THREE PATHS TO Profitable Investing

Using ETFs in Healthcare, Infrastructure, and the Environment to Grow Your Assets

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Published by Pearson Education, Inc.
Publishing as FT Press
Upper Saddle River, New Jersey 07458

Printed in the United States of America

First Printing May 2010

ISBN-10: 0-13-705426-2
ISBN-13: 978-0-13-705426-8

Pearson Education LTD.
Pearson Education Australia PTY, Limited.
Pearson Education Singapore, Pte. Ltd.
Pearson Education North Asia, Ltd.
Pearson Education Canada, Ltd.
Pearson Educatión de Mexico, S.A. de C.V.
Pearson Education—Japan
Pearson Education Malaysia, Pte. Ltd.

Library of Congress Cataloging-in-Publication Data

Feldman, Jeffrey Lee, 1947-
Three paths to profitable investing : using ETFs in healthcare, infrastructure, and the environment to grow your assets / Jeffrey Feldman, Andrew Hyman. — 1st ed.
p. cm.
ISBN 978-0-13-705426-8 (hardcover : alk. paper) 1. Investments. 2. Medical care—Finance. 3. Infrastructure (Economics)—Finance. 4. Business enterprises—Environmental aspects. I. Hyman, Andrew
S. II. Title.
HG4521.F36 2010
332.63'27—dc22

2010004799

Introduction: Three Paths to a Prosperous Future

The first decade of the twenty-first century has not been kind to investors. On average, stocks lost about 1% per year over the ten-year period or more than 10% for the entire decade. During the decade we saw the collapse of three bubbles: the dot-com boom came to an end in 2000, the meteoric rise in housing prices in the middle years of the decade reversed sharply in 2007, and then in 2008 the massive over-leveraging of the banking system came home to roost, very nearly destroying the economy. The decade saw the emergence of vibrant economies and stock markets in the developing world, particularly in China but also in places such as Russia, Brazil, and India, among others. Investors hungry for the returns they had experienced during the roaring '90s sought to capitalize on the economic opportunity created by these emerging markets. Recognizing that growth requires access to commodities, precious metals, energy, and capital, investors sought to ride those new opportunities for investment gains. At the same time, Wall Street recognized this demand and rushed to create investment vehicles that would give investors the access they desired. Mostly these came in the form of exchange traded vehicles, primarily exchange traded funds (ETFs). ETFs, in addition to allowing investors to buy virtually any subset of stocks (by size, style, sector, or geographical division), for the first time ever also allowed for individuals to own foreign currencies, oil and gas, precious metals, and commodities. Previously only institutional investors could access these markets.

While all of this was going on, the United States was engaged in a war in Iraq that has since morphed into two wars, and in early 2010

we had 130,000 troops in Afghanistan. The expense of these wars, coupled with the decline in tax revenues as a result of the recession, has caused our national debt to swell past $10 trillion. The combination of a weakening U.S. economy and strengthening emerging markets caused the U.S. trade deficit to balloon to historic highs. This resulted in a weakening dollar. The political havoc in the Middle East, coupled with increased demand for energy worldwide, drove up the price of oil and gas. We have seen this scenario in the markets before, notably in 1973 after the Arab Oil Embargo drove up the price of oil and eventually the price of gold. But, in 1973, most investors could not access those asset classes. In the past five years, investors have poured tens of billions of dollars into macroeconomic bets on oil, precious metals, interest rates and sub-prime mortgages, currencies, and commodities. At the same time, investors have made huge bets against the dollar, which have become something of a self-fulfilling prophecy. A weaker dollar has some virtue in terms of making U.S. goods more attractive to foreign buyers, but never in history has it been a foundation for a strong economy. So a cycle that was once virtuous has become vicious: We invest more in foreign markets, less in our own, and invest in oil and gold, which essentially are bets that we can make money at the expense of our own economy. It is simply irrational. These investments create no sustainable industry, no jobs, and no permanent wealth. The investor who is buying oil in the belief that it will rise to a level where nobody can afford to buy it is delusional. Expensive oil retards economic growth. The investor buying gold believing that gold will go to $3,000 an ounce (from its $1,100 price in early 2010) will earn profits in gravely weakened dollars whose purchasing power will be seriously diminished. And because all this investment frenzy plays out very publicly on the Internet, on television, and in the newspapers, we eventually draw in too many investors and another bubble will develop and burst. Individual investors who chased the previous bubbles of this decade for the most part lost money when all was said and done.

We need to get back to basics and fund sustainable businesses that will create jobs, drive productivity, and increase our standard of living. It is this type of investment that is and always has been the only source of permanent wealth.

The bad news is that this type of investing does not appeal to those who have become enamored of "casino capitalism." They will

continue to make bets against the American economy so long as it is working.

The good news is that there is a technology-based revolution occurring that rivals, and probably will surpass, the 1982 to 2000 bull market led by the information age and telecommunications companies. In medicine and biotechnology, green technologies and alternative energy, and the rebuilding of the U.S. infrastructure lay the greatest investment opportunities in history. Over the next 25 years, medicine will be revolutionized as we completely change the way we diagnose and treat disease. During that same period, we will break free of our dependence on imported fossil fuels by developing alternatives such as solar, wind, and nuclear. We will utilize new technologies first to reduce carbon emissions and eventually to eliminate them. And we will rebuild our roads and bridges, commercial structures, and transportation and shipping systems and retrofit all our real estate to be energy efficient.

The wealth that will be created in the next 25 years will dwarf that of the Internet era. Thirty years ago, one could have made the statement that most of the companies that would be industry leaders in the ensuing 30 years either did not yet exist or were too small to be known by the public. Microsoft, Cisco, Google, Dell, and Amazon all fit that description. In 1980, nobody had heard of any of them. In 2010, the same statement can be made. The companies that will drive us to prosperity in the next 30 years are busy at work right now, but most of us have never heard of them. The best news is that investors can own these companies today. Using the ETF structure, we do not have to figure out which will succeed and which will fail. We can own all the solar companies in one ETF and all the wind companies in another.

The purpose of this book is to describe the path to prosperity, to demonstrate that we must get out of the casino and back to fundamentals. We must create millions of jobs, drive the productivity of workers, deploy new technologies, and ultimately increase the standard of living for all. ETFs have been created that give investors total access to pharmaceutical, biotechnology, alternative energy, green technology, and infrastructure companies. We describe in detail each of the ETFs in these areas and some of their component companies. Many of these companies are small- to mid-cap in size but have the potential to become large and dominant players in their fields in the

years to come. Investors should see this as an opportunity akin to investing in Internet companies in the early 1980s.

Three major forces are shaping an environment that will foster this prosperity:

- The first is a demographic wave of new investors—the Baby Boom Echo generation born between 1974 and 1989—who are now starting to invest heavily in the stock market and whose money has great potential to move the markets just as Baby Boomer money in the early '80s ignited the longest bull market of all time.
- The second force comes in the form of the new and innovative technologies being developed in all these areas—biotechnology, saving the environment, and rebuilding infrastructure—that will solve pressing needs for society.
- The third major factor is the development of ETFs, which allow investors to buy into the biotechnology, environment, and infrastructure fields in a diversified, low-cost manner. ETFs increase an investor's ability to gain exposure to innovative new companies while mitigating the risk of that investment.

The Way Forward

If we are to be a prosperous nation, we must invest in activities that create real economic utility and promote social welfare. The right investments cannot be discovered sitting at a computer terminal in a windowless room. In fact, they are easily revealed if we simply look out the window. We are dependent on fossil fuels, much of which we get from hostile states. We use that fuel inefficiently and waste a great deal of it. Our healthcare system is collapsing just as the Baby Boom generation (78 million people) is reaching its senior years. Healthcare has gone from 8% of gross domestic product (GDP) in 1980 to 17% of GDP ($2.5 trillion) in 2010 and is expected to rise to 25% of GDP by 2020. Finally our infrastructure is in dire need of repair. From the electrical grid to water mains to the rails, roads, and bridges, we need to make a massive investment in the foundations on which our economy runs.

Fortunately, there is a comprehensive set of ETFs that allow us to invest in these three critical areas of our economy. In each case, the required investment is hundreds of billions of dollars. In each industry—alternative energy and clean technology, healthcare, and infrastructure—we can create thousands of new companies and tens of millions of jobs. The technology in each case is ripe and ready for commercialization. In the 1980s, when we saw an economic boom based in the telecom and computer industries, Wall Street made its money by providing capital to these industries. Today, Wall Street has forsaken its capital formation role for a seat in the casino. But we can and must take matters into our own hands. You can travel these three paths to wealth without Wall Street's involvement. You can buy ETFs as easily as buying any publicly traded stock and build a portfolio that works for you.

Our goal here is to explain the various ETFs that invest in these critical areas. There is no question that the country cannot prosper if we do not create sustainable industries, and these three sectors represent our most pressing needs. No doubt there will be other sectors that flourish in the coming years, but none can thrive if we do not solve the fundamental issues. On the other hand, the businesses that tackle and overcome these problems will create substantial and permanent wealth. With a few clicks of a mouse, you can own these companies right now.

Investing in healthcare, the environment, and infrastructure through ETFs allows you to buy into the next major wave of investment and to help create a better society at the same time. For the investors willing to take control of their investments, the combination of demographic changes, new investment tools, and major societal needs make this a great time to seize investment opportunities. Assigning blame for financial misdeeds helps us feel better but locks us into arguing about the past, which will not rebuild the economy or make you money. Which do you want to do? If you want to make money in a sustainable economy, start reading. If not, return this book. It isn't for you.

1

Understanding ETFs and Why They Beat Mutual Funds

Is there a low-cost, simple, easy to use, investment tool for buying into the trends of the future? Yes. It is the *exchange traded fund*, more popularly known as the *ETF*. An ETF is a security that trades on a stock exchange, made up of a basket of securities that track a particular index, such as the Dow Jones Industrial Average, or the S&P 500.[1] ETFs can track the performance of a particular group of stocks, including those in sectors, such as healthcare, green industry, and infrastructure. These funds allow investors to buy into an industry without the worries of buying a single stock. Unlike mutual funds, ETFs trade continuously throughout the day on an exchange, as does any listed security. In addition, their cost efficiency, compared to other investment strategies, makes them the ideal low-cost tool for an investor who wants to take charge of her portfolio.

What Is an ETF?

An ETF is a security that tracks the performance of an index by holding, with the same weights as in the index, the securities comprising the index.[2] An investor who buys 100 shares of an ETF based on the S&P 500, will own a basket underlain by the shares of the companies in the S&P 500 in proportion to their weights in the index.

What Is an Index?

Understanding indices helps investors understand what drives the price of an ETF. An index is a number that reflects the value of a basket of items. One common index is the consumer price index, which reflects the overall price level of a basket of commonly used household items that track price levels and inflation. Stock market indices were created to measure the performance of the overall stock market.

How Does an Index Work?

To understand how an index works, consider the Three Paths Green Index depicted in Table 1.1, which lists the securities and their weights in the index.[3]

TABLE 1.1 Components and Weights of the Three Paths Green Index

Security	Weight
Sunny Solar	50%
Windy Windmills	25%
Clean Cars	25%
Total	100%

The stocks in the Three Paths Green Index determine the performance of the index in proportion to their weighting. For example, while Sunny Solar makes up only one-third (33.33%) of the total membership of the index, its 50% weighting makes its contribution to the index's performance equal to that of both Windy Windmills and Clean Cars *combined*.

The Three Paths Green Index is used to create the Three Paths Green ETF. Despite owning a fund underlain by those three stocks, the average investor cannot redeem the ETF for individual shares of Sunny Solar, Windy Windmills, or Clean Cars. Only market makers who buy and sell large amounts of securities can create an ETF by depositing the component securities, or redeem an ETF to receive

the individual securities that make up the ETF.[4] The average investor will buy or sell the ETF and not exchange it for the individual shares. Still, the shares that make up the ETF will actually determine the price of the ETF.

Consider how the prices of the components affect the value of the Three Paths Green Index. The index's value is determined by multiplying the price of each stock by the weight of each stock in the index and totaling up the value. The fund's value is determined by multiplying the fund's index value by $1.00. Let's see what happens to the index, and the ETF, when the prices change in the shares of the three companies.[5] The weights indicate how much the movement of a stock's price will affect the index and consequently the ETF.[6]

Table 1.2 shows how price changes affect the value of the index and the ETF. The index value changes depending on the price action in each of the securities. On Day 1, each stock in the index has a price of $100, the index has a value of 100, and the fund trades at $100. The value of the index is determined by taking the price of each stock, multiplying it by the respective weighting to determine an index value. The index values for the three stocks are added to obtain an index value of 100 and fund value of $100. On Day 2, Sunny Solar increases in price 50% to $150, while the other two components stay the same. This leads to a 25% increase in the value of the index to 125, and the fund rises to $125. On Day 3, the price of Sunny Solar falls to $100, but the other two components each rise $50. The index remains unmoved from Day 2 staying at 125, and the fund is at $125. On Day 4, the price of Sunny Solar falls to $50, while the other components return to $100, and the index falls to 75 and the fund to $75. On Day 5, Sunny Solar returns to $100, yet the other two components both fall to 50, and the index remains at 75 and the fund at $75. Figure 1.1 shows the effect on the price of the ETF. The impact of each price move is in proportion to its weight in the index. The same applies to larger indices and funds with many components, although there might be some premiums, or discounts, in the value of the fund relative to the index due to a number of factors discussed later in this chapter in the section "Index Risk."

TABLE 1.2 Index Values and Weighting of the Three Paths Green Index (Index Value = Price × Weight)

Security	Weight	Day 1 Price	Day 1 Index Value	Day 2 Price	Day 2 Index Value	Day 3 Price	Day 3 Index Value	Day 4 Price	Day 4 Index Value	Day 5 Price	Day 5 Index Value
Sunny Solar	50%	$100	50	$150	75	$100	50	$50	25	$100	50
Windy Windmills	25%	$100	25	$100	25	$150	37.5	$100	25	$50	12.5
Clean Cars	25%	$100	25	$100	25	$150	37.5	$100	25	$50	12.5
	Index value		100		125		125		75		75
	ETF price		$100		$125		$125		$75		$75

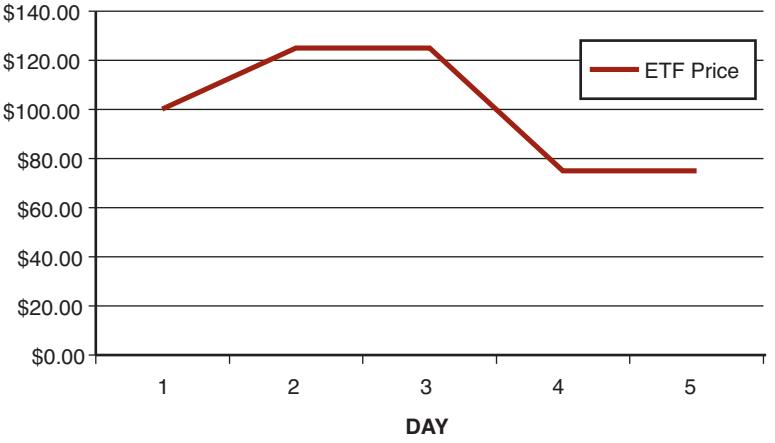

Figure 1.1 ETF price

How Did Indices Change the Fund Management Business?

After indices were developed, investors used them to measure how an investment manager performed compared to the overall market measured by a benchmark such as Standard & Poor's 500 Index, which tracks the performance of 500 of the largest companies listed on U.S. stock exchanges.[7]

In the 1960s, numerous academic studies showed that most investment managers on average failed to outperform the major market indices such as the S&P 500—even before subtracting the fund's expenses from the returns.[8] Factoring in fees made it clear that active mutual fund managers benefited themselves at the expense of investors. Investors would have done better in most cases if they could have just invested in an index. The problem was they couldn't.

However, the birth of the index fund in the 1970s changed all that. The index fund tracks the performance of a market index by holding the same securities that make up the index in the same weights as the index.[9] That way the fund's performance matches the index, aside from minor variations due to the fact that an index incurs

no costs, as opposed to a fund.[10] Pension funds and other institutional investors first used indexing. Retail investors then got into the game with the launch of the Vanguard 500 index fund, the first retail fund to track the S&P 500. This proved a cheaper way to invest, because these funds did not require investment managers and research departments—the index did the work for the fund—the fund company simply had to adjust its portfolio to match the index, as opposed to research and buy securities.

The birth of index funds spawned a new business—index manufacturing—that created new indices to benchmark managers in all areas. There are indices based on market capitalization, investing style (value or growth), sectors (such as biotech, green, and infrastructure), and all sorts of other categories. New funds, especially ETFs, have emerged to track these indices.

Origins of ETFs

ETFs are relatively new. ETF trading on U.S. exchanges started in 1993, when the American Stock Exchange created the Standard & Poor's Depository Receipts, better known as the SPDR, which tracks the S&P 500. That one fund in 1993 spawned the more than 700 funds in existence today. Figure 1.2 depicts the rapid growth in the number of ETFs in the United States.

At the same time, the assets under management have also gone up to more than half a trillion dollars, as shown in Figure 1.3.

Why Invest with ETFs?

Given their many strengths, it is no surprise that ETFs have grown so rapidly. They are ideal for the self-directed investor. Let's take a look at some of the characteristics of ETFs that make them the investment tool of the future, especially compared with mutual funds.

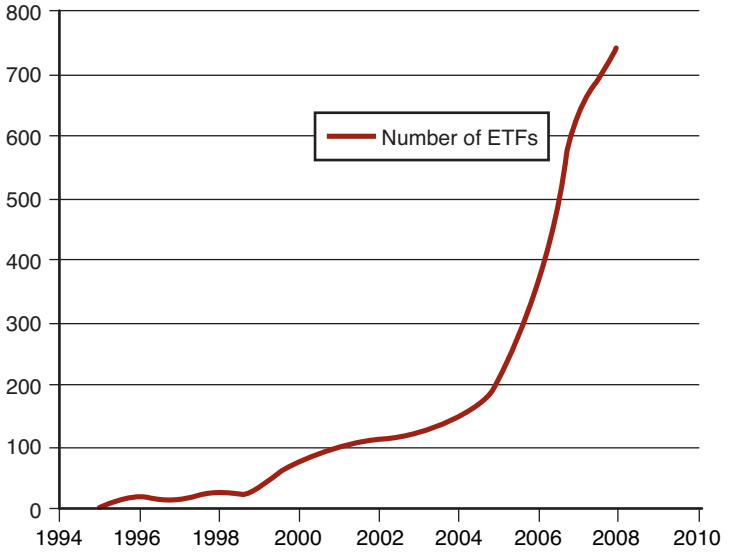

Figure 1.2 ETFs in the United States by year (Source: Investment Company Institute, www.icifactbook.org)

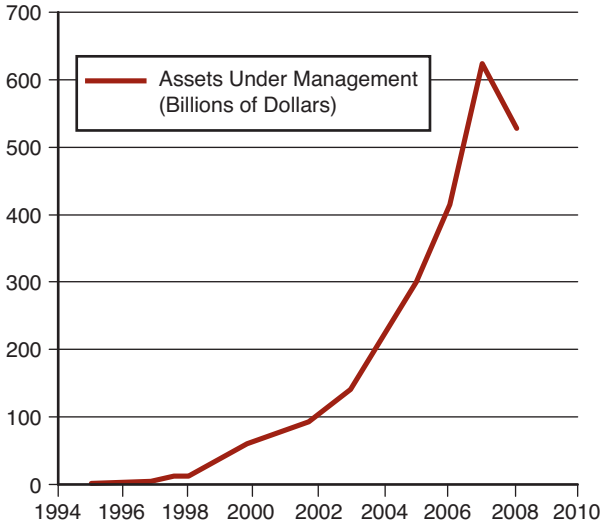

Figure 1.3 Assets under management (billions of dollars) (Source: Investment Company Institute, www.icifactbook.org)

Liquidity and Tradability

Liquidity describes the ease with which an investor can buy and sell an investment. Liquid investments are easy to turn into cash. Homes are not particularly liquid, whereas treasury bills, with a deep market, are highly liquid. Mutual funds lie in the middle. They are only valued once a day, after the market closes, which is the only time they can be bought and sold at net asset value. This can create difficulty for investors. What happens if the market is falling and you want to sell your mutual fund during the day to minimize your losses? You can't. You can only sell it at the end of the day, after the market closes. On the other hand, the market may be starting an upward trend and you want to buy into it with a mutual fund. Forget it. Your order will not go in until after trading has ended, so you will buy the fund after prices have gone up, meaning that you will own fewer shares, for the same amount of money, than if you had been able to make your investment in the morning when the rally started.

One advantage of ETFs compared to mutual funds and many other investment products is their high degree of liquidity. Of course this liquidity may vary between ETFs, but on the whole ETFs are relatively liquid instruments. ETFs trade throughout the day, as does any share of stock, making it easier to get in and out of an ETF compared to a mutual fund. Of course, the buyer or seller is not guaranteed of making the sale at a desired price, but the flexibility can benefit the investor. That flexibility extends to the types of orders investors can use to buy and sell ETFs, which are the same as for stocks, including limit, market, and stop loss orders. These orders cannot be used with mutual funds. In addition, traders can sell an ETF short, which cannot be done with a mutual fund, to profit from a falling market. Also, investors can buy ETFs on margin, meaning they can lever their funds to command a larger portfolio, but at the same time face greater risk from an adverse market move.[11]

Transparency

As Bernard Madoff's investors found out the hard way, investors need to know what is in their portfolios. Not knowing what is in one of their funds could lead to people owning something twice—once, for example, as a single stock and again within a mutual fund, which

could mean overweighting in particular stocks or sectors. With opaque investments, such as hedge funds, it is highly unlikely investors will know the portfolio's contents, given the secretive nature of hedge fund managers. Even mutual funds are somewhat opaque. A fund may have a mandate to invest in a particular area, but managers are only required to disclose their portfolio every six months, and that information has 60 days to get to investors, so by the time investors receive notification of the fund's holdings, the fund could have turned the portfolio over, adding a totally different group of stocks to the portfolio and making it hard to know what the fund holds at any given time.

ETF owners do not have this problem, because an ETF's components are required to be disclosed, along with their stock prices, every 15 minutes throughout the trading day. An ETF owner, by accessing a website or contacting her broker, can always know what makes up the ETF and what weights are given to each underlying security.

Diversification

Investing all of your resources into a single stock means that if the company goes out of business, you lose all your money. While that is an extreme case, it shows the need to diversify investments, especially when investing in risky fields such as biotech. Investing in a number of companies reduces the risk from putting everything in a single stock, while also damping potential returns. That is the tradeoff between risk and return. What is needed is a way to invest in an industry, yet not have all your money tied to one company. ETFs provide that way to invest, as they enable you to concentrate in a sector, cheaply, yet still have diversification among different companies.[12]

It is important for investors to understand that diversification needs to be considered in the context of the investor's plans and life cycle. An investor needs to concentrate (in a certain investment area) to get rich and diversify to stay rich. When you are seeking to build wealth, that is the time to concentrate. When you are seeking to preserve wealth, that is the time to diversify. Preservation through diversification comes down to taking fewer risks and having investments over a wider field—accepting the tradeoff of potential lower returns for the accompanying lower risk. To concentrate in an investment area, we believe in applying

concentrated diversification—choosing to invest in an area, such as biotech, but diversify by investing in a basket of securities in that area, as opposed to pinning your hopes on one or two companies. The natural tool for concentrated diversification is the ETF, allowing investors to access depth and breadth across numerous industries.

ETFs allow investors to put their money into a sector that they believe has the potential for good performance without having the worries of betting on a single stock—the ETF provides a diverse range of companies in that sector. Yes, some may fail, but it is likely that the majority will stick around. Say you want to invest some of your money in biotech, because you believe it can produce significant returns in the future, and you have $10,000 to do so. You decide to put all of that $10,000 into one company, Genepool Biotechnology (a fictional company), that has one drug in FDA trials. After your investment, the drug fails to show any results in treating the intended disease, and the company goes out of business—along with your money and your bet on healthcare. On the other hand, had you put the money into the Better Health Biotech ETF (also fictional), which had 20 companies, 5 of them may have failed, but 15 continued, giving you a way to invest in a sector, without having to worry about the financial health of each individual company. In biotech, where the success of companies depends on the outcomes of drug tests that no one can predict (even biotech experts have trouble picking potential winners from losers), baskets are a sensible way to buy into an industry. True, you may be better off picking the biotech winners, but how many of us can do that, given the uncertainty of drug trials? ETFs allow you to buy an industry in one shot, without your chance riding only on one company.

Tax Efficiency

ETFs are tax efficient investments. ETFs reduce or eliminate tax burdens associated with actively managed mutual funds.

The first is taxation due to portfolio turnover. Mutual fund managers can easily turn over a fund's entire portfolio in a year—or less. This frequent, often short-term trading means capital gains taxes—and often the more onerous short-term capital gains taxes. An investor can buy a mutual fund, hold it, and wind up with a large tax

bill, even though she hasn't sold her shares. To a lesser extent, this can also affect index mutual funds. Whenever an index is adjusted, the fund needs to sell those stocks that are going out of the index and buy those that are coming in, which often means that fund shareholders need to pay capital gains taxes, even if they don't sell their funds. This rarely happens with ETFs because the creation and redemption system minimizes tax liabilities.

If shareholders decide to redeem their shares and the mutual fund does not have enough cash on hand to pay them, then the fund sells shares to raise the cash, yet the remaining shareholders have to foot the tax bill if there are any capital gains. So, once again, mutual fund shareholders wind up paying taxes when they have simply held onto their investments and taken no action of their own to incur taxes. Even index mutual funds have this problem. ETF holders do not have this problem because when other ETF investors sell their shares, they sell to another investor, not the fund company. The only capital gain is incurred by the investor who sells their shares—not the investor who holds onto their shares. This is another reason to consider ETFs, as they give investors more control over when they incur taxes as opposed to getting a tax bill because of the actions of others.

Low Cost

Not only do ETFs save investors money on taxes compared to mutual funds, their low-cost structure may also help them outperform mutual funds. Since ETFs simply track the performance of a particular index, don't need to make investment decisions, and don't have major infrastructure, they do not have the high management and administrative costs of a mutual fund.

Choosing an ETF because it is the cheaper way to invest is a natural outgrowth of everyday consumer behavior. When people shop, they compare based on price and quality. Consider two bakeries that sell the exact same bread—same ingredients, same baking process, and so on. La Panaderia is a small, family-owned bakery with low overhead because it does not advertise and keeps expenses down. Ye Olde Bread Shoppe is part of a national chain that advertises heavily and has a fancy store in addition to having its employees dress in medieval English costumes, which adds to costs. The two bakeries are located on the same block, equidistant from shopper Jane's house,

and they have the same business hours (see Figure 1.4). However, there is a difference: La Panaderia sells wheat bread for $1.00 per loaf, and Ye Olde Bread Shoppe sells the exact same bread for $2.00 per loaf. Jane, after making a comparison and deciding she does not need to buy bread from people dressed up like Maid Marian or Robin Hood, goes to La Panaderia because her money goes further at La Panaderia.

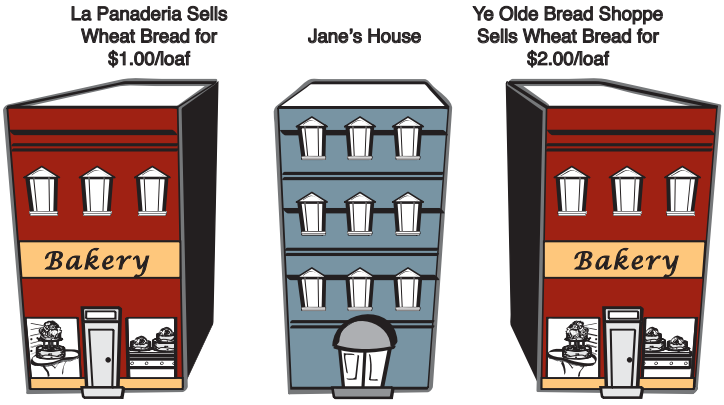

Figure 1.4 Same bread, different price

If we can comparison shop and save money when buying bread, why not do the same when buying investment products? After all, that's what we do when we invest; we buy a vehicle that we hope will perform well at the lowest possible entry cost. Now that Jane has bought her weekly bread supply, and saved money by going to La Panaderia, she now wants to invest some of those savings. Jane wants to invest in healthcare. She looks at both a mutual fund and an exchange traded fund. The mutual fund is the Morgan Stanley Health Sciences B (HCRBX), and the other is the iShares Dow Jones U.S. Pharmaceuticals Index Fund (IHE). Table 1.3 shows the top ten constituents of each list. There are a lot of commonalities.

Examine their contents—really they are not that different; their top ten lists share six companies, although the mutual fund is much more heavily weighted to the top two companies—Johnson & Johnson and Pfizer. So, as with the bread, buyers are getting the same goods. Where the difference lies is in the costs, seen in Table 1.4. The mutual fund is five times the price—for inferior returns.

TABLE 1.3 Top Ten Constituents of Morgan Stanley Health Sciences B (HCRBX) and iShares Dow Jones U.S. Pharmaceuticals Index Fund (IHE)

Morgan Stanley Health Sciences B (HCRBX)		iShares Dow Jones U.S. Pharmaceuticals Index Fund (IHE)	
Security	**% of Fund**	**Security**	**% of Fund**
Johnson & Johnson	10.82	Johnson & Johnson	8.69
Pfizer	10.07	Pfizer	9.88
Abbott Labs	4.75	Abbott Labs	7.39
Bristol-Myers Squibb	4.50	Bristol-Myers Squibb	6.09
Merck	4.38	Merck	10.09
Eli Lilly	3.17	Eli Lilly	5.53
Wyeth	5.06	Allergan	4.44
Gilead Sciences	4.48	Hospira	3.66
Medtronic	3.34	Forest Labs	3.41
Schering Plough	4.02	Mylan	3.21

TABLE 1.4 Comparative Fund Data

Fund	HCRBX	IHE
Expense Ratio	2.40%	0.48%
1 Year Return	33.27%	51.41%
3 Year Annualized Return	-0.24%	2.71%
Standard Deviation	17.2	17.98
Sharpe Ratio	-.10	-.05
Annual Rate of Return after expenses assuming 6% return for market	3.6%	5.52%
Return after 25 years on initial investment of $10,000 with reinvestment of returns	$24,210	$35,514

When dealing with two similar investments, lower costs usually make the ETF the better performer for investors looking for diversified instruments.

It's highly unlikely that a mutual fund will beat the index—once costs are factored in, that probability falls even closer to 0. The low-cost investment is the safer wager. The main reason the ETF costs

less is because the mutual fund investor pays for a lot of infrastructure. Those costs add up, while the ETF investor only pays a brokerage fee and a modest management fee.

ETF investors avoid all these fees that reduce returns for mutual fund shareowners:

- Front end loads of up to 8.75% when they buy a fund
- 12b-1 fees, whereby an investor pays for the manager to recruit new investors to the fund
- Shareholder service fees to pay for the investors' support infrastructure of the fund
- Account fees for small accounts
- Management fees that can easily be ten times as much as an ETF's management fee
- Sales charges when they sell their funds
- Redemption fees of up to 2% to sell their shares back to the fund

Consider the investors in the funds listed in Table 1.3, assuming a 6% per year return.

The investor in IHE will receive a return of 5.52% per year (6% – .48%), while the investor in HCRBX will receive a return of 3.6%, as seen in Table 1.4. Over 25 years, the investor in the low-cost fund has over 50% more than the investor in the high-cost fund before taxes.

Risks of Investing with ETFs

Despite their advantages, ETFs are not risk free. No investment is. However, understanding the risks that are particular to ETFs helps investors prepare for unforeseen events and build their portfolios.

Index Risk[13]

As discussed previously, ETFs are designed to match an index, and are passive investments.[14] In contrast to a mutual fund, they are not actively managed, which provides many benefits, as seen earlier. However, because an ETF is not actively managed, it will not sell a

security if the security's issuer is in financial trouble—unless the security is removed from the index. This means that the fund will move up and down with the index and the fund manager will not take defensive positions, or sell losing positions, in a market downturn. This also means that the manager won't increase exposure to positions that it anticipates increasing in value, either. This lack of management means that investors are placing their money with an index, not a manager, and their fortunes are related to the performance of the index.[15] The best way for an investor to deal with index risk is to understand what is in the index and the rules governing what goes into, or out of the index, as covered in the fund's documentation.

Tracking Error[16]

In addition to the risk of their investment being exposed to the movements of the index, investors also are at risk when the fund does not match the performance of the index, a situation known as *tracking error*.

Tracking error represents the difference between the performance, or return, of the fund's portfolio and the underlying index. Tracking error occurs for a number of reasons. The first is that a fund has expenses that an index does not have, because it incurs costs when it buys and sells securities.[17] The frequency of these transactions, such as how often a fund rebalances its portfolio, can increase the costs that increase tracking error and diminish a fund's performance.

Another reason for tracking error occurs when a fund holds cash, which will earn a different rate of return than funds invested in the portfolio and cause a deviation in returns between the index and the fund. (At some times the cash may perform better than the fund.) With ETFs, however, the amount of cash held tends to be small—maybe some 0.1% to 0.2% of the total assets under management.

Certain ETFs may exhibit tracking error because the weights of the securities in their portfolios do not match those in the fund. When the weights are based on market capitalization, this will not be much of a problem, because the weights are tied to the capitalization of the stocks, and if a stock moves up in price in the index, that will be captured in the fund. The difficulty arises when a fund assigns weights by another means, such as equal weighting or some arbitrary

method of weighting. In these cases, changes in the values of the securities in the index may not show up in the fund until the fund is rebalanced, where the fund's securities are adjusted to match those in the index. This lag can induce tracking error.

Another source of tracking error comes from the fact that many funds do not hold all the securities that make up the index. There are two ways for a fund to track an index. The first is replication, whereby the fund holds all the securities in an index in the same proportions as in the index. The second is by representative sampling, whereby the fund uses a sampling methodology to select securities that it believes will provide the same performance as the entire portfolio. This methodology usually produces larger tracking errors than if the fund bought the whole index. The amount varies depending on the quality of the sampling process.

Recently, a major problem has arisen with certain types of ETFs that exhibit significant tracking error—*leveraged ETFs* and *inverse ETFs*. Leveraged ETFs, also called *ultra funds*, are intended to multiply the performance of the index or benchmark they track. For example the Proshares Ultra S&P 500 (SSO) is intended to deliver twice the *daily* performance of the S&P 500. Inverse ETFs, also called *short funds*, intend to deliver the opposite performance of the index they follow. For example, if the S&P 500 goes up 10% in one day, the ProShares Short S&P 500 (SH) is supposed to fall 10%. Investors can use inverse ETFs to profit in a falling market without having to engage in the stock borrowing process that is traditionally used to short an ETF. Leveraged and inverse ETFs do this by using derivatives to trade that market.

In addition, *leveraged inverse funds* are intended to provide a leveraged return that moves in the opposite direction to the underlying market's daily move.

Note the use of the word "daily" in describing the returns of the funds. Many investors have mistakenly thought that the multiples also apply over the long term. These funds do not work that way, however. Over the long run, fund performance can significantly deviate from the index, showing great tracking error. The SEC cites two recent examples of how these funds have gone off track:

- "Between December 1, 2008, and April 30, 2009, a particular index gained 2 percent. However, a leveraged ETF seeking to deliver twice that index's daily return fell by 6 percent—and an inverse ETF seeking to deliver twice the inverse of the index's daily return fell by 25 percent.
- "During that same period, an ETF seeking to deliver three times the daily return of a different index fell 53 percent, while the underlying index actually gained around 8 percent. An ETF seeking to deliver three times the inverse of the index's daily return declined by 90 percent over the same period."[18]

Here's how that can happen:

"Let's say that on Day 1, an index starts with a value of 100 and a leveraged ETF that seeks to double the return of the index starts at $100. If the index drops by 10 points on Day 1, it has a 10 percent loss and a resulting value of 90. Assuming it achieved its stated objective, the leveraged ETF would therefore drop 20 percent on that day and have an ending value of $80. On Day 2, if the index rises 10 percent, the index value increases to 99. For the ETF, its value for Day 2 would rise by 20 percent, which means the ETF would have a value of $96. On both days, the leveraged ETF did exactly what it was supposed to do—it produced daily returns that were two times the daily index returns. But let's look at the results over the two-day period: the index lost 1 percent (it fell from 100 to 99) while the 2x leveraged ETF lost 4 percent (it fell from $100 to $96). That means that over the two day period, the ETF's negative returns were 4 times as much as the two-day return of the index instead of 2 times the return."[19]

Leveraged and Inverse ETFs Are Not for Long-Term Buy and Hold Investors

At the moment, with their system whereby they reset daily, leveraged and inverse ETFs are not suitable for long-term buy and hold investors. These ETFs are designed as short-term trading vehicles. The moment an investor holds them beyond one day, she exposes

herself to significant tracking error. Because these ETFs reset each day, as shown in the previous example, it is possible for someone who buys one of these ETFs to undergo a major loss, even if the underlying index shows a gain.[20]

Tax Problems with Leveraged and Inverse ETFs

ETFs have been praised for their tax efficiency. However, leveraged and inverse ETFs, because of their daily resets, can cause an ETF to realize significant short-term capital gains that may not be offset by capital losses.[21]

Credit Risk

Investors in one form of exchange traded vehicle, the exchange traded note (ETN), need to be aware of credit risk if they buy ETNs. ETNs are senior unsecured debt obligations that are designed to track the total return of an index after subtracting fees. They are not equities or index funds, although they have similarities to those funds. They trade on an exchange, and investors can short them. Their return is linked to the return of a particular index. ETNs provide exposure to sectors and asset classes that can be hard to access cheaply with other types of investments and can be used as a hedging tool.

Whereas ETFs own securities, ETNs own nothing.[22] The repayment of the principal and any interest, and payment of any returns at maturity or upon redemption, depends on the ability of the issuer of the ETN to pay. This means, if something happens to the ETN issuer—notably going bankrupt—the investors in an ETN line up with all the other unsecured creditors. Investors who choose to put their money into ETNs need to pay attention to the credit ratings of the issuers, although as the credit crisis of 2008 showed, credit ratings may not be worth much. Remember, the issuers of the ETNs *pay* the ratings agency to get rated.

Changing Tax Laws

Changes in U.S. tax laws could affect the tax status of ETFs, which could help or hurt investors in a particular ETF, depending on how the tax change affected the fund in question. One area that could

be of concern is change in how dividends are taxed. *Dividends* are distributions of money, stock, or other property that a corporation pays to owners of its stock.

Dividends are classified as either *ordinary dividends* or *qualified dividends*. Ordinary dividends, the most common form of distributions, are taxed as ordinary income at an investor's marginal tax rate. Ordinary dividends are paid out of a corporation's earnings and profits and are taxable as ordinary income, not as capital gains.[23]

Qualified dividends are ordinary dividends that receive the same tax treatment as capital gains—a 0% or 15% maximum tax rate, depending on the investor's tax bracket. The 0% rate applies to investors whose tax bracket is less than 25%, and the 15% rate applies to those whose tax bracket is 25% or higher. To qualify for the 0% or 15% maximum rates, all of the following requirements must be met:

- The dividends must have been paid by a U.S. corporation or a qualified foreign corporation.[24]
- The dividends do not fall under the IRS's list of dividends that are not qualified dividends.[25]
- The investor has held the securities for a minimum holding period.[26]

Repealing or failing to extend the current tax treatment of qualified dividend income could decrease demand for dividend paying securities, which may affect funds based on dividend paying stocks.[27] This is scheduled to happen in 2011, when dividends are again subject to being taxed as ordinary income at the investor's highest marginal tax rate.

While the Three Paths investing approach is not built around dividends, certain companies, such as large pharmaceutical companies (featured in some healthcare funds) and utilities (featured in many infrastructure funds), tend to pay decent dividends, so a change in tax law could affect the prices of ETFs holding those stocks.[28]

Market Capitalization Risk

Many of the companies in both the green and biotech funds have market capitalizations that range from small ($200 million to $1 billion) to medium ($1 billion to $5 billion) in size. By virtue of investing

in small- to mid-cap companies, the funds subject themselves to risks associated with these companies. These companies may be startups with little revenue, narrow product lines, inexperienced management, few financial resources, and less stability than larger, more established companies.

These stocks often have more price volatility, lower trading volumes, and less liquidity than larger companies, which could mean that the funds also acquire those characteristics.

Concentration Risk[29]

One risk from investing in the three paths comes from concentrating your investments in three areas: healthcare, green, and infrastructure. While we do this concentration in a diversified manner, using ETFs to reduce single stock risk, there is still risk from focusing on a particular sector. By concentrating in a particular sector, a fund makes itself susceptible to economic, political, or regulatory events affecting only that particular industry, which may not move the whole market. For example, changes in FDA drug approval processes could affect the fates of healthcare companies, but would have a lesser impact on the stock market as a whole.

Geographic Risk

One variant of concentration risk is geographic risk. Some ETFs are composed of companies in one country or geographic area. This exposes the investor to risks particular to that country or region. For example, in the European Union, many economies are not only tightly interwoven in trading but also share a common currency, the Euro, and its accompanying European Central Bank. Economic problems in one country can quickly spread to others, and because Eurozone countries no longer have control of their currencies and interest rates, they have a more difficult time adjusting their monetary policies in tough times.[30]

Geographic risk can also arise from environmental factors. Consider the Netherlands, a large part of which lies underwater. If a major storm overwhelmed Dutch flood control structures, there

could be major damage to the whole Dutch economy, hurting the performance of an ETF based on Dutch companies.

The geographic risk could also apply to a particular industry in a certain area. For example, much of the U.S. oil and gas industry has its fortunes tied to wells in the Gulf of Mexico. A hurricane could damage a large number of offshore platforms and hurt the stocks of companies in the oil and gas production sector. However, at the same time, the need to repair the platforms could also lead to increased growth in the offshore oil services sector. Risk can play both ways.

Foreign Security Risk[31]

Investors who venture outside the United States bear risks beyond those associated with investments in U.S. securities. This doesn't mean that you should not diversify geographically, because there may be benefits from exposure to other currencies in reducing overall portfolio risk. Just understand the risks before you take the trip. It's your money after all.

Some of the risks may include greater market volatility (depending on the market), less reliable financial information (depending on the market), higher transaction and custody costs, foreign taxation, and less liquid markets.[32] Political instability may make it difficult for a fund to invest in certain countries or repatriate the proceeds of its investments back to the United States.

Many ETFs may be focused on companies based outside the investor's home country. In this case, those companies may have earnings or a stock that is priced in a currency that differs from the investor's home country. This exposes the investor to the risk that currency moves could affect the investor's holdings—advantageously or harmfully.

Conclusion

ETFs are the natural tool for the Three Paths investor because they allow investors to take charge of their finances and invest without the middleman. ETFs provide low-cost ways to access investment

themes without all the fees of a mutual fund and are transparent and easy to use. Investors can get in and out of them easily. With this knowledge, individuals can use ETFs to navigate along the Three Paths of healthcare, green, and infrastructure, because each path has a number of ETFs available to the investor. Later in the book, we'll look at how to invest in each of the Three Paths areas using ETFs.

Notes

[1] There are hundreds of other indices, too.

[2] Funds that do not hold securities are not legally known as ETFs in the United States. However, there does not seem to be common agreement on what to call these funds. Some call them exchange traded portfolios (ETPs) or exchange traded vehicles (ETVs).

[3] This is a hypothetical index, and investors will not find an ETF in the United States that has only three stocks in it because it is insufficiently diversified.

[4] This creation and redemption mechanism allows ETFs to be more tax efficient relative to mutual funds, as highlighted in the "Tax Efficiency" section of this chapter.

[5] This example has been simplified for ease of explanation. It assumes that the value of the fund will be equal to the net asset value (NAV) of the component shares. The NAV of a fund is calculated by this formula:

$$\text{Net Asset Value} = \frac{\text{Current Market Value of Assets} - \text{Liabilities of Fund}}{\text{Shares Outstanding}}$$

In reality, an ETF's price is determined in the open market. However, due to the ability of the ETF to be redeemed for its underlying basket of stocks, and for the ability to use the underlying basket of stocks to create an ETF, there is usually very little difference between the NAV of the ETF and the market price, especially for the highly liquid ETFs. For some of the more thinly traded ETFs, or those with foreign securities, there may be more of a divergence. An ETF's prospectus usually contains material describing the magnitude and frequency of these divergences between the NAV and the ETF's price in the market.

[6] The weights here are given for ease of example. The values of the weights in the index can be set in any number of ways. The weights could be assigned by price, assigned by the market capitalization of the stocks in the index, equally weighted, or based on any of a number of methodologies. An ETF's documentation explains the methodology.

[7] This process, known as *benchmarking*, shows how an investment manager performs relative to a particular market. If a manager did better than the market, then the manager was considered to have outperformed the market. If the manager did

worse than the market, then the manager was considered to have underperformed the market.

The comparison is somewhat oversimplified. First, a benchmark needs to be relevant to measure a manager's performance. That raises the question of what is the market to be benchmarked. Indices reflect the biases of their makers. For example, the constituents of both the Dow Jones and the S&P 500 are selected by committees with great discretion to decide what to include. These indices are not really passive investment instruments but actually the results of active decisions of what to add, or subtract, based on a committee's decision of what represents the stock market or the economy. Isn't that active management?

Even so-called rules-based indices derive from rules based on someone's conception of what belongs in an index. Those rules could be based on market capitalization, or volume of trading, or some other criteria that may appear scientific because it is quantitative but in reality is the result of a human decision of where to set a cutoff for inclusion in an index. Is it always easy to classify a company? What is GE, for example? Is it a financial company, a manufacturing company, a media company? The answer is it is all of those. Placing a company into a sector, or industry, is not always so simple.

Also, what is the appropriate benchmark? It is not appropriate to benchmark a biotech fund manager who manages a fund with small capitalization companies that are not profitable against the S&P 500, a broad market index that contains established companies with large capitalizations across many industries. The S&P tends to be less risky than a biotech fund, because it is more diversified, and the companies are larger and tend to be profitable, whereas many biotech companies may never turn a profit.

Another difficulty using benchmarks is that a simple comparison of a fund with a benchmark does not account for risk. If a fund underperforms a benchmark, but the fund is much less risky, then did the fund really underperform? If the funds are compared based upon returns that account for the risk of the investment, then it is easier to compare.

Here is a way that investors can think about risk. This reasoning is the same that Harry Markowitz used to develop Modern Portfolio Theory.

- If two portfolios have the same return, the one with less risk is superior.
- If two portfolios have equal risk, then the one with the better returns is superior.

Looking at risk-adjusted returns may be a better way to compare a fund with a benchmark. A number of measures can be used to do this, including the Sharpe ratio, Treynor ratio, or Jensen's measure. Each of these measures compares the return of the portfolio in question with that of a risk free instrument—usually the return on treasury bills over a three year period.

$$\textit{Sharpe Ratio} = \frac{(\text{Portfolio return} - \text{Risk-free return})}{\text{Standard deviation of portfolio return}}$$

The Sharpe ratio measures the amount of return per unit of risk. A higher Sharpe ratio means a higher risk adjusted return.

$$\textit{Treynor Ratio} = \frac{(\text{Portfolio return} - \text{Risk-free return})}{\text{Portfolio's beta}}$$

The Treynor ratio measures the amount of return per unit of risk, with the unit in this case being beta, which compares how much the portfolio in question moves relative to the market as a whole. A higher Treynor ratio implies a more efficient use of risk.

Jensen's Measure = Portfolio return – Risk-free return – Portfolio beta × (Benchmark return – Risk-free return)

Jensen's measure is used to compare a money manager with a market index and determine whether the risk is balanced by the reward. Although it requires more calculation than the other measures, it does provide more information about the performance of a fund relative to a benchmark. If the investor then factors in costs, it provides more information about the cost effectiveness of investing with a particular fund.

Using risk adjusted returns helps hold fund managers to account, as they may take risky bets in order to match a benchmark—with potentially harmful consequences for the investors. A fund that underperforms a benchmark, with greater risk, could reveal a predilection toward risky bets by the fund manager. Managers who attempt to beat the benchmark may take excessive risks, but these do not show up in the simplistic benchmark comparisons that are widely used in advertisements for funds or in press coverage.

[8] For a discussion of the whole move toward indexing and its academic basis, readers will benefit from reading Burton Malkiel's *A Random Walk Down Wall Street: The Time-Tested Strategy for Successful Investing* (New York: W.W. Norton & Company, 2007). Malkiel holds the Chemical Bank Chairman's Professorship in Economics at Princeton University and is a former member of the President's Council of Economic Advisors.

[9] Originally the portfolio of an index fund was designed to replicate, or copy, the index it tracked. A fund that replicates an index has all the stocks that are in the index in the same weights as the index. Today, funds may either replicate the index or use a representative sample of stocks in the index to track the index. A fund that samples an index has most of the stocks in weights that approximate those in the index, but not the complete match of a fund that replicates an index. Funds that use a representative sample of the index have the potential for larger tracking error than funds that replicate an index, as discussed in footnote 10.

[10] This difference in performance between the index and the fund is known as tracking error and is discussed in this chapter in the section "Tracking Error."

[11] Buying on margin creates a double-edged sword—it can magnify gains and losses. If the market drops quickly and a speculator fails to meet his margin requirement, the broker can liquidate his position to meet the requirements.

[12] Theoretically an investor could invest in an industry by buying a number of companies in that industry, but that could get expensive due to commissions and may prove complicated when it comes to managing an industry portfolio. ETFs allow you to get in and out of an industry by buying or selling in one shot. Also, for certain industries that have a strong overseas component—such as green technology—it

may be difficult for U.S. investors to buy the overseas securities directly, whereas they can access those securities easily through an ETF, which does trade on a U.S. exchange. The ETF operator handles the foreign transactions for the investor.

[13] Also known as passive investment risk and replication management risk.

[14] There are a few actively managed ETFs, but their numbers are miniscule and the assets under management even more inconsequential. According to the Investment Company Institute, at the end of 2008, there were 12 actively managed ETFs, with less than $250 million in assets in the United States out of a total of 728 ETFs with total assets of $531 billion.

[15] This risk can be considered a subset of market risk, which is the risk that the shares a fund owns can fall in value for any number of reasons. That risk can't be escaped.

[16] Also known as noncorrelation risk, index tracking risk, and management risk.

[17] First Trust Exchange-Traded Fund, *Prospectus*, May 1, 2009, 4.

[18] U.S. Securities and Exchange Commission, Leveraged and Inverse ETFs: Specialized Products with Extra Risks for Buy-and-Hold Investors, http://www.sec.gov/investor/pubs/leveragedetfs-alert.htm, last modified 8/18/09.

[19] Ibid.

[20] Ibid.

[21] Ibid.

[22] ETNs are not investment funds and are not registered under the Investment Company Act of 1940.

[23] Unless a payer notifies you otherwise, dividends should be assumed to be ordinary dividends. Ordinary dividends are found in box 1a of any Form 1099-DIV that an investor receives. Source: IRS Publication 550.

[24] The IRS defines Qualified Foreign Corporation as follows in Publication 550:

"Qualified foreign corporation. A foreign corporation is a qualified foreign corporation if it meets any of the following conditions.

1. The corporation is incorporated in a U.S. possession.
2. The corporation is eligible for the benefits of a comprehensive income tax treaty with the United States that the Treasury Department determines is satisfactory for this purpose and that includes an exchange of information program. For a list of those treaties, see Table 1-3.
3. The corporation does not meet (1) or (2) above, but the stock for which the dividend is paid is readily tradable on an established securities market in the United States. See *Readily tradable stock*, later.

Exception. A corporation is not a qualified foreign corporation if it is a passive foreign investment company during its tax year in which the dividends are paid or during its previous tax year.

Controlled foreign corporation (CFC). Dividends paid out of a CFC's earnings and profits that were not previously taxed are qualified dividends if the CFC is

otherwise a qualified foreign corporation and the other requirements in this discussion are met. Certain dividends paid by a CFC that would be treated as a passive foreign investment company but for section 1297(d) of the Internal Revenue Code may be treated as qualified dividends. For more information, see Notice 2004-70, which can be found at www.irs.gov/irb/2004-44_IRB/ar09.html.

Readily tradable stock. Any stock (such as common, ordinary, or preferred stock), or an American depositary receipt in respect of that stock, is considered to satisfy requirement (3) if it is listed on one of the following securities markets: the New York Stock Exchange, the NASDAQ Stock Market, the American Stock Exchange, the Boston Stock Exchange, the Cincinnati Stock Exchange, the Chicago Stock Exchange, the Philadelphia Stock Exchange, or the Pacific Exchange, Inc.

TABLE 1-3 Income Tax Treaties

Income tax treaties that the United States has with the following countries satisfy requirement (2) under *Qualified foreign corporation.*

Australia	Indonesia	Portugal
Austria	Ireland	Romania
Bangladesh[1]	Israel	Russian Federation
Barbados[2]	Italy	Slovak Republic
Belgium	Jamaica	Slovenia
Canada	Japan	South Africa
China	Kazakhstan	Spain
Cyprus	Korea	Sri Lanka[3]
Czech Republic	Latvia	Sweden
Denmark	Lithuania	Switzerland
Egypt	Luxembourg	Thailand
Estonia	Mexico	Trinidad and Tobago
Finland	Morocco	Tunisia
France	Netherlands	Turkey
Germany	New Zealand	Ukraine
Greece	Norway	United Kingdom
Hungary	Pakistan	Venezuela
Iceland	Philippines	
India	Poland	

[1] Effective for dividends paid after August 6, 2006.

[2] Effective for dividends paid after December 19, 2004.

[3] Effective for dividends paid after July 11, 2004."

[25] This is the list of nonqualified dividends from IRS Publication 550:

"The following dividends are not qualified dividends. They are not qualified dividends even if they are shown in box 1b of Form 1099-DIV.

- Capital gain distributions.
- Dividends paid on deposits with mutual savings banks, cooperative banks, credit unions, U.S. building and loan associations, U.S. savings and loan associations, federal savings and loan associations, and similar financial institutions. (Report these amounts as interest income.)
- Dividends from a corporation that is a tax-exempt organization or farmer's cooperative during the corporation's tax year in which the dividends were paid or during the corporation's previous tax year.
- Dividends paid by a corporation on employer securities which are held on the date of record by an employee stock ownership plan (ESOP) maintained by that corporation.
- Dividends on any share of stock to the extent that you are obligated (whether under a short sale or otherwise) to make related payments for positions in substantially similar or related property.
- Payments in lieu of dividends, but only if you know or have reason to know that the payments are not qualified dividends.
- Payments shown in Form 1099-DIV, box 1b, from a foreign corporation to the extent you know or have reason to know the payments are not qualified dividends."

[26] According to IRS Publication 550, the minimum holding period is as follows:

"You must have held the stock for more than 60 days during the 121-day period that begins 60 days before the ex-dividend date. The ex-dividend date is the first date following the declaration of a dividend on which the buyer of a stock will not receive the next dividend payment. When counting the number of days you held the stock, include the day you disposed of the stock, but not the day you acquired it....

Exception for preferred stock. In the case of preferred stock, you must have held the stock more than 90 days during the 181-day period that begins 90 days before the ex-dividend date if the dividends are due to periods totaling more than 366 days. If the preferred dividends are due to periods totaling less than 367 days, the holding period in the preceding paragraph applies....

Holding period reduced where risk of loss is diminished. When determining whether you met the minimum holding period discussed earlier, you cannot count any day during which you meet any of the following conditions.

1. You had an option to sell, were under a contractual obligation to sell, or had made (and not closed) a short sale of substantially identical stock or securities.
2. You were grantor (writer) of an option to buy substantially identical stock or securities.
3. Your risk of loss is diminished by holding one or more other positions in substantially similar or related property."

[27] Wisdom Tree, International Sector Funds, *Prospectus*, 4.

[28] Many of the funds of Wisdom Tree are built around dividend paying companies, so investors in their funds may want to pay attention to the status of taxes on dividends.

[29] Also known as sector risk or nondiversification risk.

[30] Interest rates in the Eurozone are set by the European central bank. Individual members of the Eurozone cannot arbitrarily adjust their rates or alter the value of their currencies to adjust to changing economic conditions. Those decisions are made centrally.

[31] Also known, for U.S. investors, as non U.S. security risk.

[32] U.S. investors may qualify for a foreign tax credit when investing in global funds, provided that more than 50% of the index is made up of non-U.S. companies. Otherwise, investors only qualify for a tax deduction, which in all likelihood means they pay more taxes on their overseas investments.

12

Conclusion

"Investing is an act of faith." So wrote John Bogle, the founder of the Vanguard Group, in his book *Common Sense on Mutual Funds* published in 1999. And it was true. Investors turned their money over to professional money managers and trusted them to invest prudently, certainly with the investors' best interests at heart. But over the past ten years, money managers have not lived up to that faith. Today institutional investors (mutual funds and pension plans) account for more than 70% of equity ownership in the United States, up from about 50% ten years ago. Our "faith" has allowed these managers and advisors to build a system that rewards the professionals regardless of how poorly they perform. They have created compensation structures that reward short-term speculation. Thus the turnover of the average investor's account has tripled, from 75% to 250%, in the past decade. The combination of turnover and fees has exploded the revenue streams of financial advisors and brokerage firms.

While all this was going on, the past ten years have become a hotbed of innovation of new financial products. Credit default swaps, which are essentially bets on the default of a particular corporation or state or even a country, and collateralized debt obligations, the driving force behind the subprime mortgage fiasco, have become all the rage and have attracted trillions of dollars. Exchange traded funds have given investors access to asset classes they could never own before, including direct ownership of precious metals and agricultural commodities, emerging markets, currencies, and hedge fund replication strategies. All these new investments appeared in the past ten years, and investors quickly embraced them, particularly professional investors. Remember, professional investors want to attract us as clients; to do so, they want to create a successful track record as

soon as possible. In addition, professional investors need to justify their existence. They are attracted to new products, because the average investor knows nothing about them. They have poured hundreds of billions of dollars into emerging markets, precious metals, energy, and foreign currencies. These are all bets on a weak dollar, inflation, and the success of foreign economies at the expense of the United States. Ultimately, such a strategy makes no sense. If we divert the capital that would otherwise fund the future of the United States, essentially betting against it, we will create a self-fulfilling prophecy. More importantly, let's assume, for a moment, that these investments succeed. What would that mean for the economy of the United States? The dollar will have collapsed, gas will be $10/gallon, and other economies will be effective competitors for the world's resources. The United States will be in a severe economic tailspin. So the investors who succeed with this strategy may have more money, but they will live in a poorer economy. There are many who are predicting exactly that fate for the country and are therefore recommending these doomsday portfolios. But it is the doomsday portfolios that will cause the decline, as much as any other factor. Remember, the U.S. economy has been here before. Economic conditions 30 years ago were arguably worse than they are today.

We've Seen This All Before—Travel in Time Back to 1980

1980 was a particularly bad year for the U.S. economy. We were experiencing a severe recession. We just emerged from the 1979 energy crisis, which had driven the price of oil to $50 a barrel from $10 just a few years earlier and had created long lines at the gas pumps. Inflation was running at 13%, the highest rate in U.S. history, and the unemployment rate was 10% (exactly where it stood at the beginning of 2010). The press, at the time, carried stories about the complete inability of the economy to generate new jobs and the likelihood that unemployment would remain high for years to come. The United States was dealing with terrorism as well—53 Americans were being held hostage in its embassy in Iran. But, in fact, the energy crisis abated as new supplies came to the market, and the price of a barrel of oil dropped to $10 by 1985. The unemployment rate

dropped to 7% in 1985 and to 5% in 1990. By 2000, it was well under 4%. Inflation was less than 3% by 1985. But in 1980, things looked dreadful. So what happened?

Two companies went public in the fall of 1980. One was Apple Computer, then a three-year-old company that raised $60 million in its IPO. The other was Genentech, the then four-year-old biotech company. Genentech's IPO was priced at $35 per share, which represented a multiple of 1.750 times its current earnings. The stock closed at $71 per share on its first day of trading. Both companies had a first day market capitalization of well under $1 billion. Roche bought Genentech in 2009 for $45 billion, and Apple's market cap at the beginning of 2010 was $200 billion.

The businesses of these companies, genetic engineering and personal computing, represented a stark departure from the manufacturing-based economy of the 1970s. We, as a nation, while unaware of what was happening, were beginning the transition away from manufacturing and into the information age and were witnessing the birth of the biotechnology industry. It is at these inflection points in the economy that the opportunity for great wealth creation is presented to investors.

Twenty-five years earlier, the IPOs of IBM and Xerox represented a similar watershed event. Inevitably, these events occur when the economy is in crisis, when the "old economy" (at that time) is tired. Economists refer to this process as "creative destruction," whereby innovative companies provide technology that is more valuable to society than that of their predecessors, increasing productivity and raising our standard of living. Inevitably, these companies arise at times of economic distress when investors are fearful and risk capital is hard to find.

In 1980, much like today, many experts were negative about the prospects for the U.S. economy. Interest rates were at an all-time high, and some were predicting the prime rate could reach an astonishing 30%. Thirty-year treasury bonds were being sold with a yield of 20%—with few takers. Both inflation and unemployment were at double digit levels, and there was talk that both were becoming endemic to society. There was a sense that there was no innovation on the horizon, nothing to carry us out of our doldrums, and certainly nothing that could create millions of jobs. The fact is that the

world was about to change, and the Apple and Genentech IPOs were just a hint of what was to come. But because investors analyze the economy on a legacy basis, by looking back at the market, most could not see what was coming, even though it was right around the proverbial corner.

How Did We Get out of the Mess?

In the next few years, Microsoft, Cisco, Dell, eBay, Juniper Networks, WorldCom, Sprint, and dozens more would appear on the scene and revolutionize our economy. Yet, investors were slow to catch on. Investors who embraced these companies in a diversified manner made a great deal of money. But this required hard work. There were no ETFs that grouped the companies by sector enabling an investor to buy a basket of software companies or wireless telecom companies. No mutual funds focused on the new technologies. So the smart money, venture capitalists and private equity, which had the time and resources necessary to do the research, had a tremendous advantage over the average investor. With hindsight, we all wish we had owned a basket of these companies. But at the time, most of us would have convinced ourselves that these companies could not succeed, either because of economic conditions or because their business was too different from the traditional businesses to which we had become accustomed. Therefore, most investors missed this opportunity.

In 1985, five years after Apple went public, when millions of personal computers were being purchased annually, we were still investing in the "old economy." The ten most actively traded stocks in the United States in 1985 were AT&T, MCI, IBM, Phillips Petroleum, Unocal, Exxon, Beatrice, Apple Computer, American Express, and Middle South Utilities. With the exception of IBM, none of these companies were new economy participants. By 1990, the list had some more technology companies, but there was still a heavy weighting toward more venerable companies: MCI, Phillip Morris, Telematics International, Intel, AT&T, Citicorp, Oracle Systems, IBM, General Electric, and Apple Computer. Today the list would include Microsoft, Intel, Cisco, Apple, Google, Amazon, and Yahoo.

2010 Looks a Lot Like 1980

In 2010, we are at a point in our economic evolution that is very similar to 1980. Our existing economy is struggling. We are experiencing double digit unemployment. Our plants and factories are running well below capacity. Our economy is stagnating before our eyes. We are in desperate need of creative destruction. That process starts with capital formation. Capital is the life blood of new businesses without which they cannot exist. But capital formation is completely stalled in the United States, just as it was in 1980. In part that is attributable to the recent credit crisis and the resulting unwillingness of the banks to lend to anyone but the most credit worthy borrowers. But, in addition, investors are reluctant to take on any risk in these uncertain times.

Ultimately, there are only two motivators for investors—fear and greed. The pendulum of sentiment swings back and forth between the two but does so unpredictably, as can be seen in the level of initial public offerings (IPOs). We have been in a fearful pattern for several years now. There were only 63 IPOs in the United States in 2009, creating $22 billion in new capital for corporations. Contrast that with 2000 (which turned out to be the end of the bull market that began in 1982), which was the peak of the Internet bubble (and the height of the greed cycle for investors), when there were 406 IPOs that raised approximately $100 billion for the issuers.

IPOs Signal Renewal of Faith in Markets

At the beginning of 2010, there were already 60 IPOs in registration, setting the stage for what could become a very big year for new issues. If the IPOs issued early in the year succeed, momentum could be created to bring additional products to market and a bandwagon effect could develop.

When the bull market began in 1982, there was approximately two trillion dollars invested in money market funds. Unlike today, when a money market account earns a fraction of one percent, in 1980 the average earnings of these accounts exceeded 12%. Despite that unprecedented return, when the bull market took hold, more

than half of the two trillion dollars in money market funds found its way to the stock market in less than three years. At the beginning of 2010, there was nearly four trillion dollars in money market funds earning an average of 20 basis points (1/5 of one percent). This pitiful return will be a lot easier to part with than the 12% available 30 years ago. When that money gets over its fear and rushes to the market, the result can be far more dramatic than what occurred in the 1980s.

There are some obstacles to a new prosperity. The biggest one is that investors have far more choices today than they did 30 years ago. And many investors are convinced that holding stocks for the long run is not as lucrative as short-term trading and speculation. While that may have been true over the past ten years, it was not the case for 20 years before that. The Dow Jones Industrial Average was at 1,000 at the beginning of 1982 and rose to over 10,700 in March 2000. In January 2010, the Dow Jones was at about that same level, 10,700. Holding stocks from 1982 to 2000 paid a handsome return.

A Lot of Money Is Poised to Enter the Market

It is important to note that there were about 20 million people in the United States who owned stocks in 1982. By 2000, that number had grown to 100 million, and that wall of liquidity pouring into the stock market helped drive prices higher. Recently, we have once again seen increased investor interest in the stock market as mutual funds have experienced net inflows every month during the period 2007 through 2009. This represents only a small fraction of potential investment as money market fund investments have stayed close to the $4 trillion level during the latter half of 2009.

Unsustainable Investments Undermine the Economy

At the same time, investors have purchased emerging market ETFs (particularly funds that invest in China, Brazil, and India), foreign currency ETFs, precious metals funds, and ETFs that own oil

and natural gas. The amount invested in these categories far exceeds the total invested in domestic equities.

At the beginning of 2010, two new ETFs were created that invest in platinum and palladium (symbols PPLT and PALL). The demand for these metals comes mostly from the automobile industry for pollution control equipment, which accounts for more than 50% of the demand for both of them. Between 2008 and 2009, the prices of both of these metals were in free fall, dropping more than 50%. In late 2009, prices began to firm in anticipation of the launch of these ETFs. The demand for platinum is 6 million ounces per year (as compared to 100 million ounces for gold and 900 million ounces for silver). As the new ETFs started to trade, investors bought up millions of shares requiring the ETFs to purchase large quantities of the metals. Prices rose more than 5% in the first week of trading. Note that this is not based upon the demand for automobiles, but rather on a speculative bet on the metals. A buyer of these ETFs may see them rise in value based upon the fund's accumulation of the metal but ultimately, if the automobile industry doesn't recover, the price will simply collapse. Meantime, the increased cost of platinum and palladium (used in catalytic converters) will make autos more expensive, which of course will dampen demand for them and reduce further the auto makers' appetite for these metals.

Investors are being given a variety of ways to bet against the U.S. economy, and are seizing upon them without regard to the fundamentals. Millions of investors have purchased gold and silver, oil and gas, and emerging market securities without having any idea about the underlying economics of these investments and how these commodities, and other countries, affect the U.S. economy. Energy experts are baffled by the high prices for oil and gas in the face of a slumping worldwide economy. Ultimately, if there is insufficient end user demand for these products (as opposed to investor demand) the price must fall.

There is no denying the globalization of the world economy. In recognition of the fact, fund companies have created ETFs to allow us to invest directly in virtually every emerging market and every major commodity and energy product. All these securities have been created in the past five years. Because they are new, they are the focus of much attention by professional investors, and they have been highlighted in the financial press.

We focus so much attention on the new securities that we tend to overlook the fact that the biggest player in globalization is the United States. The $14 trillion U.S. economy still represents 30% of the total world GDP. The U.S. consumes about 25% of the world's resources. If investors drive up the cost of those resources and do not invest in the innovation that will drive our prosperity, our economy is doomed to fail.

Innovation Is Still Happening

The United States is still far and away the leader in innovation. Yes we have been through some difficult times and our financial industry has been greedy and destructive, but, as detailed in this book, some of the most compelling technology in our history is ready to burst on the scene. During the past 100 years, there have been a number of times when it seemed a good idea to bet against prosperity in the United States. But those who did lost while those who bet on an ever brighter future have created vast fortunes. There perhaps has never been a time when the U.S. economy looked more vulnerable. Equally, there has never been a better time to invest in the future.

It can be difficult to envision change in technology, even as it is about to occur. In 1980, there were few of us who understood that the personal computer was about to change our lives. Virtually nobody owned one. Nobody had a mobile phone, either, and most homes did not get cable TV. During the 1980s, all these products became ubiquitous, and investors in the relevant industries did very well. At the same time, commodity prices dropped, and oil went back to $12 per barrel. Investors were not speculating on hard assets, and nobody wanted to invest in emerging markets, even if that had been possible. We had a strong sense that our economy was growing and prospering as we watched the information age unfold before our eyes. It took most of the decade before the entire investing community embraced the new economy, but once the trend took hold it was inexorable.

Look Ahead—Not Backward—to See Where to Invest

Because we invest on a legacy basis, wanting to look back at how stocks have performed to determine which ones we want in our portfolio, we tend not to see the newer companies that have not yet established a suitable track record. In 1980, General Motors certainly appeared to be a "better" investment than Apple Computer based upon their relative track records. If a poll had been conducted asking the question, "Which stock will perform better over the next 30 years?" General Motors would have been the overwhelming choice. But General Motors was part of the old economy, and Apple represented the new.

When we view the world through the rear view mirror, we may have a clear view of where we have been, but, unless we look through the windshield, we cannot see where we are going, no matter how obvious it may be. And because most investors who have been paying attention for the past 30 years have seen more innovation than they can fathom, there is a tendency to believe there will not be any more. But nothing could be further from the truth. We are in a position to completely revolutionize medicine, create a green environment, end our dependence on fossil fuels, and rebuild our infrastructure in the next 20 years. The technology is in place, there are ample investor funds sitting on the sidelines, and, as this book goes to press, more than 60 IPOs are in the queue. The only other ingredient required is a shift of the pendulum away from fear and toward greed. We must try to avoid the temptation of becoming too greedy, investing instead in innovation while mitigating risk by buying companies in baskets. Exchange traded funds will be the vehicle that allows us to sensibly invest to get that exposure and participate in the coming prosperity.

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