

Chapter 19: Costs

The greatest trick the mutual fund industry ever pulled was convincing investors that an extra percent in expenses did not matter. From the perspective of the average investor, a percent here or there is inconsequential. I intend to prove otherwise.

The problem arises from the way expenses are reported - percentage of total assets. Right there, it makes costs look small. It is natural to see a 1.5% expense ratio and think, "This is not much". We pay 6% sales tax on purchases, so 1.5% seems like a gift from heaven.

But our frame of reference is wrong. Percentage of assets is not the proper way to evaluate costs. Why? Because we are not paying fund managers to simply hold our money. We would place it in a bank if that was our goal. Instead, we pay managers to make money. We need to ask, "How much of our *return* do costs take?" I will answer that question in a few pages, but for now let's talk about fund expenses.

3 Costs of Mutual Funds

1) Direct Fund Costs. These include expense ratios, loads, 12b-1 fees, and the mortality expenses of a variable annuity. Investors assume these direct costs are the only fund costs, when there are actually two more.

The expense ratio shows the percentage of your assets which are taken from you each year to run the fund. (Even though it is reported as an annual percentage, the expenses are actually spread out over the whole year.) For example, if the expense ratio is 1% and your fund balance is \$10,000, your annual expense to the manager is \$100 dollars (assuming no change in value). If you have 1 million dollars in assets, a 1% expense ratio means the manager removes \$10,000 per year in expenses. Later in life, when you have substantial assets, these annual expenses can add up to a hefty sum. Even a small reduction in the expense ratio means you keep a much bigger chunk of your dollars. Please note that these fees are extracted regardless of whether the fund makes or loses money that year. So, if the stocks within a fund lose 5% of their value and your fund charges a 1% expense ratio, you actually "lose" 6% total.

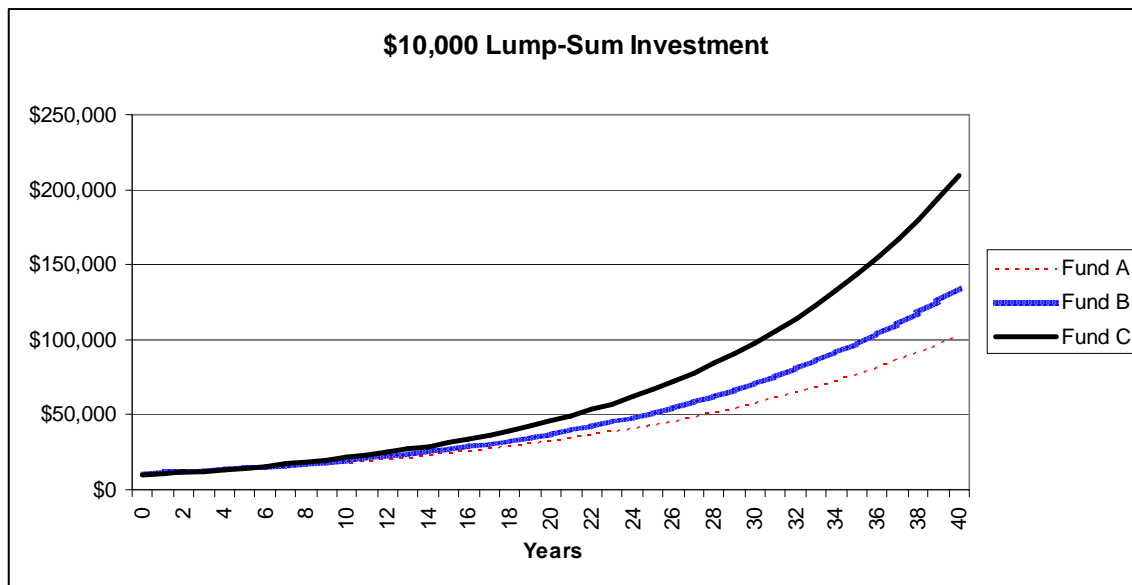
If we accumulate assets over 30+ years, the expense ratio becomes crucial. Think about what would happen if a fund lowered its expense ratio. Each year we would retain more assets in the fund. As a result, our return the following year would be slightly higher, in which we would, again, retain more to reinvest. These extra retained assets are constantly working for us. As the years go on, our extra returns compound to a very large increase in final value. In a high-cost fund, this compounding does not happen nearly to the extent that it should. As a result, we fall short of our potential.

Let me illustrate. Let's follow the results of three different large-cap stock funds over a period of 40 years. I will assume that each fund earns a gross return - the return of the stocks themselves - of 8% each year, on average. As our discussion in previous chapters has shown, over long periods of time the gross returns on funds of the same type tend to

be very similar because the market is efficient. Fund A has a 2% expense ratio, which I would consider a high-cost fund. Fund B has a 1.3% expense ratio, which is the median (average) expense for funds in 2006 (according to Morningstar). Fund C has a 0.1% expense ratio, the same as the Fidelity "Spartan" S&P 500 Index Fund. For simplicity, we will not factor in loads, taxes, or indirect costs. Therefore, the net return to the investor would be the gross return minus the expenses. For Fund A, the net return would be 8 minus 2, or 6%. For Fund B, the net return would be 8 minus 1.3, or 6.7%. For Fund C, the net return would be 8 minus 0.1, or 7.9%.

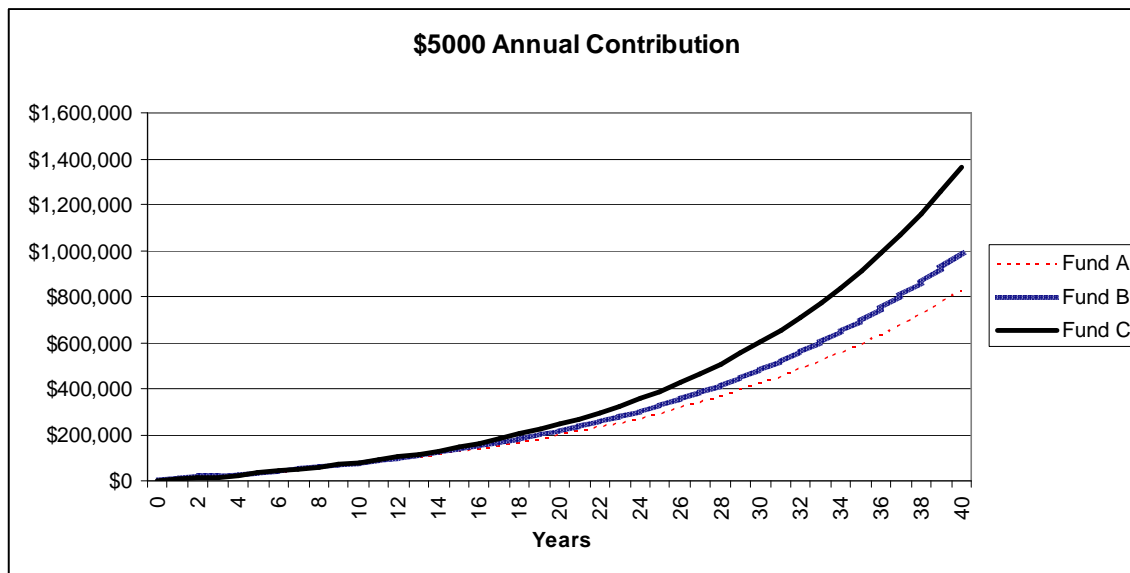
The following chart and graph shows the account balance of each fund over a period of 40 years. In this chart we start with a \$10,000 lump-sum investment and make no further contributions. The dividends and capital gains are reinvested, so the return is compounded. Here are the results. Notice the low-cost fund wound up with twice the final value as the high-cost fund.

Fund	Gross Return	Expenses	Net Return	Final Value at 40 Years
A	8%	2%	6%	\$102,857
B	8%	1.3%	6.7%	\$133,837
C	8%	0.1%	7.9%	\$209,343



Now let's see what would happen if we invested \$5000 per year in each fund over a period of 40 years. Just as before, the dividends and capital gains are reinvested. Here are the results:

Fund	Gross Return	Expenses	Net Return	Final Value at 40 Years
A	8%	2%	6%	\$820,238
B	8%	1.3%	6.7%	\$986,077
C	8%	0.1%	7.9%	\$1,361,334



As you can see from both graphs, the effects of the cost differences are subtle at first, but very significant after several decades. The low-cost index fund pulls away at an exponential rate near the latter years.

Consider this example. If your fund earned an annualized gross return of 8% over 30 years and had a 1% expense ratio, you would need to contribute \$9,900 per year to reach 1 million dollars. Contrast that to a fund with a 0.5% expense ratio and same 8% gross return over 30 years: you would only need to contribute \$9,000 per year to get your million. That is \$900 less per year that you would have to contribute in order to get the same result. See, *low costs increase your risk-adjusted return*.

Consider yet another example. Let us say that you participated in your company-sponsored 401(k) plan and contributed \$10,000 per year. Assuming an 8% annualized gross return for all funds, here are the final results after 40 years. Remember that the net return to the investor is the gross return minus expenses.

Expense ratio	Final value of fund	Difference from lowest expense fund	% difference in final value compared to lowest expense fund
0.2 %	\$ 2,649,678	NA	NA
0.5 %	\$ 2,443,007	- \$ 206,671	8% less
1 %	\$ 2,136,095	- \$ 513,518	19% less
1.5 %	\$ 1,870,479	- \$ 779,199	29% less
2 %	\$ 1,640,476	- \$ 1,009,202	38% less

In the above example, approximately a quarter of a million dollars was forfeited for every half percentage increase in expense ratio. The high-cost fund fell short by 1 million dollars compared to the low-cost fund. [I'll pause while you go change your shorts.] In actuality, high-cost funds also tend to have a load and high portfolio turnover, which would further worsen the shortfall. How would you like to live with 38% less money than you COULD HAVE had at retirement, had you simply used the low cost fund? Think about how you would feel if your boss cut your salary by 38%. That is exactly what you are doing to your retirement, because your nest egg becomes your source of income in retirement.

Do you see the problem with high-cost funds? Investors put up 100% of the money and shoulder 100% of the risk, but only retain 62% of the potential wealth! I believe it was the great investor Warren Buffet who joked, "I helped put two kids through college . . . my fund manager's kids."

In addition to annual expenses, some funds are sold with an up-front commission, called a load. Some have a deferred load, which is charged when you sell shares. Loads are usually hefty, like 5%. What this means: with a 5% load, if you invest \$1000 dollars, \$50 goes to the brokerage and only \$950 goes to purchase shares of the fund. You already start 5% in the hole. You must then earn at least 5% over the next year just to break even. Furthermore, any reinvested dividends or distributions are also assessed a load. Most load funds hide their load in the purchase price of the fund shares. They call it a bid-ask spread. For example, the NAV may be \$50, but you actually purchase shares at \$52.50. That extra \$2.50 per share represents the 5% load.

A load is perhaps the slimiest, dirtiest, most unfounded expense ever created. It is the type of scheme hatched in the bowels of Hell itself. If you buy a load fund, cute little puppies will get eaten by alligators. You don't hate puppies, do you?

Sometimes a fund will charge a 12b-1 fee, which is already embedded in the expense ratio. The *supposed* purpose of a 12b-1 fee is to raise money for advertising. This should draw in more investors, allowing managers to lower expenses. This rarely works. First of all, studies show that future returns actually *worsen* as an actively-managed fund increases its asset size. The fund gets bogged down with too many investors. The manager incurs more market impact costs (discussed later) and has a harder time finding quality stocks for all these investors (there is limited supply of stocks available for fund managers). Furthermore, 12b-1 fee tends to stay on indefinitely, even if more investors arrive. Many fund managers have even used this money as a kick-back to the brokerages that push their funds. So, it has become a new form of commission, or load. Suffice to say, skip funds that charge a 12b-1 fee. Remember the puppies?

Another cost I wish to point out, called a "mortality expense", deals with a product called a variable annuity. I'll talk more about annuities in a later chapter. For now, understand that these are investment products with an insurance component, sold by firms such as VALIC or MetLife. Their advantage is their tax-deferred status. The insurance company collects your money and invests in the mutual funds available through the annuity. In

addition to the mutual fund's expenses, the insurance company adds a "mortality expense", which is a year-round expense. On average, they charge 1% of assets *on top of* whatever you already pay with the mutual funds. So if the mutual fund itself charges a 1.5% annual expense, and the insurance company adds a 1% mortality expense, your total annual expenses are 2.5%. Beware: many annuities *also* have hefty surrender fees if you withdraw money before a certain period. (Fidelity and Vanguard sell variable annuities at only a fraction of these costs and no surrender fees. So, not all variable annuities are evil; just most.) In many ways, variable annuities share the same qualities as genital herpes ... you get burned, and you are stuck with the discomfort for a long time.

When you factor all the expenses (including loads and transaction costs), most investors in a variable annuity end up paying about 3% or more total annual expenses ... absolutely appalling! Furthermore, many variable annuities are held within a 401(k) or 403(b), which are already tax-deferred anyway. So, the extra costs are *blatantly* unnecessary! Just to put things in perspective, if the gross returns in a variable annuity are 8% annualized, and total annual expenses are 3%, the investors will only earn a 5% net annual return. Using this example, if someone invested \$5,000 per year for 40 years, they would fall short by \$690,000 compared to a portfolio of low-cost index funds.

Beware of temporary redemptions or reductions of fees, which last only until a certain date. If you see an asterisk or superscript next to a reported expense ratio in a prospectus, be sure to find the corresponding note in the small text, usually located below the fee table. They may be reporting the reduced number in the table, but will "fess up" about the total possible expenses in the small print. Rest assured that after the pre-set date, most of these funds will increase to the full expense charge.

The loads, expense ratios (which include 12b-1 fees), and mortality expenses (in a variable annuity) are the direct costs to investors. But, as if this was not bad enough, there are actually more costs that investors incur. These are the "hidden" charges that I will now talk about.

2) **Transaction costs.** Broker commissions and bid-ask spreads.

The fund manager cannot be on the floor of the New York Stock Exchange. Her company's broker does the actual trading. Not only does the broker get a fee, but the security dealer also gets a fee. To make trading smoother, major stock exchanges allow specialists (security dealers) to keep an inventory of stocks to facilitate trades between brokers. The bid-ask spread is the difference between his selling price versus his buying price. The broker always gets the raw deal. The broker buys your stocks at the higher price but sells your stocks at the lower price. Every time the fund manager buys or sells stocks, a small amount of money is lost to transaction costs. Whose money? Why ... your money, of course.

Actively-managed funds frequently change their portfolio to add a "hot" stock or dump a "cold" stock. This "portfolio turnover" can be defined as the percentage of total assets

which have been replaced by new stocks over a period of a year. Actively-managed funds have high portfolio turnovers, ranging from 40% to 200%. Transaction costs put a serious drag on performance, not to mention the tax consequences (in a taxable account). (Note: portfolio turnover has no real meaning in a bond fund, since bonds mature.)

It is estimated that commissions and bid-ask spreads for actively-managed funds add an extra 0.5% annual expense, on top of the reported expense ratio. By contrast, index funds add only 0.02% in transaction costs because of their very low turnover.

(http://www.zeroalphagroup.com/news/Execution_CostsPaper_Nov_15_2004.pdf)

I see a bad movie parody in the works. It's a spoof on "It's a Wonderful Life". George is holding his daughter in the New York Stock Exchange and the trading bell rings. "Look, Daddy! Teacher says every time a portfolio turns over, a broker gets a new Porsche."

3) Market-Impact costs. A market impact cost is when a fund artificially raises or lowers a stock's price because it is trying to acquire or sell a large portion of shares available on the market. This is mostly seen with funds that invest in assets with small market capitalization. Small-cap stocks, emerging market stocks, REIT funds, or sector funds are examples.

Let us say Fidelity has a small-cap value stock fund, holding 50 stocks. If a large number of investors start infusing money into the fund, the manager has to buy many stocks to accommodate. Since these small-cap stocks only have a few thousand shares available on the market, and the manager is acquiring a big portion of them, this activity artificially raises their prices. At first, this sounds like a positive event for investors. But, think again. Investor's money is being used to purchase these stocks at higher and higher prices, reducing future profits.

Market impact costs are negligible with large-cap stock funds, because there are millions of shares available. Also, index funds tend to minimize the market impact costs since they hold such a wide array of stocks, spreading the money out further.

How Much Turnover is "Too High"?

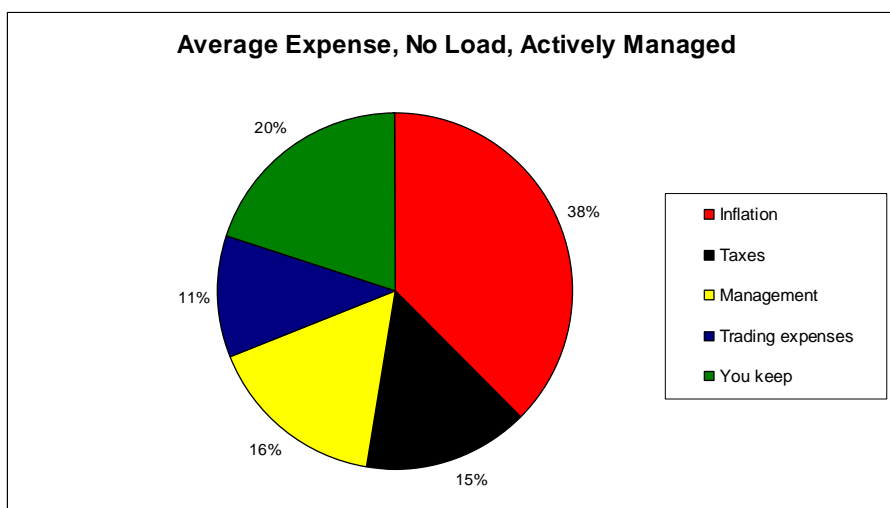
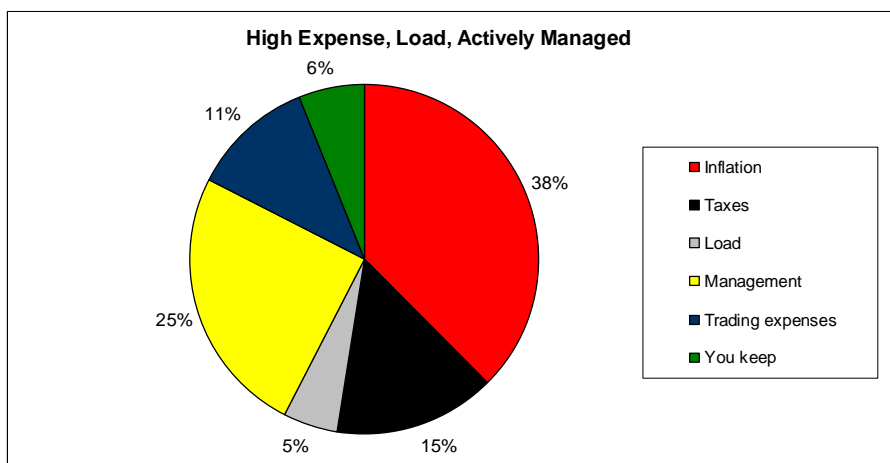
Since these "hidden fees" (commissions and bid-ask spreads) are not included in the expense ratio, how can an investor measure them? An easy way to estimate them is to go to Morningstar's website and check the fund's turnover rate. It will be near the bottom of the "snapshot" section for each fund. Use the Morningstar fund screener to compare funds of the same asset class. See how yours stacks up to its peers and the index funds.

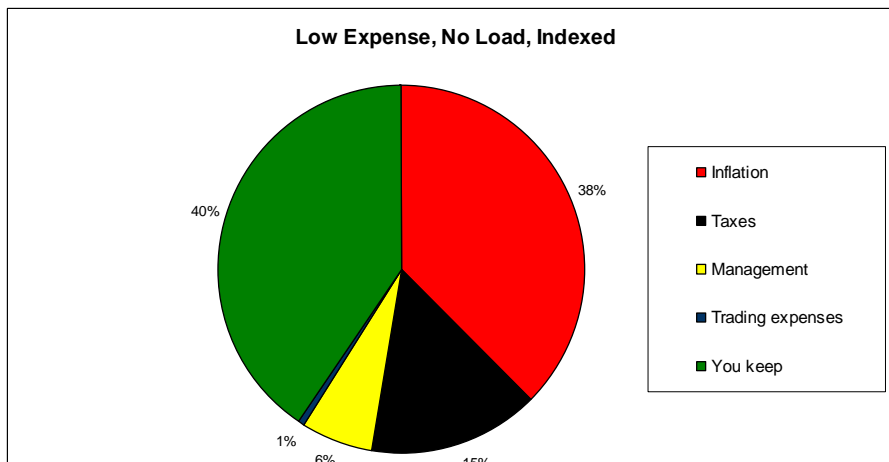
So, the obvious question is, "How high is too high?" I could come up with an arbitrary cutoff, but your interpretation is as good as mine. Personally, I would think a 25% or lower turnover is a good sign, while turnovers above 40% would raise a red flag. However, it depends on which asset class the fund holds. For example, S&P 500 index funds have historical turnover rates less than 10%. Large-cap domestic stock funds

should have low turnover rates. However, it is normal to see small-cap, value, or international funds with moderately higher turnover rates.

The Expense Breakdown

I have 3 examples of large-cap stock funds, assuming an annualized 8% gross return. I assume the funds are held in a tax-deferred account and that you will be in a 15% tax bracket when you take your distributions. I assume inflation will be 3%. I used expense ratios of 2% for "High Expense", 1.3% for "Average Expense", 0.5% for "Indexed" funds respectively. (Note that some index funds have expense ratios lower than 0.5%, giving them an even larger advantage.) I assume a 0.5% annual expense for trading costs in the actively-managed funds, but 0.02% for the index fund. *Even with the index fund, you still keep less than half of your earnings because of taxes and inflation.* This is how the 8% gross return is divvied up:





A Word About Actively-Managed Funds

Throughout the chapters, I have taken potshots at actively-managed funds. Let me pull my punches for a moment and explain.

I do not think actively-managed fund managers are stupid or incompetent. These men and women are some of the best analysts available. That is why they have been placed in charge of funds. Instead, the issue has to do with stock selection.

It has become vogue for advocates of index funds to mock active manager's lack of "stock-picking ability". Perhaps this is an unfair assertion. This is like saying, "3 year-old babies have no driving skills." While technically this may be true, this is an erroneous statement. The purpose of mutual funds is to diversify away nonsystematic risk, thus eliminating the effects from individual stock selection. By design, mutual funds are *supposed to* produce average market returns, not above-average. 3-year olds are not supposed to drive cars and fund managers are not supposed to select superior baskets of stocks. The very structure of a mutual fund does not allow this to transpire.

When investors want superior returns, they should pick a few stocks they feel will beat the market average ... with the risk that they may badly underperform. On the other hand, when investors want market-equivalent returns, they should turn to mutual funds.

In Jack Bogle's book, *Common Sense on Mutual Funds*, he goes through several studies comparing actively-managed funds to index funds. Firstly, he discovers that the index advantage spreads to all areas of the stock and bond markets, except small-cap growth stocks. So the advantage is not merely seen in large-cap stocks. Secondly, when he adds back the expenses imposed by the actively-managed funds to their net returns, the gross returns of the actively-managed and index funds become very similar. In other words, *indexing works because of low costs, not because active fund managers are stupid.*

Actively-managed funds fail not because of stock-picking, but because they are governed by unnecessary turnover, extract high fees, and are often sold with a load.

Equity Premium

Another way to think about costs is in terms of the equity premium. Equity premium is the real return above and beyond the "risk-free" real return of Treasury bills. (Real return is return minus inflation.) Therefore:

Return of stocks - Inflation - Risk-free real return = Equity Premium

Treasury bills have historically given real returns around 0.5%, and inflation has run 3.5% over the last 50 years. Economic experts are predicting an annualized stock market return around 8% over the next three decades. (Not that I can predict the future, but I need, at least, some point of reference.) Let us assume these numbers are fairly accurate. In the next three decades, our equity premium calculates to 4%:

$$8 - 3.5 - 0.5 = 4\%$$

The equity premium is the extra return granted to us for taking the risk of owning stocks. Notice that only *half* of the stock market return is based on this premium. The other half is the same as merely holding Treasury bills, which have no risk. If our stock mutual fund has a 2% expense ratio, it eats away half of the equity premium. We would only earn 2% above the return on Treasury bills. (8% return - 3.5% inflation - 0.5% risk-free real return - 2% expenses = 2%)

Things get even more interesting when we think about equity premium compared to owning Treasury I-bonds. I-bonds are the ultimate no-risk retirement investment: tax-deferred for up to 30 years, no expenses, no default risk, no interest rate risk, with a promised real return. I-bonds are being issued at a real return of 1.4% as of November 2006. This means the bond will always yield 1.4% above inflation, no matter what happens. If inflation soars to 10%, then the I-bonds will yield 11.4% (10 + 1.4) during that period. You have a guaranteed real return. Let us calculate an equity premium:

$$8\% \text{ stock return} - 3.5\% \text{ inflation} - 1.4\% \text{ risk-free I-bond return} = 3.1\% \text{ equity premium}$$

Uh, oh. The premium just shrank. Now if we buy a stock fund with a 2% expense ratio, we are only earning 1.1% above an I-bond return. (8% return - 1.4% risk-free real return - 3.5% inflation - 2% expenses = 1.1%).

3 Asset Classes Where Expenses are Absolutely Critical

There are three asset classes where expenses are particularly important: emerging market stocks, investment-grade bonds, and money market securities.

Emerging market stocks are securities from places we so eloquently call "third-world countries". These countries are still developing their capital markets, and are not yet stable. So why would anyone want to invest in them? Because they have the greatest

potential for returns since they pose the biggest risk. Plus, they are often non-correlated with other asset classes.

However, emerging countries do not have stock markets with orderly trading rules and an abundance of investors. Emerging market stocks are less liquid and therefore trade with very large bid-ask spreads. Also, market impact costs are extremely high since there are only a limited number of available shares. So, portfolio turnover becomes vitally important. An active manager can literally trade away the entire equity premium with a high turnover rate. To add insult to injury, expense ratios are high in emerging market funds. In my opinion, low-cost index funds are the *only* viable way to invest in emerging market stocks. If you cannot find one, do not invest in emerging markets at all. (Note: some Total International Index funds will have a small amount of emerging market stocks already. This is, IMO, the best way to own them.)

The remaining 2 asset classes, investment-grade bonds and money markets, have slim real returns. These bonds are commodities. In the long run there is no significant difference between investment-grade bonds of one corporation versus another, and Treasuries all come from the same source. We are talking about highly efficient bond markets where almost no fund manager can find a hidden gem. Therefore, costs become the single most important determinant of your return. Funny enough, bond funds carry about the same average expense ratios as do stock funds. Say what?! Wall Street really does think investors are fools.

Treasuries are expected to yield about 1 - 2% real return (4.5 - 5.5% nominal return), while investment-grade corporate bonds and mortgage-backed bonds may yield 2 - 3% real return (5.5 - 6.5% nominal return), depending on the credit rating and duration of each. With corporate bonds, the bond premium calculates to:

6.5% return - 3.5% inflation - 1.4% risk-free I-Bond real return = 1.6% premium

With a maximum bond premium of 1.6% we can see that expenses are vitally important for bond funds. Even a 1% expense ratio steals the majority of our bond premium, leaving us with only a 0.6% return above I-bonds. A low-cost, total bond market index fund is your best friend for retirement investing. (Incidentally, bonds are one area where Vanguard absolutely trumps all other investment firms. Their bond and money market funds have 0.13 – 0.2% expense ratios, no loads, and no 12b-1 fees.)

One little caveat about I-bonds. Their tax-deferred status only lasts for 30 years. Do you see the potential backfire? Let's say that you put money in I-bonds at age 25, planning to use them as part of your retirement investing. 30 years later, at age 55, you may still be working and now have to pay tax on all that interest. At this age, you are probably in the highest tax bracket of your working years. My advice: do not invest in I-bonds for retirement until age 35 or older.

I-bonds are particularly attractive for people in their 50's that need to add just a little extra to their portfolio but do not want the hassle of a variable annuity.

Conclusion

Let's put together some basic pieces of information. One: from year to year, actively-managed fund performance is random. There is no reason to believe one particular fund will do exceptionally well. Two: over the long run, actively-managed fund performance is usually less than the market average because of hefty financial intermediation costs. Three: there is no evidence to link higher fees to better performance. The evidence is actually to the contrary. All in all, buying actively-managed funds is a losing proposal.

Whatever the future market return is, we can assume that our funds will not likely perform better than average. (If there are exceptional funds, we cannot pick them in advance.) Trying to increase our return by choosing "superior funds" is a futile exercise. The future return is set by whatever market forces will transpire. Thus, we come to only one logical conclusion: *the higher the expenses we incur, the less we keep and the less money we have at retirement.*

When it comes to costs, there are no fancy theories with complex equations. The concept is so elementary, yet so overlooked. There is a certain amount of dollars your fund will make and either you can keep them or your manager can. It's really that simple.

Don't get me wrong. Actively-managed, load funds do make a lot of money. They make money for the brokerage, the managers, the security dealers, and the government. This is why fund companies promote them and sweep news of index funds under the rug. Churning stocks within funds, convincing investors to chase hot funds, and encouraging short holding times with market timing suggestions are all tactics to keep these people employed. If investors knew the truth about buying and holding index funds, many of these people would be out of a job. Mutual funds are an industry where (probably) half the people are employed through the general public's ignorance. Talk about subsidizing jobs.

It is time to cut emotional attachments to our fund families and brokerages. No matter what their friendly representatives tell you, investment firms do not have your best interest at heart. These guys and gals are not your friends. Instead, we need to view them as business partners. See, in the world of business, each side assumes the other is trying to screw them over. And that is how we should approach fund selection. Scrutinize your mutual funds and make friends elsewhere. It is time to bring costs to the forefront of investment selection, rather than an afterthought.

Little differences in expenses compound to large differences in wealth!