

# Asset Management Fees and the Growth of Finance

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**F**rom 1980 to 2006, the financial services sector of the United States economy grew from 4.9 percent to 8.3 percent of GDP. A substantial share of that increase was comprised of increases in the fees paid for asset management. This paper examines the significant increase in asset management fees charged to both individual and institutional investors. Despite the economies of scale that should be realizable in the asset management business, the asset-weighted expense ratios charged to both individual and institutional investors have actually risen over time. If we exclude index funds (an innovation that has made market returns available even to small investors at close to zero expense), fees have risen substantially as a percentage of assets managed.

One could argue that the increase in fees charged by actively managed funds could prove to be socially useful, if it reflected increasing returns for investors from active management or if it was necessary to improve the efficiency of the market for investors who availed themselves of low-cost passive (index) funds. But neither of these arguments can be supported by the data. Actively managed funds of publicly traded securities have consistently underperformed index funds, and the amount of the underperformance is well approximated by the difference in the fees charged by the two types of funds. Moreover, it appears that there was no change in the efficiency of the market from 1980 to 2011. Arbitrage opportunities to obtain excess risk-adjusted returns do not appear to have been available at any time during the early part of the period. Passive portfolios that bought and held all the stocks in a broad-based market index substantially outperformed the average active manager

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throughout the entire period. Thus, the increase in fees is likely to represent a deadweight loss for investors. Indeed, perhaps the greatest inefficiency in the stock market is in “the market” for investment advice.

## **Economies of Scale in Asset Management**

There should be substantial economies of scale in asset management. It is no more costly to place an order for 20,000 shares of a particular stock than it is to order 10,000 shares. Brokerage commissions (which are usually set in a flat dollar amount per transaction, at least within broad ranges of transaction size) are likely to be similar for each purchase ticket, as are the “custodial fees” paid to the bank that holds the securities that are owned. The same annual report and similar filings to the Securities and Exchange Commission are required whether the investment fund has \$100 million in assets or \$500 million. The due diligence required for the investment manager is no different for a large mutual fund than it is for a small one. Modern technology has fully automated such tasks as dividend collection, tax reporting, and client statements.

To be sure, an active investment manager of a small company (so-called “small-cap”) fund may find that somewhat more effort will be required than for the management of large-cap funds. This is so because diversification and liquidity requirements will constrain the fund manager from holding too large a proportion of any one company’s outstanding stock—which is a problem far less likely to arise for a fund investing in large (“large-cap”) companies. Thus, the managers of small-cap funds are likely to be required to hold and follow a larger number of securities and to be far more concerned about the liquidity of their holdings. Nevertheless, the fund’s infrastructure will not change. There will be no substantial additional expense in a small-cap fund for general market analysis, industry analysis, accounting, general oversight, or reporting requirements. Even if additional securities analysts need to be hired for a larger fund, expenses are likely to increase by only a small proportion of any increase in assets managed.

Academic research has documented substantial economies of scale in mutual fund administration. Latzko (1999) estimated a cost function for 2,610 mutual funds and concluded that the average cost curve for the typical mutual fund is downward sloping over the entire range of fund assets. Dyck and Pomorski (2011) documented substantial positive scale economies for asset managers of (defined benefit) pension plans. Coats and Hubbard (2007) do not dispute the existence of considerable economies of scale in the mutual fund industry, but argue that substantial competition exists in the industry. They argue that barriers to entry are low and new entry into the industry is common. What is undeniable, however, is that the fees paid to investment managers have increased substantially over time.

In 1980, the entire equity mutual fund industry managed less than \$26 billion of assets. In 2010 the equity assets of the mutual fund industry totaled almost \$3.5 trillion: thus, the total value of equity assets held by the mutual fund industry

*Table 1*  
**Asset-Weighted Expense Ratios for Domestic Equity Funds**  
*(in basis points)*

	<i>Including index funds</i>	<i>Excluding index funds and ETFs*</i>	<i>Share of equity mutual funds actively managed</i>
1980			
Expense ratios (basis points)	66.0	66.1	
Total assets (billions)	\$25.81	\$25.71	99.7%
1990			
Expense ratios (basis points)	83.3	85.0	
Total assets (billions)	\$136.11	\$131.69	96.8%
2000			
Expense ratios (basis points)	83.8	94.9	
Total assets (billions)	\$2,158.50	\$1,817.48	84.2%
2010			
Expense ratios (basis points)	69.2	90.9	
Total assets (billions)	\$3,488.35	\$2,473.59	70.9%

*Source:* Author using data from Lipper Analytic Services.

*Note:* Table 1 shows expense ratios (in basis points) for all equity mutual funds reporting to Lipper Analytic Services, as well as total assets (in billions of dollars).

\*ETFs are exchange-traded funds.

rose by a multiple of 135 times from 1980 to 2010. Surely, there had to be enormous economies of scale that could have been passed on to consumers, resulting in a lower cost of management as a percentage of total assets. But we will see below that the scale economies in asset management appear to have been entirely captured by the asset managers. The same finding appears to hold for asset managers who cater to institutional investors.

## Fees Paid to Mutual Fund Managers

Substantial fixed costs are involved in the formation and management of a mutual fund company. Executives of the fund need to be hired, including those responsible for portfolio management and marketing. A legal capability needs to be established to handle compliance and reporting requirements. If the fund is to be actively managed, security analysts must be employed. But as the assets of the fund grow, the fixed-cost infrastructure of the fund should comprise a smaller percentage of the fund's total assets. Fund management expenses should fall as a percent of fund assets.

**T1** Table 1 shows expense ratios for all equity mutual funds reporting to Lipper Analytic Services. Reading down the first column, which includes the universe of all funds, we see that expense ratios have been roughly flat over time. The

annual expense ratio was 66.0 basis points (a basis point is 1/100 of 1 percent) in 1980 and 69.2 basis points in 2010. But the total assets of equity mutual funds increased by more than 135 times. Thus, the total expenses paid to equity mutual fund managers increased from \$170.8 million to \$24,143 billion—an increase of over 141 times. Holders of public mutual funds have made enormous contributions to the gross revenues flowing to the asset management industry. In the presence of widely recognized substantial economies of scale entailed in the asset-management business, we can conclude that the benefits of scale economies have largely been directed to asset managers rather than accruing to the benefit of fund shareholders.

However, one innovation in the asset management business—the index fund and its exchange-traded counterpart—has allowed the individual investor to benefit from scale economies. The first equity “index fund” (meaning, a fund that simply buys and holds all the funds in some, usually broad, stock-market index) was established by the Vanguard Group of Investment Companies in the late 1970s. While competition in the actively managed segment of the mutual fund market has primarily taken the form of product differentiation, the generic index fund part of the market has experienced vigorous price competition. In this indexed segment of the asset management industry, price competition has been fierce. Exchange-traded funds that track either the Standard and Poor’s 500 Stock Index (an index that comprises about 75 percent of all listed stocks) or the Wilshire 5,000 Total Stock-Market Index are available to individual investors at expense ratios of 5 basis points or less. The third column of Table 1 indicates that the share of fund assets represented by low-cost index funds has grown substantially since 1980. The index mutual funds now comprise nearly one-third of the total mutual fund assets. The remainder consists of fund assets that are “actively managed” by investment management companies.

Column 2 of Table 1 presents the expense ratios of these actively managed equity mutual funds. These data show no evidence that scale economies have benefited shareholders in actively managed mutual funds. Expense ratios paid by the shareholders of actively managed funds have increased substantially from about 66 basis points in 1980 to over 90 basis points in 2010. While competition has driven down the expense ratios of index funds and exchange-traded funds, which trade like uniform commodities, competition has not lowered fees for the differentiated active funds.

Of course, when stated as a percentage of *assets*, fees do look low—close to 1 percent of assets for individuals. But a reasonable alternative way of appraising these fees is to compare them with the returns managers produce—in which case the fees no longer look “low.” If overall stock-market returns average, say, 7 percent a year, then those same fees of 1 percentage point are actually about 14 percent of stock-market returns for individuals. If, instead, one measures fees as a percentage of the dividends distributed to mutual fund shareholders, mutual fund fees take up well over 50 percent of dividend distributions. But even these recalculations may substantially understate the *real cost* of active investment management. A more

reasonable way to assess the benefits of active management is to measure fees as a percentage of the “excess” returns produced by active managers over the returns available from low-cost index funds; and these excess returns, as we will discuss in the last section of this paper, seem nonexistent. Finally, we should note that the fee numbers in Table 1 are asset-weighted. To the extent that mutual fund customers have switched from high-cost funds to low-cost ones, the data tend to make overall industry expense ratios look more moderate than they are.<sup>1</sup>

Before leaving this discussion of mutual fund fees, we need to acknowledge the arguments of the mutual-fund industry trade group, the Investment Company Institute, commonly known as the ICI. In a 2010 research report, the ICI has argued that the expense ratios of mutual funds have declined since 1990. What the ICI includes in their calculation of fund fees are so-called “sales costs” or “load fees.” It is true that sales charges (for funds that do charge them) have declined over time (although many actively managed funds are so-called “no load” funds that have zero sales charges). According to the ICI, annualized sales loads have dropped from 0.99 percent of assets in 1940 to 0.13 percent of assets in 2009. This calculation is disputed by Bogle (2010b). Even if accurate, however, the reduction of sales charges simply reflects the drop in trading costs that has characterized the financial services industry. Brokerage commissions have declined as well. But the far larger and more important metric is the annual investment management expense fees charged by the asset management industry. As is shown in the data above, these fees have grown substantially.

T2 Asset-management fees have also increased for institutional investors. While the level of institutional fees is lower than that for individual investors, the data in Table 2A show that expense ratios charged large institutional investors for active management of equity funds have increased from about 47 basis points to 55 basis points from 1996 to 2011. Table 2A shows that equity management expense ratios charged to corporate funds, public funds, and endowment funds have all increased over the past 15 years. Table 2B shows similar data for fixed-income managers (that is, managers who specialize in debt rather than equity). Expense ratios as a percentage of assets have been roughly flat. But because total fixed-income assets have increased over the 15-year period, total fees paid to fixed-income managers have increased significantly. We can conclude that asset-management fees for both institutional and individual investors have increased substantially over time. This increase in asset-management fees has played an important role in the growth of the financial services industry since 1980.

<sup>1</sup> The Securities and Exchange Commission has mandated more transparency with respect to fees, and mutual fund prospectuses are now required to contain fee information, stated in dollar amounts. Perhaps what might be more revealing would be a requirement to state those fees in terms of the percentage of the fund’s long-run returns that have been consumed by fees.

Table 2

**Average Fees Paid to Fund Managers for Institutional Investors**  
(in basis points, asset weighted)

A: Active domestic equity managers for corporate funds, public funds, and endowments						
	1996	1999	2002	2005	2008	2011
Corporate funds	52.9	54.4	54.2	54.9	53.5	55.0
Public funds	38.7	39.7	42.0	49.3	46.6	48.0
Endowments	51.3	51.3	59.9	59.1	64.4	64.0
<b>Total</b>	<b>46.8</b>	<b>46.6</b>	<b>52.4</b>	<b>54.1</b>	<b>54.7</b>	<b>55.0</b>
B: Active fixed-income managers for corporate funds, public funds, and endowments						
	1996	1999	2002	2005	2008	2011
Corporate funds	32.6	34.3	27.5	28.0	29.7	30.0
Public funds	26.2	25.6	23.2	25.2	25.7	26.0
Endowments	29.6	30.4	27.1	29.0	34.7	36.0
<b>Total</b>	<b>29.0</b>	<b>29.1</b>	<b>26.3</b>	<b>27.3</b>	<b>30.0</b>	<b>30.1</b>

Source: Author using data from Greenwich Associates.

## Is the Increase in Asset-Management Fees Justified by the Value Added to Investors?

Whatever the costs charged to the owners of actively managed mutual funds, they could be more than justified if such funds produced superior returns for investors. After all, investors would happily pay annual fees of 1 percent of asset value to fund managers if active management produced gross returns that were 2 percent higher than passive index funds before the imposition of fees. Thus, the appropriate way to judge the economic benefits of expense ratios is to examine the relative returns of active and passive funds net of the fees charged. Fortunately, the complete records of both actively and passively managed mutual funds are available.

The data consistently provide overwhelming support for low-cost indexing as an optimal strategy for individual investors. 2011 was a particularly good year for indexing, because 84 percent of large capitalization fund managers were outperformed by the large-cap Standard and Poor's 500 Index. In addition, 82 percent of bond fund managers were outperformed by the Barclays U.S. Aggregate Bond Index. Similar numbers were recorded for managers of European stocks, emerging market equities, and small-cap managers. Over longer periods of time, about two-thirds of active managers are outperformed by the benchmark indexes, and the one-third that may outperform the passive index in one period are generally not the same as in the next period. In Malkiel (2011), I showed that there is little persistence in superior performance; indeed, whatever persistence there is in mutual

Table 3

**Percentage of US Equity Funds Outperformed by Benchmark**

Fund Category	Benchmark Index	Percent Outperformed	
		2011	5 years through 2011
All Domestic Equity	S&P 1500	84	62
All Large Cap Funds	S&P 500	81	62
All Mid-Cap Funds	S&P Mid-Cap 400	67	80
All Small-Cap Funds	S&P Small-Cap 600	86	73
Global Funds	S&P Global 1200	69	63
International Funds	S&P 700	69	78
Emerging Markets Funds	S&P/IFCI composite	54	83

Source: Standard & Poor's and CRSP Survivor Bias-Free US Mutual Fund Data Base.

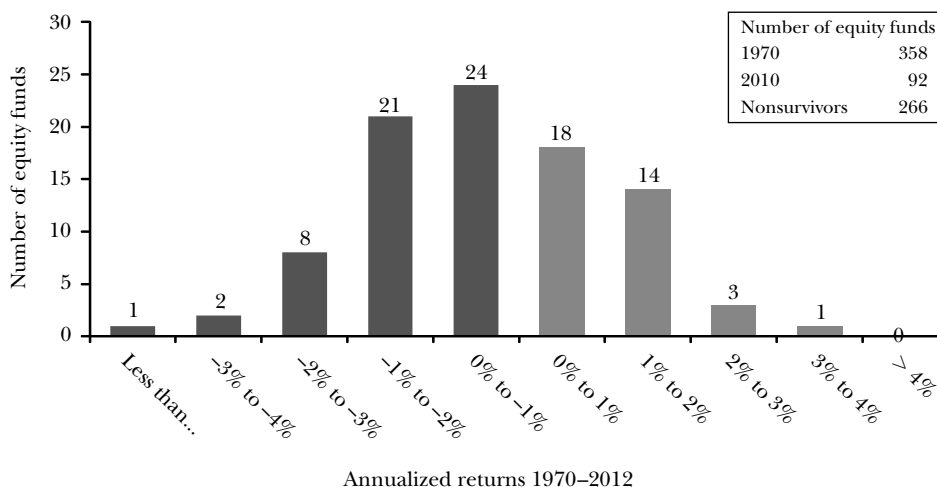
Note: Table 3 presents percentage of US equity funds that were outperformed by various benchmark indexes over the five-year period ending December 31, 2011.

fund returns reflects the fact that very high-cost funds do tend to exhibit somewhat consistent negative relative returns.

**T3** Table 3 presents percentages of U.S. equity funds that were outperformed by various benchmark indexes over the five-year period ending December 31, 2011. Among actively managed funds, it was the small- and mid-cap funds (involving small- and medium-sized companies) and emerging markets funds and international funds that were even more likely to be outperformed by their benchmarks. While active fund managers often argue that markets are less efficient for smaller firms and for equities in emerging markets, whatever advantages may exist for active management in these sectors of the equity market appear to be outweighed by the higher fees charged relative to large-cap domestic equity management.

**F1** Figure 1 presents an analysis of the returns provided to investors over more than a 40-year period since 1970. In 1970, there were 358 equity mutual funds. (Today, thousands of active funds are marketed to the public.) Of the original group, 92 funds have survived. Hence, these data are compromised by survivorship bias. We can be confident that the 266 funds that did not survive had poorer records than did the surviving funds! Funds with especially poor records in a mutual fund complex are often merged into other funds with better past records. Yet even examining a dataset affected by substantial survivorship bias, the possibility of outperforming a broad-market index is extraordinarily small. One can count on the fingers of one hand the number of equity mutual funds that have beaten the market by two percentage points or more. My point is not that it is literally impossible to beat the market, but rather that investors who turn to active asset managers in an

Figure 1

**Returns of Surviving Funds: Mutual Funds 1970 to 2012, Compared with S&P Returns**

**AQ1** Source: Author using data from Lipper Analytic Services.

attempt to do so are far more likely to find themselves in the negative part of the distribution, rather than enjoying superior performance.

**T4** Table 4 presents detailed data on active fixed-income or bond portfolio management. Comparing Tables 3 and 4, we see that it is even less likely for active management of fixed income portfolios to produce excess returns over the returns from passive indexes. Even for high-yield bonds, where good credit analyses might be expected to produce excess returns, the percentage of managers outperforming their benchmark indexes is extremely small. Again, in the very areas where active management is often recommended—in this case, high yield bonds—the results are particularly dismal. The higher fees charged by such managers completely overwhelm whatever benefits they might produce.

It might be argued that even if active management has not produced excess returns for investors, the increase in fees supported socially useful arbitrage activities, which made the market more efficient. But there is no evidence that our markets were less efficient before the increase in fees. In a less-efficient market, managed funds would show better returns than unmanaged funds. But, according to Jensen (1968, 1975), even before 1980, active managers did not outperform their benchmarks. My own work (1995) comparing the returns of active managers versus passive index funds during the 1970s and 1980s showed no evidence that opportunities to earn excess returns existed before 1990. So the higher fees do not seem necessary to increase efficiency in the US equity and bond markets, as these markets showed no unexploited inefficiencies even before the increase in fees.



Table 4

**Percentage of Fixed Income Funds Outperformed by Benchmarks, Five Years through 2011**

Fund Category	Comparison Index	Percent Outperformed
Government Long	Barclays Long Government	94%
Government Intermediate	Barclays Intermediate Government	67
Government Short	Barclays 1-3 Year Government	67
Investment-Grade Long Funds	Barclays Long Government/Credit	92
Investment-Grade Intermediate Funds	Barclays Intermediate Government/Credit	61
Investment-Grade Short Funds	Barclays 1-3 Year government/Credit	94
High-Yield funds	Barclays High Yield	96
Mortgage-Backed Securities Funds	Barclays Mortgage-Backed Securities	75
Global Income Funds	Barclays global Aggregate	72

Source: Standard & Poor's.

## The Costs of Active Management

Despite the considerable economies of scale that exist in the active money management business, the annual fees charged to both individual and institutional investors have been either flat or rising over the past three decades. To be sure, the sales charges or load fees imposed on the purchases of most mutual funds have been lowered over the same period—just as brokerage commission costs of other types have declined. But ongoing asset-management fees have not reflected the scale economies that have been realized as the industry has grown. This increase in asset-management fees has contributed to the increase in the share of GDP accounted for by the financial services industry. At the same time, the financial innovations of index funds and exchange-traded funds have provided instruments that allow individual investors to obtain the returns offered by the stock and bond markets as a whole at virtually zero cost.

One could argue that the costs of active management can be justified by the benefits of promoting price discovery and market efficiency. But there is no evidence that the stock and bond markets were any more efficient in 2011 than they were in 1980. Here I use the term “efficiency” to reflect a lack of arbitrage opportunities that would enable active investment managers to beat the market after adjusting for risk. Active portfolio management has failed to generate excess returns rather consistently from 1980 to the present. Thus, the extra costs of active management do not benefit either investors or society as a whole.

Table 5

**Average Returns, Active Funds, versus Index**  
(20 years through 12/31/2011)

Large-Cap Equity Funds Average	7.18	Small-Cap Equity Funds Average	5.50*	Fixed Income Funds	5.69
S&P 500 Index	7.81	MSCI US Small-Cap 1750	6.98*	Barclays US Aggregate Bond Index	6.50
S&P 500 Index Advantage	0.64	MSCI US Small-Cap 1750 Advantage	1.48*	Barclays US Aggregate Bond Index Advantage	0.82

Source: Author using data from Lipper Analytic Services and Vanguard.

\*Ten years of data to 12/31/2011.

T5 We can estimate the costs borne by investors by comparing the average returns from actively managed mutual funds with low-cost index mutual funds or exchange-traded funds that track various market benchmarks. Most equity mutual funds invest in large capitalization stocks for which the appropriate benchmark is the Standard & Poor's 500 Stock Index. Table 5 presents the comparison. Over the past 20 years, it appears that investors paid 0.64 percent of the aggregate value of the total market capitalization in the (futile) search for superior returns. French (2008) made a similar comparison over the 1980–2006 period and found a 67 basis point advantage for passive investing. Table 5 shows an even larger advantage for fixed-income funds. The table also shows a 148 basis point advantage of passive over active management in small-cap funds, where the market is sometimes claimed to be less efficient. The larger gap reflects both the much higher management fees charged by small-cap managers and the increased costs of portfolio turnover with less-liquid smaller companies.

**Why Do Excessive Fees Persist?**

How can we explain the puzzle of why investors continue to pay excessive fees for financial services of such questionable value? Explanations that are unambiguously convincing may well be unachievable, as is the case for many of the puzzles in finance. But I would suggest that the following considerations play at least some role in increasing our understanding of what seems to be inexplicable consumer behavior.

Many consumers of financial services may judge the effectiveness or quality of investment advice by the price charged by the purveyor of the service. While the aspirin in a brand name like Bayer and in a generic product are identical, there are at least some other products where consumers correctly judge that the expensive, branded product is of higher quality than the lower-cost alternative. Kleenex is usually of higher quality than generic facial tissues. Q-tips are often superior to

less-expensive cotton swabs. Thus, many consumers may view a branded, actively managed mutual fund to be superior to a generic index fund. For many consumers, the demand curve for mutual funds (over a certain range) may be positively sloped.

Advertising by the fund industry is geared to promote the idea that investing is very complicated, that “experts” are required to help, and that actively managed funds are really worth the high prices that are charged. Critics such as Bogle (2010a) have suggested that the fund industry is principally a marketing industry and advertisements are often misleading. Fund performance is often advertised as “outstanding,” but the fine print reveals that this is true only for a carefully selected and limited time and against a carefully selected peer group or benchmark.

Overconfidence is also likely to play an important role in explaining investor behavior. Many investors may truly believe that they can select the best stocks and the best investment managers.

The fact that professional investors appear willing to pay excessive fees to their investment managers seems particularly puzzling. To be sure, the fees paid by institutions are lower than those paid by individuals. But institutional investors are usually highly sophisticated, and it is hard to believe that they naively accept earning inadequate returns while paying high management fees. Three factors may play at least a partial role in explaining this conundrum. First, institutional investors are particularly prone to suffer from overconfidence. Kahneman and Riepe (1998) and Kahneman (2011) have suggested that institutional investors may represent unique examples of overconfidence and hubris. They may truly believe that they will eventually earn excess returns despite historical evidence to the contrary. Second, it is important to point out that the most sophisticated institutions do not pay the average fees noted in Table 3. Investors such as Yale’s David Swensen, author of what has been called “the endowment model” (2000), could easily negotiate lower fees since any asset manager would be delighted to have Yale University as a high-profile client.<sup>2</sup> Finally, we should note that more professional investors do index their investments in publicly traded securities than is the case for individual investors. Professional investors index about one-third of their holdings of publicly traded securities.

The growth of indexing raises an interesting question. If every investor indexed, who would ensure that new information is rapidly incorporated into market prices? Surely one advantage of having an industry of active investment managers is that price discovery is enhanced and security prices are more likely to reflect accurately the underlying conditions of different companies. Thus, there is clearly some socially useful role for active management. What is less clear is whether we need

<sup>2</sup> One characteristic of the investing policies of universities and foundations is that much, if not most, of their endowments are considered permanent. Other institutional investors, such as pension funds, face a set of liabilities with fixed horizons. Universities have the advantage of considering that they face an infinite horizon. Thus, universities and foundations can easily invest in illiquid assets such as real estate, private equity, and so on. These markets are generally less efficient than the markets for publicly traded securities. Active management is quite appropriate in these markets, and these asset classes are also likely to earn illiquidity premiums for their investors.

nearly as much active money management as exists. My own guess is that there is far more professional market activity than is needed to ensure that we have an optimal amount of price discovery. Moreover, I can think of no reasonable argument that would suggest that the substantial rise in fees documented above was necessary to enhance the efficiency of market prices.

## Concluding Comments

Our discussion of asset management fees reveals a paradox in its implications for the efficiency of markets. Clearly, one needs some active management to ensure that information is properly reflected in securities prices. Those professionals who act to exploit any differential—however small—between price and estimated value deserve to be compensated for their efforts. But it appears that the number of active managers and the costs they impose far exceed what is required to make our stock markets reasonably efficient, in the sense that no clear arbitrage opportunities remain unexploited. Worldwide, vast numbers of highly trained independent experts are expressing estimates of value each day. Outperforming the consensus of hundreds of thousands of professionals at the world's major financial institutions is next to impossible, as it has been for decades.

What has changed in the last few decades, however, is the financial innovation of the index fund and its cousin, the exchange-traded fund. Today, market-matching returns are now available to all investors at low “commodity” prices, on the order of 5 basis points (0.05 percent of assets) or less. Indeed, discount brokers exist (worldwide) who execute orders for exchange-traded funds at zero commissions.

Investors should consider fees charged by active managers not as a percentage of total returns, but as a percentage of the risk-adjusted incremental returns above the market. Thus, the fees charged by active portfolio managers should not be considered as 1 percent of assets or even 10 to 20 percent of total returns. Fees expressed as a percentage of the incremental returns earned by active managers are likely to exceed 100 percent. And since active managers often turn over their portfolios about once a year, taxable individual investors will be subject to short-term capital gains taxes as well.

Of course the mutual fund industry as well as institutional asset managers, who thrive on high-fee actively managed funds management, are always trumpeting the benefits of switching into funds or managers with the best recent performance. For example, advertisements often suggest that individuals will be better off switching into funds with four- or five-star Morningstar ratings, despite Morningstar's acknowledgment that simply ranking funds by expense ratio provides a better predictor of future returns. In fact, Morningstar (see Kimmel 2012) studied the behavior of mutual fund investors from 2000 through 2011 and found that investors lost billions through their return-chasing behavior. Had they simply bought and held a broad-based index fund, they would have improved their return by almost 2 percentage points per year. The major inefficiency in financial markets today involves the

market for investment advice, and poses the question of why investors continue to pay fees for asset management services that are so high. It is hard to think of any other service that is priced at such a high proportion of value.

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