

PERSPECTIVE

Vol. 5 / No. 4
September 1999

Perspective is a series of occasional papers published by the Investment Company Institute, the national association of the American investment company industry.

John Rea,
executive editor;
Craig Tyle,
executive editor;
Sue Duncan,
managing editor.

1401 H Street, NW
Suite 1200
Washington, DC 20005

www.ici.org

Mutual Fund Costs, 1980-1998

by John D. Rea, Brian K. Reid, and Travis Lee¹

OVERVIEW AND SUMMARY

Previous analyses of mutual fund fees and expenses published in *Perspective* found that the average cost incurred by buyers of mutual funds declined substantially between 1980 and 1997.² The decline reflected both direct actions of fund companies to reduce fees and expenses and shifts by buyers of mutual funds to lower-cost funds.

This issue of *Perspective* continues the examination of the trends in mutual fund fees and expenses by updating the previous analysis to include cost estimates in 1998 for equity, bond, and money market funds. In addition, the article expands the previous analysis of equity funds by considering the extent to which the level and trend in the average cost of funds depended upon the relatively low cost of certain types or groups of funds. These include low-cost index and institutional funds and three of the largest fund complexes.

The principal findings of the current analysis follow.

Equity Funds

- ▶ Total shareholder cost for all equity funds declined 5.6 percent in 1998 to 135 basis points from 143 basis points in 1997. The decrease resulted from lower distribution costs (annuitized sales load plus 12b-1 fee) and lower fund operating expenses.
- ▶ The decrease in 1998 brought the cumulative decline in the total shareholder cost of equity funds since 1980 to 91 basis points. This represents a drop of 40 percent from the level in 1980 (Figure 1 – Equity Funds).
- ▶ Both load and no-load equity funds posted lower shareholder costs in 1998. Average shareholder costs for load funds declined to 200 basis points from 211 basis points in 1997. Average shareholder costs for no-load funds fell to 83 basis points from 87 basis points.
- ▶ The decline in total shareholder cost has occurred throughout the 19-year period. In the 1980s, the total cost of investing in equity funds fell by 38 basis points, or 17 percent. Thus far in the 1990s, the decline in the total cost of equity funds has fallen by 53 basis points, or 28 percent.
- ▶ The downward trend in total shareholder cost over the 1980-98 period was broad-based and not the result of declining costs of a small group of funds. For example, excluding both index and

¹ John Rea is Vice President and Chief Economist, Brian Reid is Senior Economist and Director of Industry Research and Financial Analysis, and Travis Lee is Research Associate at the Investment Company Institute. Anne Schafer, Natalia Parmly, and Steven Weifenbach collected and prepared the database.

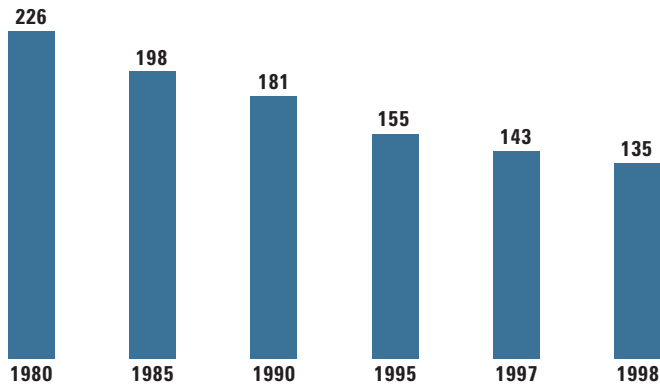
² John D. Rea and Brian K. Reid, "Trends in the Ownership Cost of Equity Mutual Funds," *Perspective*, Vol. 4, No.3, November 1998 and John D. Rea and Brian K. Reid, "Total Shareholder Cost of Bond and Money Market Mutual Funds," *Perspective* Vol. 5, No. 3, March 1999.

FIGURE 1

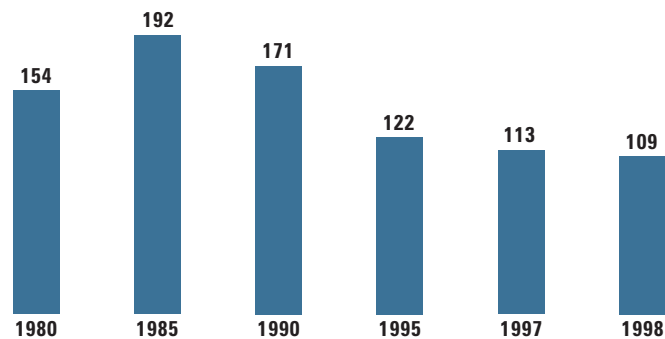
Total Shareholder Cost for Mutual Funds,* Selected Years

(basis points)

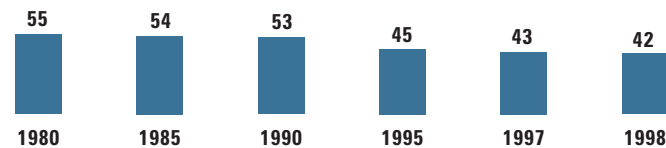
Equity Funds



Bond Funds



Money Market Funds



*Sales-weighted average of total shareholder costs for individual funds.

Sources: Investment Company Institute; Lipper Analytical Services, Inc.; Value Line Publishing, Inc.; CDA/Wiesenberger Investment Companies Service; Wiesenberger Investment Companies Service; © CRSP University of Chicago, Used with permission, all rights reserved (773.702.7467/www.crsp.com); Primary datasource & © Standard & Poor's Micropal, Inc. 1998 (617.451.1585/www.micropal.com); and Strategic Insight Mutual Fund Research and Consulting, LLC.

institutional funds, which typically have low shareholder costs, results in a 32 percent decrease in total shareholder cost for remaining equity funds. Similarly, dropping equity funds offered by the three largest fund complexes produces a decline in total shareholder cost of 34 percent. In fact, even with all of these funds excluded—index, institutional, and the three largest fund complexes—shareholder cost drops 27 percent over the period.

- ▶ Total distribution costs of equity load funds declined further in 1998, bringing the total decrease since 1980 to 49 percent. Many load funds added 12b-1 fees over this period, but their effect on distribution cost was more than offset by substantial reductions in sales loads.

Bond Funds

- ▶ Total shareholder cost for all bond funds declined 3.5 percent in 1998 to 109 basis points from 113 basis points in 1997. The decrease reflected lower distribution costs.
- ▶ Since 1980, the cost of investing in bond funds has declined 29 percent (Figure 1 – Bond Funds).

Money Market Funds

- ▶ Total shareholder cost for all money market funds declined 2.3 percent in 1998 to 42 basis points from 43 basis points in 1997. The decrease came from lower fund operating expenses.
- ▶ Since 1980, the cost of investing in money market funds has declined 24 percent (Figure 1 – Money Market Funds).

As in the previous studies, the concept used to measure the cost of purchasing a mutual fund is total shareholder cost.³ This measure incorporates

³ See Rea and Reid, "Trends in the Ownership Cost of Equity Mutual Funds," pp. 3-9 for a discussion of the measurement of total shareholder cost.

all major costs incurred by a buyer of shares in a mutual fund, including annual fund expenses for portfolio management, administration, shareholder services, and distribution under a Rule 12b-1 plan, as well as any sales load paid by the investor. Because the sales load is a one-time payment and fund expenses are ongoing, the sales load must be converted into the equivalent of an annual payment paid by the investor over the life of his or her investment. With this conversion, total shareholder cost for a fund is the sum of fund expenses and the annualized or annuitized sales load, expressed as a percentage of sales of the fund (measured in basis points). Since total shareholder cost is a measure of the purchase price of a fund, a sales-weighted average is used to measure total shareholder cost for a group of funds.

The remainder of the paper is organized as follows. The next section provides a brief description of total shareholder cost. The two sections that follow present the findings on shareholder cost for equity funds and for bond and money funds. This includes a discussion of total shareholder cost for 1998 for each type of fund and consideration of the trend in total shareholder cost over the 1980-98 time period.⁴ In addition, the section on equity funds examines the effect on total shareholder cost when certain types of low-cost funds are excluded: institutional, index, and funds of the largest complexes. The purpose in excluding these groups is to determine the extent to which the decline in the total shareholder cost of all equity funds has been concentrated in these types of funds.

DEFINITION AND MEASUREMENT OF TOTAL SHAREHOLDER COST

Total shareholder cost measures all costs set by a fund company that an investor would incur in purchasing shares of a mutual fund.⁵ From an individual investor's perspective, total shareholder cost for a fund represents the price that the fund charges the investor to acquire fund shares and receive the services provided by the fund. Total shareholder cost is a measure of mutual fund cost that an investor could consider in making an investment decision.

From the standpoint of measurement, total shareholder cost for an individual fund is the sum of the expense ratio plus the annuitized sales load, if a fund charges one. The expense ratio consists of all fund-level expenses expressed as a percent of fund assets. They include both operating expenses and fund-level distribution costs (12b-1 fees). Because they are paid out of fund assets, an investor in the fund indirectly bears these expenses.

In contrast to fund-level expenses, sales loads are paid directly by investors in the fund either when purchasing shares (in the case of a front-end sales load) or when redeeming shares (in the case of a deferred sales load). In either case, the sales load is a one-time charge. To make the load comparable to fund expenses, which are incurred by an investor over the life of the investment, the sales load is annuitized into a series of annual payments spread over the life of the investment. For example, the annuitized sales load incurred by an investor purchasing fund shares with a 5 percent front-end load and holding the fund for five years would be approximately 1 percent (100 basis points) per year. In this example, if the fund had a total expense ratio of 150 basis points, total shareholder cost would be approximately 250 basis points.

A sales-weighted average of total shareholder costs is calculated by weighting each fund's shareholder cost by its portion of total sales. Thus, shareholder cost for those funds that account for a large portion of sales are given a larger weight in computing the average than funds with a smaller share of the sales.

Use of a sales-weighted average means that the aggregate measure of total shareholder cost represents the average cost actually incurred by those investors purchasing the fund during a given year. For example, the

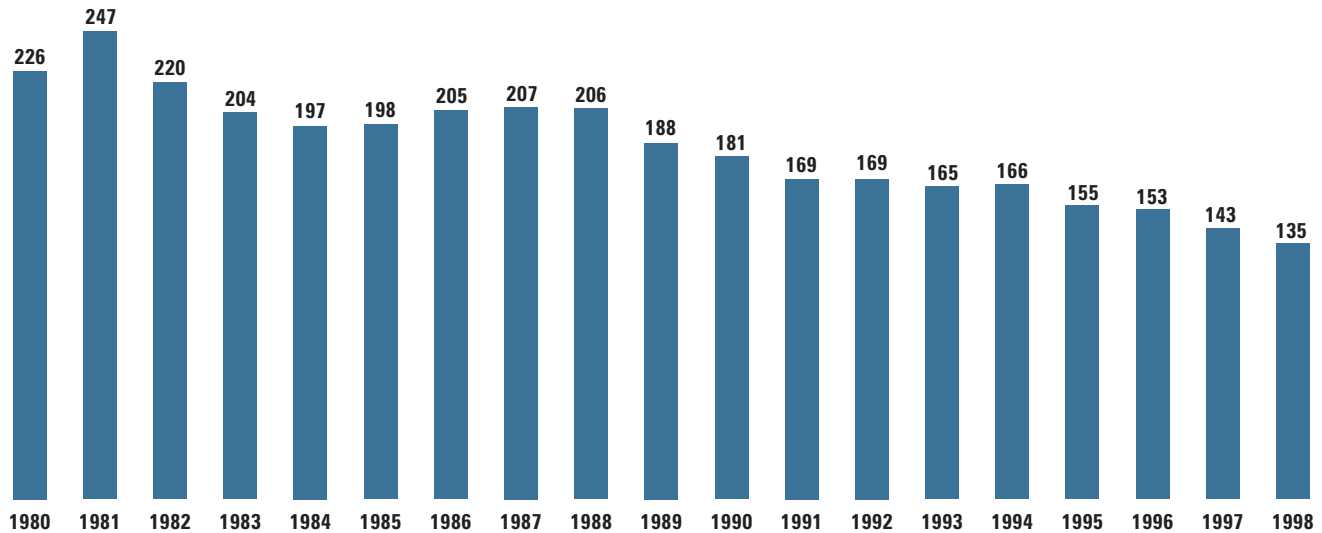
⁴The database used to estimate total shareholder cost has been expanded to include more funds than those used in the two previous studies of total shareholder cost. In any year, the number of equity, bond, or money funds is never less than 75 percent of the total contained in the Investment Company Institute's master file of mutual funds. In most years, coverage is substantially higher, reaching as high as 98 percent. More important, coverage of fund sales is even higher, ranging from 92 to 99 percent. Inclusion of additional funds produced some minor revisions to estimates of total shareholder cost reported previously. The revisions typically amounted to no more than one or two basis points.

⁵The analysis uses total shareholder cost to examine levels and trends in mutual fund fees and expenses. The concept was discussed in detail in Rea and Reid, "Trends in the Ownership Cost of Equity Mutual Funds," pp. 3-9. The method used in estimating total shareholder cost is summarized in Appendix A.

FIGURE 2

Total Shareholder Cost for Equity Funds,* 1980-1998

(basis points)



*Sales-weighted average of total shareholder costs for individual equity funds.

Sources: Investment Company Institute; Lipper Analytical Services, Inc.; Value Line Publishing, Inc.; CDA/Wiesenberger Investment Companies Service; Wiesenberger Investment Companies Service; © CRSP University of Chicago, Used with permission, all rights reserved (773.702.7467/www.crsp.com); Primary datasource & © Standard & Poor's Micropal, Inc. 1998 (617.451.1585/www.micropal.com); and Strategic Insight Mutual Fund Research and Consulting, LLC.

FIGURE 3

Total Shareholder Cost for Equity Funds, 1980 and 1998

(basis points)

	Level		Change	Percent Change
	1980	1998		
Sales-weighted average	226	135	-91	-40.3
Asset-weighted average	231	132	-99	-42.9
Simple average	241	193	-48	-19.9
Median	288	185	-103	-35.8
Number of funds	261	5,802	5,541	

Sources: Investment Company Institute; Lipper Analytical Services, Inc.; Value Line Publishing, Inc.; CDA/Wiesenberger Investment Companies Service; Wiesenberger Investment Companies Service; © CRSP University of Chicago, used with permission, all rights reserved (773.702.7467/www.crsp.com); Primary datasource & © Standard & Poor's Micropal, Inc. 1998 (617.451.1585/www.micropal.com); and Strategic Insight Mutual Fund Research and Consulting, LLC.

sales-weighted average for equity funds was 226 basis points in 1980 and thus buyers of equity funds in that year on average incurred a cost that amounted to 2.26 percent of their purchases or initial investments.

A sales-weighted average reflects the actual buying patterns and preferences of investors. A simple average, in contrast, would treat the

total shareholder cost for each fund equally in computing the average, even if investors in fact shunned some funds.

TOTAL SHAREHOLDER COST FOR EQUITY FUNDS

This section analyzes trends in total shareholder costs for equity funds over the 1980-1998 period⁶ by examining the sensitivity of total shareholder cost due to changes in the types of funds sold since 1980. It also discusses the impact of distribution costs on the declining trend.

Total Shareholder Cost in 1998

Total shareholder cost for equity funds, measured as a sales-weighted average, declined 5.6 percent to 135 basis points in 1998 from 143 basis points in 1997 (Figure 2). Distribution costs fell to 52 basis points from 56 basis points, and operating expenses declined to 83 basis points from 87 basis points.

⁶Information about the database of funds used in this research can be found in Appendix B.

Total shareholder cost declined for both load and no-load funds. Average shareholder cost for load funds declined to 200 basis points from 211 basis points; the decline reflected lower distribution costs and operating expense ratios. Average shareholder cost for no-load funds fell to 83 basis points from 87 basis points, which resulted from lower operating expense ratios.

Changes in Total Shareholder Cost Between 1980 and 1998

Total shareholder cost for all equity funds, measured as a sales-weighted average, declined 40 percent between 1980 and 1998. At the beginning of the period, the average cost incurred by purchasers of equity funds was 2.26 percent of the initial investment or 226 basis points (Figure 2). By the end of the period, the average cost had dropped to 135 basis points. Other measures of aggregate shareholder cost—the asset-weighted, simple average, and the median—declined as well (Figure 3).

The drop in the sales-weighted average total shareholder cost occurred throughout the 19-year period. In the 1980s, the total cost of investing in equity funds fell by 38 basis points, or 17 percent. Thus far in the 1990s, the decline in the total cost of equity funds has fallen by 53 basis points, or 28 percent. The downward trend reflected lower distribution costs, arising both from load funds reducing their distribution costs and from shareholders shifting purchases to lower cost funds.⁷

Total Shareholder Cost for Groups of Equity Funds

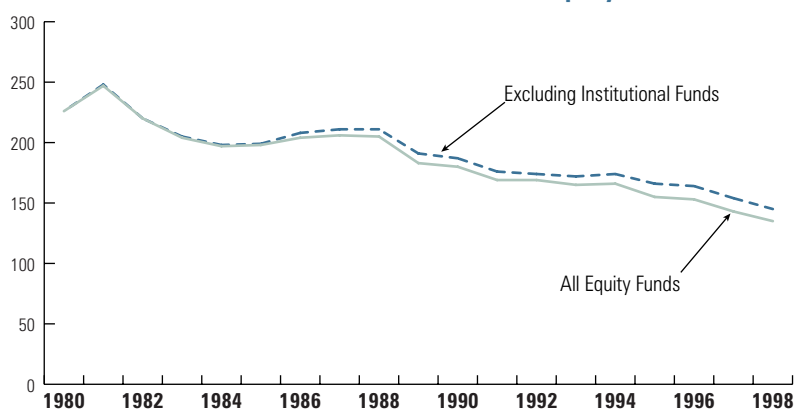
The downward trend in total shareholder cost was broad-based and not the result of declining costs of a small group of funds. Although lower-cost institutional and index funds and funds for the three largest fund groups account for a portion of the decline, these groups are not the

FIGURE 4

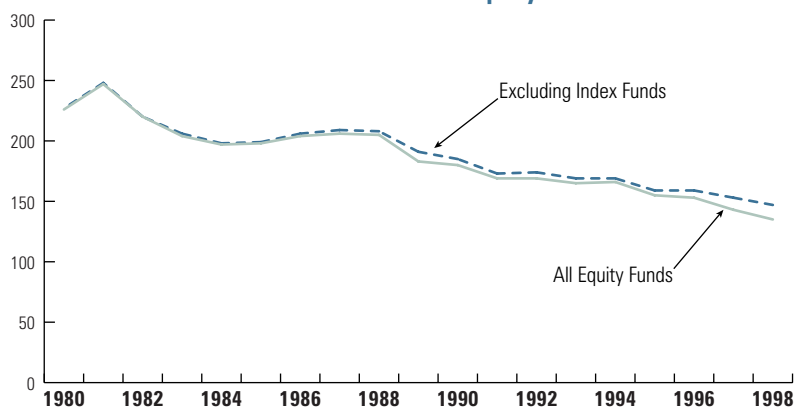
Total Shareholder Cost with and without Institutional and Index Equity Funds,* 1980 - 1998

(basis points)

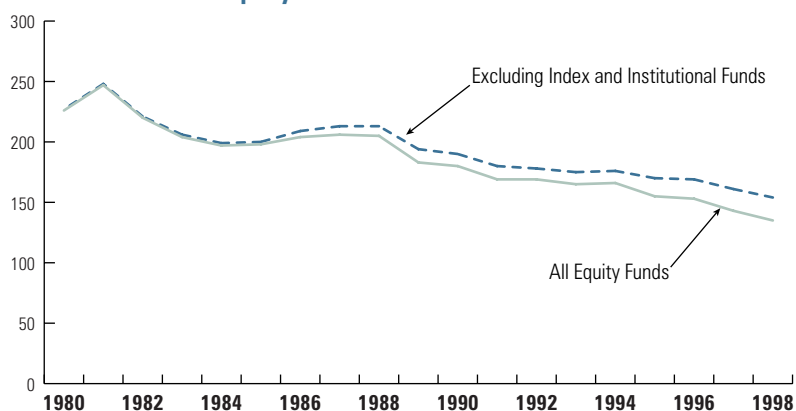
Total Shareholder Cost for Non-Institutional Equity Funds*



Total Shareholder Cost for Non-Index Equity Funds*



Total Shareholder Cost for Non-Index and Non-Institutional Equity Funds*



*Sales-weighted average of total shareholder costs for individual equity funds.

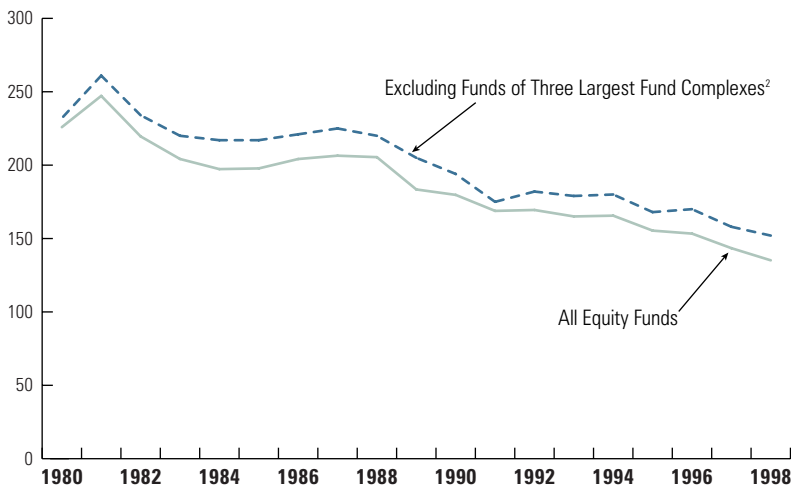
Sources: Investment Company Institute; Lipper Analytical Services, Inc.; Value Line Publishing, Inc.; CDA/Wiesenberger Investment Companies Service; Wiesenberger Investment Companies Service; © CRSP University of Chicago, Used with permission, all rights reserved (773.702.7467/www.crsp.com); Primary datasource & © Standard & Poor's Micropal, Inc. 1998 (617.451.1585/www.micropal.com); and Strategic Insight Mutual Fund Research and Consulting, LLC.

⁷ Rea and Reid, "Trends in the Ownership Cost of Equity Mutual Funds," pp. 11-12.

FIGURE 5

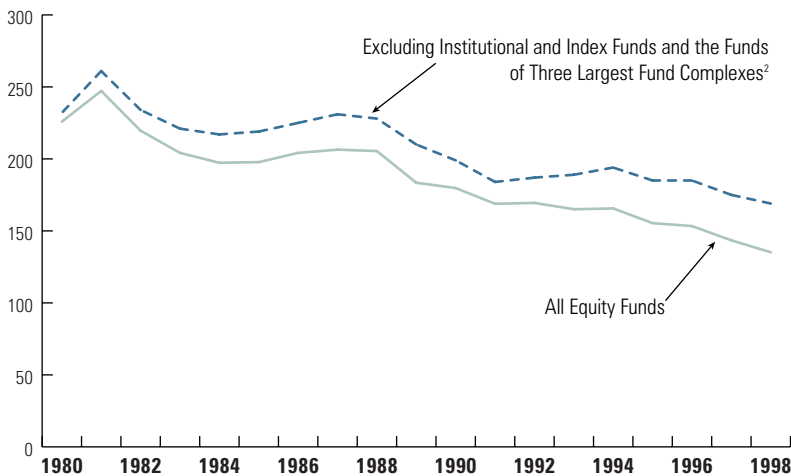
Total Shareholder Cost with and without the Three Largest Fund Complexes¹

(basis points)



Total Shareholder Cost with and without Institutional and Index Funds and the Three Largest Fund Complexes¹

(basis points)



¹ Sales-weighted average of total shareholder costs for individual funds.

² Funds from the three largest complexes in 1998 are excluded for every year from 1980-1998.

Sources: Investment Company Institute; Lipper Analytical Services, Inc.; Value Line Publishing, Inc.; CDA/Wiesenberger Investment Companies Service; Wiesenberger Investment Companies Service; © CRSP University of Chicago, Used with permission, all rights reserved (773.702.7467/www.crsp.com); Primary datasource & © Standard & Poor's Micropal, Inc. 1998 (617.451.1585/www.micropal.com); and Strategic Insight Mutual Fund Research and Consulting, LLC.

sole source of the downward trend in total shareholder cost for equity funds.

Effect of growth in institutional and index funds. The growth in sales of institutional and index funds relative to other types of funds has contributed to the downward trend in total shareholder cost of equity funds. Institutional funds typically require higher minimum balances than retail funds and consequently have significantly larger account balances. These larger balances, in turn, reduce the cost of operating the funds and result in institutional funds typically having lower shareholder costs than retail funds.

Sales of institutional funds have grown relative to those of retail funds between 1980 and 1998, rising from 0.2 percent to 15.0 percent of total equity fund sales. This compositional shift in sales toward institutional funds tended to reduce the sales-weighted average total shareholder cost of all equity funds.

Removing sales of institutional funds and focusing only on retail equity funds does not materially alter the downward trend in total shareholder cost (Figure 4 – Total Shareholder Cost for Non-Institutional Equity Funds). Retail funds experienced a 36 percent decline in total shareholder cost between 1980 and 1998, falling to 145 basis points from 226 basis points, compared with the 40 percent overall decline for all equity funds.

Index funds also are typically less costly than actively managed funds. Like institutional funds, they grew in popularity. In 1998, index funds captured 9.9 percent of all equity fund sales, up from 0.6 percent in 1980. With index funds removed, actively managed equity funds registered a drop in total shareholder cost of 35 percent

between 1980 and 1998, declining to 147 basis points from 227 basis points (Figure 4 – Total Shareholder Cost for Non-Index Equity Funds).

That total shareholder cost falls substantially with either index or institutional funds excluded indicates that the overall decline in total shareholder cost since 1980 is not the result of the relative growth of these two types of funds. Indeed, the downward trend remains after both institutional and index funds are removed; with both excluded, total shareholder cost for the remaining actively managed retail funds fell 32 percent (Figure 4 – Total Shareholder Cost for Non-Index and Non-Institutional Equity Funds).

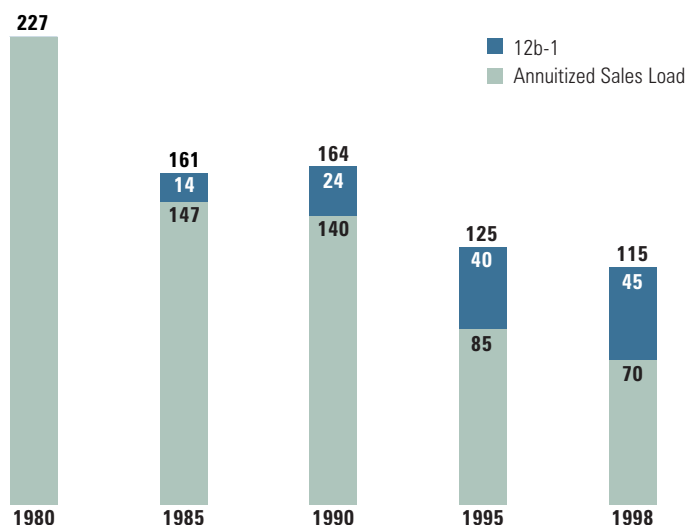
Effect of the largest fund complexes.

Because aggregate total shareholder cost is weighted by new sales, fund groups with the largest sales have the greatest effect on the aggregate total shareholder cost for all funds and thus could affect the overall trend in total shareholder cost. To measure this effect, all of the equity mutual funds of the three largest fund complexes⁸ in 1998 were removed from the calculation of total shareholder cost. These fund groups accounted for 24 percent of equity mutual fund sales in 1998.

Total shareholder cost for equity funds without these three fund complexes is somewhat higher than total shareholder cost for all equity funds, but the downward trend remains (Figure 5 – Total Shareholder Cost with and without the Three Largest Fund Complexes). Between 1980 and 1998, the total shareholder cost for equity funds excluding the three largest complexes declined 34 percent, to 152 basis points from 232 basis points.

FIGURE 6

Distribution Cost for Equity Load Funds,* Selected Years
(basis points)



*Sales-weighted average of total distribution costs for individual equity load funds.

Sources: Investment Company Institute; Lipper Analytical Services, Inc.; Value Line Publishing, Inc.; CDA/Wiesnerberger Investment Companies Service; Wiesnerberger Investment Companies Service; © CRSP University of Chicago, Used with permission, all rights reserved (773.702.7467/www.crsp.com); Primary datasource & © Standard & Poor's Micropal, Inc. 1998 (617.451.1585/www.micropal.com); and Strategic Insight Mutual Fund Research and Consulting, LLC.

Even excluding institutional, index, and those funds offered by the three largest complexes,⁹ a significant downward trend remains, with total shareholder cost falling 27 percent for the remaining funds (Figure 5 – Total Shareholder Cost with and without Institutional and Index Funds and the Three Largest Fund Complexes).

Distribution Cost of Equity Load Funds

The cost of distribution incurred by buyers of mutual funds has fallen substantially over the past two decades. The distribution cost, which may be either in the form of a sales charge or a 12b-1 fee, arises among those funds that package investment advice with the sale of their shares. These funds, called load funds,¹⁰ use the distribution charge to compensate the financial advisor or sales professional for providing assistance to the fund

⁸ Based on total assets in 1998, the three largest complexes are Fidelity, Vanguard, and American Funds.

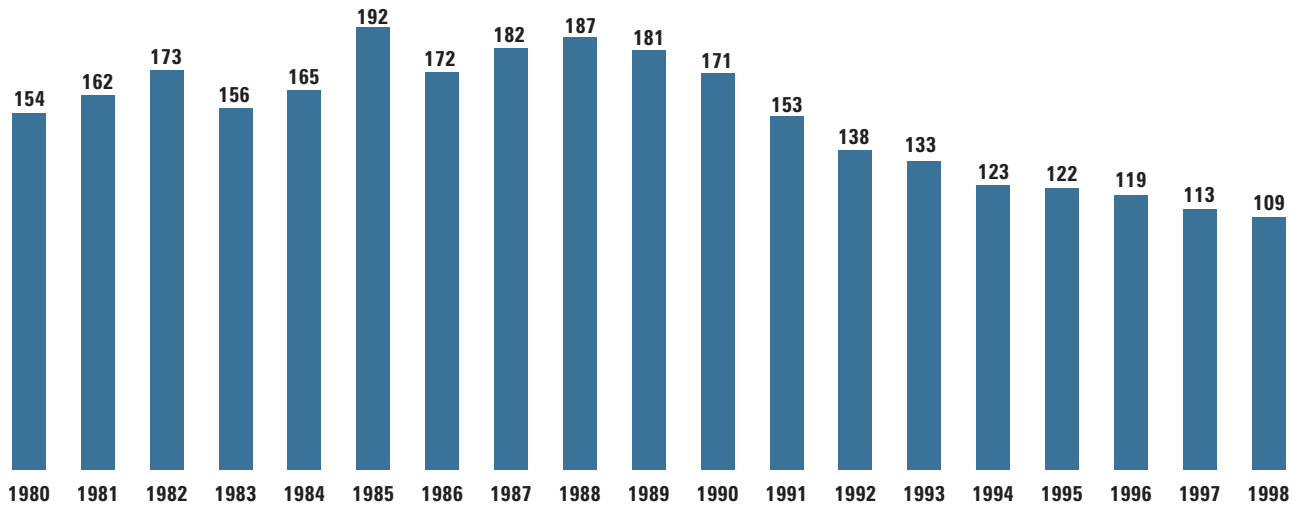
⁹ In total, institutional, index, and funds of the three largest complexes accounted for 40 percent of the equity fund sales in 1998.

¹⁰ Using the Securities and Exchange Commission's definition, a load fund either has a sales load or a 12b-1 fee greater than 0.25 percent.

FIGURE 7

Total Shareholder Cost for Bond Funds,* 1980 - 1998

(basis points)



*Sales-weighted average of total shareholder costs for individual bond funds.

Sources: Investment Company Institute; Lipper Analytical Services, Inc.; Value Line Publishing, Inc.; CDA/Wiesenerberger Investment Companies Service; Wiesenerberger Investment Companies Service; © CRSP University of Chicago, Used with permission, all rights reserved (773.702.7467/www.crsp.com); Primary datasource & © Standard & Poor's Micropal, Inc. 1998 (617.451.1585/www.micropal.com); and Strategic Insight Mutual Fund Research and Consulting, LLC.

buyer in the selection of mutual funds and for providing recordkeeping, reporting, and other services to the fund owner.

The decline in distribution cost at load funds has been substantial. In 1980, the average distribution cost stood at 227 basis points and accounted for 75 percent of the total shareholder cost for load funds (Figure 6). By 1998, the average distribution cost had declined to 115 basis points, about one half as large as the level in 1980. In addition, distribution costs have dropped to 58 percent of shareholder cost for load funds.

The decline in distribution cost reflected competition between load and no-load funds. Load funds responded to the competitive challenge of no-load funds by reducing front-end loads. The average maximum front-end load on equity funds declined from 7.8 percent in 1982 to 5.0 percent in 1998. More important, the portion of this maximum front-end load actually collected has dropped sharply as mutual funds waive all or a portion of the front load for large-sized sales and sales in 401(k) plans and wrap programs. In 1982, funds on average collected 70 percent of their maximum front loads compared with 37 percent in 1998.¹¹

Many funds combined a reduction in the front-end load with the introduction of a 12b-1 fee, usually around 25 basis points. Overall distribution costs still declined substantially, however, because this fee only partially offset the decrease in the front-end load. In addition, many load fund companies offered investors alternative means for compensating sales professionals. For example, some funds employ a combination of a 12b-1 fee and a deferred sales load that is charged when the investor redeems shares in the fund in place of a traditional front-end load.^{12, 13} Arrangements such as these can permit an investor to compensate sales professionals through installment payments rather than in a single upfront payment.

¹¹ See Appendix A for a discussion of the calculation of the actual load.

¹² Many funds now offer more than one class of shares. While each share class has a different distribution cost (e.g., front-end load, 12b-1 fee and deferred sales load, etc.), all are invested in the same underlying portfolio.

¹³ By law, 12b-1 fees used to pay marketing and distribution expenses cannot exceed 0.75 percent of a fund's average net assets per year. There is also a lifetime cap based on a fund's overall sales. In addition, a fund may also pay a service fee of up to 0.25 percent of average net assets to compensate sales professionals for providing ongoing services to investors or their accounts.

As a result of these developments, the composition of distribution costs changed dramatically over the past two decades. In 1980, front-end sales loads accounted for all distribution costs. In 1998, sales loads, whether front-end or deferred, accounted for 61 percent of the cost of distribution, with 12b-1 fees representing the remainder.¹⁴

TOTAL SHAREHOLDER COST FOR BOND AND MONEY MARKET FUNDS

Bond Funds

Total shareholder cost for all bond funds, measured as a sales-weighted average, declined 3.5 percent from 1997 to 1998 to 109 basis points (Figure 7). The decrease reflected lower distribution costs.

The decline in total shareholder cost in 1998 continued the downward movement since shareholder cost peaked in 1985 at 192 basis points. Since 1980, when shareholder cost was 154 basis points, the cost incurred by investors purchasing bond funds has declined 29 percent. The drop in bond fund cost is not confined to the sales-weighted average, as other aggregate measures also declined significantly over the period (Figure 8).

Money Market Funds

Total shareholder cost of all money market funds, measured as a sales-weighted average, stood at 42 basis points in 1998, a 2.3 percent decline from 43 basis points in 1997. The drop reflected lower operating expense ratios, as distribution costs tend to be negligible for money market funds.

The sales-weighted average total shareholder cost for money funds fell to 42 basis points in 1998 from 55 basis points in 1980, a decrease of 24 percent.¹⁵ Other aggregate measures of shareholder costs have also declined (Figure 9).

FIGURE 8

Total Shareholder Cost for Bond Funds, 1980 and 1998
(basis points)

	Level		Change	Percent Change
	1980	1998		
Sales-weighted average	154	109	-45	-29.2
Asset-weighted average	210	124	-86	-41.0
Simple average	216	151	-65	-30.1
Median	227	144	-83	-36.6
Number of funds	113	3,791	3,678	

Sources: Investment Company Institute; Lipper Analytical Services, Inc.; Value Line Publishing, Inc.; CDA/Wiesenberg Investment Companies Service; Wiesenberg Investment Companies Service; © CRSP University of Chicago, used with permission, all rights reserved (773.702.7467/www.crsp.com); Primary datasource & © Standard & Poor's Micropal, Inc. 1998 (617.451.1585/www.micropal.com); and Strategic Insight Mutual Fund Research and Consulting, LLC.

FIGURE 9

Total Shareholder Cost for Money Market Funds, 1980 and 1998
(basis points)

	Level		Change	Percent Change
	1980	1998		
Sales-weighted average	55	42	-13	-23.6
Asset-weighted average	55	51	-4	-7.3
Simple average	67	62	-5	-7.5
Median	66	59	-7	-10.6
Number of funds	70	1,357	1,287	

Sources: Investment Company Institute; Lipper Analytical Services, Inc.; Value Line Publishing, Inc.; CDA/Wiesenberg Investment Companies Service; Wiesenberg Investment Companies Service; © CRSP University of Chicago, used with permission, all rights reserved (773.702.7467/www.crsp.com); Primary datasource & © Standard & Poor's Micropal, Inc. 1998 (617.451.1585/www.micropal.com); and Strategic Insight Mutual Fund Research and Consulting, LLC.

¹⁴ The same shift can be seen in the decline in the average annuitized sales load from 227 basis points in 1980 to 70 basis points in 1998.

¹⁵ Total shareholder cost for money market funds has been computed without including the annuitized load. Few money funds charge sales loads and those that do typically are part of a package of bond and equity load funds. The package of funds is designed to allow the investor to transfer between funds without incurring any additional sales charge beyond that associated with the initial purchase. In this arrangement, few investors are likely to have purchased a money fund with a load as a stand-alone or long-term investment. As a practical matter, the quantitative effect of excluding the annuitized sales load is negligible, at the most adding 0.004 percent in any one year.

APPENDIX A

*Calculation of Total Shareholder Cost*¹⁶

Total shareholder cost is defined as all the costs set by a fund organization that an investor would expect to incur when purchasing and holding mutual fund shares over the life of the investment.¹⁷ For an individual fund, total shareholder cost is measured as the dollar value of fund expenses and sales loads incurred during a given year by buyers of a fund in that year, expressed as a percentage of the amount invested in the fund.

For a no-load fund, total shareholder cost is the expense ratio, since there is no sales charge. For a load fund, the sales load must be included. The sales load, however, is a one-time payment and cannot be directly added to the annual and recurrent expense ratio. Rather, it first must be converted to the equivalent of a series of annual payments spread over the average period in which investors hold the fund. The annual payment, known as the annuitized sales load, is then added to the expense ratio to form total shareholder cost.

The annuitized sales load is first estimated for each fund for holding periods ranging from one to fifteen years. For a given holding period, the annuitized load is that annual payment for which the present value of the annual payments equals the amount of the front-end load payment. Similarly, the annuitized deferred load is that annual payment for which the future value of the annual payments equals the amount of the deferred load payment. The deferred load typically declines from its maximum

level in the first year of ownership by one percent per year; such a declining schedule is assumed in the computation of the annuitized sales load. Comparisons of the annuitized loads use the yield for the five-year Treasury note. The downward trend in the total shareholder cost is not altered by a more rapid redemption rate.¹⁸

For funds with front-end loads, the annuitized load is initially computed using the maximum front-end load that each fund is allowed to charge, as set forth in the prospectus. Many funds, however, reduce or waive front-end loads for large-sized sales and sales in 401(k) plans and wrap programs. These waivers have resulted, at times, in the load actually paid by investors being considerably below the maximum sales load permitted by the prospectus. To correct for the upward bias imparted by use of the maximum load, the initial estimate of the annuitized front-end load is scaled downward by an estimate of the ratio of the average actual load to the average maximum load.¹⁹

¹⁶ See Rea and Reid, "Trends in the Ownership Cost of Equity Mutual Funds," pp. 3-9 and Rea and Reid, "Total Shareholder Cost of Bond and Money Market Funds," pp. 3-4 for a more complete discussion of the calculation of total shareholder cost. An approach similar to total shareholder cost has been used by Erik R. Sirri and Peter Tufano in "Competition and Change in the Mutual Fund Industry," in *Financial Services: Perspectives and Challenges*, edited by Samuel L. Hayes, III, Boston: Harvard Business School Press, 1993, pp. 199-202 and by Peter Tufano and Matthew Sevick in "Board Structure and Fee-Setting in the U. S. Mutual Fund Industry," *Journal of Financial Economics*, 46, 1997, pp. 339-342.

¹⁷ The investor in mutual funds may incur other costs that are not set by fund companies. These would include, for example, fees charged by wrap accounts, fee-based financial advisers, and personal trusts. Such costs, though a relevant consideration in the decisions to purchase fund shares, are not included in the measurement of total shareholder cost because fund companies do not set them.

¹⁸ See Rea and Reid, "Trends in the Ownership Cost of Equity Mutual Funds," p. 15 for a discussion of the sensitivity of the total shareholder cost to redemption rate assumptions.

¹⁹ See Rea and Reid, "Trends in the Ownership Cost of Equity Mutual Funds," p. 8 for a discussion of the calculation of the actual load. The scaling factor for 1998 was constructed from data on actual sales loads in SimfundPlus from Strategic Insight Mutual Fund Research and Consulting, LLC. Strategic Insight obtains information from semiannual financial statements filed by mutual funds with the U.S. Securities and Exchange Commission. The scaling factors between 1991-1997 have been revised down slightly. The downward revision had virtually no impact on the calculation of distribution costs for these years.

APPENDIX B

Database Used in the Estimation of Total Shareholder Cost

The database used to analyze total shareholder costs was constructed by including any open-end registered investment company, excluding variable annuities, that had ever reported data to the Investment Company Institute in its monthly survey of fund companies. Funds reporting data to the Institute account for virtually all of the mutual fund industry's assets. A data series was created for each fund back to its inception date or 1980 if the inception date was before 1980 and through 1998 or the last year that the fund existed.²⁰

Data on new sales, assets, loads, and expense ratios were added to this database. Data on maximum sales loads and new sales were taken from the Investment Company Institute's data files. The primary source of data on fund expense ratios and assets is Lipper Analytical Services, Inc. In addition, load and expense data from Wiesenberger,²¹ CDA/Wiesenberger,²² Center for Research in Security Prices (CRSP),²³ Value Line,²⁴ and Morningstar²⁵ were used to fill in missing observations and to check for discrepancies in the data. Asset data from the Institute's database were used to check and augment the

asset data provided by Lipper Analytical Services. Despite using several data sources, expense and load data were not available for all funds in all years. In addition, sales data may be missing for funds that did not report sales to the ICI in a particular year.

However, the coverage of the database is high. The number of long-term funds for which sales, fees, and loads are available in any given year ranges between 85 and 98 percent of the long-term funds in the ICI database. Asset coverage for long-term funds ranges between 82 and 100 percent, and sales coverage is between 93 and 99 percent. Coverage for money funds is somewhat lower but still high. The number of funds ranges from 75 to 91 percent of the money funds in a particular year, asset coverage is between 87 and 100 percent, and sales coverage runs from 92 to 98 percent.

The current database includes more funds than were used in the first two *Perspective* articles on total shareholder cost.²⁶ This reduces the impact of any potential "survivorship" bias.²⁷ Most of the funds for which data are not available have small sales, as evidenced by the high sales coverage in the database. Their exclusion is unlikely to have a material impact on the analysis.

The two previous studies excluded funds that did not have a complete record dating from the later of 1980 or its inception date. For example, previously the database excluded a fund that was in continuous existence for the entire period but may have had data missing for one year. This criterion was used to prevent a fund leaving the sample for a year and affecting the trend in total shareholder cost. This criterion was eliminated for this paper in order to increase the coverage of the database. There is no material difference in the results using the two different screening criteria.

²⁰ The database used for earlier research used data obtained from Lipper Analytical as its foundation. However, Lipper Analytical was able to supply expense and asset data only for funds in existence at the time the data were acquired in 1991, 1994, 1995, 1996, 1997, and 1999. Consequently, funds that went out of existence before 1990 or in 1992 and 1993 were not included. Morningstar Inc. provided a file of expenses for 2950 funds that went out of existence before 1991, which was used in the construction of the current database.

²¹ *Investment Companies*, Wiesenberger Investment Companies Service, New York, various issues.

²² *Investment Companies Yearbook*, CDA/Wiesenberger Investment Companies Service, Rockville, MD, various issues.

²³ *CRSP Survivor Bias Free US Mutual Fund Data Base*, Center for Research in Security Prices, Graduate School of Business, University of Chicago, Chicago, IL.

²⁴ *Value Line Mutual Fund Survey for Windows*, Value Line Publishing, Inc., New York, September 1998 and January 1999.

²⁵ Morningstar, Inc., Chicago, IL.

²⁶ Rea and Reid, "Trends in the Ownership Cost of Equity Mutual Funds," pp. 8-9 and "Total Shareholder Cost of Bond and Money Market Mutual Funds," p. 4. See Rea and Reid, "Trends in the Ownership Cost of Equity Mutual Funds," pp. 3-9 for a discussion of the measurement of total shareholder cost.

²⁷ For example, survivorship bias would occur if the non-surviving funds had higher fees and expenses than surviving funds, then the aggregate total shareholder cost ratio would be higher than that estimated from the funds in the database.

Back issues of *Perspective*, written by Institute staff, leading scholars, and other contributors, address public policy issues of importance to mutual funds and their shareholders. Contact the Institute's Public Information Department at 202/326-5945 for more information. All issues of *Perspective* are also available on the Institute's website; for an online index of issues, see <http://www.ici.org/economy/perspective.html>.

Vol. 1, No. 1, July 1995:	<u>"Mutual Fund Shareholder Response to Market Disruptions"</u>	Richard Marcis, Sandra West, Victoria Leonard-Chambers
Vol. 1, No. 2, November 1995:	<u>"Improving Mutual Fund Risk Disclosure"</u>	Paul Schott Stevens, Amy Lancellotta
Vol. 2, No. 1, January 1996:	<u>"Mutual Fund Regulation: Forging a New Federal and State Partnership"</u>	Matthew P. Fink
Vol. 2, No. 2, March 1996:	<u>"Mutual Fund Shareholder Activity During U.S. Stock Market Cycles, 1944-95"</u>	John D. Rea, Richard Marcis
Vol. 2, No. 3, April 1996:	<u>"The Coming Crisis in Social Security"</u>	Dr. John B. Shoven
Vol. 2, No. 4, May 1996:	<u>"Investing the Assets of the Social Security Trust Funds in Equity Securities: An Analysis"</u>	Lawrence J. White
Vol. 2, No. 5, June 1996:	<u>"Helping America Save for the Future"</u>	Sen. Robert J. Kerrey, Jon S. Fossil, Matthew P. Fink
Vol. 2, No. 6, December 1996:	<u>"U.S. Emerging Market Funds: Hot Money or Stable Source of Investment Capital?"</u>	John D. Rea
Vol. 3, No. 1, March 1997:	<u>"Mutual Fund Developments in 1996"</u>	Brian K. Reid
Vol. 3, No. 2, June 1997:	<u>"Growth and Development of Bond Mutual Funds"</u>	Brian K. Reid
Vol. 3, No. 3, July 1997:	<u>"Continuing a Tradition of Integrity"</u>	Barry P. Barbash, Don Powell, Matthew P. Fink
Vol. 3, No. 4, August 1997:	<u>"Selected Issues in International Taxation of Retirement Savings"</u>	Paul Schott Stevens
Vol. 3, No. 5, December 1997:	<u>"Stock Markets, Economic Development, and Capital Control Liberalization"</u>	Ross Levine
Vol. 4, No. 1, March 1998:	<u>"Mutual Fund Developments in 1997"</u>	Brian K. Reid, Samuel Ankrah, Kimberlee Millar
Vol. 4, No. 2, June 1998:	<u>"U.S. Emerging Market Equity Funds and the 1997 Crisis in Asian Financial Markets"</u>	Mitchell A. Post, Kimberlee Millar
Vol. 4, No. 3, November 1998:	<u>"Trends in the Ownership Cost of Equity Mutual Funds"</u>	John D. Rea, Brian K. Reid
Vol. 5, No. 1, January 1999:	<u>"401(k) Plan Activity: Asset Allocation, Account Balances, and Loan Activity"</u>	Jack VanDerhei, Russell Galer, Carol Quick, John D. Rea
Vol. 5, No. 2, February 1999:	<u>"Mutual Fund Developments in 1998"</u>	Brian K. Reid, Kimberlee Millar
Vol. 5, No. 3, March 1999:	<u>"Total Shareholder Cost of Bond and Money Market Funds"</u>	John D. Rea, Brian K. Reid

Although information or data provided by independent sources is believed to be reliable, the Investment Company Institute is not responsible for its accuracy, completeness, or timeliness. Opinions expressed by independent sources are not necessarily those of the Institute. If you have questions or comments about this material, please contact the source directly.