

What's Ahead for Stocks and Bonds— And How to Earn Your Fair Share

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It's a treat to be invited to keynote The Money Show again, and a special delight this year. Why? Because we are also here to hold the fifth annual get-together of “the Bogleheads” of the Internet. I understand that the *Vanguard Diehards* site, originally established in 1998 and readily accessible on the Morningstar website, now attracts an average of 25,000 “unique visitors” (in the contemporary vernacular) each day. So this is also “Diehards V” (using the Roman numerals popularized by the NFL Superbowl), and I begin by offering a special Bogle salute to the 75 Bogleheads who are here in the audience with us today.

I must tell you that three of the leading Diehards—Taylor Larimore, Mel Lindauer, and Michael LeBoeuf—have recently written a wonderful book—*The Bogleheads' Guide to Investing*. It is filled with wit and wisdom, and has won almost unanimous acclaim (18 5-Star reviews on Amazon.com). *The Guide* is a heart-warming affirmation of the common sense approach to investing that has been my career-long trademark, and which, I warn you, will continue to be in evidence in my remarks this evening.

My assignment was to talk about what's ahead for stocks and bonds, and I'll do exactly that. But I sense among investors (and advisers) considerable overconfidence about their ability to earn outsize rewards, as well as a certain unreality about their ability to capture whatever returns our financial markets may be generous enough to deliver, so I'll also try to bridge that gap and discuss the only way that I know to assure that you'll earn your fair share of those returns.

Note: The opinions expressed in this speech do not necessarily represent the views of Vanguard's present management.

I'm going to use a lot of numbers—fairly simple ones, I think—in my talk today. But please don't be intimidated. For that matter, don't even bother to take notes, for the speech is already posted on my brand-new personal website, "The Bogle Blog" (note the near anagram!)—just launched this very day—at www.JohnCBogle.com.

My numbers, however, will *not* include a forecast of what stocks and bonds will do during the remainder of this year, nor even for the next two or three years. I have no ability to do so with any accuracy, and even if I could it would be useful only to short-term speculators. In fact, I'm constantly amazed by how many pundits, gurus, and Wall Street strategists regularly predict what the stock market will do during the following year, and how badly they do at it. Those who present their predictions to *Barron's* each year, for example, are almost invariably optimistic, usually forecasting a stock return that is (of course!) a few percentage points higher than the long-term average of 9 ½ percent.

Look at the start of 2002, for example, when they were projecting stock returns clustered around 13 percent. But when the year was over, stock prices had tumbled by 20 percent. The fact is that stock returns are rarely "average." Over the past 100 years, the S&P 500 Index has generated returns in the 9.5 percent range—say 9 percent to 11 percent—in only three(!) years. **(Chart 1)** There were 26 years of negative returns and 28 years with returns of more than 25 percent. Yes, the route to long-term investment success is a bumpy one, filled with dangerous turns and giant potholes.

When the annual returns on stocks depart materially from the long-term norm, it is rarely because of the *economics* of investing—the earnings growth and dividend yields of America's corporations. The fact is that the annual dividend yield is *always* a plus, and that corporate earnings growth has been positive in every moving decade since 1937—almost 70 years! Rather, the reason that annual stock returns are so volatile is largely because of the *emotions* of investing, simply represented by the number of dollars investors are willing to pay for each dollar of earnings—the price/earnings ratio—reflecting to a greater or lesser extent swings in emotion from greed (*very* high P/Es), to hope (moderate P/Es), to fear (*very* low P/Es), and back and forth, over and over again.

So to state the obvious, these market strategists are making their predictions—or is it just guessing?—largely upon whether the mood of investors will be more or less optimistic (or more or less pessimistic) at the end of the year than it was at the beginning. As a result, forecasting short-term returns is a fool's errand, seemingly made rational by the fact that the stock market return has an upward slope, due solely to those economics. Thus, a guess that the market will rise during the year, based on past history, has about three chances out of four of being correct.

After almost 55 years in this business, however, I have *absolutely no idea* how to forecast short term swings in investor *emotions*. But, largely because the arithmetic of investing is so simple, I believe that I can forecast the long-term *economics* of investing with remarkably high odds of success. So this evening I'll focus on decade-long periods, just as I have been doing (with accuracy that is easy to measure) for the past few decades.

My first message to you is this: it's essential to recognize that in the long run, it is *investment* returns—the earnings and dividends generated by American business—that are almost entirely responsible for the returns delivered in our stock market. Yes, the legendary investor and author of *The Intelligent Investor* Benjamin Graham was right on the money when he pointed out, “in the short run the stock market is a *voting* machine . . . (but) in the long run it is a *weighing* machine.”

What the wise Mr. Graham was saying, of course, is that while *illusion*—the momentary prices we pay for stocks—often loses touch with *reality*—intrinsic corporate values—in the long run it is reality that rules. So please place no credence in the idea that the past is prologue to the future. To understand why the past cannot foretell the future, we need only heed the wise words of the great British economist John Maynard Keynes, written 70 years ago: "It is dangerous . . . to apply to the future inductive arguments based on past experience, unless one can distinguish the broad reasons why past experience was what it was."

Only if we can distinguish the *reasons* why the past was what it was, then, can we establish reasonable expectations about the future. Keynes helped us make this distinction by pointing out that the state of long-term expectation for stocks is a combination of *enterprise* ("forecasting the prospective yield of assets over their whole life") and *speculation* ("forecasting

the psychology of the market")¹. I'm well familiar with those words, for 52 years ago I incorporated them in my senior thesis at Princeton, written, providentially for my lifetime career that followed, on "The Economic Role of the Investment Company," the title I chose for the thesis.

Investment Return and Speculative Returns

This dual nature of returns is clearly reflected in stock market history. Using Keynes' idea, I divide stock market returns into: 1) *Investment Return* (enterprise), consisting of the initial dividend yield on stocks plus their subsequent annual earnings growth, together constituting what we call "intrinsic value"; and 2) *Speculative Return*, reflecting the impact of changing price/earnings multiples on stock prices. Simply adding the two together gives us the 3) *Total Return* on stocks.

For example (**Chart 2**) a 4 percent initial yield plus future earnings growth of 6 percent would equal a 10 percent investment return. If the P/E were unchanged over the decade, the total return would be 10 percent. If the P/E rose, say, from 15 to 20, (**Chart 2A**) that 33 percent gain, spread over a decade, it would add almost 3 percent per year to the return, increasing it to 13 percent. If it were to decline to 12, it would reduce the returns by more than 2 percent. Yes, it is that simple. Need proof? Just look at the past 100 years. The average annual total return on stocks of 9.6 percent was virtually identical to the investment return of 9.5 percent—4.5 percent from dividend yield and 5 percent from earnings growth. (**Chart 3**) Speculative return added a mere 0.1 percent per year.

If speculative return contributed nothing on balance, however, it created many short-term variations, carrying the market's *total* long-term returns far *above* the investment return in the late 1990s, for example, and far *below* in the mid 1970s. I underscore the message: in the long run, stock returns depend almost entirely on the *reality* of the investment returns earned by business. Momentary investor *perception*, reflected in speculative return, proves to be an *illusion* that counts for little. Put another way, it is *economics* that controls long-term equity returns; *emotions*, so dominant in the short-term, dissolve. Investing in equities, truth told, is simply betting on American business.

¹ Chapter 12 of *The General Theory of Employment, Interest, and Money*, John Maynard Keynes, 1936.

Returns in Retrospect, and in Prospect

Now let's put this vital information about the sources of stock returns into use, and contrast stock market returns in the 1980s, the 1990s, the first decade (so far) of the new century, and the decade that lies ahead. Let's begin with the Investment Return (**Chart 4**). Nominal corporate earnings growth averaged about 6 percent during the '80s and '90s, and it is running at 5.7 percent so far in this new decade (1999-2005). Since earnings growth tends to parallel the nominal growth rate of our economy, I see no reason growth shouldn't continue at about 6 percent, more or less, in the next ten years.

Dividend yield is quite another matter. The 5.2 percent yield as the 1980s began contributed more than half of the subsequent 9.6 percent investment return, and even the diminished 3.2 percent yield at the start of the 1990s contributed one-third of the 10.6 percent investment return. By the start of 2000, however, the yield had shriveled to just 1.1 percent, resulting in a 65 percent reduction in its contribution to investment return so far during the decade. With the subsequent drop in stock prices and rising dividend payments, the yield is now up to 2 percent, almost double. Nonetheless, dividends will make a contribution of only about 25 percent of the expected total investment return over the next ten years.

When we turn to speculative return (**Chart 5**), the plot thickens. The soaring P/Es of the 1980s and 1990s—from a depressed level (call it fear) of 7.3 to an exuberant level (call it greed) of 30.4, a rise of more than 300 percent—swelled speculative returns by 7.5 percent per year over two decades, far, far beyond any historical experience. Such an increase couldn't *possibly* recur. (In two more decades it would have taken the P/E to the lunatic level of 131.2.) So it was easy to predict a sharp reversion toward the long-term ratio of 15.2. And that's not too far from what we have seen so far in this decade—a 38 percent drop in P/E ratio to 18.9, slashing a pretty decent investment return of 6.8 percent by 7.6 percentage points.

Looking ahead from here—and this is the most uncertain part of my long-term forecast—I think it is more likely that the P/E will ease downward rather than surge upward. So I'm tentatively assuming a 17.5 P/E ten years hence. Result: a small 0.8 percent deduction from the projected 8 percent investment return. (The great thing about this analysis is that you don't need to agree with me. Use your own projections. If you believe that the P/E will fall to its long-term norm, speculative return would reduce the annual investment return by 2.3 percentage points. If

you think it would rise to, say, 25 times, feel free to add 2.8 percentage points to the investment return.)

The *Total Return* on stocks is simply the combination of the returns from our two sources—investment return and speculative return (**Chart 6**). I don't think it takes a giant brain to reach the clear conclusion that the remarkable stock returns we witnessed—and if we were lucky (I was!), *enjoyed*—during the '80s and '90s will not soon return. No, a return of 17 ½ percent per year is not in the cards for as long ahead as I can see, and almost certainly not in the coming decade. A return in the range of, say, 6 percent to 8 percent seems a reasonable expectation, largely based on the simple arithmetic of equity market returns.

Bond Returns

The mathematics of bond returns are actually even simpler. Investment return is established by the initial yield of the bond market (**Chart 7**), measured by the U.S. Treasury Intermediate-term (10-year) note. Its yield now is at the lowest level of any of the four decades that we are examining: starting yields in the '80s, 10.4 percent; the '90s, 7.8 percent; 2000, 6.3 percent, and today, 5.1 percent. So we can be highly confident of lower returns in the years ahead. Of course, speculative return, driven by whether interest rates rise or fall, has a major impact on the total return on bonds over the short-term. Spread over a decade however, such fluctuations have surprisingly little force in either direction. In fact, the correlation of the current interest rate on the 10-year Treasury and its total return over the subsequent decade is a truly astonishing 0.91. (1.00 is *perfect* correlation). (**Chart 8**).

So compared to the 1980s and 1990s, when bond returns averaged almost 10 percent annually, (**Chart 9**), we're on the path to lower returns—about 6 percent—during the 1999-2009 decade, and still lower bond returns during the coming ten years. With that 5.1 percent yield on the 10-year Treasury, reasonable expectations give us a solid basis for expecting a similar return in the years ahead, say 5 ¾ percent for a mixed portfolio of U.S. Treasury and investment-grade corporate bonds.

A Balanced Portfolio

Let's assume, then, that returns in the stock market are likely to center around 7 ½ percent during the coming decade, and that returns in the bond market are likely to center around 5 ¾ percent. The bad news, then, is that simple arithmetic suggests that the future return of 6.5 percent on a typical balanced portfolio (60 percent stocks, 40 percent bonds) will be far *below* those wonderful returns of the 1980s and 1990s (**Chart 10**). The good news is that the return should be far *above* the 1.9 percent return of the past six years.

A word about risk. If annual stock returns prove to be about 7.5 percent and the yield of the 10-year Treasury is 5.1 percent, the equity premium would be a skinny 2.4 percent, an extremely low level compared to the historical norm of 4.6 percent. So consider Federal Reserve chairman Alan Greenspan's warning late last year: "history has not dealt kindly with the aftermath of protracted periods of low risk premiums." To which I would add, "especially during times when risks themselves are high." To each his own in analyzing the extent of such risks, but with problems looming in our federal deficits, mortgage financing, global instability, the war in the Middle East, and terrorism (and perhaps even avian flu), a little extra risk aversion seems little more than common sense.

Conclusion: with (A) subdued returns in prospect; (B) low equity risk premiums; at (C) a time of substantial risk; with (D) bond *income* dwarfing stock *income* (5 ¾ percent vs. 2 percent); and (E) the pleasant sensation of more safety when, and if, stocks take a tumble, carefully consider whether your own portfolio balance provides, not only adequate *opportunity*, but adequate *protection*.

Illusion vs. Reality

And now let me turn to the most important message I have for you today. The numbers that I have just presented to you—with all of the logic, validity, and objectivity I can command—are not *reality*. They are an *illusion*. For us investors, the gross returns that our financial markets generate are not delivered on a pristine platter. They are delivered only after the costs of obtaining them—the cost of our financial system (intermediation costs, or agency costs); and the cost of income taxes paid to federal, state, and local governments (except for tax-deferred

retirement accounts). What is more, the cost of living also takes its toll, for our dollars will be worth far less a decade hence than they are today.

Two conclusions: 1) *Beating the market before costs is a zero-sum game*; 2) *Beating the market after costs is a loser's game*. The returns earned by investors in the aggregate inevitably fall well short of the returns that are realized in our financial markets. How much do those costs come to? In equity mutual funds, the "expense ratio"—management fees and operating expenses—averages about 1.5 percent per year of fund assets. Add another 1 percent in portfolio turnover costs, and, say, another 0.5 percent in sales charges, marketing expenses, and other small add-ons. Result: the total cost of equity fund ownership can easily double, to as much as 3 percent per year. So yes, *costs matter*. The great irony of investing, then, is not only that you don't get what you pay for. The reality is quite the opposite: You get precisely what you *don't* pay for. *So if you pay for nothing, you get everything*.

Let me illustrate this simple lesson with a wonderful quotation from *Other People's Money*, by Louis D. Brandeis, first published in 1914. Brandeis, later to become one of the most influential jurists in the history of the U.S. Supreme Court, railed against the oligarchs who a century ago controlled investment America and corporate America as well. (Shades of today!) He described their self-serving financial management and interlocking interests as, “trampling with impunity on laws human and divine, obsessed with the delusion that two plus two makes five.” He predicted (accurately, as it turned out) that the widespread speculation of that era would collapse, “*a victim of the relentless rules of humble arithmetic*.”

Most investors seem to have difficulty recognizing these relentless rules, even though they lie in plain sight, right before their eyes, or, perhaps even more pervasively, refuse to recognize them because they fly in the face of their deep-seated beliefs, their biases, and their own self-interest. Paraphrasing Upton Sinclair: “it’s amazing how difficult it is for a man to understand something if he’s paid a small fortune *not* to understand it.” But only by facing the obvious realities of humble arithmetic can the intelligent investor find long-term success.

How Much Do Costs Matter?

How much do costs matter? A ton! Indeed, fund costs have played the determinative role in explaining why, for example, during the quarter-century from 1980–2005, when the return on

the stock market itself averaged 12.5 percent per year, the pre-tax return on the average mutual fund averaged just 10.0 percent. That 2.5 percent differential is about what one might have expected, given our 3% rough estimate of fund costs. (Never forget: Market return, minus cost, equals investor return.) Simply put, fund managers have arrogated to themselves an excessive share of the financial markets' returns, and have left fund investors with too small a share.

On first impression, that annual gap may not look large, but when compounded over 25 years it reaches really staggering proportions. In fact, \$1000 invested in a simple S&P 500 Index Fund (of course it was Vanguard's, the only index fund then in operation!) returned 12.3 percent per year during that period (**Chart 11**) (the market return of 12.5 percent less costs of just 0.2 percent), growing by \$17,080. By way of contrast, the average equity mutual fund's return of 10.0 percent grew that original \$1000 by just \$9,820, or little more than half as much (57 percent) of the index fund.

But it gets worse. For fund investors pay a second, additional cost that is even *larger*. During those 25 years, and especially during the new economy mania of the late 1990s, the fund industry organized more and more funds, usually funds that carried considerably higher risk than the stock market itself, and then magnified the problem by heavily advertising the returns earned by its "hottest" funds with eye-catching past returns. As the market soared, investors not only poured ever larger sums of money into equity funds (**Chart 12**), they chose overwhelmingly the highest-risk growth funds, to the virtual exclusion of more conservative value funds. After the fall, when it was too late, their purchases dried up, and they turned to value funds and pulled money out of growth funds.

Fund investors, then, paid a huge penalty both in the *timing* of their fund purchases and in the *selection* of funds they purchased. Result: mutual fund *owners* have fared far worse than have the *funds* themselves. We can't be sure by exactly how much the average fund *investor* lagged the average fund, but we can estimate it by comparing the *dollar-weighted* returns actually earned by a fund's shareholders with the *time-weighted* returns of the fund itself (the conventional per-share calculation). During the past 25 years, we estimate that the *dollar-weighted* returns of funds—the returns actually enjoyed by their shareholders—lagged the *time-weighted* returns by fully 2.7 percentage points per year. (**Chart 13**) When we add those selection and timing penalties to the 2.3 point shortfall of the average *fund* to the index fund, the gap grows to 5 full percentage points. The average fund investor earned just 7.3 percent per year

during that period, a pale shadow of the net 12.3 percent return of the index fund. And the result? Each \$1,000 invested grew by \$4,800, a mere 28% of the index fund's \$17,000 growth.

And now a cold shower of financial reality. So far, we've done all our measurements in *nominal* dollars, ignoring the fact that it is only *real* dollars—dollars that are adjusted to take inflation into account—that are available for us to spend. During the past 25 years, inflation averaged 3.3 percent, reducing the real return of the index fund to 9.0 percent, and the average fund investor to but 4.0 percent (**Chart 14**). Cumulative *real* profit after compounding on the original \$1,000 investment: just \$1,670 for the average actively-managed equity fund investor; \$7,620 for the passively-managed index fund. The average fund investor earned only about one-fifth of the profit earned by the market itself through the simple index fund, which was there for the taking. Dare I remind you yet again, *fund costs matter!* Indeed, they make the difference between investment success and investment failure. (Note: the icing on the cake is that the index fund was highly *tax-efficient*, the typical managed fund was grotesquely *tax-inefficient*. So these results *understate* the true gap.)

In short, the humble arithmetic of investing—the logical, inevitable, and unyielding penalty assessed by investment expenses, the fact that emotions lead investors to make bad fund choices at bad times, and the toll taken by rising living costs—devastates the returns that investors in mutual funds earn over time. Using Justice Brandeis's formulation, the mutual fund industry is obsessed with the delusion—and is foisting that delusion on fund investors—that the *nominal gross* returns in the stock market can easily be translated into the *real net* returns that equity fund investors receive. *Well, to state the obvious, they cannot!* And unless the fund industry changes, it will falter and finally fail, a victim, yes, of the relentless rules of humble arithmetic.

But if the illusion of real-world mutual fund returns is but a pale shadow of the reality of pre-cost, pre-tax, pre-inflation stock market returns in a 12 ½ percent market, just imagine the difference when—if you accept my projections for the coming decade—the illusory return is just 7 ½ percent. In terms of nominal returns, a 102% gain for an index fund (**Chart 15**) versus just 63 percent for a managed fund. If we're lucky enough to contain inflation at the present level of 2.5 percent, that will leave a net *real* return of 4.8 percent in the index fund, but only 2.5 percent in the average fund—a return I imagine most of you here today would consider unacceptable—and a real gain for the decade of 60 percent for the index fund, more than double the 28 percent gain for

the managed fund. **(Chart 16)** (It's too frightening to consider the further deductions that would result from taxes and the penalties of counterproductive market timing and poor fund selection. After these additional bites, the typical equity fund investor would likely be left with a *negative return*.)

So what can equity fund investors do to avoid being trapped by these relentless rules of humble arithmetic? Clearly the expected return of the average equity fund is unacceptable. So there are at least these four options to improve on it: 1) Select the funds with the best recent short-term records. 2) Select the funds with the best long-term records. 3) Select the funds with the lowest costs and lowest portfolio turnover. 4) Select an index fund that simply holds the stock market portfolio. In the time remaining this evening, let's examine each of these four options.

Selecting Short-Term Winners

As the record I showed you earlier indicates, fund investors have a strong proclivity to select the funds that have recently turned in the best returns. How has that strategy worked? Consider this example of the top ten performers among the 851 equity funds in operation during the great "new economy" market bubble of 1997-1999. **(Chart 17)** A wondrous group they were! Focused on internet, telecom, and technology stocks, these funds generated an average return of 55 percent *per year* during the upswing—a cumulative return of 272 percent for the full three years. Remarkable!

Well, you know what came next. The bubble burst, and, one by one, just as the Good Book warned, "the first shall be last." Really! **(Chart 18)** Over the next three years (2000-2002 inclusive), Fund #9 on the upside actually *was* last—#851 on the downside. Fund #1 dropped in rank "only" to #841. And not a single fund in the original top ten ranked higher than #790. Essentially, all ten *top* funds found themselves in the *bottom 5* percent!

Yet with average annual gains of 55 percent on the upside and annual losses averaging 34 percent on the downside, **(Chart 19)**, these aggressive new-economy funds still ended up with a *cumulative* positive return averaging 7 percent for the full six-year period, albeit a far cry from the S&P 500's cumulative gain of 30 percent. Not bad for the funds in terms of traditional *time-weighted* returns, but hardly a disaster. But for the *shareholders* of the funds, it *was* a disaster. By investing *after* seeing those mouth-watering returns achieved in the soaring bull market, fund

buyers missed the upside, and then caught the full force of the downside, their investments tumbling by an average of 34 percent per year over three years. **(Chart 20)** Result: Not a *gain* of 7 percent, but a *loss* of 57 percent for investors—more than *half* of the capital they had invested. The message is clear: *avoid performance-chasing based on short-term returns.*

Selecting Long-Term Winners

How about investing in funds that have won over the long-term? At first glance, that seems like a good idea, so let's see how it has worked in practice. Let's go back to 1970, and examine the 35-year records of the 355 equity funds that existed all those years ago. **(Chart 21)** The first and most obvious surprise awaits you: fully 223 of those funds—almost two-thirds—have gone out of business! We can assume that it was not the best performers that have gone to their well-earned demise. Almost certainly, it was the losers that disappeared; funds whose managers moved on (the average portfolio manager, in fact, lasts just five years!); funds whose management companies were acquired by giant financial conglomerates (firms, truth told, in business primarily to earn a return on *their* capital and not a return on *your*—the fund investor's—capital); funds whose lagging performance caused investors to flee; and even funds with solid long-term records whose new management companies concluded they had simply outlived their usefulness. (Sadly, one of the victims was the second oldest fund in the industry—State Street Investment Trust, born 1925-died 2005.)

So 223 funds are gone. Another 60 remained, yet underperformed by more than 1 percent per year—almost 80 percent of the total that, one way or another, lagged the returns of the S&P 500. Another 48 funds provided returns within one percentage point, plus or minus, of the return of the S&P 500. (Let's call them “market-equivalent.”) That leaves just 24 winners that beat the market by more than one percent per year, only one fund of every 14. Those odds aren't great, especially since the margins of superiority of 15 of those 24 funds was less than 2 percent per year.

But that still leaves us with nine good-sized winners. And, believe me, it is a *tremendous* achievement to out-pace the market by more than 2 percentage points over 35 years. Make no mistake about that. Here, a curious—perhaps almost obvious—fact emerges. **(Chart 22)** Six of those nine winners achieved their superiority much earlier, after which their modern records turned lackluster. One, in fact reached its peak way back in 1982, 24 long years ago. Two others

in 1983. And the remaining three peaked no more recently than 1993, more than a decade earlier. That leaves just three funds—only 1 out of every 120 that started the race—that have mounted a record of sustained excellence. I salute them, by name: Davis New York Venture, Fidelity Contrafund, and Franklin Mutual Shares. Hail to the victors! But before you rush out to invest in them, think about the odds that they will continue to outperform for the *next* 35 years, let alone the odds that they will even exist 35 years hence. I wish them all well.

Selecting Investments that Operate at Low Cost

If neither selecting funds based on past short-term performance nor selecting funds based on long-term performance is the answer, it is because of something that, deep down, we intuitively know. *Performance comes and goes*. So perhaps we can be more successful by focusing, not on the inevitable evanescence of past performance, but by focusing on something that seems to go on *forever*, or more fairly, a factor that usually persists over sustained periods of time. That factor is the *cost* of owning mutual funds. *Costs go on forever*.

By costs, I mean not only the fund's expense ratio, but also its estimated portfolio turnover costs. Transactions cost money, and I estimate that turnover costs are roughly $\frac{1}{2}$ percent on each purchase and sale, meaning that 100 percent turnover would cost about 1 percent every year. 50 percent turnover would cost about 0.50 percent; and 10 percent turnover would cost about 0.10 percent, and so on. Rule of thumb: turnover *costs* equal 1 percent of turnover *rate*.

So now let's add that turnover cost to the fund's expense ratio, and get a total annual operating cost. (The record is clear, by the way, that funds with low costs tend to remain low cost, and that funds with low expense ratios also tend to remain low.) Then we'll divide equity funds by quartile, and compare the returns of the lowest-cost group with those of the highest-cost group. (**Chart 23**) The all-in costs range from 0.9 percent in the lowest cost quartile to 3.0 percent in the highest cost quartile. And *costs matter!* That 2.1 percentage point difference constitutes a huge portion of the 2.7 difference between the returns of the two groups over the past ten years: net annual return of low-cost funds, 11.7 percent; net annual returns of high-cost funds, just 9.0 percent.

But the difference is really larger, for those low-expense, low-turnover funds also assumed 34 percent *less* risk. If we adjust for that difference, the annual improvement in *risk-*

adjusted return grows to 3.8 percentage points, a remarkable advantage that approaches 50 percent in return *per* year. And, when we compound those returns over time, the difference reaches staggering proportions. The value of the low-cost funds tripled over the decade, while the value of the high-cost funds did a bit better than double. Total gain for the period: 207 percent for the low-cost funds, 118 percent for the high-cost funds, an enhancement arising almost entirely from the differential. Surely “fishing in the low-cost pond” should enhance your returns, and by a wide margin at that. Yes, *costs matter!*

Selecting Index Funds that Own the Entire Stock Market

But if low costs are good—and I don’t think a single analyst, academic, or industry expert would disagree that low costs *are* good—why wouldn’t it be logical to focus on the lowest-cost funds of all, index funds that own the entire stock market? Such funds often have expense ratios of as low as 0.10 percent or even less, and incur turnover costs that turn out to be zero; all-in costs of just 10 basis points per year, 80 percent lower even than the 90 basis points for the low-cost quartile. And of course it works. Witness the real-life example of the S&P 500 Index fund vs. the average equity fund over the past 25 years that I’ve already given you, a compelling case for indexing in the past. Now let me conclude my evening stroll through the relentless rules of humble arithmetic with a final statistical example that suggests what the future may hold.

With a complex exercise called “Monte Carlo Simulation,” we can in fact project the odds that a passively-managed index fund will outpace an actively-managed equity fund over various time periods. A few simple assumptions about volatility and the range of equity fund returns around the stock market returns are all that is required, as well as an assumption that the all-in costs of indexing will run to about 0.25 percent per year and the costs of active management will run to about 2 percent per year. (Note that this spread is much *smaller* than the historical spread we’ve experienced, giving a fund manager the benefit of the very large doubt.) **(Chart 24)** Result: Over one year, about 29 percent of active managers on average, would be expected to outpace the index; over five years about 15 percent would be expected to win; over 10 years, 9 percent; over 25 years, 5 percent, and over 50 years just 2 percent of active managers would be expected to win.

How will the future actually play out? Of course we can't be sure. But we know what the past 25 years look like, and we know that over the past 35 years only 7 percent of funds outperformed by more than a minuscule margin of 1 percent or more per year, so it looks like we're in the right ballpark. So I suggest to you that stock index funds—and bond index funds, too—deserve an important place in your portfolio, even as they constitute the overriding portion of my own.

Whatever the case, in an era of subdued returns, costs became more important than ever, especially when we move from the *illusion* of financial market returns to the illusion of our own returns, after all of those pesky costs—fund expense ratios, sales charges, and turnover costs; tax costs, and the most subtle cost of all, the cost of living, inflation that substantially erodes the spending power of our investments over time.

My conclusions about the market returns we can expect in the years ahead, as well as my conclusions about the share of those returns that we investors will actually enjoy, have one thing in common—reliance not on opinion but largely on mathematical facts—those relentless rules of humble arithmetic, the very same rules that make selecting winning funds rather like looking for a needle in a haystack, rules you ignore at your peril.

If, as I said at the outset, the road to investment success is hazardous, filled with dangerous turns and giant potholes, never forget that simple arithmetic can enable you to moderate those turns and avoid those potholes. So do your best to minimize your investment expenses and your own emotions, rely on your own common sense, be very careful, and then stay the course.