S&P 500 Composite, is one of the most popular indexes in all of finance and one of the key benchmarks for money manager performance. Over 400 companies around the globe have licenses with Standard & Poor's for their index products. The influence and name recognition of the S&P 500 is unparalleled in finance.

S&P 500 Index

Key Statistics on the S&P 500, March 2, 2001

Mean market value	\$ 21.0 billion
Median market value	\$ 8.3 billion
Largest company market value	\$441.0 billion
Smallest company market value	\$773.0 million ¹

The original S&P index was a weekly index of 233 U.S. stocks, first published in 1923 (see the timeline at the back of the book). By 1941 the index had grown to 416 issues. And by 1957 it had grown to 500 issues and evolved into what we now know as the S&P 500 Composite.

The S&P 500 Index is a capitalization-weighted index that tracks the performance of 500 large-capitalization issues. The total value of all the companies in the index as of this writing is about \$11 trillion and represents about 75 percent of the total capitalization of the entire U.S. stock market (usually measured by the Wilshire 5000 Index, which contains over 6,000 stocks). The correlation between the S&P 500 and the gigantic Wilshire 5000 index is quite high: nearly .97, despite having substantially fewer stocks. The investment returns between the two indexes have also been similar over the 29 or so years that both indexes have been available. Furthermore, of the \$1.4 trillion indexed in the United States, about \$ 0.9 to \$ 1.1 trillion is indexed to the S&P 500. Each year, thousands of money managers have the single-minded goal of outperforming the S&P 500. Few accomplish this goal. Although the S&P 500 is not perfect, it provides an excellent measure of the stock market.

Over the years, S&P 500's complexion has changed. Thirty years ago, it was a tribute to industrial America (then the "new economy"—and now the "old economy"). IBM, AT&T, GM, and Kodak graced the top spots in the index. GE was number nine. By the late 1970s, six of the top 10 issues were oil companies. In 2000, only one oil company was in the top 10 (ExxonMobil), and four of the top spots were taken by the high-tech companies Cisco, Intel, Microsoft and EMC (see Exhibit 3.1).

Exhibit 3.1 The Ten Largest Stocks in the S&P 500: A Three-Decade Snapshot

1969	1979	1989	2000
1. IBM	IBM	Exxon	General Electric
2. AT&T	AT&T	General Electric	Cisco
3. General Motors	Exxon	IBM	ExxonMobil
4. Eastman Kodak	General Motors	AT&T	Microsoft
5. Exxon	Amoco	Philip Morris	Pfizer
6. Sears	Mobil Oil	Merck	Citigroup
7. Texaco	General Electric	Bristol Myers Squibb	Wal-Mart
8. Xerox	Standard Oil	Du Pont	AIG
9. General Electric	Chevron	Amoco	Intel
10. Gulf Oil	Atlantic Richfield	Bell South	EMC Corp

In early 2000, technology composed about one-third of the capitalization of the index. The downdraft in technology issues during 2000–2001 reduced that concentration to the 20 percent level.

Calculating this popular index is relatively easy; maintaining it is another task entirely. It is a capitalization-weighted index. This means you take the number of shares of a stock, say General Electric, and multiply by the stock price. (Put another way, capitalization is how much in dollars it would take to buy every share of General Electric.) GE has 9.9 billion shares outstanding and trades at about \$43 per share. Multiplying the two yields a capitalization (also known as *market cap* or *market value*) of \$425 billion as of March 2001. Cisco Systems has nearly 7.1 billion shares outstanding and trades for \$22 per share, giving it a market cap of \$156 billion. S&P adds up the market caps of these and the other 498 names in the index and comes up with a number of about \$11.0 trillion. That number is then divided by the divisor (approximately 8,900) to give the S&P 500 composite value: about 1,235 as of March 2001. The divisor changes in response to changes in the index. To ensure continuity, S&P adjusts the divisor every time one stock is substituted into the index in the case of merger activity.

The stocks in the S&P 500 Index are determined by a combination of general guidelines and a nine-member committee headed up by David Blitzter, the vice president and chief economist at S&P and chairman of the Standard & Poor's index committee. When any stock is considered for adding to the index, Blitzter's committee makes the final decision. In 1999, there were 30 changes in the index, and in 1998 there were nearly 50.

General Guidelines for Adding Stocks to the S&P Indexes

- *Market value:* S&P indexes are market value weighted.²
- *Industry group classification:* Companies selected for the S&P indexes represent a broad range of industry segments within the U.S. economy.
- *Capitalization:* Ownership of a company's outstanding common shares is carefully analyzed in order to screen out closely held companies.
- *Trading activity:* The trading volume of a company's stock is analyzed on a daily, monthly, and annual basis to ensure ample liquidity and efficient share pricing.
- *Fundamental analysis:* The financial and operating conditions of a company are rigorously analyzed. The goal is to add companies to the indexes that are relatively stable and keep turnover low.
- *Emerging industries:* Companies in emerging industries and new industry groups (industry groups currently not represented in the indexes) are candidates as long as they meet the general guidelines for adding stocks.

General Guidelines for Removing Stocks from the S&P Indexes

- *Merger, acquisition, or leveraged buyout:* A company is removed from the indexes as close as possible to the actual transaction date.³
- *Bankruptcy:* A company is removed from the indexes immediately after Chapter 11 filing or as soon as an alternative recapitalization plan that changes the company's debt-to-equity mix is approved by shareholders
- *Restructuring:* Each company's restructuring plan is analyzed in depth. The restructured company as well as any spin-offs are reviewed for index inclusion or exclusion.
- *Lack of representation:* The company no longer meets current criteria for inclusion or is no longer representative of its industry group.

S&P MidCap 400 Index

Key Statistics on the MidCap 400 Index, March 2, 2001

Total market value	\$816.0 billion
Mean market value	\$ 2.2 billion
Median market value	\$ 2.0 billion
Largest company market value	\$ 10.3 billion
Smallest company market value	\$102.0 million

The MidCap 400 measures the performance of the midsize company segment of the U.S. market. It consists of 400 domestic stocks chosen for market size, liquidity, and industry group representation. It is also capitalization weighted (market value weighted) and was the first benchmark targeted to mid-tier companies. The MidCap 400 index is used by 95 percent of U.S. managers and pension plan sponsors. About \$25 billion is indexed to the S&P MidCap 400.

S&P SmallCap 600 Index

Key Statistics on the S&P Small Cap 600 Index, February 2, 2001

Total market value	\$ 340.0 billion
Mean market value	\$ 566.0 million
Median market value	\$ 474.0 million
Largest company market value	\$ 3.0 billion
Smallest company market value	\$ 28.0 million

The S&P SmallCap 600 Index consists of 600 domestic stocks chosen for market size and liquidity. Liquidity measures are bid-offer spreads, share turnover, and share ownership. Like the MidCap 400 and the 500, the SmallCap 600 is capitalization weighted. The small-cap sector in the United States has captured the interest of institutional and retail investors over the past several years.

Subindexes

Each of the indexes described has subindexes based on the two primary styles of investing: growth and value. For example, the S&P 500 has a growth subindex named the S&P 500/Barra Growth Index and a value subindex called the S&P 500/Barra Value Index. Barra is a well-known quantitative group that provides innovative models, software, consulting, and money management services to its clients. In May 1992,

Standard & Poor's and Barra jointly released the S&P 500/Barra Growth and S&P 500/Barra Value indexes designed to track two of the predominant styles of investing in the U.S. equity market: growth and value investing. The subindexes are constructed by dividing the stocks in the S&P 500 according to each company's book-to-price ratio. The value index contains S&P 500 Index companies that have higher book-to-price ratios and vice versa for the growth index. ETFs are available on all three of the primary indexes, as well as the S&P/Barra subindexes.

NASDAQ

Key Statistics on the Nasdaq 100 Index, March 2, 2001

Total market value:	\$ 2.0 trillion
Median market value:	\$ 20.1 billion
Largest company market value	\$306.0 billion
Smallest company market value	\$ 2.7 billion

In the mid-1960s, the Securities and Exchange Commission (SEC) released a study that characterized the over-the-counter (OTC) securities market as fragmented and obscure. The regulator then put the National Association of Securities Dealers (NASD) in charge of fixing the problem with a mandate to automate the system. By 1968, construction began on an automated OTC securities system then known as the National Association of Securities Dealers Automated Quotation system (NASDAQ). Interestingly, that same year Gordon Moore and Robert Noyce founded a corporation by the name of Integrated Electronics, which went on to become Intel Corporation, one of the greatest of many success stories that came out of the Nasdaq stock market. Even more intriguing was that a few months after Intel was born, computer scientists at the Advanced Research Project Agency (ARPA) and Bolt, Beranek, and Newman invented and implemented a way for computers to be networked, creating the precursor to today's Internet. On February 8, 1971, Nasdaq's system began its first official day of trading.

Less than 30 years later, in 1994, Nasdaq passed the NYSE in annual share volume. The Nasdaq Composite Index now contains over 4,800 companies representing a market capitalization of over \$3 trillion. The Nasdaq stock market now regularly trades over 1 billion shares per day and is home to dozens of corporate giants in technology, biotechnology, telecommunications, and other sectors. Frequently, you'll hear the media referring to the Nasdaq market as being up or down on any given day. And that little box in the corner of your TV

when you are watching CNBC or some other financial program usually quotes the Nasdaq Composite Index. However, there is another Nasdaq index. Called the Nasdaq-100, it is composed of the top 100 nonfinancial companies in the Nasdaq stock market. Hence, there is some confusion. At CME we are constantly getting calls concerning the futures contract and the cash Nasdaq composite—and therein lies the problem. The composite and the 100 are two different indexes! The QQQ is based on the Nasdaq-100 index, *not the composite*. The regular-sized and E-mini Nasdaq-100 futures are based (obviously) on the Nasdaq-100 Index, *not the composite index*. The NDX options contract at the CBOE is based on the Nasdaq-100, as is the MNX (mini-NDX option). In fact all derivatives and trading vehicles are based on the Nasdaq-100.

The Nasdaq-100 is a modified capitalization-weighted index. The calculations for a modified cap-weighted index are a bit deep, so we'll stick to the basics here. Modified cap weighting involves adjustments to the capitalizations of the various components of the Nasdaq-100 index. For example, at the end of 1999, Microsoft had an actual market cap of just over \$600 billion—about 5.9 billion shares outstanding at \$101 per share. Yet Mister Softee's (the street's nickname for Microsoft derived from its ticker symbol, MSFT) capitalization in the Nasdaq-100 calculation turns out to be \$389 billion as of December 31, 1999. How did MSFT lose \$211 billion of market cap? A little modification. Nasdaq adjusts the market capitalization of the members of the 100 so that no one individual issue would grow too large relative to the rest of the index. Still, Microsoft is a large percentage of the index, as are Cisco, Intel, Oracle, and some others. Without these modifications to their market values, they would in all probability account for too large a proportion of the index.

RUSSELL INDEXES

Key Statistics on Russell Indexes, March 2, 2001

	Russell 3000	Russell 1000	Russell 2000
Total market value	\$13.0 trillion	\$11.9 trillion	\$1.1 trillion
Mean market value	\$4.6 billion	\$12.6 billion	\$552.0 million
Largest company market value	\$441.0 billion	\$441.0 billion	\$4.1 billion
Smallest company market value	\$3.0 million	\$9.0 million	\$3.0 million

Frank Russell Company, one of the world's leading investment consultants, is also involved in performance measurement, analysis, and investment management. A few statistics underscore the role that Russell plays in indexing:

- Over \$100 billion is invested in funds using Russell indexes as a model.
- Investment Management Assets exceed \$50 billion worldwide.
- Frank Russell's consulting arm serves 200 major clients in 25 countries, with \$1 trillion in assets.
- Several Russell indexes have become benchmarks for specific areas of investment management. For example, the Russell 2000 Index is a well-known benchmark for the small capitalization sector.

In 1984, Frank Russell launched the first members of its family of U.S. equity indexes. Leading off was the Russell 3000 Index. Russell wanted to create an index that represented the entire U.S. equity market available to investors, so the index included 3,000 issues and adjusted for certain factors such as cross-holdings and the number of shares in private hands (which would not be available to investors in the marketplace float). These 3,000 companies represented about 98 percent of the investable U.S. equity universe. (It would take the addition of thousands more very small companies to include the other 2 percent—companies so small that the typical fund manager would have a rough time trying to deal in.) Russell further split the index, by capitalization, into several additional indexes. The Russell 1000 Index is composed of the largest 1,000 stocks (top third) in the Russell 3000 Index. The top 1,000 covers about 92 percent of the value of the entire 3,000-stock index. The Russell 2000 Index is the smallest 2000 companies in the Russell 3000 index and represents 8 percent of the capitalization of the index. Thus, all Russell indexes are subsets of the Russell 3000.

Recall that the S&P 500 is a pure capitalization-weighted index, and the Nasdaq-100 is a modified capitalization-weighted index. The Russell indexes are also capitalization weighted, but some adjustments have been made, and investors should be aware of them. The purpose of these adjustments is to exclude from market calculations the capitalization that is not available for purchase by investors. Member companies are ranked by their available market capitalization, which is calculated by multiplying the price by available shares. Available shares are shares that are available for trading. Unavailable shares

would fall under the category of employee stock ownership plans (ESOPs). If an ESOP owns a certain amount of the capitalization, then Russell adjusts for this in the calculation of the stocks capitalization. Cross-ownership of shares in a company (in the index) by another company (in the index) would also represent unavailable shares and would require adjustment by Russell.

In addition, unlike the Standard & Poor's indexes, which makes additions and deletions in an ongoing or as-needed fashion, Russell indexes are reconstituted annually to reflect changes in the market. When a stock leaves the index for whatever reason—bankruptcy, merger activity, or something else—it is not replaced. Hence, the Russell 2000, for example, may actually have fewer than 2,000 issues at any point in between annual reconstitution. Reconstitution (also called *rebalancing*) occurs on May 31 each year and becomes effective one month later.

Russell, like Standard & Poor's, has also developed style indexes based on the growth and value disciplines of investing. Russell uses price-to-book ratios and long-term-growth estimates in determining which issues fall into the growth or value camp. Hence, the Russell 3000, 2000, and 1000 have growth and value indexes. ETFs exist on all of these indexes. In addition, although CME does not have an E-mini Russell 2000 futures (as of yet), it does have a regular-size futures contract based on the Russell 2000 Index.

DOW JONES

Key Statistics on the Dow Jones Industrial Average, March 2, 2001

Total market cap	\$ 3.76 trillion
Average market cap	\$122.0 billion
Largest market cap	\$527.0 billion
Lowest market cap	\$ 11.0 billion

From a business point of view, the *Wall Street Journal* is probably one of the most perfect business franchises—one that could not be duplicated even if a competitor had billions of dollars to work with. It offers a product that people gladly pay 75 cents for every day. It is also a demographic dream, distributed in every major city and every major financial center in the world. Generally its readers have incredible buying capability; the average net worth of its readers is nearly in the seven figures. These demographics, along with vast readership (it usually ranks among the top three newspapers in terms of readership,

along with the *New York Times* and *USA Today*), allow it to receive top dollar for advertising space.

This perfect business was started by Charles Henry Dow and Edward Jones, and Dow Jones remains the publisher of the *Journal* to this day. The first edition of the *Wall Street Journal* appeared in July 1889. Dow and Jones, along with Charles M. Bergstresser, were previously employed by the Kiernan News Agency, but they all left Kiernan to start Dow Jones & Company in November 1882. Bergstresser's name was left out because it was too long despite the fact that he actually bankrolled the new firm. The *Journal* evolved out of a publication that Dow created called the *Customer's Afternoon Letter*, a daily two-page financial news bulletin that also covered an average of 11 stocks (nine of them were railroad issues). On May 26, 1896, the Dow Jones Industrial Average (DJIA), comprising 12 smokestack companies, made its debut. The DJIA grew to encompass 30 large industrial companies and became a popular business barometer. Of the 12 original companies, only one (General Electric) remains in the DJIA.

More than 104 years later, the DJIA is one of the world's best-known stock measures and consists of 30 of the largest and most liquid blue-chip stocks in the United States. The average is maintained by the editors of the *Wall Street Journal*. Although they have made several changes over the past 10 years, there were long periods when there were no changes at all. Recently, Microsoft and Intel were added to the average, and though some experts questioned the validity of Microsoft's being an "industrial" enterprise, they nevertheless welcomed the technological update to the well-known average.

The DJIA, unlike the S&P 500 (and many other indexes), is a price-weighted average. The highest price issues hold the most influence over the average. A stock split would, in effect, decrease a stock's influence. A 1 percent move in a \$90 stock like IBM would have a greater impact than a 1 percent move in a \$40 stock like Wal-Mart. On the other hand, if GE, for example, advanced one point and General Motors declined one point, there would be no affect on the DJIA. However, in a price-weighted index such as the S&P 500 or Russell 1000, that same scenario would cause an increase in the index because GE's market-cap is so much larger than General Motors.

Prices of the 30 issues in the DJIA are simply added up and divided by a divisor. (Adjustments in the divisor over the years have reduced it so much that it went below 1.00 a few years ago, effectively transforming the divisor into a multiplier!) Indeed, with the Dow divisor now standing at .17, each one-point move in a Dow component creates a more than five-point move in the index. Such exaggerations in price

movements have caught the eye of the investing public and the media. It is also one of the reasons (though a small one) that so little money is indexed to the DJIA relative to other indexes. Having only 30 components is another factor that the Street seems to dislike.

The ETF based on the DJIA, the DIAMONDS Trust, is one of the more successful ETFs. Excellent name recognition and great market making by Spear Leeds & Kellogg has engendered an ETF that trades over 900,000 shares per day and has \$2 billion in assets. ETFs exist on many other Dow indexes, including the Dow Jones Total Market Index, the Dow Jones Global Titans Index, and various style and sector indexes (all covered in Part II).

WILSHIRE ASSOCIATES

Wilshire Associates Incorporated is an independent advisory company that provides investment products, consulting, and tools to investment managers, fund sponsors, and individuals. Wilshire serves over 400 organizations in over 20 countries representing over \$2 trillion in assets.

Wilshire's flagship index is the Wilshire 5000 Total Market Index. It represents the broadest index for the United States equity market, measuring the performance of all U.S. headquartered equity securities with readily available price data. When it was originally created (1974), the index contained nearly 5000 stocks. But it has grown to over 6500 issues reflecting the growth in the number of companies in the United States as a whole.

In 1983, Wilshire introduced the Wilshire 4500 Index by removing the 500 stocks in the S&P 500 creating an index primarily of mid- and small-sized stocks. While no ETF exists for either of these indexes as of mid 2001, on May 31, 2001, the AMEX launched an ETF based on the Vanguard Group's Total Market Index mutual fund. This fund does track the Wilshire 5000. On its first day of trading, the ETF traded over 2 million shares—a great start by any standard.

MSCI INDEXES

These indexes were founded in 1969 by Capital International S.A. as the first international performance benchmarks. Benchmarking had made great inroads in the United States, and as investment overseas increased dramatically, the need for metrics on foreign markets became evident. Capital International's indexes facilitated the compari-

son of many world markets. In 1986, Morgan Stanley, the investment banking powerhouse, acquired the rights to these indexes. The result was Morgan Stanley Capital International (MSCI). MSCI's database contains nearly 25,000 securities covering 50 countries. It calculates nearly 3,000 indexes daily and services a client base of over 1,200 worldwide.

One of the advantages of MSCI and its foreign indexes is consistency. Although many foreign stock exchanges calculate their own indexes, comparing them to one another is difficult because of differences in representation of local markets, mathematical differences in formulas, adjustments, and reference and base dates. MSCI applies the same rigorous criteria and calculation methodology across many of its indexes, including emerging stock market indexes. Moreover, it tries to create indexes noted for depth and breadth of coverage in a particular country. Each MSCI country index attempts to have at least 60 percent of the capitalization of a country's stock market reflected in the calculation. All single-country indexes are capitalization weighted.

In 1996 the AMEX launched ETFs based on 17 MSCI country indexes. These products were affectionately known as WEBS—the acronym for World Equity Benchmark Securities. BGI was the manager of the WEBS products, and when it launched its iShares ETFs, the WEBS name was changed to iShares MSCI Index Fund Shares. The 23 iShares MSCI Index funds now listed on AMEX offer investors large and small vehicles for investing overseas.

Exhibit 3.2 summarizes and compares the indexes discussed in this chapter.

Exhibit 3.2 A Comparison of U.S. Equity Indexes

Index	S&P 500	S&P Mid Cap 400	S&P Small Cap 600	Russell 1000	Russell 2000	Russell 3000	Dow Jones Industrial Average	Nasdaq 100	Wilshire 5000
Total market capitalization ^a	\$10.9 trillion	\$815 billion	\$339 billion	\$11.9 trillion	\$1.0 trillion	\$13.0 trillion	\$3.6 trillion	\$2.0 trillion	\$13.2 trillion
Percentage of total U.S. market	77%	7%	2%	92%	8%	98%	18%	19%	100%
Market representation	Large cap	Mid-cap	Small cap	Large cap	Small cap	Overall market	Large cap	Tech, telecom	Overall market
Approximate number of members	500	400	600	1,000	2,000	3,000	30	100	More than 6,000
Weighting in calculation of index	Cap weighted	Cap weighted	Cap weighted	Cap weighted with float adjustment	Cap weighted with float adjustment	Cap weighted with float adjustment	Price weighted	Modified cap weighted	Cap weighted
Additions or selections of members	Committee/guidelines	Committee/guidelines	Committee/guidelines	Annual reconstitution	Annual reconstitution	Annual reconstitution	By committee	Annual rebalance	As needed
Growth and value-style indexes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes
ETF on underlying	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No
Futures on underlying	Yes—CME	Yes—CME	No	Yes—NYBOT	Yes—CME	No	Yes—CBOT	Yes—CME	No

^aAs of March 2, 2001.

Source: CME Index Products Marketing.

Part II

EXCHANGE TRADED FUNDS



Credit: *Grant's Interest Rate Observer*. Reprinted with permission.

4

ETFs: BEGINNINGS, ADVANTAGES, ATTRIBUTES

When Nathan Most was growing up in Los Angeles during the depression, he used to hike the trails all over the southern California mountains. “Southern California wasn’t like it is now. It was wide open. We’d go out into the desert and we could see the Milky Way.”¹ Seventy years later, Nate Most has not lost his zeal for exploring. In fact, this 86 year old could teach the financial engineers a few things. I originally thought of putting his story in Chapter 2 on the players but soon realized that his persona puts him at a level much higher.

In the late 1980s, the AMEX was struggling. The NYSE and the Nasdaq stock market were snapping up all the new listings. New listings to exchanges are like new products to a corporation. A blockbuster stock with heavy trading volume could contribute enormously to revenues. True, many Nasdaq issues did migrate to the Big Board (the NYSE). But many companies on the cutting edge of technology, biotechnology, and telecommunications chose to list or remain on Nasdaq. The Nasdaq would go on to bill itself as the “market for the next 100 years,” and the NYSE was arguably the most prestigious securities exchange in the world. Intel and Apple (and eventually Microsoft) and the rest of the techno-leaders were carrying Nasdaq to record volume. The Nasdaq’s holy trinity of Microsoft, Cisco, and Intel would at one time hold three of the top four spots in the S&P 500 and the top three issues in the Nasdaq-100 Index. The great bull market also lifted the NYSE record activity as well as seat prices. But the AMEX’s

volume was lackluster—around 20 million shares per day, according to Most. Most and colleague Steven Bloom were in charge of new product development in derivatives and were tired of seeing the equity side struggle to get new listings. Most thought that there had to be a better way. He had a background in commodities and was thus familiar with the idea of warehouse receipts (In commodities, you hear stories of people being fearful of getting 5,000 bushels of soybeans dumped in their driveway. In theory, if you did fail to sell your contracts before final settlement, the beans would delivered to a grain silo—storage warehouse facility, and you would have a piece of paper—a warehouse receipt—showing ownership of those 5,000 bushels of soybeans, thus sparing you discomfort.) Most and Bloom also knew about mutual funds and wondered if the two could be blended into a hybrid security—a warehouse receipt for shares of stock.

Most's idea grew after the crash of 1987. As expected, there were plenty of naysayers. The attorneys initially told him that the SEC would never approve this type of instrument. Most, who was in his mid-seventies at the time, finally convinced AMEX senior management to give it a try. The AMEX chose wisely and with Most and Bloom's guidance forged ahead. After years of legal wrangling and obtaining exemptions from the 1940 Securities and Exchange Act, things started moving. The AMEX enlisted Kathleen Moriarty, an attorney, who was enormously helpful in getting the product through the regulatory maze. The final push came from the head of the SEC, Richard Breeden, who reportedly liked the product. Most told me in an e-mail that he never thought it would be as successful as it turned out to be. No one told him ETFs would not work, just that approval from regulators would never come.

Most worked with State Street Bank to do the fund management and wanted a product that would compete with the hugely successful Vanguard Index products and the 20 basis point annual management fee. SSgA was the only one that came close at the time. Hence, the first ETF, the Standard & Poor's Depositary Receipt, is really a warehouse receipt for a basket of stocks (stocks in the S&P 500) in a fund! Nate was not just a player but the inventor of ETFs. There was no real rocket science here, no massively paralleled supercomputers crunching and optimizing, no huge research and development staff. There was merely a desire to see an idea through despite the obstacles and a willingness to do whatever it takes.

In late January 1993, against all regulatory odds, the AMEX launched the S&P 500 Depositary Receipts. Spiders were born, and the AMEX was on its way again. Volume on the first day was spectacular.

Average daily volume for the first full month of operation was over 300,000 shares per day. Within a few years, volume regularly hit 1 million shares a day, and the SPY ticker symbol was atop the AMEX most-active list constantly.

Most is still hard at work in the ETF field and at age 86 shows no signs of slowing down. In fact, after many years at the AMEX, he is now the president of the iShares Trust, which is responsible for nearly 60 ETFs managed by Barclays Global Investors. Bloom continues to preach the ETF gospel, now as a principal at Capmark, a consulting firm. Bloom also assisted the Nasdaq in launching the Nasdaq-100 Index Shares and with *Fortune* magazine in its indexes. He continues to work with ETFs on a worldwide basis.

In the year 2000 alone, over 60 ETFs were introduced. AMEX trades around 80 ETFs, and they are springing up all over the globe, as well as on other U.S. exchanges. In 1993, the SPDR trust had less than \$2 billion in assets. The assets of all ETFs in the United States are now over \$70 billion. And as the financial press and mutual fund rating outfits such as Morningstar broaden their coverage beyond traditional mutual funds and cover ETFs, interest is certain to snowball.

ETFs are available on nearly every major broad market, style, and sector indexes in the United States. Investors large and small have a large number of choices. BGI, SSgA, and other major players have put together an assortment that would make the finest index aficionado feel like a kid in a candy store.

Here are the reasons that ETFs (and E-mini stock index futures) have captured so many assets in so little time:

- Easy to understand
- Intraday trading access
- ETF strategies can be enjoyed by institutions as well as individuals
- Attractive and universally accepted indexes and sectors
- Low cost
- Liquidity
- No short-selling restrictions
- Trade on regulated exchanges
- Tax advantages

In the chapters that follow, we discuss these attributes in considerable detail. Then we discuss how ETFs are produced, move on to applications and strategies, and profile the major ETFs—those with a huge asset base or a large average daily trading volume or that are an important benchmark or sector. Many of the examples are drawn from

the most active and popular ETFs. Exhibits list all the important items an investor or trader needs to know about each ETF, including tickers, volume, bid-offer spreads, and fees. We then discuss additional products such as Merrill Lynch's HOLDRS products and international investing with ETFs. Later in this book, we put together some sample portfolios for investors of all risk-reward profiles. After all, that is one of the biggest questions novice investors ask: How do I put together a portfolio without a lot of knowledge of the investing process?

EASY TO UNDERSTAND

ETFs trade just like stocks. You can buy most of them in any increment you want (HOLDRS have a 100-share minimum), and they can be traded out of any brokerage account or margin account, including online brokerage firms. They are elegant in their simplicity. They combine the attributes of mutual funds and individual equities. They are two-dimensional; the only thing the investor cares about is up and down, as opposed to the options trader, who has to think in four dimensions (up, down, time, and volatility). Instead of trying to choose from the 10,000 mutual funds currently available, some of which have confusing multiple classes (e.g., Class A, B, or C shares), ETFs narrow the field considerably and therefore simplify investors' decisions immensely.

The popular S&P 500 Spiders (SPY) demonstrate the simplicity of these products. The SPY mimics the S&P 500, which is currently trading at around 1,300. At the same time, the SPY is trading at 130, one-tenth the size. Spiders are designed as securities with a market value approximating one-tenth the value of the underlying index. A word of caution here: Not all ETFs are priced at one-tenth the value of their respective indexes. The QQQ, for example, which tracks the Nasdaq-100 Index, is currently at 50, while the underlying index is at 2000. Hence, the QQQ has a market value of one-fortieth of the underlying index (a two-for-one split in early 2000 effectively changed the value from one-twentieth to one-fortieth). As an illustration, if the S&P 500 were to advance 10 percent from 1300 to 1430, the SPY would similarly advance about 10 percent, to 143. The investor would receive virtually the same rate of return as the index and the same rate of return as if he had bought a standard index mutual fund that mimics the S&P 500, minus a few costs.

INTRADAY TRADING ACCESS

Several years ago, I decided to invest some money in a popular mutual fund. I wrote out the check on a Sunday evening and mailed it Monday morning. By the time the check arrived at the mutual fund and I received my shares, it was Friday. It was just my luck that the momentum players were in the market in full force, and the broad market had advanced dramatically over the week. By Friday, the S&P 500 was about 5 percent higher than it had been five days earlier.

One of the most powerful advantages of ETFs is the ability to buy or sell them throughout the day, much as you would a typical stock. There is no waiting for the 4:00 EST close of the NYSE to determine what you'll pay for your shares, no waiting for the mail, no waiting for the back office processing (as efficient as it is), no restrictions on switching in or out of your fund. Make a phone call to your stock broker or a point-and-click through your on-line broker, and you're invested in the broad market or sector of your choice. True, constant turnover in the form of day trading or actively trading ETFs can defeat the purpose of indexing, whose prime goal is to reduce costs. Nevertheless, the flexibility and the freedom to adjust positions, especially for registered investment advisers or institutional investors, is compelling.

APPEAL TO A BROAD RANGE OF INVESTORS

Whether you are the manager of a billion-dollar pension fund or a smaller retail investor armed with only \$2,500 in capital (but a strong opinion on the market), there is an ETF and a strategy for you.

Let's say you manage a pension fund, and part of your fund is indexed to the Russell 2000. You think that an overheated market will cool over the near term, and you want to tilt (i.e., weigh your portfolio toward a certain style) your portfolio more toward the value end of the Russell 2000, since value stocks tend to outperform their growth brethren in down markets. The manager could accomplish this by purchasing an ETF, specifically the iShares Russell 2000 Value shares. If an individual thought that the Internet economy was poised for an advance, she could purchase the Fortune e-50 streetTRACKS, which is an ETF comprising 50 leading Internet economy stocks, including Internet hardware, software, telecom, and e-commerce. Clearly, ETFs fill the needs of a variety of investors.

UNIVERSALLY ACCEPTED INDEXES (BENCHMARKS)

Add up the major index provider's product lines, and you have literally thousands of indexes. While many of these function as benchmarks for investors the world over, only a small subset of broad market indexes, style indexes, and sector indexes garners most of the attention. Indeed, of the trillions of dollars indexed in the United States and abroad, much of the indexed money finds its way into a very small number (compared to the total playing field) of benchmarks that are characterized by high visibility and recognition in the investment realm. ETFs cover each of these highly visible and important benchmarks.

LOW COST

Some of the advantages of ETFs are real standouts. Cost is one of them. Despite rising asset bases and the concomitant economies of scale, many mutual funds have shown rising, not falling, expenses over their operating history. On the other hand, the bargain basement costs of most ETFs would impress even the most ardent cheapskate. Exhibits 4.1 and 4.2 illustrate the incredibly low-cost structure of ETFs.

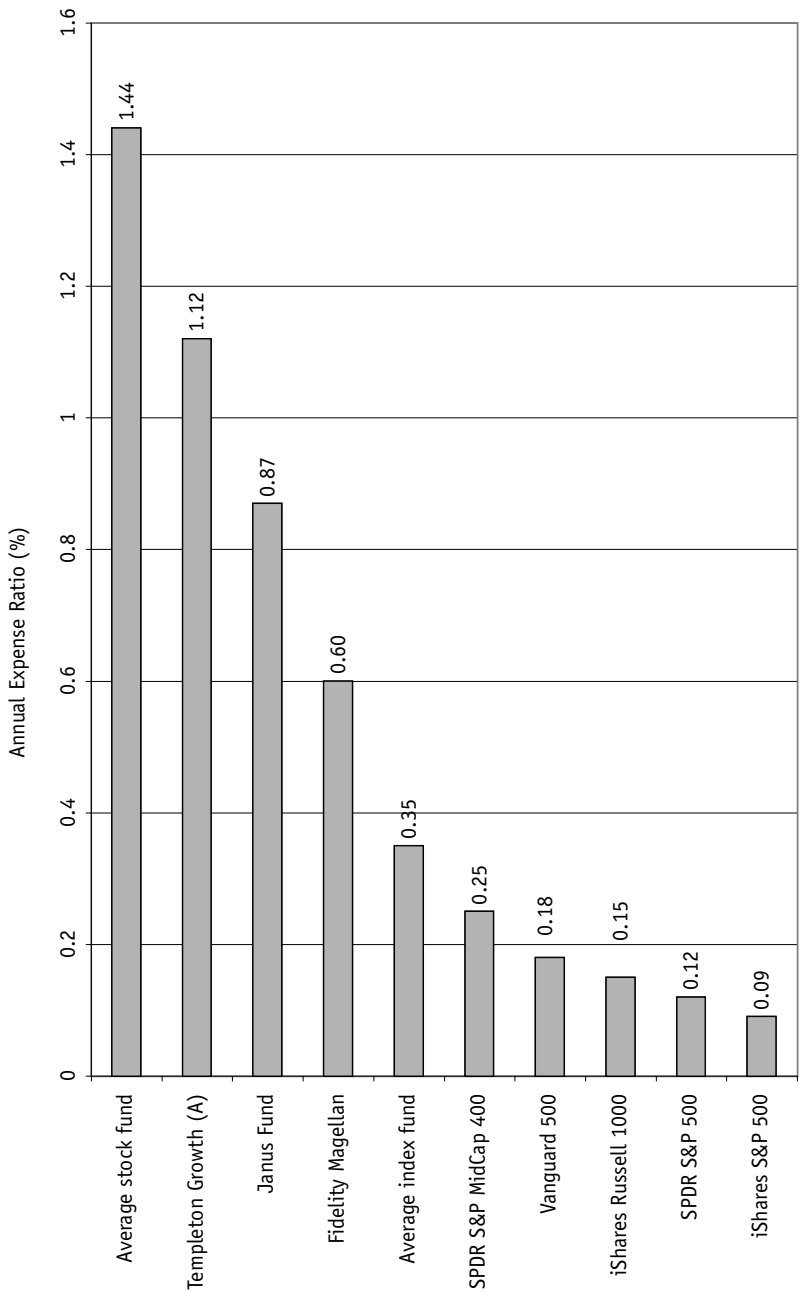
Zeroing in on the broad-based indexes, the evidence is overwhelmingly in favor of ETFs when considering costs. The typical broad-based mutual fund is approximately 10 times more expensive than its ETF counterpart. If you take away any lesson from this book it is this: *Costs matter!* Saving 50 to 100 basis points per year over the course of an investing lifetime can mean a substantial amount of money.

LIQUIDITY

One characteristic evident in most of the U.S. financial markets is liquidity. In the U.S. stock market, it is easy to transact blocks of 10,000, 50,000, or even 100,000 shares of stock for many of the issues in the S&P 500 and the Nasdaq-100. Most institutional firms like Bear Stearns, Goldman, Morgan, and Merrill Lynch have block trading desks that regularly transact 100,000 shares or more. In short, buying or selling 500,000 shares of GE or Microsoft is not a difficult task. On the other hand, transacting that many shares of a typical mid-cap or small-cap issue might take some finessing.

When discussing ETFs, eventually the question comes up: Given their relatively short history, isn't liquidity a concern? Two of the major

Exhibit 4.1 Annual Expenses of Various Funds and ETFs



Source: Fund Prospectuses

Exhibit 4.2 General Cost Comparisons: Mutual Funds and ETFs

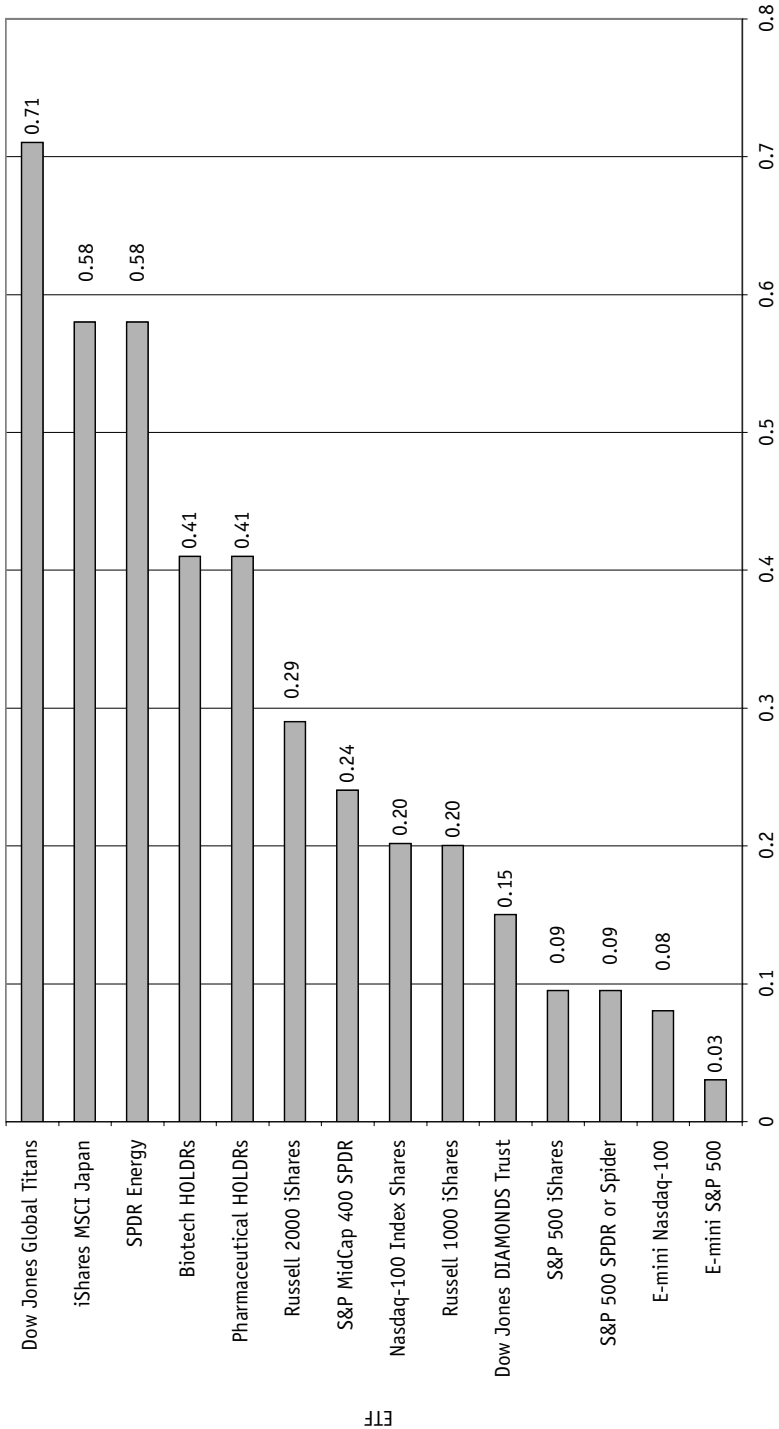
	Annual Expense Ratios (in basis points)	
	Exchange Traded Funds	Mutual Fund
Broad-based	9–20	144
International	50–99	194
Sector	20–60	166
Style	18–25	133–154

Source: Morningstar Mutual Fund 500, 2000 ed. (Chicago, 2000), p. 36.

determinants of liquidity are bid-offer spreads and the size (or depth) of those spreads. If you had access to quotes and you brought up the market for General Electric, your screen would tell you that the market was 42.20×42.30 , 500×500 —meaning that the highest bid for GE is currently 42.20 and the lowest offer is 42.30. The size of the bid and offer is 500×500 . In other words, there are 50,000 shares (500 is shorthand for 50,000—you must add two zeros) bid at 42.20 and 50,000 shares offered at 42.30. In reality, GE's size would probably say 999×999 (i.e., the market is deeper than 100,000 on both the bid and the offer sides). Compare this to the quote I once saw on Dairy Queen, which traded as a public company before Berkshire Hathaway bought the company recently: INDQA: $34 \times 35\frac{1}{2}$, 2×2 . This was a bid-offer spread of $1\frac{1}{2}$ points—large enough to drive a Lincoln Navigator through—and a depth of only 200 shares! Many of the large-cap stocks in the S&P 500 have bid-offer spreads of one-quarter point or less. The most liquid issues (e.g., GE, IBM, Wal-Mart) have bid-offer spreads of 12 cents or less. The size is usually five to six figures, meaning that you can transact 50,000 to 100,000 shares at the bid or offer.

I remember the first time I pulled up a quote on SPY. I was astounded: SPY $92 \times 92\frac{1}{8}$ (decimalization had not arrived yet), 999×999 . This meant that Spiders were more liquid than virtually all individual stocks in terms of bid-offer spreads *and* depth. I was amazed. I also didn't believe it. So I made a few calls, and each contact confirmed the depth of the market. One individual, who was very familiar with Spear Leeds & Kellogg, the specialist in SPY on the floor of the AMEX, added that you could probably do 500,000 SPY at the bid or offer or very close to it! Spiders were less than five years old at the time, and their liquidity rivaled the top tier large-cap stocks like GE, IBM, and Wal-Mart! Exhibit 4.3 shows some detailed comparisons of bid-offer spreads and size for various ETFs and a few stocks for comparison.

Exhibit 4.3 Bid-Offer Spreads in Selected ETFs and E-Mini Stock Index Futures



Note: Spreads determined from random sampling, November 2000 through March 2001.

Exhibit 4.4 SPY Bid-Offer Spread
Distribution, January 1993–December 1999

Range between Bid and Offer	% of Total
1/64–1/16	0.83
5/64–1/8	10.41
9/64–3/16	67.15
13/64–1/4	20.99
17/64–5/16	0.36
21/64–3/8	0.14
Greater than 3/8	0.12

Clearly, not all ETFs share the same depth of liquidity as the S&P 500 Spiders; however, the specialists in many of these ETFs have done an excellent job in providing liquidity and depth to the market. As a general rule, the more money following an index, the tighter the bid-offer spread and depth. It is also the bid-offer spreads of the underlying stocks in the index that are of critical importance in determining liquidity. Market conditions play an important role too; extremely volatile markets nearly always produce wider bid-offer spreads. Hence, markets are not always tight, even in the most liquid securities. Exhibit 4.4 illustrates a frequency distribution of the SPY bid-offer spread. It shows that 99 percent of the time, the bid-offer spread was one-quarter point or less. This includes some of the more volatile markets in history, including the severe sell-offs in 1997 and 1998 during the Russian and Asian financial crises.

NO UPTICK RULE ON ETF SHORT SALES

It's no surprise that narrow, deep markets attract a large number of investors. However, two prerequisites for critical mass (aside from quality market makers) in the marketplace are the presence of a pool of speculators and the existence of large institutional hedgers. If either is missing, bid-offer spreads will be a large chasm. True, speculators who can't wait for the opening bell love to go short securities as much as they go long. Institutions (and retail traders too) also need the ability to short securities or futures without obstacles. With stocks, there is the well-known short-sale uptick rule: you need an uptick in a stock's price to initiate a short sale. Like stock index futures, ETFs do not require an uptick to initiate a short sale. Thus, all traders can quickly

and efficiently go short as easily as they go long. An investor with holdings in technology, health care, or utilities could short ETFs as a hedge against his holdings. If a large institution was prohibited from using futures (unfortunately, some are, despite the manifold benefits they offer), the investor could short ETFs to protect against an adverse move in his portfolio.

TRADE ON REGULATED EXCHANGES

Nearly all existing ETFs in the United States trade on the AMEX. However, other exchanges, eager to share in a hot product, are beginning to list ETFs. In the fall of 2000, the Chicago Board Options Exchange (CBOE) listed an ETF on the well-known OEX index (the S&P 100). In December 2000, the NYSE listed an ETF on the S&P Global 100, which comprises some of the largest capitalization issues across the globe. In addition to the low costs and excellent liquidity, investors, especially smaller retail accounts, are attracted to exchange traded instruments because of what I call the credibility element. U.S. security and commodity exchanges have several layers of regulatory protection. Anything that trades on the AMEX, NYSE, or CBOE is subject to the scrutiny of the SEC. In addition, these exchanges have in-house surveillance and compliance and audit departments to help ensure the integrity of the markets. In short, the average investor has considerable trust in the U.S. markets.

On the other hand, large, sophisticated institutional investors are active on exchanges but also in off-exchange, OTC, and interbank markets. These are markets where regulation sometimes is nonexistent. But given the resources, deep pockets, and contacts of the average institutional investor, wading in the currents outside regulated exchanges is commonplace.

TAX ADVANTAGES

Indexing is one way to help mitigate the burden of taxes on investment returns. ETFs beat the average mutual fund in tax efficiency, and because of their unique structure, they are more tax efficient than even the typical indexed mutual fund. In a declining market, for example, a traditional open-ended mutual fund manager may sell securities to raise cash to meet redemptions. Selling usually results in that proverbial “taxable event”: a capital gain for the fund and tax regulations of investment companies (mutual funds) that force funds to pass

Exhibit 4.5 Capital Gains Distributions: SPY and Selected Mutual Funds

	SPDR	Vanguard Index 500	Fidelity Magellan	Washington Mutual Investors	Investment Company of America	Mutual Shares
1993	0.03	0.03	6.50	0.39	0.75	1.26
1994	0.00	0.20	2.64	0.41	0.60	0.91
1995	0.01	0.13	4.69	1.09	0.91	2.56
1996	0.12	0.25	12.85	1.20	1.03	1.74
1997	0.00	0.59	5.21	1.66	2.60	1.58
1998	0.00	0.42	5.15	2.60	2.94	1.29
1999	0.00	1.00	11.39	3.11	3.04	1.58
2000	0.00	0.00	4.69	2.5	2.08	2.51
Cumulative, 1993–2000	0.16	2.62	48.43	12.96	13.95	13.43
% pretax return (5 years)	99.0	95.7	83.8	83.6	85.5	76.5

Notes: Capital gains distributions are in dollars.

Magellan's net asset value has averaged around 100 over the past five years. Its distributions are thus not as high as they appear here.

Source: Morningstar and SPDR prospectus.

all capital gains on to investors. Most ETFs, though, have tax advantages because of a redemption-in-kind or payment-in-kind mechanism. Qualified participants (specialists, institutional investors) are able to redeem ETF shares for shares in the underlying stocks. No cash changes hands, as in the case with mutual funds. This creation and redemption process (discussed in Chapter 5) does not result in a taxable event for the ETF (it may cause a taxable event for the creator or redeemer, but not for the ETF itself). Although in-kind mechanisms abate taxes, they do not eliminate them altogether. If the ETF has to sell positions as a result of a change in the underlying index, the resulting capital gains or losses will be passed down to investors (see Exhibit 4.5). Taxes also apply to capital gains and losses when ETF positions are offset. So a trader who bought the SPY at 120 and sold it six months later will pay tax on the appropriate capital gain (short term). All dividends and interest realized by the ETF will also be passed down to the investor. Nevertheless, given that ETFs track a particular index, portfolio turnover is dramatically lower within ETF structures than the average mutual fund.

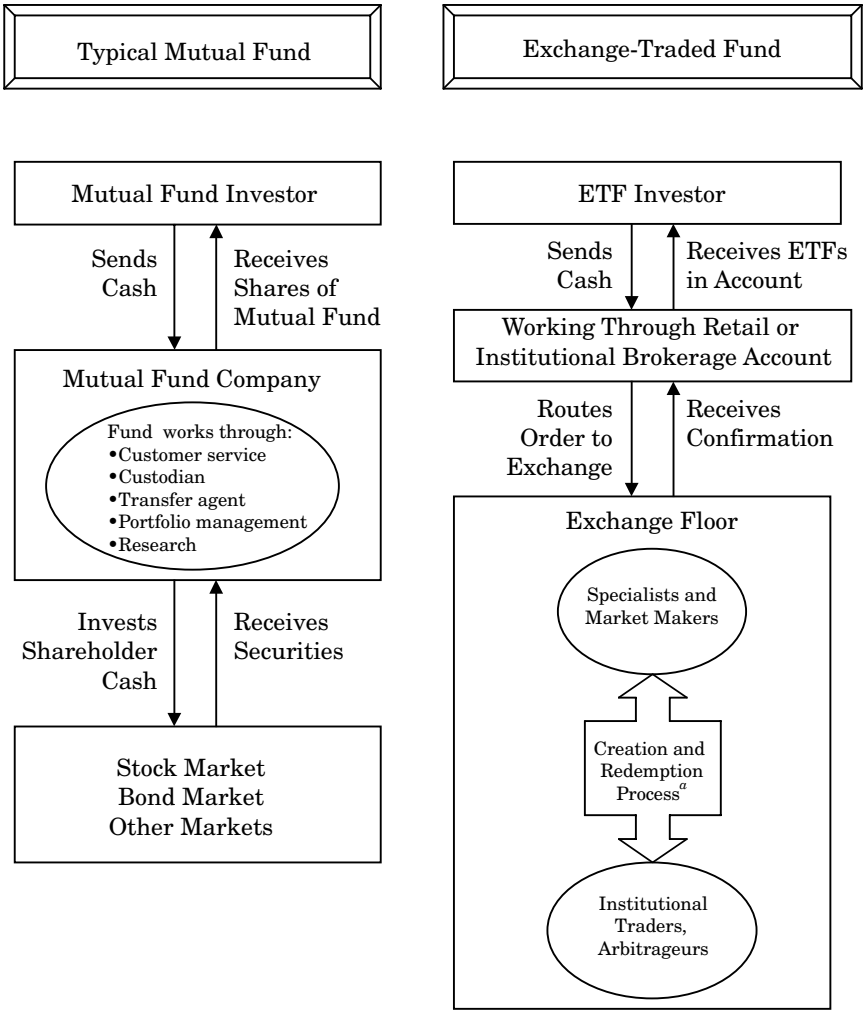
CONCLUSION

ETFs are attractive for a variety of reasons, but the real drivers to their popularity are a combination of very low costs, excellent liquidity, and their important role in helping investors battle against burdensome taxes. Because ETFs blend the attributes of indexing and the key advantages outlined in this chapter, it is not hard to see why they have amassed \$70 billion in assets so quickly. Exhibits 4.6 and 4.7 summarize the comparisons between ETFs and traditional mutual funds.

Exhibit 4.6 Comparing Attributes: ETFs and Mutual Funds

	Exchange Traded Funds	Mutual Funds
Intraday trading	Investors can trade ETFs throughout the trading day. As with stocks, they can use market, limit, stop, and applicable order types.	Mutual funds are purchased at net asset value only at 4:00 P.M. EST.
Fees	Annual expense fees are very low, ranging from .09 to .99 percent.	Annual expenses usually range from .12 to 2.5 percent.
Commissions	Like stocks, a commission will be charged to ETF investors when buying or selling.	No commissions are charged to buy funds, but many funds charge sales loads.
Tax advantages	Structure and low turnover result in lower taxes in general.	While index mutual funds experience low turnover, actively managed funds have dramatically higher turnover.
Short selling	Short selling is allowed; no uptick is required.	In general, short selling is not allowed with mutual funds.
Redemption	In-kind redemption results in ETFs' being exchanged for an underlying portfolio of securities—not usually a taxable event.	When funds sell holdings, the taxable event is created, and gains or losses must be reported.
Margin trading	ETFs, like stocks, can be margined.	Margin is generally not allowed for the typical user.

Exhibit 4.7 Contrasting ETF and Mutual Fund Investing



^aUsually requires a minimum of 50,000 shares.

5

DETAILS: ETF STRUCTURES AND THE CREATION- REDEMPTION PROCESS

Exhibits 4.6 and 4.7 illustrated the many differences between traditional mutual funds and ETFs, but there are also important structural differences among ETFs. As easy to understand and trade as these products are, ETFs can be like fancy sportscars: fun to drive, but you might not want to tinker with what's under the hood. Of the 100 or so ETFs currently available, three primary structures prevail:

- Exchange traded unit investment trusts
- Exchange traded open-end mutual funds (or managed investment companies)
- Exchange traded grantor trusts

The SPY, MidCap SPDRs, QQQs, and DIAMONDS are actually *unit investment trusts* (UIT) that trade on the AMEX trading floor. They fall under the Investment Company Act of 1940 (40-Act) and thus have a few SEC exemptions. The holdings of UIT ETFs must completely replicate the holdings of the underlying index; there can be no optimizing. (Some index funds do not buy all the issues in an underlying index but instead *optimize* a portfolio to behave as closely to the index as possible without owning 100 percent of the components. For example, many total stock market index funds mimic the Wilshire 5000 Index, but none that I am aware of buys each of the more than 6,000 stocks in the index. Researchers find an optimal subset of the 6,000 issues using statistical sampling methods and can get virtually all the

returns with fewer than half the stocks.) Lending of the ETF's portfolio of securities is also not allowed under a UIT structure; dividends paid by the underlying stocks cannot be reinvested and are usually paid to fund holders on a regular basis.

BGI's iShares and the Select Sector SPDRs are structured as *open-end indexed mutual funds* (or managed investment companies). This type of fund too falls under the guise of the 40-Act. Open-end companies generally are free from some of the restrictions that UITs have. They do not have to replicate the underlying basket or index completely. They can reinvest dividends when they are paid out. In truth, most of the iShares funds do replicate their underlying indexes. However, the iShares MSCI products are actually optimized baskets of international indexes. They do not buy every issue in the index. Open-end companies also can lend out their securities (which is done at a fee) and thus collect extra cash flow. They also have more freedom to deal in other types of securities or financial instruments such as derivatives.

The third type of ETF structure is the *grantor trust*. The holding company depositary receipts (HOLDR) products developed by Merrill Lynch that trade on the AMEX floor fall under this category. HOLDRS give an investor ownership in a basket of stocks of 20 companies. Each HOLDR started with a basket of 20 companies, but because of merger and restructuring in some of the component stocks, some HOLDRS now hold fewer than 20 companies. Odd lotters need not apply; investors are required to buy no fewer than 100 shares. Given that the Biotechnology HOLDR trades at 130, the \$13,000 minimum price is a bit steep for smaller investors. HOLDRS are not regulated investment companies like the two previous types of ETFs. HOLDR owners receive all dividends on their shares and annual reports, and they have voting rights. They can also redeem HOLDRS for a small charge, creating a position in each of the 20 or so stocks in the instrument. However, HOLDRS are fully invested in the underlying securities; there is no investment optimization here as in open-end ETFs. HOLDRS are also prohibited from lending securities. Exhibit 5.1 summarizes the three main ETF models.

THE CREATION AND REDEMPTION PROCESS

The creation and redemption of ETFs basically involves exchanging ETF "shares" (there are no certificates issued for ETFs; everything is a book entry) for a portfolio of stocks or exchanging a portfolio of stocks

Exhibit 5.1 ETF Structures

ETF Characteristic	Exchange Traded Unit Investment Trust	Open-End Investment Company	Grantor Trust
ETF product example	SPY, MDY, QQQ	iShares, Select Sector SPDRs	HOLDRS
Registered investment company under Investment Company Act of 1940	Yes	Yes	No
Voting rights regarding portfolio	Trustee	Adviser	Investor
Securities lending	No	Yes	No
Derivatives are allowed	No*	Yes	No
Optimize or completely replicate underlying index	Must fully replicate	Can optimize underlying	Must fully replicate
Dividends and income	Cannot reinvest dividends	Can reinvest dividends	Dividends distributed to investor
Investor ability to lend shares for short selling	Yes	Yes	Yes
Tax treatment and distributions	Enjoys in-kind status but distributes gains and dividends	Enjoys in-kind status but distributes gains and dividends	Treated the same as owning securities
Creation units and redemption	Yes—50,000 share minimum	Yes—50,000 share minimum	Yes—100 share minimum

*Not specifically disallowed, but many UITs not set up for use.

for shares. To be involved in the creation and redemption process, the minimum number of ETF “shares” is usually 50,000. At the current price of the Spiders, that represents \$6.5 million—chump change for a pension fund, but a major investment for most of us. So unless your net worth is considerable, you will get to enjoy trading or investing in ETFs, but you will not be able to exchange your Spiders for the underlying S&P 500 stocks and vice versa. The story that follows will demonstrate why the requirement is 50,000 shares.

Beyond a 50-mile radius of the Chicago Mercantile Exchange, many people confuse the major exchanges. People call CME (a futures exchange) to obtain stock quotes, to find out why S&P added or deleted a certain stock (we have no control over these issues), and to find out about ETFs even though they trade 800 miles away in New York on the AMEX. In trying to be a good citizen, I’ll talk to anyone. A person who owned 100 shares of the S&P 500 Depositary Receipts—SPY—called and inquired as to how he could convert his 100 Spiders into the stocks in the S&P 500. I held back a chuckle and explained that his 100 Spiders were worth \$13,000, and it would be mighty difficult to spread \$13,000 among the 500 members of the index in their exact proportion. Even if it could be done, he would have hundreds of stocks in fractional amounts (1.2 shares of McDonalds, 0.59 share of Bausch & Lomb, 0.45 shares of Campbell Soup, and so on). It would be a back-office nightmare, and the costs and fees would take his \$13,000 down considerably. The caller understood and finally admitted, “I guess when I don’t like the market anymore I could just sell the things.” I replied, “That’s the beauty of ETFs. No need for the headaches that come with owning 500 individual stocks. Let the big players who have the computers and processing resources to do that sort of thing.”

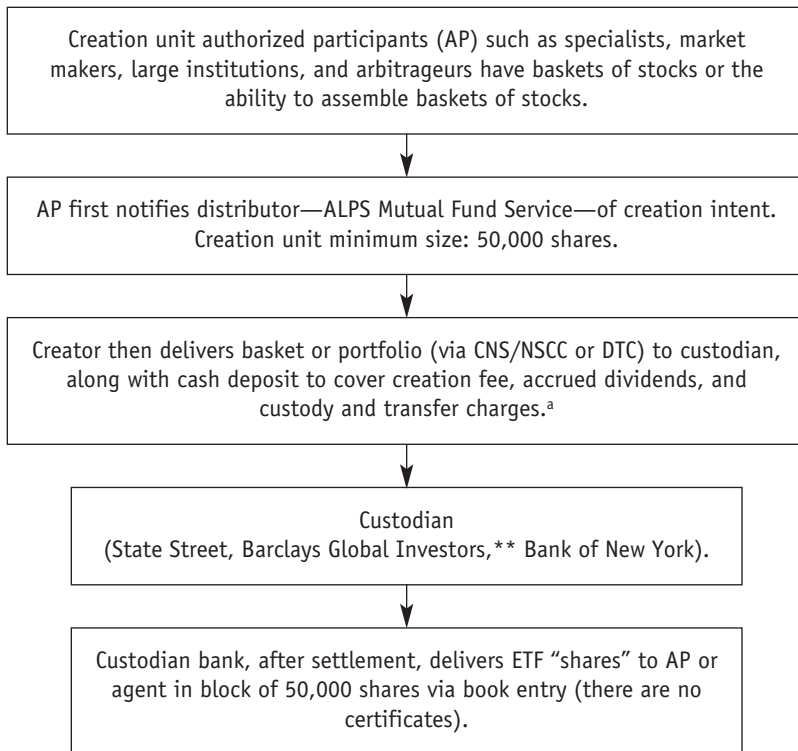
For the minute details of creation units and redemption units, I urge you to read the SPDR prospectus offered by the AMEX. Although it is written by legal experts and is loaded with jargon, it has some intriguing facts. Moreover, a knowledge of the process is beneficial. For those who want to do a little homework, I will outline the salient points with schematic diagrams and provide a creation example.

Because the vast majority of ETF traders and investors buy and sell in the secondary market on the floor of the AMEX, they do not realize that these instruments need a mechanism or process to be created and redeemed. ETFs are created by institutions and other large investors in block-size *creation units* of 50,000 (and multiples of 50,000). Creating 50,000 SPDRs, for example, requires that the creator deposit into the trust a portfolio of stocks that replicates or very closely approximates the composition of an underlying index—in the SPDR case,

the stocks of the Standard & Poor's 500 Index. Only authorized participants (APs) can create or redeem. Obviously, a large institution can qualify to become an AP or work through a firm that is an AP.

Redemptions in blocks of 50,000 can also be transacted. The AP deposits the 50,000 SPDRs into the trust, and the investor receives a portfolio of stocks that replicates the S&P 500. Creators and redeemers also pay creation and redemption fees and are responsible for accrued dividends, interest payments, and custodial and transfer fees for the underlying portfolio. Exhibits 5.2 and 5.3 illustrate the basic steps in the creation and redemption process.

Exhibit 5.2 Creation Unit Process

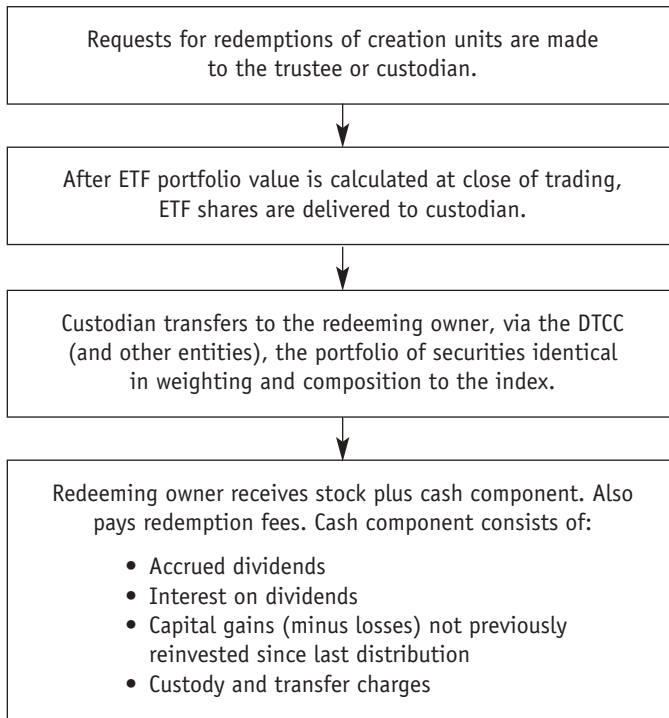


^aCNS/NSCC is the Continuous Net Settlement System of the National Securities Clearing Corporation. DTC is the Depository Trust Company. These two entities merged recently to form DTCC: Depository Trust and Clearing Corporation. DTCC acts as a clearing and depository agent for securities, including the portfolio of stocks delivered as part of the creation process.

**Custodial services for BGI's iShares is Investors Bank and Trust.

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Exhibit 5.3 Redemption Process



Several other parties are involved in the process including ALPs Mutual Funds Distributor, SEI Investments, the Depository Trust Company (DTC), and the National Securities Clearing Corporation (NSCC). The DTC and the CNS recently merged to form the DTCC. Because the paperwork and clearing process is enormous despite massive computer power, these entities are critical. They are responsible for the administration and back office procedures for the creation and redemption process. They also clear and settle trades, hold securities, and basically ensure the process goes smoothly. Imagine buying a basket of 500 securities and then having each one, with the exact share amounts, delivered to the custodian with near-perfect reliability. Imagine the record keeping involved with hundreds of stock certificates and hundreds of dividend payments four times per year. As investors, we buy and sell ETFs with the greatest of ease. However, behind the scenes, brokers, dealers, banks, trust companies, clearing corporations,

and other institutions constantly work together and maintain a relationship with the DTCC.

ETF “shares” are not issued like traditional stock certificates but rather are held in book-entry form. The DTCC or a nominee is the record owner of all ETF shares. Investors holding shares are beneficial owners who are on DTCC records (or its participants), so the DTCC acts as a depository for shares. The beneficial owners of these shares are not entitled to physical delivery of certificates, nor can they have ETF shares registered in their names.

A CREATION PROCESS EXAMPLE

Now we turn to an example of how the creation process would look using the Nasdaq-100 Index shares, the QQQ. Exhibits 5.2 and 5.3 were general illustrations. In this QQQ example, we add more detail.

The Entities in the Process

First, I’ll review the many entities involved in the QQQ creation process and their responsibilities.

Index Licensor: Nasdaq. The index licensor is responsible for the construction and calculation of the Nasdaq-100 index, the underlying index for the QQQs. The licensor is also responsible for all additions to and deletions from the Nasdaq-100 and rebalancing of the index. Each day Nasdaq calculates and distributes the index weightings to other players in the ETF arena.

Fund Adviser/Manager: Bank of New York. BNY is responsible for portfolio management and ensuring that it replicates the Nasdaq-100 index as much as possible. It also publishes the portfolio composition file (PCF) to the marketplace. This is a critical file that tells “creators” exactly what stocks and how many shares of each component will have to be delivered to the custodian. (See Exhibit 5.4.)

Distributor. For most ETFs, including the QQQs, the distributor is ALPS Mutual Fund Services or SEI Investments. All creation orders are processed and approved by the distributor before any portfolio deposits are made to the custodian. Any creation order instructions can be rejected by ALPS if they are not submitted in proper form. ALPS

Exhibit 5.4 Nasdaq-100 Portfolio Composition File Illustration

Company	Ticker	Price	Weighting in Index (%)	Dollar amount per Creation Unit	Number of Shares to Be Deposited with Custodian
1 Microsoft	MSFT	57	8.25	\$197,175	3,459
2 Intel	INTC	30.5	5.61	134,079	4,396
3 Cisco	CSCO	23.25	4.66	111,374	4,790
4 Qualcomm	QCOM	62.75	4.03	96,317	1,535
5 Oracle	ORCL	17.25	3.11	74,329	4,309
6 JDS Uniphase	JDSU	28.5	2.84	67,876	2,382
7 Amgen	AMGN	72.875	2.67	63,813	876
8 Sun Microsystems	SUNW	21.125	2.38	56,882	2,693
9 Veritas Software	VRTS	59	2.05	48,995	830
10 Ciena	CIEN	69.625	1.93	46,127	663
100 Inktomi	INKT	9.375	0.087	\$ 2,079	222

Net assets per share: \$47.80

Minimum shares: 50,000

Market value of creation unit: $\$47.80 \times 50,000 = \2.39 million

The portfolio composition file is at the heart of the creation process. The NSCC takes the PCF file and creation and redemption instructions sent by the custodian and bursts, or explodes, the file into securities transactions in each of the underlying Nasdaq-100 index components. The NSCC then provides transaction details to the authorized participant and the custodian. Settlement of bursted trades occurs in a normal three-day time frame via the NSCC's continuous net settlement system (CNS).

then sends creation or redemption instructions to the index receipt agent (the trustee).

Authorized Participant. The AP is usually a broker-dealer, professional trading house, institutional firm, or specialist. For QQQs, the specialist is Susquehanna Partners on the AMEX floor. (For orders executed on the Chicago Stock Exchange, the specialist is Dempsey).

Index Receipt Agent or Custodian. In the case of QQQs, the Bank of New York is the manager and the custodian (also known as the index receipt agent and trustee). It is responsible for the trade settlement for the ETF and the underlying basket. It also facilitates the creation unit–redemption unit process through the clearing process by sending the creation and redemption instruction file (from the distributor) to NSCC. Bank of New York also maintains and hold the assets: the Nasdaq-100 Index and all its components.

Clearing: National Securities Clearing Corporation (NSCC). NSCC has been renamed the DTCC after its merger with the Depository Trust. As an illustration, let's say the QQQ specialist wants to create more QQQs. Somehow, the 100 issues or names that make up the Nasdaq-100 need to get to the trustee in a reliable fashion. The NSCC clears and settles all the trades for the portfolio baskets, as well as the ETFs. The NSCC also receives the PCF from the trustee and disseminates the list of component stocks on this file. It accepts the creation and redemption instructions from the trustee in a process called *bursting*, it transacts the trades for each of the 100 stocks in the Nasdaq-100 Index in the exact share amount according to the PCF file and the number of creation units desired. The clearing and settlement are accomplished through the continuous net settlement system of the NSCC, which provides all the trade details to both parties: the AP and the trustee.

Transfer Agent and Depository: Depository Trust Company. BNY functions as the transfer agent for QQQs. These entities hold certificates in book entry form, perform record keeping, and provide fund distribution services.

An Analogy for How It Works

Obviously, there is a huge division of labor in the ETF creation process. But it is amazingly efficient and with 100 ETFs with \$80 billion in assets, the process is remarkably smooth. Perhaps using the Internet as

an analogy, this process is more easily understood. Many of us have downloaded files or data off the Internet. Think of the PCF as a file of securities or a list of stocks. Your browser connects you to the Internet, and a complex maze of switches and routers gets you to the destination or Internet address. With ETFs, the file (PCF) gets routed through intermediaries (ALPS, NSCC, and DTC) that direct the list of securities to the correct destination: the trustee.

Reduced to its most simplistic form, QQQ creation merely involves depositing a massive portfolio of securities into the hands of the trustee. A look at this portfolio will drive home just what is involved in QQQ creation.

The Illustration

Exhibit 5.4 shows an abridged illustration of the top components in the Nasdaq-100 portfolio composition file; it recreates the Nasdaq-100 basket exactly. On this particular day, Microsoft was the largest stock in the Nasdaq-100 and accounted for 8.25 percent of the index. Intel was the second largest and had a weighting in the index of 5.6 percent. Cisco was next with 4.66, and so on down the line with the other 97 components. The minimum creation unit size is 50,000 shares of QQQ. With the net asset value in early March 2001 of about \$47.80, the dollar value of a creation unit would be approximately \$2.39 million.

Assume for a moment you are an authorized participant and must deliver this \$2.39 million basket of 100 names to the custodian. How many Microsoft shares must you deliver? How much Intel and all the other components must the creator deposit? The calculations in the PCF are basic math. If Microsoft is 8.25 percent of the index, then 8.25 percent of the \$2.39 million, or about \$197,175, must be put into Microsoft. Since Microsoft was trading at \$57 per share on this same day, that would amount to 3,459 shares to be deposited. Intel would be 5.6 percent of the \$2.39 million, or \$134,080. At \$30 per share, this would amount to 4,396 shares. The entire PCF file is duplicated in a similar manner, and the NSCC makes sure that each share of all 100 members clears and settles for custodian and authorized participant. Any accrued dividends, cash settlement amounts, and the fee for creation are also settled by the NSCC.

ETFs and Tracking Error

Closed-end mutual funds have achieved some success over the past few decades. These funds have a fixed number of shares (open-end funds

can constantly issue new shares and grow larger and larger). One of the great conveniences was that they traded like listed stocks on the NYSE or AMEX, much as ETFs do now. One of the less desirable characteristics of closed-end funds was that they could trade at a premium or discount to their net asset value (NAV). In the mid-1990s, when emerging markets were white hot, I remember the Templeton Emerging Markets closed-end fund trading at 20 percent premium to the NAV of the stocks in its portfolio. At the time, Mark Mobius was running the fund, and he was considered one of the greats when it came to investing in far-away places like Thailand, Africa, India, and Russia. Mobius reportedly logged over 200,000 miles per year in his quest for potential investments in the last frontiers of investing. The phenomenal returns from some of these markets, along with the appeal of a great manager, apparently gave investors a perfect excuse to check their brains at the door (myself included). Investors, for reasons unbeknown to me, thought that it was worth paying 15 to 20 percent more than the underlying portfolio was worth; in effect, people were paying \$1.20 for \$1.00—not the sort of behavior that will land you on the Forbes 400 list. Similarly, some closed-end funds traded at severe discounts to their NAV. Exacerbating the situation was the fact that large traders and arbitrageurs had no in-kind redemption mechanism as they do with ETFs. For example, you could not easily buy “cheap” shares of closed-end funds trading at a significant discount to NAV and sell a basket of the more expensive underlying portfolio. This process is sometimes referred to as *arbitrage*—the process of simultaneously buying and selling similar or identical instruments to take advantage of price discrepancies. Buying gold in New York for \$300 per ounce and immediately selling it in London for \$301 per ounce is an example of arbitrage. It is usually a risk-free or nearly risk-free strategy and practiced by many major financial institutions worldwide. The activities of arbitrageurs, while profitable, also help generate liquidity in markets and, more important, help to keep prices in line. Because of regulations and the way closed-end funds were structured and managed, arbitrageurs had no mechanism by which they could take advantage of these price discrepancies as they could in other markets. The result is that large discounts and premiums to NAV persisted.

When ETFs began making their mark on Wall Street, discussion ensued as to whether they would exhibit the same characteristic. Two primary questions emerged: Would large discounts and premiums to NAVs occur, and would the price returns of ETFs mirror the returns on the underlying index? It turns out that while ETFs did trade at premiums and discounts to their NAVs, the discrepancies or “tracking error”

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(as the quantitative types on Wall Street referred to them) were very small. Traders and arbitrageurs were quite active in ETFs because of the ability to do in-kind creation and redemption of portfolios. This in-kind mechanism is one of the traits that helps set ETFs apart from closed-end funds. When tracking error does rear its head, arbitrageurs and institutions take advantage of these price discrepancies and thus help bring prices back in line, or close to it.

Still, as small as the tracking error is, any amount is enough to show up on the radar of a billion-dollar institution. Let's examine some real numbers to get a handle on tracking error:

1999 total return on S&P 500 Index	21.04 percent
1999 total return on SPY	20.39 percent
1999 total return on NAV	20.84 percent
1999 tracking error—ETF to index	−.65 percent
1999 tracking error—NAV to index	−.20 percent

If you had \$100 million (a small amount for an institution) invested in the ETF instead of the underlying stocks in the S&P 500 itself, you would have underperformed the index by 65 basis points. That is \$650,000. Interestingly, in 1998, the SPY actually *outperformed* the underlying index by 8 basis points. On a day-to-day basis, too, one can see that while ETFs track their NAVs and underlying indexes closely, tracking error does exist. In some of the less liquid ETFs, the tracking error is a bit larger. The last trade in a less liquid ETF may be much higher or lower than the current bid/offer spread and create the impression of even greater tracking error than those witnessed with the SPDR or QQQ. Investors with substantial sums of capital on the line need to keep a close eye on tracking error.

What are the reasons for tracking error?

- *Fees and Expenses.* Fees and expenses take a significant toll on the total return of a mutual fund. Although ETFs have some of the lowest annual expense ratios in the business, these fees cause some underperformance relative to their indexes over time. Higher fees usually lead to greater underperformance.

- *Portfolio replication.* Some ETFs are required to replicate their underlying index completely. Others, using computers and financial engineering, can closely approximate, or optimize, a portfolio to look very much like the actual index. Say you have an ETF that mimics the S&P 500. The ETF may own only 450 of the stocks in the index. The op-

timized basket of 450 issues may track the underlying S&P 500 very closely—sometimes maybe perfectly. But because it is missing some of the components, it will display tracking error from time to time.

- *Dividend reinvestment.* We have discussed the dividend reinvestment policies of the various ETF structures. UIT structures cannot reinvest dividends. They hold the payment in cash equivalents and distribute them to investors quarterly. The lack of daily reinvestment means that the return of the ETF will not perfectly match the total return of the underlying index. The extra cash is a drag in up markets, but serves as a small cushion in down markets. ETFs structured as open-ended investment companies, on the other hand, can reinvest dividends daily. Overall, the effect is very small due in part to the fact that the 18-year-old bull market in stocks has caused dividend yields to drop to historically low levels—about 1.3 percent in the case of the S&P 500 and virtually zero in the case of the Nasdaq-100.

- *Changes in the underlying index.* Over the past few years, there have been dozens of changes in the S&P 500. Every year without fail, the Russell indexes undergo their annual reconstitution, with hundreds of changes in their components. Although it is a positive thing for market barometers to be updated to reflect the times, it plays havoc with those managing index funds. Witness what occurred when Yahoo! and JDS Uniphase were added to the S&P 500. As investors saw the stocks rocket after the announcement of the addition of these two tech favorites to the index, behind-the-scenes fund managers were busy rebalancing billion-dollar portfolios, buying Yahoo! and Uniphase and selling hundreds of other issues to make sure that they duplicated the S&P 500 as closely as possible. The market impact and transaction costs alone take a toll on index funds. The impact is likely to be similar with ETFs. Timing issues also can cause tracking error in ETFs depending on when the new component stock is added to the index versus when it is added to the ETF underlying portfolio.

- *Nonsynchronous closing of ETFs with underlying.* Trading on the NYSE closes at 4:00 P.M. Eastern Standard Time (EST). Thus, the majority of the stocks in the S&P 500 stop trading at 4:00 P.M. However, some ETFs on the AMEX floor continue to trade for another 15 minutes. That additional 15 minutes can be a very lackluster trading period, but trading occasionally erupts during that window of time. Many earnings announcements are made after the NYSE closing, and when they exceed (or fail to meet) expectations, all hell can break loose while certain instruments continue to trade.

Imagine for a second that you are a registered investment adviser. You have clients, some of them indexed to the S&P 500 using ETFs. It is month end or quarter end. At 4:00 P.M., the S&P 500 closes at 1300. The SPY and the IVV (iShares S&P 500 ETF) are both trading very close to 130 (one-tenth the value of the S&P 500). At 4:01, a very important component in the index announces that it will not meet Wall Street's expectations. The ETFs have 14 more minutes to trade and might very well sell off, as happened several times in 2000 when a company made such announcements. The ETFs may close at 129.00 at 4:15 P.M. EST. Someone indexed via ETFs will have a one full point tracking error due to that 15-minute window of additional trading. When stocks open for trading the next morning, the index will play catch-up (all other things being equal, it would then trade at 1290). But—and this is a very important *but*—quarterly statements for the ETF holder will be based on the 4:15 close. The benchmark S&P 500 will use the 4:00 closing value. One point on a \$130 issue is .77 percent, and 77 basis points of tracking error that is artificially created because of this nonsynchronous close of the two instruments.

A similar problem occurs with stock index futures. When some large institutional investors that use futures as part of synthetic indexing strategies noticed how the nonsynchronous close of futures and the cash caused tracking errors in their portfolios, CME came up with a novel way of addressing the issue. To reduce or eliminate this tracking error, CME settles all domestic stock index futures to a *fair-value settlement* at the end of each month. Hence, no matter what futures do in the 15-minute window, they are settled according to their fair value. Instead of calculating the fair value itself, CME surveys or polls some of the largest institutions in the field and takes an average of the sample. The results of the fair value survey are then disseminated shortly after the 3:15 Chicago close.

A TRADING EXAMPLE

This trading example shows how institutional traders and market makers work in concert with supply and demand and how they interact with the creation and redemption process to provide a liquid trading environment for ETFs. It also demonstrates why ETFs show remarkably low tracking errors.

Let's assume that the Spiders (SPY) are trading at about 130.00. The market, as quoted by Spear, Leeds & Kellogg, the specialist in SPY,

is 130 bid, 130.13 offered. The size is 999×999 . This is an excellent spread and very good depth of market. Let's also assume that the NAV is 130.00.

A broker acting on behalf of a large institutional trader places an order to buy 100,000 shares of SPY "at the market" (the best available price—130.13). Again, we assume that Spear Leeds is on both sides of the bid and offer and decides to sell the broker the 100,000 SPY and is now short 100,000 SPY at 130.13. This is a common occurrence and part of the duties of the specialist, who is responsible for making two-sided markets and ensuring a fair and orderly market. This market was fair and orderly, and SLK discharged its duties by making a two-sided market. The institution is happy since it gets its SPY without moving the bid-offer and gets its shares all at one price in a very quick execution. However, SLK is now short 100,000 shares of SPY (remember that all specialists go long and short stocks as part of their role as market makers). It can hope that the market declines in the next few minutes or hours and that it can cover the short at a profit. It does run the risk that the market will rocket upward—not a comforting situation when short 100,000 SPY. I can assure you that SLK (as well as other specialists) did not become one of the top market makers on the NYSE based on hope. What would likely transpire is one of the following:

- SLK can hedge using S&P 500 futures and buy enough futures contracts to hedge or ensure against an adverse price move (upward in this instance) until it trades out of the 100,000 SPY position.
- It can hedge by buying the underlying portfolio at an NAV of 130. It would have to buy a \$13 million portfolio to hedge 100,000 SPY. After buying the stocks in the S&P 500, it could deposit them using the creation unit process to the custodian. Then the custodian would issue ETF "shares" (remember, in book entry form) for 100,000 SPY.

Here is a summary of the second choice:

1. SLK was originally short 100,000 SPY at 130.13 for a credit of \$13,013,000.
2. SLK was long 100,000 SPY at 130.00 via the creation unit process for a debit of \$ 13,000,000.
3. The net profit from the trade and hedge is \$13,000, minus expenses.

CONCLUSION

You can now begin to comprehend why tracking errors with some ETFs remain relatively low. If discrepancies become too large, arbitrage traders or institutions take advantage of these discrepancies in a nearly identical fashion to the example in this chapter. The act of “doing” arbitrage trades usually brings prices back in line.

6

GENERAL STRATEGIES USING ETFs

ETFs offer institutional and individual investors a wide range of strategies. Many are simple to implement for even novice investors. Others take a bit more understanding of the markets. Their intraday trading feature and the ability to sell ETFs short allow investors to implement strategies that are impossible with regular mutual funds. In this chapter, I briefly explore the following strategies:

- ETFs as core index holdings
- Active trading
- Hedging
- Cash equitization and cash management
- Sector Bets
- Filling benchmark or style gaps
- Gaining exposure to international markets
- Tax strategies

Later in this book, we will go over some of these in more detail.

ETFs AS CORE INDEX HOLDINGS

Given their low-cost, user-friendly nature, ETFs make great building blocks for core investment holdings. For many individual investors

(institutions too use them to build indexed portfolios), they offer a simple way to gain market exposure in broad-based indexes, international indexes, and various market sectors.

ACTIVE TRADING

I recently did a seminar for a large brokerage firm, and one of the account executives confessed to me that he had a client who made 30 trades a day in the Nasdaq-100 Index shares (QQQ). Short of being a full-time professional trader, 30 is quite a lot of trades. I have already noted that turnaround on the SPY is less than a month, and for the QQQ it is less than a week. Clearly, speculators love ETFs. One look at the volume statistics confirms this. While they are a great tool for active traders (although I am convinced futures would probably be better for the active trader—see Part 3), frequent transactions will eliminate most, if not all, of the advantages that ETFs bring to the table. Several trades per day or more mean higher transaction costs and lots of taxable events. Of course, if you are one of those with a nose for short-term market movements, more power to you. But remember, there are also proprietary trading desks at institutional firms like Goldman, Morgan, Merrill, Deutsche Bank, and so on that successfully trade for a living. There are also some active individual traders who make six-figure incomes trading in and out of stocks and ETFs. Beware, though; this is extremely difficult to accomplish. So do your homework before you quit your day job and think for a moment about that famous Clint Eastwood line in *Dirty Harry*: “Do you feel lucky?”

HEDGING

Another strategy practiced by investors (mostly institutional) is hedging. For the uninitiated, *hedging* is simply insuring against an adverse price move. For a billion-dollar portfolio manager or an investor with \$100,000 in a 401(k) plan, a bear market would be such an adverse move.

The great bull market of the past 18 years has nevertheless witnessed some gut-wrenching declines, especially the mother of all corrections in October 1987. The fall of 1997 and 1998 also displayed some fireworks on the downside. Those accustomed to initiating hedging strategies will find ETFs very simple to use. If you have a negative view on the market (short term or long term), you can sell short ETFs. Should

the market decline, the profits on the “short leg” would offset the losses on the portfolio. Of course, should the market advance, you will not participate in the rally; your “short hedge” will lose money, and those losses will offset the gains made by your portfolio. More on this later on.

CASH EQUITIZATION

Hugely popular with larger investors but very useful for individual investors too, cash equitization is a strategy that helps investors mitigate what is known as *cash drag*. While some fund managers prefer to have cash in the portfolio, especially asset allocation and balanced funds, others loathe too much cash; cash is not what they are paid to hold. But in the good old days, the checks would roll in the door, with some well-known funds taking in tens of millions of dollars or more each business day. With all that cash coming in, investing money in a timely fashion became a problem. If a fund held even small amounts of cash while the market was marching upward, it would underperform.

ETFs allow an investor to gain quick exposure to many popular indexes or sectors, thereby mitigating the drag caused by holding cash and other money market equivalents. For actively managed portfolios, ETFs could be employed until the manager decides which issues to add to the portfolio. In truth, this strategy is usually done with futures. But some indexes, such as the Russell 3000 Growth Index, have an ETF but not a futures contracts. In these cases, the ETF could prove a valuable strategic tool.

SECTOR BETS

Peter Lynch, the legendary fund manager of the Fidelity Magellan Fund, at one point owned over a thousand stocks (the average mutual fund owns far less). Often he could not satiate his appetite for a sector with just one or two stocks. For example, one savings and loan stock was not enough. When he became smitten with a sector, he bought as many of the issues in that sector as he could. And since he was at the helm of what was then the largest mutual fund in the world, he had no problem owning 20 or so savings and loan stocks. Even well-heeled investors would be hard pressed to try this tactic, and for the small investor it is impossible. This is not the case with ETFs. There are dozens of sector ETFs and HOLDERS instruments. Not sure which biotech wonder will provide the cure for cancer? Buy a whole biotech basket with

Biotech HOLDRS. You then own 20 of them, and if one company gets the thumbs down from the Food and Drug Administration because its new drug killed everyone in clinical trials, you have the benefit of diversity. Can't decide among Pfizer, Merck, and Bristol-Myers Squibb? Buy them all and a few others via Pharmaceutical HOLDRS.

Institutional investors can use ETFs to increase exposure to a specific segment of the market. Say, a small to midsize pension fund has 3.5 percent of assets in utility issues but desires a 5 percent weighting in this sector. There are three choices to help increase exposure: DJ US Utilities iShares, Utilities Sector SPDRs, and Utilities HOLDRS.

FILLING BENCHMARK OR STYLE GAPS

ETFs can be skillfully used to adjust style or benchmark gaps. Let's say a particular manager has a portfolio mix of large-cap growth and value stocks. She notes the wide gap in valuation between growth and value and thinks that value will outperform in the next few quarters or years. She could tilt her style toward the value end of the spectrum using an ETF such as the S&P 500/Barra Value Index, the Russell 1000 Value Index, or the Dow Jones US Large Cap Value streetTRACKS.

GAINING EXPOSURE TO INTERNATIONAL MARKETS

There are debates on the merit of investing overseas. Some in the field think that international investing provides added diversity and the opportunity to profit from opportunities abroad that have already been exploited in the more mature U.S. markets. Others disagree; they do not believe that overseas markets achieve diversification. The evidence they give is that the severe declines over the past 18 years in the U.S. markets have been accompanied by equally severe drops in international markets. Diversification means that when part of your portfolio zigs, the other part zags. When the U.S. markets fell precipitously in 1998 as a result of the long-term capital management fiasco and the Asian and Russian crises, overseas markets also dropped severely. Where was the diversification? cried the critics of overseas investing. Warren Buffett added more fuel to the fire when he commented that he did not necessarily need to look overseas for opportunities. There are plenty of international companies in the United States on the NYSE. For example, Berkshire owns 200 million shares of Coca Cola which does business in nearly 200 countries. Other critics say that the dual

risks involved in overseas investing of market risk and currency risk make the investment process even more difficult. Proponents, however, have offered up the *efficient frontier* concept, which shows that adding an international component can help returns while lowering risk.

No matter who you believe, investors have voted with their bank accounts. Hundreds of billions of U.S. dollars in international stocks reside in the portfolios of Americans. For the individual investor, ETFs offer a way to gain broad exposure across many overseas markets as well as individual countries through MSCI iShares series.

Jim Rogers, the famed hedge fund manager who has spent most of the past five years traveling around the world on a motorcycle (his experiences were chronicled in the excellent book *Investment Biker*), was fond of going long and short entire countries. Several years ago, he was quite bullish on Austria and bearish on certain other countries. With the MSCI iShares, it would be possible to “short countries” while going long other countries. Beware, though: Only seasoned investors with a knowledge of world markets should attempt this strategy. In addition, investors must acknowledge that investing in the correct country is only half the problem. They must get the currency correct too. If, for example, you invested in the MSCI iShares Japan and the underlying stocks did well but the yen currency dropped sharply in world currency trading, your gains would be trimmed by foreign exchange losses—not the kind of news an investor wants to hear. Overall, the international ETFs add yet another weapon to the investors’ arsenal.

TAX STRATEGIES

As I write this section, the year 2001 is three months old, and many sectors have taken a drubbing—technology and telecommunications especially. The Nasdaq-100 is 62 percent off its highs and the dot-com “space” is, well, empty space, with many issues off 95 percent or more. Tax selling appears to be in full force as investors position themselves to offset any gains with some losses to reduce their tax burden for the 2000 filing year.

ETFs can be useful in tax planning strategies and help investors sidestep the IRS wash sale rules, which disallow losses if substantially identical securities were bought within 30 days of the sale. I had a conversation with a woman who had good realized gains in Johnson & Johnson and Enron but had some fairly significant losses in MCI/Worldcom, AT&T, and Global Crossing. I suggested she consult her accountant or tax attorney for verification but that I was almost certain she

could sell her telecoms at a loss, which would help offset some of her gains. She objected on the grounds that she liked the telecom sector and strongly believed that the troubles with her three stocks were temporary, adding that she did not want to risk being out of the sector during the 30-day wash sale window. I responded by saying that if she sold her losers now, she probably would not have to wait 30 days if she bought an ETF that covered that sector since the fund holdings are substantially different from her holdings. Hence, she could offset some gains with losses and still retain exposure in the sector. She paused, then pulled out a day-timer the size of a Buick and jotted a few notes to call her accountant and check out telecom ETFs with her broker.

These strategies and many more are available to ETF investors. Later chapters further this discussion with more examples and some case studies.

7

ETF HIGHLIGHTS

This chapter takes a detailed look at 26 popular ETFs—those with either a huge asset base or large average daily volume relative to other ETFs. I also highlight a few that have smaller asset bases and daily turnover because of some other unique characteristics. These details are presented in ETF highlight (or summary) pages. Each major ETF has its own full-page summary and description, along with pertinent information for investors.

As of early 2001, over 100 ETFs were available, nearly all of them trading on the AMEX. One ETF trades on the NYSE and one on the Chicago Board Options Exchange. This number is certain to expand dramatically in the United States and overseas as well. In fact, Deutsche Bank, one of the largest index players in the world, recently launched ETFs in Europe. Vanguard, Pro-Funds, and Nuveen have all announced plans to introduce ETFs on some of their existing products or new ones.

The information presented here is comprehensive and would take substantial time and resources for the average investor to procure. These 26 ETFs represent the lion's share of volume and assets under management. The top four—the QQQ, S&P 500 Spiders, MidCap Spiders, and the Dow Jones DIAMONDS—represent over 75 percent of the ETF asset base as of early 2001. All major categories are covered,

including broad-based and style indexes, sector ETFs and HOLDRS, international ETFs and single-country ETFs.

GUIDE TO ETF HIGHLIGHT PAGES

The categories, terms, and information on the ETF highlight pages are outlined in this section and follow their order of appearance on the page. Anyone who has studied the Value Line Investment Survey or Morningstar will have no trouble following the highlight pages and can skip this guide. If you are a newcomer to ETFs or the investment scene, welcome. This guide references Exhibit 7.1, the S&P 500 Depositary Receipt.

- *Assets in trust*—the total assets held by the trust as of March 16, 2001 (HOLDRS assets are as of February 28, 2001). This number is subject to change. By publication date, the assets could be dramatically higher—or lower. Only a half dozen or so ETFs have assets above \$1 billion. Larger asset bases usually are accompanied by higher daily trading volume. SPY is the largest as of March 2001, with over \$23 billion in assets.
- *Average daily volume*—the average daily turnover for all of 2000, as well as a figure for most of first quarter 2001. SPY traded over 10 million shares per day as of March 21, 2001. If the ETF was recently launched and did not trade for the entire year, then the reference date is noted (such as December 2000 or February 2001). BGI launched dozens of new ETFs in 2000 starting in May and continuing with additional new products throughout the year.
- *Size of ETF share*—Some ETFs trade at approximately one-tenth the value of their underlying indexes, some at one-fifth the value. The QQQ trades at one-fortieth the value of the Nasdaq-100 Index. Hence, if the Nasdaq-100 trades at 2000, the QQQ will be priced at about 50.00 per share. The SPY trades at one-tenth the underlying S&P 500. If the S&P 500 index is at 1200.00, then SPY will be priced around 120.00.
- *Annual expense fee*—the amount the trust charges in fees per year (in percent). For ETFs, all expense fees are below 1.00 percent. Most are below .60 percent, and some are below .25 percent. At .12 percent, SPY is one of the lowest of all the ETFs (the

iShares S&P 500 has the lowest expenses: .09 percent). Shop around. Compare these fees to some of the traditional mutual funds you may own or other investments. *Caveat:* This fee does not take into account the commission you will have to pay a broker to buy and sell shares of ETFs.

- *Ticker, NAV ticker*—The ticker symbol (SPY) is what you need to get quotes from your broker or to place orders. In addition, many on-line services require a ticker symbol in order to provide you with charts or quotes. The NAV ticker symbol (SXN) allows you to get the intraday NAV of the underlying trust on certain quote systems. This figure should be very close to the actual price of the ETF (see the tracking error section in Chapter 5). These symbols are good on a Bloomberg terminal but might not be the correct symbols for other quote systems. Contact your quote vendor for details.
- *Trading hours*—the normal hours of trading. Many ETFs trade after the 4:00 P.M. EST close of the markets, and there could be significant price movement during this 15-minute window. Twenty-four hour trading is available in stock index futures but not with ETFs.
- *Bid-offer spread*—the bid-offer spread, in basis points, that is, the difference between the highest available bid and the lowest available offer. With SPY, the spread is usually a tight 10 to 15 cents. That spread on a \$120 stock would come out to be .10 to .12 percent, or 10 to 12 basis points for SPY. This spread was obtained by random sampling of markets at various times between November 2000 and March 2001.
- *Price*—the closing AMEX prices as of March 21, 2001. Remember that tracking error will exist between the ETF as it trades on the AMEX floor and the basket of underlying securities. Institutional trading, arbitrage, and excellent market making by the specialists usually keep the tracking error low.
- *Dividends*—ETFs may or may not pay a dividend. Most are in the March, June, September, and December quarterly cycle. Others pay dividends or distributions semiannually.
- *Began trading*—A handful of ETFs were around pre-1998; most have been launched in the past two years, and some have very short operating histories. Do not be surprised if you cannot find any data on one-year or three-year returns or trading histories.

SPY is the oldest. The Select Sector SPDRS, MDY, DIA, and iShares MSCI have been around longer than most other ETFs.

- *Structure*—There are three types of ETF structures: (1) unit investment trusts (UITs), (2) open-ended mutual fund or managed investment company, and (3) grantor trust. (See Figure 5.1 for a review.)
- *Manager*—the entity that manages the assets of the trust. State Street Global Advisors, Barclays Global Investors, and Bank of New York handle these duties for nearly all ETFs.
- *Specialist*—the primary market maker on the floor of the AMEX (or NYSE, CBOE) that is responsible for making a fair and orderly market. The market makers do a very good job overall in making markets. The success these instruments enjoy is due in part to the liquidity provided by market makers. Note that a significant amount of ETF volume trades at the Chicago Stock Exchange.
- *Top members*—the top 10 components of the underlying index and their percentage weights in that index. Given that some underlying indexes are composed of 2,000 or more issues, I cannot list them all. Also, the top 10 members are constantly in flux. Cisco was number one weighting in the S&P 500 for a day and has since fallen down the top-10 rankings dramatically. For HOLDRS, I have listed all the stocks in the ETF since the number is usually 20 or fewer (although the Market 2000+ HOLDR has 50 members).
- *ETF summary*—pertinent insight into the ETF or its underlying index as of the writing of this book.

BROAD-BASED INDEX AND STYLE ETFs

The broad-based index and style ETFs in Exhibits 7.1 through 7.10 do not require advanced knowledge of the investment process; they are designed to simplify the investment landscape. If you want exposure to a particular part of the market—say, small-cap value—you could merely purchase the iShares Russell 2000 Value ETF or the S&P SmallCap/Barra 600 Value ETF. If you are bullish, you enter an order to go long. If you are bearish, sell what you already own, or sell short to take advantage of a downward move. (Chapter 10 presents case studies on how to establish more complex positions, and Chapter 11 is dedicated to the subject of assembling portfolios of various ETFs as part of an investment program.)

Exhibit 7.1 ETF Highlights—Standard & Poor's 500 Depositary Receipts (SPY)

Assets in trust (March 16, 2001)	\$23.2 billion
Average daily volume (2000)	7,669,444 shares
Average daily volume (2001)*	10,318,675 shares
Size of ETF share	1/10th S&P 500 Index
Annual expense fee	.12%
Ticker	SPY
NAV ticker	SVX
Trading hours	9:30 A.M.—4:15 P.M. (EST)
Bid-offer spread	9 basis points
Price March 21, 2001	114.26
Dividends	Quarterly; March cycle
Began trading	January 1993
Structure	UIT
Manager	State Street Global Advisors
AMEX specialist	Spear, Leeds & Kellogg

*YTD March 21, 2001.

Top Members and Weightings in Underlying Index as of March 20, 2001

General Electric	3.9%	Wal-Mart	2.1%
Microsoft	2.7%	AIG	1.8%
ExxonMobil	2.7%	AOL Time Warner	1.6%
Pfizer Inc.	2.3%	Merck	1.6%
Citigroup	2.2%	IBM	1.5%

Summary

The S&P 500 covers about 78 percent of the market capitalization of the U.S. market. It is the key benchmark in this country for mutual funds and pension funds alike. In terms of assets, SPY is the largest of the ETFs. As far as liquidity, Spear, Leeds and other market makers can accommodate just about any order. SPY trades nearly 10 million per day, so it is an investor's and trader's dream. How important is this benchmark? Over \$1 trillion is indexed to the S&P 500. For 12 basis points a year, anyone can own the entire S&P 500. (And for those who find that budget really tight, BGI's S&P 500 iShares accomplishes the same goal for 9 basis points annually.)

Exhibit 7.2 ETF Highlights—Nasdaq-100 Index Tracking Stock (QQQ)

Assets in trust (March 16, 2001)	\$20.54 billion
Average daily volume (2000)	27,673,809 shares
Average daily volume (2001)*	63,487,000 shares
Size of ETF share	1/40th Nasdaq-100 Index
Annual expense fee	.18%
Ticker	QQQ
NAV ticker	QXV
Trading hours	9:30 A.M.—4:15 P.M. (EST)
Bid-offer spread	20 basis points
Price (March 21, 2001)	41.30
Dividends	NA
Began trading	March 1999
Structure	UIT
Manager	Bank of New York
AMEX specialist	Susquehanna Partners

*YTD March 21, 2001.

Top Members and Weightings in Underlying Index as of March 20, 2001

Microsoft	8.9%	Amgen	2.7%
Intel	5.4%	JDS Uniphase	2.7%
Qualcomm	4.5%	Sun Microsystems	2.3%
Cisco	4.5%	Dell Computer	2.1%
Oracle	3.1%	VoiceStream Wireless	2.0%

Summary

“Would’ve should’ve could’ve,” says the AMEX ad for the Nasdaq-100 ETF. All those stocks you wanted a piece of 5 and 10 years ago are now wrapped in a nice package. In less than two years, the QQQ, sometimes referred to as “Cubes,” has risen to the top of the charts in volume. This Nasdaq-100 ETF averages around 40 million shares per day. In asset size, it is the number two ETF, and despite the recent slide in the Nasdaq-100 Index, assets are poised to overtake the SPY in the not-too-distant future. Spreads are tight and widen only during violent moves.

Exhibit 7.3 ETF Highlights—Standard & Poor's MidCap 400 SPDR (MDY)

Assets in trust (March 16, 2001)	\$3.68 billion
Average daily volume (2000)	842,857 shares
Average daily volume (2001)*	1,125,265 shares
Size of ETF share	1/5 S&P MidCap 400 Index
Annual expense fee	.25%
Ticker	MDY
NAV ticker	MXV
Trading hours	9:30 A.M.—4:15 P.M. (EST)
Bid-offer spread	24 basis points
Price (March 16, 2001)	83.65
Dividends	Quarterly (March, June, September, December)
Began trading	May 1995
Structure	UIT
Manager	Bank of New York
AMEX specialist	Susquehanna Partners

*YTD, March 21, 2001.

Top Members and Weightings in Underlying Index as of December 29, 2000

Millennium Pharmaceutical	1.49%	Genzyme	.96%
Waters Corp	1.19%	DST Systems	.95%
Concord EFS Inc	1.11%	Univision	.94%
Idec Pharmaceutical	1.07%	Rational Software	.84%
Cintas	.99%	Cadence Design	.73%

Summary

In 2000, the S&P 500, the Dow, and the Nasdaq all had negative returns. With the vicious decline in technology and the market overall that year, there were few places to hide. The only major broad-based index showing a gain in 2000 was the S&P MidCap 400, which in fact outperformed its bigger brother, the S&P 500, by 23 full percentage points. MidCap SPDRs were a great way for investors to take advantage of this huge move in midsize companies. They are also a good vehicle for extending asset allocation beyond large stocks.

Exhibit 7.4 ETF Highlights—The Dow Jones DIAMONDS Trust (DIA)

Assets in trust (March 16, 2001)	\$2.24 billion
Average daily volume (2000)	1,394,000 shares
Average daily volume (2001)*	2,190,129 shares
Size of ETF share	1/100 Dow Jones Industrials
Annual expense fee	.18%
Ticker	DIA
NAV ticker	DXV
Trading hours	9:30 A.M.—4:15 P.M. (EST)
Bid-offer spread	15 basis points
Price (March 21, 2001)	96.21
Dividends	Monthly
Began trading	January 1998
Structure	UIT
Manager	State Street Global Advisors
AMEX Specialist	Speare, Leeds & Kellogg

*YTD, March 21, 2001.

Top Members and Weightings in Underlying Index as of December 29, 2000

JP Morgan	9.14%	ExxonMobil	4.89%
IBM	6.33%	Merck	4.01%
Hewlett-Packard	5.71%	United Technologies	3.93%
Johnson & Johnson	5.13%	General Motors	3.68%
Minnesota Mining	5.03%	Procter & Gamble	3.67%

Summary

The Dow Jones Industrial Average is the only major large-cap index covered in this book that is price weighted. It also has the fewest components. These two traits probably explain why less institutional money is indexed to the Dow 30, compared with the S&P and Russell indexes. Nevertheless, investors and traders alike are attracted to the DIAMONDS, which are among the top five most active ETFs on the AMEX in share volume and in terms of asset size. Name recognition and the venerable 104-year-old history are a plus. DIA trades over 1 million shares per day.

Exhibit 7.5 ETF Highlights—iShares Russell 1000 Index Fund (IWB)

Assets in trust (March 16, 2001)	\$206 million
Average daily volume (2000)	22,423 shares
Average daily volume (2001)*	50,842 shares
Size of ETF share	1/10 Russell 1000 Index
Annual expense fee	.15%
Ticker	IWB
NAV ticker	NJB
Trading hours	9:30 A.M.—4:15 P.M. (EST)
Bid-offer spread	20 basis points
Price (March 21, 2001)	60.00
Dividends	Quarterly (March, June, September, December)
Began trading	May 2000
Structure	Open-end mutual fund
Manager	Barclays Global Investors
AMEX specialist	Hull Trading

*YTD, March 21, 2001.

Top Members and Weightings in Underlying Index as of December 31, 2000

General Electric	4.0%	Merck	1.8%
ExxonMobil	2.5%	Intel	1.7%
Pfizer	2.4%	AIG	1.7%
Cisco	2.3%	Microsoft	1.4%
Citigroup	2.2%	SBC Communications	1.4%

Summary

Over \$14 billion is indexed to the Russell 1000. The total market capitalization represents about 90 percent of the U.S. equity market. Although it has nearly twice the number of issues as the S&P 500 (remember, Russell does not immediately add new issues but waits until the annual rebalancing, so you may have fewer than 1,000 issues), its correlation to the S&P is 99.4 percent. Still, some investors like the broader coverage of the Russell 1000. With only 6 months of trading history, the ETF has attracted a significant amount of assets and trades with very good liquidity.

Figure 7.6 ETF Highlights—iShares Russell 2000 Index Fund (IWM)

Assets in trust (March 16, 2001)	\$629.2 million
Average daily volume (2000)	115,563 shares
Average daily volume (2001)*	364,765 shares
Size of ETF share	1/5 Russell 2000 Index
Annual expense fee	.20%
Ticker	IWM
NAV ticker	NJM
Trading hours	9:30 A.M.—4:15 P.M. (EST)
Bid-offer spread	29 basis points
Price (March 21, 2001)	88.00
Dividends	Quarterly (March, June, September, December)
Began trading	May 2000
Structure	Open-end mutual fund
Manager	Barclays Global Investors
AMEX specialist	Susquehanna Partners
*YTD, March 21, 2001.	

Top Members and Weightings in Underlying Index as of December 31, 2000

Caremark Rx Inc.	0.4%	Amerisource Health	0.3%
Laboratory Corporation	0.4%	Enzon	0.3%
Invitrogen	0.3%	Investors Financial	0.3%
Health Net	0.3%	Astoria Financial	0.3%
Manugistics	0.3%	Gallagher AJ & Co.	0.3%

Summary

While the Russell 1000 and 3000 indexes are well known in institutional circles, the Russell 2000 also enjoys wide popularity among individual investors. Designed to be a benchmark for small-capitalization stocks, over \$20 billion is indexed to the Russell 2000. As such, its correlation to the S&P 500 is only about 76 percent. Despite the excellent relative performance of the S&P 500, there have been many periods when small-size issues excelled. When those times return, this ETF should shine. Although the Russell 2000 showed a decline for the year 2000, it outperformed the S&P 500.

Exhibit 7.7 ETF Highlights—iShares Russell 3000 Index Fund (IWV)

Assets in trust (March 16, 2001)	\$385.2 million
Average daily volume (2000)	48,548 shares
Average daily volume (2001)*	74,229 shares
Size of ETF share	1/10 Russell 3000 Index
Annual expense fee	.20%
Ticker	IWV
NAV ticker	NMV
Trading hours	9:30 A.M.—4:15 P.M. (EST)
Bid-offer spread	26 basis points
Price (March 21, 2001)	62.50
Dividends	Quarterly (March, June, September, December)
Began trading	May 2000
Structure	Open-end mutual fund
Manager	Barclays Global Investors
AMEX specialist	Hull Trading

*First quarter 2001.

Top Members and Weightings in Underlying Index as of December 31, 2000

General Electric	3.8%	Merck	1.7%
ExxonMobil	2.4%	Intel	1.6%
Pfizer	2.3%	AIG	1.4%
Cisco	2.1%	Microsoft	1.4%
Citigroup	2.0%	SBC Communications	1.3%

Summary

Not content with 500 or 1,000 stocks? The Russell 3000 is the broadest of the broad market indexes that has an ETF (as of January 2001, there is no ETF on the Wilshire 5000 Index). The underlying index contains just over 2,900 stocks (the ETF is optimized and contains about 2,760 issues). Owning this ETF will give you exposure to about 98 percent of the total capitalization of the stock market in the United States. So for 20 basis points, the ETF provides you with the vehicle to own virtually the entire universe of stocks in the United States. You'll have plenty of company too: \$52 billion is indexed to the Russell 3000.

Exhibit 7.8 ETF Highlights—iShares S&P 500/Barra Growth Index Fund (IVW)

Assets in trust (March 16, 2001)	\$125.9 million
Average daily volume (2000)	48,548 shares
Average daily volume (2001)*	57,055 shares
Size of ETF share	1/10 underlying index
Annual expense fee	.18%
Ticker	IVW
NAV ticker	NIJG
Trading hours	9:30 A.M.—4:15 P.M. (EST)
Bid-offer spread	18 basis points
Price (March 21, 2001)	55.390
Dividends	Quarterly (March, June, September, December)
Began trading	May 2000
Structure	Open-end mutual fund
Manager	Barclays Global Investors
AMEX specialist	Hull Trading

*YTD, March 21, 2001

Top Members and Weightings in Underlying Index as of December 31, 2000

General Electric	8.3%	AIG	4.0%
Pfizer	5.1%	Merck	3.8%
Cisco Systems	4.8%	Intel	3.5%
Wal-Mart	3.3%	Oracle	2.8%
Microsoft	4.0%	Coca Cola	2.6%

Summary

Until recently, investors had few options when it came to style investing or quantitative investment management. With BGI's iShares and State Street's streetTRACKS, the choices are numerous. Using basic quantitative methods (primarily price-to-book value), Standard & Poor's and Barra separated the growth stocks from the value stocks in the S&P 500 Index. This ETF replicates the growth stocks. Think of it as the S&P 500 with only the Microsofts, Pfizers, and Intels. Slower-growing value issues were put into the S&P 500/Barra Value index, which also has an ETF. From 1995 through 1999, Barra Growth had beaten Barra Value and the S&P 500. In 2000, though, Value trounced both indexes.

Exhibit 7.9 ETF Highlights—iShares S&P 500/Barra Value Index Fund (IVE)

Assets in trust (March 16, 2001)	\$374.1 million
Average daily volume (2000)	46,268 shares
Average daily volume (2001)*	79,871 shares
Size of ETF share	1/10 underlying index
Annual expense fee	.18%
Ticker	IVE
NAV ticker	NME
Trading hours	9:30 A.M.–4:15 P.M. (EST)
Bid-offer spread	20 basis points
Price (March 21, 2001)	59.00
Dividends	Quarterly (March, June, September, December)
Began trading	May 2000
Structure	Open-end mutual fund
Manager	Barclays Global Investors
AMEX specialist	Hull Trading

*YTD, March 21, 2001.

Top Members and Weightings in Underlying Index as of December 31, 2000

ExxonMobil	5.1%	Nortel Networks	1.7%
Citigroup	4.3%	Philip Morris	1.6%
SBC Communications	2.7%	Tyco International	1.6%
Verizon Communications	2.3%	Wells Fargo	1.6%
Royal Dutch Petroleum	2.2%	Morgan Stanley	1.5%

Summary

The returns in growth stocks for the latter half of the 1990s were outrageously high. The result was that many investors took their eyes off the rest of the investment landscape. In fact, value investors took a lot of heat in the latter part of the 1990s. Even Warren Buffett, who compounds money better than anyone else, took heat. Only when growth headed south in 1999 did investors once again take notice of value. Some proponents of value investing claim that value wins in the long run. This ETF represents the value side of the growth-value debate. It takes out the high fliers and leaves in issues like GE, ExxonMobil, and Citigroup. The Barra/Value ETF has about 390 companies in it. The other 110 of the S&P 500 are in the growth index. In addition, the value index is significantly less volatile than is its growth counterpart.

Exhibit 7.10 ETF Highlights—Other Broadbased and Style ETFs

ETF	Ticker	Expenses	Assets (millions)
Barclays Global Investors iShares			
S&P 500 iShares	IVV	.09%	\$2,460
S&P MidCap 400 iShares	IJH	.20	165
S&P MidCap/Barra Growth iShares	IJK	.25	137
S&P MidCap/Barra Value iShares	IJJ	.25	77
S&P SmallCap iShares	IJR	.20	199
S&P Small Cap/Barra Growth iShares	IJT	.25	26
S&P Small Cap/Barra Value iShares	IJS	.25	60
Russell 1000 Growth iShares	IWF	.20	153
Russell 1000 Value iShares	IWD	.20	166
Russell 2000 Growth iShares	IWO	.25	115
Russell 2000 Value iShares	IWN	.25	245
Russell 3000 Growth iShares	IWZ	.25	20
Russell 3000 Value iShares	IWW	.25	32
DJ US Total Market iShares	IYY	.20	61
State Street Global Advisors streetTRACKS			
FORTUNE 500 streetTRACKS	FFF	.20	49
DJ US LargeCap Growth streetTRACKS	ELG	.20	22
DJ US LargeCap Value streetTRACKS	ELV	.20	37
DJ US SmallCap Growth streetTRACKS	DSG	.25	13
DJ US SmallCap Value streetTRACKS	DSV	.25	23
HOLDRS			
Market 2000+ HOLDRS	MKH	NA	\$316

Note: Asset figures for Market 2000 HOLDRS are from February 28, 2001; all others are from March 16, 2001.

SECTOR ETFs

The sector ETFs include HOLDRS, Select Sector Spiders, and other sector ETFs that allow investors to fine-tune their holdings more aggressively. Starting with Exhibit 7.12, are highlight pages for six of Merrill Lynch's HOLDRS products, a few of the Select Sector Spiders, and a streetTRACKS ETF.

I previously mentioned HOLDRS as part of a discussion on various ETF structures. We need to return to these unique ETFs because they have an interesting history and a few quirks that investors should be aware of. Recent changes by Merrill Lynch have also mitigated some of the problems caused by these quirks.

In July 1998, the Brazilian telecommunications company Telebras split off and sold most of its operating divisions. The result was a mish-mash of a dozen companies (in ADR form) created from the parent company and dubbed "baby bras."¹

Many retail investors were mystified as to which of the ADRs to keep and which to discard. They understood Telebras but did not understand its progeny. Merrill thought perhaps investors would benefit from a vehicle that allowed all the pieces to be put back together. It repackaged the 12 baby bras ADRs into a structured product called Telebras Holding Companies depositary receipts (Telebras HOLDRS), with the ticker symbol TBH. It was an instant success. Assets were just under \$5 billion initially, and average daily volume quickly topped 1 million shares. Investors had their Telebras, and Merrill had a hit.

In September 1999, Merrill came back for more by launching Internet HOLDRS (ticker HHH). The timing was exquisite; investors could not get enough of the Net, and many lacked the resources to put together a diversified portfolio of very expensive Internet stocks, and at the time there were only a handful of mutual funds dedicated to this sector. Exhibit 7.11 shows the original and current issues in the Internet HOLDRS ETF. Notice first the share amounts. With HOLDRS, investors actually own shares in each component—in some cases, a single share. Each 100 HOLDRS, the minimum amount for purchase, give the buyer beneficial ownership in each stock. If a stock splits, the number of shares of that component will increase in the HOLDR. Investors receive annual reports from each member in the ETF (warn the mail delivery person), have voting rights (watch for proxy statements), and receive dividends. In addition, if a stock drops out, it will not be replaced. That is why some HOLDRS do not have 20 issues. The HHH has 17 because several members were merged with or acquired by other companies (some of the acquiring companies were themselves HOLDR components).

Exhibit 7.11 Internet HOLDRS Portfolio

Company Name	Original Share Amounts	Current Share Amounts
America Online Inc.	21	42
Yahoo! Inc.	13	26
Amazon.com Inc.	9	18
EBay Inc.	6	12
At Home Corp.	17	17
Priceline.com	7	7
CMGI Inc.	5	10
Inktomi Corp.	3	6
Real Networks	4	8
Exodus Communications	4	16
E*Trade	12	12
DoubleClick	2	4
Ameritrade Holdings	8	9
Lycos	4	0 ^a
CNET	4	4
PSI Net	3	6
Network Associates	7	7
EarthLink Network	2	6.23 ^b
Mindspring Enterprises	3	0 ^c
Go2Net, Inc.	1	0 ^d
Total number of companies	20	17

^aAcquired by Terra Networks and distributed.

^bAs a result of the Mindspring merger.

^cAcquired by EarthLink.

^dAcquired by Infospace and distributed.

Hence, for your investment, you get a basket of 17 Internet companies. You can also create and redeem HOLDRS in a similar fashion to the way you would create or redeem the SPY. So if you absolutely must take possession of those 6.23 shares of EarthLink, you pay the trustee (Bank of New York) a fee of \$10.00, and you'll receive your shares in EarthLink and the other 16 members of the Internet HOLDRS. The ETF highlight pages show the components and the percentage weighting of each component rather than the share amounts.

The Merrill HOLDRS products were a huge success. Early on, though, there were some growing pains. First, there was very little detailed information on the products. If you were well wired or had a Bloomberg terminal, you could dig up the details. But a retail investor

who would not think of shelling out \$1,500 each month for a Bloomberg terminal had to rely on a broker, make lots of phone calls, or search the Web, which had little information itself on the products. Then Merrill realized how popular HOLDRS had become and finally put up a Web site dedicated to HOLDR products only: www.holders.com. The first problem was solved. The second problem was a lot tougher.

In February 2000, Merrill launched the Internet Architecture HOLDRS (ticker symbol IAH) product. One of its components was Hewlett-Packard Corporation. A few months later, HP spun off a division called Agilent Technologies. Investors who owned the IAHs suddenly found themselves with about 2.7 shares of Agilent. Indeed, one investor called CME thinking perhaps we would know about this. (Remember that many people do not differentiate the exchanges, and this caller thought HOLDRS traded at the CME.) He was lucky. I knew because I had read something in the press around the time of his call. I told the caller that he actually owned HP as a result of buying the IAH. He was entitled to HP dividends, annual reports, proxy statements, and, of course, spin-offs! He had fewer than three shares of Agilent. I said, "It gets worse." He wanted to know how 2.7 shares of a spin-off could get worse. I said those three letters—IRS—and also mentioned a commission would be involved should he decide to sell his 2.7 shares. The commission would probably eat away most of the value of the shares. And for tax purposes, he would have to calculate a cost basis for those shares received as part of the HP spin-off. Part of the HOLDRS structure was that this kind of transaction must be distributed to the owner of the HOLDR.

Merrill realized the problems that small distributions were causing and certainly did not want to see the product suffer as a result of corporate distributions and IRS rulings. In November 2000, it announced that it would not distribute shares and fractions but would keep them in the trust as long as the merging or acquiring companies were in the same sector. Merrill also went the extra mile and put a cost-basis calculator on the HOLDRS Web site to assist investors with taxation issues pertinent to HOLDRS distributions. The second problem was thereby solved.

There are now 17 HOLDRS products (as of mid 2001). The most recent is the Retail HOLDRS. Look for more because investors have voted with their accounts. They like the flexibility that comes with being able to invest in one particular sector of the market. Exhibits 7.12 through 7.17 illustrate some of the more active HOLDR products. Later in Chapter 7, more details on the remaining products will be listed in spreadsheet form.

Exhibit 7.12 ETF Highlights—Biotech HOLDRS (BBH)

Assets in trust (February 28, 2001)	\$1.42 billion
Average daily volume (2000)	886,000 shares
Average daily volume (2001)*	1,069,171 shares
Annual expense fee†	\$8.00 per 100 shares
Minimum purchase	100 shares
Ticker	BBH
NAV ticker	IBH
Trading hours	9:30 A.M.—4:00 P.M. (EST)
Bid-offer spread	41 basis points
Price (March 21, 2001)	107.45
Options	Yes; AMEX/CBOE
Began trading	November 1999
Structure	Grantor trust
Manager	Bank of New York
AMEX specialist	Susquehanna Partners

*YTD, March 21, 2001.

† The custody fee for HOLDRS is \$2.00 per quarter per round lot, to be deducted from any cash dividend or other cash distribution. The trustee will waive any portion of the custody fee that exceeds the total cash dividend or distributions received.

Members as of December 31, 2000

Genentech	21.1%	Human Genome Science	3.3%
Amgen	17.3%	Sepracor Inc.	2.8%
Immunex	10.0%	Gilead Sciences	1.9%
Applera Corporation	9.9%	Affymetrix Inc.	1.7%
Biogen	4.6%	Biochem Pharmaceutical	1.7%
Idec Pharmaceutical	4.5%	Icos Corp.	1.2%
Millennium Pharmaceutical	4.4%	Enzon	1.1%
Medimmune Inc.	4.2%	Applera	.9%
Chiron	4.2%	QLT Inc.	.8%
Genzyme	3.7%	Alkermes Inc.	.7%

Summary

The second of Merrill Lynch's very popular HOLDRS products, Biotech HOLDRS is the largest in terms of assets and the most heavily traded. Conservative investors might want to stay away from the BBH, however; it went from 100 to 240, and back to 120—all within a year! You get a nice portfolio of leading-edge biotech companies with these ETFs, but remember that six issues make up two-thirds of the portfolio. If you believe that biotech represents the next mother lode in investing, step right up. Bring lots of money, though; as you must buy 100 shares, and at the recent price, that means \$10,700.

Exhibit 7.13 ETF Highlights—Internet HOLDRS (HHH)

Assets in trust (February 28, 2001)	\$212 million
Average daily volume (2000)	892,000 shares
Average daily volume (2001)*	330,000 shares
Minimum purchase	100 shares
Annual expense fee†	\$8.00 per 100 shares
Ticker	HHH
NAV ticker	HHI
Trading hours	9:30 A.M.—4:00 P.M. (EST)
Bid-offer spread	50–70 basis points
Price (March 21, 2001)	31.60
Options	Yes; AMEX/CBOE
Began trading	September 1999
Structure	Grantor trust
Manager	Bank of New York
AMEX specialist	Susquehanna Partners

*YTD, March 21, 2001.

†The custody fee for HOLDRS is \$2.00 per quarter per round lot to be deducted from any cash dividend or other cash distribution. The trustee will waive any portion of the custody fee that exceeds the total cash dividend or distributions received.

17 Members as of December 31, 2000

America Online	37.5%	CNET Networks	1.6%
Yahoo!	20.0%	Ameritrade Holdings	1.6%
eBay Inc.	10.2%	CMGI Inc.	1.4%
Exodus Communication	8.2%	Double Click	1.1%
Amazon.Com Inc.	7.2%	EarthLink	.8%
Inktomi Corp.	2.8%	Network Associates	.8%
At Home Corp.	2.4%	Priceline.com	.2%
E*Trade Group	2.3%	Psinet Inc.	.1%
Real Networks	1.8%		

Summary

Internet HOLDRS (HHH) were the first Merrill HOLDRS product since the Telebras HOLDRS. Notice that, there are only 17 issues, although originally this HOLDR started with 20 stocks. When a stock disappears for whatever reason (e.g., merger), it is not replaced under the grantor trust structure. In this fund, Lycos, Mindspring, and Go2Net were on the original list. This ETF is not for the faint of heart, as the Internet space can provide plenty of ups and downs. Notice too that America Online and Yahoo! comprise more than half the index.

Exhibit 7.14 ETF Highlights—Semiconductor HOLDRS (SMH)

Assets in trust (February 28, 2001)	\$422 million
Average daily volume (2000)	557,228 shares
Average daily volume (2001)*	1,446,695 shares
Minimum purchase	100 shares
Annual expense fee†	\$8.00 per 100 shares
Ticker	SMH
NAV ticker	XSH
Trading hours	9:30 A.M.—4:00 P.M. (EST)
Bid-offer spread	47 basis points
Price (March 21, 2001)	44.01
Options	Yes; AMEX/CBOE
Began trading	May 2000
Structure	Grantor trust
Manager	Bank of New York
AMEX specialist	Susquehanna Partners

*YTD, March 21, 2001.

†The custody fee for HOLDRS is \$2.00 per quarter per round lot to be deducted from any cash dividend or other cash distribution. The trustee will waive any portion of the custody fee that exceeds the total cash dividend or distributions received.

20 Members as of December 31, 2000

Texas Instruments	21.3%	Altera Corp.	3.2%
Intel Corp.	18.4%	Teradyne	2.3%
Applied Materials	10.1%	KLA-Tencor	2.1%
Micron Technology	6.5%	Atmel Corp.	1.9%
Analog Devices	6.3%	LSI Logic	1.7%
Maxim Integrated	4.9%	Novellus Systems	1.4%
Linear Technology	4.7%	National Semiconductor	1.2%
Xilinx Inc.	4.7%	Advance Micro Devices	1.1%
Broadcom Corp.	3.4%	Amkor Technology	0.6%
Vitesse Semiconductor	3.4%	Sandisk Corp.	0.6%

Summary

These companies are the major players in the development, manufacturing and marketing of chips for the high-tech industry. Even new-generation gallium chips (manufactured by Vitesse Semi) are represented in the Semiconductor HOLDRS. SMH is one of the more active HOLDRS products.

Exhibit 7.15 ETF Highlights—Pharmaceutical HOLDRS (PPH)

Assets in trust (February 28, 2001)	\$554 million
Average daily volume (2000)	156,896 shares
Average daily volume (2001)*	312,005 shares
Minimum purchase	100 shares
Annual expense fee†	\$8.00 per 100 shares
Ticker	PPH
NAV ticker	IPH
Trading hours	9:30 A.M.—4:00 P.M. (EST)
Bid or offer spread	41 basis points
Price (March 21, 2001)	89.20
Options	Yes; AMEX/CBOE
Began trading	February 2000
Structure	Grantor trust
Manager	Bank of New York
AMEX specialist	KV Execution

*YTD, March 21, 2001.

†The custody fee for HOLDRS is \$2.00 per quarter per round lot to be deducted from any cash dividend or other cash distribution. The trustee will waive any portion of the custody fee that exceeds the total cash dividend or distributions received.

17 Members as of December 31, 2000

Pfizer	23.4%	Biovail Corp.	1.4%
Merck & Co.	18.0%	Forest Lab.	1.2%
Johnson & Johnson	12.0%	Andrx Corp.	1.0%
Bristol-Myers Squibb	11.6%	Allergan	0.8%
Eli Lilly & Co.	8.2%	IVAX Corp.	0.5%
Schering Plough	6.9%	Watson Pharmaceutical	0.4%
American Home Products	6.7%	ICN Pharmaceutical	0.3%
Abbott Laboratories	5.9%	Mylan Laboratories	0.2%
King Pharmaceuticals	1.4%		

Summary

Although technology offered the best returns at the end of the 1990s, the next best sector was health care, including drugs. Well-above-average return on equities, combined with a solid demographic play (aging of America), make these HOLDRS interesting for those who want aggressive growth with a little less risk than the biotech industry. This ETF offers a nice blend of the bluest of blue chip drug makers, along with representation in the generic drug segment, over-the-counter medicines, hospital supplies, and related areas.

Exhibit 7.16 ETF Highlights—Telecom HOLDRS (TTH)

Assets in trust (February 28, 2001)	\$365 million
Average daily volume (2000)	128,017 shares
Average daily volume (2001)*	94,909 shares
Minimum purchase	100 shares
Annual expense fee†	\$8.00 per 100 shares
Ticker	TTH
NAV ticker	ITH
Trading hours	9:30 A.M.—4:00 P.M. (EST)
Bid-offer spread	47 basis points
Price (March 21, 2001)	49.35
Options	Yes; AMEX/CBOE
Began trading	February 2000
Structure	Grantor trust
Manager	Bank of New York
AMEX specialist	AGS/STR/OTA

*YTD, March 21, 2001.

†The custody fee for HOLDRS is \$2.00 per quarter per round lot to be deducted from any cash dividend or other cash distribution. The trustee will waive any portion of the custody fee that exceeds the total cash dividend or distributions received.

18 Members as of December 31, 2000

SBC Communications	24.1%	Sprint Corp. (PCS group)	2.3%
Verizon Communications	20.4%	Sprint Corp. (FON group)	2.3%
Bell South	11.5%	Level 3 Communication	1.8%
Qwest Communications	9.9%	Telephone and Data System	1.7%
AT&T	8.1%	Global Crossing	1.6%
WorldCom	5.7%	Broadwing Inc.	0.9%
Nextel Communications	2.8%	McLeod USA	0.8%
BCE Inc.	2.7%	Century Telephone Inc.	0.7%
Alltel Corp.	2.3%	NTL Inc.	0.6%

Summary

Telecom HOLDRS are a mixture of Ma Bell; a few baby bells; wireless, local, and long distance companies; and fiber-optic infrastructure operations. The sector, represented by TTH, also has cooled somewhat from above-average performances in years past. Clearly, AT&T and WorldCom, which have suffered severe declines, have exerted a huge negative drag on this ETF.

Exhibit 7.17 ETF Highlights—Broadband HOLDRS (BDH)

Assets in trust (February 28, 2001)	\$216 million
Average daily volume	206,989 shares
Average daily volume*	361,847 shares
Minimum purchase	100 shares
Annual expense fee†	\$8.00 per 100 shares
Ticker	BDH
NAV ticker	XDH
Trading hours	9:30 A.M.—4:00 P.M. (EST)
Bid-offer spread	50–60 basis points
Price (March 21, 2001)	27.06
Options	Yes; AMEX/CBOE
Began trading	April 2000
Structure	Grantor trust
Manager	Bank of New York
AMEX specialist	Wolverine

*YTD, March 21, 2001.

†The custody fee for HOLDRS is \$2.00 per quarter per round lot to be deducted from any cash dividend or other cash distribution. The trustee will waive any portion of the custody fee that exceeds the total cash dividend or distributions received.

20 Members as of December 31, 2000

Nortel Networks	19.6%	Applied Micro Circuits	3.3%
Qualcomm	14.4%	SDL Inc.	3.3%
Corning Inc.	10.4%	Sycamore Networks	2.4%
Lucent Technology	8.6%	PMC-Sierra Inc.	1.7%
Motorola	8.0%	Scientific Atlanta	1.4%
JDS Uniphase	7.3%	RF Micro Devices	1.2%
Tellabs Inc.	4.9%	Conexant Systems	0.7%
Comverse Technology	4.7%	Next Level Communications	0.3%
Broadcom Corp.	3.7%	Terayon Corp.	0.2%
Ciena Corp.	3.7%	Copper Mountain	0.1%

Summary

This ETF consists of companies that develop, manufacture, and market products and services that facilitate the transmission of data, video- and voice more quickly than over traditional phone lines. These companies are on the cutting edge of technology and make things such as pump lasers, fiber-optic cable, filters, and switches.

For equity investors, sector ETFs offer the potential for dramatically higher returns (along with some extra risk). We witnessed this with Internet mutual funds in 1998 and 1999 when many of these sector funds rewarded risk-taking investors with triple-digit gains. Rather than laboring over which stock to pick, a sector ETF offers investors an entire basket within a sector. A couple of stories illustrate the benefits of sector investing.

In the fall of 1990 during an investment management class that I taught at a local college, we were discussing some of the events in the market. They were exciting days. The markets were still recovering from the junk bond debacles of the late 1980s as well as the crash of 1987. By August 1990, the Dow had fallen over 20 percent. War in the Persian Gulf was a real threat, and nonperforming loans and real estate problems were creating havoc with the nation's banking system. Citigroup had fallen from \$36 per share to under \$10. Chase Manhattan fell from \$44 to \$14 (these prices were before numerous splits over the years). Brokerage firms and other financial stocks were lower too, and investors were fearful. One student made a comment that every investor knows but seldom acts on. During a discussion period, she explained that this was the time to buy: "Isn't it, 'Buy low, sell high' that we always hear about? Banks are not going to disappear, and they are giving the best and biggest banks away in a 75 percent off sale. Didn't Warren Buffett scoop up shares in American Express during times of trouble, and look what happened to him!" I told her that if she was that convinced, she should take advantage of the sale and buy a few bank and financial stocks. She said she had only a few thousand dollars that she could invest and that would not buy much. I told her to try sector funds. If this discussion came up today, I would be able to point her to four sector ETFs that could capitalize on such a hunch.

An investor I knew who worked in the pharmaceutical field asked me to review her portfolio. It had some diversification but was lagging in several major sectors. Despite her vast knowledge of the drug and medical industry, she had no investments in that sector, which had compounded money at rates between 20 and 25 percent for most of the previous 15 years. In the January 8, 2001, edition of *Barron's*,² a table reports the top (and bottom) funds over a 15-year time period. Guess which sector was number one? Health care/drugs. In fact, funds that invested in that sector captured three of the top five slots. I told her to buy what she was familiar with. She said she would like too but had no time to analyze stocks, so I told her about sector investing. With ETFs, filling a hole in a portfolio can be done with a single call to your broker.

I like to tell both sides of a story. I discuss risks with investors and students far more than returns, so it is only fair to point out that in the

same *Barron's* table, the biggest laggards over the past 15 years have also been concentrated in certain sectors: precious metals and natural resources. All have been victims of a deflationary environment and have caused the destruction of vast amounts of investor capital. You'd have been better off putting the money in your pillow! And there lies the heart of the sector debate: If you are in the right sector, you have home-run potential; get it wrong, and it might cost you. Either way, sector ETFs allow investors a tactical method of enhancing a portfolio. (See Exhibits 7.18 through 7.23.)

INTERNATIONAL INVESTING

There are so many wonderful opportunities outside the borders of the United States that on the surface it would be foolish to ignore them. But investors must be careful. A look at Japan around 1990 serves as a sobering illustration.

In late 1989, the Nikkei 225 stock average, one of Japan's primary market barometers, stood at just under 40,000. It had had a persistent rise for most of the previous decade and had recently entered a near-parabolic phase upward. Analysts called for the Nikkei to continue to rise to 50,000 or 60,000 in coming years. During the 1970s and 1980s, Japan had taken a major chunk of business from the big three automakers in the United States. Frustrated Americans were losing lots of economic battles to Japan. U.S. auto and consumer electronics manufacturers found that they faced a difficult, perhaps impossible, task of competing with the Japanese. Japanese real estate also was in a major bubble phase. A small house cost millions. Japanese lenders had to invent intergenerational mortgages because there would be no way to pay off the gargantuan mortgages in 30 years.

Then one day they rang the bell (that's Street jargon for, "Its time to sell!"). In Japan the bell rang when someone published *The Japan That Can Say No*.³ A few months later, in January 1990, the bell rang loudly. Several major Wall Street firms issued Nikkei put warrants—a type of long-term put option. Buying such warrants is a bearish strategy. Selling, writing, or issuing them was a bullish kind of move. Although the firms all knew how to hedge their exposures, the fact that so many issued the warrants at almost the same time was incredible—so incredible that I bought a few at 10 and sold them at 15 a few days later. I thought I was a genius. Then I proceeded to watch them go to 50 before they expired.

The point is that Japan unraveled. Those who had ventured into Japan watched the huge profits they had reaped quickly melt away.

Exhibit 7.18 ETF Highlights—Financial Select Sector SPDR Fund (XLF)

Assets in trust (March 16, 2001)	\$701 million
Average daily volume (2000)	523,013 shares
Average daily volume (2001)*	698,571 shares
Size of ETF share	1/10th underlying index
Annual expense fee	.28%
Ticker	XLF
NAV ticker	FXV
Trading Hours	9:30 A.M.—4:00 P.M. (EST)
Bid-offer spread	42 basis points
Price (March 21, 2001)	24.92
Dividends	Quarterly; March cycle
Options	Yes; AMEX
Began trading	December 1998
Structure	Open-end mutual fund
Manager	State Street Global Advisors
AMEX specialist	Spear, Leeds & Kellogg

*YTD, March 21, 2001.

Top Members and Weightings in Underlying Index as of September 30, 2000

Citigroup	12.3%	Wells Fargo	3.8%
AIG	11.2%	FNMA	3.6%
Morgan Stanley DW	5.2%	Chase Manhattan	3.1%
Bank of America	4.3%	Merrill Lynch	2.7%
American Express	4.1%	Charles Schwab Corp.	2.5%

Number of stocks in ETF: 74

Summary

Financial SPDRs contain a wide variety of financial services companies, including money center and regional banks, investment bank and brokerage firms, and insurance companies. This sector displayed very good relative returns in 2000, and many investors consider it as a play on the boomer generation. The common wisdom is that banks, brokers, and insurance companies will be prime beneficiaries as boomers save for their retirement and finance the education of their children. Despite good long-term performance by many members of this sector, financials are interest rate sensitive and suffer downdrafts during periods of rising interest rates.

Exhibit 7.19 ETF Highlights—Energy Select Sector SPDR Fund (XLE)

Assets in trust (March 16, 2001)	\$232 million
Average daily volume (2000)	346,825 shares
Average daily volume (2001)*	258,876 shares
Size of ETF share	1/10th underlying index
Annual expense fee	.28%
Ticker	XLE
NAV ticker	EXV
Trading hours	9:30 A.M.—4:00 P.M. (EST)
Bid-offer spread	58 basis points
Price (December 26, 2000)	31.44
Dividends	Quarterly; March cycle
Options	Yes; AMEX
Began trading	December 1998
Structure	Open-end mutual fund
Manager	State Street Global Advisors
AMEX specialist	Susquehanna Partners

*YTD, March 21, 2001.

Top Members and Weightings in Underlying Index as of December 31, 2000

ExxonMobil	21.9%	Chevron Corp.	4.4%
Royal Dutch Petroleum	15.2%	Coastal Corp.	2.9%
Enron	7.8%	Conoco	2.7%
Texaco Inc.	4.6%	Anadarko Petroleum	2.7%
Schlumberger	4.6%	El Paso Energy	2.6%

Number of stocks in ETF: 30

Summary

The long gas lines and the Arab oil embargo of the 1970s seemed a distant memory until the U.S. and world economic engines started to consume energy at a rate that far outstripped supply in the late 1990s. Throw in the very cold winter of 2000–2001, energy shortages in the western United States, and high gas pump prices, and the term *energy crisis* begins to resurface. The energy sector ETF invests in the major oil and gas companies, suppliers, and pipeline companies, as well as exploration and research companies. Many components are “old economy” companies that form the foundation of numerous portfolios, large and small.

Exhibit 7.20 ETF Highlights—Technology Select Sector SPDR Fund (XLK)

Assets in trust	\$922 million
Average daily volume (2000)	671,825 shares
Average daily volume (2001)*	883,505 shares
Size of ETF share	1/10th underlying index
Annual expense fee	.28%
Ticker	XLK
NAV ticker	KXV
Trading hours	9:30 A.M.—4:00 P.M. (EST)
Bid-offer spread	39 basis points
Price (March 21, 2001)	25.25
Dividends	Quarterly; March cycle
Options	Yes; AMEX
Began trading	December 1998
Structure	Open-end mutual fund
Manager	State Street Global Advisors
AMEX specialist	Susquehanna Partners

*YTD, March 21, 2001.

Top Members and Weightings in Underlying Index as of September 30, 2000

Cisco	9.5%	IBM	4.8%
Microsoft	7.7%	Sun Microsystems	4.5%
Intel	6.7%	Nortel Networks	4.4%
Oracle	5.4%	America Online	3.0%
EMC	5.3%	AT&T	2.7%

Number of stocks in ETF: 90

Summary

Technology Spiders had a very successful launch in December 1998. Four months later, however, when the Nasdaq-100 Index shares made its debut, many thought the XLK would suffer in volume. Both, though, have survived and thrived, and both are in the top ten in assets under management and daily turnover out of the 100 or so existing ETFs. Despite similar price performance, the S&P Technology Sector Index (the underlying index) is composed not only of Nasdaq issues like Intel, Microsoft, and Cisco, but also has many NYSE-listed tech issues. The share price, too, is more affordable for the retail investor (about half the QQQ price).

Exhibit 7.21 ETF Highlights—Fortune e-50 streetTRACKS (FEF)

Assets in trust (March 16, 2001)	\$14 million
Average daily volume (2000)	15,886 shares
Average daily volume (2001)*	1,738 shares
Size of ETF share	1/10th Fortune e-50 Index
Annual expense fee	.20%
Ticker	FEF
NAV ticker	FEY
Trading hours	9:30 A.M.—4:15 P.M. (EST)
Bid-offer spread	75–100 basis points
Price (March 21, 2001)	36.00
Dividends	NA
Options/futures	No/yes (CME)
Began trading	October 2000
Structure	Open-end mutual fund
Manager	State Street Global Advisors
AMEX specialist	KV Execution

*YTD, March 21, 2001.

Top Members and Weightings in Underlying Index as of September 30, 2000

Oracle	9.1%	JDS Uniphase	4.4%
Microsoft	9.0%	Juniper Networks	4.3%
Cisco	8.3%	Sun Microsystems	3.3%
America Online	7.5%	Qwest Communications	3.0%
Intel	6.5%	EMC Corp.	3.0%

Number of stocks in ETF: 50

Summary

Launched in October 2000, the uniquely constructed Fortune e-50 index is designed to track 50 companies selected from the following subsectors: e-companies, Internet communications, Internet hardware, and Internet software and services. Moreover, it is a modified-capitalization-weighted index, and thus the weighting of any company is adjusted depending on what percentage of the company's revenue is derived from the Internet. For example, Worldcom, a component of the e-50, is usually regarded as a long-distance telecom company. However, Worldcom is also one of the largest Internet service providers in the United States, and thus Worldcom's capitalization is modified to reflect that 15 percent of its revenues come from the Internet.

Exhibit 7.22 ETF Highlights—Consumer Staples Select Sector SPDR (XLP)

Assets in trust (March 16, 2001)	\$198 million
Average daily volume (2000)	177,381 shares
Average daily volume (2001)*	114,981 shares
Size of ETF share	1/10th underlying index
Annual expense fee	.28%
Ticker	XLP
NAV ticker	PXV
Trading hours	9:30 A.M.—4:00 P.M. (EST)
Bid-offer spread	80 basis points
Price (March 21, 2001)	23.51
Dividends	Quarterly
Options	Yes, AMEX
Began trading	December 1998
Structure	Open-end mutual fund
Manager	State Street Global Advisors
Specialist/market maker	KV Execution

*YTD, March 21, 2001.

Top Members and Weightings in Underlying Index as of September 30, 2000

Pfizer Inc.	12.6%	Eli Lilly and Comp.	4.2%
Merck	7.6%	Procter and Gamble	4.0%
Coca Cola	6.2%	Pharmacia Corp.	3.5%
Johnson & Johnson	5.9%	American Home Products	3.4%
Bristol-Myers Squibb	5.2%	Amgen Inc.	3.3%

Number of stocks in ETF: 68

Summary

Food and medicine, like energy, are obvious necessities. This ETF invests in a broad range of such consumer staples as food, beverages, and retail—a sector that tends to hold up well during economic weakness.

Exhibit 7.23 ETF Highlights—Other Sector ETFs and HOLDRS

ETF	Ticker	Expenses	Assets (millions)
Select Sector SPDRs (State Street)			
Basic Industries Select Sector SPDR	XLB	.28%	\$73
Cyclical/Transport Select Sector SPDR	XLY	.28	95
Consumer Services Select Sector SPDR	XLV	.28	82
Industrial Select Sector SPDR	XLI	.28	38
Utilities Select Sector SPDR	XLU	.28	56
iShares (Barclays Global Investors)			
DJ US Basic Materials iShares	IYM	.60	9
DJ US Chemicals iShares	IYD	.60	16
DJ US Consumer Cyclical iShares	IYC	.60	25
DJ US Consumer Non-Cyclical iShares	IYK	.60	14
DJ US Energy iShares	IYE	.60	42
DJ US Financial iShares	IYF	.60	57
DJ US Financial Services iShares	IYG	.60	26
DJ US Healthcare iShares	IYH	.60	71
DJ US Industrial iShares	IYJ	.60	22
DJ US Internet iShares	IYV	.60	13
DJ US Technology iShares	IYW	.60	82
DJ US Telecom iShares	IYZ	.60	55
DJ US Utilities iShares	IDU	.60	28
streetTRACKS (State Street)			
MS Internet streetTRACKS	MII	.50	5
MS High Tech 35 streetTRACKS	MTK	.50	58
Merrill Lynch HOLDRS (Bank of New York)			
Internet Architecture HOLDRS	IAH	NA	247
Internet Infrastructure HOLDRS	IIH	NA	209
B2B Internet HOLDRS	BHH	NA	370
Software HOLDRS	SWH	NA	11
Utilities HOLDRS	UTH	NA	66
Regional Bank HOLDRS	RKH	NA	86
Oil Service HOLDRS	OIH	NA	131
Wireless HOLDRS	WMH	NA	97

Note: Assets as of March 16, 2001; HOLDRS assets as of February 28, 2001.

Over the next five years, the Nikkei would decline by more than half. Eleven years later, the Nikkei continues in a downward spiral. There is no doubt that Japan will recover, and the Nikkei 225 will rise again, but the recovery may take a while. Remember that after peaking at 380 in 1929, the Dow Jones Industrials did not return to that level for over a decade. Diversification outside U.S. borders carries real risk.

Despite Japan's current woes and despite the meltdown of the Russian stock index, the Hang Seng index (Hong Kong), the SET index (Thailand), and dozens of other major indexes, U.S. investors had nearly \$600 billion in international funds as the new century began. Pension funds too allocate a percentage of their assets to overseas markets. It is not unusual to find 5 percent, 10 percent, or more allocated to international markets. Let's look at the returns of U.S. and international stocks during certain periods over the last 16 years. Exhibit 7.24 shows the returns on the S&P 500 Index and the MSCI EAFE Index (EAFE stands for Europe, Australasia and Far East). MSCI's EAFE Index is one of the more prominent barometers of international markets.

The EAFE Index "won" the return race seven years, while the S&P 500 won eight times. Interestingly, the EAFE Index was on fire from 1985 through 1989, then struggled for much of the next seven years. The S&P 500 had a tremendous run from 1995 through 1999 and well-above-average returns for many of the other years shown. The crux of the matter is a long-term outlook. The numbers in Exhibit 7.24 represent 15 years of investment performance. Those planning to invest internationally with ETFs or other vehicles need to keep this kind of perspective and understand three kinds of risk:

- *Currency risk.* Although the Mexican stock market has had remarkable rates of returns during part of the last 25 years, the peso underwent severe devaluations. This not only paralyzes economies; it is a killer of stock markets. When your fund owns foreign equities, it sells dollars to buy the currencies of the markets it is interested in. If a fund manager or ETF invests in German equities, those stocks will be bought with euro currency. A manager who wants Japanese stocks has to buy them with yen. If the euro or yen declines, anyone holding stocks priced in those currencies will be holding a stock in a declining currency and will suffer a loss on the currency portion of the investment. The actual up-and-down movements of the stock are something entirely separate. You could make 10 percent in a foreign stock and still face 10 percent currency losses, for a net gain of zero.
- *Political risk.* During the Asian economic crises, some governments, notably Malaysia, enacted capital controls and restric-

Exhibit 7.24 Returns on the Wilshire 5000 Index and the MSCI EAFE Index

Year	S&P 500 Index Returns (%)	MSCI EAFE Returns (%)
1985	32.6	56.7
1986	16.0	69.9
1987	5.2	24.6
1988	16.6	28.3
1989	31.7	10.5
1990	-3.1	-23.5
1991	30.5	12.1
1992	7.6	-12.2
1993	10.1	32.6
1994	1.3	7.8
1995	37.6	11.2
1996	23.0	6.1
1997	33.4	1.8
1998	28.6	20.0
1999	21.0	27.0
2000	-10.0	—

Source: CME Index Products.

tions. Foreign investors had a rough time during the crises. (See the ETF highlight on Malaysia in Exhibit 7.30.) Unstable capital flows, political instability, and civil wars have all been painfully played out in many emerging markets. Although risk is present in all markets, it is not likely we will see civil war in the United States anytime soon.

- *Liquidity risk.* In the United States we are blessed with extraordinarily liquid markets. Small investors and \$20 billion institutions have few problems getting orders filled in large-cap stocks and the U.S. Treasury markets. True, London, Tokyo, and Hong Kong are world financial market dealing centers that also have tremendous liquidity. But many other regions, especially in emerging markets like India, Eastern Europe, and Africa, have far lower trading volumes, and their clearing and settlement systems are not nearly as efficient as in the United States, Western Europe, or other major financial centers.

All of these forces pose risks to investors. Only investors who can assess the risks should consider making any kind of investment, especially one halfway across the planet. Do your homework! (See Exhibits 7.25 through 7.31.)

Exhibit 7.25 ETF Highlights—iShares Standard & Poor's Europe 350 Fund (IEV)

Assets in trust (March 16, 2001)	\$139 million
Average daily volume (2000)	47,148 shares
Average daily volume (2001)*	37,635 shares
Annual expense fee	.60%
Ticker	IEV
NAV ticker	NLG
Trading hours	9:30 A.M.—4:15 P.M. (EST)
Bid-offer spread	54 basis points
Price (March 21, 2001)	65.00
Dividends	NA
Options	No
Began trading	July 2000
Structure	Open-end mutual fund
Manager	Barclays Global Investors
AMEX specialist	Susquehanna Partners

*YTD, March 21, 2001.

Top Members and Weightings in Underlying Index as of December 31, 2000

Vodafone ADR	4.0%	Novartis	2.4%
Nokia	3.6%	Royal Dutch Petroleum	2.3%
BP Amoco	3.3%	Total SA (b)	2.0%
Glaxo Smith Kline	3.2%	AstraZeneca	1.7%
HSBC Holdings	2.4%	Nestle	1.6%

Number of stocks in ETF: 326

Summary

For those wishing to venture outside the United States, this ETF invests across a broad spectrum of large-cap European equities. Financial, consumer, technology, and energy issues make up 75 percent of the index. The iShares S&P Europe ETF holds 326 issues (optimized portfolio of the actual 350) mostly from the following countries: Austria, Denmark, Finland, France, Germany, Ireland, Italy, the Netherlands, Norway, Portugal, Spain, Sweden, Switzerland, and the United Kingdom

Exhibit 7.26 ETF Highlights—streetTRACKS Dow Jones Global Titans Index (DGT)

Assets in trust (March 16, 2001)	\$27 million
Average daily volume (2000)	3,109 shares
Average daily volume (2001)*	1,487 shares
Annual expense fee	.50%
Ticker	DGT
NAV ticker	UGTNV
Trading hours	9:30 A.M.—4:00 P.M. (EST)
Bid-offer spread	71 basis points
Price (March 21, 2001)	76.75
Distributions	2 per year
Options	No
Began trading	September 2000
Structure	Open-end mutual fund
Manager	State Street Global Advisors
AMEX specialist	KV Execution

*YTD, March 21, 2001.

Top Members and Weightings in Underlying Index as of September 30, 2000

General Electric	9.0%	Citigroup	3.8%
Cisco Systems	6.1%	Vodafone Grp. PLC	3.6%
ExxonMobil	4.9%	BP Amoco PLC	3.2%
Intel Corp.	4.2%	IBM	3.1%
Microsoft	4.0%	AIG	3.0%

Number of stocks in ETF: 50

Summary

The Dow Jones Global Titans Index seeks to provide an effective representation of the world's largest global companies. Each year, Dow Jones chooses from a universe of the world's largest stocks. It ranks companies based on market capitalization, assets, book value, sales and revenue, and profits. Convention says that international funds invest exclusively outside the United States, whereas global funds invest overseas and within the United States. This ETF is heavily weighted with U.S. multinational corporations, as the "Global Titans" name would imply: United States, 64.7 percent; United Kingdom, 11.1 percent; Switzerland, 6.8 percent; Finland, 3.6 percent; Netherlands, 3.4 percent; Germany, 3.4 percent; Japan, 3.2 percent; and France, 3.3 percent.

Exhibit 7.27 ETF Highlights—iShares MSCI Japan Index Fund (EWJ)

Assets in trust (March 16, 2001)	\$531 million
Average daily volume (2000)	445,238 shares
Average daily volume (2001)*	693,876 shares
Annual expense fee	.84%
National currency†	Japanese yen
Ticker	EWJ
NAV ticker	INJ
Trading hours	9:30 A.M.—4:00 P.M. (EST)
Bid-offer spread	58 basis points
Price (March 21, 2001)	11.00
Distributions	2 per year
Options	No
Began trading	March 1996
Structure	Open-end mutual fund
Manager	Barclays Global Investors
AMEX specialist	AIM Securities

*YTD, March 21, 2001.

†All iShares MSCI country funds are bought and sold in U.S. dollars.

Top Members and Weightings in Underlying Index as of September 30, 2000

Toyota Motor Corp.	6.2%	Matshushita Elec. Indus.	2.3%
Nippon Telephone & Tel.	5.2%	Mizuho Holding	2.1%
Sony Corp.	3.6%	Nomura Securities	1.9%
Bk of Tokyo-Mitsubishi	2.6%	Sumitomo Bank	1.8%
Takeda Chemical	2.5%	Fujitsu	1.8%

Number of stocks in ETF: 206

Summary

Formerly called WEBS, iShares MSCI Japan Index fund is a straightforward play on Japan's largest and most established public companies. The MSCI Japan Index accounts for about 60 percent of the market capitalization of all publicly traded equities in Japan. These ETFs provide U.S. investors with tools to invest easily in foreign markets at reduced costs. Remember, though, that investing overseas entails risk other than the local market going up or down. A decline of the Japanese yen against the U.S. dollar would adversely affect the U.S.-based investors. In addition, the ETF may or may not track the performance of the Nikkei 225, one of Japan's most popular stock market benchmarks.

Exhibit 7.28 ETF Highlights—iShares MSCI Germany Index Fund (EWG)

Assets in trust (March 16, 2001)	\$145 million
Average daily volume (2000)	79,000 shares
Average daily volume (2001)*	69,636 shares
Annual expense fee	.84%
National currency†	Euro
Ticker	EWG
NAV ticker	WDG
Trading hours	9:30 A.M.—4:00 P.M. (EST)
Bid-offer spread	71 basis points
Price (March 21, 2001)	16.35
Distributions	2 per year
Options	No
Began trading	March 1996
Structure	Open-end mutual fund
Manager	Barclays Global Investors
AMEX specialist	AIM Securities

*YTD, March 21, 2001.

†All iShares MSCI country indexes are bought and sold in dollars.

Top Members and Weightings in Underlying Index as of December 31, 2000

Allianz	13.4%	Bayer	4.6%
Deutsche Telekom	12.1%	Deutsche Bank	4.4%
Siemens	11.4%	Dresdner Bank	4.4%
E.ON AG	5.4%	SAP AG	4.2%
Muenchener Rueckver	5.4%	DaimlerChrysler	3.7%

Number of stocks in ETF: 48

Summary

This ETF holds 48 of the components of the MSCI Germany index. These 48 stocks represent nearly three-quarters of the total capitalization of all publicly traded stocks in this market. This single-country ETF has good liquidity, particularly in view of the complexion and added risks of foreign markets. Weakness in German equities and the euro caused this ETF to slide in 2000. However, the German and UK markets exhibit relatively low volatility when compared with other MSCI country indexes.

Exhibit 7.29 ETF Highlights—iShares MSCI United Kingdom Fund (EWU)

Assets in trust (March 16, 2001)	\$165 million
Average daily volume (2000)	71,603 shares
Average daily volume (2001)*	63,518 shares
Annual expense fee	.84%
National currency†	British pound sterling
Ticker	EWU
NAV ticker	INU
Trading hours	9:30 A.M.—4:00 P.M. (EST)
Bid-offer spread	67 basis points
Price (March 21, 2001)	15.40
Distributions	2 per year
Options	No
Began trading	March 1996
Structure	Open-end mutual fund
Manager	Barclays Global Investors
AMEX specialist	Spear, Leeds & Kellogg

*YTD, March 21, 2001.

†All iShares MSCI country indexes are bought and sold in dollars.

Top Members and Weightings in Underlying Index as of December 31, 2000

Vodafone Airtouch	10.0%	Royal Bank of Scotland	3.6%
Glaxo Smith Kline	8.0%	Lloyds TSB Group	3.4%
BP Amoco	6.3%	British Telecom.	3.2%
HSBC Holdings	4.8%	Barclays	2.7%
AstraZeneca	4.6%	Diageo	2.1%

Number of stocks in ETF: 103

Summary

The MSCI UK Index holds about 120 securities, most of them listed on the London Stock Exchange. The ETF invests in 103 of these issues—about two-thirds of the total UK market capitalization. After the United States and Japan, the United Kingdom's market cap is the third largest in the world. In 2000–2001, most world markets slid, and the UK indexes were no exception. Investors should note, however, that the UK market has the lowest volatility of all the MSCI country indexes that have ETFs (10.9 percent, compared to 57 percent for Brazil and 41 percent for South Korea).

Exhibit 7.30 ETF Highlights—iShares MSCI Malaysia Index Fund (EWM)

Assets in trust (March 16, 2001)	\$88 million
Average daily volume (2000)	98,019 shares
Average daily volume (2001)*	28,882 shares
Annual expense fee	.84%
National currency†	Malaysian ringgit
Ticker	EWM
NAV ticker	INM
Trading hours	9:30 A.M.—4:00 P.M. (EST)
Bid-offer spread	100+ basis points
Price (March 21, 2001)	4.90
Distributions	2 per year
Options	No
Began trading	March 1996
Structure	Open-end mutual fund
Manager	Barclays Global Investors
AMEX specialist	AIM Securities

*YTD, March 21, 2001.

†All iShares MSCI country indexes are bought and sold in dollars.

Top Members and Weightings in Underlying Index as of December 31, 2000

Telkom Malaysia	15.0%	British Amer. Tobacco	4.4%
Tenaga Nasional	14.4%	Commerce Asst. Holding	4.0%
Malayan Banking	13.2%	YTL	3.1%
Malaysia Inter. Ship.	4.7%	Resorts World	3.0%
Sime Darby	4.6%	Public Bank (FGN)	2.7%

Number of stocks in ETF: 61

Summary

The 61 stocks that the iShares MSCI Malaysian Index Fund holds represent about 60 percent of the total market capitalization of this market. Most trade on the Kuala Lumpur Stock Exchange. This ETF is for those who can withstand risk and then some. Not only has the Malaysian market exhibited extreme volatility, but the government also imposed stringent capital controls as a result of the general economic deterioration in Asia in September 1998, and the creation and redemption process for ETFs was completely disrupted. Without this process, trading in the ETF occurred at levels materially different from the underlying NAV. The moral of the story: Be extremely careful! Emerging markets can be very profitable, but there can be enormous risk attached to those returns.

Exhibit 7.31 ETF Highlights—Other International and Country (ETFs)

ETF	Ticker	Expenses	Assets (in millions)
iShares MSCI Australia	EWA	.84%	\$ 45
iShares MSCI Austria	EWO	.84	11
iShares MSCI Belgium	EWK	.84	10
iShares MSCI Brazil	EWZ	.99	16
iShares MSCI Canada	EWC	.84	18
iShares MSCI France	EWQ	.84	69
iShares MSCI Hong Kong	EWH	.84	63
iShares MSCI Italy	EWI	.84	37
iShares MSCI Mexico	EWX	.84	34
iShares MSCI Netherlands	EWN	.84	32
iShares MSCI Singapore	EWS	.84	58
iShares MSCI South Korea	EWY	.99	17
iShares MSCI Spain	EWP	.84	30
iShares MSCI Sweden	EWD	.84	12
iShares MSCI Switzerland	EWL	.84	37
iShares MSCI Taiwan	EWT	.99	104
<i>Broad-based global indexes</i>			
iShares S&P/TSE 60 Index Fund	IKC	.50	9
iShares S&P Global 100	IOO	.20	97
iShares EMU	EZU	.84	48
European 2001 HOLDRS	EKH	NA	71

Note: Assets as of March 16, 2001. HOLDRS assets as of February 28, 2001

TOP ETF FUNDS

The top ETFs ranked by their average daily volume in the year 2000 are listed in Exhibit 7.32. The top ETFs ranked by assets under management are listed in Exhibit 7.33. Exhibit 7.34 ranks the top ETFs by market share. Exhibit 7.35 lists a brief statistical summary of every ETF available in early 2001 and Exhibit 7.36 shows the growth of ETF assets since 1993. ETFs not covered with a separate full-page highlight receive some treatment here.

Exhibit 7.32 Top ETFs Ranked by Year 2000 Average Daily Volume

Rank	ETF Name	Ticker	Average Daily Volume (shares)
1	Nasdaq-100 Index Shares	QQQ	27,673,809
2	S&P Depository Receipts ("Spiders")	SPY	7,669,444
3	Dow Jones Industrial DIAMONDS	DIA	1,394,444
4	Internet HOLDRS	HHH	892,063
5	Biotechnology HOLDRS	BBH	886,111
6	S&P MidCap 400 Depository Receipts	MDY	842,857
7	Technology Select Sector SPDRs	XLK	671,825
8	Semiconductor HOLDRS	SMH	557,228
9	Financial Select Sector SPDRs	XLF	523,015
10	Internet Infrastructure HOLDRS	IIH	491,813
11	Business to Business Internet HOLDRS	BHH	483,333
12	iShares MSCI Japan Index	EWJ	445,238
13	Energy Select Sector SPDRs	XLE	346,825
14	iShares S&P 500	IVV	212,820
15	Broadband HOLDRS	BDH	206,989
16	Consumer Staples Select Sector SPDRs	XLP	177,381
17	Pharmaceutical HOLDRS	PPH	156,896
18	Cyclical/Transportation Select Sector SPDR	XLY	140,079
19	Telecom HOLDRS	TTH	128,017
20	Utilities Select Sector SPDRs	XLU	115,873
21	Russell 2000 iShares	IWM	115,563
22	iShares MSCI Malaysia Index	EWM	98,619
23	iShares MSCI Germany Index	EWG	83,527
24	iShares MSCI United Kingdom Index	EWU	71,603
25	Russell 3000 iShares	IWV	48,548

Source: AMEX, CME Index Product Marketing.

Exhibit 7.33 Top ETFs Ranked by Assets Under Management

Rank	ETF Name	Ticker	Assets Under Management March 16, 2001
1	S&P 500 SPDR	SPY	\$23,177,760,240
2	Nasdaq-100 Index Tracking Stock	QQQ	20,542,054,000
3	S&P 400 MidCap SPDR	MDY	3,682,750,500
4	iShares S&P 500	IVV	2,460,374,000
5	DJIA DIAMONDS	DIA	2,241,566,310
6	Biotech HOLDRS	BBH	1,423,794,715
7	Select Sector SPDR—Technology	XLK	921,836,000
8	Select Sector SPDR—Financial	XLF	700,891,410
9	iShares Russell 2000	IWM	629,200,000
10	Pharmaceutical HOLDRS	PPH	554,048,321
11	iShares MSCI-Japan	EWJ	531,267,730
12	Semiconductor HOLDRS	SMH	422,027,955
13	iShares Russell 3000	IWV	385,154,000
14	iShares S&P 500/BARRA Value	IVE	374,078,500
15	Telecommunications HOLDRS	TTH	365,565,960
16	Market 2000+ HOLDRS	MKH	315,581,369
17	iShares Russell 2000 Value	IWN	245,551,500
18	Select Sector SPDR—Energy	XLE	232,730,000
19	Broadband HOLDRS	BDH	216,218,970
20	Internet HOLDRS	HHH	212,619,120
21	iShares Russell 1000	IWB	206,108,000
22	iShares S&P SmallCap 600	IJR	199,420,000
23	Select Sector SPDR—Consumer Staples	XLP	198,932,000
24	Internet Architecture HOLDRS	IAH	175,241,750
25	iShares Russell 1000 Value	IWD	166,290,000

Source: AMEX, CME Index Products Marketing.

Exhibit 7.34 Top ETFs Ranked by Market Share

ETF	Ticker	Market Share (%)
S&P 500 SPDR	SPY	37.44
Nasdaq-100 Index Tracking Stock	QQQ	31.06
S&P 400 MidCap SPDR	MDY	5.38
DJIA DIAMONDS	DIA	3.84
iShares S&P 500	IVV	3.53
Biotech HOLDRS	BBH	1.84
Select sector SPDR-Technology	XLK	1.56
iShare Russell 2000	IWM	1.17
Select Sector SPDR-Financial	XLF	1.02
iShares MSCI-Japan	EWJ	0.80
Semiconductor HOLDRS	SMH	0.77
iShares Russell 3000	IWV	0.71
Pharmaceutical HOLDRS	PPH	0.69
iShares S&P 500/BARRA Value	IVE	0.54
Telecommunication HOLDRS	TTH	0.49
iShares Russell 2000 Value	IWN	0.44
iShares S&P SmallCap 600	IJR	0.44
iShares Russell 1000 Growth	IWF	0.43
Select Sector SPDR-Energy	XLE	0.37
iShares Russell 1000 Value	IWD	0.35

Source: AMEX/CME Index Product Marketing

Market share is expressed as a percent of total EFT assets. As of June 1, 2001 total ETF assets, including HOLDRS was about \$77 billion. While the list of ETF offerings continues to grow most of the assets and activity is concentrated in 20 or so products. As of June 1, 2001, 103 ETFs exist in the United States. The top ETFs account for 81% of assets. The top 10 ETFs account for nearly 90% of assets and the top 20 account for 93% of total ETF assets.

Exhibit 7.35 All ETFs by Category/Type

ETF Name	Ticker	Manager	Launch Date	Index Type	ETF Volume: Avg. Daily Vol. Jan-Mar 2001	Expense Ratio (%)
S&P 500 SPDR or Spider	SPY	SSGA	Jan. 1993	Large cap	10,318,675	0.12
S&P 500 iShares	IVV	BGI	May 2000	Large cap	228,995	0.09
S&P 500/Barra Growth iShares	IVW	BGI	May 2000	Large cap/growth	57,055	0.18
S&P 500/Barra Value iShares	IVE	BGI	May 2000	Large cap/value	79,871	0.18
S&P 100 iShares	OEF	BGI	Oct. 2000	Large cap	3,878	0.20
S&P MidCap 400 SPDR	MDY	BNY	May 1995	Mid cap	1,125,265	0.25
S&P MidCap 400 iShares	IJH	BGI	May 2000	Mid cap	81,052	0.20
S&P MidCap/Barra Growth iShares	IJK	BGI	Jul. 2000	Mid cap/growth	38,625	0.25
S&P MidCap/Barra Value iShares	IJJ	BGI	Jul. 2000	Mid cap/value	19,440	0.25
S&P Small Cap iShares	IJR	BGI	May 2000	Small cap	78,751	0.20
S&P Small Cap/Barra Growth iShares	IJT	BGI	Jul. 2000	Small cap/growth	8,158	0.25
S&P Small Cap/Barra Value iShares	IJS	BGI	Jul. 2000	Small	33,031	0.25
Russell 1000 iShares	IWB	BGI	May 2000	Large cap	50,842	0.15
Russell 1000 Growth iShares	IWF	BGI	May 2000	Large cap/growth	48,454	0.20
Russell 1000 Value iShares	IWD	BGI	May 2000	Large cap/value	90,375	0.20
Russell 2000 iShares	IWM	BGI	May 2000	Small cap	364,765	0.20
Russell 2000 Growth iShares	IWO	BGI	Jul. 2000	Small cap/growth	91,744	0.25
Russell 2000 Value iShares	IWN	BGI	Jul. 2000	Small cap/value	61,409	0.25
Russell 3000 iShares	IWV	BGI	May 2000	Broad market	74,229	0.20
Russell 3000 Growth iShares	IWZ	BGI	Jul. 2000	Broad market/growth	5,725	0.25
Russell 3000 Value iShares	IWW	BGI	Jul. 2000	Broad market/value	4,435	0.25

ETF Name	Ticker	Manager	Launch Date	Index Type	ETF Volume: Avg. Daily Vol. Jan-Mar 2001	Expense Ratio (%)
Nasdaq-100 Index Shares	QQQ	BNY	Mar. 1999	Large cap/tech	63,487,000	0.18
Dow Jones Industrial Diamonds Trust	DIA	SSGA	Jan. 1998	Large cap	2,190,129	0.18
DJ US Total Market iShares	IYY	BGI	Jun. 2000	Broad market	25,253	0.20
DJ US Large Cap Growth streetTRACKS	ELG	SSGA	Sep. 2000	Large cap/growth	1,422	0.20
DJ US Large Cap Value streetTRACKS	ELV	SSGA	Sep. 2000	Large cap/value	2,856	0.20
DJ US SmallCap Growth streetTRACKS	DSG	SSGA	Sep. 2000	Small cap/growth	865	0.25
DJ US SmallCap Value streetTRACKS	DSV	SSGA	Sep. 2000	Small cap/value	775	0.25
FORTUNE 500 streetTRACKS	FFF	SSGA	Oct. 2000	Large cap	7,529	0.20
SPDR Basic Industries	XLB	SSGA	Dec. 1998	Sector	90,018	0.28
DJ US Basic Materials iShares	IYM	BGI	Jun. 2000	Sector	4,740	0.60
DJ US Chemicals iShares	IYD	BGI	Jun. 2000	Sector	7,525	0.60
SPDR Cyclical/Transportation	XLX	SSGA	Dec. 1998	Sector	338,560	0.28
DJ US Consumer Cyclical iShares	IYC	BGI	Jun. 2000	Sector	9,404	0.60
SPDR Consumer Staples	XLK	SSGA	Dec. 1998	Sector	114,980	0.28
DJ US Consumer Non Cyclical iShares	IYK	BGI	Jun. 2000	Sector	10,235	0.60
SPDR Consumer Services	XLV	SSGA	Dec. 1998	Sector	41,332	0.28
SPDR Energy	XLLE	SSGA	Dec. 1998	Sector	258,876	0.28
DJ US Energy iShares	IYE	BGI	Jun. 2000	Sector	26,395	0.60
SPDR Financial	XLFI	SSGA	Dec. 1998	Sector	698,571	0.28

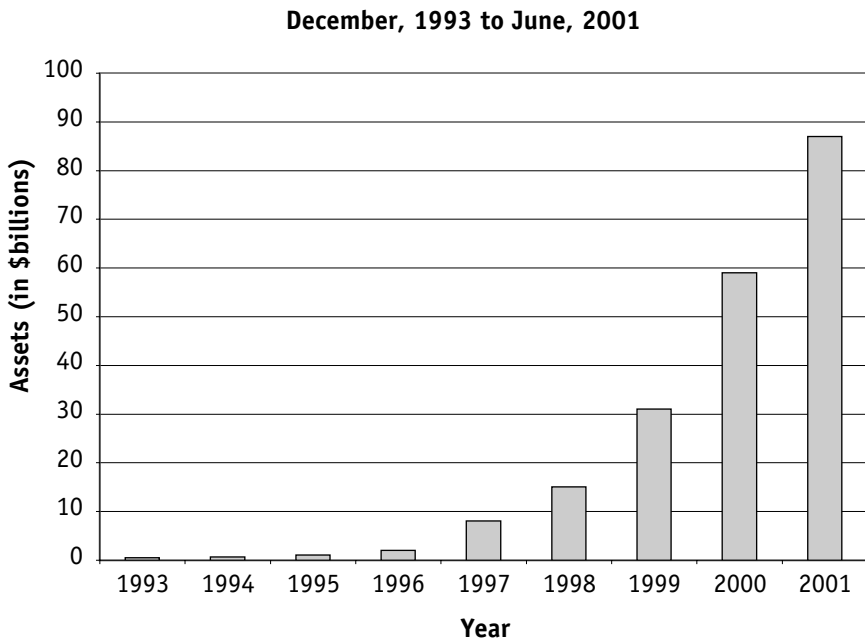
Exhibit 7.35 (continued)

ETF Name	Ticker	Manager	Launch Date	Index Type	ETF Volume: Avg. Daily Vol. Jan-Mar 2001	Expense Ratio (%)
DJ US Financial iShares	IYF	BGI	May 2000	Sector	26,435	0.60
DJ US Financial Services iShares	IYG	BGI	Jun. 2000	Sector	8,500	0.60
DJ US Healthcare iShares	IYH	BGI	Jun. 2000	Sector	26,285	0.60
SPDR Industrial	XLI	SSGA	Dec. 1998	Sector	48,116	0.28
DJ US Industrial iShares	IYJ	BGI	Jun. 2000	Sector	3,031	0.60
DJ US Internet iShares	IYV	BGI	May 2000	Sector	30,705	0.60
MS Internet streetTRACKS	MII	SSGA	Sep. 2000	Sector	4,998	0.50
FORTUNE e-50 streetTRACKS	FEF	SSGA	Oct. 2000	Sector	1,738	0.20
DJ US Real Estate iShares	IYR	BGI	Jun. 2000	Sector	17,747	0.60
SPDR Technology	XLK	SSGA	Dec. 1998	Sector	883,505	0.28
DJ US Technology iShares	IYW	BGI	May 2000	Sector	50,296	0.60
MS High Tech 35 streetTRACKS	MTK	SSGA	Sep. 2000	Sector	110,933	0.50
DJ US Telecom iShares	IYZ	BGI	May 2000	Sector	20,595	0.60
SPDR Utilities	XLU	SSGA	Dec. 1998	Sector	41,602	0.28
DJ US Utilities iShares	IDU	BGI	Jun. 2000	Sector	26,802	0.60
Biotech HOLDERS	BBH	BNY	Nov. 1999	Biotech/health	1,069,171	\$8/yr
B2B Internet HOLDERS	BHH	BNY	Feb. 2000	Internet	496,660	\$8/yr
Pharmaceutical HOLDERS	PPH	BNY	Feb. 2000	Drugs/health	312,005	\$8/yr
Internet HOLDERS	HHH	BNY	Sep. 1999	Internet	330,424	\$8/yr
Telecom HOLDERS	TTH	BNY	Feb. 2000	Telecommunications	94,909	\$8/yr

ETF Name	Ticker	Manager	Launch Date	Index Type	ETF Volume: Avg. Daily Vol. Jan-Mar 2001	Expense Ratio (%)
Market 2000+ HOLDERS	MKH	BNY	Aug. 2000	Broad market	29,415	\$8/yr
Broadband HOLDERS	BDH	BNY	Apr. 2000	Telecommunications	361,847	\$8/yr
Internet Infrastructure HOLDERS	IIH	BNY	Feb. 2000	Internet	220,858	\$8/yr
Internet Architecture HOLDERS	IAH	BNY	Feb. 2000	Internet	104,567	\$8/yr
Semiconductor HOLDERS	SMH	BNY	May 2000	Technology	1,446,695	\$8/yr
Regional Bank HOLDERS	RKH	BNY	Jun. 2000	Financial	59,425	\$8/yr
Utilities HOLDERS	UTH	BNY	Jun. 2000	Utilities	77,378	\$8/yr
Software HOLDERS	SWH	BNY	Sep. 2000	Technology	72,449	\$8/yr
Wireless HOLDERS	WMH	BNY	Nov. 2000	Telecommunications	26,338	\$8/yr
Oil Service HOLDERS	OIH	BNY	Jan. 2001	Energy services	140,317	\$8/yr
European 2001 HOLDERS	EKH	BNY	Jan. 2001	International	12,565	\$8/yr
iShares MSCI Australia	EWA	BGI	Mar. 1996	Country/International	15,326	0.84
iShares MSCI Austria	EWO	BGI	Mar. 1996	Country/International	7,694	0.84
iShares MSCI Belgium	EWK	BGI	Mar. 1996	Country/International	5,672	0.84
iShares MSCI Brazil	EWZ	BGI	Jul. 2000	Country/International	38,747	0.99
iShares MSCI Canada	EWG	BGI	Mar. 1996	Country/International	20,062	0.84
iShares MSCI EMU	EZU	BGI	Jul. 2000	Country/International	19,949	0.84
iShares MSCI France	EWQ	BGI	Mar. 1996	Country/International	37,736	0.84
iShares MSCI Germany	EWG	BGI	Mar. 1996	Country/International	69,636	0.84
iShares MSCI Hong Kong	EWH	BGI	Mar. 1996	Country/International	55,409	0.84
iShares MSCI Italy	EWI	BGI	Mar. 1996	Country/International	19,635	0.84

Exhibit 7.35 *(continued)*

ETF Name	Ticker	Manager	Launch Date	Index Type	ETF Volume: Avg. Daily Vol. Jan-Mar 2001	Expense Ratio (%)
iShares MSCI Japan	EWJ	BGI	Mar. 1996	Country/International	693,876	0.84
iShares MSCI Malaysia	EWM	BGI	Mar. 1996	Country/International	28,882	0.84
iShares MSCI Mexico	EWX	BGI	Mar. 1996	Country/International	51,189	0.84
iShares MSCI Netherlands	EWN	BGI	Mar. 1996	Country/International	9,185	0.84
iShares MSCI Singapore	EWS	BGI	Mar. 1996	Country/International	32,571	0.84
iShares MSCI South Korea	EWY	BGI	May 2000	Country/International	34,972	0.99
iShares MSCI Spain	EWP	BGI	Mar. 1996	Country/International	21,300	0.84
iShares MSCI Sweden	EWD	BGI	Mar. 1996	Country/International	22,369	0.84
iShares MSCI Switzerland	EWL	BGI	Mar. 1996	Country/International	17,058	0.84
iShares MSCI Taiwan	EWI	BGI	Jun. 2000	Country/International	34,972	0.99
iShares MSCI UK	EWU	BGI	Mar. 1996	Country/International	63,518	0.84
iShares S&P Europe 350 Index Fund	IEV	BGI	Jul. 2000	Country/International	37,635	0.60
iShares Canada TSE 60	IKC	BGI	Jun. 2000	Country/International	5,822	0.50
DJ Global Titans streetTRACKS	DGT	SSGA	Sep. 2000	Country/International	1,487	0.50
S&P Global 100 iShares	IOO	BGI	Dec. 2000	Country/International	3,632	0.40

Exhibit 7.36 Worldwide Growth of ETF Assets

2001 assets as of June 1, 2001

Source: State Street Global Advisors

REVIEW QUIZ (PARTS I AND II)

Since quiz shows are all the rage on TV, we will review the material thus far. With some of the questions that follow, more than one answer might be correct. All answers can be found within the first seven chapters. (The answer key is at the back of the book.)

1. Which of the following individuals have had a prominent role in the history of indexing?
 - a. John Bogle
 - b. Burton Malkiel
 - c. John McQuown
 - d. Bill Fouse
2. Index assets in the United States represent approximately:
 - a. \$1.4 trillion.
 - b. \$1.4 billion.
 - c. \$140 billion.
 - d. \$140 trillion.
3. List four reasons that most money managers underperform the S&P 500.
 - a.
 - b.
 - c.
 - d.
4. Which of the following is *not* a capitalization-weighted index?
 - a. S&P 500
 - b. Nasdaq-100
 - c. Dow Jones Industrials
 - d. Russell 1000
5. Exchange traded funds were “invented” by:
 - a. Al Gore.
 - b. Peter Lynch.
 - c. Warren Buffett.
 - d. Nate Most and Steve Bloom.
6. Most ETFs trade on:
 - a. AMEX.
 - b. CME.
 - c. NYSE.
 - d. CBOE.
7. Which of the following pairs is mismatched?
 - a. S&P 500/large caps
 - b. Russell 1000/small caps
 - c. Russell 2000/small caps
8. Creation and redemption of ETFs usually involves:
 - a. 50,000 shares or more.
 - b. trustee.
 - c. DTCC.
 - d. All of the above

9. Which of the following are specialists most directly involved in?
 - a. Maintaining a fair and orderly market
 - b. Clearing of trades
 - c. Distribution and marketing of ETFs
10. The largest ETF in terms of volume is:
 - a. MidCap Spiders.
 - b. S&P 500 Spiders.
 - c. Nasdaq-100 Index Shares.
 - d. Biotech HOLDRS.
11. Owning which of the following ETF would likely result in receiving an annual report through the mail from each component company?
 - a. S&P 500 iShares
 - b. S&P 500 Spiders
 - c. Telecom HOLDRS
 - d. Dow Jones Global Titan
12. Tracking error can be defined as the:
 - a. difference between the ETF price and the net asset value of the underlying stocks.
 - b. difference between the ETF dividend rate and the bid-offer spread.
 - c. difference between ETF trading hours in the United States versus Japan.
 - d. None of the above.
13. S&P 500 Spiders are priced at
 - a. one-tenth the underlying index.
 - b. one-fifth the underlying index.
 - c. one-fortieth the underlying index.
 - d. one-half the underlying index.
14. iShares MSCI country ETFs have two risks above and beyond the market risk of the stocks in the fund. These risks are:
 - a.
 - b.
15. The three primary ETF structures are?
 - a. UITs, revocable trusts, irrevocable trusts
 - b. GIFT trusts, Grantor Trusts and revocable trusts
 - c. Closed end funds, open end funds and UITs
 - d. UITs, open ended mutual funds and Grantor trusts
16. The approximate number of ETFs as of early to mid-2001 is?
 - a. 50
 - b. 1000
 - c. 100
 - d. 500

17. Which of the following would probably exhibit the highest volatility?
- | | |
|--------------------------------|-----------------------------|
| a. iShares MSCI Brazil | c. iShares MSCI Germany |
| b. iShares MSCI United Kingdom | d. iShares MSCI Switzerland |
18. The minimum number of shares required to buy HOLDRS is?
- | | |
|-------|----------------------|
| a. 1 | c. 1000 |
| b. 10 | d. none of the above |
19. In its simplest form, creation of ETFs involves:
- buying 50,000 ETFs
 - registering 50,000 ETFs with the SEC
 - depositing the underlying stocks with the custodian in exchange for ETF “shares”
 - selling 50,000 ETFs
20. ETFs trade on which of the following exchanges:
- AMEX
 - Chicago Stock Exchange
 - NYSE
 - CBOE
 - All of the above
21. Which of the following Indexes is rebalanced annually:
- Russell 3000
 - Russell 2000
 - Russell 1000
 - All of the above
22. Which of the following ETFs is not a sector fund?
- Nasdaq Biotechnology iShares
 - Telecom HOLDRS
 - Pharmaceutical HOLDRS
 - iShares MSCI EMU fund
23. Which of the following ETFs was launched first?
- S&P 500 iShares
 - S&P 500 SPDRs
 - iShares MSCI funds
 - DIAMONDS
24. iShares MSCI country funds are traded in dollar terms
- True
 - False

25. In May of 2001, the Vanguard group launched its first ETF (VIPERS). The ETF was based on:
- a. The Wilshire 4500 Index
 - b. The Vanguard Total Stock Market Index Fund
 - c. The Russell 3000 Index
 - d. The Vanguard Index 500 fund
 - e. None of the above.

Part III

THE FASTEST-GROWING INDEX PRODUCTS: E-MINI S&P 500 AND E-MINI NASDAQ-100 FUTURES—APPLICATIONS AND CASE STUDIES



“Gee, Regis, only a million?”

Credit: *Grant's Interest Rate Observer*. Reprinted with permission.

8

E-MINI STOCK INDEX FUTURES: THE HISTORY AND BASIC NOMENCLATURE

June 5, 1997, was a very interesting day for many of us in CME's Marketing Division. Susan O'Toole, who headed up Retail Marketing Programs, a few other colleagues, and I were huddled in Susan's office for a teleconference call. On that day, Dow Jones was going to announce which U.S. derivatives exchanges would be awarded product licenses—that is, who would get the rights to trade various derivative products based on the DJIA. Several exchanges were in the running to be granted licenses for Dow Jones futures, options on futures, and options on the cash Dow Jones itself. The CME and its cross-town rival, the CBOT, were jockeying for the futures licensing rights. Other exchanges were vying for ETF and cash options licensing rights.

Fourteen years earlier, the CBOT had attempted to launch a Dow futures contract (actually a Dow lookalike). After all, the Kansas City Board of Trade (KCBOT) had the Value Line Stock Index contract, and the CME had the S&P 500 futures contract. However, a strange turn of events had transpired. Dow Jones sued the CBOT, contending that it had violated all sorts of trademarks and that it would in no way allow futures contracts to be associated with its venerable index. The whole thing ended up in court, and the CBOT lost the case. It eventually introduced a futures contract based on the Major Market Index, which consisted of 20 blue chip stocks—many of them in the Dow 30. It had some good success initially but eventually failed. (It then traded at the CME, where it also failed.)

The CBOT was the oldest and at the time largest futures exchange in the U.S., and it was out of the stock index futures game completely. So when Dow Jones decided to license its indexes, the CBOT saw it as an excellent opportunity to get back into stock index futures. As the 1990s progressed, the CME had increased its market share in stock index futures to around 96 percent. It had the flagship product in the S&P 500 futures (launched in 1982) along with the S&P MidCap 400, Russell 2000, and Nasdaq-100 futures. It would have been a great addition to CME's stellar line-up in stock index futures—a virtual stock index dream team. The pressure was on; some at CME thought it would be a major debacle if the CME failed in its attempt to “get the Dow contract.” Others questioned whether the CME would have to pay too high a price. Dozens of people in several departments at the CME worked long hours on the Dow Jones' Request for Proposal. Hence, when the moment of truth came, our hearts were pounding. Finally, Peter Kann, chairman and CEO of Dow Jones, announced that the CBOT would get the rights to trade futures and options on futures on the DJIA. The CBOE would get the rights to trade options on the cash Dow Jones Industrials, and AMEX would trade an ETF that was later named the DIAMONDS trust. It took awhile, but we all exhaled, spent a few moments commiserating, and then realized we did not have time to ponder the agony of defeat. It was time to do battle. CME's chairman, Jack Sandner, former chairman Leo Melamed, the CME board of governors, and the Equity Index Committee lost no time in deciding to roll out a competing product. Actually, it killed two birds with one stone. The S&P 500 was becoming so large that smaller retail traders could no longer afford the upfront performance bond (margin). If it continued to grow, smaller traders would migrate to competing stock index futures at other exchanges, or they would trade the Dow as soon as it became available. At over \$400,000 notional amount, the average daily dollar moves were far greater than any other financial futures contract. CME leaders had discussed trading a more investor-friendly version of the S&P 500 for quite some time. A miniature version of the big S&P seemed like a very good idea. Some of the powers that be at the CME insisted on another condition: This miniature version of the S&P 500 would trade exclusively on the GLOBEX₂ electronic trading system, and it would trade virtually 24 hours a day. The concept of an all-electronic miniature Standard & Poor's 500 futures contract—E-Mini S&P 500, for short—was born. We knew that the CBOT would probably launch around October, perhaps sooner. The CME, with all its infrastructure (nearly a thousand GLOBEX terminals all over the world) and stock index expertise in place, was able to launch the E-Mini in September, a full month before the CBOT's Dow Futures.

With the launch of every futures contract at any exchange are inevitable naysayers, but the response to the E-Mini S&P 500 was overwhelmingly positive right from the start. Of course, a few predicted that it would die shortly after launch and that the name recognition of the Dow would prevail. We made friendly wagers with the naysayers. The stakes were that the loser would buy dinner at any New York restaurant. Susan O'Toole and I scheduled and then performed 16 product launch seminars starting in July. The instant I stepped in front of 340 people at the Beverly Regent Wilshire in Los Angeles, I knew the E-mini would be gigantic. There was a buzz in the air like no other seminar we had done (and we had done over a thousand). The seminar lasted two hours, and I remained another two hours answering questions about the E-mini. In San Francisco, Seattle, Atlanta, and Vancouver, we had crowds two to three times larger than average. In Washington, D.C., and New York City, we had standing room only.

On that September day, we were in Denver, and this time we would know the first-day volume just before the seminar began. The news was much better than I could have imagined. On its first day, the E-mini traded 7,494 contracts, a huge number for day 1 (the big S&P traded just under 4,000 on its inaugural day). For most of the first month, volume was between 7,000 and 11,000 contracts per day. When the Dow launched a month later, volume hit 20,000 contracts on two occasions. Then it settled down to about the same level as the E-Mini S&P 500. They traded neck and neck for about nine months at about 10,000 to 12,000 per day. After a year or so, the E-Mini S&P started to pull away from the pack, and it never looked back. Soon it was doing 20,000 contracts per day. After only two years, the mini was averaging 40,000 per day, while the Dow was still trading a successful 20,000 per day.

Any exchange in the world would love to have a contract that was trading these numbers after a mere two years of history, but the E-mini was just getting started. At 40,000 per day, it exceeded our wildest expectations. In 1999 and 2000, electronic trading steamrolled through the financial community. The ECNs, the E*Trades, and Ameritrades were opening millions of accounts. Charles Schwab had 7 million accounts, and 82 percent of those trades were executed on-line. Growth was parabolic, as was the behavior of stock prices during those years. Add to this mix the fact that many CME members were clamoring for GLOBEX terminals to trade this raging success. Average daily volume on the E-Mini S&P reached 75,000 contracts before long. On many days, it exceeded 100,000 contracts per day, and on March 13, it traded a whopping 180,000 contracts. It is now the second most actively traded contract at the CME and one of the great success stories of the past 10

years. The dinner in New York was wonderful, and I enjoyed it and the thrill of victory immensely.

Interestingly, the Nasdaq-100 futures were also gaining in volume. And with the Nasdaq-100 passing century marks with chilling regularity, this contract too started to get rather large. By 1999, senior management at CME began contemplating, an E-Mini Nasdaq-100 futures. Sequels in the movie industry are rarely as good as their predecessor, but what do you think would happen if you combined the excitement and the volatility of the Nasdaq-100 with the ability to trade nearly 24 hours on an electronic platform? Let's examine the record.

When Alan Greenspan decided to cut interest rates by 50 basis points in early January 2001 during the middle of the trading session, the market rocketed upward. The Nasdaq-100 was up 399 points and the E-Mini Nasdaq futures traded 115,000 contracts—not bad, especially when you consider that it had not reached its second birthday and that day 1 volume was 2,400 contracts. Exhibits 8.1 and 8.2 show that that investors have voted: They love the E-mini stock index futures.

Exhibit 8.1 E-Mini S&P 500 Average Daily Volume by Month, September 1997–February 28, 2001

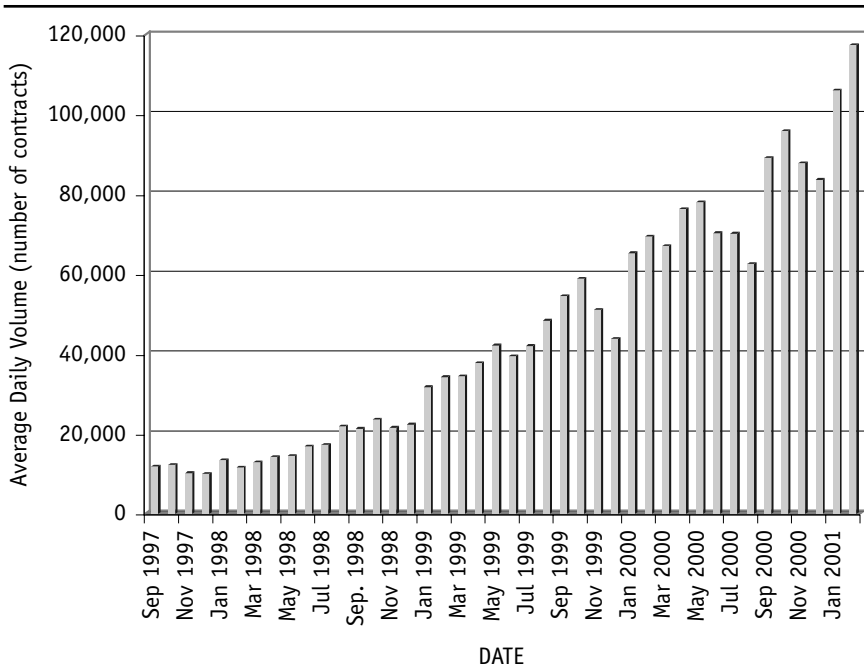
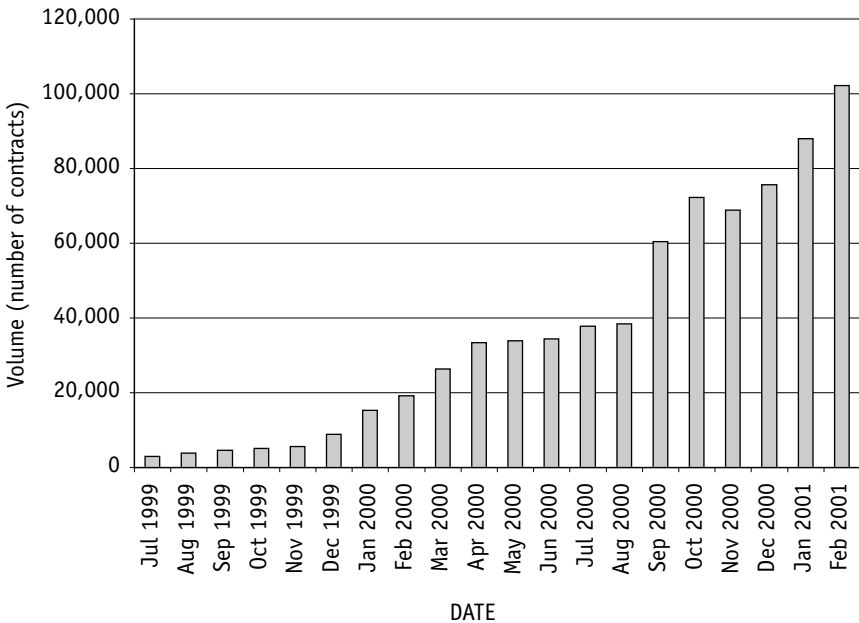


Exhibit 8.2 E-Mini Nasdaq-100 Average Daily Volume by Month, July 1999–February 28, 2001



Source: CME Index Products Marketing.

As successful as the SPY and QQQ had become, their futures cousins—the E-Mini S&P 500 and E-Mini Nasdaq-100—quickly began to dominate in terms of average daily dollar volume. The QQQs were averaging an unbelievable 60 million shares per day, or about \$3 billion in dollar volume, in early 2001. Volume in the E-Mini Nasdaq-100 futures averaged about 100,000 contracts per day, but each contract is worth about \$40,000 (as of early 2001), giving it an average daily dollar volume of about \$4 billion. The E-Mini S&P 500 futures average daily dollar value is about \$6.0 billion versus \$1 billion for the SPY. Comparisons such as these lead investors to believe that the instruments are competitive products. However, a growing number of industry professionals believe that the products are complementary. This makes perfect sense when you dig deeper into the arbitrage and spreading relationships between ETFs and futures. I already noted that the specialists will lay off market-making risk in the futures. The more ETF business that gets transacted (especially in ETFs that have futures or options contracts), the more activity there will be in futures, as has been the obvious case with the E-Mini S&P and E-Mini Nasdaq.

In Parts I and II, I documented the fundamentals of ETFs and their role in the world of indexing, and we will return to these popular products. Now, we will examine the fundamentals of E-mini stock index futures and discuss how they have made a substantial contribution to indexing and how traders have found them to be an indispensable tool. But first I provide a brief primer on futures. (Readers with a knowledge of futures can skip the rest of this chapter and go to Chapter 9, which covers the details of the E-Mini S&P 500 and E-Mini Nasdaq-100 products.)

I begin by building a case for trading E-mini stock index futures and then describe some of the barriers to these instruments, which at times are subject to controversy. Along the way, we cover the required nomenclature and then build on that knowledge with easy-to-follow illustrations. Then we address risk, mark-to-market and settlement issues, setting up accounts, and margin comparisons between stocks and index futures. A little homework or study will be required. Readers with absolutely no investing experience in stocks, bonds, mutual funds, or any other aspect of finance will find this section a challenge, but not an insurmountable one. For those with some investing experience, especially in indexing or for those who have bought stocks or mutual funds, assimilation should be relatively easy.

Reading this chapter will be worth your time. Even if you never trade a stock index futures contract in your life, a knowledge of these instruments may make you a better investor and trader. The futures markets often provide excellent indicators of market direction on a short- or intermediate-term basis. At the very least, you will understand a little better how markets work and how they are interrelated. If professionals keep an eye on stock index futures, it might be a good idea for readers to do so too.

THE CASE FOR TRADING INDEX FUTURES

Investors should consider index futures for a number of reasons.

Excellent Profit Potential

There are few other investments that offer the potential for large returns that index futures do. While stocks have enjoyed excellent gains in the past 18 years, other investments have offered less-than-spectacular gains. Index futures, and futures in general, offer return potential that is several times larger than equities, albeit at greater risk. One might argue that the amazing gains posted by Internet stocks from

1997 through early 2000 are arguably as good as, if not better than, index futures. Just consider the initial public offering of VA Linux, a technology company that soared from 30 to 340 in its first few hours of trading. On its first day as a public company, VA Linux provided investors nearly a 700 percent gain—decades of investment returns—in a mere six hours of trading! No doubt that those returns would give index futures a run for the money. However, the gains of that era have long faded, and this sort of “bubble behavior” occurs rarely (less than a year later, VA Linux common stock rests at 12.00 per share). High return potential is nearly always present in index futures and does not require any kind of new paradigm.

Cost Advantages and Affordability

The transaction costs in index futures are significantly cheaper than with stocks. And as cheap as ETFs are as investments, futures—the E-mini stock index futures in particular—are even less expensive. Consider the costs of assembling a portfolio of stocks, let alone a basket of 500 of them. In just about any comparison, the index futures will win hands down.

Capital Requirement and Leverage

The capital requirement to purchase 500 SPY would be \$58,000. To purchase 500 SPY on margin would cost an investor \$29,000. In addition, that investor would have to borrow the other \$29,000 from the broker and pay an interest rate. One E-Mini S&P 500 futures contract is worth about \$58,000 at this writing. The capital requirement would be around \$4,313, and there would be no borrowing requirement as with stocks. Although this kind of leverage is not for all investors, those who understand the concept of leverage can realize the advantages of this powerful tool in their trading plan. Any homeowner can grasp the concept of leverage; you can buy a \$200,000 house for a much smaller down payment—say, 10 percent, or \$20,000. Index futures work in a similar fashion. Those who wish to mitigate some of the leverage could put up more than the minimum capital requirement.

Unique Trading Opportunities

Spreading and arbitrage are two of the primary strategies available to futures traders. While arbitrage can be accomplished only by those with access to enormous amounts of capital (institutions, professional traders, specialists), spreading is one strategy that nearly all index futures

traders can take advantage of. Spreading involves the simultaneous buying and selling of futures contracts to take advantage of price disparity. For example, if you thought large-cap stocks were going to outperform mid-cap stocks, there are strategies you can apply to futures that will allow you to profit from this opinion. This same strategy using individual stocks would require very deep pockets and a high degree of sophistication. (I provide a case study on this strategy later in Chapter 10.) While there is risk of loss in spreading, arbitrage, properly executed, is a risk-free strategy.

Tax Advantages

ETFs offer tax efficiencies of their own, but so do index futures. Futures contracts in general are taxed at different rates from plain old stocks, bonds, and mutual funds. An investor in the 39.6 percent tax bracket would pay this rate on gains on stocks held less than 1 year. An index futures trader would likely pay much less in taxes on a gain on a futures position held less than 1 year. This is because under IRS rules, futures contracts (or Section 1256 contracts) are treated by the 60/40 rule. Some of the gain, 60 percent, is taxed at more favorable rates, and some, 40 percent, is taxed at ordinary income rates.

Unparalleled Excitement

An analogy best describes trading futures and all the excitement that goes with it. Go to your nearest BMW dealer and test-drive the sportiest model available. Then go test-drive a Lamborghini. In fact, some psychographic studies (studies that determine psychological profiles, or how people think, versus demographic studies, which show age, income, and other tangible statistics) on traders show that they are attracted to things that move. They love action. Instead of hiking, they climb Mt. Everest. Instead of a picnic, they go bungee jumping or hang-gliding. They drive not Ford Mavericks but fast cars. It is unlikely you will find a gardening enthusiast among them. Index futures no doubt are fast paced and exciting and will get your heart racing. As the exchange disclaimers say, "Futures trading isn't for everyone." Time for a gut check.

BARRIERS TO TRADING FUTURES

Given all the advantages, you might think everyone would trade futures. However, there are some barriers, and a brief list might prove

valuable at this point. First, the distribution channel for futures is much smaller than for stocks. There are probably 600,000 stock brokers. There are probably only about 40,000 to 60,000 commodity brokers in the United States. Hence, a veritable army is out there selling traditional investments. Second, there is a general lack of knowledge about futures. Many Americans have at least some of their investments tied to the stock and bond markets. The explosion in IRA and 401(k) accounts and other retirement vehicles has at least forced the typical U.S. worker to come to grips with the most rudimentary investment concepts, but very few Americans have any exposure to the futures markets. Many do not know that these financial instruments have become some of the most successful products available.

Another barrier is the competition provided by stock market returns. An investor-trader making 22 points a day in Juniper Networks is hardly going to consider alternative investment products. Who is going to trade wheat futures when Qualcomm goes up 1,000 percent in 13 months? The returns in the U.S. markets have been just too compelling recently. However, as is always the case, things will cool down (they already have), and investors will concentrate on other types of investments. Futures will be one of those areas.

There is also the perception (real or otherwise) that futures trading is a difficult, risky undertaking. The belief is that only full-time professionals profit consistently; less serious participants lose more often than not. After one of CME's E-Mini S&P launch seminars, a participant came up to me and commented that he would like to trade futures but that they seemed "too risky" for him. We talked more, and it turned out that he had sold a very profitable business for several million dollars. Much of it was bankrolled in U.S. T-bills and tax-free muni bonds. But he had his "cool" money pot—money that he could afford to lose. I asked him what type of investing he did with this account. Given his comment about futures, I expected it to be filled with rock-solid blue chips and utility stocks. He confessed that he had few thousand shares of iVillage.com, a smattering of Microstrategy Inc., and an amount more than he cared to discuss of Red Hat common stock. I was flabbergasted! Here was an individual leery of the risks of index futures, and his principal holdings in one account were down at the time an average of 50 to 75 percent! (In the remaining months of 2000, all of these issues continued the death spiral that cut their value by over 90 percent.) I asked him how he could be afraid of the risks in futures when some of his investment vehicles were far riskier. It is nearly impossible for the S&P 500 to drop 75 to 90 percent of its value in less than a year, and if it did decline that much, we all would have a very big problem on our

hands. Returns on our investment would be the least of our concerns. On a pure movement basis looking at standard deviations, dot-com stocks and Internet stocks in general are far more volatile than index futures—or many other types of futures, for that matter. After wrestling with the risk issue for nearly an hour, he finally realized that index futures were not as risky as his “cool money” investments. He rightfully concluded that some of the risk he had been hearing about lay in the leverage aspect of futures, which could be controlled with a greater down payment (performance bond margin) and better risk management.

I furthered his education by saying a wise index futures trader learns to cut losses and would never ride a position down as far as he did with his risky stocks. I added that his brokerage firm’s risk control department would also monitor all positions and would not let losses mount by too much on a position without requesting additional margin. Putting down \$5,000 to control a basket of stocks worth \$65,000 is the leverage part of the equation that many people cannot come to terms with. Losing \$1,000 on a \$65,000 investment and losing the same \$1,000 on a \$5,000 investment is still \$1,000. Psychologically, a gain or loss of \$1,000 on a \$5,000 investment is 20 percent of capital—but it is only 1.5 percent of a \$65,000 investment. One of the advantages of trading index futures is that you are forced to exercise good risk and money management habits. You are forced to be disciplined. In fact, if you examined the habits of successful investors throughout history I think you’ll find two important traits surface: They all have discipline (remember all the heat Warren Buffett took over not investing in technology? Who is laughing now?), and they all have good money management and risk management skills. Not too many skilled traders or investors I know will ride a stock like iVillage.com from 120 to 2. The gentleman thanked me, and we parted ways.

Potential investors often quote the phrase that 90 percent of futures traders lose some of their capital. I heard one gentleman make this statement at a conference once. I challenged him and the other 200 attendees by offering a \$100 bill to the first person (and only one) who could provide me with an audited (by a large accounting firm) study showing unequivocally that 90 percent of futures traders lose money. Ten years later and thousands of subsequent challenges, I still retain my \$100.

Learning and successfully trading index futures is not easy. On the other hand, it does not require a Ph.D. in stochastic calculus. Investing in any way requires effort and study, but this holds true in any facet of life. You must be willing to do what it takes to achieve any success.

THE LANGUAGE OF INDEX FUTURES

Before one can become comfortable in any discipline of investing, a little homework is required. Before one can learn the great benefit of futures, he/she must learn the language.

Futures Exchanges Price Discovery and Risk Transfer

Futures markets have played a role in the U.S. economy dating back to the mid-1800s. They were originally used by agricultural producers and consumers to transfer the price risk of commodities (crops, livestock, and so on) that were harvested each year. Futures markets today encompass financial instruments such as currencies, interest rates, and, of course, stock indexes. The risk transfer mechanism of futures markets is quite unique. Say you were a cattle farmer. As the owner of live cattle (live only for a little longer, as they will eventually make it to your local meat market or restaurant), your concern is to get the best price possible for your cattle. Higher prices are a good thing; lower prices will erode your profits and may lead to losses. However, if you are a fast food chain and buy huge amounts of beef each year, lower prices are more desirable for you; higher prices would force you to pay more for beef and charge more for hamburgers. An adverse price move for the cattle rancher is lower prices and for the user such as the fast food chain, it is higher prices.

A futures exchange like CME is where these two parties can get together (through brokers) and transfer their respective risks. The user, concerned about higher prices, could buy or lock in cattle (beef) prices now through the futures market if prices were attractive. The question at this point is, If the user is buying, who will sell? Go back to the producer or cattle rancher. His concern is lower prices in the future. If he could sell his livestock now, for “future” delivery, presumably at satisfactory prices, you would have a seller. This adverse price move dilemma faces thousands of cattle ranchers throughout the world, as well as thousands of users. The exchange provides the vehicle (live cattle futures) and the infrastructure (the exchange) whereby the many parties wishing to transfer the risk of adverse price moves can connect with each other. The process of ensuring against an adverse price move is called *hedging*. In our example, the rancher and the user would be hedging against adverse price moves. Hedgers are a very large part of the futures markets.

Futures markets are also a vehicle that provide a way of collecting all the bids and all the offers and bringing them together in a central

location. The prices at which these trades are executed determine the best current market price. This is often referred to as *price discovery*. The result is that about 17,000 live cattle futures contracts trade hands every day on the floor of the exchange. Each trade represents someone assuming the risk of higher or lower cattle prices. Users and producers are two of the main ingredients in a liquid futures contract. Speculators are also a vital part of the equation. They commit their capital and make two-side markets (bids and offers) in exchange for a chance to profit. The three, working in concert, have long been the backbone of the price discovery mechanism, as well as the liquid futures markets that are evident today.

Futures Contracts Defined

A *futures contract* is an obligation to buy or sell a specific quantity of a commodity at a certain price by a specific delivery date. A futures contract month, also called the *delivery month*, identifies the month and year in which the futures contract ceases to exist and when the obligation of the contract must be fulfilled. If the futures contract is not offset (sold off if someone previously bought or bought back if previously sold short) before the delivery date, it will be settled by exchange of the physical commodity, or settlement will occur in cash, as is the case with many futures contracts, including E-mini stock index futures. If you own a November soybean futures contract, for example, and do not offset (sell it) the contract before the November delivery date, you will, in effect, be obligated to take physical delivery of 5,000 bushels of soybeans. However, the E-Mini S&P futures contract is cash settled. No delivery of stocks or certificates occurs. You will get the difference, in cash, credited or debited to your account depending on the price you bought the contract at and the final settlement price of the contract. Physical delivery and cash settlement are the two primary means of settling futures contracts in the United States. (Each soybean futures contract, traded at the CBOT calls for delivery of 5,000 bushels of beans. In practice, the beans will probably be stored in a warehouse or grain elevator, and you might receive a call from the elevator supervisor wanting to know what you want to do with your beans. The vast majority of all futures contracts are offset before the delivery date. The only participants that would take actual delivery of the beans or cattle would be large users and producers, such as a food company or processor that needs the commodity.)

GETTING STARTED TRADING INDEX FUTURES

Before we get into the details of opening accounts, the mechanics of margin, and the daily settlement system used in futures, there are a few important questions investors must address:

- Are you willing and prepared to deal with the risks of trading futures? Do you understand the concept of leverage?
- Do you satisfy the financial requirements for trading futures? (These requirements are set by each brokerage firm and can differ substantially from broker to broker.) With \$1,000, you could buy a few shares of just about any ETF, but that sum is not even near the minimum to open a futures account at many futures brokers. Some require \$5,000 to \$10,000. A few require much more, depending on what and how much you will trade. The exchange minimum margin for the E-Mini Nasdaq-100 is currently \$6,750 (and subject to change).
- Is your personality well suited for the fast pace gains and losses? I once told someone who wanted to get into commodities trading to reconsider. He was the type who went crazy upon losing a \$50 wager on the Super Bowl. I told him that if he couldn't handle \$50 losses, he would have trouble dealing with a loss 10 or 20 times that amount. But if you have experienced large losses at one time or another and still slept like a rock, then maybe you are wired up for futures trading.

Opening an Account

Many investors call the CME and inquire as to whether they can trade futures from the same account that they trade stocks. No. Futures trading can only be executed out of a futures account opened through a licensed or registered futures broker. (This too is one of the barriers preventing more widespread trading of futures.) You need a different type of account altogether, as well as a different kind of broker. Some brokers are dual licensed: they have a stock broker license and a futures broker registration. But even if your broker is dual licensed, you still have to open a futures account to transact E-mini stock index futures. This is because of the regulations surrounding futures trading compared with stock trading. Stock brokerage accounts are regulated by the SEC; futures accounts are regulated by a separate entity, the Commodity Futures Trading Commission (CFTC).

Selecting a futures broker may require some effort. Ask friends, or attend some conferences specializing in investing. Perhaps your stockbroker has individuals on staff who are registered to execute futures trades. You can also go to the Web sites of the exchanges themselves and check out the clearing members of the exchange. The CME has 70 or 80 clearing members, many of which will open retail customer accounts for trading E-mini stock index futures, assuming you meet the financial suitability requirements of that firm. You may have to speak with several brokers before you feel comfortable with the relationship. You must be able to trust your broker and that he or she will provide the level of service that you require. Over the years, surveys have revealed that the some of the critical issues that cause customers to close their accounts is a lack of trust or bad service. Pay particular attention to these issues when talking with prospective brokers. Discount brokers are also available with futures for those wanting execution only.

Assuming you have done the necessary due diligence, have the prerequisite trading capital and the personality to trade index futures (not too mention a knowledge of the basic mechanics of trading, which is coming up), and have selected a futures broker who can provide you with trust and service, then you can go forward and open an account. To do this you must fill out and sign a variety of documents, including account applications, risk disclosure documents, and performance bond agreements that prove that you are aware of the risks and the nature of leverage in futures trading. These documents and the broker will also disclose how much capital will be required to open a trading account, as well as performance bond margin issues, maintenance margin issues, commissions, and other details. *Make sure you completely understand these details before ever executing any trade in futures.* I receive hundreds of phone calls each month at the exchange. Many callers ask intelligent, stimulating, and sometimes humorous questions before they start trading. Others, however, do not do their homework. They ask questions *after* they put on a trade that should have been addressed *before* they put the trade on. This category of calls can result in vast disappointment, as well as serious loss of capital. Do your homework, and ask lots of questions. Call me at the CME if you have to, but do not go into this venture unprepared!

The Exchange Clearing House

The Clearing House is the entity through which all futures (and options) transactions are settled. It is responsible for ensuring the transfer of funds and guaranteeing the financial performance of each

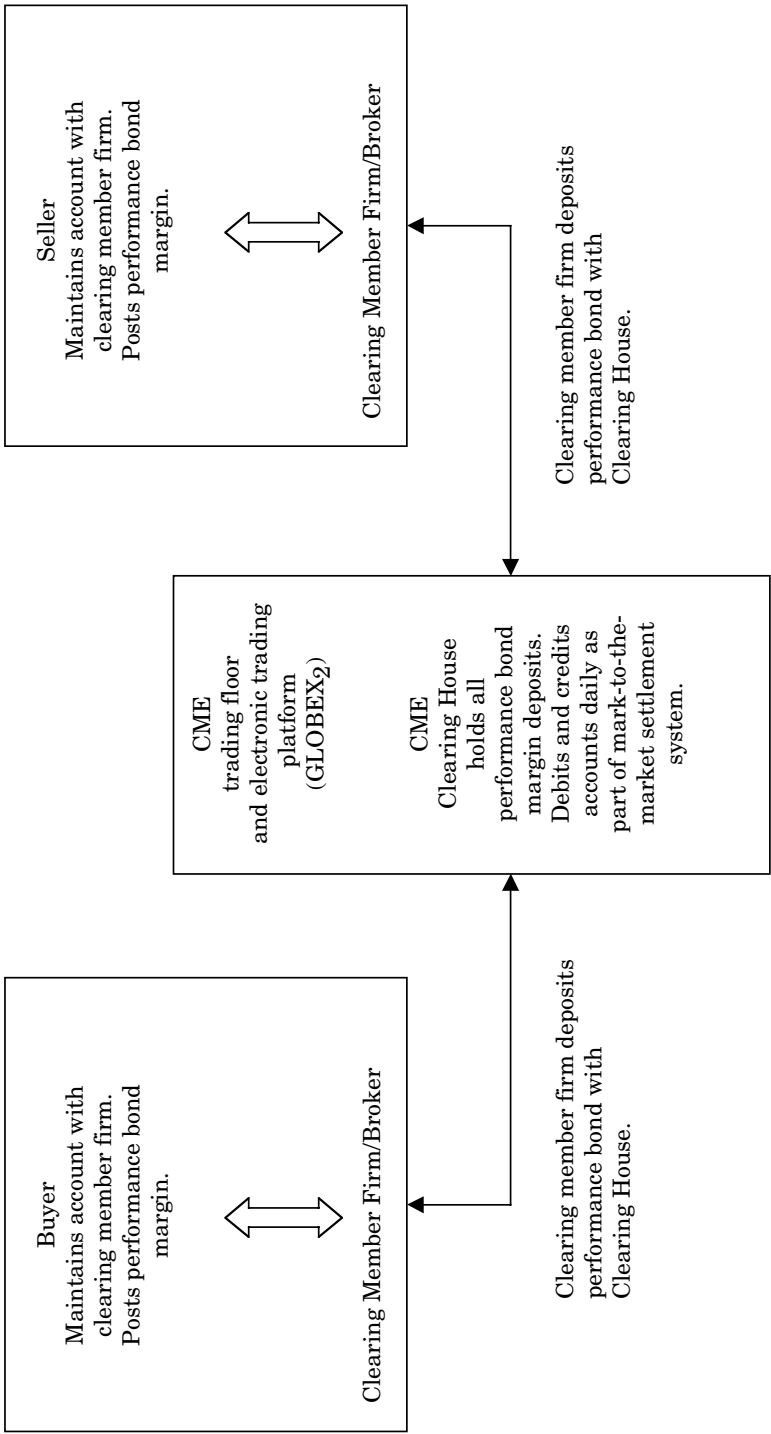
contract. All E-mini stock index futures trades are cleared through the CME Clearing House. All other CME products, including the E-Mini Nasdaq-100 futures, are cleared through the Clearing House as well. On any given day, \$1 billion in performance bond margins is transferred across the CME's Clearing House books. On days with extreme market moves, an amount four to five times that is transferred. The primary manner in which the Clearing House ensures the performance of all parties to futures contracts is by the performance bond margin system and the variation margin settlement system (sometimes referred to as *mark-to-market Settlement*).

Performance Bond Margins

At the time you open your account, you will be required to make a deposit of cash or securities (usually in the form of T-bills), or both. This deposit opens your account and serves to meet the minimum performance bond requirements of trading futures. For E-mini stock index futures, the CME establishes minimum initial and maintenance performance bond requirements. Your broker's requirements may be higher, but they cannot be lower than CME minimums. And although you deposit the funds with your broker, the CME Clearing House ultimately is the holder of those margin deposits once a trade is initiated. This is one of the many financial safeguards in place that protect the system from risk and ensure a smooth flow of funds between buyers and sellers and their brokerage firms. The Clearing House transfers funds to accounts through your clearing member firm. Hence, gains will be credited to your account and losses debited from your account by the Clearing House through your firm. Think of the Clearing House as a giant back office system set up to monitor all positions, risk, and money transfers and to hold billions in collateral by performance bond deposits. The CME's Clearing House is one of its greatest assets and has served CME customers very well. Exhibit 8.3 outlines how a trade is done and how the clearing firm where you hold your account interacts with you and the exchange Clearing House.

As of March 28, 2001, the CME minimum initial performance bond margin for the E-mini S&P 500 futures was \$4,313. This is the minimum margin deposit that the CME will accept (although a particular broker may request more) before you can trade. Margin levels can and do change, depending mostly on the volatility of the markets. So if we entered a period of extreme volatility, look for performance bond margins to increase. The performance bond margin of the E-Mini Nasdaq-100 was about \$ 6,750 on March 28, 2001, and the Mini Nasdaq-100

Exhibit 8.3 How a Trade Is Done



has a smaller contract value. Why? Remember that the more volatile an instrument is, the more margin is required. What is more volatile: the S&P 500 Index or the Nasdaq-100 Index? If you guessed the Nasdaq-100, you are correct. The volatility of all those tech stocks has made the Nasdaq-100 cash index, and thus the E-Mini Nasdaq-100 futures, which track the underlying index, more volatile. Indeed, the Nasdaq-100 is more than twice as volatile as the S&P 500; hence, you have to provide a larger performance bond margin deposit. A quick glance at Exhibit 8.4 below shows how much more volatile and will give you an understanding of why the Clearing House requires a greater performance bond deposit for the E-Mini Nasdaq 100 compared with the E-Mini S&P 500. The daily ranges of some other actively traded futures are included in the exhibit for comparison.

Similarly, if your account or position falls to the maintenance margin requirement, the firm will reach out and touch you: You will receive a *margin call*—a phone call requesting that you deposit additional funds into your account. For the E-Mini S&P futures, the maintenance margin requirement is \$3,450, a difference of \$863 from the initial margin requirement. Hence, if your position goes against you (by \$863), then you will receive a call to deposit enough cash to bring your account or position back up to the initial margin level, and you have to act quickly. You either have to keep adequate amounts of cash in your account to cover such contingencies, or you will have to wire the money. Often the firm requires the cash in a matter of hours. If it does not arrive and the market continues to be volatile and the associated risk has the potential to cause the investor or the firm to suffer large losses, then the firm has the right to liquidate the position, whether or not you

Exhibit 8.4 Average Daily Dollar Range and Volatility of Various Futures Contracts (Jan.-Sep. 2000 time frame)

Futures	Average Daily Dollar Range	Historical Volatility
S&P 500	\$ 6,990	22.04%
E-Mini S&P 500	1,432	22.04
Nasdaq-100	17,627	53.99
E-Mini Nasdaq-100	3,573	53.99
T-bonds	869	8.84
Crude Oil	1,064	42.33
Live Cattle	210	13.38
Corn	202	23.15

think the market will bail you out. This is very similar to margin buying in stock brokerage accounts. If you do not meet a margin call on time, the firm has the right (read your disclosure documents) to offset the position.

Variation Margin and the Mark-to-Market Settlement System

At the end of each trading day and each trading day that your position remains open, the contract value is *marked-to-the-market*; that is, your account is debited or credited based on that day's trading session. If you have gains, your account will be credited; if you have losses, your account will be debited. This is sometimes referred to as *variation margin*. Again, all variation margin passes from customer, to clearing member firm (broker), to Clearing House. Thus, if you profited by \$500 during the day's trading, the Clearing House will credit your firm, and your firm will credit your account. The next chapter provides an illustration that features the mark-to-the-market process.

CONCLUSION

By now, you have probably surmised that the margin process with equities is vastly different than with futures, though both serve to protect customer, broker, and the system as a whole. Exhibit 8.5 summarizes the differences between futures trading and stock trading.

Futures performance bond requirements, maintenance requirements, and the mark-to-the-market process are all part of the financial safeguard system in place to protect the entire industry. This system gives futures trading rock-solid credit standing because losses are not allowed to accumulate. The Clearing House looks at every account and every firm on each trading day to ensure that adequate financial requirements are met. If extremely volatile conditions arise, the Clearing House can examine these accounts several times per day if it feels necessary to guarantee performance. It is these stringent measures that establish the financial integrity of the CME Clearing House, which gives billion-dollar pension funds as well as retail investors the confidence to transact business in the futures markets at the CME. Often potential futures traders ask if there is an SIPC type of organization in futures trading. (The Securities Investors Protection Corporation, SIPC, insures investors' accounts in case a firm were to run into financial difficulties.) I tell them not exactly, but our clearing members are some of the most solid, prestigious firms in the world—firms like Gold-

Exhibit 8.5 Futures and Stock Trading: A Comparison

	Futures	Stocks
Type of broker	Series 3 Registered	Series 7 Registered
Minimum to open account	Usually \$5,000 to \$10,000	\$2,000 for margin account, sometimes less to open cash account
Paperwork	Account application Risk disclosure documentation Performance bond agreements Financial and suitability documents	Account application Other documents for margin trading and options trading
Settlement	Mark-to-the-market daily by Clearing House	T + 3 (trades settle three days later)
Margin	Initial performance bond deposit subject to exchange minimums	50% per current Regulation T of Federal Reserve Bank of New York
Short selling	Yes, no uptick required	Yes; uptick required
On-line trading available	Yes	Yes
Regulation	CFTC	SEC
Insurance or financial safeguards	Clearing House Financial Safeguards	SIPC or Security Investors Protection Corporation
Commission style	Round turn—commission covers the cost of both buying and selling	One way. Commission paid on buy and sell side of trade

man Sachs, Morgan Stanley, JP Morgan Chase, Merrill Lynch, and Salomon Smith Barney. Also, the CME Clearing House manages \$25 billion in collateral deposits, administers more than \$1 billion in letters of credit, and moves an average \$1 billion per day in settlement payments. On January 3, 2001, when Alan Greenspan, chair of the Fed, lowered rates in mid-trading session, the Clearing House moved a record \$6.4 billion in settlement payments through the banking system. Also remember the following:

- There has never been a failure by a clearing member to pay settlement variation to the Clearing House.
- There has never been a failure by a clearing member to meet a performance bond call.
- There has never been a failure by a clearing member to meet its delivery obligations.
- Most important, there has never been a failure of a clearing member resulting in a loss of customer funds.

9

E-MINI STOCK INDEX FUTURES: CONTRACT HIGHLIGHTS, TRADING FUNDAMENTALS, BASIS, AND FAIR VALUE

Once you have mastered futures basics, such as performance bond margins, the mark-to-market settlement process, and account specifics, it is time to learn how a futures contract ticks. Hundreds of futures contracts trade on federally regulated futures exchanges in the United States, and each of these exchanges trades contracts that are somewhat unique to it. For example, CME's most active contracts are Eurodollar futures and stock index futures, including the E-minis. The CBOT's flagship products are the U.S. Treasury bond and note contracts and corn and soybean futures. The New York Mercantile Exchange's (NYMEX) most active products are crude oil, heating oil, and natural gas. Each of these products has specific contract specifications: the details describing the size of the contract, delivery (also known as settlement) dates, minimum price fluctuations (referred to as "ticks"), and settlement procedures. These contract specs or highlights are determined by the exchanges themselves and formulated during the research and development process before they are submitted to the CFTC for review and approval. Often exchanges gather information from the futures industry (or product-related industry users or potential users) to help design the contract for the greatest possible chance of success. Futures contracts, like all other products launched in the business world, do not always succeed. Many products in every type of business fail within a few years or less, and futures contracts are no different. Later in this chapter I discuss a few of the reasons that some contracts are more successful than others.

The E-Mini S&P 500 futures contract is a scaled-down version of its bigger brother, the S&P 500 Index futures contract. The Mini S&P is a smaller, more investor-friendly size, and it trades exclusively on an electronic trading system (named GLOBEX₂); in contrast, the larger contract is pit-traded during the day (8:30 A.M. to 3:15 P.M. central time) and traded on GLOBEX when the pits are closed. The Mini S&P 500 is valued at roughly \$58,000 (as of March 21, 2001), one-fifth the size of the regular or big S&P 500, valued at \$287,500.*

CONTRACT SPECIFICATIONS

Exhibits 9.1 and 9.2 show the contract specifications for the E-Mini S&P 500 futures and E-Mini Nasdaq-100 contracts, respectively. Take a close look at them because we will use this information, along with the concepts covered in the previous chapter, to illustrate the mechanics of trading the contract.

Ticker Symbol

The ticker symbol, listed first, functions much like the ticker symbols with stocks and ETFs. You use the symbols to obtain quotes from the appropriate quote vendors. Although many Web sites offer free quotes on stocks—some are delayed, some are real-time quotes—getting quotes for the E-mini contracts takes a little more effort. If you do not have the appropriate software and exchange hookup, then you can go to CME's Web site (www.cme.com) and obtain real-time quotes by going through a sign-up procedure. Although real-time quotes were offered for free at the introduction of the mini contracts, it is likely a small fee will be charged going forward. Since stocks and ETFs do not have quarterly settlements as futures do, the symbol ES is combined with another symbol or code that identifies the expiration month. The code for March is *H*, for June it is *M*, for September it is *U*, and for December it is *Z*. So "ESZ" would mean the E-Mini S&P 500, December delivery. NQH is the symbol for the March E-Mini Nasdaq-100 futures. (A note

*The values of the S&P 500 and other indexes in this book sometimes differ from example to example or chapter to chapter. This is not meant to confuse the reader, but to show how fluctuations in the indexes cause the contract sizes to change constantly. In late 2000 and January 2001, the S&P 500 was trading above 1300. By March, it had dropped significantly to 1160. I could have written each example with the same price and contract values but that would hardly be realistic given that the market constantly fluctuates. Besides, it is this constant changing that provides the opportunity to profit!

Exhibit 9.1 E-Mini S&P 500: Contract Specifications and Highlights

Ticker symbol	ES
Contract size	$\$50 \times$ E-Mini S&P futures price
Minimum price fluctuation	.25 index point = \$12.50 per contract
Trading hours (GLOBEX system)	Virtually 24 hours. No trading between 3:15 P.M. and 3:45 P.M. Trading begins again on Sundays at 5:30 P.M.
Contract months	March, June, September, December
Last day of trading	Trading can occur up to 8:30 A.M. central standard time on the third Friday of the contract month
Quarterly futures settlement	Cash settled to the special opening quotation on Friday morning of the S&P 500 cash index

Exhibit 9.2 E-Mini Nasdaq-100: Contract Specifications and Highlights

Ticker symbol	NQ
Contract size	$\$20 \times$ E-Mini Nasdaq-100 futures price
Minimum price fluctuation	.50 index point or \$10 per contract
Trading hours	Virtually 24 hours. No trading between 3:15 P.M. and 3:45 P.M. Trading begins again on Sundays at 5:30 P.M.)
Contract months	March, June, September, December
Last day of trading	Trading can occur up to 8:30 A.M. central standard time on the third Friday of the contract month
Quarterly futures settlement	Cash settled to the special opening quotation on Friday morning of the Nasdaq-100 index

of caution here: Some quote systems have unique codes or symbols, so consult with your vendor for the appropriate symbols.)

Contract Size

The contract size is sometimes referred to as the contract multiplier. The Mini S&P 500 traded at 1150.00 as of March 2001. To get the contract size, multiply \$50 times 1150.00, which equals \$57,500. Thus,

each Mini S&P 500 futures contract has a contract size or value of \$57,500—a lot larger than one share of the SPY or QQQ! (It takes about 500 SPY to equal the dollar value of one Mini S&P contract or 800 QQQs to equal the value of one mini Nasdaq-100 contract.) Another way of looking at it is that with each 1 point the futures moves, the value changes by \$50. If the futures rise by 10 points, the value of the contract increases by \$500. Therefore, if you bought one contract of the E-Mini S&P 500 at 1,150 and sold it a week later for 1,160, you would profit by \$500 (10 points \times \$50 per point). With the E-Mini Nasdaq-100, the contract size is \$20 multiplied by the Mini Nasdaq-100 futures contract price. It recently changed hands at 2,000. The contract value would be $\$20 \times 2,000 = \$40,000$.

Minimum Price Fluctuation

When you watch a quote screen or perhaps CNBC, you will notice the minimum increment that the cash S&P 500 index can change is .01 points. The cash index can go from 1200.07 to 1200.08 but not from 1200.07 to 1200.071. Futures contracts have different minimum increments or minimum tick values. For the Mini S&P 500, the minimum tick is .25 index point. Since each full index point is worth \$50.00, a quarter of that equals \$12.50. Thus, the minimum price change you will see in the Mini S&P is .25 point, and that represents a dollar amount of \$12.50. The contract might move 1.00 point at a time or .50 point at a time, but never less than .25 point. The following cash and futures price sequences (from January 2001) illustrate the point:

Cash S&P 500

1299.75
1299.77
1299.78
1299.91
1299.98
1300.00
1300.01
1300.04
1300.03
1300.09
1300.11
1300.10

Mini S&P 500 Futures

1299.50
1299.75
1300.00
1299.75
1300.00
1300.25
1300.00
1300.25
1300.50
1300.25
1300.00
1300.25

.01 pt minimum increment

.25 pt minimum increment

With the Mini Nasdaq-100 futures, the minimum price change or tick value is .50 point. Similar to the cash S&P 500, the underlying cash Nasdaq-100 index can move in .01 point increments. Given that a full point is worth \$20 in the futures, then .50 point would equal \$10. In reality, the S&P 500 or Nasdaq-100 cash indexes rarely move the minimum increment. When the market is volatile, as it has been in recent years, jumps are usually much higher than the .01 point level. It is not uncommon for the Nasdaq-100 cash index to experience price jumps of 1.00 point or more. So if you look at a quote screen and see the cash Nasdaq-100 at 2000.22 and the price 15 seconds later reads 2001.50 (1.28 points higher), do not be alarmed. The S&P 500 cash index also often jumps in increments greater than the .01 point minimum.

Trading Hours

Trading hours are virtually 24 hours. In recent years, investors have cheered the expansion of trading hours. Many firms have expanded their trading hours past the 4:00 P.M. NYSE close. Nevertheless, stocks do not trade on a 24-hour basis yet. The interbank foreign exchange markets have been trading 24 hours for decades, and stock index futures at the CME have been trading around the clock since the 1992 inception of electronic trading on the exchange's GLOBEX trading system. To some who are less familiar with futures, around the-clock access to index futures seems like overkill. However, many events occur outside the normal trading day, such as government economic announcements or corporate earnings announcements, and having access to the market during these situations is an advantage that traders like. Too, events overseas sometimes cause a flurry of overnight activity. With 24-hour availability, traders can initiate, close out, or adjust positions in response to action in overseas markets.

Contract Months and Last Day of Trading

Both E-Mini S&P 500 and E-Mini Nasdaq-100 contracts have the same four expiration months: March (H), June (M), September (U), and December (Z). On the last day of trading, generally the third Friday of the contract month, trading ends at 8:30 A.M. Most contracts are offset, or "rolled," to the next quarterly expiration, many days before the last trading day. Very few traders hold contracts until the final settlement, and those who do are usually professional traders with

complex positions on their books. The CME's Web site has calendars that indicate the last trading day for all of its products. For those without Web access, the exchange can provide literature that provides these important details.

Quarterly Futures Settlement

All stock index futures, including the mini-index products, are cash settled based on a special opening quotation (SOQ) of the relevant underlying index. The SOQ for the S&P 500 index is based on the opening price of each component stock in the index on expiration Friday. The NYSE or AMEX opening price is used for stocks listed on the NYSE or AMEX, respectively. The first transaction price is used for Nasdaq component stocks in the S&P 500. The Mini Nasdaq-100 futures, however, settle to an SOQ computed from a five-minute volume-weighted average of each component stock's opening prices (VWOP). The SOQ calculations for the Mini S&P and Mini Nasdaq are usually available by 10:00 or 11:00 A.M. central time. The concept of SOQ is relevant only if you are holding a mini-index futures contract (or options position) until the last trading day. This is a practice that the majority of traders avoid.

Example

Now that you know some basic terms and specifications, let's work through an example that will highlight many of the concepts. Exhibits 9.3 to 9.6 illustrate step by step how a typical trade using the E-Mini S&P 500 futures might look. It demonstrates how profits and losses accrue and how the Clearing House collects and pays margins, and it provides a comprehensive look at the trading process. As with ETFs, there are transaction costs to trade futures. But unlike stocks and ETFs, where a commission is charged on both the buy and sell sides, futures commissions are *round turns*, meaning you pay once to get in and out of the trade. In this particular example, an investor with a bullish opinion on the market goes "long" on E-mini S&P 500 futures at 1,300.00. Several days later the trade becomes profitable and the investor decides to offset (sell) the position at 1,315.00. The example shows how several entities are involved in clearing the trade and cash flows. Clearly, a lot of intermediate steps are involved between initiating the position and closing it out.

Exhibit 9.3 Trading the E-Mini S&P 500: An Example, End of Day 1

Date	January 16, 2001
Investor's outlook	Bullish
Strategy	Buy one March E-Mini S&P 500 futures (or long 1 ESH)
Initial performance bond margin	\$5,000 (CME minimum margin is \$4,313, but for this example we will use \$5,000)
Initial position and price	Long 1 ESH @ 1300.00
Price at end of day 1	1300
Profit or loss on position, in points, from previous day	0
Profit or loss on position, in dollars, from previous day	0
Mark-to-market settlement or variation margin	0
Current value of position	\$5,000 (\$5000 + day 1 variation margin of 0)
Comments	Trader goes long one ESH (E-Mini S&P 500 futures) at 1300.00. At end of first day, ESH closes or settles at 1300.00. Trader thus has neither profit nor loss on position. No variation margin credit or debit on day 1.

Exhibit 9.4 Trading the E-Mini S&P 500: An Example, End of Day 2

Date	January 17, 2001
Investor's outlook	Still bullish
Strategy	Still long
Initial performance bond margin	\$5,000 (CME minimum margin is \$4,313 but for this example we will use \$5,000)
Initial position and price	Long 1 ESH @ 1300.00
Price at end of day 2	1305
Profit or loss on position, in points, from previous day	5-point gain ($1305 - 1300 = 5$ points)
Profit or loss on position, in dollars, from previous day (day 1)	\$250 profit ($5 \text{ points} \times \50 per point $= \$250$)
Mark-to-market settlement or variation margin	\$250 variation margin credited to account
Current value of account	\$5,250 ($\$5000 + \text{day 1 variation of } \250)
Comments	At end of day 2, trader's position is up 5 points, or \$250. Clearing House credits variation margin of \$250 to the account via broker. (Performance bond margin subject to change.)

Exhibit 9.5 Trading the E-Mini S&P 500: An Example, End of Day 3

Date	January 18, 2001
Investor's outlook	Still bullish
Strategy	Still long
Initial performance bond margin	\$5,000 (CME minimum margin is \$4,313, but for this example we will use \$5,000)
Initial position and price	Long 1 ESH @ 1300.00
Price at end of day 3	1299
Profit or loss on position, in points, from previous day	6-point loss ($1299 - 1305 = -6$ points)
Profit or loss on position, in dollars, from previous day (day 2)	\$300 loss (6 point loss \times \$50 per point)
Mark-to-market settlement or variation margin	\$300 variation margin loss debited to account
Current value of account	\$4,950
Comments	On day 2 the trader made \$250. But on day 3, he lost \$300, resulting in an overall loss of \$50 since initiating the trade. At Clearing House level, profit and loss is equal to sum of variation margin settlements for each day: $0 +$ $\$250 - \$300 = -\$50$.

Exhibit 9.6 Trading the E-Mini S&P 500: An Example, End of Day 4, Trade Closed Out

Date	January 19, 2001
Investor's outlook	No longer bullish
Strategy	Sell or offset position at end of day 4
Initial performance bond margin	\$5,000 (CME minimum margin is \$4,313, but for this example we will use \$5,000)
Initial position and price	Long 1 ESH @ 1300.00
Price at end of day 4	1315
Profit or loss on position, in points, from previous day	16-point gain ($1315 - 1299 = 16$ points)
Profit or loss on position, in dollars, from previous day (day 3)	\$800 gain ($16 \text{ point gain} \times \50 per point)
Mark-to-market settlement or variation margin	\$800 variation margin gain credited to account
Current value of account	\$5,750
Comments	Market rallies 16 points as trader exits or sells position at 1315. Day 4 variation margin is \$800. Sum of all variation margins: $0 + \$250 - \$300 + \$800 = \750 or final ESH price minus initial $\times \$50$ per point, which equals $1315 - 1300 = 15 \text{ points} \times \50 or \$750.

SOURCES OF INFORMATION AND PRICES ON MINI STOCK INDEX FUTURES

Intraday and closing price quotes are accessible to just about anyone with a PC and a modem, but there are many other sources for information on prices:

- Brokers
- Information services and quote vendors, such as Reuters, Dow Jones Markets, Bloomberg, and CQG
- Major daily and weekly newspapers
- CME's Web site, www.cme.com, or www.bloomberg.com
- Private advisory services
- Financial programs on radio and TV

In the past few years, the prices of quote vendor services have come down dramatically. It was not uncommon, 10 to 15 years ago, for a trader to spend \$1,000 or more per month for quote and other services such as charting and analysis packages. For a fraction of that amount, serious traders now have access to information that was previously available only to professionals and institutions.

Those with no PC or Internet access depend largely on their broker or the financial media. Your broker will be able to provide you with any information related to trading. The *Wall Street Journal* and *Investors Business Daily*, as well as CNBC and CNN, carry price information on the major futures contracts traded in the United States, including the E-mini stock index products. A caveat here: The intraday movements of the Mini S&P and Mini Nasdaq-100 can sometimes be quite large, and relying on the daily newspapers for updated prices can be risky. By the time you get tomorrow's prices, you may already have experienced some losses. If the losses are great enough, your broker will not wait until the next day either to give you a maintenance margin call.

Exhibit 9.7 illustrates how information is formatted in some of the major financial and daily newspapers. It is similar to stock information, with the addition of expiration months.

Most major daily newspapers carry the opening price, the intraday high and low prices from the previous day, and the close or settlement price and net change from the previous trading session. There are also volume figures and open interest statistics as well. The E-Mini S&P 500 and E-Mini Nasdaq-100 trade very actively and have a solid open interest. Open interest is one gauge of liquidity. Contracts with low open interest have not attracted an adequate critical mass of traders and hedgers and thus display poorer relative liquidity. Average daily

Exhibit 9.7 E-Mini S&P 500 and E-Mini Nasdaq-100 Prices in the Financial Press

E-Mini S&P 500 Index futures \$50 × index								
	Open	High	Low	Settle	Change	Lifetime High	Lifetime Low	Open Interest
Sep	1301.75	1321.50	1299.00	1315.00	8.00	1450.00	1267.00	47,365
Dec	1321.50	1340.75	1320.00	1335.00	8.00	1399.00	1285.50	1,250
Estimated volume: 123,400 contracts								
Volume Friday: 115,452 contracts Open Interest: 48,615								

E-Mini Nasdaq-100 Index futures \$20 × index								
	Open	High	Low	Settle	Change	Lifetime High	Lifetime Low	Open Interest
Sep	2301.50	2321.50	2120.00	2120.00	−98.00	4100.00	2100.00	33,212
Dec	2350.50	2371.50	2170.00	2170.00	−95.00	4150.00	2150.00	522
Estimated volume: 95,000 contracts								
Volume Friday: 91,004 contracts Open Interest: 33,734								

Note: Open interest is the total number of contracts outstanding that have not been offset. It is often an indicator of how much activity or interest there is in a futures contract.

volume is another indicator of liquidity. A trader wants to trade in liquid markets, with easy entry and exit. Contracts with low open interest and volume of fewer than a few hundred contracts should probably be traded only by more experienced traders. Exhibit 9.8 compares the major equity index futures in the United States.

LIQUIDITY

What are the forces that create liquidity? Why do some contracts trade 80,000 contracts a day and have a five- or six-figure open interest, while others trade much less? Successful futures contracts, including S&P futures, generally share five attributes:

- Large underlying cash market
- A large pool of speculators (either in open outcry or electronic platform)
- A large pool of hedgers
- The presence of arbitrageurs (with a product easy to arbitrage)
- The presence of spreaders

Exhibit 9.8 A Comparison of Various U.S. Equity Index Futures Contracts

Futures Contract	Exchange	Multiplier	Index Value	Contract Size	Average Daily Volume (in contracts)	Open Interest
E-Mini S&P 500	CME	\$ 50	1200	\$ 60,000	117,413	79,854
E-Mini Nasdaq-100	CME	20	1800	36,000	102,200	82,705
S&P 500	CME	250	1200	300,000	85,831	514,179
Nasdaq-100	CME	100	1800	180,000	21,918	53,631
Dow Jones Industrials	CBOT	10	10200	102,000	13,134	22,580
Russell 2000	CME	500	460	230,000	1,998	19,022
S&P 400 MidCap	CME	500	460	230,000	1,047	16,054
NYSE Composite Index	NYBOT	500	605	302,500	298	2,592
Russell 1000	NYBOT	500	621	310,500	229	8,199
Mini Value Line Index	KCBOT	100	1142	114,200	62	0
Value Line Index	KCBOT	500	1142	571,000	61	303
FORTUNE e-50	CME	20	350	7,000	28	123
ISDEX	KCBOT	100	225	22,500	2	64

Note: Volume and open interest data for CME products are as of February 28, 2001. All others are as of January 30, 2001.

If we did a quick attribute check on Eurodollar futures, U.S. Treasury note futures, crude oil futures, and the S&P 500 futures (Mini S&P included), we would see a very large underlying cash market in each. The amount of Eurodollar paper and U.S. government securities outstanding is in the tens of trillions of dollars. We are all aware of how large the energy market is, since it is a vital necessity. The S&P 500 Index has a total market value of \$11.5 trillion. Each of the preceding contracts is traded either in a large trading pit or on electronic trading systems that reach every corner of the world. This means plenty of speculators committing capital and making markets. Many mutual fund companies and pension funds, large and small, use S&P futures directly or indirectly to hedge their portfolios or synthetically replicate an indexing strategy. Arbitrage, a major contributor to liquidity, as well as to keeping prices in line, is quite common in the Eurodollar, foreign exchange, U.S. government securities, and S&P 500 futures areas. Take away one or perhaps two of these attributes, and liquidity will suffer. If none of these attributes is present, it is extremely unlikely that the product would have enough sponsorship or participation to survive. You need a confluence of participants executing dozens of strategies—from simple long strategies to complex cash futures arbitrage—in order to attain critical mass.

CASH AND FUTURES

Before we try to absorb some of these strategies, we have to tackle one more subject: the relationship between a stock index futures contract such as the E-Mini S&P 500 and its underlying cash index. No other subject generates as many inquiries to the index products department at CME as does the relationship between cash and futures. Will understanding this relationship make you a better trader? Maybe. Will ignoring it have negative consequences? In my opinion, it might help you achieve a bit more precision in your trading, especially if you have little or no experience in stock index futures. According to many of the tales I've heard, many poor trades can be traced to a lack of knowledge of the cash-futures relationship or basis.

If you look at a quote screen or the financial press, you'll notice that the E-Mini S&P 500 futures (and its big brother) track the underlying cash S&P 500 Index quite closely. Indeed, the correlation between them is extremely high (above 98 percent). As this discussion unfolds, you will see why they track so well. You will probably also notice that the E-Mini S&P 500 futures trade at a premium over the cash index.

(The big S&P 500 also trades at a premium over cash. And although the Mini S&P 500 and the big S&P 500 trade on two different platforms—electronic and open outcry, respectively—the prices of the two futures contracts trade extremely close to each other throughout the day.) For example on January 18, 2001, I took a sampling of Mini S&P 500 futures quotes (and the larger S&P 500 futures contract) and at the exact same time jotted down the underlying cash index. The results are shown in Exhibit 9.9.

During most of the trading session, the futures traded between 9 and 11 points higher than the cash index—a 9–11 point premium. The difference between the futures contract price and the cash prices is often referred to as *basis* or *cash-futures basis*. Typically, but not always, both large and Mini S&Ps trade at a premium to their underlying cash index. Over time, the premium can and does change, and

Exhibit 9.9 Sampling of Mini S&P 500 Futures and Cash Index Quotes

Time	E-Mini S&P 500 Futures ^a	Standard S&P 500 Futures ^a	Cash S&P 500 Index	Premium E-Mini over Cash Index
10:00 A.M.	1345.75	1345.80	1336.19	9.56
10:15	1348.00	1348.00	1338.13	9.87
10:30	1347.75	1348.00	1337.32	10.43
10:45	1347.75	1347.70	1338.30	9.45
11:15	1348.75	1348.70	1339.04	9.71
11:30	1353.50	1353.50	1343.23	10.27
11:45	1354.75	1354.80	1344.23	10.52
12:03 P.M.	1357.25	1357.50	1346.04	11.21
12:17	1359.50	1359.50	1349.10	10.40
12:30	1359.75	1359.70	1348.34	11.41
12:45	1358.25	1358.00	1347.15	11.10
1:00	1360.00	1360.00	1349.26	10.74
1:15	1363.00	1363.00	1352.07	10.93
1:30	1358.75	1358.80	1348.84	9.91
2:45	1360.50	1360.50	1349.06	11.44
3:00	1357.50	1357.50	1347.97	9.53

Note: Cash closes at 3:00 P.M. CST; futures remain open until 3:15 P.M.

^aMarch 2001 futures contracts, 57 days until March expiration.

under certain circumstances, it disappears altogether. The futures could, in effect, trade at a discount to the cash index. Why do S&P futures exhibit this pattern? Several factors are responsible for the basis in stock index futures markets, and they usually have to do with *cost of carry*. In other words, interest rates, the dividend yield on the underlying index, and the number of days to the final settlement of the quarterly futures all contribute to the basis phenomenon. Let us break it down a little at a time.

Assume for a moment that I gave you \$65,000 (the contract value of the E-mini on January 18, 2001) on the condition that you index the money to the S&P 500 index. You have two choices: (1) take all the money and buy each of the stocks in their exact percentage in the index or (2) buy an E-Mini S&P 500 futures contract. Let's examine the ramifications of each choice.

If you spent the entire sum buying each issue (assuming you could buy all 500 with such a small sum of money), you would own all 500 stocks and also be entitled to the dividend stream of these stocks. But you would also lose any interest previously earned on that money, and you might actually pay interest to finance a purchase of stocks, as pros on the Street often do. After all, you "spent" the cash on stocks that would otherwise have earned interest at money market rates. The dividend yield on the S&P 500 index is about 1.3 percent at this writing. The interest costs would have been around 6.0 percent. That is a difference of 4.7 percentage points.

For the second choice, you buy an E-Mini S&P 500 futures contract instead. Remember your basics from this and the prior chapter: The E-mini has a value of around \$65,000 (as of January 2001), but you do not have to put down the full amount. You can meet the performance bond margin requirement with only \$4,688. The remaining \$60,312 can be left to earn interest. Both choices essentially replicate a basket of the S&P 500 index stocks. With choice 1, you own the stocks directly, and with choice 2, you "own" them via a futures contract that trades virtually identically with the underlying index (see Exhibit 9.9). If you chose the futures, you get to take the bulk of the money you would otherwise have spent on stocks and earn money market rates on it. However, the futures contract pays no dividends!

In summary:

Choice 1

- Spends \$65,000 buying all stocks in the index
- Gets dividends (+1.3 percent); pays interest (−6.0 percent)
- Overall cash flow difference: −4.7%

Choice 2

- Buys E-Mini S&P 500 futures contract
- Forfeits dividend (−1.3 percent); gains interest (+6.0 percent)
- Overall cash flow difference: + 4.7 percent

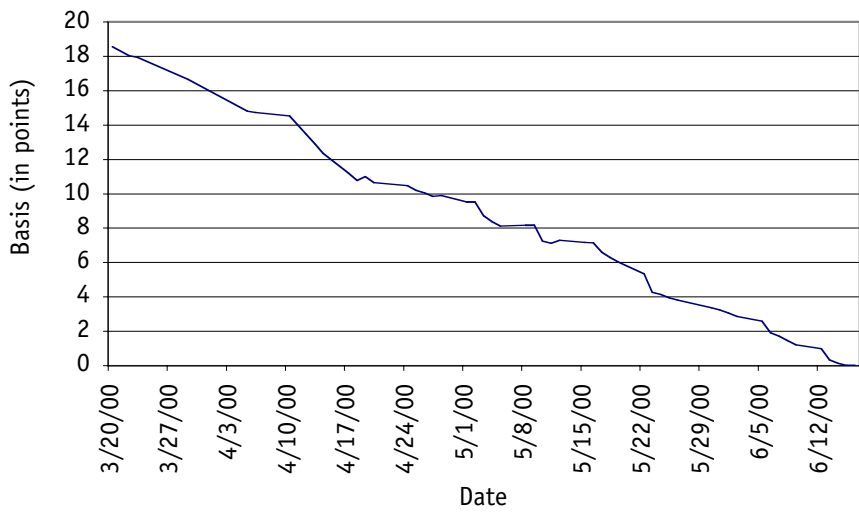
Choice 1 clearly costs the investor 4.7 percent in return, while choice 2 provides a cash flow swing of +4.7 percent. This cost disadvantage of carrying the stocks is what causes the cash S&P 500 to trade under the futures price. This cost of carry is critical with all futures contracts and is the primary reason we observe a cash-futures basis.

The discussion does not end here, since the passage of time has a large effect on the cost of carry. The closer we get to the futures contract's expiration date, the less the cost of carry becomes. A 4.7 percent cost of carry over a 57-day period will obviously be greater than the same 4.7 percent over a 10-day period. As a result, the premium will shrink as the quarterly futures expiration nears. With 57 days to expiration, dividends at 1.3 percent, and interest rates at about 6.0 percent, the premium of futures over cash should be about 9.8 points. For most of the day on January 18, we traded slightly above and below that value. As the expiration date nears, there will no longer be any dividends, and there will no longer be an interest cost because the E-Mini S&P 500 futures and regular S&P 500 futures will no longer exist after final settlement. At this point, the premium will equal zero, and cash will equal futures. This phenomenon, where the premium shrinks as expiration approaches, is a critical point in stock index futures and is known as convergence. Exhibit 9.10 illustrates how the cost of carry eventually goes to zero as we approach expiration and the cash-futures basis dissolves. If we had done the observations on December 31, 2000, instead of January 18, 2001, the numbers would have looked different because the cash and futures markets were at a different level and we had 75 days until the March S&P 500 expiration and over two weeks of additional carry costs. Hence, the premium would have been approximately 13 points.

At this point, a curious investor might ask, how were we able to tell on January 18 that the premium should have been about 9.8 points, as stated a few sentences ago? The answer is that the relationship between dividends, interest rates, days to expiration, and so on is brought together mathematically in a formula known as theoretical fair value:

$$\text{Futures theoretical fair value} = \text{Cash} (1 + [r - d][x/365])$$

Exhibit 9.10 Convergence of June S&P 500 Futures with Cash S&P 500 Index



Source: CME Index Products Marketing.

where:

- cash = underlying cash S&P 500 Index
- r = financing costs
- x = number of days until expiration of S&P futures
- d = annualized dividend yield of S&P 500

The futures fair value formula will allow you to calculate a theoretical value for the E-Mini S&P 500 or the regular S&P 500 futures contract using the cash index, interest rates, dividends, and time to expiration.

We'll work through an example using the actual values available on January 18, 2001, at 10:00 A.M. Chicago Time:

Cash S&P 500	= 1336.19
Interest rate/financing costs	= 6.0 percent
Number of days until expirations	= 57 days
Dividends to yield	= 1.3 percent
Futures theoretical fair value	= $1336.19 (1 + [.06 - .013] [57/365])$
	= 1345.99

Theoretical premium	= Fair value – actual value of cash index = 1345.99 – 1336.19 = 9.80 points
Actual premium (E-Mini over cash)	= Actual futures – actual value of cash index = 1345.75 – 1336.19 = 9.56 points

If you calculate a theoretical value for the futures and you know the cash index at any given point, then you subtract the two and get a theoretical premium. However, you will soon notice that the theoretical premium level and the actual premium level throughout the trading session are often different. In our example earlier, we said the theoretical premium should be about 9.8. In reality, it trades above and below that point throughout the day. This is a normal occurrence, since supply and demand fluctuate throughout each trading day depending on conditions, order flow, news events, and so on. The premium starts to capture a great deal of attention when the actual premium diverges from the theoretical premium by a wide amount. For example, if premium is calculated to be 9.8 points, it is perfectly normal to trade between 0 and 1.5 to 2.0 points above or below the premium. However, if the actual premium level rose substantially above the theoretical premium or dropped significantly below the theoretical premium, things would begin to happen. At this point, some savvy professional traders would begin to ply their skills in a trading strategy called *index arbitrage*—one of the many strategies that fall under the heading of program trading. These skilled professionals are called *arbitrageurs*, and they remain a mystery to the average investor despite the widespread attention that program trading and index arbitrage receive in the press. The topic of index arbitrage is a bit complicated but is nevertheless a subject that a stock index futures trader should be very familiar with.

At this point in the stock index class I teach, I usually ask my students the following question: Can you think of three scenarios where the cash-futures basis or premium would actually equal zero? Many can provide one obvious answer: at expiration, cash will equal futures. We just covered that topic. The other two answers usually elude students. What causes the E-Mini S&P 500 futures to trade above the cash index? Look at the relative level of interest costs versus dividend yields. Interest rates are almost always higher than dividend yields.

What would happen if interest rates were the same level as dividend yields? Play with the fair value equation:

$$\text{Futures theoretical fair value} = \text{cash} (1 + [r - d] x/365)$$

where

- r = interest costs (like other formula)
- cash = underlying S&P cash (like other formula)
- x = number of days to expiration
- d = projected dividend yield

We will use January 18 values again but instead put in 3 percent (.03) for interest rates as well as 3 percent (.03) for dividend yields.

$$\begin{aligned} \text{Futures fair value} &= 1336.19 (1 + [.03 - .03] [57/365]) \\ &= 1336.19 (1 + [0] 57/365) \\ &= 1336.19 (1 + [0]) \\ &= 1336.19 = \text{cash or Futures} = \text{Cash} \end{aligned}$$

You would see that if dividends and interest rates were equal, that whole side in between the parentheses becomes 1 and the futures fair value equals the cash index.

By this time, a student or someone in a seminar usually calls out, "So what?" They complain that we are dealing with pie-in-the-sky theoretical trivia—to which I respond, "Really?" Go look up the yield on interest rates and the dividend yield on stocks in November 1993. You will see something very interesting: Yields on the S&P 500 cash index were in the 2.9 percent area. Yields on 3-month LIBOR (London Interbank Offered Rate), a common measure of financing costs, were about 2.9 percent. Futures traded at very low to almost nonexistent premiums to cash, and some investors were confused. But for most of the history of the big S&P 500 futures, as well as the E-Mini S&P 500 contract, interest rates have been higher than dividend yields. However, many years ago, dividend yields were the same as or higher than interest rates. While this scenario is not likely to arise soon, it is possible, and you should be aware of the implications of fair value and premium levels to stock index futures. In addition, outside the United States, the relative levels of interest rates and dividend yields can be very different.

The third scenario that would produce zero basis is extreme bearish sentiment. It is a little more common than the previous example, which has happened for only one short time in the past 18 years. The best example regarding extreme bearish sentiment was during the Persian

Gulf War. Before Operation Desert Shield became Desert Storm, there were many attempts to resolve the situation peacefully. In one final attempt to avoid war, U.S. Secretary of State James Baker and Iraqi Foreign Minister Tariq Aziz had a meeting. At the news conference that followed, Baker uttered those unforgettable words: "Regrettably—we could not come to terms with the Iraqi government." Traders all over the world did not need to hear anything beyond the "regrettably" part. Within 20 seconds, the S&P futures (no minis at that time) were obliterated by 13 full points, a huge move back then. In a few more moments, they were down about 20 points or \$10,000 per contract (the S&P multiplier back in 1990 was \$500). It took the cash S&P and Dow Jones about 15 to 20 minutes to catch up. Stock index futures are usually more responsive than the underlying cash index. This is because it takes longer for buying and selling pressure to manifest itself in stocks because there are so many that trade on the NYSE, AMEX, and Nasdaq. Even with electronic order routing, large-scale buying and selling—the kind observed on this memorable day—does take a few minutes or longer. Large-scale buying or selling in stock index futures contracts is much easier (one contract, one exchange versus several hundred stocks on multiple exchanges) and therefore much more responsive.

The point is that after the Baker-Aziz news conference, the futures went from a normal premium situation to no premium, and for a few brief minutes they even traded at a discount to cash. The sentiment, even if it was for only a short time, was so extremely bearish that the premium dissolved in an instant. The market was on shaky grounds already, banks were weak, recession was in the air, and this was the last thing the stock market needed to hear. For the contrarians or those with ice in their veins, it was a good buying opportunity. After weeks of bombing sorties, the ground war began, and it was over in a flash. That was the bottom. The market never looked back and mounted one of the greatest advances in history over the next decade. In fact, the 1990s was the second best decade in history. Extreme bearish sentiment can last only so long.

One last point regarding basis and we will move on. The cash S&P closes at 4:00 P.M. eastern standard time. The S&P futures (mini and regular) keep trading until 4:15 EST. Many news announcements come out right after the 4:00 close. Stocks cannot react because they are closed for the day, but the futures can and have some significant moves during that 15-minute window. As a result, the basis or premium can be artificially distorted on some days. An example will make this easier to grasp. We start with these statistics:

<i>Time</i>	<i>Cash</i>	<i>Futures</i>	<i>Premium</i>
4:00	1300.00 closed	1310.00	10.00

Then Company X announces lower-than-expected earnings at 4:05 P.M., causing a sell-off in futures, which are still open for 10 more minutes. Most NYSE stocks cannot react because they are closed; some Nasdaq issues get hit in after-hours sessions. We end up like this:

<i>Time</i>	<i>Cash</i>	<i>Futures</i>	<i>Premium</i>
4:05	1300.00 closed	1308.00	8.00
4:10	1300.00 closed	1306.00	6.00
4:15	1300.00 closed	1305.00 now closed	5.00

But like all other artificial moves, the marketplace corrects the situation the next morning, and the normal cash futures basis is established either by the cash opening 5.00 points lower, while the futures are unchanged (they already made their move prior day). Or the market shrugs off the news overnight, and the futures will gain back the 5 points of lost basis while the cash market treads water. Either way, a 5-point premium probably will not last long in an environment where the normal premium is 10. Arbitrage activity or ordinary supply and demand always work to reestablish equilibrium.

10

SHORT-TERM STRATEGIES USING E-MINI STOCK INDEX FUTURES AND ETFs

Now that you are armed with several chapters of basic information, it is time to see what futures and ETFs are capable of in terms of applications and strategies. In Chapter 6, we discussed in broad terms the many strategies available using ETFs. Chapter 9 gave a brief example using E-Mini S&P 500 futures. In this chapter, we look at several strategies and applications that will begin to give you a fuller understanding of the capabilities of ETFs and E-mini stock index futures.

As a review and to create a transition into the strategy section, let's first compare some of the major characteristics of ETFs and E-mini stock index futures. Exhibit 10.1 highlights some of the comparisons between Spiders and the Mini S&P 500 futures. Exhibit 10.2 illustrates the same comparison for the QQQ and E-Mini Nasdaq-100 futures products.

We will cover nine strategies in detail. Some involve stock index futures; others focus on ETF applications. You can implement some applications with both futures and ETFs. We start out with the topic of hedging using the E-Mini S&P 500 futures, then cover anticipatory hedging, and move on to spread trading. *Spreading* is a technique that allows a trader to profit from disparate price movements in the stock market. For example, a capitalization spread would allow a trader to profit from mid-cap stocks outperforming large-cap stocks. The last remaining strategies will educate you on the many opportunities available using futures and ETFs.

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Exhibit 10.1 Comparing S&P 500 and E-Mini S&P 500 Futures with Spiders

	S&P 500 Futures	E-Mini S&P 500 Futures	SPDRs
Where traded	CME	CME	AMEX
Type of instrument	Futures contract	Futures contract	ETF/unit investment trust
Ticker symbol	SP	ES	SPY
Underlying index	S&P 500	S&P 500	S&P 500
Multiplier	\$250 × index	\$50 × index	1/10th of the S&P 500 cash index
Dollar value (with futures @1,160.00)	\$290,000	\$58,000	\$116 per share
Average daily volume (\$)	\$30 billion	\$7 billion	\$1 billion
Trading platform	Pit and electronic via GLOBEX	Electronic only via GLOBEX	AMEX floor specialist (Spear Leeds and Kellogg)
Minimum capital required^a	Margin: 7.4% (\$21,563)	Margin: 7.4% (\$4,313)	50% Reg T Margin
Transaction costs: bid-offer	2–7 basis points	4–8 basis points	9–13 basis points
Transaction costs: management fee	None	None	12 basis points per annum
24-hour trading	Yes	Yes	No
Options	Yes	Yes	No

^aAs of June 21, 2001. Subject to change.

Source: CME Index Products Marketing.

HEDGING INVESTMENT PORTFOLIOS USING E-MINI STOCK INDEX FUTURES

Over the past 18 years, the U.S. stock market has enjoyed one of the greatest run-ups in history. As measured by the benchmark S&P 500 Index, the annualized compounded return on the market was around 17 percent. Investors small and large have become more market literate as the number of mutual funds exceeds 9,000 and the number of 401(k) accounts in the United States nears 30 million. In fact, for many, the 401(k) account represents one of their largest assets, if not the

Exhibit 10.2 Comparing Nasdaq-100 and E-Mini Nasdaq-100 Futures with the QQQ

	Nasdaq-100 Futures	E-Mini Nasdaq-100 Futures	Nasdaq-100 Tracking Stock QQQ
Where traded	CME	CME	AMEX
Type of instrument	Futures contract	Futures contract	ETF/unit investment trust
Ticker	ND	NQ	QQQ
Underlying index	Nasdaq-100 Index	Nasdaq-100 Index	Nasdaq-100 Index
Multiplier	\$100	\$20	1/40th Nasdaq-100 Index
Dollar value (futures @ 1,800.00)	\$180,000	\$36,000	45
Average daily volume	\$5.0–7.0 billion	\$4–5 billion	\$2.5–3.0 billion
Trading platform	Pit and electronic via GLOBEX	Electronic—GLOBEX only	AMEX specialist (Susquehanna Partners)
Minimum capital requirement^a	\$33,750 or 19% of value	\$6,750 or 19% of value	50% Reg. T Margin
Transaction costs: bid-offer	17–38 basis points	8–16 basis points	16+ basis points
Transaction costs: management fees	None	None	18 basis points per annum
24-hour trading	Yes	Yes	No
Options	Yes	No	Yes

^aAs of June 21, 2001. Subject to change.

Source: CME Index Products Marketing.

largest. Trillions of dollars also reside in taxable mutual funds and with private money managers.

But as we all know, stock values do not only move upward. Stocks slid nearly 20 percent in just a few months in 1998's third quarter, causing jitters among investors in the U.S. markets. In addition, investors experienced declines during the 2000 calendar year as the S&P 500 showed a double-digit loss, and the Nasdaq-100 was also

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down substantially. Many wondered how bad it could get and if there was a way to protect their portfolios from significant losses.

In fact, there are ways to protect a portfolio of stocks using a variety of futures strategies. This section focuses on one in particular: using stock index futures to hedge equity portfolios. I also illustrate how investors can use stock index futures to gain market exposure—the so-called *anticipatory hedge*. Before we outline the strategies, there are a few items to consider:

- *Size of portfolio.* CME's flagship S&P 500 contract had a notional value (or contract size) of around \$335,000 as of January 2001. The E-Mini S&P 500, which trades very close to its larger brother, has a value about one-fifth the size, or \$67,000. Hence, investors with IRAs or 401(k) accounts or portfolios less than \$67,000 in size would not be able to use these products effectively. For example, consider an investor who has \$25,000 in an index fund that replicates the S&P 500 composite. If the investor wanted to hedge using the CME's Mini S&P 500, he would be hedging a \$25,000 portfolio with an instrument valued at \$67,000; he would be "overhedged" by \$42,500 (you could say his hedge would be out of balance).
- *Construction of the portfolio.* To benefit from using the various CME stock index products, the investor's portfolio must have a significant component of U.S. equities. Many investors, especially more conservative ones, have sizable stakes in bonds, money market funds, convertible securities, and so on. CME stock index futures are not designed to hedge fixed-income instruments, but to hedge equity portfolios that correlate highly with a particular index such as the S&P 500, S&P MidCap 400, Nasdaq-100, and Russell 2000.
- *Correlation of equity portfolios to CME stock index products.* Assume that you have a large enough portfolio and that it is composed mainly of U.S. equities. The next step is to determine how closely the portfolio tracks the underlying indexes on which CME stock index futures are based. For example, the S&P 500 comprises mostly larger-capitalization stocks such as General Electric, Cisco, Microsoft, and ExxonMobil (and 496 other issues). If you owned shares in an S&P 500 Index fund or even a fund or portfolio that had a lot of large-capitalization stocks, the correlation of the fund should be high, and the S&P 500 or Mini S&P 500 futures contract might be a good vehicle to hedge against a declining market. On the other hand, if your portfolio were to in-

clude smaller-capitalization stocks or even midsize stocks, the correlation of these stocks to the S&P 500 would be lower, and a futures contract based on the S&P 500 may not be suitable for your hedging purposes. A more appropriate hedge might be constructed using Russell 2000 futures or S&P MidCap 400 futures. Of course, you would first have to determine how well your portfolio tracks these indexes.

- *Tax considerations.* The taxation of futures is different from other investments and depends on the taxpayer's status and strategy. Is the taxpayer a trader? Investor? Dealer? Hedger? Any gains or losses arising from these transactions usually are subject to both the mark-to-market and the 60/40 rule at the end of the tax year. Generally this type of transaction is reported on the appropriate IRS form (Form 6781—Gains/Losses from Section 1256 Contracts and Straddles) and transferred to the Schedule D filing. A tax adviser can determine which rules apply. While tax treatment of an overall hedging strategy may be complicated, the protection offered by such a strategy merits consideration.

PROTECTING YOUR PORTFOLIO

Exhibit 10.3 displays several mutual funds along with investment returns and other information during a period in 2000, a year of generally declining stock prices. Why did I pick these funds? When the market heads south, certain mutual fund investors that have a modicum of knowledge of hedging begin to call CME. During a couple of nasty weeks in the market, I received numerous inquiries about hedging mutual fund holdings and other portfolios using the E-minis. The exhibit shows the fund holdings they were interested in hedging as the identifier. Here I briefly recount some of the discussions, though I have no idea if these investors ever acted after these conversations took place.

Along with fund name and amount invested, the exhibit lists price data for an eight-week period, including the percent return. I have also included the performance of the underlying cash indexes and their corresponding futures contracts since those would be the instruments used to hedge the funds. The table also includes some data on *R-squared values*. R-squared ranges from 0 to 100 and reflects the percentage of a fund's movements that are explained by movements in its benchmark index. (R-squared is *not* a predictor of relative performance or profitability.) An R-squared of 100 means that all movements of a fund are completely explained by movements in the index. Thus, index

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Exhibit 10.3 Using E-Mini Stock Index Futures to Hedge Portfolios

Investor/Fund	Amount Invested	Price, Mar. 24, 2000	Price, May 24, 2000	Percentage Return	R-Squared
Vanguard Index 500	\$400,000	140.74	127.54	-9.38	100
Janus Fund	110,000	50.34	40.65	-19.25	72
T. Rowe Price Blue Chip	52,000	39.75	35.56	-10.54	95
Mutual Qualified	900,000	17.14	17.64	2.90	67
S&P 500 Cash	NA	1527.46	1399.05	-8.41	NA
June S&P 500 Futures	NA	1555.40	1401.70	-9.88	NA

Note: On 3/24/01, S&P 500 futures continued trading until 3:15, running up considerably after the cash markets were closed. Their “fair value” was approximately 1545.00. At this level, the percentage decline from March 24 to May 24 would have more closely matched the cash decline. In fact, it would have been 9.4 percent.

funds that invest only in S&P 500 stocks will have an R-squared very close to 100 since they invest in the index itself. A low R-squared means that very few of the fund’s movements are explained by movements in its benchmark index. Put another way, funds with lower R-squared values move to the beat of a different drummer and will not mimic the moves of the S&P as well over the long run. In very general terms, high R-squared values mean a portfolio has a good correlation with its benchmark, the S&P 500.

The first investor had a \$400,000 balance in the Vanguard 500 Index fund. I told him he had an adequate balance and that his correlation to the S&P 500 is perfect. It should be; the fund perfectly replicates the index. That fund was down about 9.4 percent. The S&P 500 futures (and the Mini S&P 500) were down about 9.88 percent. Basically the fund was a very good candidate for hedging—if he chose to do so. He had a large enough portfolio and a good correlation with the futures, so it would have been a good hedge.

The second investor had \$110,000 in the Janus Fund. The amount invested was not adequate for the regular S&P 500 futures but could be hedged using two Mini S&P futures. However, two minis would have a

value of \$140,000. He would be hedging a \$110,000 investment with a "\$140,000 insurance policy"; he would be overhedged. This is not a bad situation in a bear market, but it is a bit risky should stocks move upward. I also told him that the fund was a bit concentrated and had a large tilt toward technology. This explains why it declined twice as much as the index did. Hence, if this investor hedged using the E-Mini S&P 500, he would have made some profits on the hedge but not enough to cover the severe decline the portfolio experienced. In summary, the tracking error and concentrated nature of the portfolio could be a problem.

The next caller had \$52,000 in the T Rowe Price Blue Chip fund. Again, this fund correlated well with the overall market, with a high R-squared. S&P futures would have been useful as a hedge in this case too. But, unfortunately, this investor had too small a portfolio. Even one Mini S&P 500 contract is too large for the amount of assets to be hedged. The person then asked if these new "Spider stocks" might be useful. I replied yes and sent her to the AMEX.

The last caller had almost a million dollars in the Mutual Qualified Fund, which I know well. Although the investor did have a large enough asset base, some items made this fund a less attractive candidate for hedging with S&P futures. The Mutual Qualified Fund is loaded with stocks that many other fund managers would never touch. Michael Price, who ran it for most of its operating history (before he sold his fund company to Franklin Templeton), had an interesting collection of investments. The portfolio had a huge value tilt, including many bankruptcy candidates, companies reorganizing out of bankruptcy, junk debt, and a whole collection of investments that much of the Street avoided. Too bad for them; this and other Mutual Series portfolios had amassed a superb track record (except for during the dot-com mania, where many value investors were left in the dust by technology). Indeed, as 2000 unfolded and much of the technology space became toxic waste, Mutual Qualified did what it usually does in adverse markets: it went up. If this investor had hedged, he would have made money on the hedge as the market slid and would have profited on the investment being hedged since the fund was up 2.9 percent during this time frame. It is nearly impossible to profit on both sides of a hedge! All things considered, the low correlation means that S&P 500 futures would not provide a good, reliable hedge in this case. (During the 1973–1974 bear market, when the S&P was down nearly 50 percent, Price's flagship fund, now run by the great team he left behind, was down less than 2 percent, an amazing but little-known accomplishment in the investing world.) This investor must closely consider

the size of the portfolio to be hedged, the construction, and the correlation to the futures contract. If an investor had investments primarily in small-cap issues, then the Russell 2000 futures might be more appropriate than the S&P 500 in this case.

THE STRATEGIES

We now provide details on how such hedges might be constructed. Remember that hedging is insuring against an adverse price move. An adverse price move to a fund holder is a down market. Thus, hedges of this sort are also called *short hedges*, since the investor would have to sell short a futures contract to protect against an adverse price move. If the market did slide, the hope is that the profits on the short hedge would offset the losses on the portfolio of stocks.

Strategy 1: Hedging a Portfolio with Stock Index Futures

Suppose you own a mutual fund or portfolio of stocks that is highly correlated with the S&P 500 composite index (R-squared = 98). The current value of the portfolio is \$140,000:

<i>Time frame:</i>	Early November
<i>Outlook:</i>	Short-term bearish; looking for a decline of at least 10 to 15 percent.
<i>Strategy:</i>	Sell two E-Mini S&P 500 futures contracts to hedge portfolio. Each E-Mini S&P futures is worth \$70,750 ($1415 \times \50 per point = \$70,750); thus, two contracts would be required to hedge a \$140,000 portfolio.
<i>Current S&P 500 index (cash):</i>	1,400.00 points
<i>Current E-Mini S&P 500 futures (December futures):</i>	1,415.00 points. Futures contracts usually trade at a premium to the cash index due to cost-of-carry factors. As expiration of the futures contract nears, this premium will converge toward zero.

Four weeks later, the S&P 500 declines 15 percent to 1190.00, your portfolio declines 15.5 percent, and December future declines 15.5 percent to 1195.00.

To determine the effectiveness of a hedging program, the hedger must calculate the profit/loss on each leg—i.e., the hedging instrument and the portfolio being hedged.

Profit/Loss Picture

Value of portfolio early November	\$140,000
Value of portfolio early December	<u>\$118,300</u>
Profit/loss on portfolio	-\$21,700

Value of E-Mini S&P 500 in early November	\$70,750 ($1415 \times 50 = \$70,750$)
Value of E-Mini S&P 500 in early December	\$59,750 ($1195 \times 50 = \$59,750$)

Gain on short hedge	+\$11,000
$\times 2$ (\$140,000 portfolio required two futures)	+\$22,000

Hedged Portfolio

Loss on portfolio	-\$21,700
Gain from futures hedge	<u>+\$22,000</u>
Overall profit/loss	+\$ 300

Unhedged Portfolio

Loss on portfolio	-\$21,700
Gain from futures hedge	<u>NA</u>
Overall profit/loss	-\$21,700

In this hypothetical example, the hedge using E-mini stock index futures fully protected the portfolio against a decline. The decline in your portfolio was offset by gains in the two E-Mini S&P futures contracts. You preserved the value of your portfolio despite a significant decline in the market of 15 percent! On the other hand, if the market had advanced, the portfolio's gains would have been offset by losses on the two E-Mini S&P 500 futures contracts. If this were to occur, you would have had to consider removing your hedge by buying back the short futures contracts so you could participate in any further upside action.

Strategy 2: The Anticipatory Hedge: Using Stock Index futures to Gain Market Exposure

You are expecting a large cash infusion from selling your business. You plan to invest the cash proceeds (about \$150,000) in the market, primarily in high-tech stocks, at the close of the deal in four to five months. Your problem now is that you are very bullish near-term, especially on technology stocks, but you lack sufficient cash to construct a portfolio immediately. Your strategy is to execute a long hedge by buying three E-Mini Nasdaq-100 futures contracts (three contracts are worth approximately \$150,000 in January 2001). The strategy has these advantages: It is easy to execute, less costly, and more efficient than buying a basket of stocks, and the initial cash outlay or performance bond would be much less than \$150,000 (in fact, it would be less than 15 percent of that amount—about \$7,000 per contract \times 3, or \$21,000).

If the market rose before you received the \$150,000 in proceeds, the futures would also tend to rise, allowing you to participate in the advance. Four to five months later, you could purchase the stocks. The higher price that you would pay would be offset by the profits in the futures contracts. If the prices of stocks (and therefore the Nasdaq-100) declined, your futures contracts would lose money. However, the cost to purchase your portfolio would also be reduced. This *anticipatory long hedge*, as it is sometimes called, allows you to enter the market immediately at a fraction of the cost.

Over the past 15 years, CME's stock index futures product line has seen tremendous growth. Much of the success in these products stems from their advantages to large institutions such as banks, pension funds, and mutual funds. Used properly, these products provide superb risk management and trading opportunities. Their usefulness, however, is not limited to billion-dollar institutions. Suitable individual investors with adequate risk capital and the appropriate type of portfolios can successfully employ these vehicles too.

Strategy 3: Spreads Using Stock Index Futures

We all read about certain market professionals who turn a profit year in and year out. George Soros, Michael Steinhardt, and dozens of others have racked up annualized returns of 20 to 30 percent for 20 to 30 years. It seems that there are some money managers, individuals, or proprietary trading houses that mint money. What is it that separates professional traders such as these from the rest of the pack?

First, they use all available resources and tools. They invest and trade more than just stocks and bonds. They trade options, futures, and other derivatives when the opportunity presents itself. Second, they are willing to play down markets; they are willing to sell short when they feel that a particular stock, sector, or asset class within the financial markets will head south. How many investors out there have tried to profit from a down market? Not many. And although the primary trend of the market has been up for much of the past 18 years, there have been some excellent seasons in which short selling would have been lucrative. The third item that sets these investors apart is their ability to recognize and take advantages of disparities in the markets. One of the many ways to play some of these disparities is with spreads in stock index futures. Spreading is a distant cousin to arbitrage, the simultaneous purchase and sale of similar or identical instruments to take advantage of small, short-lived price discrepancies. It is largely a risk-free venture. Spreading with futures is similar to arbitrage, but the price discrepancies usually last for days, weeks, months, or longer instead of being available for mere moments. Spreads also have some risk, but they have advantages too:

- In general, spreads carry lower risk than outright long or short positions.
- With spreads, you can divorce yourself from the prevailing thinking in that you do not have to predict the direction of the market. You only have to identify the disparity.
- Spreads allow you to profit in up or down markets.
- Spreading with futures usually results in lower performance bond margins.
- For most investors, it is cheaper than buying and selling a basket of stocks.

Let's look at how a typical spread would work using the E-Mini S&P 500 futures and the S&P MidCap 400 futures (contract specifications for the MidCap 400 index are provided in Exhibit 10.4). To see why we are choosing these two index futures, let us examine the returns for various indexes for the calendar year 2000:

S&P 500	-10.14%
DJIA	-6.18%
Nasdaq-100	-36.84%
Russell 2000	-4.20%
S&P MidCap 400	+16.21%

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Exhibit 10.4 S&P MidCap 400 Index Futures Contract Specifications

Ticker symbol	MD
Contract size	\$500 × S&P MidCap 400 Index futures
Minimum price fluctuation	.05 index point = \$25 per contract
Trading hours	8:30 A.M.–3:15 P.M. (regular trading hours or pit-traded hours) 3:45 P.M.–8:15 A.M. (Globex trading hours)
Contract months	March, June, September, December (H, M, U, Z)
Last day of trading	The Thursday prior to the third Friday of the contract month
Quarterly futures settlement	Settled in cash on final day of trading to the special opening quotation (SOQ) on Friday morning of the S&P MidCap 400 Index

Most major indexes were down, especially the tech-heavy Nasdaq-100. The Russell 2000, composed primarily of small stocks, was also down, but by not nearly as much as the Nasdaq-100 and the S&P 500. The MidCap 400, the benchmark for midsize companies, left the rest of the market in the dust, not only showing a gain for 2000, but outperforming the S&P 500 by 26 percentage points. In addition to manifesting themselves in the stock markets, these disparities also show up in currency markets, agricultural markets, and the fixed-income market (in particular, along the yield curve in U.S. Treasuries).

By spring 2000, technology issues were undergoing a significant correction. The large-cap S&P 500 was also correcting, but to a much smaller degree. But the MidCap 400 was showing gains on the year. One April day, I received a phone call from a good trader/friend I'll refer to as the Gnome of Zurich (*Gnome of Zurich* was a term coined by an English politician decades ago to describe currency and gold traders in Switzerland. They had a reputation at the time of being very clever speculators. You can read a hilarious account of the Gnomes of Zurich in Adam Smith's *The Money Game*).¹ The Gnome who called me liked to trade Mini S&Ps and Mini Nasdaq-100 futures and also loved to trade spreads. He had noticed over the course of a few weeks that the midsize stocks were holding their ground during the sell-off that engulfed other sectors of the market. He also reminded me that the S&P 500 had five superlative years of performance—five straight years with returns greater than 20 percent. This is unequalled in financial history.

The Gnome figured that it was time for small stocks and midsize stocks to have their day. Admittedly, over the past few years, many folks have prematurely predicted the arrival of the small- and mid-cap renaissance. The Gnome is not your average trader, and he was one of those who watched those Super Bowl dot-com ads and proclaimed that the bell was clanging loudly and was giddy over the possibilities of a top in tech. He also knew that the technology sector at that time composed over 30 percent of the S&P 500 and figured that if it was heading south, it would create a huge drag on the performance of the S&P 500 Index. He stated in no uncertain terms, "The time is ripe. Time to go long mid-caps and short large caps." Let's see how his trade worked out, since I was privy to some of the details. Here is the information for April 28, 2000:

Long 3 September S&P MidCap futures (MDU is ticker symbol)	@ 488.25
Short 10 September E-Mini S&P 500 futures (ESU is ticker symbol)	@ 1481.50
Dollar value of long 3 MDU = \$732,375	
Dollar value of short 10 ESU = \$740,750	

The reason for the 3-to-10 ratio is to establish a dollar-neutral position. The Gnome wanted to be long a certain dollar amount of mid-cap futures and short the same (or nearly the same) dollar amount of large-cap futures for the strategy to be effective. In this example, he was long a \$732,000 basket of mid-cap issues and short a \$740,000 basket of large-cap issues. He could also have done the trade in a 3-to-2 ratio by going long three MidCap futures and short two regular-sized S&P 500 contracts. Normally, the performance bond margin for a 10 short Mini S&P 500 alone would be about \$47,000 ($\$4,688 \times 10$). The margins for the MidCap futures would also add to the bill. However, the performance bond margin for this spread trade is substantially lower. Why? Because spreads tend to reduce risk. You are simultaneously long one section of the market and short another in virtually equal amounts. Because there is generally less risk than the outright long or short position, the firms and the Clearing House reduce the margins. To duplicate this strategy with stocks would take an incredible amount of capital.

Let us see how things progressed.

By the end of May, the overall market had drifted lower, led by Nasdaq stocks. The S&P 500 was also lower. But the S&P MidCap 400 index was only slightly lower:

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MDU = 484.80 (mid-caps down .71 percent)

ESU = 1443.75 (large-caps down 2.54 percent)

P/L long MDU = $484.80 - 488.25 \times \$500 \times 3$ = - \$ 5,175

P/L short ESU = $1443.75 - 1481.50 \times \50×10 = + \$18,875

P/L spread = + \$13,700

Note in these figures that the S&P MidCap 400 futures have a \$500 multiplier, the Mini S&P 500 a \$50 multiplier, and the regular S&P 500 a \$250 multiplier. (See the contract specifications.)

One of the great advantages to spread trading is that spreads can work in up and down markets. The Street is filled with bright financial types who are paid handsome sums to predict Fed Chairman Greenspan's next move or to predict where GNP will be in the fourth quarter of 2004. The trader of a spread can divorce himself from prevailing wisdom—he doesn't care what Greenspan does, doesn't care if GNP rises a little, doesn't care if the employment cost index jumps a point or two. He/she only cares about the spread between the large- and small-caps. During this time only one thing matters and that is that mid-sized stocks go up more than large-caps do or that mid-cap stocks go down less than large-caps do. In this case, by May 31, 2000, the S&P MidCap 400 futures were down .71 percent. The Gnome lost over \$5,000 on that part of the spread (each part of a spread is called a *leg*). But the large-caps measured by the Mini S&P 500 futures declined an even greater amount—2.54 percent—and that leg of the spread showed a profit of \$18,875. Overall, the profit on the spread was \$13,700 at this point.

By the end of June, large-caps rallied a bit and caused the spread to give up some of its gains:

MDU = 488.30 (mid-caps up .01 percent from inception of trade)

ESU = 1468.00 (large-caps down .91 percent from inception of trade)

P/L long MDU = $488.30 - 488.25 \times \$500 \times 3$ = + \$75

P/L short ESU = $1468.00 - 1481.50 \times \50×10 = + 6,750

P/L spread = + \$6,825

But as summer progressed and the market regained some of its footing, midsize issues began to hit their stride. Here are the figures for July 19, 2000:

MDU = 511.25 (mid-caps up 4.7 percent since inception of trade)

ESU = 1498.00 (large-caps up 1.1 percent since inception of trade)

$$\begin{aligned}
 \text{P/L long MDU} &= 511.25 - 488.25 \times \$500 \times 3 &= +\$34,500 \\
 \text{P/L short ESU} &= 1498.00 - 1481.50 \times \$50 \times 10 &= -\$ 8,250 \\
 \text{P/L spread} & &= +\$26,250
 \end{aligned}$$

The S&P MidCap 400 Index widened the gap over the S&P 500 Index and for the remainder of the 2000 never looked back. In summary, the spread worked very nicely. It worked in a rising market and a falling market, without having to predict which way the market was going. The risk in this kind of trade would only be if you surmised wrong, and mid-cap stocks underperformed large-caps.

This type of strategy would be particularly useful to someone wishing to capitalize on the well-known *January effect*: the seasonal tendency for small and midsize stocks to outperform large-cap stocks during the beginning of the year. Although it does not happen every year, it is something traders keep their eye on. As late December approaches (sometimes the effect arrives as early as November), stocks that have depreciated significantly, usually small- and mid-cap stocks (large stocks tend to hold up better in major slides), fall victim to even greater seasonal selling pressure due to selling for tax purposes. Investors bail out of major losers, take the loss for tax purposes, and sometimes repurchase these or other issues in January so as not to run afoul of the IRS 30-day wash-sale rule. When the new year begins, the tax selling abates, and sometimes there is buying pressure during January. New-year contributions to IRA and 401(k) accounts and mutual fund quarter-end and year-end window dressing also contribute to this seasonal tendency. The overall result is that small-cap and mid-cap stocks tend to outperform large-cap issues in January. Sometimes the effect carries further into the new year. Like Pavlov's dogs, the press is replete with its lists of stocks to buy for that proverbial January bounce. There are two problems with this, though.

First, how much of the investing public has enough capital to put together a diversified package of small- or mid-cap stocks? Second, what if the overall market, including small- and mid-cap stocks, heads south in an important way? Many investors are well short of the capital required to assemble a large enough portfolio of these types of stocks, and if the market does decline, the outright owner of stocks loses money. Hence, the benefits of trading a spread are clear. Spreads can work in a down market and cost much less (in terms of capital required and commissions) than buying even 5 or 10 small- and mid-cap stocks, and the investor gets the movement of 400 midsize companies in the case of the S&P MidCap 400. An investor who thought that small stocks were going to outperform their larger brethren could then go

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long Russell 2000 futures and short the S&P 500 futures or the Mini S&P futures in the appropriate ratio.

In a similar vein, investors could also spread style indexes with both futures and ETFs. For example, each year from 1995 through 1999, the S&P 500/Barra Growth Index outperformed the S&P 500/Barra Value Index:

<i>Year</i>	<i>Growth Index</i>	<i>Value Index</i>
1995	38.13%	36.99%
1996	23.97	22.00
1997	36.52	29.98
1998	42.16	14.69
1999	28.25	12.73
2000	-22.07	5.99

An investor who caught even a small part of that multiyear trend would have profited and could have traded the spread from both sides. As the new paradigm finally wore out its welcome in April 2000, the old economy came thundering back, and the S&P 500/Barra Value Index trounced its growth counterpart by 28 full percentage points. Both the Growth and Value futures trade at CME. There are also iShares ETFs on both. The investor has literally dozens of spreading strategies available. Exhibit 10.5 shows some of the possibilities. They all can be played from both sides too. When properly implemented, these strategies can unlock a multitude of opportunities that were previously available to only a few professionals and institutions.

Strategy 4: Using ETFs to Implement Sector Shifts

The myriad of sector ETFs and HOLDRS products have made the shift into and out of various sectors much easier for both individual investors and institutional giants. Many of the major firms on Wall Street perform lengthy and detailed analysis. They analyze reams of fundamental, technical, and economic data and rate various sectors as more attractive or less attractive. They then recommend to clients appropriate overweighting in attractive sectors and underweighting in unattractive sectors. Before we get into the strategy, we'll examine the breakdown of the major sectors and their weights in the S&P 500 benchmark as of December 31, 2000, shown in Exhibit 10.6.

Assume a high-net-worth portfolio of \$25 million invested according to the weight-in-portfolio column in Figure 10.6, \$4.5 million, or 18 percent, is invested in the technology sector. This investor's firm, whose

Exhibit 10.5 Spread Matrix

Outlook	Spread Choices	Instruments Available
Large-cap outperforms mid-cap	Long S&P 500, short S&P MidCap 400	Futures (CME), SPDRs, iShares (AMEX)
Large-cap outperforms small-caps	Long S&P 500, short Russell 2000	Futures (CME), iShares (AMEX)
Large-cap outperforms small-caps	Long S&P 500, short S&P SmallCap	SPDRs/iShares (AMEX)
Large-cap outperforms small-caps	Long Dow DIAMONDS, short Russell 2000 or S&P SmallCap	DIAMONDS, iShares (AMEX)"
Large-cap outperforms small-caps	Long Russell 1000, short Russell 2000	Futures (CME, NYBOT), iShares/(AMEX)
Large-cap outperforms small-caps	Long Russell 1000, short S&P SmallCap	iShares (AMEX)
Large-cap growth outperforms large-cap value	Long S&P 500/Barra Growth, short S&P 500/Barra Value	Futures (CME) and iShares (AMEX)
Large-cap growth outperforms large-cap value	Long Russell 1000 Growth, short Russell 1000 Value	iShares (AMEX)
Large-cap growth outperforms large-cap value	Long DJ US LargeCap Growth, short DJ US LargeCap Value	streetTRACKS (AMEX)
Mid-cap growth outperforms mid-cap value	Long S&P/Barra Midcap Growth, short S&P/Barra Midcap Value	iShares (AMEX)
Small-cap growth outperforms small-cap value	Long S&P SmallCap/Barra Growth, short S&P SmallCap/Barra Value	iShares (AMEX)
Small-cap growth outperforms small-cap value	Long Russell 2000 Growth, short Russell 2000 Value	iShares (AMEX)
Small-cap growth outperforms small-cap value	Long DJ US SmallCap Growth, short DJ US SmallCap Value	streetTRACKS (AMEX)
Total market growth outperforms total market value)	Long Russell 3000 Growth, short Russell 3000 Value	iShares (AMEX)

Exhibit 10.6 Sector Weighting Shifts

Sector	Index Weighting (%)	Weight in Portfolio (%)	"Firm" Recommends (%)
Technology	20.0	18.0	22 (overweighting)
Finance	16.9	15.0	20 (overweighting)
Health care	14.0	14.0	14 (normal weighting)
Consumer services	11.8	11.8	11.8 (normal weighting)
Capital goods	8.9	8.9	8.9 (normal weighting)
Consumer nondurables	7.4	7.4	7.4 (normal weighting)
Energy	6.7	6.5	6.5 (small underweighting)
Other	14.3	18.4	

research she follows closely and respects, recommends a 22 percent weighting in technology, or \$5.5 million exposure. The investor decides to raise her tech exposure by \$1.0 million by going long the Technology Select Sector SPDR. At \$37.00 per share, she would need to buy just over 27,000 shares. (She could buy the DJ US Technology iShares or the MS High Tech 35 streetTRACKS as alternatives.) There are two reasons for choosing ETFs as opposed to just picking the stocks: cost and time. Execution in the ETF is a simple one-transaction deal. It is not necessary to research several possible companies as candidates since the sector Spider covers the entire spectrum in technology. The costs of one transaction are very low, and the liquidity is excellent. Using the Financial Select Sector SPDRs, the investor could also raise her financial sector threshold to the desired level just as easily.

Underweighting a sector or eliminating it altogether are also possible using the ETFs. For example, suppose an investor wants to own the S&P 500 ex-utilities. I had a conversation with the head of a small endowment fund that was largely indexed to the S&P 500. He expressed his dislike for utilities and wished he could own the S&P without the utilities exposure. I thought this was a strange wish; endowments are typically on the conservative side, and utility investing is in keeping with that degree of risk. I explained that he could remove the utilities in one clean sweep by selling Utility SPDRs. I asked the size of his endowment, and he said small—about \$50 million. I knew that utilities as a sector composed about 2.0 percent of the S&P

500 and the Utilities Select Sector SPDR traded around \$25 per share. I pulled out my calculator and tapped a few numbers: $.02 \times \$50 \text{ million} / \$25 = 40,000$. I told him he could have his wish by selling 40,000 Utility Select Sector SPDRs. He thanked me for the information and said farewell. I hoped he did not excise his utility exposure since one of the best-performing sectors that year was utilities.

Until the advent of ETFs, this kind of flexibility required very deep pockets and institutional connections. Now, anyone armed with enough money to open a brokerage account can benefit.

Strategy 5: Using ETFs to Gain Country or Regional Exposure

I took a call in 1998 around the time of the Asian and Russian crises. The Dow and S&P were getting hammered; they were down about 20 percent. Some of the Asian markets were decimated. Hong Kong's Hang Seng went from 15,000 to below 10,000. The Malaysian market melted down, and Singapore also suffered severe losses (as did Thailand, Korea, and Taiwan). Nevertheless, an investor just returned from the region was impressed with the progress there since her last trip many years ago. She knew things were cheap and thought that in 5 to 10 years, these countries would be back in vogue. She had about \$10,000 to invest. I said futures were out of the question since the only futures we trade in the region was the Nikkei 225 and the margin was quite a bit higher than \$10,000. We did not have futures on the Singapore Straits Times index or on any Malaysian or Korean index. We did have a Dow Jones Taiwan Index, but it just could not develop enough activity, and the time zone difference was a problem (although it is not with the Nikkei for some reason). I could not help her but suggested she call her broker and buy 100 shares each of every WEBS product in the region. (WEBS stands for World Equity Benchmark Shares—since renamed iShares MSCI.) The Singapore WEBS traded below \$7.00 per share, and Malaysian WEBS were going for about \$3.50 per share. It was a 30 to 50 percent off sale in the Pacific Rim! And she would have enough left over to pick up some Latin American bargains too. She seemed delighted.

The region did recover, although some economies are still in the doldrums. The WEBS did appreciate some in the next year or so. And if sector and style investing are not enough, with the iShares MSCI and other regional and international ETFs, obtaining fast, easy exposure to just about any point on the globe is within your grasp.

Strategy 6: Using Futures or ETFs to Relieve a Hostage Crisis

From 1998 through the early part of 2000, many Silicon Valley employees hit the mother lode in investing. Lush stock options and holdings in corporations whose stocks had soared in a few months created new millionaires. But many of these newly rich were held hostage to their holdings or stock options. Many had lock-ups of six months or more and also did not want to face the tax liability. After all, the gains were immense. Why would anyone want to share up to 39.6 percent of their wealth with Uncle Sam? In retrospect, this thinking proved foolish; many investors now look back and would gladly have paid their taxes rather than be left holding shares that have declined substantially.

One person in this situation had thousands of shares of a high-tech firm and could not get out for a while. This person was scared that his net worth was going to be wiped away before his eyes. Could he do something in Nasdaq futures? Yes, he could. But he might want to check with his company and his brokerage firm for any restrictions. He would need capital to come up with the performance bond margin, and he would need several E-Mini Nasdaq-100 futures to cover the entire amount should he wish to go that route (as an alternative, he could hedge part of his holdings). Remember that he had lots of stock but not lots of cash, and there would be risks. He could sell short E-Mini or regular Nasdaq-100 futures. If technology overall got wrecked (which it eventually did) he would have some kind of hedge, some insurance, should his company be dragged through the mud too. But the risk would be if the Nasdaq-100 held up or continued to rally and his company slumped in the market. Then his hedge would lose, and his stock would lose value. One additional risk would be if both stock and the Nasdaq-100 soared. He would lose on the hedge, which would offset the gain on his rising stock holdings—unless the stock rose much more than the Nasdaq-100 index, in which case his profits in the stock would more than offset losses in the index hedge. ETFs could have worked too, but they would have required a lot more capital given the margin rules on selling ETFs short. I wish I knew the outcome.

Some of these situations are quite intriguing. Imagine being worth mid six-figures or even seven-figures and not being able to touch the stock. Then imagine the stock starts heading south. This individual's plight was shared with thousands of other corporate workers in the tech industry. Too few people are aware of the strategies made possible through futures, ETFs, and other types of derivatives.

Strategy 7: Perils of an Index Fund Manager: Using Stock Index Futures for Cash Equitization

If you take a close look at the Morningstar performance data on the Vanguard 500 Index Fund, you'll begin to notice something intriguing. At several intervals, the fund has beaten the index. For instance, the three years ending January 26, 2001, saw the fund up 13.80 percent on an annualized basis—4 basis points better than the S&P 500 itself. Any normal investor would expect the fund at best to match the performance of the index minus any fees and expenses. Thus, the best the investor would hope for would be the index minus 18 basis points. With Vanguard's performance, the investor no doubt is left wondering how the manager pulls off this feat. There are probably two reasons. First, the Vanguard Group is dedicated to bringing costs down like few other firms are. Second the manager, Gus Sauter, skillfully uses futures contracts sometimes to buy the S&P 500 on the cheap. If the index were at 1300.00 and you could, through skillful trading, buy it at 1299.00, you would pick up a bit of performance edge. Do this often enough, and the savings would add up to a few basis points of performance advantage. A few basis points might add only a few cents on small accounts, but on mid- and larger-size accounts over 5 or 10 years, the cheapskate factor will make a significant difference.

How would a manager accomplish this? By using futures when they provide a price advantage. The theoretical fair value of stock index futures comes into play in this strategy. Let's look at some prices. Assume that a manager has \$1 million to invest:

S&P 500 futures (E-Mini and regular) at:	1311.00
Cash S&P 500 Index trading at:	1300.00
Actual basis	11.00
Days to expiration	90 days
Interest rate or financing costs	6.0 percent
Dividend yield on index	1.3 percent

The theoretical fair value of futures should be equal to:

$$\begin{aligned} &\text{cash } (1 + [r - d] [x/365]) \\ &1300.00 (1 + [.06 - .013] [90/365]) \\ &1315.10 \end{aligned}$$

Here is the theoretical basis:

$$\begin{aligned} &\text{Theoretical fair value minus actual cash S\&P} \\ &1315.10 - 1300.00 \\ &15.10 \text{ points} \end{aligned}$$

Now, further assume you are an index fund manager, and your back office informs you that \$1 million in new money needs to be invested. As an index fund, that cash must be invested immediately. If the market was up 3 percent the next day and he held cash instead of the stocks in the S&P 500, then he would experience a cash drag and underperform the index.

If you were an index fund portfolio manager and saw the data above, what would you do? Would you invest the \$1 million in the actual stocks in the index—that is, buy the cash instrument (very easy to do with a computer)—or would you buy the futures? The fair value of the S&P 500 is 1315.10. But due to short-term supply and demand conditions, the futures are 4.10 points cheaper than they are supposed to be given interest rates, dividends, and time to expiration. Anytime a skilled index fund manager could buy the futures 4.10 points cheaper, he would seize the opportunity. For large and midsize funds, it is likely the manager would use the regular-size S&P 500 futures (with value about \$335,000). For smaller accounts, the E-Mini S&P 500 might be used.

This relationship between the relative prices of cash and futures plays out daily. For traders and arbitrageurs, the fair value is quite important in establishing buy and sell points. Similarly, it is important for fund managers to earn every basis point of performance possible. Skillfully exploiting anomalies in cash and futures is one tool that will help managers accomplish this goal.

This technique is called *cash equitization* because it allows the manager to invest in equities (“equitize”) by purchasing futures contracts. Instead of spending the \$1 million on stocks, he is doing so synthetically by futures. Buying three S&P 500 futures contracts with a value of \$335,000 each is the same as buying a \$1 million basket of stocks in the S&P 500 index. (In reality, the three futures give \$1 million in exposure, but the performance bond margin requirement for the three contracts would be about \$70,000.) The exposure is identical, but with the futures at a discount from fair value, the S&P 500 index is cheaper in price. Later, as the cash and futures basis returns to normal, the portfolio manager could then choose to invest cash while selling or offsetting the futures contracts as time passes. The manager could also hold the futures until expiration. If, on the other hand, the futures were priced at 1318.10—3.00 points more expensive than they are supposed to be—the manager would avoid the futures and buy the cash basket instead.

Strategy 8: “The Perfect Storm”— A Case Study in Oversold Markets

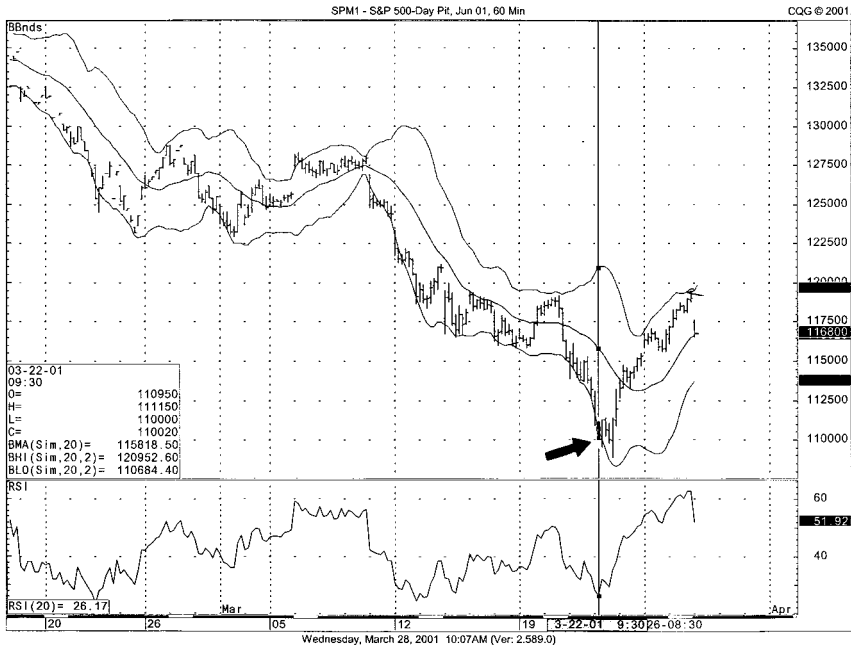
In late March 2001, the market was suffering a devastating storm, with damages in the hundreds of billions of dollars. On March 22, 2001, we had three perfect ingredients coming together. A bad month for the market was getting worse as the Dow sliced through 10,000, then 9900, 9800, 9700, and on down. Tech was taking even more punishment. The S&P futures were down over 40 points. The Dow was down about 330 points.

The phone rang. It was the Gnome of Zurich, imitating the meteorologist in the movie *The Perfect Storm*: “First, you have huge selling. Every major index and sector is heading south. The monthly relative strength index [RSI] is 16! [A monthly reading below 20 is extremely oversold and extremely rare.] Second, you have the S&P 500 collapsing, well beyond the lower boundary on the Bollinger Band chart—indicative of massive selling. Just a few moments ago, the third ingredient came into play. CBOE’s volatility index [sometimes a market barometer of fear] is 40.65 percent [average is about half that level]. Waves of panic selling are crashing down on the market. This kind of selling climax will produce a rally of dramatic proportions. It is the perfect selling storm! I’m getting long the E-Mini S&P 500 at 1100.00.”

Prophetic words indeed. The market that day stabilized, and then a final wave (for now) of selling took the market down nearly 400 points. But in the last few hours, it began clawing its way back from a 400-point deficit and closed down only 98 points on the day. Within three trading days, the S&P was 70 points higher and the Dow 700 points higher than they were at the moment of the Gnome’s phone call. Exhibit 10.7 shows a chart of two of the three indicators.

This example culls three popular indicators together in one trade. On that day, each reading on its own would have been a good indicator that the selling had hit its peak and that the market was overdue for a rebound.

RSI, or relative strength, is an overbought or oversold indicator that is carried by most technical analysis packages and vendors. There are short-term (intraday) and longer-term RSI readings. RSI readings of 75 or above indicate the market is getting quite overbought and are usually accompanied by several days of strong market advances. During the final phases of the bull market in 1999–2000, readings of 80 or higher were frequent. RSI readings below 25 to 30 are the opposite and

Exhibit 10.7 Hourly S&P 500 Futures with Bollinger Bands and RSI

Source: CQG, 2001. Reprinted with permission.

represent weakness in the market. At the extremes—75 and 25 (or 80 and 20 as preferred by some)—the RSI is used as a contrarian indicator. Above 75 or 80 means the market has worked significantly higher and a correction is in order. Below 30 or 25 means the market is over-sold and due for a rally, even if it is short term in nature.

CBOE's volatility index, the VIX, normally measures between 18 and 30. As traders become scared that the market may melt down, they run to the options market for protection, usually buying put options (which increase in value when the market declines). The huge demand for puts (and options in general) causes their prices to skyrocket. VIX readings above 35 percent generally indicate some fear in the market. One way to measure this fear is by volatility. Quote vendors and charting packages sometimes offer VIX levels throughout the day. *Barron's Financial* magazine carries it weekly and has some historical VIX data as well. On March 22, the VIX registered 40.65 percent in the late morning—a huge reading and indicative of panicky put buyers. In the past, readings at the 35 to 40 percent level have been excellent indica-

tors of an oversold market on the verge of a rebound. In 1997, 1998 high readings were very accurate. In 2000 we also had good bounces following high readings. March 22, 2001, was the latest high reading that worked quite satisfactorily.

When the Gnome talked about the collapse of the S&P 500, he spoke of the *Bollinger Bands*—which are upper and lower boundaries calculated using statistical standard deviation. Most daily market movements are confined to one or perhaps two standard deviation moves. Bollinger Bands take the current market price and a standard deviation (or two) above and below the current price. Piercing these boundaries is an indicator to some technical analysts of an overbought (if the upper boundary is broke) or oversold (if the lower boundary is broke) condition.

Interestingly, all three of these indicators registered oversold on March 22. To be sure, the market could have continued south, but well placed stop-loss orders would have limited risk. The Gnome's limit was 20 points, for a maximum risk of \$1,000 ($20 \times \$50/\text{point} = \$1,000$). Thus, if we declined to 1080.00, he would have been out of the trade.

For those wishing to dig deeper into the world of technical indicators and trading systems that employ them, see the Suggested Reading list at the end of this book.

Strategy 9: Profiting from the "Month-End Bulge": Using the E-Mini S&P 500 or Spiders.

This strategy has proponents and detractors, but the numbers are quite interesting. I first read about it in Yale Hirsch's *Stock Trader's Almanac*, an interesting annual publication loaded with useful statistics. It is referred to as the "Month-End Bulge," with the name deriving from the fact that the market seems to strengthen around the last trading day of the month and into the first few days of the next month. It is a simple long-only mechanical system. You enter the trade at the close of the last trading day of the month. Some use a slight variation and include being in the market on the entire last day. In this variation, you would have to be a buyer at the close on the second to the last day of the month. With either variation, you exit the trade at the close of the fourth trading day of the next month. Exhibit 10.8 shows how the market has behaved over the past few years. In all, there were 26 trades, with 10 losers and 16 winners.

You must be willing to do this over the course of time because there will be times when the strategy fails several months in a row. And like Strategy 8, you must be willing to exit the trade at a predetermined

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Exhibit 10.8 Month-End and Beginning-of-the-Month Rallies

	S&P 500 Closing Price, Last day of the Month	S&P 500 Closing Price, Fourth Trading Day of Next Month	Profit/Loss, in Points
January/February	1366.01	1352.22	-13.79
December/January 2001	1320.28	1298.35	-21.93
November/December	1314.95	1351.46	36.51
October/November	1429.40	1432.19	2.79
September/October	1436.51	1436.28	-0.23
August/September	1517.68	1502.51	-15.17
July/August	1430.83	1462.93	32.1
June/July	1454.60	1478.90	24.3
May/June	1420.60	1457.84	37.24
April/May	1452.43	1409.57	-42.86
March/April	1498.58	1501.34	2.76
February/March	1366.42	1391.28	24.86
January/February	1394.46	1424.37	29.91
December/January 2000	1469.25	1403.45	-65.8
November/December	1388.91	1423.33	34.42
October/November	1362.93	1362.64	-0.29
September/October	1282.71	1325.40	42.69
August/September	1320.41	1350.45	30.04
July/August	1341.03	1305.33	-35.7
June/July	1372.71	1395.86	23.15
May/June	1301.84	1327.75	25.91
April/May	1335.00	1332.05	-2.95
March/April	1286.00	1326.89	40.89
February/March	1238.33	1246.64	8.31
January/February	1279.64	1248.49	-31.15
December/January99	1229.23	1269.73	40.5

Note: In the first column, the first month listed is for the month end, and the second is for the beginning of the month.

point (stop-loss order) should a severe decline occur during this time period. Critics complain that the strategy has lost its touch over the past few years and that it has worked only because we have been in a super-bull market and the month-end timing is irrelevant in a major upswing. In my opinion, the strategy is worth at least a look; Exhibit 10.8 shows that it was profitable about two-thirds of the time. As a homework assignment, you could keep an eye on this strategy and map out how it performs in up and down markets. With declines in many of the major averages in early 2001, we could very well see how the sys-

tem performs in down markets. The nice thing about it is its simplicity, with no need for complex algorithms, spreadsheets, or charts. It would be a great place for a beginner to learn about markets and systems.

SOME TRADING SUGGESTIONS FOR THE NEW E-MINI STOCK INDEX TRADER

Before we move on, a few suggestions are in order. They are the result of hundreds of conversations with traders, large and small, successful and unsuccessful:

- Do your homework. Without the correct facts and thorough analysis, profits will be much more difficult to come by.
- Try not to ask, “Why?” Amateurs ask why the market is moving up or down. Professionals try to profit from the movement and do not care why it is moving.
- Even successful traders are wrong the majority of the time, yet with prudent risk and money management, they can profit handsomely.
- Many traders cannot accept three consecutive losses before losing discipline or giving up.
- “Expert” forecasts are generally not as good as you would think.
- There is not a large correlation between intelligence and success. Brilliant people lose money. It does not take a Mensa-level IQ to profit in this business.
- The vast majority of traders lack discipline and a trading plan.
- Lack of capital, lack of money management, and lack of knowledge are the three top reasons that traders and investors lose money.
- Systematically analyze your past trades. What is the average size of your losing trades? What is the average size of your winning trades? What is the average overall? What is your biggest gain? Biggest loss? You may be able to avoid mistakes by observing your past behaviors.
- Develop mentor relationships if possible. One or two sound principles that you learn from a mentor could be a catalyst for a sound trading plan.
- Learn to trade spreads. They will allow you to profit in up or down markets and also allow you to divorce yourself from the prevailing thought of trying to figure out where the market is heading.

- Keep a diary. You may discover something over time by cataloguing your thoughts and actions.
- Read and filter. Read lots. Much of what you read will prove to be of little use in terms of profitable trading. But every so often you will get an idea that will be a grand slam. I almost never invest or trade off what I read in magazines—and I read many of them. But years ago I read an article on Pfizer's immense pipeline of new drugs. The article made no mention of Viagra at the time. I bought the stock based on a very well-written article. I had doubled my money in a few months—and then Viagra was released, and I doubled it again, all within 18 months. It was one of the single best trades I ever made, and I got the idea from a magazine.
- Keep things on a simple level. Complicated strategies that require too many decisions will be less profitable over time.
- Guard your emotions. Fear and greed are okay to a point. But blind greed caused a lot of people to lose a lot of money during our recent Internet bubble. Fear will cause you to sell out at the bottom or cover shorts at the top. At times this will be unavoidable. But if you make a habit of it, you will not last long in the investing or trading business.

REVIEW QUIZ (PART III)

1. The two main differences between the regular S&P 500 futures and the E-Mini S&P 500 futures are
 - a. the underlying index and contract size.
 - b. the underlying index and the exchange where they trade.
 - c. the contract size and the method or platform of trading.
 - d. the number of stocks in the underlying changes from 500 to 100.
2. Futures exchanges play a role in which of the following?
 - a. price discovery process
 - b. risk transfer process
 - c. stock splits
 - d. ETF formation
3. The regular S&P 500 and E-Mini S&P 500 are settled by the
 - a. cash-settled process.
 - b. physically delivery process.
 - c. never settled.
 - d. T+3 process.
4. Each day the CME Clearing House pays and collects balances from clearing firms. The firms in turn debit and credit accounts with open futures positions depending on the movement of the futures in question. This process is called

- a. initial margin.
 - b. variation margin.
 - c. profit margin.
 - d. loss margin.
5. You can generally trade a futures contract through the same account as you trade stocks. True or false?
6. Which of following applies to the SEC and the CFTC:
- a. SEC regulates securities markets.
 - b. CFTC regulates commodities markets.
 - c. SEC regulates price levels of commodities.
 - d. CFTC regulates price levels of commodities.
7. The regular S&P 500 futures and the E-Mini S&P 500 futures are successful largely because of
- a. a large underlying cash market.
 - b. a large pool of speculators.
 - c. a large pool of hedgers.
 - d. the presence of arbitrage traders and spreaders.
8. Which of the following is true concerning S&P futures and their underlying cash index?
- a. S&P 500 futures generally trade at a premium to the cash index.
 - b. S&P 500 futures always trade at a discount to the cash index.
 - c. S&P 500 futures do not track the cash index.
 - d. S&P 500 futures always trade at parity with the cash index.
9. Which of the following can be said of stock index futures in general?
- a. They trade exactly at their fair value throughout the day.
 - b. They trade well above their fair value on holidays.
 - c. They trade well below their fair value on holidays.
 - d. They trade a little above and below their fair value throughout the day.
10. Which of the following variables will affect the theoretical fair value of a futures contract?
- a. interest rates
 - b. dividend yields
 - c. time to expiration
 - d. level of cash index
11. Futures contract specifications give information on
- a. delivery or settlement months.
 - b. trading hours.
 - c. contract and tick size.
 - d. how to make money.

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12. Convergence in the S&P 500 and E-mini S&P 500 futures usually occurs at
 - a. expiration.
 - b. election years.
 - c. every year.
 - d. the end of the age.
13. A trader buys the E-Mini S&P 500 at 1300.00 and sells it 3 weeks later for 1307.00. The trader made a profit of
 - a. \$1,750.
 - b. \$1,000.
 - c. \$350.
 - d. \$700.
14. The SPY and QQQ trade at the
 - a. AMEX.
 - b. CBOT.
 - c. CME.
 - d. DNA.
15. Futures can be used for
 - a. hedging and speculating.
 - b. arbitrage trading.
 - c. spread trading.
 - d. all of the above.
16. A trader believes that large-cap value stocks will outperform large-cap growth stocks. Which of the following strategies would be appropriate?
 - a. Long S&P MidCap 400 futures and short Russell 2000 futures
 - b. Long S&P 500/Barra Value futures and short S&P 500/Growth futures
 - c. Long S&P 500/Barra Value iShares and short S&P 500/Growth iShares
 - d. Long Russell 1000 Value iShares and short Russell 1000 iShares

Part IV

ADVANCED TOPICS AND THE ROAD AHEAD



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11

LONGER-TERM STRATEGIES: ASSET ALLOCATION WITH ETFs

Given the huge volume in ETFs, especially in the S&P 500 Spiders (SPY) and the Nasdaq-100 Index Tracking Stock (QQQ), it is obvious that short-term traders love these products. Unfortunately, one of their greatest attributes, tax efficiency, is largely offset by actively trading these instruments. In my opinion, their greatest strengths will lie in intermediate- to longer-term strategies. Short-term trading can be very lucrative, but it can also be costly in terms of taxable events and transaction costs. For those who trade mostly on a short-term basis, stock index futures are a superior alternative. They are generally cheaper in terms of transaction costs and receive more favorable tax treatment (futures receive 60/40 treatment—60 percent of the gain is treated as favorable long-term capital gain and 40 percent is taxed as ordinary income).

The previous chapters focused mainly on short- to intermediate-term strategies. Our attention now shifts to the long term, where ETFs can be used to construct indexed portfolios that match the budget, risk appetite, and degree of sophistication of any investor. And no discussion of the long term would be complete without the topic of asset allocation, one of the key disciplines practiced by pension funds, mutual funds, and Wall Street institutions for decades and a cornerstone to building long-term portfolios. In fact, years ago, if an investor wanted to implement an asset allocation portfolio that included the major asset classes as well as subclasses such as style investing (such as value and

growth indexes), it would have required volumes of capital and substantial contacts on the Street, including execution and trading, custodial and banking relationships, all of which were obviously out of reach of the average investor. ETFs bring this type of institutional class investing right to the front door of *all investors* and therefore make excellent core holdings for longer-term-oriented accounts such as IRAs and 401(k) accounts.

A PRIMER ON ASSET ALLOCATION

Asset allocation is simply a term used to describe the process of how to combine asset classes with different return and risk characteristics. In the broadest terms, there are three asset classes: stocks, bonds, and cash. Some on the Street include real estate and precious metals as asset classes in themselves. Some add entire baskets of commodities, since they tend to have a negative correlation with equities. Still others subdivide stocks into various capitalization groups, such as large-caps, mid-caps and small-caps (and some go even deeper into the value and growth classifications). The market timers (those who try to predict market tops and bottoms and invest accordingly) have even entered the world of asset allocation and have tried to switch among asset classes depending on their outlook. If stocks look cheap relative to bonds, market timers shift assets out of cash and bonds and into stocks. If stocks are expensive relative to fixed-income securities, they shift back into cash or bonds.

As with any other Wall Street discipline or practice, asset allocation has been the subject of much debate. In 1986, the debate was launched when a controversial study concluded that 93.6 percent of the variation in a portfolio's quarterly performance was attributed to its asset mix of stocks, bonds, and cash.¹ Being a stock or bond picker or a market timer was not likely to add value. However, in 1997 a study by William Jahnke drew a vastly different conclusion. Jahnke's study concluded that asset allocation might determine only about 14.6 percent of returns.² The quandary grows when you examine the record of one of the greatest portfolio managers of all time, Peter Lynch, who tended to avoid bonds and stuck mainly with stocks. This rendered the question of how to allocate Magellan's mighty assets moot. Nearly everything at the time went into stocks. Ironically, after Lynch's retirement from portfolio management, his Magellan successor, Jeff Vinik, made a huge bet in bonds. Because of this and other reasons, Magellan began to underperform its benchmark, and Vinik left Fidelity to run his own hedge fund (and did quite well).

With the experts differing so widely, what's an investor to do? At the risk of sounding like an economist, I have to respond by saying, "It depends." In the long run, as we will see, stocks have (operative word is *have*—as in the past) outperformed bonds and cash. But during shorter time windows, the situation changes. In October 1987, while equities were imploding, bonds had an enormous rally, and cash did provide a positive rate of return. If you held equities, you lost a lot of money. Now, in hindsight, we know that the decline was only temporary; the market eventually recovered and went on to record highs. But what if you needed cash at some point and you were forced to sell your stocks at lower levels? The haircut would have been painful. In contrast, the holders of bonds and cash had positive returns. But as investors increase their time horizons to 10, 20, 30 or more years, stocks provide superior returns. The best bond fund and best money market fund manager will probably not beat the S&P 500 over the long term. Why, then, do we find so many pension fund and mutual fund portfolios stuffed with these securities? The answer lies in a four-letter word: *risk*. One thing the Street does not refute is that a mix of the three major assets can provide excellent returns while at the same time reducing volatility or risk.

If you perform a side-by-side comparison of the major asset classes, you can understand how phrases like, "Stocks are the best place to be in the long run," became popular. The 28 percent annualized returns in stock prices during the later 1990s certainly add credibility to that school of thought. And no one could forget the "cash is trash" slogan, which has been repeated thousands of times during the historic bull market that saw its beginnings in 1982 when the Dow Jones Industrials stood at 776. Just how well have the three major asset classes performed over time? Exhibit 11.1 shows the record for the period 1980–1999.

Returns on stocks have beaten those of bonds by a healthy margin. But remember that the 1980s and 1990s were extraordinary decades for investors—one of the greatest bull markets in history. Only the

Exhibit 11.1 Performance of Various
Investment Classes, 1980–1999

Stocks	17.88%
Long-term bonds	10.03
U.S. Treasury Bills	6.89

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1950s showed superior returns. Thus, 20-year returns, while no doubt qualifying as long term, have been skewed considerably by the out-sized gains of this roaring bull market. Perhaps a longer time period would be a better gauge. Go back 50 years, and the returns on stocks drop to about 13.6 percent, bonds to 5.6 percent, and cash about 5.1 percent. If you look at the returns on various investment classes for the past seven decades, you will see stocks return 11.3 percent, bonds, 5.1 percent, and cash about 3.8 percent. Returns diminish dramatically when you use longer time periods—time periods that include wars, depressions, financial calamities, and so on. To get a realistic assessment for investment class returns, you must include a time window that includes several economic cycles, including recessions, bear markets, and economic disruptions.

Unfortunately, many investors have grown accustomed to 17 to 20 percent returns in the market (as it has generously provided since 1982). Surveys conducted in the late 1990s revealed that investors came to expect 20 percent returns as if it was their birthright. I remember one 28-year-old being interviewed in a leading investment magazine. He planned on retiring at age 40. The return assumption that he put into his retirement software was 18 percent. In fact, long-term returns are 500 basis points lower. It could happen, but the odds are slim that the next one or two decades will be as gratifying to investors as the previous two were. In fact, this is the perfect time to give a little investment return guidance.

Many newcomers to futures markets have inflated expectations of returns. Some novice investors and futures traders even believe that 100 percent or greater annualized returns are attainable. When I hear inflated expectations such as these, I offer the following responses:

- Long-term returns in the U.S. stock market are in the 10 to 12 percent per year range over the past 70 or so years. The best year in the U.S. stock market over that time was about 55 percent and the worst year was a decline of 43 percent.
- The very best investors in the world have long-term track records (by long term, I mean 30 years) of about 25 to 30 percent per annum.
- Top commodity trading advisers (CTAs) who manage and trade portfolios of futures contracts (rather than stocks) earn returns in the area of 25 to 35 percent annually over the long run. Some have extraordinary years, with triple-digit gains, but the law of mathematics prevents that from happening over the long run. (At 100 percent gains per annum, you would own the GNP of the planet in 10 to 15 years.)

- A very small subset of unknown or largely inaccessible investors and traders actually can do better, but this is not likely to occur over 30 years. It is unlikely you will ever hear about them or gain access to them. For example, Vinod Khosla, a partner in the Venture Capital firm Kleiner Perkins, has a knack for finding Cisco-like companies long before they become successful. Venture capitalists are in on the ground floor—the incubation or seed stage—long before a company goes public. The returns are in the stratosphere on some of their investments. Remember, too, that for every Cisco, there are dozens and dozens of failures.
- Anyone who promises you extraordinary returns over the long run is probably lying. One cold calling broker practically guaranteed 60 percent returns over the next 10 years if I invested with him. I said, “You are that good?” He said, “Yes, and I want to develop a long-term relationship—one that you can trust.” I replied, “You can do twice as good as Peter Lynch and Warren Buffett, two of the greatest of all time?” He repeated, “Yes. Now will you open an account?” I said if he would send me the Schedule D section of his 1040 returns for the past 20 years, proving that he attained 60 percent returns, I’d mortgage my house and open an account and convince friends and relatives to do the same. He promptly hung up.

In 2000 and early 2001, many investors learned the painful lesson of “mean reversion”—that stocks do not always go up but eventually revert to the average. Moreover, a decade-by-decade look will reveal that although stocks offer superior long-term returns, they usually do not provide 18 percent returns consistently. Look at Exhibit 11.2 and study how some of the various asset classes have performed during the past 60 to 70 years.

Despite some awareness of the relative potential of stocks, bonds, and cash, investors, especially those who participate in employer-sponsored defined-contribution plans (i.e., 401(k) plans) more often than not will throw their hands up in frustration when it comes to allocating their payroll deductions to the various asset classes. Compounding the problem is the availability of numerous choices in a typical corporate 401(k) plan. The average such plan at a corporation contains eight choices. On a regular basis, my employer conducts educational seminars for its employees regarding its 401(k) plan as well as general retirement investing. One of the most common questions asked is how contributions and existing balances should be allocated among stocks, bonds, and cash. My approach has been to provide information regarding the relative returns of each asset class and, more important, to generate some awareness on the topic of the risks involved. Exhibit 11.2

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Exhibit 11.2 Performance of Various Investment Classes, by Decade

	Stocks ^a	Bonds ^b	T-bills
1930s	−0.1%	4.9%	0.6%
1940s	9.2	3.2	0.4
1950s	19.4	−0.1	1.9
1960s	7.8	1.4	3.9
1970s	5.9	5.5	6.3
1980s	17.5	12.6	8.9
1990s	18.2	8.8	4.9
1950–1999	13.6	5.6	5.1
1960–1999	12.2	7.0	6.0

^aMeasured by S&P 500.

^bMeasured by long-term U.S Treasury bonds.

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gave the returns of each of the major asset classes over the decades, but it does not show what returns would look like if you blended the different investment choices together in various ratios. For instance, how would a portfolio that contained 80 percent stocks, 15 percent bonds, and 5 percent cash have performed over the long run? Would the addition of bonds alter the returns significantly? Would the addition of bonds and/or cash reduce the risk of the portfolio? For some answers, we'll turn to Exhibit 11.3, which gives some historical perspective on how various asset allocation schemes would have performed.

Obviously, a portfolio with 100 percent stocks outperformed all other asset mixes during the 30-year time period by providing a compounded

Exhibit 11.3 Performance of Various Asset Allocations, 1970–1999

Asset Allocation Assumptions (%)			Average Annual Return	Return Best Year	Return Worst Year
Stocks	Bonds	Cash			
100	0	0	13.7%	37.6%	−26.5%
80	15	5	13.0	36.6	−19.1
60	30	10	12.0	29.8	−12.9
40	45	15	10.8	25.7	−6.5
0	100	0	8.9	31.7	−7.7
0	0	100	6.7	14.7	2.9

Source: Schwab Center for Investment Research.

annualized return of 13.7 percent. The best year in that time frame would have shown a gain of 37.6 percent, and the worst year would have shown a loss of 26.5%. Notice though, what occurs when you modify the mix by adding bonds and cash. If you modified the asset mix to 80 percent stocks, 15 percent bonds, and 5 percent cash, your long-term performance hardly suffered. Your annualized gain of 13 percent would have been about 95 percent of the gain in an all-stock portfolio. The best year would have been a still-gratifying 36.6 percent, and the worst year would have seen a decline of 19.1 percent, substantially less than a portfolio with 100 percent stocks. The addition of bonds and cash did not drastically reduce returns, but did reduce the portfolio's risk as measured by worst one-year return. Similarly, if you doubled the amount of bonds and cash and reduced the amount of equities to 60 percent, your portfolio still would have returned a very respectable 12.0 percent over thirty years. In your best year, you would have seen a 29.8 percent return, but your worst year would have shown only a 12.9 percent decline—less than half the worst decline experienced by the all-stock portfolio.

Prudent investment management boils down to getting the best return possible while taking the least amount of risk. Even a portfolio of 40 percent stocks and 60 percent bonds and cash provided the long-term investor with double-digit returns and a worst-year loss of a mere 6.5 percent—yet many investors show a disdain of fixed-income investments. Given the equity returns over the past 20 years, this attraction to stocks is understandable. One negative of having a stable of bonds and cash is that the income generated from such instruments is taxable as ordinary income. Unless these assets are under a tax-deferred umbrella such as an IRA or 401(k) plan, the investor in the 39.6 percent tax bracket faces the prospect of paying a good chunk of T-bill or T-bond interest in taxes. Yet the numbers are compelling. In summary, by adding bonds and perhaps a smattering of cash (via T-bills or other money market instruments), investors have the potential for solid returns in the long run while reducing risk. Remember, too, that past performance is no guarantee of future returns. Stocks could have a horrible decade, as they did in the 1930s, or provide single-digit gains, as they did in the 1960s and 1970s. It is also possible for both stocks and fixed-income instruments to provide subpar results over a given time frame.

Where can you turn to obtain more information and guidance on asset allocation? For starters, you could study how some of the nation's corporate and government pension systems have allocated the assets of their prospective retirees. Pension funds such as CALPERS (California Public Employees Retirement System) and the IBM retirement fund have an enormous fiduciary responsibility to their clientele; the retirement

of millions of Americans is in the hands of these kinds of pension institutions. Certainly, there are a few pension funds that find themselves in the unattractive position of being underfunded, meaning that their long-term liabilities (that is, the amount of future payout to retirees) to pensioners exceed the combination of the fund's assets, investment returns, and contributions. These funds will have to make additional generous contributions to shore up their asset-to-liability mismatch to enable dependable long-term payouts. On the opposite side of the spectrum, some pension funds are overfunded and have plenty of assets to pay out pension benefits to retirees.

No matter how a pension's financial picture looks, it is at least worth examining the asset allocation mix of some U.S. pension funds, if only to serve as a template or starting point for the novice. Exhibit 11.4 lists examples. You can also consult the *Money Market Directories* (MMD), a giant reference guide typically available at local libraries, filled with information on investment managers and corporate and public pension plans. Many of the pension plans list the amount of client assets as well as the asset allocation breakdown. *Pensions and Investments*, a money management newspaper, annually lists the largest pension plans in the United States, along with pension and 401(k) plan assets and asset mixes.

It does not take a seasoned investment pro to notice that none of the institutions in Exhibit 11.4 have 100 percent of their assets in stocks. Recall the previous discussion regarding a portfolio with an allocation of 60 percent stocks, 30 percent bonds, and 10 percent cash. Its 12.0 percent return over the past 40 years came with the bonus of reduced volatility or risk. The worst year resulted in a decline of 12.9 percent—less than half that of an all-stock portfolio. It is no coincidence that these and other giant pension funds have about 50 to 70 percent of assets in stocks. The bonds and cash components yield interest payments that equities generally do not match. You can be sure that a significant portion of the equity allocation is also indexed. With billions under their belts, allocation often includes international equities, fixed-income securities, and real estate as well as cash. Fixed-income securities for pension funds are typically U.S. Treasury bonds and notes, corporate bonds, and mortgage-backed securities of varying maturities. Alternative investments cover a wide swath and include investments in hedge funds, private equity, venture capital, derivatives, and commodity indexes. With regard to real estate, most individual investors in the United States invest through REITs—real estate investment trusts. They may also choose from a number of mutual funds that

Exhibit 11.4 Asset Allocation Mix of Selected Pension Plans

California Public Employees' Retirement System (pension)—\$171 billion			
U.S. equities	44.4%	Real estate	5.1%
International equities	18.9	Cash	0.8
Fixed income	26.4	Other	4.4
Merck & Co. (pension)—\$2.6 billion			
U.S. equities	57.2%	Real estate	2.9%
International equities	25.4	Cash	1.6
Fixed income	12.8	Other	0.1
IBM Retirement Fund (pension)—\$46 billion			
U.S. equities	34.1%	Real estate	5.1%
International equities	20.0	Other	7.5
Fixed income	33.3		
Johnson & Johnson (pension)—\$3.5 billion			
U.S. equities	56.9%	Real estate	0.2%
International equities	17.5	Cash	0.3
Fixed income	22.6	Other	2.5
New York State Teachers' Retirement System (pension)—\$90 billion			
U.S. equities	61.7%	Cash	1.8%
International equities	9.3	Real estate	3.9
Fixed income	19.0	Other	4.3
SBC Communications (pension)—\$45 billion			
U.S. equities	54%	Cash	2%
International equities	14	Real estate	1
Fixed income	23	Other	6
Motorola Inc. (pension)—\$ 4 billion			
U.S. equities	61%	Fixed income	24%
International equities	14	Cash	1
United Parcel Service (pension)—\$8.5 billion			
U.S. equities	52.2%	Cash	5.0%
Foreign equities	20.9	Real estate	4.3
Fixed income	15.0	Other	2.6
Teamsters Pension Trust, Western Conference (pension)—\$23.8 billion			
U.S. equities	42.3%	Real estate	4.7%
Fixed income	49.1	Other	3.3
Cash	0.6		

Note: Data as of September 30, 2000, except United Parcel Service (June 6, 2000) and Teamsters (July 31, 2000).

Sources: Special Report: The Largest Pension Funds, *Pensions and Investments*, January 22, 2001.

invest in a diversified portfolio of REITs. With pension funds, though, they have huge amounts of capital to invest and often invest directly in real estate. Many large office buildings are owned or financed by pension funds.

The financial press regularly writes on the topic of asset allocation and can be a good source of information on the topic. Indeed, the *Wall Street Journal* frequently catalogues the asset allocation recommendations of all the major firms in the United States and compares their performance with one another, as well as key benchmarks. *Investment Advisor* magazine has devoted portions of issues on the topic and publishes the opinions of many well-known Street strategists. For example, in early 2001, A. Marshall Acuff from Salomon Smith Barney recommended that 65 percent of investors' capital be allocated to stocks, 30 percent to bonds, and 5 percent to cash. Tom Galvin, from Donaldson Lufkin & Jenrette (recently acquired by Credit Suisse First Boston), recommended 90 percent stocks, 0 percent bonds, and 10 percent cash.³

Given the results of studies outlined in Exhibit 11.3 and the investment philosophy of pension fund sponsors that control several trillion dollars in assets, there seems to be life beyond stocks. Fixed-income securities, cash, and alternative investments can add diversity that some portfolios lack. When the market lags or even declines, as it did in 2000, bonds and cash clearly add to the total return of a portfolio and provide an income stream that many investors should consider. The reduction in overall portfolio volatility is also another reason for diversity. There are, however, some investors who appear to have only 100 percent stocks or only 100 percent bonds or cash. Many individuals who lived through the Great Depression have an understandable aversion to owning stocks, since the severe market decline caused vast amounts of wealth to be wiped out in the 1930s. Some of the progeny of the depression era also have been taught that caution pays, and thus they avoid equities. On the other hand, with markets marching ever upward in the past 20 years, a new generation of investors has learned that stocks are the only way to go and to be anything but fully invested in the stock market will result in a less-than-adequate nest egg 30 or 40 years down the road. In fact, I've spoken to many people in their 30s in recent years, and one of their greatest fears is not having enough to spend when they retire. Given that younger investors have three or four decades of compounding working in their favor, there is a lot of time to make up for those inevitable periods of negative returns and for those with less of an appetite for risk, obtaining good returns is certainly possible without having 100 percent of your nest egg in stocks.

COMBINING ETFs WITH TRADITIONAL MUTUAL FUNDS

To achieve a desired asset allocation, ETFs can play an important foundation. But as of March 2001, there were only three ETFs that covered the real estate sector and only one fixed-income ETF (although more are on the way). Hence, investors will have to combine ETFs (on domestic, global, and international equities) with traditional mutual funds (or other investments) to match some of the strategies employed by pension funds and other investment managers. For example, an investor with \$10,000 could allocate an investment as follows: \$6,000 invested in S&P 500 SPDRs (SPY), \$3,000 invested in Vanguard Long Term Bond fund, and \$1,000 invested in 3- or 6-month T-bills or money market funds. This strategy combines 60 percent stock exposure with 30 percent bonds and 10 percent cash, a strategy not unlike that of thousands of pension funds worldwide. It is easy to execute and requires a sum of capital attainable by many investors. It combines one of the most liquid and tax-efficient indexed ETFs with a low-cost bond fund (Vanguard's fixed-income bond funds charge roughly 25 basis points annually) and a money market fund. For investors who are attracted to other fund families such as Fidelity or Janus, almost any asset allocation strategy imaginable can be executed by combining ETFs with funds from these investment companies as well. Many of Wall Street's biggest firms on the full-service and discount sides of the fence also offer fund supermarkets. Hence, your ETF holdings and your mutual fund holdings will be consolidated on one statement for convenience.

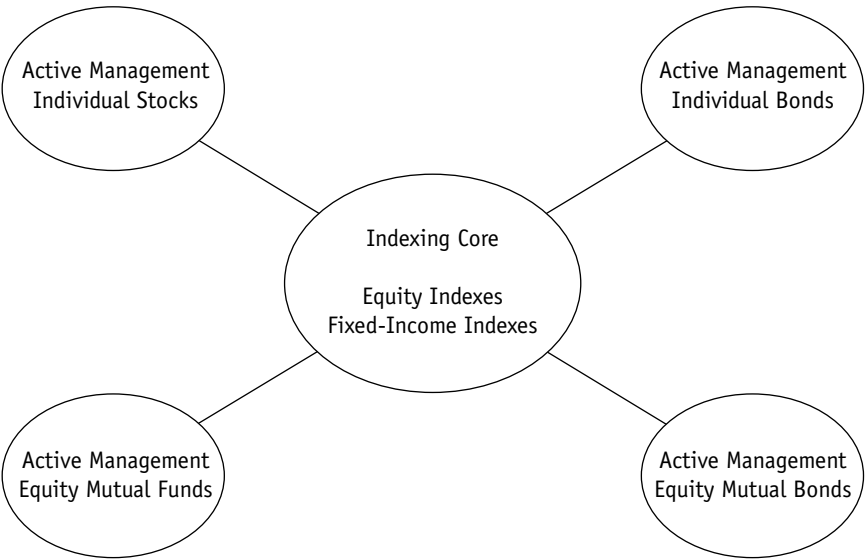
CORE-SATELLITE APPROACH TO ASSET ALLOCATION

The one (and the only) drawback to indexing is that the indexed investor will never really hit what I refer to as a grand slam: triple-digit gains in a 12-month period. The only way you'll hit a grand slam is if the index itself has a stellar year. Since the mid-1920s, the S&P 500 has seen calendar returns in the 50 percent area during two years. It has also experienced 30 to 40 percent annual returns in about 20 of the past 75 years. Most pundits in finance regard a 30 percent return for a 12-month period as stellar. The Nasdaq-100 returned 85 percent in 1999, and many sectors showed triple-digit gains over recent years. And some active managers (stock pickers) have attained results several times greater than the S&P 500 in a given year. The 1999 return for Munder Net-Net fund was 176 percent. Returns like this simply do not occur in indexing on a year-to-year basis. And investors, even die-hard indexers, love to pick stocks

sometimes. They all want to find the “next Cisco or Microsoft” at least once. Other proponents of active stock picking point to Warren Buffett, the second richest man in the United States, and exclaim that he does not index (although he tells others to index). Can indexing peacefully co-exist with active management under one roof? Or will an ill-fated love affair between passive and active management result?

Investors, especially large institutions, have shown that the two can coexist. The strategy is known as the *core-satellite approach* to investing. Core-satellite is an investment philosophy whose goal is to minimize the risk of lagging the market while at the same time trying to outperform it with a portion of the investor’s assets. The strategy attempts to blend the benefits of indexing while retaining the potential of outperforming the market with some strategically placed, actively managed investments. This may seem like a huge contradiction given the arguments I put forth in Chapter 1. In addition, the jury is still out on how well the strategy has done. But large pension funds and endowment funds in the United States have recently implemented core-satellite approaches. The core portion of the strategy consists of indexing. Surrounding the core are satellites of active stock picking, accomplished through mutual funds or investing in individual stocks. Exhibit 11.5 portrays how a typical core-satellite strategy would look.

Exhibit 11.5 Core-Satellite Approach



How much of a portfolio should consist of core and how much satellite is up to the investment policy guidelines of the pension fund. For individual investors, it all depends on how much risk they are willing to accept and how much they agree with the philosophy of indexing. Some financial institutions advocate indexing for at least 50 percent of assets while allocating the remaining assets to strategically chosen active funds. While *core-satellite* is a term that usually pertains to equity investing, the strategy is perfectly appropriate for fixed-income investing too. Similarly, many investors index a portion of a bond portfolio to one of several well-known bond indexes while investing in individual fixed-income securities or by using a mutual fund that actively picks bonds or other fixed-income instruments.

In short, asset allocation can be accomplished in many ways. The investor can pick individual stocks, bonds, and money market instruments or accomplish the same through actively managed equity and fixed-income mutual funds. But at the heart of many asset allocation schemes lies the powerful tool of indexing. As each year passes, more and more dollars are drawn toward the indexing revolution. With ETFs based on dozens of popular broad-based and style indexes, those dollar flows should continue. Given all the attributes of ETFs and their meteoric rise to date, there is no doubt that ETFs will make their way into the asset allocation strategies of millions of investors' portfolios as either a pure play in indexing or an integral part of a core-satellite strategy.

ASSET ALLOCATION AND REBALANCING

Suppose that at the beginning of the year you had invested \$2,000 in stocks and \$1,000 in bonds, for an asset mix of 67 percent stocks and 33 percent bonds. Let's further assume that you wanted to maintain approximately that mix (67/33). If during the year stocks provided a total return of 30 percent and bonds provided a total return of zero, your asset mix would be altered. Under this scenario, your \$2,000 stock investment would now be worth \$2,600, and the bond portion would remain at \$1,000. Total assets would stand at \$3,600. The appreciation in the equity portfolio lifted the equity percentage to about 72 percent and decreased the fixed-income portion to 28 percent. Although this is not a significant deviation from the previous 67/33 allocation, continued strength in equities relative to bonds would drive the mix out of kilter further. Hence, you might wish to consider rebalancing your asset mix. You would merely have to sell enough equities and use the proceeds to purchase bonds to restore the original mix. Large pension funds keep

their asset mix in well-defined target ranges. If a particular asset exceeds its target allocation, rebalancing is required. This is accomplished as a risk management measure so that stocks do not become too large a percentage of the overall portfolio.

ASSET ALLOCATION IN ACTION: SAMPLE PORTFOLIOS

The sample portfolios that follow offer a glimpse into the art of asset allocation. One of the many fabulous advantages of asset allocation is flexibility. A portfolio can be tailor-made according to the amount of investment capital and the risk appetite of the individual or institution. If being 100 percent invested in stocks keeps you awake at night, you merely need to balance your portfolio with less risky assets such as bonds or cash. Given the 100 ETFs in existence, the thousands of mutual funds, as well as access to U.S. Treasury securities, the sheer number of combinations is virtually endless. I have provided a dozen or so here. One of my favorites is shown in Exhibit 11.14: the low cost–low maintenance growth portfolio, with an annual cost under .10 percent. The cost for initial implementation is also low relative to the asset base. In the days of on-line and discounted commissions, the transaction cost on \$90,000 worth of S&P 500 iShares (or the SPY version) is minimal and over time would not add appreciably to this low-budget (but high-quality) offering. Even if it was transacted through a full-service broker and held for the long haul, the costs would easily be lower than assembling a basket of large-cap stocks and lower than just about any large-cap mutual fund. Commissions, whether discounted or full service will also be magnified, sometimes dramatically, in smaller portfolios such as the \$1,000 example in Exhibit 11.6. Economies of scale apply to the individual as well as the titans on Wall Street. It is likely you will have greater sums to invest in the future as your income and financial situation improve over time. To a 22-year-old college graduate, \$1,000 might as well be a billion. But when the first job comes along and the cash starts to come, \$1,000 no longer seems like a distant dream. As you invest increasingly larger sums, the transaction costs in creating many of these portfolios drops dramatically. So grab a legal pad and pencils, and start sketching. While concocting your optimum allocation mix, ask yourself a few questions and make a few assumptions.

Let's say you have \$10,000 to invest. How much can you afford to lose? Five percent? Ten percent? Twenty percent or more? If the \$10,000 was worth only \$9,000 in a year, how would you react? (This is exactly what would have occurred if your \$10,000 was invested in the

S&P 500 during the year 2000.) And what if your \$10,000 was worth \$5,500 after two years? This actually happened in 1973–1974 when the Arab oil embargo, recession, and some bad economic policies caused the market to have its worst decline since the Great Depression. Then determine whether you could weather the declines knowing that perhaps over the next 5, 10, or 20 years, the market could be dramatically higher. It has been said that if you do not know yourself, the stock market can be an awfully expensive place to find out who you are. If you loathe losing money or cannot afford to lose money you have, the stock market should not be your prime consideration.

A couple I knew were given \$20,000 for a down payment on a house by some well-to-do relatives. They were going to buy the house within six months and asked me if they should park it in the stock market until the closing. I said that would entail taking risks and that they might actually lose money—lots of money—and then not be able to buy their house. The stock market could be higher in three years *and* lower in six months. The husband wanted to put the whole wad in Qualcomm (I cringed!); the wife wanted to put it in CDs or a money fund. I sided with the wife. The husband had little choice (the \$20,000 came from the wife's side of the family), so they settled for 6.5 percent risk free. I ran into the couple after their purchase (they seemed happy) and noted that a \$20,000 investment in Qualcomm would now be worth less than \$10,000 and that it had been a good idea to go with the more conservative investment given their time horizon. They saw it as a valuable lesson in risk versus reward. (Interestingly, if this conversation had taken place in 1999, \$20,000 invested in Qualcomm would have grown to \$250,000—and I would have looked like a moron.) Similarly, a couple with \$500,000 in assets who are two years away from retirement would be foolish to allocate a gigantic portion of their nest egg—one they worked an entire lifetime to accumulate—to a risky asset like stocks.

How do you feel about taxes? Large helpings of bonds and cash throw off interest that is taxed at less-than-favorable rates unless they are part of a portfolio that is under a tax-deferred umbrella such 401(k) accounts, IRAs, or tax-free status such as enjoyed by Roth IRA participants. But on the other hand, they can help reduce risk. Bonds too have had some respectable returns depending on which era you study.

In the stock market and commodity markets there is a practice referred to as *paper trading*—investing hypothetically in a variety of stocks or certain futures contracts. You can try this with asset allocation as well. Put together a portfolio, or a few portfolios, and monitor their performance over the course of a few weeks or months. How did your mix perform in rising markets? In falling markets? Did lower

interest rates help or hinder your portfolio? You can even create some friendly competition between you and your spouse (but in the end, when you finally invest, you must both be on the same page—trust me on this one). The only negative with simulated portfolios or paper trading is that no real money is at risk. Losing 10 percent of your invested hypothetical capital is painful only to one's ego. Losing a few thousand of real cash and knowing that the Hawaiian vacation is on hold or canceled is painful mentally and economically.

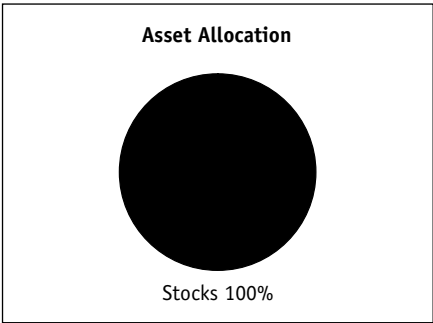
You cannot get a real handle on your own risk tolerance until you actually invest. At the very least, you will learn a lot. Investing, by either indexing with ETFs or picking your own stocks and funds, will teach you about business and economics. You will learn as much about businesses from a few years of investing in the stock market as you would taking classes at a business school.

When you have asked dozens of questions or perhaps sought out the help of a trusted professional, it will be time to write some checks. This could prove quite revealing. How is your nervous quotient? Did the 35 percent decline in the Nasdaq-100 in 2000 give you an ulcer or serve to drive you and maybe your spouse into depression? Better lighten up on the QQQs then. Did a lack of cash on hand cause you to miss some opportunities during the market decline in 2000? Keeping 5 percent or more cash on hand might help avoid that situation in the future. And remember most of all, no asset allocation is permanently etched in granite. If you are not happy with it, change it! Professional investors change their mix. Some do it frequently; some fine-tune once every year or so. Others, like Warren Buffett, hold their investments for decades. (Buffett has sold some holdings over the years, but his core portfolio remains largely unchanged.) Imagine all the taxes and fees saved by his low-turnover strategy. No wonder the guy is so rich. (See Exhibits 11.6 through 11.17 for sample portfolios.) Also, investors may wish to check out www.foliofn.com. This site offers a service that allows one to build portfolios or stocks in dollar amounts. They currently offer this service with about 50 ETFs.

"Our favorite holding period is forever."

—Warren Buffett

Exhibit 11.6 Asset Allocation: \$1,000 Sample Portfolio—Aggressive Growth



ETF or Other Investment	Sector/Market	Amount Invested	Percentage of Portfolio	Expense Ratio
S&P 500 Depository Receipts (SPY)	Large-cap	\$1,000	100	0.12%

*Can substitute:
Russell 1000 iShares*

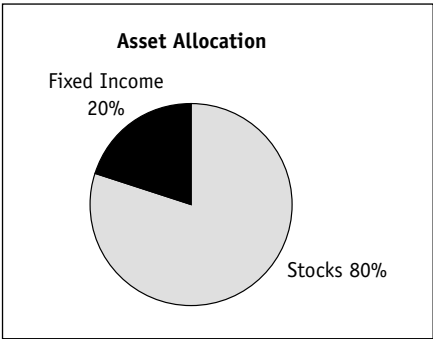
Total size of portfolio		\$1,000	100
Overall asset mix		Equity Capitalization Mix	
Stocks	100%	Large-cap	100%
Bonds	0%	Mid-cap	0%
Cash	0%	Small-cap	0%

This simple one-ETF portfolio can be added to over time. It is also very tax efficient. The holder of this portfolio would be exposed to the volatility of the U.S. stock market, but with 30 or more years to retirement, there is plenty of time to make up for any inevitable bear markets. The commission will be a high percentage of the total assets, common in a portfolio with a smaller base. Overtime, the asset base will increase, and annual expenses as a percentage of the portfolio will drop markedly.

Risk (5 = high risk, 0 = T-bills)	4.25
Estimated of tax burden (if not in tax-deferred account)	Very low
Appropriate age bracket for this asset mix	20–35

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Exhibit 11.7 Asset Allocation: \$5,000 Sample Portfolio—Growth

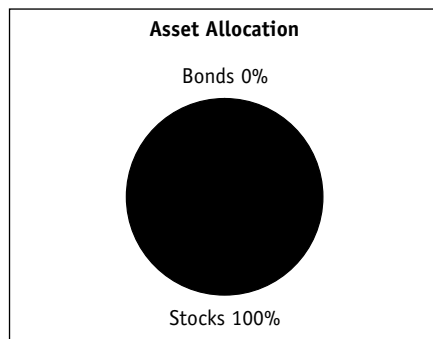


ETF or Other Investment	Sector/Market	Amount Invested	Percentage of Portfolio	Expense Ratio
S&P 500 Depository Receipts (SPY)	Large-cap	\$2,000	40	0.12%
Russell 2000 iShares (IWM)	Small-cap	2,000	40	0.20%
U.S. Treasury note (5- or 10-year maturity)	Fixed income	1,000	20	0.00%
Total size of portfolio		\$5,000		
Overall Asset Mix		Equity Capitalization Mix		
Stocks	80%	Large-cap	40%	
Fixed-Income	20%	Mid-cap	0%	
Cash	0%	Small-cap	40%	

This portfolio is similar to that in Exhibit 11.6 in that long-term growth is the objective. We now add a layer of small-cap exposure as well as a fixed-income component. The 80 percent equity exposure is not overly aggressive but could provide solid returns in a rising market. The 5- or 10-year Treasury notes will provide a good return should interest rates drop and throw off cash flow in terms of interest payments that will help dampen any downside swings in the stock market. U.S. Treasury notes can be bought directly from the U.S. Treasury (Bureau of Public Debt) after setting up a Treasury Direct account. There are no fees or commissions when purchasing U.S. Treasuries through a Treasury Direct account.

Overall risk (5 = high risk, 0 = T-bills)	4.0
Estimated of tax burden (if not in tax-deferred account)	Low
Appropriate age bracket for this asset mix	25–40

Exhibit 11.8 Asset Allocation: \$7,500 Sample Portfolio—Very Aggressive Growth



ETF or Other Investment	Sector/Market	Amount Invested	Percentage of Portfolio	Expense Ratio
S&P 500 Depositary Receipts (SPY)	Large-cap	\$2,500	33	0.12%
Russell 2000 iShares (IWM)	Small-cap	2,500	33	0.20%
Nasdaq-100 Index Shares (QQQ)	Fixed income	2,500	33	0.18%

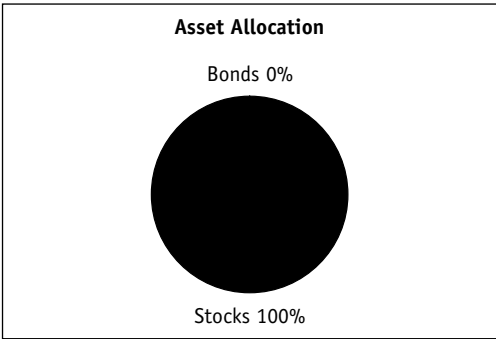
Total size of portfolio	\$7,500
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Overall asset mix		Equity Capitalization Mix	
Stocks	100%	Large-cap	66%
Bonds	0%	Mid-cap	0%
Cash	0%	Small-cap	33%

This very aggressive portfolio would provide great potential on the upside, but would entail risk. In 2000, this portfolio would have been down significantly, but in the prior five years would have rewarded the investor handsomely. The QQQ shares would give additional large-cap exposure but heavily tilted toward technology, telecom, and biotech. Remember that the S&P 500 SPDRs have a 20 percent weighting in technology too. Not for the timid—but for the individual who believes technology will recover from its 2000-2001 doldrums and lead the way in the future.

Risk (5 = high risk, 0 = T-bills)	4.5
Estimated of tax burden (if not in tax-deferred account)	Very low (depending on Russell Index rebalancing)
Appropriate age bracket for this asset mix	25–35

Exhibit 11.9 Asset Allocation: \$7,500 Sample Portfolio—Value Tilt



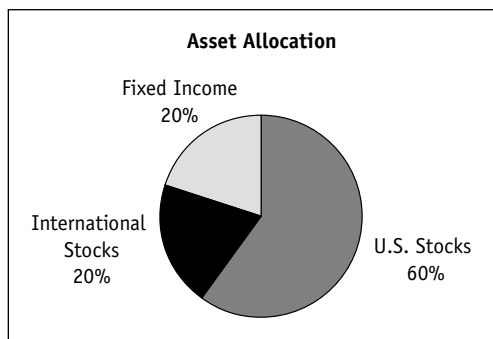
ETF or Other Investment	Sector/Market	Amount Invested	Percentage of Portfolio	Expense Ratio
S&P 500 Depository Receipts (SPY)	Large-cap	\$2,500	33	0.12%
S&P MidCap/Barra Value iShares	Mid-cap value	2,500	33	0.25%
S&P SmallCap/Barra Value iShares	Small-cap value	2,500	33	0.25%
<i>Can substitute Russell 2000 Value iShares for the small cap portion</i>				

Total size of portfolio		\$7,500	
Overall asset Mix		Equity Capitalization Mix	
Stocks	100%	Large-cap	33%
Bonds	0%	Mid-cap	33%
Cash	0%	Small-cap	33%

This portfolio has a tilt toward the value school of investing. If sky-high P.E. ratios and price-to-book ratios give you the shakes, then it's time to load up on value. Value investing provides a nice refuge when storms hit, as they did in 2000. Most value indexes beat their growth counterparts by a wide margin in 2000. The S&P 500, MidCap 400, and SmallCap Value stood more than 20 full percentage points above their growth counterparts in performance.

Risk (5 = high risk, 0 = T-bills)	4.0+
Estimated of tax-burden (if not in tax-deferred account)	Low
Appropriate age bracket for this asset mix	25–35

Exhibit 11.10 Asset Allocation: \$10,000 Sample Portfolio—Growth and International

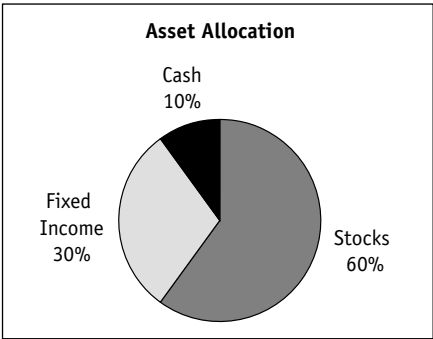


ETF or Other Investment	Sector/Market	Amount Invested	Percentage of Portfolio	Expense Ratio
S&P 500 Depository Receipts (SPY)	Large-cap	\$ 2,000	20	0.12%
S&P MidCap 400 SPDR (MDY)	Mid-cap	2,000	20	0.25%
Russell 2000 iShares (IWM)	Small-cap	2,000	20	0.20%
S&P Europe 350 Large Cap iShares	International	2,000	20	0.60%
U.S. Treasury notes or bonds	fixed income	2,000	20	0.00%
Total size of portfolio		\$10,000		
Overall Asset Mix		Equity Capitalization Mix		
U.S. stocks	60%	Large-cap	40%	
International stocks	20%	Mid-cap	20%	
Fixed income	20%	Small-cap	20%	

This is a fairly aggressive portfolio with exposure in large-, mid-, and small-cap stocks. The international component adds two more dimensions of risk: overseas stock markets and currency risk. The rewards of investing internationally have been well documented, but investors must understand the risks involved with crossing the Atlantic.

Risk (5 = high risk, 0 = T-bills)	4.25
Estimated tax burden (if not in tax-deferred account)	Low
Appropriate age bracket for this asset mix	25–35

Exhibit 11.11 Asset Allocation: \$10,000 Sample Portfolio—Moderate Growth



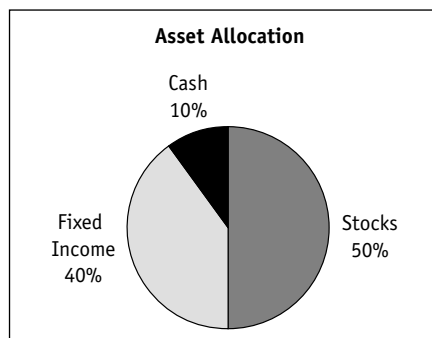
ETF or Other Investment	Sector/Market	Amount Invested	Percentage of Portfolio	Expense Ratio
S&P 500 Depositary Receipts (SPY)	Large-cap	\$ 3,000	30	0.12%
Russell 3000 iShares (IWM)	Total Market	3,000	30	0.20%
U.S Treasury notes (5- or 10-year maturity)	Fixed income	3,000	30	0.00%
U.S. Treasury bills (3-month to 1-year)	Cash	1,000	10	0.00%
Total size of portfolio		\$10,000		
Overall Asset Mix		Equity Capitalization Mix		
Stocks	60%	Large-cap	30%	
Fixed Income	30%	Total Market	30%*	
Cash	10%			

*Russell 3000 includes all segments of market capitalization.

This portfolio is for investors not willing to take the risks that accompany a growth or aggressive growth portfolio. On the fixed-income side, investor could potentially boost income by purchasing shares in an indexed corporate/government bond fund such as the Vanguard Total Bond Market Index fund. Its annual management fee is only 20 basis points, and it is designed to track the Lehman Brothers aggregate bond index. With 60 percent exposure to equities, the portfolio should produce good long-term gains without being subject to the violent draw-downs of more aggressive offerings.

Risk (5 = high risk, 0 = T-bills)	3.5
Estimated tax burden (if not in tax-deferred account)	Medium+
Appropriate age bracket for this asset mix	35-50 (or younger if risk averse)

Exhibit 11.12 Asset Allocation: \$25,000 Sample Portfolio—Balanced



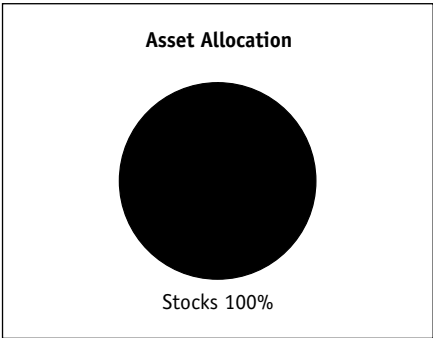
ETF or Other Investment	Sector/Market	Amount Invested	Percentage of Portfolio	Expense Ratio
S&P 500 Depositary Receipts (SPY)	Large-cap	\$ 7,500	30	0.12%
iShares Dow Jones U.S. Real Estate Index fund	REIT sector	2,500	10	0.60%
Utilities Select Sector SPDRs	Utilities sector	2,500	10	0.28%
U.S Treasury notes (5- or 10-year maturity)	Fixed Income	10,000	40	0.00%
U.S. Treasury bills (3-month to 1-year)	Cash	2,500	10	0.00%
Total size of portfolio		\$25,000		
Overall Asset Mix		Equity Capitalization Mix		
Stocks	50%	Large-cap	30%	
Fixed income	40%	Sector	20%	
Cash	10%			

If you have ever invested in a total return or balanced mutual fund and took a close look at the portfolio, you would notice the presence of utility stocks, real estate investment trusts (REITS), bonds, and a dollop of cash. While income generation is significant in this portfolio, exposure to the S&P 500, as well as REITS and utilities, provide the opportunity for longer term gain as well. Beware though: This portfolio will generate taxable income unless it is in a tax-sheltered account. SSGA also offers a REIT ETF, called the street-TRACKS Wilshire REIT Index. BGI recently launched an iShare product based on the Cohen and Steers REIT.

Risk (5 = high risk, 0 = T-bills)	2.5
Estimated tax burden (if not in tax-deferred account)	High
Appropriate age bracket for this asset mix	50+ (as retirement nears percentage of stocks decreases)

230 LONGER-TERM STRATEGIES: ASSET ALLOCATION WITH ETFs

Exhibit 11.13 Asset Allocation: \$50,000 Sample Portfolio—Growth and Small- and Mid-Cap Tilt

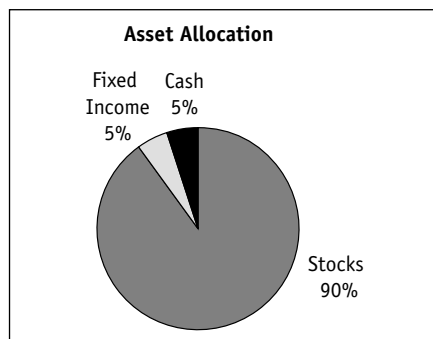


ETF or Other Investment	Sector/Market	Amount Invested	Percentage of Portfolio	Expense Ratio
S&P 500 Depositary Receipts (SPY)	Large-cap	\$10,000	20	0.12%
S&P MidCap 400 SPDR (MDY)	Mid-cap	20,000	40	0.25%
Russell 2000 iShares (IWM)	Small-cap	20,000	40	0.20%
Total size of portfolio		\$50,000		
Overall Asset Mix		Equity Capitalization Mix		
Stocks	100%	Large-cap	20%	
Fixed income	0%	Mid-cap	40%	
Cash	0%	Small-cap	40%	

This portfolio is for investors attracted to small and midsize companies. The S&P 500 forms a basic core index that is then overlaid with small- and mid-capitalization exposure. This portfolio should also prove to be tax efficient, although the MidCap SPDRs had some rather large distributions in their history (see Chapter 15.) Although few under the age of 30 have portfolios in the \$50,000 range, for who that do, the growth potential of smaller companies and the compounding effect of three or more decades could put this portfolio in the seven-figure club. (If the Russell and MidCap indexes can return 11 percent over the next 30 years, this mix will grow to \$1,144,614.)

Risk (5 = high risk, 0 = T-bills)	4.25
Estimated tax burden (if not in tax-deferred account)	Very low to low (depending on Russell index rebalancing)
Appropriate age bracket for this asset mix	25–35

Exhibit 11.14 Asset Allocation: \$100,000 Sample Portfolio—Low-Cost and Low-Maintenance Growth



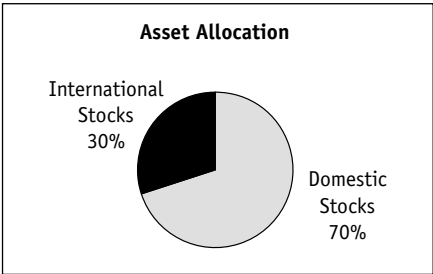
ETF or Other Investment	Sector/Market	Amount Invested	Percentage of Portfolio	Expense Ratio
S&P 500 iShares (IVV)	Large-cap	\$90,000	90	0.09%
U.S. Treasury notes or bonds	Fixed income	5,000	5	0.00%
U.S Treasury bills (3-month to 1-year)	Cash	5,000	5	0.00%
Total size of portfolio		\$100,000		
Overall Asset Mix		Equity Capitalization Mix		
Stocks	90%	Large-cap	90%	
Fixed income	5%	Mid-cap	0%	
Cash	5%	Small-cap	0%	

This portfolio is designed for the investor who has begun to accumulate some substantial wealth; it is incredibly low cost—as close to free as you will ever see. Nine basis points for the equity portion is a management fee usually available only to institutions. The S&P 500 SPDR is only 3 basis points more expensive. The U.S. Treasury securities can be purchased for free. And if time is money, then you will save even more, as this is a low-maintenance mix that will not require you to scour over research reports; a myriad of statements and the typical paperwork burdens of a \$100,000 or greater portfolio.

Risk (5 = high risk, 0 = T-bills)	4.0
Estimated tax burden (if not in tax-deferred account)	Low
Appropriate age bracket for this asset mix	25–35

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Exhibit 11.15 Asset Allocation: \$100,000 Sample Portfolio—Playing the Age Wave

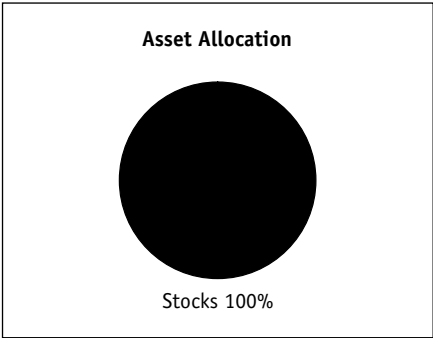


ETF or Other Investment	Sector/Market	Amount Invested	Percentage of Portfolio	Expense Ratio
Pharmaceutical HOLDERS (PPH)	Drugs/health	\$20,000	20	NA
Financial Select Sector SPDRs (XLF)	Banks/ brokerage	20,000	20	0.28%
Biotechnology HOLDERS (BBH)	Biotech	20,000	20	NA
Nasdaq 100 Index Shares (QQQ)	Tech	10,000	10	0.18
iShares MSCI Taiwan	Country	10,000	10	0.99
iShares MSCI Singapore	Country	10,000	10	0.84
iShares MSCI Hong Kong	Country	10,000	10	0.84
Total size of portfolio		\$100,000		
Overall Asset Mix		Equity Capitalization Mix		
Domestic stocks	70%	Large-cap	NA	
International stocks	30%	Mid-cap	NA	
Cash	0%	Small-cap	NA	

This is for those who want to play the aging baby boomer market. The theory goes something like this: As the boomers age, they will accumulate more assets, and this benefits the brokerage and banking industry. And the older they become, the more likely they will need drugs and health-care items. Biotechnology, according to the experts, will contribute to the medical advances that the boomers will experience. As for the overseas portion, Asia has a large boomer generation itself, with a population many times the size of that of the United States. This is a very concentrated portfolio that will experience incredible volatility. But if the demographers are correct, the rewards could be huge.

Risk (5 = high risk, 0= T-bills)	5.0 (emerging markets and sectors make it high risk)
Estimated tax burden (if not in tax-deferred account)	Very low
Appropriate age bracket for this asset mix	30+ (as demographics will take decades to play out)

Exhibit 11.16 Asset Allocation: \$5,000 Sample Portfolio—Growth and College Savings



ETF or Other Investment	Sector/Market	Amount Invested	Percentage of Portfolio	Expense Ratio
Russell 3000 iShares (IWV) <i>Or substitute S&P 500 (SPY), Russell 1000 iShares (IWB) or Vanguard's VIPER (VTI)</i>	Total market	\$5,000	100%	0.20%

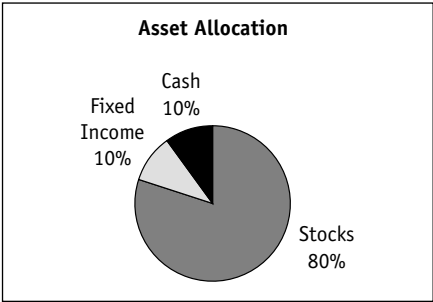
Total size of portfolio		\$5,000	
Overall Asset Mix		Equity Capitalization Mix	
Stocks	100%	Large-cap	total market
Fixed income	0%	Mid-cap	total market
Cash	0%	Small-cap	total market

If the overall market returns 10 percent over the next eighteen years, this sum could grow to \$27,799—not a bad start on paying for college.

Risk (5 = high risk, 0 = T-bills)	4.0
Estimated tax burden (if not in tax-deferred account)	Low (depending on Russell index rebalancing)
Appropriate age bracket for this asset mix	NA (18 years maximum time per child)

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Exhibit 11.17 Asset Allocation: \$50,000 Sample Portfolio—Core-Satellite Portfolio



ETF or Other Investment	Sector/Market	Amount Invested	Percentage of Portfolio	Expense Ratio
S&P 500 SPDRs (SPY)	Large-cap	\$25,000	50	0.12%
Legg Mason Value Trust	Large-cap (value)	5,000	10	1.68%
Liberty Acorn	Small-cap (growth)	5,000	10	0.85%
Berkshire Hathaway Class B shares	NA	5,000	10	NA
Vanguard Long Term U.S. Treasury Bond Fund	Fixed income	2,500	5	0.28%
Northeast Investors Trust	High-yield bond	2,500	5	0.61%
U.S. Treasury bills (3-month to 1-year)	Cash	5,000	10	0.00%
Total size of portfolio		\$50,000		
Overall Asset Mix		Equity Capitalization Mix		
Stocks	80%	Large-cap	70%	
Fixed income	10%	Mid-cap	0%	
Cash	10%	Small-cap	10%	

We all like to try to pick winning stocks and mutual funds. The core-satellite approach gives a taste of both worlds: indexing and active stock and fund picking. The core of this portfolio is the popular benchmark, the S&P 500. Surrounding the core are five active satellites consisting of some of the best management that money can buy (notice the higher annual management fees on the active funds). Bill Miller’s Legg Mason fund is one of the few that consistently beats the S&P. Ralph Wanger, who runs the Acorn funds, is one of the premier small-cap investors. And 10 percent of the portfolio is in Warren Buffett’s holding company, Berkshire Hathaway. Buffett is the best long-term investor in history. Northeast Investors Trust is a high-yield bond fund that has an excellent long-term record and complements the U.S. Treasury bond fund.

Risk (5 = high risk, 0 = T-bills)	3.75
Estimated tax burden (if not in tax-deferred account)	Medium
Appropriate age bracket for this asset mix	30–40

BUYING FIXED-INCOME SECURITIES ON THE CHEAP

Some of the sample portfolios in Exhibits 11.6 through 11.17 had fixed-income components comprising mainly long-term U.S. Treasury bonds or intermediate-term maturity U.S. Treasury notes. (The cash portion of some portfolios consisted of short-term U.S. Treasury bills, but bank certificates of deposit or money market funds would suffice.) You could substitute bond mutual funds that invest in U.S. Treasuries, but it is likely you would be better off investing directly in these instruments, primarily because of costs and safety. Remember that costs have a huge impact on investment performance. With the much lower total returns generally available through bonds, high costs become an even greater burden, along with an already high tax burden, because interest on fixed-income securities is taxed as income and generally not subject to favorable capital gains rates. A quick glance at the Morningstar data on U.S. government bond funds shows that the average expense ratio for U.S. government bond funds is 108 basis points per year, and the average portfolio turnover for U.S. government bond funds is 155 percent per year. With government bond yields in the 5 to 6 percent area as of early 2001, a 108-basis-point cost is simply unacceptable. And after taxes and inflation, much of the return of these funds is exhausted.

In Part I, I discussed at length how difficult it is for the typical actively managed equity mutual fund to beat the S&P 500 over the long run. The same studies have been run on bond funds in the United States, and the results are sobering. The standard benchmark for bond funds in the United States is the Lehman Brothers Aggregate Bond Index, which tracks the performance of U.S. government and corporate bonds. Exhibit 11.18 shows the abysmal performance of active fund

Exhibit 11.18 Fund Performance vs. Benchmarks in Various Equity Asset Classes

Asset	Benchmark	Percentage of Funds Underperforming Benchmark, 10 Years Ending June 2000
U.S. large-cap equity	S&P 500	78%
U.S. mid-cap equity	S&P MidCap	70
U.S. bond funds	Lehman Aggregate	80
European equity	MSCI Europe	71
Global emerging equity	FTSE All-Emerging	78

managers relative to their benchmarks over the past 10 years. Notice in particular bond fund performance relative to its benchmark.

As an alternative, you can buy U.S. Treasuries of varying maturities directly from the U.S. government through the Treasury Department's Bureau of Public Debt. The program is called Treasury Direct. You deal directly with the Treasury's Bureau of Public Debt—no middleman, no broker or banker, and best of all, no commission. The fee for going through the Treasury Direct program is *zero*. You can buy up to \$100,000 worth of U.S. Treasuries for free. If and when your account exceeds \$100,000, you will be charged a very nominal fee of \$25 per year. At the \$100,000 level, your \$25 fee would translate into fewer than 3 basis points per year, an enormous savings when compared with the 108 basis points of a typical government bond fund. The minimum amount required to buy any U.S. Treasury bill, note, or bond is \$1,000. You can purchase them through the mail and over the Internet. I have been doing this for over a decade now and have had a perfect experience. Although the U.S. government may have a reputation for slowness, the Treasury Department has its act together. In ten years, it has never been late on any of my interest payments. My statements have never had any error of any kind. Wire transfers and reinvestment of instruments have been executed flawlessly.

RISK AND RETURN WITH TREASURIES

The main difference among U.S. Treasury bills, Treasury notes, and Treasury bonds is the length of maturity. T-bills come in 3-month, 6-month, and 1-year maturities. Treasury notes are usually 2-year, 5-year, and 10-year maturities. T-bonds generally carry 30-year maturities. Since Treasuries are direct credit obligations of the government and thus backed by the full faith and credit of the U.S. Treasury, they are regarded as one of the safest investments in existence. If held until maturity, there is no way you will lose money.

On the other hand, the longer-dated maturities do carry risk of another kind. The U.S. Treasury guarantees interest payments and return of principle—if the securities are held to maturity. What happens between your initial purchase and final maturity is a different story. If you are holding a 30-year bond with a 5 percent coupon, there is a risk that the value of the bond will decrease should interest rates rise. Think of it this way: If interest rates rose over the next few months on 30-year Treasuries to 7 percent, then newly issued T-bonds would now be carrying 7 percent interest rates (coupons). Your 5 percent T-bond

pays significantly less. In the secondary market, Treasuries trade very actively. If you had two bonds, one paying 7 percent interest and the other paying 5 percent interest, which would you pay more for? (This is not a trick question.) You would pay more for the 7 percent T-bond or, conversely, less for the 5 percent bond. Hence, the secondary market would reflect this, and your 5 percent bond would lose value if rates rise. Similarly, if rates declined to 4 percent, your bond would now become more valuable and rise in price. Thus, T-note and T-bond instruments move inversely with interest rates. In addition, the longer the maturity is, the more sensitive a fixed-income security will be to changes in interest rates. If rates rose dramatically, 30-year bonds would lose more value than 10-year notes. If rates declined, the longer-maturity instruments would gain more value than the shorter-maturity notes. In conclusion, the longer maturities tend to carry more risk.

Generally, increasing risk in capital markets means greater return. This generally holds true in the U.S. Treasury market as well. During the past 20 years, a period characterized by a gradual, sustained decline in interest rates, long-term government bonds did outperform intermediate-term treasury notes. But during the 1960s and 1970s, periods of higher inflation and rising rates, notes outperformed bonds. Difficult as it may be to believe, over the past 70 or so years, intermediate government notes have performed almost as well as longer-term government bonds and have done so with decidedly less interest rate risk and lower volatility.

Treasury bills, on the other hand, carry no default risk and no interest rate risk. They are the safest investment in the world. But ultimate safety translates into smaller returns. The phrase *no risk–no reward* is never more apparent than in Treasury bills. CDs and money market funds often carry significantly higher yields than T-bills with virtually no additional risk. You should therefore consider these for the cash portion of your portfolios.

The figures that follow show the Treasury yield curve for March 2, 2001. Witness the yield increase as maturities lengthen from 3-month bills out to 30-year bonds:

<i>Instrument</i>	<i>Interest Rate</i>
3-month Treasury bill	4.70 percent
10-year Treasury note	4.95 percent
30-year Treasury bond	5.37 percent

Some investors no doubt will want to shop around for higher rates. Instead of Treasuries, you could choose investment-grade corporate notes

and bonds (those rated AAA, AA, A, or BBB by Standard & Poor's). The pickup in yield will be noticeable, but so will the added costs. You would have to purchase corporate bonds through a brokerage firm or invest in them by a mutual fund. Brokers charge a commission, and we have already discussed the high fees associated with government bond funds. Some fund companies like Vanguard keep costs very low. Corporate bond funds, on average, have expense ratios of about 95 basis points. If you insist on buying corporates (or even Treasuries) through a broker or a corporate bond fund, do everything possible to mitigate these costs, as they will make a huge difference in the long run. Exhibit 11.19 compares the various options available for the fixed-income portion of your investment portfolio. It also highlights the risks of various debt instruments and compares the costs of some of these instruments. Exhibit 11.19 is not meant to be inclusive of all fixed-income securities. For lack of space (and time), government agency and mortgage instruments were excluded, as were tax-free debt. Most brokerage firms can provide the basics regarding fixed-income investing. Those who wish to dive further into the subject can check out the Suggested Reading list at the end of this book.

CONCLUSION

Whichever fixed-income vehicle you choose, combining ETFs with Treasuries, investment-grade corporate bonds, or high-quality fixed-income mutual funds, you will have assembled a solid institutional-class portfolio that should stand the test of time and provided a handsome payoff. But the near-zero cost of combining some ETFs with Treasury securities purchased through the Treasury Direct program is difficult to let pass.

Exhibit 11.19 Various Options for the Fixed-Income Portion of an Asset Allocation Portfolio

	Credit Risk	Interest Rate Risk	Maturities	Costs	Yield, March 5, 2001
U.S. Treasury bills	None	No	3 months, 6 months, 1 year	Zero ^a	4.70%
Bank CDs	Extremely low	No	Various	Zero	5.00 ^b
Money market funds	Low (no FDIC)	No	Below 1 year	.2–.8%	5.37 ^b
U.S. Treasury notes	None	Low/medium	2, 5, 10 year	Zero ^a	4.95 ^b
Intermediate-term corporate bonds—investment grade	Low	Low/medium	2–10 year	Commission	5.99 ^b
Intermediate-term corporate bond funds	Very low	Low/medium	Various	.20–1.00%+	6.66% ^c
U.S. Treasury bonds	None	Medium/high	20–30 year	Zero ^a	5.37 ^b
Long-term corporate bonds— investment grade	Low	Medium/high	20+	Commission	6.83 ^b
Long-term corporate bonds funds—investment grade	Very low to low	Medium/high	Various	.2–1.0%+	6.6% ^c

^aTreasury Direct Program.^bFrom *Barron's Financial*.^cVanguard Intermediate Corporate Bond fund and Long Term Corporate Bond fund.

12

RISK: THE MOST IGNORED FOUR-LETTER WORD

Suffering, risks, and unscheduled life events are part of life; they may occur today, and they will certainly come tomorrow. When I think of the phrase, “Trouble today, trouble tomorrow,” it reminds me of October 19, 1987. There was lots of trouble that day—unless you were short stocks or in cash. Statistically, the crash of 1987 and its 23 percent decline in stock prices in a single day should never have happened. It was a 13-standard-deviation event according to my mathematically gifted colleagues. A move of greater than 1 standard deviation occurs about one time out of three. A move of greater than 2 standard deviations occurs 1 time out of 20, and a greater than 3 standard deviation move occurs less than 1 time out of 100. Beyond 3 standard deviations, the odds are incredibly low. Thirteen standard deviations is off the chart. In the entire recorded history of the universe, a move of that magnitude should never have happened. But it did, and it is one of the best examples of risk (trouble) I can think of.

One of the most important traits separating successful traders and investors from the unsuccessful is an appreciation of risk. We all love returns, especially the outsized gains since 1982. The *Wall Street Journal* is replete with full-page ads showing the glowing returns of the many mutual funds offered by fund companies and investment managers. How many of them talk about risk? We all wonder about how much return we can expect in any investment. We ask, Can I obtain a 20 percent return? Thirty percent? Can I double my money every quar-

ter? How many investors ask themselves, “How much money can I lose?” We are so focused on the gain that we often do not realize the inevitable risks. Someone at a seminar once asked, “What really separates the successful professionals from the wannabes?” “First,” I replied, “is lack of knowledge. Too many people invest or trade with little or no preparation. Second, sufficient capital is important. Too little capital, and one bad trade forces you out of the game.” The third thing I mention is risk management and money management. Amateurs usually ask how much they can profit. Professionals always ask, “What is the risk? How much can I lose, and what is the most I could lose?” They know how much gain is possible, but controlling the downside, a great mystery to beginning investors and traders, is at the heart of every successful investor or trader.

A FEW EXAMPLES OF RISK AND MONEY MANAGEMENT

A friend bought 100 shares of VA Linux after its record-breaking initial public offering. The stock soared nearly 700 percent on its first day of trading to over \$300 per share. While she did not pay the all time high price, she did pay more than \$275. VA Linux, as well as Red Hat, were part of the Linux movement, a movement that many thought would finally topple Microsoft and its virtual monopoly in the PC operating system software sector. Linux software was part of the “open source” software movement. Open source meant that the software code was widely available. In fact, you could download the Linux code for free off the Internet. The software was supposedly stable, scalable, and rather simple compared to the millions of lines of code embedded in Microsoft’s software. Anything remotely related to Linux was considered golden, and the stocks were afforded lofty prices. High prices, however, ultimately bring out sellers. As VA Linux began its descent toward \$200, my friend began to worry. “What do you think?” she asked one day.

“Honestly?”

“I’m down \$7,000. I need to hear the truth.”

“The greatest advances are usually followed by the greatest declines. The laws of gravity apply to the stock market as well.”

“So what are you saying? How bad can this get?”

“The company has some potential, but it is insanely overpriced. You could lose half your money in a very brief amount of time.”

“No way,” she replied.

“Way,” I snapped back. “You should think about limiting your losses here; you can control risk to some degree. Set a stop loss [a type

of order where if the stock hits a predetermined price, your broker will sell your stock. It works as a sort of forced margin call, although you are not on margin]. “How does \$200 grab you? If the stock goes below \$200, you are out.”

Then she muttered those famous words that kill every novice investor, “I can’t sell now. It’s only a paper loss. It will come back.”

“How would you feel if the stock declined further, to 150? Would you reconsider?”

“Yes, I’d take my losses then.”

VA made it to \$150, and my friend suffered a loss of about \$13,000. Were it not for stop losses and risk management, it would have been substantially worse. A few months later, she found some consolation in the news that VA Linux was trading below 30 (it eventually made it below 10!). She confessed that she knew the risks but did not know how large they could be.

My second story is also about risk or, rather, total ignorance of risk. I overheard a discussion on a train where one fellow was telling another that he should invest his 401(k) account in an index fund because there are no risks in an index fund. I interrupted the conversation and told the man on the receiving end of this advice that he should find another investment adviser because his commuting partner might put him in the poorhouse. I told them that indexes are my business and that I was right in the middle of the trillion-dollar market. That got the attention of both of them. I gave them a 10-minute discourse on how the S&P 500 can and does go down, and thus an index fund that tracks the S&P 500 can also go down. I reminded them that the long run has rewarded index investors but that bear markets like that of 1973–1974 and other less-than-fabulous years do occur regularly.

The third story involves inadequate capital. A caller wanted to trade the E-Mini S&P 500 futures. He had only \$3,000 in capital and knew that the exchange minimum for the Mini S&P was about \$4,300. Apparently his broker told him that if he day-traded (i.e., offset all his trades before the close and did not carry any positions overnight), he could trade for half the exchange margin, or \$2,400. He was not aware that some firms allow this and wanted to know if it were true. I said that it was—but trading the Mini S&P 500 with such a low capital base might lower his chances for success. If he were on the wrong side of a 20-point move in the Mini S&P 500, he would lose one-third of his capital and not be able to trade any further until he came up with additional funds. The S&P 500 has 20-point swings quite regularly. I suggested he build up his funds so he could withstand a few losses and still continue to trade.

I know from experience that undercapitalized traders have a tough time becoming successful traders. Like any new business, you need cash on hand to handle the storms until you are more proficient.

RISK AND RETURN

Now let's examine risk along with its companion, return. In general, individuals who do comprehend risk know that greater returns are available but usually entail taking on greater risk. The more risk you take, the greater your return should be. Unfortunately, this is not always the case. Let's take a hypothetical case of two investment managers: Manager A and Manager B.

Manager A has obtained 7 percent annualized compounded returns over the past 10 years by investing in U.S. Treasury bills. Investor B has obtained the same 7 percent compounded return over the past decade but has done so by speculating in pork belly futures. Would you rather invest your money with Manager A or Manager B? Some would say it does not matter, since both provided 7 percent returns. But an astute investor who considers not only on returns *but also the risks taken to obtain those returns* would choose Manager A. Why? T-bills are risk free. You cannot lose money with them. The U.S. government guarantees the return of your money, and there are no fluctuations or volatility investing in T-bills. The fluctuations in the pork belly market can be quite dramatic. Indeed, pork bellies are one of the more volatile commodity futures in the industry. You would have a dramatically increased chance of a big loss (and a big gain) trading pork bellies. Yet for all the increase in risk and volatility, Manager B could not generate a greater return! Taking greater risks should produce greater profits, but in this case, greater risk did not give the investor a larger gain. The crux of investment management is to obtain the highest possible return on an investment with the least amount of risk. The investment world is rife with investors who are taking absurdly high risks and not being adequately compensated for the increased risk with higher returns.

Now consider Managers A and B with a slightly different comparison. Let's say Manager A returned the same 7 percent while Manager B returned 10 percent. Is this enough additional return to justify the risks? What if A returned 7 percent and B returned 20 percent? At some point, every investor must evaluate the trade-off between risk and return. If we move from the hypothetical example above to the real world, the investor will not have to search far to see that increasing the risk appetite will not always result in better returns. Exhibit 12.1

Exhibit 12.1 Risk and Return in Large- and Small-Cap Stocks over Two Decades

Decade	Cap Level	Compounded Annualized Return	Risk as Measured by Standard Deviation
1990s	Large-caps	18.2%	15.8%
	Small-caps	15.1	20.2
1980s	Large-caps	17.5	19.4
	Small-caps	15.8	22.5

Source: CME Index Products, Ibbotson Associates.

shows returns for large-cap stocks versus small-cap stocks over two decades. In the 1990s, large-caps returned an annualized compounded 18.2 percent versus 15.1 percent for small stocks. Yet risk, as measured by standard deviation, for large-caps was less than small-caps: 15.8 percent versus 20.2 percent.

Although investors in small-cap stocks were exposed to greater risk compared with large stocks, they were not compensated with a greater return. The same thing happened in the previous decade. Small stock investors received about 170 basis points less return per annum but exposed themselves to 300 basis points more risk. You would have to go back to the 1970s to see riskier small stocks outperform their large brethren. One might draw the obvious conclusion that investors should shun smaller, riskier stocks in favor of large-caps. Not necessarily; there are some small-cap fund managers who have provided investors with good “risk-adjusted” returns. Moreover, just because the 1980s and 1990s were less generous to small stocks does not mean that future decades hold the same fate. In addition, there are cycles within decades that are extremely profitable for small (and midsize) issues. In Appendix 2, we cover that topic in more detail and discuss how ETF investors can take advantage of small-cap stocks. And finally, if we return to the long-run measuring stick of 50 to 70 years, we would observe that small stocks do outperform larger stocks. Their risk is higher and the ride will be bumpy, but the rewards can be significant. This is why we have diversification. This is why many of the sample portfolios in Chapter 11 contained mid- and small-cap exposure.

If we move our risk return discussion to overseas investments, a similar pattern exists. Some of the emerging markets have exhibited extraordinary risk but have not rewarded investors accordingly. Exhibit 12.2 lists the risk (standard deviation) of several MSCI country indexes. Remember that individuals or institutions can invest in these indexes via the iShares MSCI ETFs.

Exhibit 12.2 Risk of Selected MSCI Country Indexes

MSCI Country Index	Risk: 5-Year Monthly Standard Deviation	ETF Return: Inception to December 31, 1999
MSCI Malaysia	47.7%	-16.8%
MSCI Singapore	35.0	-5.7
MSCI Mexico	40.4	+19.4
MSCI Switzerland	17.5	+12.0
MSCI U.K.	10.9	+20.9

Source: MSCI and Barclays Global Investors.

The country with the lowest risk in the exhibit, the United Kingdom, has provided the best return since March 1996, the inception date of many of the iShares MSCI funds. Some higher-risk countries have failed to compensate investors for their extra risk. The iShares U.K. ETF took one-fourth the risk of the Mexico ETF and still exceeded its return. This is precisely what an investor needs to be aware of: Taking enormous risks does not always provide an enormous payoff, and usually an investor can obtain a given return while still minimizing or mitigating his or her risk. Investors who master these lessons will enjoy several benefits:

- They will be better informed and thus able to make better investment choices and are less likely to suffer catastrophic losses.
- They will understand that greater risk does not always produce greater returns.
- They will not only appreciate degrees of risk but may be able to quantify risk and match it to their appetite.
- Diversification can pay off. An investment in Malaysia or Singapore would have cost the investor. But if the portfolio of ETFs were spread across a more diverse area, say, Europe, then the situation would have been different. And volatility or risk can also be mitigated by investing across various asset classes, such as bonds, notes, cash, and real estate.

BUFFETT, MERIWETHER, AND THE RISKS UNKNOWN

If you dissect the philosophies and financial maneuverings of Warren Buffett and John Meriwether, you will find some interesting similarities. Meriwether was a fabulously successful trader at Salomon Brothers,

in charge of fixed-income trading as well as the all-important bond-arbitrage group. His group was stuffed with quantitative geniuses from MIT and Stanford. They relentlessly plugged reams of data into computers and formulated complex models that could tell whether certain fixed-income instruments were out of line in terms of price or yield. If the 2-year note yield was priced a bit high relative to the 10-year note, they would construct and implement a trade that would profit from this view. They reputedly had all the angles calculated. The bond-arbitrage group knew with fairly good precision how out-of-whack things could get and the odds of their coming back in line. For a time, the group amassed huge profits.

Then the success of the bond-arbitrage group was interrupted during the Salomon Brothers government bond scandal. Although the scandal cost Meriwether his job, it was not long before he raided his former employer's arbitrage group and assembled his own trading group—a hedge fund named Long-Term Capital Management (LTCM). Meriwether brought in other brilliant minds, including a few Nobel Prize winners, and went on to establish one of the most eccentric financial enterprises on Wall Street. In the first few years, profits were large. Before long, the capital base grew, and additional investors, the large institutional variety, were ready to pony up additional billions. Things were going quite well. Their computer models were running like a well-oiled machine, constantly churning out probabilities, risk, and out-of-sync instruments. In addition, most trades were of the hedged type, so the risks turned out to be smaller than forecasted. In a letter to LTCM's investors, these leading academicians reported to fund holders the precise risks of loss. Although they understood and acknowledged risk, they thumbed their noses at uncertainty and calculated that investors may experience a loss of 5 percent or more in about 1 month in 5 and a loss of 10 percent or more in about 1 month in 10. Only 1 year in 50 should it lose at least 20 percent of its portfolio. Apparently, losses beyond 20 percent were unthinkable, as those odds were not discussed. Most investors probably did not give that rash scenario too much thought.

LTCM had anticipated every contingency except one: The models did not account for a Russian debt default crisis. When Russia's and Asia's problems surfaced, all the wheels came off quickly and trades that were executed because things were out of line did not come back into line. In fact, despite the impossible odds, the trades went hopelessly against Meriwether's group. More important, because the rocket scientists were sure of their computers, they made huge leveraged bets. But the soured trades paired with the overwhelming leverage took the

firm, its partners, and investors to the brink of extinction. Only a rescue package engineered by the Federal Reserve and this nation's largest banks saved the teetering system from spinning out of control.

Compare LTCM's attitudes about risk with those of Warren Buffett. Many know Buffett as a great investor. The truth is that he is also fanatical about risk. He has to be. After all, he sits atop one of the mightiest risk enterprises in the world. We all know Buffett as the chairman of Berkshire Hathaway. But nestled in Berkshire's portfolio are several very large insurance operations in GEICO Insurance and General Reinsurance (when large insurance companies take on too much risk, they lay it off on other insurance companies) Buffett's insurance operations also extend to *super-cat policies*—policies that insure against catastrophic losses. Because of the extraordinary risks, super-cat business brings in exceedingly large premiums. Read what Buffett's letter to his investors has to say about risk and uncertainty:

Occasionally, however, the cost of our float (premiums) will spike severely. That will occur because of our heavy involvement in the super-cat business, which by its nature is the most volatile of all insurance lines. In this operation, we sell policies that insurance and reinsurance companies purchase in order to limit their losses when mega-catastrophes strike. Berkshire is often the preferred market for sophisticated buyers: When the "big one" hits, the financial strength of the super-cat writers will be tested, and Berkshire has no peer in this respect.

Since truly major catastrophes are rare occurrences, our super-cat business can be expected to show large profits in most years—and to record a huge loss occasionally. In other words, the attractiveness of our super-cat business will take a great many years to measure.¹ *What you must understand, however, is that a truly terrible year in the super-cat business is not a possibility—it's a certainty. The only question is when it will come.*

Buffett respects risk. He expects and embraces uncertainty. Buffett does not just calculate the odds of a 5 percent loss or a 10 to 20 percent loss. He braces his entire financial foundation for the inevitable by acknowledging that terrible catastrophes will most certainly come knocking. He states, "When the big one hits," not, "If the big one hits." He dismisses probabilities in favor of certainties. His financial strength is not built on an overleveraged house of cards but rather on an enormous pile of cash and reserves.

I believe that John Meriwether and his partners at LTCM were extraordinary investors. They lost an obscene sum of money, but also made handsome profits before the Russian storm hit and before LTCM while still at Salomon Brothers. In my opinion, these people put too much reliance on computer models (and leverage). Computers are only as good as the people who program them. One thing the computer models cannot quite figure out is the inevitable chaos in Russia or that one day Sadaam Hussein will wake up and decide he wants to own some Kuwait real estate. No supercomputer on earth could forecast the accounting fraud that would reduce the market value of Cendant Corporation by 50 percent in one day. And no model could predict the complete evisceration of the Internet stocks. Human frailty and emotions cannot be tamed by a spreadsheet.

When the storms arrive, I'd rather be in the House of Buffett any day. If you polled smart investors around the globe and offered them the choice between Buffett's cerebrum making investment decisions and a few Ph.Ds with Pentium IVs calling the shots, I think the results would be obvious. As an investor in the markets through either ETFs or E-mini stock index futures, you would be well served to learn a few lessons about risk from both these individuals.

"VAR [Value at Risk] is extremely dangerous. People look at their computer models and think they are safe. It is much better to have no models and watch your net worth every day. Watching it crumble is what told me to get out."*²

—Stanley Druckenmiller, Soros Capital Management

*Value at Risk is a computer model that helps firms gauge risk by determining how much their positions might lose at a given time. LTCM and dozens of other firms embraced this type of modeling. It was fine if things behaved the way they did in the past. But if some unforeseen event should rock the financial markets, the models fall short.

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ETFs BEYOND THE UNITED STATES

ETFs within the United States grew at a healthy clip from their introduction in 1993 until about 1998. Then growth skyrocketed as the number of fund offerings multiplied exponentially and existing ETFs became ever more popular. It was only a matter of time before our neighbors to the North and countries across the Atlantic and Pacific would take notice.

Exchanges in Canada, Europe, and Asia had excellent experiences introducing derivative products of their own, and those same products are now among the most actively traded futures and options in the world. Overseas exchanges knew that if they could build on the critical mass already in existence with index futures and options, then ETFs had a very good chance at succeeding outside the United States. They had the know-how, and they had advanced electronic trading systems (the major exchanges in Europe and Asia were already all-electronic). They also had products. Futures contracts on the German DAX 30, the French CAC 40, the European Blue Chip EuroSTOXX 50, and every other major European and Asian index futures contract had average daily dollar turnover exceeding \$1 billion, as well as six-figure open interest levels, as Exhibit 13.1 shows.

The only obstacles to success for foreign exchanges were regulatory and infrastructure related. In the United States, one regulatory agency, the Securities and Exchange Commission, oversees all ETF regulation. In Europe, there are 20 regulatory bodies and 16 national

Exhibit 13.1 Selected Global Index Futures Products

Index Future	Country	Daily Turnover	Open Interest Number of Contracts
EuroSTOXX 50	Continental Europe	\$2.77 billion	497,902
FTSE 100	United Kingdom	3.01 billion	263,270
CAC 40	France	3.13 billion	362,334
DAX 30	Germany	5.51 billion	177,536
Nikkei 225	Japan	2.70 billion	163,285
Hang Seng	Hong Kong	1.51 billion	34,728

Source: FIA, CME Index Products Marketing.

legislatures that would be involved in these products. In the United States, almost all ETFs trade on the AMEX (the NYSE and CBOE have snatched one ETF apiece). In Europe, over a dozen exchanges are vying for an ETF prize. In fact, because of the structure of licensing agreements overseas, some ETFs are listed on several exchanges. This structural difference promotes healthy competition, but it can also serve to dilute liquidity. Even more important is the clearing issue. The NSCC and DTC (now merged entities) provide a cheap, efficient, and extremely reliable clearing mechanism that is mandatory for ETF settlement and the all-important creation and redemption process. Overseas exchanges no doubt can clear these types of instruments, but can they do it cheaply enough to make ETFs overseas as low cost as they are in the United States?

Despite the regulatory and infrastructure hurdles, other countries have done an excellent job of importing ETF know-how from the United States. They have even leapfrogged us by being first to introduce ETFs on actively managed mutual funds. Some U.S. financial institutions (Nuveen, Vanguard, ProFunds) have expressed a desire to launch ETFs on some of their mutual funds. In fact, on May 31 The Vanguard Group launched their first ETF—The Vanguard Index Participation Equity Receipt (VIPER, ticker VTI). Initial interest is excellent. VIPERs are an ETF that track the Vanguard Total Stock Market Index Fund, which replicates the Wilshire 5000 Index. Look for additional ETFs of this type in the near future.

As of February 2001, there were about 1.5 billion euros (\$1.38 billion) of assets under management in European-listed ETFs alone (see Exhibit 13.2). ETFs on the CAC 40, the DAX 30, FTSE 100, and EuroSTOXX 50 have the lions share of assets (66 percent).

Exhibit 13.2 European ETFs: Market Share by Assets

ETF	Exchange	Assets Under Management (in millions of euros)	Market Share
CAC 40	Euronext	360	24%
EuroSTOXX 50 LDRS	Deutsche Borse	345	23
FTSE 100 iShares	LSE	195	13
DAX 30	Deutsche Borse	120	8
STOXX 50 LDRS	Deutsche Borse	105	7
iBloomberg/ Pharmaceuticals	LSE and Euronext	45	3
iBloomberg/Financial	LSE and Euronext	45	3
iBloomberg/Technology	LSE and Euronext	45	3
iBloomberg/Telecom	LSE and Euronext	30	2
iShares TMT	LSE	30	2

Many of the European broad-based and country indexes now have liquid ETFs. Like their American counterparts, index providers are licensing and introducing dozens of sector ETFs, such as the Bloomberg European Investable Indexes. Barclays Global Investors is the manager for the Bloomberg European Index ETFs, and Bloomberg owns and calculates the indexes (hence the moniker iBloomberg). State Street Global Advisors will also launch more than a dozen new streetTRACKS ETFs, including the MSCI Pan-Euro Index, MSCI Europe Small Cap Index, a U.K. and Amsterdam index, as well as several MSCI European sector streetTRACKS.

Recently the bid-offer spread on the DAX 30 ETF traded at the German Exchange, Deutsche Borse, was measured at 6 basis points. This is tighter than any U.S.-based ETF by several basis points. It has been said that the market maker for the product will quote extremely deep markets without widening the bid/offer spread. That Europe and its exchanges want to be major players in ETFs is quite evident. And despite their infancy, they are enjoying major success.

While Europe is off to a great start, ETFs in Canada and Asia are evidently the most successful ever launched outside the United States. In August 1998, the Hong Kong government acquired an enormous portfolio (HK\$230 billion, \$28 billion USD—7 percent of the value of the Hang Seng Index) of Hong Kong-listed securities as it tried to prop up share prices during the Asian crises of 1997–1998. The securities

were mostly shares composing the venerable Hang Seng Stock Index, a cap-weighted index of 33 large Hong Kong corporations. When the Hong Kong financial authorities finally decided to dispose of these shares, the government wanted to do so in a manner that would have as little market impact as possible. Evidently it determined that an ETF structure would be the best way of off-loading the shares into institutional and retail investors without sinking the Hong Kong stock market. In November 1999, under the management of State Street Global Advisors, the Hong Kong government launched the Tracker Fund of Hong Kong (TraHK). The HK\$34 billion (\$4.3 billion) TraHK initial public offering was Asia's largest ever (excluding Japan). Since then, the government has been able to transfer over HK\$60 billion (7.5 billion USD) back into the market using this unique ETF. TraHK now enjoys an asset base of \$3.4 billion, with very high turnover.

Canada's iUnits S&P/TSE 60 fund is the standout in terms of assets. With an asset base of nearly \$5 billion (U.S. dollars), this ETF would rank number three in the United States after the QQQ and SPY. The S&P/TSE Index consists of 60 of the largest (by capitalization) stocks listed on the Toronto Stock Exchange. BGI is the manager of the Canadian offering. Annual expenses amount to 17 basis points. Canada is also the first to have an ETF based on a fixed-income instrument. iG5 and iG10 are ETFs based on 5- and 10-year Canadian government bonds. They are unique in that they are not based on bond indexes. They contain only the 5-year Canadian government bond or the 10-year version. It would be tantamount to having an ETF on Microsoft—that is, the entire fund would be not an index of stocks but one stock. The Toronto exchange has announced its intention to launch six new iUnits based on a Canadian MidCap index and several Canadian sector indexes.

Although ETFs that are equally accessible to institutional as well as retail investors are relatively new in Europe, a unique institutional-only ETF has existed in Europe nearly as long as the original S&P 500 SPDRs. In April 1993, the investment banking firm of Morgan Stanley introduced OPALS (Optimized Portfolios As Listed Securities) in response to institutional demand for a simpler and less costly way to get exposure to equity markets across the globe. Most OPALS are listed on the Luxembourg Stock Exchange and are available on nearly 60 indexes. OPALS exist on 10 major country indexes and nearly 50 MSCI indexes, including developed and emerging markets, global and regional markets, and European sector indexes. All of the advantages offered by ETFs exist with OPALSs. They are liquid, low cost, trade at very close to net asset value, and offer non-U.S. institutional investors

a means to gain exposures to many different global markets. Unfortunately, U.S. investors are not allowed to trade in OPALS; only qualified non-U.S. institutions such as pension funds, asset managers, private banks, insurance companies, and not-for-profit institutions are allowed. But many of the country and regional indexes are available to U.S. investors through the iShares MSCI series.

Restrictions regarding overseas ETFs are not limited to OPALS. Most of the ETFs listed on foreign exchanges are not registered under the U.S. Securities Act of 1933, nor have many of the issuers been registered under the Investment Companies Act of 1940. Hence, these products cannot be sold directly or indirectly in the United States or to an account of a U.S. citizen. Word has it that in the future the SEC may rule that some of these products could be sold to investors in the United States. However, it may be a long time, if ever, before you see some of them sold in the United States.

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THE FUTURE OF ETFs AND E-MINI STOCK INDEX FUTURES: THE ROAD AHEAD

I began this book in San Francisco, home of Barclays Global Investors, the proprietors of iShares and the largest indexer on earth (as well as the pioneering institution in indexing). It is fitting that I write the final words in Chicago on the day when the E-Mini S&P 500 smashed its previous trading record by trading over 200,000 contracts a day (\$10 billion notional) and the E-Mini Nasdaq-100 volume soared to a record 150,000 contracts (\$5 billion notional). For those not familiar with the history of futures markets and volume levels, most contracts traded in the world do not trade 100,000 per day. That the Mini S&P 500 accomplished this in 3 years and the Mini Nasdaq-100 in less than 2 years is nothing short of incredible. When the Nasdaq-100 Index shares were launched (3 months before the E-Mini Nasdaq-100 futures), the opening-day volume was 2.6 million shares, also an incredible feat. And since the CME was scheduled to launch the Mini Nasdaq-100 futures in June, the success of the QQQs would be formidable competition. As popular as the QQQs, S&P 500 SPDRs, and some other ETFs have become, the E-mini futures have enjoyed even greater success, certainly in dollar turnover. This success is even more remarkable when you consider that the distribution channel for ETFs—the number of stock-brokers and firms available to push stock exchange products—dwarfs the number of futures brokers and firms that sell E-minis. The CME is in the middle of a concerted effort to open up access to its GLOBEX electronic trading system. When the number of “screens” providing ac-

cess begins to increase rapidly, it is quite possible that the minis will double their volume again within a few years. They would join the big S&P 500 and the Eurodollar futures contracts as some of the most actively traded instruments in the world. Moreover, it is likely that other E-mini stock index futures would be brought to market too. Some participants have expressed an interest in a mini-Russell 2000 Index future or a Mini S&P MidCap 400 Index future.

Despite the extraordinary success of ETFs to date, their future potential, like E-mini stock index futures, is boundless. Combine all the advantages discussed in Part I with the marketing muscle and infrastructure possessed by BGI, SSGA, BNY, and AMEX, and you have the ingredients for an explosion of activity. Small investors and multibillion-dollar pension funds are doing business in ETFs in increasing numbers. The press has labeled ETFs mostly as investments for the average retail investor. In truth, ETF activity is greatest among institutions. The sheer number of broad-based, style, and sector ETFs helps attract interest since there is literally something for everyone. During the writing of this book, the number of ETFs grew from about 70 to over 100.

Such success has not gone unnoticed. Nuveen Investments filed registration statements with the SEC for seven new exchange-traded municipal bond funds in early January 2001. This would be a totally new class of ETFs. Nuveen is also reportedly working on other equity-based ETFs that should be trading later in 2001 or in early 2002. Also planning to enter the ETF market is Vanguard, which has applied for SEC approval of a series of ETFs called VIPERs (Vanguard Index Participation Equity Receipts). VIPERs will be a share class that tracks Vanguard's five most popular index funds: the Vanguard 500 Index fund, Vanguard Growth Index fund, Vanguard Small-Cap Index Fund, Vanguard Total Stock Market Index Fund,* and the Vanguard Value Index Fund. ProFunds, the Maryland-based investment company, has announced plans to introduce ETFs based on some of its index fund offerings. Even insurance companies, with their large stables of cash and extensive risk and investment management prowess, want to be part of the ETF game. New York Life Investment Management is planning to offer its first ETF, which will track the Pacific Stock Exchange (PSE) Technology 100 index. TECHIES, an acronym for Technology Index Equity Shares, will reportedly trade on the AMEX and the Pacific Stock Exchange.

*VIPERs on the Total Stock Market Index Fund were launched on May 31st.

BGI has launched fixed-income ETFs in Canada, and they will likely appear in the United States before long. Fixed-income ETFs would be a valuable tool in constructing asset allocation portfolios using all ETFs

ETFs will grow not only in number but also in accessibility in the world marketplace. While E-mini futures are available around the clock, only now are securities exchanges in the United States making the move toward 24-hour availability. The AMEX has announced agreements with two exchanges, Euronext, the pan-European exchange, and the Singapore exchange to cross-list ETFs. So by late 2001, investors in Europe and Asia will be able to trade SPDRs or DIAMONDS. Initially, only a handful of AMEX ETFs will be listed, with others following later. U.S. investors too should have access to many ETFs listed overseas.

Another catalyst that will promote ETFs will be investment advisers and managed account programs. On the futures side, managed futures accounts harbor assets of well over \$30 billion. It is highly probable that asset management firms will pile on in this area, offering clients managed accounts using ETFs. They will invest in a diversified portfolio of ETFs depending on the risk tolerance of the client, and they will be marketed as tax-efficient, low-cost vehicles. As such, certain investors, such as high-net-worth clients would likely be willing to pay a small management fee in addition to the small fees charged by ETF sponsors for good management. Critics will say that active management will only create more taxable events, increase costs, and if the mutual fund industry is any indication, not likely add enough value (beat the market) to justify another layer of fees. Nevertheless, if enough assets migrate toward this kind of product, it will attract some talented managers, some of whom might end up beating the market. After all, the S&P 500 over the long run does beat most managers—but not all of them. The trick will be to identify them in advance.

Several investment management firms have announced their intention to provide clients with programs that actively manage a portfolio of ETFs. Addison Capital Management LLC was the first asset management firm in the United States to offer such services. Addison, with \$300 million under management, introduced in September 2000 a product it called Active Index Core Strategy. These actively managed portfolios are made up exclusively of ETFs. In the beginning, Addison used primarily the S&P 500 SPDRs, but accounts now include a broader array of ETFs

Everest Funds Management LLC in Omaha, Nebraska, launched a fund of ETFs in December 2000. This too is the first fund of ETFs (similar to the fund of funds concept, where a manager invests client money in a diversified program of mutual funds). Its goal is to try to attract defined-contribution plan assets—401(k) accounts—as well as retail investors. With the immense amount of dollars in Americans' 401(k) accounts and their love affair with indexing, this fund of ETFs has great potential. However, the fund, named the Everest Cubed Fund, is an SEC-registered regulated investment company. It will thus not be traded throughout the trading day like the ETFs in which it invests. The fund is registered in only two states (Nebraska and Virginia) but plans to expand as demand and assets grow. It will allocate money primarily in the Spiders, DIAMONDS, and QQQs, with quarterly allocation reviews and rebalancing. Depending on the costs and the market-timing expertise of this outfit, this could be yet another intriguing product with great potential.

Finally, the major wirehouses and investment banks have been expanding their presence in the ETFs dramatically. Research as well as trading desks have been strengthened to deal with the dramatic growth in these products.

How much more can ETFs grow? Some estimates I have seen put total assets under management at between \$300 billion and \$500 billion by 2005. Given that they have doubled in the past 18 months alone, these optimistic forecasts are not outrageous. Will ETFs follow in the steps of their traditional mutual fund cousins and grow in number to more than 8,000? Given the geometric increase in financial products over the past 20 years, this would not be a total surprise. No one thought we would see the proliferation in the fund industry that we have experienced since the 1970s, when only a few hundred were in operation. Some critics say that indexing will lose its allure and active management will make a comeback. I agree. But any comeback will likely be temporary. There have been many periods, sometimes lasting 2 to 4 years, where active managers did outperform, but over the long run, most will not beat the S&P 500. When they do, it is usually because of strong markets in mid- and small-cap issues. When those times come, investors have at their disposal over a dozen small-cap and mid-cap ETFs to turn to. The long-term growth rate of ETFs will also be dependent on market conditions. Bear markets have a way of stalling the growth of the best-laid plans. In 1973–1974, the worst bear market since the depression, the fund industry had problems, as did

the Street as a whole. At worst, growth would be postponed—a mere speed bump in the road to what appears to be an extraordinary future.

“In spite of occasional claims to the contrary, indexation today is more center stage than it has ever been before, and is accepted in more and more markets as being a core part of any major long-term fund’s strategy. The industry continues to evolve at a rapid rate bringing relevant product to both institutional and retail investors to help them meet their investment objectives. And while indexation cannot ever have the glamour of certain other strategies, the results are far more predictable, something that all of us, and most importantly our clients appreciate.”

Alan J. Brown
Group Chief Investment Officer & Chairman,
State Street Global Advisors UK Limited

Speaking at the 2000 World Cup of
Indexing in Barcelona, Spain

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FREQUENTLY ASKED QUESTIONS (AND ANSWERS) ABOUT ETFs AND E-MINI STOCK INDEX FUTURES

Q: *The S&P MidCap 400 SPDR is supposed to trade at one-fifth of the underlying index. On February 9, 2001, the MidCap 400 cash index traded at 522.06. This implied that the MidCap 400 SPDR should have been trading somewhere around 104.40. Yet on that same day, the MidCap SPDRs closed at 95.29 per share. Why does this discount persist with MidCap SPDRs, while the iShares S&P MidCap 400 ETF trades much closer to one-fifth the size of the underlying cash index (for example, on February 9, 2001, the iShares S&P MidCap 400 closed at 103.65)?*

A: The answer has to do with distributions and the length of time each fund has been in existence. MidCap SPDRs have been trading since May 1995, and many stocks in the underlying index had undergone significant price appreciation. At the same time, some of these stocks were deleted from the S&P MidCap 400 Index (as they graduated to the S&P 500 Index, a large-cap index). Since the MidCap SPDRs are a unit investment trust, they must fully replicate the underlying index. When a stock in the index is deleted, the trust must also delete or sell the stock from the portfolio and in turn purchase any stock that is added to the index. If it sold shares that had appreciated significantly, the fund would, under SEC regulation, have to distribute those capital gains to fund holders. Usually the fund can offset taxable gains with tax losses from other

issues in the portfolio—but not always. The tremendous appreciation along with the number of stocks deleted from the index in recent years have caused some rather large distributions to fund holders. Any time a fund pays out a distribution, the assets of the fund are reduced by the amount of the distribution, and thus the ETF's price also will be reduced. The iShares MidCap fund has been in existence only a short time; thus, years of accumulated gains and changes in the index have not had the same effect.

Q: *Why have the iShares MSCI Sweden fund and Canada fund paid such large capital gains distributions? Aren't ETFs supposed to be tax efficient?*

A: ETFs generally have been and will be more tax efficient than traditional funds; however, some distributions are unavoidable. A few isolated situations have cast a pall on their reputed tax efficiencies. In the case of the iShares MSCI Canada, the fund managers were forced to sell shares in some holdings to meet SEC diversification requirements. The SEC requires that no one position in the fund can amount to more than 25 percent of assets. Nortel Networks, the largest holding in the iShares Canada fund, was near the 25 percent level. Thus, the fund had to trim its holdings. Given Nortel's huge run-up in recent years, there were tax consequences to fund holders. The distribution amounted to over \$4 per share. One of the culprits in the iShares MSCI Sweden fund was wireless giant L. M. Ericsson. The iShares Sweden fund paid \$5 capital gain distribution. Large and frequent taxable distributions will usually manifest themselves in any ETF where turnover in the underlying index is relatively greater. No ETF fund manager wants high turnover or high taxes; nevertheless, they are forced to play by the SEC's rules. Over the long haul, investors should see greater tax efficiencies.

Q: *Are ETFs good candidates for dollar-cost-averaging programs?*

A: It depends. If you want to invest small amounts, say \$50 to \$100 per month, probably not. Many ETFs trade above \$50 per share, and purchasing fractional shares is tricky, if not impossible, at some firms. But there are some new on-line outfits that do allow purchase of fractional amounts (by small regular dollar amounts) for a small fee. You would have to run the numbers. With one of these firms I am aware of, you could invest \$100 a month in three

or four issues. Hence, your \$100 would be distributed three or four ways, and you would purchase tiny fractions of a portfolio of ETFs. You could slowly accumulate a portfolio over time. Beware, though, and watch those costs. Even small fees can add up if you are making monthly (or quarterly) purchases by dollar-cost averaging.

Q: *Why is the Nasdaq-100 Index tracking stock (QQQ) so much more volatile than the S&P 500 SPDRs?*

A: An ETF is usually as volatile as its underlying index, and an index is only as volatile as its underlying components. It is true that the Nasdaq-100 is more volatile than the S&P 500. In fact, the Nasdaq-100 is more than twice as volatile as the venerable benchmark. You have only to look at the underlying issues to find the answer. Compare some of the top S&P issues: General Electric, Pfizer, ExxonMobil, and Wal-Mart. These are solid companies with relatively stable earnings and business franchises that have been around in some cases for over a century. Compare these blue chips with Oracle, Sun Microsystems, and Cisco, some of the top Nasdaq-100 issues. None of these companies has an operating history of more than 25 years, and they are clearly more volatile than a General Electric or an ExxonMobil. Moreover, the speculative hot money tends to flow in and out of technology issues at a greater frequency than blue chip stocks. Think of it this way: If you were a day trader, would you focus on Juniper Networks, which frequently moved 20 points per day, or General Electric, which on a volatile day would fluctuate 2 or 3 points? For a look at just how volatile the Nasdaq-100 is, compare the daily percentage price ranges for the Nasdaq-100 index with the S&P 500 daily percentage price ranges in Exhibit 15.1. Almost all the daily price percentage movements in the S&P are under 2.5 percent, but the majority of the daily price range movements for the volatile Nasdaq benchmark are over 3.0 percent. Now that's volatile!

Q: *Some ETF transactions are recorded on brokerage trade confirmations as occurring not on the AMEX but on other regional exchanges. Aren't ETFs traded only on AMEX?*

A: Although the American Stock Exchange is the primary market for most ETFs, it does not hold a monopoly. Products can be traded at other exchanges such as the Chicago Stock Exchange. In fact, the Chicago Stock Exchange trades quite a large number of SPDRs.

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Exhibit 15.1 Daily Percentage Price Range Distribution for Nasdaq-100 (January 1, 2000–December 31, 2000) and S&P 500 Composite (January 29, 1993–December 31, 2000)

	Price Range	Frequency	Percentage of Total
Nasdaq-100 Index	0–1.00%	0	.00%
	1.01–1.50	1	.40
	1.51–2.00	13	5.16
	2.01–2.50	20	7.94
	2.51–3.00	26	10.32
	3.01–3.50	25	9.92
	3.51–4.00	27	10.71
	4.01–5.00	49	19.44
	Over 5.00	91	36.11
S&P 500 Index	0–.25	1	0.05
	.25–.5	237	11.84
	.51–1.0	753	37.63
	1.01–1.5	483	24.14
	1.51–2.0	278	13.89
	2.01–2.5	124	6.20
	2.51–3.0	65	3.25
	3.01–3.5	29	1.45
	Over 3.50	31	1.55

Source: SPDR Trust Prospectus; Nasdaq-100 Trust Prospectus.

In early January, when the QQQs traded over 100 million shares in a day, more than a third of the volume traded on exchanges other than the AMEX. ETFs also trade on ECNs such as Island and Instinet.

Q: *Who or what determines if an order goes to the AMEX or another exchange?*

A: This is a very controversial issue. Some brokerage houses receive payment for directing an order to a particular exchange. It is legal, according to the SEC, and it occurs quite often. The practice is called *payment-for-order flow*.

Q: *What type of investor buys and sells ETFs? It seems as if ETFs were designed with small investors in mind.*

A: Although they are attractive to smaller investors, all types of investors, including high-net-worth investors and giant pension funds, buy and sell ETFs. The 13f filings for the S&P 500 SPDRs (SPY) and the Nasdaq-100 Index Shares (QQQ) clearly reveal this (13f filings are federal regulatory guidelines that require larger investors to file with the government the number of shares and the percentage of outstanding shares they hold). A short list of some major holders of SPY includes Morgan Stanley, which holds 17.375 million SPY (10.31 percent outstanding), the Regents of the University of California, with 6.78 million SPY (4.03 percent outstanding), and the State Board of Administration of Florida, with 3.85 million (2.28 percent outstanding). Of course, there are lots of individual investors who hold 100 shares or fewer of many ETFs.

Q: *Some ETFs have substantial volume, while some hardly trade at all. Will investors be able to get in and out of less actively traded ETFs?*

A: Do not always assume that low volume means low liquidity. While some ETFs trade fewer than 20,000 contracts per day, specialists on the AMEX and regional exchanges make good markets in those issues despite the low volume. Do not be fooled into thinking that because an ETF has low activity that the bid-offer spreads will be hundreds of basis points wide. On the other hand, the QQQs, by far the most active ETF (about 30 million shares per day in 2000), are sometimes themselves a victim of wider markets. When markets become volatile, QQQ bid-offer spreads have reached \$.75 to \$1.00. Usually, though, the spreads are around 10 to 12 cents. Remember that most ETFs have been around for only a year or so. It will take years for some ETFs to develop a noticeable critical mass; some, although they may be useful to some investors, will not ever achieve the critical mass of the more popular ETFs.

Q: *How much of a pension fund's assets are indexed?*

A: It depends on the pension fund, who is running it, and, to some extent, the pension consultants. Some funds feel they can add value by actively managing the assets (or having outside active managers do the job). Others feel that indexing is a powerful tool and thus have an enormous sum of money indexed. CALPERS, one of the largest pension funds in the United States, indexes about 47 percent of its equity assets (and some fixed income) according to *Money*

Market Directories. Some index only a small portion—perhaps 10 to 15 percent or less. A significant amount of the assets indexed will be to the S&P 500, but there is a contingent of pensions and institutions that use benchmarks such as the Russell 1000. A small-cap manager certainly would want the benchmark to track small-cap stocks. When you have billions in assets in the hands of dozens of active money managers, you cannot help but receive “indexed” returns over time since those managers themselves make up the market.

Q: *Will ETFs ever trade 24 hours like stock index futures do?*

A: It’s hard to say. The trend is toward increasing the length of the trading day, although with the market cooling down in 2000 and 2001, there does not seem to be the same impetus for 24-hour trading anymore. No one knows the answer at this point; still, with the continuing progress on electronic trading systems, it is not difficult to envision 24-hour trading sooner rather than later. The AMEX recently announced alliances with overseas exchanges to list ETFs on these exchanges, effectively opening the door for around-the-clock ETF availability.

Q: *Do all ETFs have listed options?*

A: No. Options exist for some ETFs but not all. The QQQ has a very active options counterpart. All of the HOLDRS products and a few of the broad-based and sector ETFs have listed options too. The following list identifies ETFs that have options that trade on either the AMEX or the CBOE (as of February 13, 2001). Some ETFs trade on other options exchanges as well.

S&P 100 iShares	CBOE
S&P MidCap 400	AMEX
Nasdaq-100 Index Shares	AMEX
Russell 1000 iShares	AMEX
Russell 2000 iShares	AMEX
Russell 2000 Growth iShares	AMEX
Russell 2000 Value iShares	AMEX
Basic Industries Select Sector SPDR	AMEX
Cyclical/Transportation Select Sector SPDR	AMEX
Cons Staples Select Sector SPDR	AMEX
Energy Select Sector SPDR	AMEX

Financial Select Sector SPDR	AMEX
Industrial Select Sector SPDR	AMEX
Technology Select Sector SPDR	AMEX
Utilities Select Sector SPDR	AMEX
All HOLDERS	CBOE or AMEX or both exchanges depending on HOLDR

Q: *The Barclays S&P 500 iShare (IVV) has an annual expense ratio of .09 percent, while the S&P 500 SPDR (SPY) has an expense ratio of .12 percent. However, the SPY trades about 7 million a day, while the IVV, essentially the same instrument, trades fewer than 250,000 per day. Why doesn't the cheaper alternative garner more volume?*

A: To some people, the 3 basis points is meaningless because they do not hold SPY or IVV for a year. On 100 shares of SPY (about \$13,500 worth of ETF), it amounts to about \$4 per year. To an institution, it is incredibly important to get every basis point of savings possible. To a trader, liquidity is the prime concern, and annual costs do not matter because they will be in and out of the market. SPY, around since 1993, is the first and thus oldest of all the ETFs, but IVV has been around only since May 2000. The race is not over, although it may seem so at this point. Usually it is difficult to displace a fully dominant product. SPY is quite dominant and has built a loyal following over eight years. The two are also structured a little differently. The SPY is a UIT, while the IVV is a managed investment company.

Q: *How responsive is the SPY to the underlying cash? Are they like futures which are very responsive and sometimes lead the cash market, or is there a long lag time?*

A: Exhibit 15.2 shows the SPY relative to the cash market and the futures market (both mini and regular S&P 500 futures) at several time intervals throughout the day. Because of the close link (via arbitrage) between the underlying indexes, the futures on the indexes, and the ETFs, all tend to move in concert. On occasion, the futures will rise or fall faster than the cash, usually because of some sudden news announcement or a large order hitting the futures pit that does not affect the cash index. The ETF usually tracks the cash index, but I have seen the SPY "jump" track and

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Exhibit 15.2 Comparison of Price Levels of ETF, Cash Index, and Index Futures, Various Times Throughout the Day

Time	SPY	SPY \times 10	S&P 500 Cash	E-Mini S&P 500 Futures
10:00 A.M.	133.88	1338.80	1336.19	1345.75
10:15	134.00	1340.00	1338.13	1348.00
10:30	134.95	1349.50	1337.32	1347.75
10:45	134.16	1341.60	1338.30	1347.50
11:15	134.13	1341.30	1339.04	1348.75
11:30	134.53	1345.30	1343.23	1353.50
11:45	134.81	1348.10	1344.23	1354.75
12:03 P.M.	134.97	1349.70	1346.04	1357.25
12:17	135.25	1352.50	1349.10	1359.50
12:30	135.16	1351.60	1348.34	1359.75
1:00	135.31	1353.10	1349.26	1360.00
1:15	135.52	1355.20	1352.07	1363.00

follow the futures very closely—especially in the 3:00 to 3:15 central standard time bracket when the cash market is closed or during the day. For all intents and purposes, the three track each other fairly well.

Q: *Given the success of ETFs and the eventual introduction of ETFs on actively managed mutual funds, will traditional mutual funds be rendered obsolete?*

A: ETFs have skyrocketed from virtually nothing to about \$80 billion in assets in a few years. Experts predict that these instruments will have about \$500 billion in assets by 2004–2005, but this is still a small sum compared to the trillions stashed away in traditional mutual funds. ETFs have a bright future ahead, but I do not think Fidelity and Vanguard have to worry.

Q: *In early January 2001, the assets of the Nasdaq-100 Index Shares (QQQ) overtook the S&P 500 SPDRs to become the largest ETF in terms of assets and average daily volume. How could the assets of the QQQ trust have gone up so much despite the Nasdaq-100's declining by over 50 percent from its highs?*

A: The reason probably lies with the creation and redemption process and the mechanics of short selling. First, increasing creation unit activity usually increases the number of shares of the ETF. It is possible for the number of shares to increase enough to overcome the decline in the ETF's price. If there were 200 million QQQ shares outstanding a few months ago when they traded at \$80 per share, that would give the trust an asset base of \$16 billion ($80 \times 200 \text{ million} = \16 billion). A few months later, in early 2001, roughly 400 million QQQ shares were outstanding because of increased creation activity. Despite the price drop in QQQs, the total value of the trust is now \$24 billion, (400 million shares \times \$60 per share) The increase in shares outstanding was so dramatic that it more than compensated for the decline in the Nasdaq-100 index. (A few weeks later, SPY regained the top slot.)

There are many reasons that creation activity might be on the upswing. One lies with the process of short selling. An investor who wishes to sell short QQQ or SPY or any stock must first borrow shares. Brokerage firms also lend out securities for short selling purposes. Some of the increase in creation activity may be to enable some firms to have enough QQQ shares on hand to lend them out for short selling purposes. This is a common practice on the Street, and entire departments within brokerage houses exist to lend securities (they are referred to as stock loan departments).

Q: *Will decimalization make markets tighter in general?*

A: Tighter for whom? Since the NYSE and AMEX made the conversion to decimal price increments, some markets have narrowed slightly. Tight markets consist not just of narrow bid-offer spreads. How much depth there is in the bid and offer is just as important. If a market is 133.10 bid 133.15 offered, the appearance of a 5 cent market appears on the screen. But how deep is that market? How many shares can you buy at 133.15? 100? 1000? 1,000,000? For an institution that needs to buy a large number of shares, this could be a nightmare. Let's assume the following offers existed in the SPY:

1,000 shares at 133.15
 1,000 shares at 133.16
 1,400 shares at 133.17
 10,000 shares at 133.18
 100,000 shares at 133.19

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An institution that wanted to buy 500,000 shares might get filled at multiple prices. This can lead to reporting errors and back-office mistakes. For the small investor, however, it could be beneficial.

Q: *With regard to ETFs, what is the difference between the fund manager, the custodian, and the depository?*

A: We'll use S&P 500 SPDRs to illustrate:

Fund manager: State Street Global Advisors (SSgA) is the investment management division of State Street Bank. The manager is responsible for the actual portfolio of stocks in the ETF. With the S&P 500 SPDRs it manages the 500 stocks that make up the ETF. It is also responsible for any additions or deletions to the index and makes the appropriate transactions to ensure that the ETF fully replicates the S&P 500 composite index.

Custodian: State Street Bank, which holds the assets of the fund. The custodian is also responsible for trade settlement of ETF shares and the underlying baskets. The custodian facilitates movement of the creation and redemption trades to the clearing agent and depository.

Depository: Holder of ETF "certificates" (although the transfer agent keeps records of ETF shares). Investors actually hold shares in book entry form and do not receive certificates as they do in common stocks.

Q: *Will there be more HOLDRS products introduced in the future?*

A: I think that the number of HOLDRS offerings will be higher 1 to 3 years from now. Like many other ETFs, they have been a huge success and are frequently at the top of the most active list on the AMEX.

Q: *Is there a minimum share requirement to purchase ETFs?*

A: With HOLDRS, you must purchase at least 100 shares. With most other ETFs, you could conceivably buy just one share.

Q: *Are there firms that construct and subsequently invest in portfolios of ETFs?*

A: Yes. Many brokerage firms have realized that their customers are huge fans of ETFs and have created new departments dedicated to them.

A few money management firms are also dedicated to the ETF arena and manage money for investors using ETFs. Some of these firms believe that although ETFs are mostly index products, they can add value and outperform the indexes through active management.

Q: *The E-mini and regular S&P 500 futures contracts have price limits. Why don't ETFs have those same limits?*

A: The answer has to do with the nature of the two instruments. With futures contracts, the sheer size and use of leverage are part of the explanation. If the market were to drop substantially, a leveraged position could present a risk management problem. The limits give the firms and the clearing houses time to request and collect additional performance bond margin from investors, bolstering the entire system. If the market had no limits during a major market decline, the market could conceivably continue downward, and the firms would have to scramble to collect additional funds from investors. The limits enable the back office operations and exchanges to "catch up" in situations that could expose investors and traders (as well as firms) to undue risk. On the other hand, since most investors put up the entire sum of money when investing in ETFs, the firm is not at risk should additional funds be needed; they are already in place. While ETFs themselves do not have limits, the NYSE and AMEX do have circuit breakers to help stem severe market declines. Fortunately for investors, these limits are rarely activated.

Q: *Why are the E-mini S&P 500 and E-mini Nasdaq-100 open for 23½ hours? Why not just have them open 24 hours a day like foreign exchange markets?*

A: The GLOBEX system is down for 30 minutes per day (3:15 to 3:45 P.M. CST) for two primary reasons: (1) system maintenance and (2) the upload and download of unexecuted pit orders from the regular pit-trading hours onto the electronic system for the regular-size index futures contracts (The regular S&P 500 trades in pit during the day and electronically at night, whereas the Mini S&P 500 trades electronically all the time.)

Q: *Will the CME introduce mini stock index futures contracts on other stock indexes such as the Russell 2000 or the S&P MidCap 400?*

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A: People have suggested that CME consider this, but there can be a long time lag between consideration and actual development of a futures contract. There is a good chance that the CME will have an E-mini Russell 2000 by the end of 2001.

Q: *What is all the hype about fair value and premium as discussed on CNBC and the press. Are they important?*

A: I'll respond with a question: Would you buy a car that did not have a working oil pressure indicator light or temperature indicator light? These critical gauges tell you that something is too low (oil pressure) or too high (engine temperature), respectively. If you drive your car with the oil pressure light on for too long, you will scorch your engine block. Trading without a knowledge of how futures contracts are priced might prove damaging to your net worth. Fair value can (but does not always) help determine whether futures are expensive or cheap relative to the underlying cash index. If the premium (futures over cash) is supposed to be 5 points and it is 8 when you enter a market order to buy, that 3-point difference can be costly. If, after your order hits the market and is executed, the normal premium is reestablished, the premium will shrink from 8 to 5, and you may lose money before the trade has a chance to work. Of course, a major upswing in the market could bail you out of a poorly timed trade. But if the market treads water, the reestablishment of the normal 5 premium might clip 3 points off the futures (or cause cash to rally 3 points).

Buying "expensive" futures can also be a double-edged sword in a declining market, since losses on the declining futures will be exacerbated by the excessive premium you paid for the futures. Professional traders closely monitor factors such as premium and fair value. New or inexperienced traders should do the same.

Q: *Do ETF traders have to monitor futures' fair value?*

A: Probably not, unless you are doing some kind of spread or arbitrage between an ETF and a futures contract. But fair value and premium can sometimes be indicators of short-term market direction, and they can be calculated quickly.

Q: *Why are CNBC's fair value and premium numbers different from other calculations on a given day?*

A: The answer has to do with the inputs to fair value—interest rates, dividends, and so on. If you polled 10 firms on their calcula-

tion of fair value, you would probably get 10 different results because borrowing requirements differ from firm to firm. Goldman Sachs does not borrow and lend at the same rates available to you and me. Merrill Lynch's dividend assumptions may differ slightly from Morgan Stanley's. Hence, different inputs to the formula result in differing values from firm to firm. They should, however, be somewhat close to one another. I do not know where CNBC gets its numbers from. There is a Web site that gives estimates of fair value, programtrading.com.

Q: *Why does the margin requirement for futures at my firm sometimes differ from CME's margin requirement?*

A: CME and other exchanges have minimum performance bond requirements. A brokerage firm, however, can charge more if it feels appropriate (as with extremely risky markets) as long as it meets CME exchange minimum. During the Nasdaq's violent slide during part of 2000, the exchange minimum performance bond margin on the regular Nasdaq was \$39,375. However, some firms required several thousand dollars above that figure. Again, it is all part of the risk management and back office process at a firm, which will do everything necessary to ensure the financial integrity of the brokerage firm.

Q: *Does the CME have any input regarding the components, construction, and calculation of the S&P 500 cash index or other indexes which it trades futures?*

A: None whatsoever. That is the exclusive right of the index providers such as Standard & Poor's, Frank Russell and Nasdaq. CME trades futures contracts on these popular benchmarks, the underlying indexes are not CME property. It is fascinating, though, how many calls we get at CME applauding our decision to add a certain stock to the S&P 500. I have to inform the callers that we had nothing to do with it; that the index committee at Standard & Poor's makes that decision.

Q: *Why do the Nasdaq-100 futures and the E-mini Nasdaq futures always trade at a discount to the cash index?*

A: The Nasdaq futures (mini and regular size) almost never trade at a discount to the cash. If they do, it is because you are looking at the wrong cash index. Many people mistakenly look at the Nasdaq Composite Index, which is significantly different from the Nasdaq-100, which includes the top 100 nonfinancial stocks in the composite. The

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value of the composite is always higher than the Nasdaq-100 by approximately 100 to 200 points. On February 14, 2001, the various indexes and futures closed at the following prices:

Nasdaq Composite Index (cash)	2491.41
March Nasdaq-100 futures	2316.00
Nasdaq-100 Index (cash)	2305.82

The futures trade at a premium to the Nasdaq-100 cash index, which tracks the Nasdaq-100, not the Nasdaq Composite.

Q: *How can trading in futures occur overnight if the underlying stocks in the cash market are not open for trading?*

A: After-hours trading has been significant in the stock market and the futures markets. The Mini S&P 500 and Mini Nasdaq-100 do some fairly good volume after the cash market closes at 3:00 P.M. CST and also in the morning before the cash markets reopen in the United States, especially when unexpected news comes out. When there are news announcements such as earnings or government reports, traders wishing to enter or exit positions have the opportunity to do so. Although stocks generally are closed during the wee hours of the morning (3:00 P.M.–8:30 A.M. CST), there are many areas traders can turn to for information. First, many large-cap stocks on the S&P 500 and Nasdaq-100 trade on overseas markets, and traders can use these movements as navigational tools. In addition, foreign stock markets and their respective indexes also trade around the globe and give traders an additional glimpse of overnight trends. Of course, volume is obviously lower during the night session because spreaders, arbitrageurs, and many other traders are inactive. But during the volatility engendered by the Asian crises of 1997 and 1998, volume on the system was several times higher than normal as traders tried to offset positions or initiate new ones to take advantage of the rapidly moving markets.

Q: *What is the difference between program trading and index arbitrage?*

A: The NYSE defines *program trading* as portfolio trades or strategies consisting of 15 or more stocks with a value of \$1 million or more. *Index arbitrage* is a form of program trading and involves the simultaneous purchase and sale of futures contracts and their un-

derlying cash basket. There are program trades that do not involve stock index futures. For example, a money manager who received an influx of cash—say, \$20 million—could index the \$20 million to the S&P 500 quite easily. An institutional brokerage firm could facilitate this trade, and within a matter of minutes, the manager would own \$20 million worth of the S&P 500—all 500 “names” in the index in their exact proportions. A preprogrammed computer system (thus, the name *program* trading) would execute a list of all 500 stocks in the S&P 500. This would certainly qualify as a program trade since more than 15 stocks and more than \$1 million in value are involved, but there is no futures contract in this example. But index arbitrage and plain-vanilla indexing programs are two of the more popular forms of program trading.

Q: *Does CME calculate and disseminate fair value?*

A: No. Because of potential liability issues, CME, as an exchange, does not calculate fair value. CME’s Web site has an example of how to calculate fair value, and we are always willing to assist traders and investors of all types on how to arrive at an accurate value.

Q: *But CME does calculate and disseminate fair value. Isn’t that what the fair value settlement at the end of the month is all about?*

A: The month-end fair value settlement for all domestic stock index futures is done by survey. We survey some of the largest players in the equity index derivatives arena and derive the fair value from averaging the values obtained in the survey, so it is essentially the firms that do the calculation. The exchange merely assembles the data and then disseminates the results of the survey as soon as possible.

Q: *Why is there a monthly fair value settlement?*

A: Stock index futures are open for 15 minutes longer than the cash index. (Futures close at 3:15 CST and reopen at 3:45 P.M.; the cash index closes at 3:00 P.M. CST.) During this 15-minute window, the futures contracts can sometimes move dramatically higher or lower in relation to the 3:00 P.M. cash close, causing large artificial shifts in the basis. Institutions that practice synthetic indexing (they index using stock index futures instead of the underlying stocks) find that tracking error can be exacerbated during that

period. Settling futures to their fair value has mostly eliminated the tracking error.

Q: *What are the daily price limits for domestic stock index futures, and how long have they been in effect?*

A: Price limits were instituted in 1988 and have evolved since then. The current percentage-based price limit system began on April 15, 1998. The price limits are set on a quarterly basis and are based on percentage movements of 5 percent, 10 percent, 15 percent, and 20 percent. New limits go into effect at the beginning of each calendar quarter. Although the percentages do not change, the actual price limit may change depending on the movement in the underlying index. The average closing price of the lead month futures contract determines the level for the next quarter. For more details and updates on stock index price limits, visit the CME's Web site at www.cme.com.

Q: *What is meant by the "roll" or "roll period"?*

A: An example will illustrate the roll concept. Assume that a trader or investor is long a December S&P 500 futures contract. Further assume that the quarterly expiration is approaching, but the trader wishes to maintain a long position in futures beyond the December expiration (usually the third Friday of the contract month). He would sell his December futures and at the same time go long (buy) the next quarterly futures contract—in this case, March S&P 500 futures. The process of offsetting the expiring contract and reentering a new position in the following expiration is referred to as *rolling a futures contract forward*—*rolling* for short. Roll activity begins to increase the week before the quarterly futures expiration and peaks on or around expiration day.

Appendix 1

ELECTRONIC TRADING CONSIDERATIONS

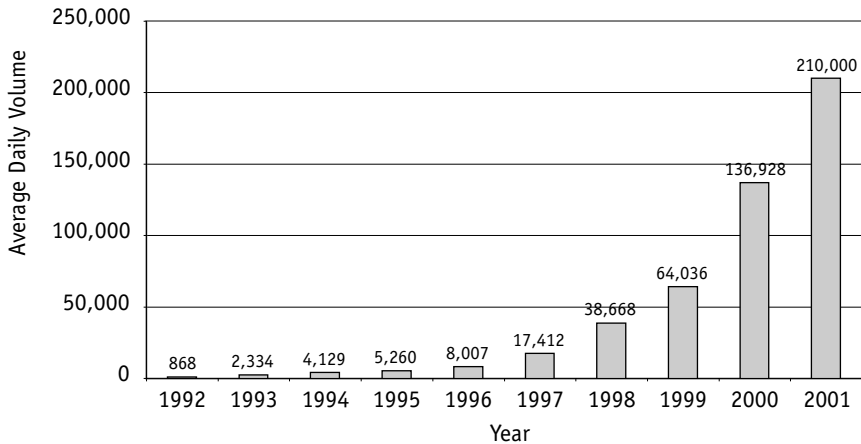
In June 1992 when CME launched the GLOBEX electronic trading system, I was in London at the 24-hour trading desk of BZW, the money management arm of Barclays Bank PLC. It was a bit after midnight there (early evening in Chicago), and the trading desk was staffed by two individuals. For the first time ever, a CME product would trade in cyberspace rather than through roaring trading pits, a Chicago tradition for more than a century. Trading was slow, with 1,000 to 2,000 contracts trading during the ETH (electronic trading hours or GLOBEX) session as compared with 300,000 to 500,000 during the regular trading hours (RTH).

At seminars and conferences, the topic of electronic trading versus open outcry came up with alarming frequency. I would eventually be asked several times per week how long it would be before the pits would close down and the switch to all-electronic trading would occur. In the United States, growth of electronic futures trading was growing at a healthy clip but still had a minuscule fraction of overall trading volume. I kept a close eye on the volume figures and to this day monitor them here as well as overseas. Initially, I thought the two platforms could coexist for at least 5 to 10 years. That turned out to be right, but I also thought that despite the substantial rise in electronic trading overseas, where many exchanges such as DTB (now Eurex), LIFFE, and others were totally electronic, no electronic system in existence could duplicate the liquidity that CME enjoyed in Eurodollar

futures. Because of the way the Eurodollar is engineered, hedgers and traders implement strategies that use several quarterly expirations. Therefore, where most futures contracts enjoy liquidity primarily in their front month, the Eurodollar enjoyed huge liquidity several years out—literally quarter after quarter of deferred month futures experienced large volume and open interest. Will it continue its success in the open outcry forum, or will it too succumb to the inevitable? I do not know. What I do know is that you can trade thousands (billions of notional amount) of Eurodollar contracts at a clip with barely a perceptible flutter in the bid-offer spread. Several years ago, CME attempted side-by-side trading, giving the marketplace the opportunity to vote by placing orders for Eurodollar futures in either the pit or the GLOBEX system. The pit won—by a large margin.

As the year 2001 unfolds, the giant Eurodollar continues to set records. Open interest is around 4 million contracts, larger than most other exchanges in the world. On an average day, it trades 700,000 contracts. On a busy day, it breaks 1 million by lunchtime. The market-making capability in the pit—especially in the important back months where synthetic swaps, strips, packs, and bundles trade feverishly—is incredible. There are individual traders as well as huge institutions that will take the other side of just about any size trade you want. Want to do a \$5 billion synthetic swap 3 to 5 years out? These market makers will do it with the flick of a wrist and faster than you can punch the Enter key on your PC. But figure out a way to replicate this on the GLOBEX system, and perhaps the shift to electronic trading will accelerate.

On the other hand, if one were to walk a few floors down from the Eurodollar pit to the equity quadrant, where the S&P pit is surrounded by hundreds of E-mini S&P 500 and E-mini Nasdaq-100 terminals, the ambience is decidedly different. The great evolution is clearly obvious. With Eurodollars, everyone, at least for now, prefers the pits. With equity index futures, electronic trading of the two mini products is turning heads and keyboards everywhere. Members, as well as the trading community at large, are clamoring for GLOBEX terminals to trade the Mini S&P and Mini Nasdaq. For all of 1992, average daily volume on the system was under 1,000 per session. Average daily volume for 2000 was 136,000 (see Exhibit A1.1) With the two minis alone doing well over 100,000 per day early in 2001, that number is sure to climb. Too, the total number of GLOBEX terminals recently passed 1,700 and is sure to soar as CME's new CEO, Jim McNulty, has moved forward on an initiative to open up access to the system dramatically. Some CME members say that when this happens, 100,000 mini S&Ps will be a slow day.

Exhibit A1.1 GLOBEX₂ Average Daily Volume by Year 1992–2001

Note: All dates as of December 31 except for 2001, which is through February.

Source: CME GLOBEX Marketing.

Although electronic trading has made quantum leaps in the United States and abroad, it has not come without growing pains. On July 23, 1998, the MATIF exchange in Paris was experiencing one of these pains when huge sell orders suddenly flooded the NSC trading system (the NSC system is the matching engine for the Paris exchange's electronic platform) in the French government bond futures (Notionnel Bond Futures). By the time it was over, more than 10,000 contracts had been sold, and the bond got a good whacking from the selling pressure. After an investigation by the MATIF, it turned out that a trader had accidentally leaned on the F12 key on the NSC terminal. That key, when double-clicked, enters trades instantly. Interestingly, a system upgrade that would have eliminated the F12 key problems was due to be installed on that firm's terminals.¹

A few months later in November, Eurex (German Electronic Exchange) felt the downside of electronic trading on its system. The story, never confirmed, goes like this: Apparently a trader at a small German bank was training on the system and doing simulated trading in German government bonds. It was believed that the trader thought he was on a simulated session that provides training and testing for new

trainees. Apparently he was not. The trades were genuine trades, not simulated ones.

The critics of electronic trading had a field day saying that kind of thing could never happen in a pit. They went on to state that so many people mistakenly believe that electronic trading is so superior and these kinds of incidents are the first of many on the horizon. The critics are right in some regard, but again the marketplace is voting. Electronic trading continues to gain in popularity. Despite the inevitable and potentially costly outages, periodic slowdowns, keyboard risk, software risk—despite all these risks—investors and traders see these risks as merely speed bumps in the road and are making the transition. The belief is that systems will improve, outages will largely disappear, software will get better, and speed improvements will occur. It may take longer for some products, perhaps much longer. But with others the transition is already well underway. Currently, 80 percent of the transactions executed by Charles Schwab are done electronically. MATIF, LIFFE and many other exchanges have long since made the transition to an all-electronic system. Following is a review of the pros and cons of open outcry and e-trading:

Open Outcry

Pros

Execution risk reduced
No outages
No slowdowns

Cons

Costly infrastructure and
maintenance
Audit trail less precise

E-Trading

Pros

Faster executions
Execution risk
Near-perfect audit trail

Cons

Outages
Slowdowns
Keyboard errors

With 24-hour trading, we get more than around-the-clock trading opportunities. We also get price discovery before markets in the United States open and after these markets close for the day. Traders are always looking for tools to gauge the market's tone as they begin the trading day. In the past, professionals would look to see how U.S. stocks performed on overseas exchanges. Scores of large-cap U.S. issues like GE, GM, and IBM are listed on European and Asian markets, and

their price behavior there is one indicator of how markets in the United States might open. But with the advent of GLOBEX, which features around-the-clock stock index futures trading, traders have a powerful premarket indicator for the S&P 500 Index. With the regular Nasdaq-100 and the E-mini Nasdaq-100 also trading overnight, investors also have some gauge as to how tech stocks might open the session.

How accurate is the GLOBEX session in determining the market's opening tone? I am not aware of any detailed quantitative studies showing the predictive power of the overnight session, but large overnight moves up or down have been fairly accurate in predicting the market's direction for the first 15 to 30 minutes. After that, it is usually anyone's guess. If the S&P 500 futures on GLOBEX are down 15 to 20 points 30 minutes before the NYSE open, it is quite likely the cash market will open down sharply. It may rally and even close higher on the day, but the opening moments will probably be rough, and traders can plan accordingly.

Extended trading hours also give futures traders the chance to enter or exit positions when news announcements occur after the 4:00 P.M. NYSE close. Since nearly all earnings announcements (or earnings "preannouncements") occur after the market closes, this can be a considerable source of post-close fireworks. In mid-February 2001, Cisco, Dell, and Nortel Networks made such announcements shortly after trading halted at 3:00 P.M. CST. Nasdaq-100 futures quickly provided some "price discovery" (a key attribute of the futures markets) as they were trading 45 to 55 points lower than their 3:00 P.M. price level when the markets normally shut down. Through GLOBEX, traders had not just a few more hours to adjust positions but the entire evening to cover shorts, add to shorts, and initiate new short positions, or, for the contrarian, initiate longs.

Although a few more hours of extended trading were available through ECNs such as Instinet and various brokerage firms, their reach falls well short of the around-the-clock availability that Nasdaq chief Frank Zarb envisions: "In a few years, trading securities will be digital, global, and accessible 24 hours a day. People will be able to instantly get stock-price quotations and instantly execute a trade day or night, anywhere on the globe, with stock markets linked and almost all electronic."²

In terms of securities, Zarb's prediction will probably become reality, and traders will be able to buy and sell QQQs, Spiders, or any stock for that matter around the clock. The irony is that many firms such as Schwab and E*Trade have harnessed the power of the Internet and allow on-line trading for their customers. The Internet is 24/7. The

NYSE and AMEX as of now are not. But while the securities industry is moving toward 24-hour or seamless trading, the foreign exchange markets in the United States have been trading that way for decades. Futures have traded around the clock at CME since 1992, with stock index futures following shortly after. Additionally, many exchanges throughout Europe and Asia have begun a massive consolidation or formed powerful alliances. Euronext, a consolidation of the Paris Bourse, Amsterdam, and Brussels exchanges, is a prime example. U.S. stock and futures exchanges have also formed alliances with overseas exchanges. The AMEX recently announced that it will list for trading some of its ETF products on the Euronext platform. The CBOT has linked up with the German Eurex system, and the CME has the potentially powerful Globex Alliance with MATIF (the French derivatives exchange), the Singapore Exchange (SGX), MEFF (Spanish Futures and Options Exchange), and the Montreal Exchange. And in June 2001, the CME and CBOE announced a joint venture to trade single stock futures.

Appendix 2

ETFs AND SMALL- VERSUS LARGE-CAP CYCLES

In some of the sample portfolios in this book, ETFs representing small-cap and mid-cap indexes made several appearances, for a very good reason. In the past 5 or so years, the large-capitalization stocks and technology stocks took center stage at the expense of smaller and mid-size issues. It is extremely important to bring to your attention that large-caps should not be the sole focus of your portfolio. ETF investors (and futures traders) should expand their circle of investments beyond large-caps and technology and consider the long-term implications of owning ETFs that replicate small and midsize stocks as well.

From 1995 until 1999, large-cap stocks as measured by the S&P 500 had a remarkable 5-year performance. This period was the first ever in the history of the index where returns exceeded 20 percent for five years running. Most investors were pleased beyond words, and new investors thought these returns were the norm. Mid-cap and small-cap stocks did well too, but fell short of the amazing performance of the large-caps. The year 2000 brought a sea change in this thinking as the S&P 500 was down 10.14 percent (price return only). The Russell 2000, the primary measure of small-caps, was down only 4 percent and the S&P MidCap 400 index of midsize companies was *up* an astounding 19 percent! This trend of small- and mid-cap outperformance continues as the first half of 2001 comes to a close. The investment community began discussing if this is the start of one of those multiyear

trends when small- and midsize stocks trounce the generals. Some experts think so. In the past 50 to 75 years, there were plenty of cycles when the smaller issues seized the day. But before you isolate the various periods or cycles of performance, and just observe the very long term, you will notice something quite unique. From 1926 through 1999, large stocks outperformed all other asset classes. The Ibbotson data in Chapter 11 proved this. But Ibbotson's studies also proved that small stocks outperform large stocks over the long run:

Long-Run Returns, 1926–1999

Small stocks	12.6 percent
Large stocks	11.3 percent

There are many reasons that small- and mid-cap issues might have a powerful jet stream at their backs. First, the advance of large-caps during the past 5 years has driven price-to-earnings (PE) ratios to the stratosphere relative to smaller issues. Stocks like General Electric and Coca Cola were trading at lofty PE ratios of 40 and 60, respectively. True, both of these blue chip companies have enormous worldwide franchises and are superb growth companies, with 13 to 18 percent long-term earnings growth rates. But PE ratios of this magnitude had previously been the exclusive territory of ultra-high-growth tech firms like Cisco and Microsoft (which during the tech bubble of the later 1990s exploded above 100). Some experts think the relative valuations between the larger-caps and small-caps will be resolved partly with a decline in price of large-caps (underway as of the end of February 2001) but mostly with a solid rally in smaller and midsize stocks.

Second, declining interest rates tend to favor small-cap stocks. During the first 45 days of trading in 2001, Federal Reserve chairman Alan Greenspan had loosened the Fed's monetary grip by initiating not one but two 50 basis point rate cuts. The economists and stock market pundits feel that Greenspan tightened too much in previous years, and the early 2001 easing will prove to be merely a prelude to still lower rates as time progresses. With inventories piled high in numerous sectors and layoff announcements becoming a daily occurrence, economic growth certainly seems to be ebbing.

The third reason that smaller-size issues may gain prominence has to do with the Internet. In the past two decades, there were hundreds of sources for information on larger-cap stocks for the typical investor. Value Line, S&P, Moody's, and many other outfits provided excellent coverage of large-cap stocks. Smaller stocks, however, were usually covered only by certain analysts at certain brokerage firms. Hundreds

of analysts covered stocks like IBM or General Motors, but with most small firms, coverage was usually totally absent. As research staffs have been beefed up on Wall Street, coverage continues to increase in this sector. But thanks to the Internet, individual investors have tremendous access to information on small stocks. There are plenty of sites dedicated to research, and that includes small stocks too. In addition, nearly all small companies have Web sites that provide at the least some information about their company, including financial statements, historical price information, and news releases.

The Internet has also allowed smaller and sometimes nimbler companies access to business opportunities. Take E*Trade, for example. True, its stock had a tremendous run-up in the dot-com mania and subsequently suffered a mighty fall. But no one can argue the influence that E*Trade has had with regard to on-line investing (not to mention E*Trade's excellent TV commercials). Ten years ago, the investing public would never have guessed that anyone could own 100 shares of any NYSE, AMEX, or Nasdaq stock with the click of a mouse. Although many firms on the Street were slow to join up, most eventually embraced the concept.

Moreover, Amazon.com may take a very long time to become profitable, but this small Seattle-based company changed the bookselling market and attracted the attention of the traditional bricks and mortar book chains. The Internet has changed the way investors trade and do research. It has also given small companies a huge competitive weapon. The Internet cannot directly change sales at a McDonalds franchise or have much of an impact on Coca Cola sales, but to small start-ups, it might just provide the background for an astounding business in the future.

Cycles of Small- and Large-Cap Stocks in Recent History

Below are a few of the major cycles that small- and large-cap stocks have undergone during the past 27 years. The appearance of these cycles is evidence that long-term investors should look beyond large-cap issues.

- | | |
|-----------|---|
| 1995–1999 | Large stocks outperform as cash cascades into mutual funds. With huge amounts of cash, managers are forced to go largely with large-caps. Attraction to large-cap tech names exacerbates the situation. The Asian and Russian crises also cause a flight to quality, which favors large blue chips. |
| 1990–1993 | The post–Gulf War era has a pronounced positive effect on smaller stocks. Interest rates decline to |

	the lowest in decades as T-bill rates dip below 3.0 percent in November 1993 and 30-year bond yields drop below the 6 percent level.
1983–1990	As the greatest bull market since the 1950s got its start, large-caps raced ahead of everything else. Strength in foreign currencies versus the U.S. dollar also favored large-caps with tremendous overseas exposure (e.g., Merck, Coke, Philip Morris).
1973–1982	Small issues outperform large-caps by a wide margin as small oil and gas stocks lead the way higher during a decade when gas lines, OPEC, and energy concerns were prominent.

Other factors contribute to smaller issues' racing ahead at certain cycles. Larger growth capacity is an overwhelming contributor. At early stages, it is not uncommon for small companies to exhibit 50 to 75 percent or more revenue and earnings growth. Growth rates always slow, as we have seen with Wal-Mart and Microsoft, but in the early stages it is truly meteoric, and the stock market sometimes takes notice, with the stocks having quite a ride up. The market will always pay up regarding high growth rates. But at the first sign that growth is slowing, you can be sure the market will adjust. Given the small capitalizations of these companies, it takes only a few mutual fund managers with a few million dollars to launch a rocket. Consider a fund manager with \$100 million to invest. That \$100 million is equivalent to 1.2 million shares of ExxonMobil, the largest oil company in the world and one of the largest companies in the S&P 500. That 1.2 million shares represents only .035 percent of Exxon's 3.4 billion outstanding shares. That same \$100 million put into a small-cap or a collection of small-cap equities could represent a substantial percentage. Clearly the potential for large moves in smaller-size stocks is enormous. And as the cycle history shows, when the momentum builds, the fireworks display can go on for years.

Following are abbreviated lists of ETFs and futures that concentrate on small- and mid-cap issues:

Futures

S&P MidCap 400 Futures (CME)

Russell 2000 Futures (CME)

E-mini Russell 2000 Futures (CME launch date TBD)

ETFs

Russell 2000 iShares

Russell 2000 Growth iShares

Russell 2000 Value iShares

S&P SmallCap iShares

S&P SmallCap/Barra Growth iShares

S&P SmallCap/Barra Value iShares

DJ US SmallCap Growth streetTRACKS

DJ US SmallCap Value streetTRACKS

S&P MidCap 400 SPDRs

S&P MidCap 400 iShares

S&P MidCap/Barra Growth iShares

S&P MidCap/Barra Value iShares

Appendix 3

INDEX ARBITRAGE AND PROGRAM TRADING

In Chapter 9, we touched on the notion of fair value and premium and how they serve to link stock index futures contracts and their underlying cash indexes. When the relationship between a stock index futures and the underlying cash index strays too far from equilibrium (too far above or below the theoretical premium), a powerful force will converge on the market and bring the relationship back toward equilibrium. This powerful force is commonly referred to as *index arbitrage*. Individuals practicing arbitrage are called *arbitrageurs*, or *arbs* for short. Index arbitrage falls under the heading of *program trading*, a strategy involving the purchase (or sale) of a portfolio of 15 stocks or more with a value of \$1 million or more. Not all program trading involves futures contracts. But we will start with index arbitrage, which typically does involve baskets or portfolios of stock and stock index futures contracts. The E-mini stock index contracts and ETFs are also used in arbitrage.

Although virtually all investors will never practice the art of arbitrage, a study of the subject will help you gain an understanding of an important practice that plays out in the markets daily. Professional traders in S&P 500 futures and ETFs pay close attention to arbitrage activity since the potential short-term effect can mean the difference between profit and loss for the short-term trader. Knowledge of arbitrage activity will not make you a great trader or even a good trader, but it might make you a better trader. At the very least, you will have a better grasp of the inner workings of the fascinating index markets.

Arbitrage is the simultaneous purchase and sale of similar or identical instruments (often in different geographical locations) to take advantage of short-term price discrepancies. For example, gold trades in several major financial centers around the world—New York, London, Paris, Hong Kong, and Tokyo. If gold were trading in New York for \$300 per ounce and in London for \$302 per ounce, you could, in effect, buy gold in New York and immediately sell an equal amount in the London market, profiting \$2 per ounce. Why would the precious metal be quoted \$2 higher in London? The reason is short-term supply and demand fluctuations. Perhaps a European jeweler or metal fabricator placed a large order in the London market. The short-term demand may cause the price to rise in London relative to New York or other financial centers. Throughout the world, a cadre of gold traders watch their screens for hours waiting for such a moment. Armed with lightning-fast reflexes and a few million dollars or so in capital, they pounce. They quickly buy as much gold in New York as possible and simultaneously sell it in London, pocketing the \$2 per ounce price differential. Hundreds of worldwide arbs acting in concert have an almost immediate effect: Gold in New York will quickly rise, and in London it will just as quickly fall, until the price differential disappears or is so small that the arb's costs of business would outweigh the now negligible spread.

What is the risk in a trade like this? Virtually zero. Arbitrage seeks to take advantage of short-term price discrepancies. A successful arbitrage trade carries almost no risk. The only real risk is execution risk. Although the trader would buy and sell immediately in both markets, there is a small risk that right in the middle of the trade, the market will move quickly against him and cause him to lock in a lower differential or, worse, lock in a loss. It happens. Traders get hung on one side of a multiple-sided trade all the time. It's part of the business. But over time, a skilled arbitrageur minimizes these events and can look forward to a lucrative business.

Stock index arbitrage (or index arbitrage) is a variation on the same theme, but instead of New York and London gold, the similar instruments are a basket or portfolio of stocks traded largely on the NYSE in the form of the S&P 500 Index, and a futures contract based on the index that trades in Chicago—the S&P 500 futures contract.* While arbitrage occurs with many stock indexes, activity is particularly

*Most of the stocks in the S&P 500 trade on the NYSE, but some are listed on the AMEX and some on the Nasdaq stock market.

focused on the S&P 500 cash and futures markets. The combination of deep, liquid markets in both the cash index and the futures makes it an ideal candidate for this type of trading. Here we will see, step-by-step, how such a trade is made, taking into account fair value and premium as well as buy and sell programs.

Let us start with a quick review of fair value, using the formula from Chapter 9 and actual data from February 15, 2001:

March S&P 500 futures	1334.70
Cash S&P 500	1330.00
Days to expiration of futures	30 days
Interest rate/financing costs	5.5%
Dividend yield on S&P cash	1.3%
Theoretical fair value	$= \text{cash} (1 + [r - d] [x/365])$
of futures	$= 1330.00 (1 + [.042] [30/365])$
	$= 1330.00 (1.003452)$
	$= 1334.59$

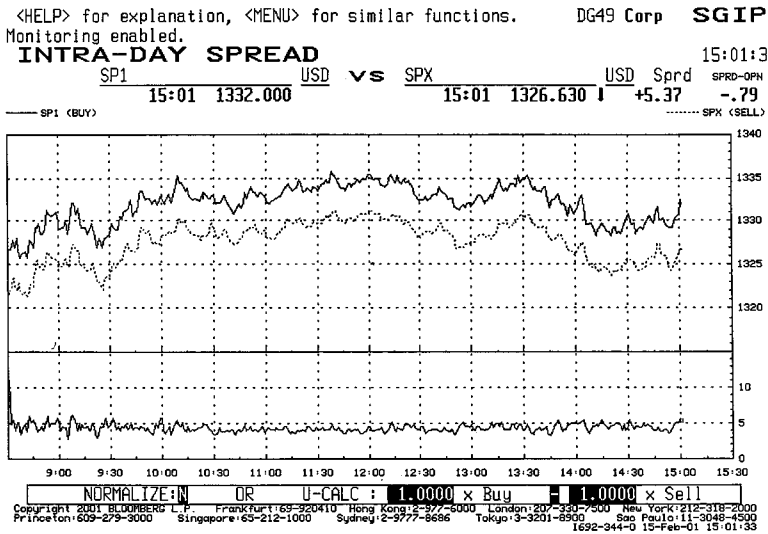
Fair value in itself is not of much use. It is really the premium or basis that matters—the spread between the cash and the futures.

Theoretical premium (or basis)	$= \text{Theoretical fair value of futures}$
	$- \text{actual cash index value}$
	$= 1334.59 - 1330.00$
	$= 4.59 \text{ points}$
Actual premium (or basis)	$= \text{Actual level of futures} - \text{actual}$
	cash index value
	$= 1334.70 - 1330.00$
	$= 4.70 \text{ points}$

In this example, the S&P 500 futures should be trading about 4.6 points above the cash index. This does not mean they always will. In fact, for most of the trading session, the futures will trade slightly above and below the theoretical premium due to order flow, supply and demand, volatility, and a whole host of other factors. Exhibit A3.1 traces the cash and futures prices throughout the trading session on February 15.

Only when supply and demand fluctuations cause a large shift away from the theoretical premium level will arb activity start to occur. In the example, the actual premium is 4.7 points, a mere .10 point away from theoretical premium. For arbitrageurs to make a profit, the

Exhibit A3.1 The Spread Between S&P 500 Futures and the S&P 500 Cash Index



Source: Bloomberg, reprinted with permission.

actual premium has to increase by at least 1 or more points above the theoretical premium to cover fixed costs such as commissions, trader salaries, equipment, and telecom lines. Thus, using our 4.6-point theoretical premium as reference, no arb activity would begin until the premium widened to around 6 or so points. What would cause the premium differential to widen that much? Again, like the New York–London gold example, it is due to short-term supply and demand considerations. What if a large customer of a brokerage firm decided she wanted to gain exposure to the stock market through S&P 500 futures? If she put in a large enough order, say 500 to 1,000 contracts, the short-term demand would cause the S&P futures to begin to climb relative to the cash market. Once the discrepancy climbed to a point where arbs could profit from the differential, an intricately linked set of events is set into motion. (For this illustration, we use 1.4 points as the amount the premium would have to increase above equilibrium or theoretical value to cover all costs and still allow the arbitrageur to profit. In other words, if the theoretical premium is 4.6 points, the arb trader would need the actual premium to widen an additional 1.4 points, to 6.0

points, for an index arb trade to become profitable after costs. This is just an example. In reality, this breakeven figure may be greater or less than 1.4 points.)

After the large customer's order hit the trading floor, here is how the prices in the market might look:

Actual value of S&P 500 futures	1336.00 (CME)
Actual value of S&P 500 cash index	1330.00 (NYSE)
<hr/>	
Actual premium or basis	6.00

At this point, some of the best and the brightest on Wall Street will effect index arbitrage. They will purchase the relatively cheap S&P 500 cash index, consisting mostly of NYSE issues, and simultaneously sell the relatively expensive S&P 500 futures contracts at CME. It is very similar to the New York–London example except that instead of buying and selling a yellow metal, they buy and sell baskets of stocks. Many of the larger program trading and index arbitrage players apply their trade in New York, but with computers and modern telecommunications, it could conceivably be done from anywhere. The precision required to pull off this kind of strategy is quite amazing. The futures side can be done rather quickly, as it involves only one instrument. But how do arbs quickly and accurately buy all 500 member stocks since they need to do the cash and futures sides of the trade at the same time? The answer lies with a system referred to as SuperDOT. DOT stands for Designated Order Turnaround System or Direct Order Turnaround System. The DOT system electronically routes orders directly to the specialist's post on the floor of the NYSE. At the press of a button, a firm can send an order to the NYSE for immediate execution. The system can be programmed with customized lists of stocks (also called names) that trade at the NYSE. The DOT system can thus allow a trader to buy or sell all 500 names in the S&P 500 at once. In reality, most firms probably do not buy all 500 names in the index. They have in-house researchers who do mathematical regressions and portfolio optimization and can put together a list of fewer than 500 names that would track (hopefully) the S&P 500 with close precision. If you look at a list of all the components in the S&P 500, you would notice the last 50 to 100 names have a very small weighting on the overall index (the top 40 stocks account for about 50 percent of the capitalization of the index).

How many shares of each component stock and how many futures are bought and sold? This depends largely on the size of the program (remember that index arbitrage falls under the heading of program trading). Most programs are in the \$10 million to \$15 million range, but some can reach much higher levels. As an example, let's see what is involved in a \$10 million index arbitrage buy program. In an index arbitrage buy program, you would be buying the cash basket of stocks and selling the futures. In a sell program, you would be selling the cash basket of stocks and buying the futures. You do not just divide up \$10 million in 500 equal installments. You must buy the stocks in their exact proportion to their weighting in the index. For example, GE is the largest stock in the S&P 500 Index and accounts for about 4.01 percent of the overall index. Therefore, you must spend 4.01 percent of your \$10 million on General Electric, or \$401,000. If GE's current price is \$46 per share, that means purchasing approximately 8,717 shares. ExxonMobil is the third largest issue, at about 2.515 percent of the index, and 2.515 percent of \$10 million is \$251,500. At a price of \$82, you would have to buy 3,067 shares of the large oil company. You would continue in a similar fashion with the other 498 stocks in the index. Exhibit A3.2 lists some of the share amounts required in a \$10 million index arb program. The list is preprogrammed, and with simple spreadsheets, the entire breakdown for the cash side of the arb trade is calculated in nanoseconds. If the house wanted to do a larger program, the programmed list would automatically adjust the number of shares.

Despite the use of the DOT system to buy the list of stocks in the S&P 500 cash index, the futures side is slightly less cumbersome. If the March futures were priced at 1336.00, the contract size would be \$334,000 ($1336 \times \250 —remember this is the standard size S&P futures). If you buy \$10 million of the cheap underlying cash basket, you must sell \$10 million of the relatively expensive futures contracts to do the arbitrage correctly, and \$10 million divided by \$334,000 comes out to about 30 contracts.

At the appropriate time, you will enter the order through the DOT system to purchase the basket of stocks in the S&P 500 in a \$10 million amount, thereby replicating the cash index. At the same time, the trading desk will instruct the broker in the S&P 500 futures pit to sell 30 futures contracts that are designed to track the cash index closely but at this moment are a bit expensive due to short-term supply and demand factors. In a matter of moments, the arb desk begins receiving reports on the two transactions. As other arb traders execute similar

Exhibit A3.2 Sample Index Arb Program

	Ticker	Percentage of S&P 500	Amount Required in \$10 Million Buy Program	Price	Number of Shares Required in \$10 Million Buy Program
1 General Electric	GE	4.01	\$401,000	46	8,717
2 Microsoft	MSFT	2.63	263,200	57	4,618
3 ExxonMobil	XOM	2.52	251,500	82	3,067
4 Pfizer	PFE	2.46	245,900	45	5,464
5 Citigroup	C	2.34	233,800	52	4,485
6 Wal-Mart	WMT	2.01	201,400	46	4,378
7 Intel Corp	INTC	1.99	199,200	31	6,426
8 AOL Time Warner	AOL	1.80	180,200	46	3,917
9 Cisco Systems	CSCO	1.75	175,100	26	6,735
10 IBM	IBM	1.74	173,700	100	1,737
.					
.					
.					
499 Worthington Ind.	WOR	0.008	800	8	100
500 American Greetings	AM	0.007	700	9.4	74

trades, the act of concerted selling and buying in futures and cash, respectively, will force the rich 6-point premium back toward its equilibrium or theoretical value of 4.6.

Unwinding such a trade takes equal skill. Some of these trades are offset in the future (which could mean minutes, hours, days, or weeks), and some remain on the books until expiration. At expiration, convergence will force the cash and futures contracts to trade at equal values. No matter where the market ends up at expiration, the arbitrageur profits by whatever amount the premium level he sold at (6 points) exceeds the theoretical premium (4.6 points) minus trading costs. When (not if) the premium falls back to normal levels, the entire trade could, in effect, be unwound. If the trader is fortunate and bearish sentiment prevails, the futures could decline below the 4.6 equilibrium point, and

Exhibit A3.3 NYSE Trading Report

Firm	Number of Shares Involved, Index Arbitrage	Number of Shares of All Other Program Strategies
Deutsche Bank/Alex Brown	18.8	255.9
Morgan Stanley	34.8	162.7
Salomon Smith Barney	—	159.7
Interactive Brokers	—	144.6
Merrill Lynch	—	124.8
Goldman Sachs	—	105.0
First Boston	4.4	105.0
RBC Dominion	31.7	102.4
BNP Paribas Brokerage Svcs	—	101.8
Susquehanna Brokerage Svcs	38.0	89.3
Bear Stearns	—	76.4
Spear Leeds	—	68.8
W & D Securities	—	65.0
TLW Securities LLC	4.9	60.8
Nomura Securities	10.0	51.1

Source: NYSE Research, March 2001.

his profit would obviously be greater. Should the premium level drop too far, another type of index arbitrage program might enter the market. If futures become too cheap relative to the cash index, traders will buy the cheap futures and sell the now-expensive stocks. This is called an *index arbitrage sell-program* (*sell-program*, for short).

Exhibit A3.3 lists the more prominent program traders; they can also be found in the NYSE's weekly program trading activity report (available on its Web site). The activity of all program trades is closely monitored by the NYSE. At any given week, program activity can be as high as 20 percent of NYSE volume. The report for the period February 26 through March 2, 2001, shows a breakdown of all program activity, as well as index arbitrage and the number of shares done under each strategy by every major firm. Share amounts are in millions.

How can a trader benefit from a knowledge of fair value, premium, and index arbitrage? I think the greatest benefit lies in gauging the relative cheapness or expensiveness of futures relative to the cash market. For the short-term trader of E-mini S&P 500 futures or regular-

size futures, this is critical. A case study will illustrate why knowing how to price futures may improve your trading.

A few months back a trader called me screaming about how “bad” his fill was in the larger S&P 500 futures. His call was routed to me at about 1:30 P.M. Here is how the conversation went:

DL: By any chance, did this bad fill happen about 30 minutes ago?

Caller: Yes. How did you know?

DL: By any chance did you put in a market order to buy futures?

Caller: Yes. Again, nice guess.

DL: Did you know what the theoretical premium was when you placed your order?

Caller: No! I simply put in a market order to buy 1 June S&P 500 futures. What is the point of all this?

DL: Here is the point.

I then explained what had happened. At 1:00 P.M. the following prices were flashing on my screen:

June S&P 500 futures	1410.10
June S&P 500 futures theoretical fair value	1410.00
S&P 500 cash index	1400.00
<hr/>	
Cash/futures theoretical basis (Fair value – cash)	10.00
Cash/futures actual basis (Actual futures – cash)	10.10

A few moments later, at about 1:05, a large order to buy then entered the pit and drove futures prices higher relative to the cash market. The following prices were then available:

June S&P 500 futures	1412.00
June S&P 500 theoretical value:	1410.00
S&P 500 cash index	1400.00
<hr/>	
Cash/futures theoretical premium (Fair value – cash)	10.00
Cash/futures actual premium (Actual futures – cash)	12.00

The caller’s market order to buy S&Ps hit right when the market was trading at 1412.00. He was filled at 1411.80—1.80 points above the theoretical premium level. Within minutes, the market did what it always does: Arbitrageurs and traders came into the market to take ad-

vantage of a premium level that took a stroll too far from equilibrium. As you now know from the index arb lesson, skilled arb traders sell expensive futures and buy cheap stock when the basis or premium becomes too large. This type of trading can rapidly force prices back into line. The trader's order hit the pits right when this activity began, at around 1:05 P.M., producing an immediate loss of 1.80 points in the position (\$450). Now the question beckons, Is this really a poor fill, or is it due more to bad timing that could have been prevented by knowing a little bit about the pricing mechanisms in stock index futures contracts? In my opinion, it is the latter. If the trader had known that futures were temporarily expensive relative to the cash index, he could have delayed his order by just a few moments; the futures would have returned to their normal fair value, and our conversation would never have taken place. Merely knowing the theoretical value of the futures is not enough. You must know what the premium (or basis) should be trading at and, equally important, where it is trading at the present. In this example, the normal basis is 10. For a brief moment, it was 12 points—2 points too high.

Although cash and futures markets usually return to equilibrium rather quickly, extraordinary events may prevent this. Fed chairman Greenspan's 50 basis point rate cut in January 2001 was a great illustration of one of these extraordinary events. Shortly after the announcement, both regular and Mini S&P 500 futures contracts rocketed higher. Remember that futures are nearly always more responsive than the underlying cash market. As a result, the cash market took a lot longer to play catch-up. The trader who waited for the normal premium to reappear would have missed out on a fabulous rally. Should the market make quick, violent moves up or down, waiting for fair value to reassert itself could prove costly in terms of lost opportunities. But over the long run, consistently buying and selling futures at well above or below theoretical premium is a prescription for poor results.

Aside from arbitrageurs, other market constituents benefit from the price discrepancies between stock index markets and their cash market counterparts. Those lumbering giants, the pension funds, take advantage of arbitrage opportunities. While having cash reserves on hand is consistent with their investment policies, it is also part of those policies to earn every basis point of return possible. Cash management has been elevated to an art form on the Street, and as strange as it may seem, pension funds and other large institutions use index arbitrage as a cash management tool. Think about it for a moment. You have tens

or hundreds of millions in idle cash earning T-bill, commercial paper, or CD rates. They receive money market rates with virtually no risk. However, index arbitrage is also largely absent risk. What if a major institutional brokerage firm with index arb expertise could provide a greater return than typical cash instruments but without any additional risk? An index arb program could be offset in a matter of hours or days, but some can be held until expiration. Returns on arb programs held until expiration are greater than returns on money market instruments and are obtained without any additional risk. If a pension fund can gain a risk-free return advantage over money market instruments of several dozen basis points, it would be foolish not to include this in its cash management policy.

ENDNOTES

CHAPTER 1

1. Burton G. Malkiel, *A Random Walk Down Wall Street* (New York: Norton, 1999), p. 170.
2. Barton Waring, "Conclusions from 30 Years of 'Modern Portfolio Theory' " (presented at Barclays Global Investors Chicago Client Conference, November 2, 2000).
3. John C. Bogle, "Success in Investment Management: What Can We Learn from Indexing?" (presented at Investment Analysts Society of Chicago, October 26, 2000).
4. Ibid.
5. Ibid.
6. Burton G. Malkiel, *A Random Walk Down Wall Street* (New York: Norton, 1999), p. 262.
7. John C. Bogle, *John Bogle on Investing—The First 50 Years* (New York: McGraw-Hill, 2001), p. 105.

CHAPTER 2

1. Sabine Schramm, "Index Assets Up 9% in 6 Months," *Pensions and Investments*, September 4, 2000, p. 52.

CHAPTER 3

1. All index statistics in this chapter are from CME Index Products.
2. The general guidelines are from Standard & Poor's *S&P 500 1999/2000 Directory* (New York: Standard & Poor's, 1999), p. 33.
3. Ibid.

CHAPTER 4

1. Lawrence Carrel and Trevor Delaney, "The Smart Money 30," *Smart Money* (December 2000): 148.
2. *Morningstar Mutual Fund 500*, 2000 ed. (Morningstar: Chicago, 2000), p. 36.

CHAPTER 6

1. Berkshire Hathaway Inc., Annual Meeting, Omaha, Nebraska, 1998.

CHAPTER 7

1. ADRs are American depositary receipts, a way for Americans to invest in foreign companies. They are a "receipt" backed by stock certificates in foreign companies. ADRs in their own right have garnered a tremendous amount of interest as Americans discovered some of the potential in overseas markets. Sony ADRs are quite active, as was Tel-Mex (Mexican Telephone Company). Hundreds of ADRs trade on United States exchanges.
2. Annual Mutual Fund Rankings, *Barron's*, January 8, 2001, p. F-31.
3. Shintaro Ishihara, *The Japan That Can Say No. Why Japan Will Be First Among Equals* (New York: Simon & Schuster, 1991).

CHAPTER 10

1. Adam Smith, *The Money Game* (New York: Vintage, 1976), pp. 227–235.

CHAPTER 11

1. Gary P. Brinson, L. Randolph Hood, and Gilbert L. Beebower, "Determinants of Portfolio Performance," *Financial Analysts Journal* (July–August 1986): 39–44.
2. William Jahnke, "The Asset Allocation Hoax," *Journal of Financial Planning* (February 1997), pp. 109–113.
3. William Glasgall, "Allocate, Amigo," *Investment Advisor* (February 2001), pp. 24, 184.

CHAPTER 12

1. Berkshire Hathaway 1997 annual report. Chairman's letter to stockholders, p. 8.
2. "The Taming of the Shrewd," *Economist*, May 6, 2000, p. 75.

APPENDIX 1

1. Patrick Young and Thomas Theys, *Capital Market Revolution* (London: Prentice Hall, 1999), p. 64.
2. Frank Zarb, "Nasdaq's Vision" *Economist*, May 20, 2000.

GLOSSARY

Active Management: The process of actively researching, choosing, and managing a portfolio of investments (stock picking) in order to obtain a return in excess of a particular benchmark.

Alpha: A term used by modern portfolio theory practitioners and money managers that describes the excess returns that a fund exhibits over its benchmark (some practitioners adjust alpha by the fund's beta coefficient). Let's say an active manager whose benchmark is the S&P 500 earns a 25 percent return in a given year while the benchmark S&P 500 returns 20 percent in that same year. Generally it would be said that the manager had an excess return of 5 percentage points. This excess return is called *alpha*. It is one of the single most driving forces on Wall Street. After all, no money manager wants to underperform his benchmark (negative alpha). The formula for alpha that many money managers use is: $\text{Alpha} = \text{Excess return} - (\text{beta} \times (\text{benchmark return} - \text{Treasury bill return}))$. *See also* Beta.

AMEX: Acronym for the American Stock Exchange. Located in New York City, the AMEX is where nearly all ETFs trade in the United States.

Arbitrage: The simultaneous purchase and sale of similar or identical instruments, often in differing geographical locations, to take advantage of short-term price discrepancies. It is a strategy usually practiced by large institutions or highly skilled professional traders. Arbitrage is usually risk free.

Asset Allocation: The process whereby an investor combines asset classes in a portfolio with different return and risk characteristics. Assets such as stocks, bonds, cash, and other types of investments have very different risk-return characteristics and can add value to a portfolio while reducing risk. ETFs alone or in combination with U.S. Treasury securities or other mutual funds are regarded as a solid foundation for a long-term portfolio.

Associated Person: A commodity futures broker—an individual who is registered by the Commodity Futures Trading Commission to solicit orders, customers, and customer funds for a futures broker, introducing broker, or commodity trading adviser. Most associated persons have taken and passed the Series 3 exam, which is also required to be a commodity futures broker.

Authorized Participant (AP): Usually a large institutional brokerage firm, specialist, or financial entity that can participate in the creation and redemption process of ETFs. APs are capable of transacting, clearing, and set-

ting ETFs through connection to the NSCC's (now part of the Depository Trust Clearing Corporation—DTCC) continuous net settlement system.

Bank of New York (BNY): One of three major banking institutions that provides custodial and fund management services to ETFs. BNY is the manager-custodian for the QQQs, the MidCap SPDRs, and the HOLDRS products.

Barclays Global Investors (BGI): The money management arm of Barclays Bank. BGI is the largest manager of indexed assets in the world and one of the largest money managers overall.

Basket: A term used to describe the purchase or sale of an entire portfolio of stocks in a particular index. For example, if you purchased all the underlying issues in the S&P 500, you would be buying a group of stocks listed in the S&P 500. The S&P 500 Spiders are essentially made up of a basket of stocks consisting of the issues in the S&P 500.

Basis: The difference between the price of a futures contract and its underlying cash index. Basis occurs because of cost-of-carry factors.

Beta: A measure of a fund's (or stock's) sensitivity to market movements. High beta funds or stocks have larger movements relative to the market. Lower beta issues have smaller movements relative to the market. By definition, the beta of the market (market being the S&P 500) is 1.00. A fund with a beta of 1.20 has performed 20 percent better than the market in an up market (in general) and 20 percent worse than the market in a down market. Beta is another modern portfolio theory calculation. *See also* Alpha.

Capitalization Weighted: A term used in reference to the different methods of calculating an index. For example, the S&P 500 is capitalization weighted, meaning the stocks with the largest capitalization have the greatest weighting in the index. The capitalization of a stock is simply its price multiplied by the number of shares outstanding. Issues such as General Electric have very large capitalizations and a greater weight in the index. Most indexes are capitalization weighted in some form. The Dow Jones Industrial Average, on the other hand, is a price-weighted average.

Cash Drag: The drag on a portfolio's performance in a rising market due to the manager's holding excessive cash reserves. Cash, however, is preferred in a down market, as it provides a positive rate of return and helps to cushion the portfolio during periods of declining markets.

Chicago Mercantile Exchange Inc: The exchange (recently demutualized) where the E-Mini S&P 500 and E-Mini Nasdaq-100 futures trade. CME is a licensed, federally regulated commodity exchange and has a 94 percent market share (in the United States) in stock index futures trading. The regular-sized counterparts to the minis also trade at CME, along with stock index futures on the S&P MidCap 400 Index, S&P 500/Barra Growth and Value Index, Russell 2000 Index, and the Nikkei 225 Stock Index.

Clearing House: The entity through which all futures and options on futures are settled. The clearing house is responsible for setting all performance bond margins, paying, and collecting funds from clearing firms (and their cus-

tomers). It is the ultimate guarantor of performance on trades executed on a futures exchange.

Commodity Trading Advisor (CTA): An individual registered with the National Futures Association and eligible to trade, on a discretionary basis, a portfolio of futures contracts for a customer. CTAs are like mutual fund managers. Instead of investing in a portfolio of stocks, they manage a client's money through a portfolio of futures contracts.

Core-Satellite Strategy: Strategy whereby an investor combines a core of index investing with a touch of active management. A typical core-satellite may involve indexing 50 percent of assets to a major equity benchmark such as the S&P 500 or the Russell 2000. The remaining assets would be invested in active management strategies.

Creation Unit: The process whereby ETF shares are created. The process involves the deposit of a basket or portfolio of securities with a custodian, who arranges for the issuance of ETF shares (although there are no paper certificates—they are held in book entry form). Creation units are typically done in large block sizes of 50,000 shares.

Cube or Cubes: Generic or nickname for the Nasdaq-100 Index Shares. Also known as QQQs.

Custodian: The custodian of ETFs holds and maintains the assets of the fund and is responsible for trade settlement of ETF shares and the underlying baskets. The custodian also facilitates the processing of creation and redemption trades to the clearing agent and depository. For example, State Street Corporation is the custodian for the S&P Spiders. It holds the assets (basket of S&P 500 components) and helps facilitate creation and redemption in SPY and works in conjunction with the clearing and depository agents.

Deutsche Boerse: One of the largest exchanges in the world, located in Germany. Eurex, the electronic trading platform of Deutsche Boerse, also trades derivatives, and the XTF division is where ETFs such as the DAX 30, EuroSTOXX, and DWS ETFs trade.

DIAMONDS: ETF that tracks the Dow Jones Industrial Average.

Discount/Premium to NAV: Discount occurs when an ETF price trades below the actual net asset value (NAV) per share. If the QQQ had an NAV at the end of the day of 50.00 per share and the QQQs themselves traded at 49.97, they would be trading at a discount to NAV. If they traded above the 50.00 NAV, they would be trading at a premium to the NAV. Institutional arbitrage keeps prices in line with NAVs.

Distributor: Accepts and approves orders for the creation unit and redemption process.

DWS Funds: Launched in November 2000, Deutsche Bank ETFs are the first actively managed ETFs. DWS funds are actually a hybrid that combines a fund run by a manager with shares that trade throughout the day like equities. The 11 DWS funds are available only to investors in select European

countries and trade on Germany's Deutsche Boerse. It is thought that ETFs based on actively managed portfolios will eventually trade in the United States.

E-Mini Stock Index Futures: A term used to describe electronically traded, miniature versions of the S&P 500 and Nasdaq-100 futures contracts at the CME. The E-Mini S&P 500 and the E-Mini Nasdaq-100 are one-fifth the size of the regular S&P and Nasdaq contracts. They trade virtually 24 hours a day on CME's GLOBEX electronic trading system.

Equitizing Cash: Fancy name for putting cash to work quickly in the markets. Since stock index futures, mini stock index futures, and ETFs are very liquid, low-cost, and efficient vehicles, it is easy for all types of investors to become quickly invested in the markets through these vehicles.

ETF: Acronym for Exchange Traded Fund. ETFs are uniquely structured investments that usually track broad-based or sector indexes and are traded on regulated securities exchanges throughout the day. In less than seven years, ETF assets in the United States have mushroomed from virtually nothing to \$78 billion as of the end of February 2001.

Euronext: European exchange formed from the combination of the Paris Bourse, Amsterdam Exchange, and Brussels Exchange. Trades CAC 40 and LDRS ETFs (based on STOXX 50 and EuroSTOXX 50 Indexes).

Expense Ratio: Number that represents the annual costs or expenses of a fund, usually expressed as a percentage of assets. One of the key attractions of ETFs is their low annual expense ratio.

Expiration: The period or date after which a futures or options contract ceases to exist. For the E-Mini S&P 500 and E-Mini Nasdaq-100, there are four quarterly expirations: in March, June, September, and December.

Fair Value: Where a futures contract should theoretically trade given dividend yields, time to expiration, and financing costs. Obtained using a simple algebraic formula. The actual price of a futures contract often differs (but not by much) from the theoretical price.

Futures Contract: A standardized agreement, traded on a commodity exchange, to buy or sell a commodity at a date in the future. Futures contracts specify the commodity, quality, quantity, delivery date, and delivery point or cash settlement. With stock indexes, the buyer and seller agree to transfer the cash value of the contract at a futures date—the expiration date. All futures contracts are either physically delivered or cash settled. E-mini stock index futures and regular-sized stock index futures at CME are cash settled.

Grantor Trust: One of three main types of ETF structures, Grantor trusts are not investment companies under the SEC Investment Company Act of 1940. They cannot loan out securities or use derivatives, and taxation is basically the same as owning the underlying stocks. Merrill Lynch's HOLDRS are a type of grantor trust.

Hedge: The process of protecting or insuring a financial asset or portfolio against adverse market moves. For a portfolio manager, an adverse market

move would be a declining stock market. The manager could hedge using stock index futures contracts or ETFs.

HOLDRS: Acronym for Holding Company Depositary Receipts. Introduced by Merrill Lynch, HOLDRS ETFs are available in several sectors and in broad-based versions. Each holds approximately 20 securities, but a few hold a greater number of issues. HOLDRS must be purchased in 100-share minimums.

Index Arbitrage: A form of program trading; an institution or professional trader buys (sells) a basket of stocks and sells (buys) the corresponding futures contract in an attempt to profit from short-term price discrepancies. Many index arbitrage trades center around the S&P 500 futures and the underlying cash index or basket.

Index Provider: A financial concern that develops, calculates, and maintains indexes, usually broad-based and sector stock indexes. Standard & Poor's, Frank Russell, Dow Jones, Fortune, MSCI, and Wilshire are some of the major index providers.

Index Receipt Agent: Performs many of the services that a custodian does with ETFs. *See* custodian.

Investment Company Act of 1940: The rules and regulations written by the Securities and Exchange Commission that govern investment companies and ETFs.

iShares: ETFs developed and introduced by Barclays Global Investors. Several dozen were launched in spring and summer 2000.

iUnits: ETFs, developed by Barclays Global Investors that trade in Canada, such as the iUnits S&P/TSE 60 ETF that trades in Toronto.

LDRS: Listed diversified return securities—ETFs traded on overseas exchanges such as the Deutsch Boerse and Euronext.

Managed Investment Company/Open-Ended Mutual Fund: Of the three primary ETF structures, managed investment companies (also known as open-ended mutual funds) are overseen by a manager with discretionary power. The underlying index would not have to be perfectly replicated under this ETF structure. The manager is allowed to create an optimized basket of securities that should closely track an index. Dividends are typically reinvested; securities have no lending restrictions, and they can trade derivatives.

Market Capitalization: A broad term used to categorize the size of a particular company such as large capitalization, midsize capitalization, and small capitalization (large-, mid-, and small-caps). There are several indexes available for each capitalization level. The S&P 500 and the Russell 1000 are large-cap stock indexes, for example.

Modern Portfolio Theory (MPT): A standard financial and academic method for assessing the risk of a fund or portfolio relative to the market or some benchmark. Alpha, beta, and R-squared are three key MPT statistics

that financial professionals use to evaluate investment portfolios. *See also* Alpha; Beta.

NSCC/DTC: The National Securities Clearing Corporation, which clears nearly all brokerage security transactions. It also clears ETF trades and facilitates the movement of all the securities in an ETF basket during the creation and redemption process. When you “create” an S&P 500 Spider, you must deposit all 500 stocks in the index with the custodian. The custodian then interfaces with the NSCC to clear all the transactions and complete the process of creation or redemption. DTC is the Depository Trust Company and the depository for ETF shares in book entry form. DTC and NSCC have merged to form the Depository Trust and Clearing Corporation.

OPALS: Optimized Portfolios as Listed Securities—ETFs developed and introduced overseas by Morgan Stanley Dean Witter. Only qualified non-U.S. institutional investors can invest in OPALS.

Open Interest: The total number of futures contracts that have not been offset; one measure of liquidity in the marketplace.

Passive Management: Also known as indexing. A strategy that attempts to earn market returns by mimicking a well-known benchmark. Passive managers are able to avoid using costly research and avoid portfolio turnover. The resulting low-cost, low-transaction strategy allows them to maintain the returns of the benchmark, which often outperforms their active management counterparts. Over \$1 trillion is indexed in the United States, much of it to the S&P 500.

Performance Bond Margin: The minimum, up-front, good-faith deposit a trader must deposit with a futures broker before entering into futures transactions. Performance bond margins are set by the exchanges and vary according to contract size and the volatility of the futures contract. Performance bonds help ensure the financial integrity of brokers, clearing members, and the exchange as a whole.

Portfolio Composition File (PCF): Published by an ETF fund manager or fund adviser, the PCF file is crucial to the creation-redemption process. It lists all the stocks in a particular index and the exact number of shares required to create a creation unit, along with cash distribution amounts, creation fees, and accrued dividends.

Premium: Sometimes referred to as *basis*, premium is the amount by which a stock index futures contract trades above its underlying cash index. If the S&P 500 futures contract is trading at 1275.00 and the underlying cash index is trading at 1270.00, the futures would be at a 5.00 point premium.

Program Trading: A set of strategies that involves the purchase or sale of a basket of 15 or more stocks with a value of \$1 million or greater. Index arbitrage is one form of program trading.

QQQ: Ticker symbol for the Nasdaq-100 Index Shares, the most actively traded ETF in the world. Also known as “cubes.”

R-squared (or R^2): Ranges from 0 to 100 and reflects the percentage of a fund's movements that are explained by movements in its benchmark index. Index funds will have an R^2 very close to 100.

Random Walk: A term coined by academicians and some on Wall Street that states that short-term fluctuations in the stock market cannot be predicted. Analysts, newsletters, and technical and fundamental analysis are of little or no use in predicting stock prices. Those who coined the term went so far as to state that throwing a dart at the stock pages would be equally effective in choosing stocks as using the average analyst or money manager.

Redemption/Redemption Process: The opposite of the ETF creation process. Shares of the ETF are deposited with the custodian. The authorized participant (usually an institutional investor) then receives the shares of each stock in the underlying basket.

Registered Rep (Stock Broker): A person registered with the SEC and usually licensed via the Series 7 examination to solicit customers and purchase and sell stocks on behalf of a customer for a brokerage firm.

Risk: The potential of losing money according to some; to others, it is the annualized standard deviation of returns. Standard deviations are expressed as a percentage. For example, the standard deviation of the S&P 500 Index in 2000 was 22.23 percent. The standard deviation of the Nasdaq-100 was 56.63 percent, more than twice the S&P 500. Market pundits would say the Nasdaq is riskier than the S&P 500. And given the movements of the Nasdaq from the 1800 level in 1998 to over 5000 in the year 2000 and back down to 1700 in early 2001, the index would certainly qualify as risky.

Sector Indexes, ETFs: A compilation of a narrow group of stocks in a particular sector of the economy such as technology, pharmaceuticals, or utilities. Investment managers usually obtain exposure in many sectors of the economy. Sector ETFs, such as the Select Sector SPDRs, offer an instrument by which an investor, large or small, can add exposure to a particular sector. There are dozens of sector ETFs, many of which have holdings in narrow-based sectors of the economy. The S&P 500 is a collection of the many sectors in the U.S. economy.

Settlement or Settlement Price: A figure determined from the daily closing range that is used to calculate gains and losses in futures markets and accounts and determine the need for performance bond margin calls.

SPDRs: Standard & Poor's Depositary Receipts—a group of ETFs indexed to various Standard & Poor's broad-based and sector indexes.

Special Opening Quotation (SOQ): The procedure for final settlement of many stock index futures contracts in the United States. The SOQ for each index is based on the opening price of each component stock in that index on expiration Friday (most CME index products undergo the SOQ procedure on the third Friday of the contract month—March, June, September, and December). Expiring index futures contracts will be cash settled to final SOQs. Say a trader

purchased a March E-Mini S&P 500 futures at 1200.00, and the SOQ for the March expiration was 1242.78. At the final settlement (at expiration), the trader's account would be credited with 42.78 points, or \$2,139 (42.78 points \times \$50 per E-mini point = \$2,139) in cash—hence the term *cash settlement*.

Specialist: Specialists who function on the floor of the NYSE and the AMEX (and other exchanges) and mainly provide liquidity for the markets. They are to maintain a fair and orderly market and also maintain a book of public orders to be executed at certain prices.

Spiders: Nickname or generic name for ETFs in general, although usually a reference to the S&P 500 SPDRs or Select Sector SPDRs.

Spreading: The process of buying and selling similar instruments to take advantage of longer-term price disparities such as the outperformance of mid-cap stocks versus large-caps during 2000. It is a common strategy in futures contracts. It can be employed with ETFs but would be more costly.

SPY: Well-known ticker symbol for the oldest and largest ETF, the S&P 500 Depositary Receipts.

SSgA: Abbreviation for State Street Global Advisors, the money management arm of State Street Corporation. SSgA manages many of the underlying indexes that make up an ETF.

Standard Deviation: A statistical measure of the movement of some instrument or index. It is one of the most widely used measurements of variation about a mean and, for many purposes, a suitable proxy for risk and volatility. Higher standard deviations usually indicate greater movement or volatility.

streetTRACKS: A family of ETFs managed by State Street Global Advisors. Many of them trade on the AMEX, and several will be trading on overseas exchanges such as Euronext.

Style Indexes: A subdivision of broad-based indexes that seeks to categorize the components of the index into growth or value issues. For instance, the S&P 500 index has been sliced into growth and value style indexes. The S&P/Barra Growth and S&P/Barra Value Indexes comprise growth and value stocks, respectively. S&P and Barra use book value to price and other criteria to determine a stock's growth or value status.

SuperDOT system: DOT stands for Designated Order Turnaround System or Direct Order Turnaround System—a system that allows firms to route orders directly to the exchange specialist on the trading floor of the NYSE. It facilitates order entry and allows institutions to program trading.

Tracking Error: Sometimes ETF returns may deviate from the returns on the underlying index. ETF returns may also deviate from returns on net asset value of the ETF. (Remember that the underlying basket of stocks and the ETF itself are independent instruments. Although they do closely track one another, they can have small deviations.) This deviation of returns is called *tracking error*. Tracking error with ETFs is very low due to the arbitrage mechanism and the “in-kind” creation and redemption process. For example, in 1999, the

S&P 500 Index was up 21.04 percent. The S&P 500 Spider was up 20.39 percent, a very slight tracking error due in part to imperfect replication of the index, dividend reinvestment policy, index modifications, and fees.

Tracker Fund of Hong Kong (TraHK): An ETF listed on the Stock Exchange of Hong Kong that approximates the Hang Seng Index, the primary stock index of the Hong Kong Stock Market. TraHK was a unique way for the government of Hong Kong to off-load a massive equity portfolio accumulated during the market downturns of 1997 and 1998 in order to stabilize the Hong Kong markets. The Hong Kong government's holdings (\$30 billion) have been slowly and systematically transferred to this ETF.

Treasury Direct (TD): A program established by the U.S. Treasury Department's Bureau of Public Debt to allow investors to buy U.S. Treasury securities (T-bills, T-notes, and T-bonds) directly from the U.S. government free of charge. TD can be accomplished through the mail or over the Internet. The only charge incurred is if a TD account holdings exceed \$100,000. In that case, there is a nominal fee of \$25.00 per year.

Trustee: *See* Custodian.

Turnover Rate: A good approximation of a fund's (or an investment manager's) trading activity. It is calculated by taking the fund's purchases (or sales) and dividing by the average monthly assets of the fund. Turnover rates over 100 indicate higher-than-normal trading activity. Turnover rates of 30 percent or below indicate a lack of trading activity. Index mutual funds tend to have extremely low turnover activity. High turnover engenders greater transaction costs as well as taxable events.

Unit Investment Trust: Regulated under the SEC Investment Company Act of 1940, UITs are not allowed to make discretionary investment decisions. They must completely replicate the underlying basket of stocks, remain fully invested, and hold interest and dividends in a non-interest-bearing account until distributed to investors. UITs also are disallowed from using derivatives or lending out securities.

Variation Margin: The daily debiting and crediting of commodity futures accounts due to movements in futures positions in the account. This way, losses and gains are "paid" up daily, and losses cannot accumulate. It is one of the primary risk management operations that gives futures exchange clearing houses a solid financial foundation. Also known as *mark-to-market*.

VIPER (Vanguard Index Participation Equity Receipts): ETFs that track Vanguard's Index funds, including the massive Vanguard 500 Index fund. Currently the S&P 500 VIPER is tied up in litigation over licensing rights. But on May 31, 2001, Vanguard launched a VIPER product on its total Stock Market Index Fund, which is based on the Wilshire 5000 Index.

SUGGESTED READING

Bernstein, Peter L., *Against the Gods: The Remarkable Story of Risk*, John Wiley & Sons, New York, 1996.

There are only four things that matter in investing: returns, costs, time, and risk. Bernstein examines the history of risk over the past 800 years. The book is filled with incredible facts about risk, probability, and gambling and how they relate to human thought processes and investing. If you want to be a better investor, you should learn about risk. This is a great place to start.

Bogle, John C., *John Bogle on Investing—The First 50 Years*, McGraw-Hill, New York, 2001.

Bogle, John C., *Common Sense on Mutual Funds—New Imperatives for the Intelligent Investor*, John Wiley & Sons, New York, 1999.

Bogle on Investing is a compilation of many key speeches that John Bogle, founder of the Vanguard Group, has given over his career. *Common Sense* is an excellent book that will cause investors to think hard about the advantages of indexing, the costs and risks involved with active investing in both equities and fixed-income instruments. For those trying to figure out the stock market, *Common Sense* will put you on solid ground.

Gidel, Susan Abbott, *Stock Index Futures and Options: The Ins and Outs of Trading Any Index, Anywhere*, John Wiley & Sons, New York, 2000.

Gidel, a seasoned veteran in the futures industry, provides all the basics that a beginner needs to know before opening an account and beginning to trade, with a bit of important history added for good measure. Gidel also talks about stock index futures across the globe, a subject serious traders should at least be aware of, even if their trading activities will be confined within the borders of the United States.

Hill, John, George Pruitt, and Lundy Hill, *The Ultimate Trading Guide*, John Wiley & Sons, New York, 2000.

For those interested in trading systems and technical analysis. This book examines dozens of trading systems, from simple to complex, and covers

the important aspects of all successful systems. Good detail on topics such as risk management, drawdowns, and average profit and loss per trade.

Kaufman, Perry, J., *Trading Systems and Methods*, John Wiley & Sons, New York, 1998.

An excellent, comprehensive look at the technical analysis of markets and various trading systems.

Lofton, Todd, *Getting Started in Futures*, John Wiley & Sons, New York, 2001.

For those who want a good grounding in the fundamentals of futures, this is a popular book.

Lowenstein, Roger, *Buffett—The Making of an American Capitalist*, Random House, New York, 1995.

Buffett is the undisputed greatest investor of all time. And more than a great investor, he is a great businessman. Many books have been written on the Oracle of Omaha. This is the best.

Malkiel, Burton G., *A Random Walk Down Wall Street—The Best Investment Advice for the New Century*, Norton, New York, 1999.

One of the great investment classics that should be on everyone's reading list. Do not invest a penny until you read this book. After reading *A Random Walk*, you will be left wondering why you have tried to beat the market all these years.

McMillan, Lawrence, *Options as a Strategic Investment*, Prentice Hall, Upper Saddle River, NJ: 1992.

There are dozens of options texts available, and this is the best for most investors.

Nassar, David, S., *Rules of the Trade: Indispensable Insights for Online Profits*, McGraw-Hill, New York, 2001.

Anyone thinking of trading or investing should have plan. Part of that plan should be rules. This new book could provide valuable insight to any plan.

Natenberg, Sheldon, *Options Volatility and Pricing*, Probus Publishing, Chicago, 1994.

McMillan's book is the best for the masses. Natenberg's is the best for those already familiar with options. It is written for the professional or more advanced options traders. The discussion on volatility is superb. For those who want to do delta-neutral trading and spread trading and get to the heart of options, this is your candidate. To be thorough, you really should read Natenberg and McMillan, the two best books on the subject.

Schwager, Jack D., *Market Wizards: Interviews with Top Traders*, Harper Business, New York, 1993.

Schwager, Jack D., *The New Market Wizards: Conversations with America's Top Traders*, Harper Business, New York, 1994.

Schwager, Jack D., *Stock Market Wizards: Interviews with America's Top Stock Traders*, Harper Business, New York, 2001.

When new traders ask for a reading list, Schwager's books usually come first. These three have dozens of fascinating interviews with the best in the business. Schwager catalogs the philosophies of market wizards who trade futures, options, stocks, currencies, and anything else. He goes beyond just interviews and discusses what the wizards have in common and what sets them apart.

Young, Patrick, and Thomas Theys, *Capital Market Revolution—The Future of Markets in an Online World*, Pearson Education Limited, England, 1999.

A great work on where markets, particularly futures and options markets, have been and where they are heading in terms of the traditional trading platforms versus the new on-line electronic platforms. Anyone who trades from a screen or is interested in screen-based trading should pick up a copy of this witty book, written by an ex-floor trader and the founder of one of the largest screen-based front-end software providers in the trading world.

RECOMMENDED WEB SITES

There are hundreds, if not thousands, of sites dedicated to finance and investing. Some sites are excellent in that they provide incredible detail in terms of education, statistics, and data. The following sites are dedicated solely to ETFs or E-mini stock index futures.

www.amex.com

Click on the Exchange Traded Funds tab, and you'll have plenty of information on ETFs. Since nearly all U.S.-based ETFs trade on the AMEX, there will be a large amount of data. For the trader, make sure you visit www.amextrader.com too.

www.cme.com

This is a great web site that has all the information you need if you are considering trading the E-Mini S&P 500 or the E-Mini Nasdaq-100. It contains lots of data and statistics, as well as educational materials. Nearly all the brochures on stock index products are in PDF format for easy downloading. The site contains performance bond margin information as well as GLOBEX information, settlement prices, and a host of other information useful to futures traders.

www.holdrs.com

At their inception, Merrill's HOLDRS were very popular despite the lack of widespread information on these unique ETFs. As popularity swelled, Merrill put out this very good site dedicated to the product line. It has all the components of each of the HOLDRS and their precise share amounts, with plenty of downloadable information.

www.indexfunds.com

An excellent site dedicated to the indexing revolution. Go to the ETF zone, which is filled with data on ETFs as well as traditional index funds. Want to know the 15-year returns on a major index? This site probably has it, as well as discussion boards.

www.iShares.com

Barclays Global Investors' site dedicated to their ETF products. Since mid-2000, BGI has launched over 50 iShares products. You can track prices, download

prospectuses, and find lots of additional information. The site also contains features for investment advisers and retail and institutional investors.

www.morningstar.com

The definitive place for detailed mutual fund information. Morningstar also has devoted part of its site to ETFs. Go to the home page, and click on the ETF tab. Great statistics and timely feature articles, as well as links to many other ETF sites.

www.nasdaq.com

Like the AMEX's site, this has an amazing amount of information on all ETFs. Click on the ETF tab. Make sure you check out the ETF Heatmaps—an interesting tool that measures percentage changes in many ETFs throughout the day and color codes them by performance. See also www.nasdaqtrader.com.

www.programtrading.com

Good site for information on fair value, premium, and the material covered in Appendix 3. Careful, though: If you polled 10 firms on their calculation of the premium, you would likely get 10 different answers.

www.russell.com

This is the site to visit for up-to-date information on the Russell indexes.

www.spglobal.com

The Web site for Standard & Poor's indexes. It contains updated information on all S&P indexes.

www.streetTracks.com

The Web site for up-to-date information on SSgA's streetTRACKS product line.

www.traderslibrary.com

Great site for books on the topics of trading and investing.

TIMELINE

1896	Charles Dow and Edward Jones debut the Dow Jones Industrial Average. The original DJIA had only 12 companies. General Electric is the only company of the original 12 that is still a component.
1923–1926	Standard & Poor's develops its first stock market indicators. The new indexes covers 26 industry groups and 233 companies. In 1926, S&P creates 90 Stock Composite Price Index.
1941	The "233" grows to 416.
December 1949	John C. Bogle reads a <i>Fortune</i> article entitled, "Big Money in Boston," that discusses a new industry in making: investment companies. It becomes the subject for his senior thesis.
March 1951	Bogle submits his senior thesis, "Economic Role of Investment Companies," to Princeton's Economics Department.
1957	The "416" becomes the S&P 500 Composite Stock Price Index. In order to create a lengthy historical time series, the new 500 is linked to the "90" stock price index, and daily S&P 500 prices become available back to 1928. Thus, the original indexes, the "233" and the "90," evolve into the modern Standard & Poor's 500. It consists of 425 industrials, 60 utilities, and 15 rails.
1971	Wells Fargo Investment Advisors launches the first indexing strategy using the NYSE composite index.
1973	Wells Fargo Investment Advisors launches the first indexing strategy using the S&P 500 index.
1973	The first edition of <i>A Random Walk Down Wall Street</i> , by Burton Malkiel, appears. Wall Street is miffed at the "dart board" analogies.
January 1974	John Bogle is fired from his investment management job.
September 1974	John Bogle founds the Vanguard Group.
December 1975	Vanguard creates the first index mutual fund, First Index Investment Trust, with \$11 million in assets.

February 1982	The Kansas City Board of Trade launches the first stock index futures contract based on the Value Line Index.
April 1982	The Chicago Mercantile Exchange introduces S&P 500 futures, first-day volume is 3,963 contracts.
1983	CBOE introduces options on the S&P 100 (OEX) and the S&P 500 (SPX) cash indexes.
1984	Frank Russell & Co. establishes the Russell 1000, Russell 2000, and Russell 3000 indexes.
1990	Wells Fargo joins Nikko Securities Co. to become Wells Fargo Nikko Investment Advisors.
June 1991	Standard & Poor's debuts the S&P MidCap 400 Index, providing a benchmark for mid-tier companies.
1992	Vanguard introduces a mutual fund based on the Wilshire 5000 Index. Chicago Mercantile Exchange launches S&P Midcap 400 futures and Options.
January 1993	The AMEX launches its first exchange traded fund—Standard & Poor's Depositary Receipts, or SPDRs. State Street Global Advisors is the fund manager.
February 1993	The CME begins trading futures and options on the Russell 2000 Index.
May 1995	Trading begins in MidCap SPDRs at the AMEX.
1996	CME begins trading futures and options on the Nasdaq-100 Index. Barclays PLC buys Wells Fargo Nikko Investment Advisors and merges it with its investment management arm—BZW Investment Management—to form Barclays Global Investors. BGI becomes the largest indexer in the world.
March 1996	AMEX launches World Equity Benchmark Shares on 17 countries.
1997	AMEX launches ETF on Dow Jones Industrials called DIAMONDS.
1998	AMEX launches ETFs on S&P Select Sectors called Select Sector SPDRs.
September 1997	CME launches E-mini S&P 500 futures contract—the first all electronically traded futures contract with virtual 24-hour availability. Day 1 volume is 7,494 contracts.
March 1999	AMEX begins trading the Nasdaq-100 Index Shares—the QQQ. Day 1 volume exceeds 2.5 million shares.

June 1999	CME begins trading E-Mini Nasdaq-100 futures. Day 1 volume is 2,136.
November 1999	Vanguard 500 Index Fund reaches \$100 billion in assets.
Spring 2000	Barclays Global Investors launches the first ETFs named iShares.
Fall 2000	State Street Global Advisors launches streetTRACKS ETF.
March 2001	E-mini S&P 500 futures trade record 201,555 contracts.
May 2001	Vanguard introduces VIPERs ETF based on its Total Stock Market Index Fund that tracks the Wilshire 5000.
June 2001	ETFs in Europe now number 46. Assets in European ETFs reach \$11 billion.
July 2001	NYSE announces it will list the QQQ and other ETFs thereby challenging the AMEX's dominance.

ANSWERS TO QUIZZES

Parts I and II Quiz (page 126)

1. a,b,c,d
2. a
3. Investment management fees, transaction costs, taxes, cash drag
4. c, the Dow Jones Industrials is a price-weighted average
5. d, Nathan Most and Steve Bloom did most of the pioneering work at the AMEX
6. AMEX
7. b
8. d
9. a
10. c
11. c
12. a
13. a
14. Currency risk and political risk
15. d
16. c
17. a. Brazil is an emerging market and has higher volatility
18. d. 100 is the minimum amount of HOLDRS you can deal in
19. c
20. a
21. d
22. d
23. b
24. True
25. b

Part III Quiz (page 202)

- | | | | |
|--------|------------|-------------|----------------|
| 1. c | 5. false | 9. d | 13. c |
| 2. a,b | 6. a,b | 10. a,b,c,d | 14. a |
| 3. a | 7. a,b,c,d | 11. a,b,c | 15. d |
| 4. b | 8. a | 12. a | 16. b and/or c |

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