

# PERSPECTIVE

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## Are S&P 500 Index Mutual Funds Commodities?

by Sean Collins<sup>1</sup>

S&P 500 index mutual funds are by far the largest and most popular type of stock index mutual fund. In June 2005, 65 S&P 500 index funds were available in the marketplace. These funds held \$255 billion in assets and represented about half of the dollars that shareholders had placed in stock index funds.<sup>2</sup>

Many economists, analysts, and industry observers have recently examined S&P 500 index funds.<sup>3</sup> Studies often assume that S&P 500 index funds are commodities because they hold essentially identical portfolios consisting of the stocks in the S&P 500 index. A commodity, as described in greater detail later in this article, is a product defined by the fact that all units sold have identical characteristics and therefore uniform prices when sold in a competitive market. The difficulty

with assuming that S&P 500 index funds are commodities is that, although their underlying portfolios are essentially identical, they differ in terms of other characteristics and in terms of services provided to shareholders. As a result, the expense ratios of S&P 500 index funds can and do vary from one fund to the next. Recent analyses, which note this, could be interpreted as suggesting that S&P 500 index fund investors are insensitive to “price,” as measured by fund expense ratios.<sup>4</sup>

This issue of *Perspective* provides a detailed analysis of the fees, characteristics, and services of S&P 500 index funds. The first section describes commodities. The next section shows that the characteristics and services associated with S&P 500 index funds make them unlike pure commodities. A subsequent section explains how differences in the characteristics and services of S&P 500 index funds influence their expense ratios. The final section shows that investors are highly sensitive to mutual fund fees: the great majority of the net flows and assets of S&P 500 index funds go to those funds with the very lowest expense ratios.

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<sup>2</sup> Most analysts who have recently studied S&P 500 index funds have focused on share classes rather than funds, have used data available as of late 2003 to early 2004, and have excluded variable annuities. To maintain comparability, the analysis in this paper uses share class data available as of March 2004 and excludes variable annuities. At that time, there were 67 S&P 500 index funds, which comprised 151 share classes.

<sup>3</sup> See, for example, Christine Dugas and John Waggoner, *USA Today*, “SEC Hits Fat Fees on Index Funds,” February 2, 2004; Fund Democracy and Consumer Federation of America, letter to Jonathan Katz, Secretary, Securities and Exchange Commission, in response to SEC release IC-26350, *Federal Register*, Vol. 69, No. 33, February 19, 2004; John P. Freeman and Stewart L. Brown, “Mutual Fund Advisory Fees: The Cost of Conflicts of Interest,” *Journal of Corporation Law*, Spring 2001; Edwin Elton, Martin Gruber, and Jeffrey Busse, “Are Investors Rational? Choices among Index Funds,” *Journal of Finance*, February 2004, 59(1), 261–288; Ali Hortacsu and Chad Syverson, “Product Differentiation, Search Costs, and Competition in the Mutual Fund Industry: A Case Study of S&P 500 Index Funds,” *Quarterly Journal of Economics*, May 2004, 119(2); Paul G. Mahoney, “Manager-Investor Conflicts in Mutual Funds,” *Journal of Economic Perspectives*, 18(2), Spring 2004, 161–182; and John B. Carlson, Eduard A. Pelz, and Erkin Y. Sahinoz, “Mutual Funds, Fee Transparency, and Competition,” *Federal Reserve Bank of Cleveland Economic Commentary*, March 1, 2004.

<sup>4</sup> Edwin Elton, Martin Gruber, and Jeffrey Busse, “Are Investors Rational: Choices among Index Funds,” *Journal of Finance*, February 2004, 59(1), 261–288.

## Key Points

- *S&P 500 index funds are mutual funds whose goal is to mirror the return of the S&P 500 index. The underlying portfolios of these funds are similar to commodities because they hold essentially identical portfolios of securities.*
- *However, like many other end-products that are based on commodities, S&P 500 index funds themselves are not commodities. These funds differ from one another through the services that are packaged with their securities portfolios and through other characteristics. Differences in services and characteristics allow mutual funds to appeal to the needs of a wide range of investors.*
- *A handful of services and characteristics explains nearly all of the variation in the expense ratios of S&P 500 index funds. These characteristics include the size of a fund, its average account size, its minimum initial investment, whether it charges low-balance fees, and whether the fund sponsor waives any fund expenses. In addition, some fund sponsors bundle the services of operating the fund with the services of financial advisers.*
- *Diversity among S&P 500 index funds is a healthy thing. Investors are free to choose among S&P 500 index funds on the basis of characteristics and services that best suit their needs, as well as on the basis of cost.*
- *Investors heavily favor the lowest cost S&P 500 index funds.*
- *S&P 500 index funds offer a particular example of how mutual funds in general seek to distinguish themselves in the retail market. Funds have different characteristics and offer a variety of services to appeal to certain types of investors. These differences help explain why expense ratios vary across mutual funds.*

## WHAT IS A COMMODITY?

Commodities are goods with the feature that all units sold have identical characteristics. It follows that in a competitive market each unit of a commodity must sell for exactly the same price as any other unit. Crude oil, wheat, orange juice, and coffee are products commonly thought of as commodities which can be bought and sold at wholesale on organized commodity exchanges. Commodity exchanges have detailed rules about the quantity, quality, and variety of the product to be sold. Rules also govern the time and place that the product may be delivered. Coffee beans, for example, are traded on the New York Board of Trade and are sold in minimum quantities of 37,500 pounds (in 150 pound bags) for delivery in March, May, July, September, or December at the ports of New York, New Orleans, or Miami. These highly specific rules help to ensure that every unit of a commodity sold on an exchange is identical to every other unit, which in turn means that the prices of commodities sold on organized exchanges are highly uniform.

Retail prices for goods made from commodities are higher and less uniform than prices of the raw goods traded on commodity exchanges. This is because commodities must be processed, packaged, and

distributed and various features may be added in order to make them suitable for retail customers. For instance, coffee beans must be roasted, perhaps ground and various blends mixed together, perhaps decaffeinated or processed into instant coffee, divided into retail-sized packages, and delivered to the supermarket or premium coffee retailer. The price of coffee varies considerably among retailers. Coffee sold by premium retailers is on average more expensive than coffee sold in the supermarket, perhaps reflecting the quality of the coffee, as well as the service of having the coffee freshly brewed. Even at a given supermarket, the price of ground coffee varies considerably among brands, blends, and roasts. In addition, retail prices tend to be lower for bulk purchases and some retailers can offer lower-than-average retail prices by purchasing and selling larger quantities.

Water is another product that can be thought of as a commodity. Water is not commonly traded on organized commodity exchanges, but all units of water are identically composed of hydrogen and oxygen. Nonetheless, the price per gallon of water varies greatly at the retail level. Consumers pay low prices for tap water, somewhat higher prices for purified, bottled water purchased at a grocery store, and are willing to pay higher prices still to quickly purchase bottled water at a convenience store. In addition, the retail price of bottled water may reflect the addition of vitamins, minerals, essence, or carbon dioxide. Bottled water served with ice in a restaurant is priced to reflect the additional cost of serving customers.

Coffee, water, and S&P 500 index funds are vastly different products. Nonetheless, they can be described similarly. The end-products of coffee, water, and S&P 500 index funds are all based on commodities. However, units of the end-products of these goods are not identical. Consequently, their prices (fees, in the case of mutual funds) are higher and less uniform than those of the commodities on which they are based.

## THE COMMON ELEMENT OF S&P 500 INDEX FUNDS: PORTFOLIO MANAGEMENT

All S&P 500 index mutual funds have the goal of mirroring the return of the S&P 500 stock price index. The S&P 500 is a well-known, unmanaged index of the prices of 500 large cap stocks. The portfolio manager of an S&P 500 index fund tries to ensure that the return on the underlying

portfolio closely approximates that of the index and does not attempt to buy undervalued, or sell overvalued, stocks. Instead, the fund's portfolio manager buys or sells stock only to bring fund holdings into line with the S&P 500 index. Portfolio management of index funds is relatively inexpensive because little or no effort is spent on research. Owing to these features, the fees that S&P 500 index funds incur purely for portfolio management are likely to be low and relatively uniform.<sup>5</sup>

### *Fees Purely for Portfolio Management*

A common misconception is that a fund's "management fee" measures the cost incurred by the fund for portfolio management and nothing more. In fact, the management fee typically compensates a fund's adviser for a range of activities over and above portfolio management, including business, administrative, and other services a fund requires to operate.<sup>6</sup> Thus, management fees overstate the costs that mutual funds—including S&P 500 index funds—incur purely for portfolio management.

Nevertheless, it is possible to gauge the costs that S&P 500 index funds bear purely for portfolio management because a significant proportion of these funds separately report such fees. A number of S&P 500 index funds are sub-advised or are feeder funds in a master-feeder arrangement. In a sub-advisory relationship, a fund's investment adviser contracts with an unrelated third-party investment manager to manage the fund's portfolio. In a master-feeder arrangement, the assets of the S&P 500 fund (the feeder) are pooled with those of other funds in a larger portfolio called the master. For both sub-advised funds and feeder funds, expenses incurred purely for portfolio management are reported separately from the fund's "management fee." In addition, a few other funds report separately the cost of portfolio management. S&P 500 index funds that are either sub-advised, are feeder funds, or that otherwise report costs for portfolio management fees are representative of all S&P 500 index funds: they constitute 35 percent of the share classes of all S&P 500 index funds, 37 percent of the total number of S&P 500 index funds, and 80 percent of the assets of S&P 500 index funds.

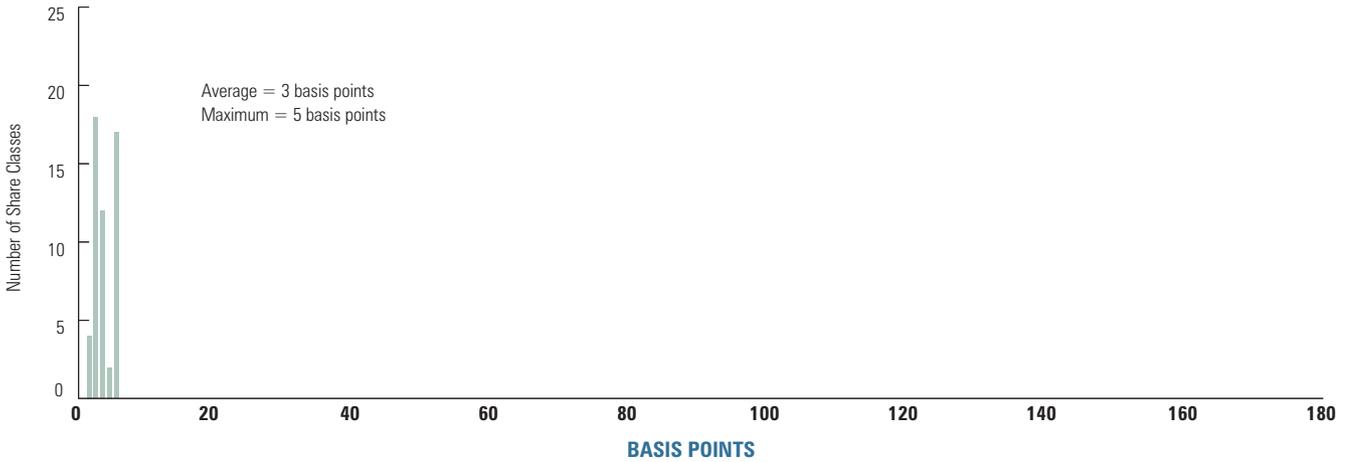
<sup>5</sup> Nevertheless, not all S&P 500 index funds have perfectly identical portfolios. The portfolio managers of certain S&P 500 index funds find it cost effective to invest in only a subset of the stocks in the S&P 500 index and to use futures contracts and modeling strategies to insure that the fund's return tracks that of the S&P 500 index. In addition, to varying degrees, S&P 500 index funds engage in securities lending to enhance portfolio returns and to offset operating expenses. See for example, Marshall E. Blume and Roger M. Edelen, "S&P 500 Indexers, Tracking Error, and Liquidity," *Journal of Portfolio Management*, Spring 2004, 37–46.

<sup>6</sup> For example, see Sean Collins, "The Expenses of Defined Benefit Pension Plans and Mutual Funds," *Perspective*, Vol. 9, No. 6, December 2003. In *Report on Mutual Fund Fees and Expenses*, December 2000, the SEC's Division of Investment Management noted the difficulty of interpreting management fees as a proxy for the fund adviser's costs of portfolio management. See also John P. Freeman ("The Use of Mutual Fund Assets to Pay Marketing Costs," *Loyola University of Chicago Law Journal*, Vol. 9, No. 3, Spring 1978) who notes that "[b]esides rendering investment advice [i.e. portfolio management] to a mutual fund, the adviser often furnishes the fund with a broad array of administrative and clerical services, even to the point of providing the fund's office space ... Among the many services that may be supplied to the fund by its adviser are accounting, auditing and legal services, payment of registration and filing fees, payment for stationery, supplies, printing costs and executives' salaries ... The adviser is compensated for services rendered by a *management fee*" [emphasis added].

FIGURE 1

### Portfolio Management Fees for Selected S&P 500 Index Funds, 2004

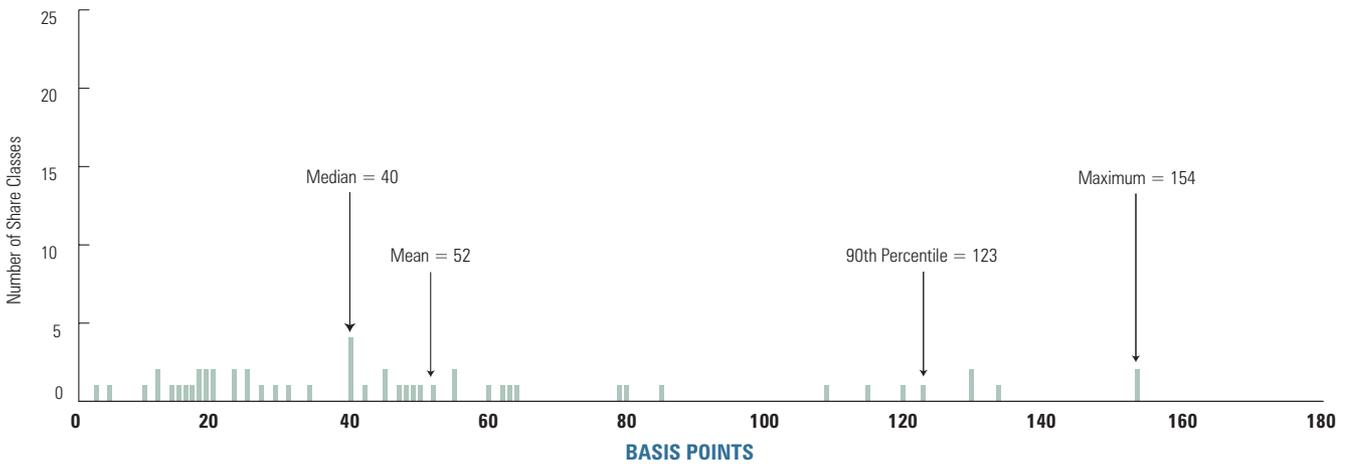
(feeder funds, subadvised funds, and funds that report portfolio management costs separately)



Data points in the above panel are for 53 share classes of the 25 S&P 500 index funds that report portfolio management fees.

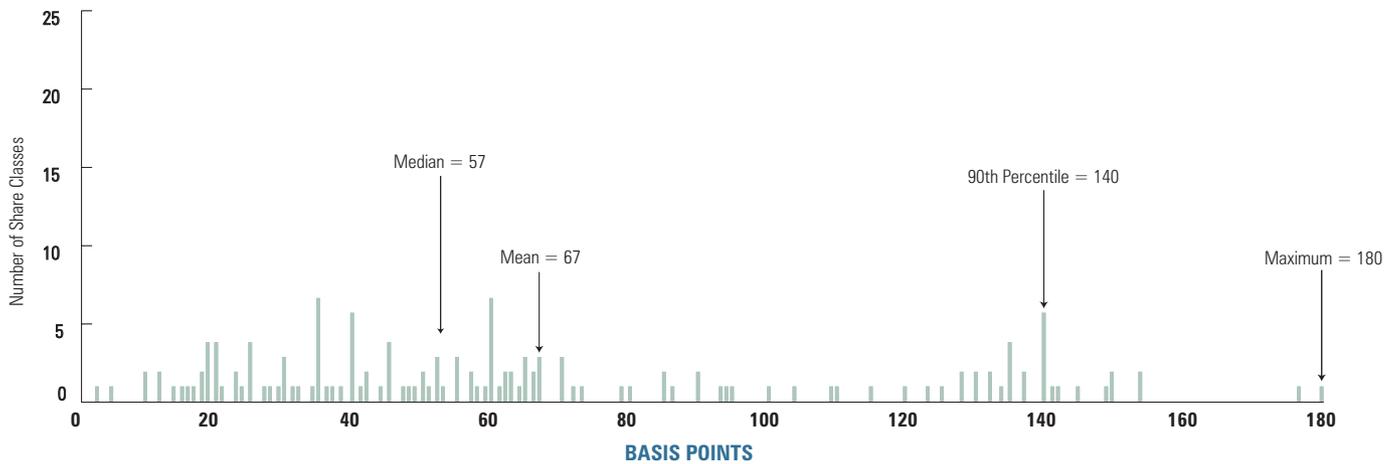
### Expense Ratios for Selected S&P 500 Index Funds, 2004

(feeder funds, subadvised funds, and funds that report portfolio management costs separately)



Data points in the above panel are for 53 share classes of the 25 S&P 500 index funds that report portfolio management fees.

### Expense Ratio for All S&P 500 Index Funds, 2004



Source: Fund prospectuses, annual reports, and statements of additional information

As might be expected for a commodity-like service, fees for portfolio management of S&P 500 index funds are low and uniform. These fees average just 3 basis points and range from 1 to 5 basis points (Figure 1, top panel).

## **WHERE S&P 500 INDEX FUNDS DIFFER: SERVICES AND CHARACTERISTICS**

The expense ratios of S&P 500 index funds—which reflect the total ongoing expenses that shareholders incur for investing in these funds—are more consistent with retail pricing: they are higher and less uniform than fees for portfolio management. For example, the expense ratios of those S&P 500 index funds represented in the top panel of Figure 1 (i.e. feeder funds, sub-advised funds, or funds that otherwise report separately fees for portfolio management) average 52 basis points and range from 3 to 154 basis points (Figure 1, middle panel). The expense ratios of *all* S&P 500 index funds show much the same pattern, averaging 67 basis points and ranging from 3 to 180 basis points (Figure 1, bottom panel).

The expense ratios of S&P 500 funds are higher and less uniform than fees incurred purely for portfolio management because S&P 500 index funds, though holding essentially identical portfolios, differ from one another in terms of services and characteristics. The remainder of this section discusses how differences in services offered by, and characteristics of, S&P 500 index funds influence their expense ratios. Five primary influences are discussed:

- ▶ the bundling of payment for financial advice with mutual funds fees,
- ▶ fund assets,
- ▶ average account balances,
- ▶ low balance and account maintenance fees, and
- ▶ fee waivers.

## ***Bundling of Payment for Financial Advice***

One important service that comes bundled with some mutual funds is financial planning, advice, and ongoing service provided by financial advisers. Most mutual fund investors who own funds outside a retirement plan hold some of their funds through a financial adviser such as a broker, financial planner, or registered investment adviser. To varying degrees, these professionals help investors define their investment goals, select mutual funds consistent with those goals, structure their portfolios, and offer advice on tax and estate planning. A financial adviser may, for instance, help a particular investor allocate or re-allocate assets across a range of mutual funds, only one of which may be an S&P 500 index fund.

Financial advisers receive compensation for the services they offer investors. Mutual fund investors who use a financial adviser typically invest in load mutual funds (retail investors who purchase no-load funds either do not use a financial adviser or use a financial adviser but pay the adviser directly for services the adviser provides). Load funds offer the financial adviser compensation through front-end loads, contingent deferred sales loads (CDSLs), 12b-1 fees, or some combination of these. Front-end loads and CDSLs are one-time charges. In contrast, 12b-1 fees are ongoing and included by law in a fund's expense ratio. Because 12b-1 fees represent payment for the additional services (i.e., financial advice) that retail investors receive with load funds, load funds tend to have higher expense ratios than comparable no-load funds.

## Fund Assets

Mutual funds exhibit economies of scale in that a fund's expense ratio tends to decline as its assets increase. Economies of scale can arise, among other reasons, because certain costs that mutual funds incur (such as audit and registration fees) are relatively fixed and therefore contribute more to the expense ratio of a small fund than a large fund.<sup>7</sup> Some S&P 500 index funds have low expense ratios because they are very large. If smaller S&P 500 funds were to grow to a similar size, their expense ratios would likely decline quite substantially.

## Average Account Balances

Mutual funds also experience economies of scale in terms of average account balances. For a given amount of assets, funds with large average account balances tend to have lower expense ratios. This can occur, among other reasons, because of transfer agent fees. Transfer agents keep shareholder records and have customer service departments to respond to shareholder inquiries. For these services, a fund typically pays the transfer agent a flat dollar fee per account.<sup>8</sup> As a result, between two funds with equal assets, the one with fewer accounts (and therefore a higher average account balance) will have a lower expense ratio.<sup>9</sup>

Average account balances in S&P 500 index funds range widely, from roughly \$2,000 to about \$100 million (Figure 2, line 1). Institutional funds (line 2) have very high average account balances, often well over \$500,000 (median, line 2) and ranging up to nearly \$100 million. Average account balances of retail funds are considerably lower, typically about \$14,000 (median, line 3), but often \$8,000 or less (25<sup>th</sup> percentile, line 3). Not surprisingly, among S&P 500 index funds, institutional funds have lower expense ratios than retail funds.

Average account balances differ considerably even among retail S&P 500 index funds. For example, 10 percent of retail S&P 500 funds have average account balances of about \$4,000 or less (10<sup>th</sup> percentile, line 3), while the top 10 percent have account balances of more than \$85,000 (90<sup>th</sup> percentile, line 3). Because of this, expense ratios can differ significantly among retail S&P 500 index funds, even if two funds have nearly equal assets.

FIGURE 2

### Average Account Balances of S&P 500 Index Mutual Funds, 2004

(dollars)

	Minimum	10th Percentile	25th Percentile	Median	75th Percentile	90th Percentile	Maximum
1. All share classes	\$2,138	\$6,149	\$11,924	\$24,528	\$232,836	\$5,647,783	\$94,304,703
2. Institutional share classes only	\$5,646	\$22,492	\$94,118	\$671,922	\$8,328,790	\$22,855,932	\$94,304,703
3. Retail share classes only	\$2,138	\$4,108	\$8,247	\$13,866	\$20,664	\$86,227	\$3,503,378

Sources: Investment Company Institute, fund prospectuses, annual reports, and statements of additional information

<sup>7</sup> For example, suppose that an audit costs \$50,000 regardless of fund size. That would add 50 basis points to the expense ratio of a \$10 million dollar fund, but less than 1 basis point to the expense ratio of a \$10 billion fund.

<sup>8</sup> Transfer agent fees usually range from about \$20 to \$30 per account for equity mutual funds.

<sup>9</sup> Suppose, for example, two funds with assets of \$1 billion both pay a flat rate of \$25 per account to the transfer agent for services. Assume that the first fund has 100,000 accounts giving it an average account balance of \$10,000 while the second fund has 50,000 accounts for an average account balance of \$20,000. Transfer agent fees contribute 25 basis points to the expense ratio of the first fund but just 12.5 basis points to that of the second fund.

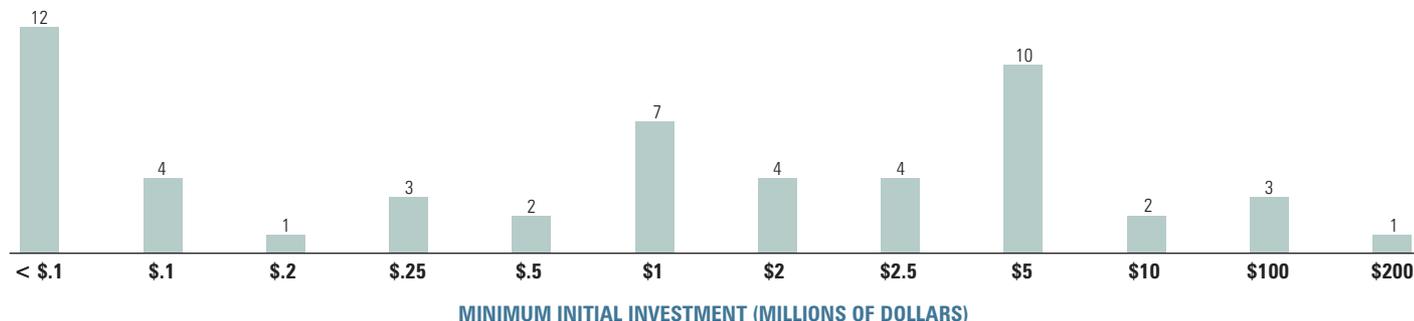
The wide range of average account balances of S&P 500 index funds is explained, in part, by whether funds are marketed primarily to institutional or retail investors. Institutional funds often require minimum initial investments of \$1 million or more (Figure 3, top panel). In

contrast, retail S&P 500 funds require low minimum initial investments, most often \$2,500 or less (Figure 3, bottom panel). Among retail S&P 500 funds, required minimum initial investments vary considerably, ranging from as low as \$250 or less to as much as \$50,000, reflecting the choice of mutual fund advisers to serve various segments of the retail market.

**FIGURE 3**

**Minimum Initial Investments for Institutional Share Classes of S&P 500 Index Mutual Funds, 2004\***

(number of share classes)



**Minimum Initial Investments for Retail Share Classes of S&P 500 Index Mutual Funds, 2004**

(number of share classes)



\*Some institutional share classes of S&P 500 index funds impose very low minimum initial investments. However sales of these share classes are usually restricted to purchases made through qualified retirement plans such as 401(k) accounts or bank trusts and thus are not available to the general public.

Source: fund prospectuses

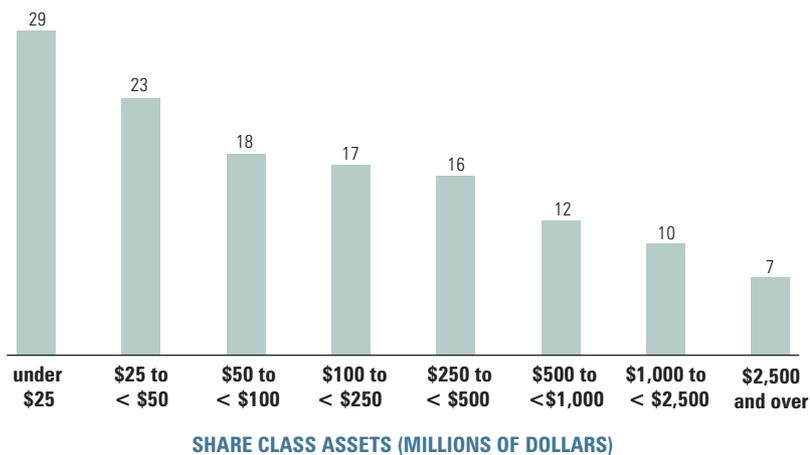
## Low Balance and Account Maintenance Fees

A significant minority of retail S&P 500 index funds (30 percent) promote higher average account balances by imposing fees known as “low balance” or “account maintenance” fees. Such fees are typically assessed if the assets in an investor’s account fall below some minimum dollar amount. These fees have no effect on a fund’s expense ratio because investors must pay them out of pocket. However, these fees can significantly raise a shareholder’s effective cost of investing in a particular fund.<sup>10</sup> As with minimum initial investments, low balance and account maintenance fee arrangements vary across S&P 500 index funds because fund advisers wish to meet the needs of a wide spectrum of retail investors.<sup>11</sup>

FIGURE 4

### Average Waiver by Assets of Fund Share Class, 2004

(basis points)



Source: Investment Company Institute, fund prospectuses, annual reports, and statements of additional information

## Fee Waivers

The adviser of a mutual fund may absorb, or “waive,” a portion of a fund’s expense ratio for a given period of time. Fee waivers benefit fund shareholders by reducing the expenses that they incur on their mutual funds. However, fee waivers—like coupons, rebates, and discounts on other retail products—are used selectively by fund advisers. Fund advisers are more likely to offer waivers on small funds. These funds have not yet gathered enough assets for economies of scale to work to their full effect and, as a result, these funds have high expense ratios before waivers.

Many S&P 500 index funds offer fee waivers; 109 of the 151 S&P 500 index fund share classes have fee waivers. Fee waivers decline significantly as assets increase (Figure 4). For example, the average fee waiver of S&P 500 index funds with assets under \$25 million was 29 basis points in 2004 compared to just 7 basis points for S&P 500 funds with assets of \$2.5 billion or more. This is important because recent analyses have overlooked the influence of fee waivers on fund expense ratios, perhaps leaving the mistaken impression that funds fail to pass along economies of scale.<sup>12</sup>

<sup>10</sup> A typical arrangement would be to impose a low balance fee of \$10 per year if balances fall below \$2,000. For an S&P 500 index fund with an expense ratio of 20 basis points, the investor would effectively incur fees of 70 basis points if his or her balance were to fall to \$1,999. In addition, funds differ in terms of when low balance fees are imposed. Some funds impose low balance fees only if balances drop below a minimum because of shareholder redemptions. Other funds impose them if balances drop below a minimum because of either redemptions or capital losses. Certain funds may impose a two-part fee, for example charging a \$10 fee if the account balance drops below \$10,000 and an additional \$10 fee if the balance drops below \$2,000. For an investor with a balance of \$1,999, a two-part \$20 fee would push the effective expense ratio of a fund with a 20 basis-point expense ratio to 120 basis points.

<sup>11</sup> For more details on these fees, see *FRC Focus*, “Mutual Fund Small-Balance Fees,” Financial Research Corporation, March 23, 2005.

<sup>12</sup> See, for instance, Paul G. Mahoney, “Manager-Investor Conflicts in Mutual Funds,” *Journal of Economic Perspectives*, 18(2), Spring 2004, 161–182; and Fund Democracy and Consumer Federation of America, letter to Jonathan Katz, Secretary, Securities and Exchange Commission, in response to SEC release IC-26350 entitled “Disclosure Regarding Approval of Investment Advisory Contracts by Directors of Investment Companies,” *Federal Register*, Vol. 69, No. 33, February 19, 2004. The fact that fee waivers are more common and are larger for small S&P 500 index funds can make it challenging for unwary analysts to see that economies of scale are present. Consider, for example, two hypothetical funds. The first fund has assets of \$10 million and an expense ratio of 50 basis points before any fee waiver. The second fund has assets of \$2.5 billion and an expense ratio of 25 basis points before any fee waiver. The expense ratio of the larger fund is low before waivers because of economies of scale. Fee waivers distort this relationship. Assume that the two funds offer fee waivers roughly consistent with those in Figure 4: the first fund has a fee waiver of 25 basis points while the second fund has no waiver. Although the two funds differ tremendously in size, on net *after* fee waivers they have identical expense ratios of 25 basis points. An analyst who is unaware of the fee waiver of the smaller fund would incorrectly conclude that economies of scale have not worked to the advantage of shareholders in the larger fund.

## The Sum of These Influences

A statistical analysis in the appendix shows that differences in the expense ratios among S&P 500 index funds can be attributed largely to these five factors (i.e., the bundling of payment for financial advice with mutual fund fees, fund assets, average account balances and minimum initial investments, low balance and account maintenance fees, and fee waivers). As a result, if all S&P 500 index funds had characteristics like those of the least expensive S&P 500 funds (e.g. equal assets, similar average account balances, etc.) expense ratios would vary relatively little among all S&P 500 index funds.

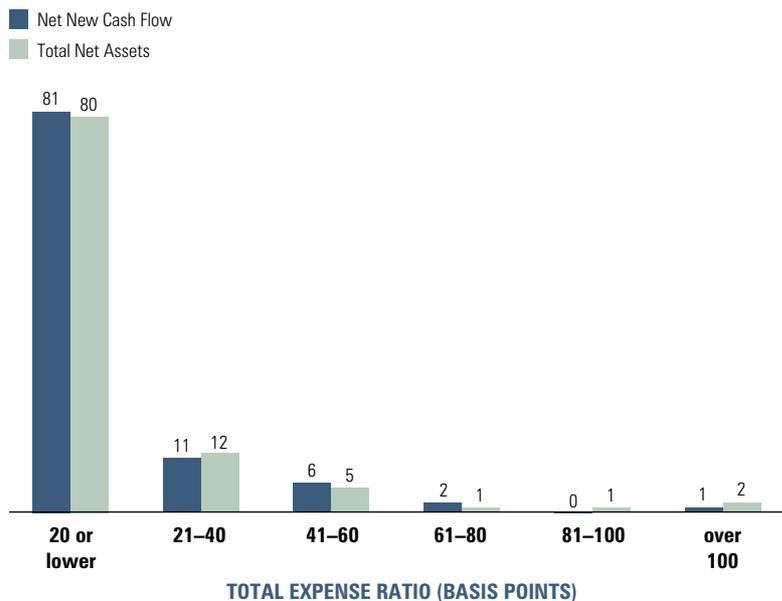
## S&P 500 INDEX FUND INVESTORS RESPOND TO “PRICE”

In economics, a fundamental test of consumer rationality is whether consumers buy more of a good when its price is low. A recent, widely cited study could be interpreted as suggesting that S&P 500 index fund investors are insensitive to fund fees.<sup>14</sup> However, the evidence is compelling that investors purchase far more shares of S&P 500 index funds with the lowest expense ratios. For example, since 1997 S&P 500 index funds have attracted nearly \$115 billion in net new cash flow. The great majority of that (81 percent) went to the least costly S&P 500 index funds, those whose expense ratios were 20 basis points or less (Figure 5). Assets in S&P 500 index funds have been heavily concentrated in those same low-cost funds.

FIGURE 5

### Net New Cash Flow to, and Total Net Assets of, S&P 500 Index Funds with Selected Expense Ratios, 1997–2004\*

(percent of total net new cash flow or percent of total net assets)



\*Percentages may not add to 100 due to rounding.

Sources: Investment Company Institute, Lipper

## CONCLUSION

S&P 500 index funds incur similar fees for the commodity-like service of portfolio management. Nonetheless, the expense ratios of these funds range widely. This is because S&P 500 index funds are not commodities. Although S&P 500 index funds all hold essentially identical portfolios, they differ from one another in terms of assets under management, average account balances, minimum initial investments, fee waivers, low balance and account maintenance fee arrangements, whether they primarily serve institutional or retail customers, whether they are bundled with financial advice, and other features. As a result, S&P 500 index funds are “priced” more like retail products than commodities.

<sup>14</sup> See Edwin Elton, Martin Gruber, and Jeffrey Busse, “Are Investors Rational: Choices among Index Funds,” *Journal of Finance*, February 2004, 59(1), 261–288. The authors claim that “a large amount of new cash flow [to S&P 500 index funds] goes to the poorest-performing funds.” By definition, all S&P 500 index funds have nearly identical returns before fund expenses. Thus, differences in performance are predominantly attributable to fund fees. Elton, Gruber, and Busse’s work could therefore be interpreted as indicating that S&P 500 index fund investors are unresponsive to fund fees.

Diversity among S&P 500 index funds is a healthy thing. Mutual fund investors, including those who invest in S&P 500 index funds, are not identical. They have varying needs that mutual fund advisers try to accommodate by offering funds with a variety of qualities and services. Investors are free to choose among these funds on the basis of qualities and services that best fit their needs, as well as on the basis of “price.” For S&P 500 index fund investors, as for consumers the world over, price is apparently a very important factor, given the evident preferences of investors for the least costly S&P 500 index funds.

## **APPENDIX: AN ANALYSIS OF THE EXPENSE RATIOS OF S&P 500 INDEX FUNDS**

The article discusses five factors that influence the expense ratios of S&P 500 index funds: 12b-1 fees, assets under management, average account balances, low balance and account maintenance fees, and fee waivers. In addition, a few other special factors significantly influence the expense ratios of S&P 500 index funds.

The influence of these factors can be studied through a statistical technique known as regression analysis. Figure A1 presents the results of such an analysis. The analysis assumes that the expense ratio of a fund share class depends on the assets of the fund, the assets of the share class, the average account balance of the share class, minimum initial investment of the share class, any 12b-1 fee associated with the share class, any fee waiver, and two “dummy” (zero-one) variables. The first dummy variable is for share classes that are part of a master-feeder arrangement; this is necessary because the assets of the master funds—which can have a significant effect on the expense ratio of the feeder funds—are not generally available. A second dummy variable is introduced for share classes that impose low balance or account maintenance fees.

The regression fits very well, explaining 91 percent of the variation in the expense ratios of S&P 500 index funds. There are economies of scale in fund assets and average account balances, in that expense ratios fall as assets or account balances rise. Feeder funds tend to have lower-than-average expenses, most likely because the master fund is very large and thus able to pass along significant economies of scale. Expense ratios are higher for share classes with 12b-1 fees because 12b-1 fees represent payment for the additional services of financial and investment advice. Institutional share classes have lower-than-average expense ratios because they require very sizable minimum initial investments. However, retail share classes that impose high minimum initial investments will also have lower-than-average expense ratios among retail funds. Share classes that impose low balance fees tend to have lower expense ratios. Finally, fee waivers lower the expense ratios of S&P 500 index funds.

This analysis explains why some S&P 500 index funds have very low expense ratios and others have higher expense ratios. Funds that are sold bundled with investment advice incur 12b-1 fees and therefore higher expense ratios. Fund size is also important: the largest retail S&P 500 index fund has assets of almost \$80 billion and an expense ratio of less than 20 basis points. The smallest retail S&P 500 funds have assets of only about \$20 million; not surprisingly, they also have higher expense ratios than the largest S&P 500 index fund. By itself, fund size explains about 40 basis points of the difference in the total expense ratios of the largest and smallest S&P 500 index funds. Some small S&P 500 index funds do have low expense ratios, but they are institutional funds that require very high minimum investments. Some retail S&P 500 index funds have low expense ratios, in part because they promote high average account balances by imposing low balance and account maintenance fees. Finally, fee waivers matter: for a given amount of assets under management, a fund with a fee waiver will have a lower-than-average expense ratio.

**FIGURE A1**

**Regression Analysis of the Expense Ratios of S&P 500 Index Funds**

<b>Independent Variable</b>	<b>Coefficient</b>	<b>t-statistic</b>
Share class assets (millions of dollars)*	.0061	.95
Fund assets (millions of dollars)*	-.0472	-4.27
Average account balance of share class (dollars)*	-.0113	-2.14
Minimum initial investment (dollars)*	-.0080	-2.73
12b-1 fee (percentage points)	1.0638	25.1
Fee waiver (percentage points)	-.3198	-3.71
Dummy variable for feeder fund	-.0851	-2.64
Dummy variable for low balance or account maintenance fee	-.0596	-2.2
Constant	.8862	8.85
Number of observations <sup>+</sup>	137	
R-squared	.91	

\*Variables in logs

<sup>+</sup>The regression loses a number of observations relative to the sample size in Figure 1 owing to missing data on number of accounts for some funds

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