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PERSPECTIVE

The Expenses of Defined Benefit Pension Plans and Mutual Funds

by Sean Collins[1]

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INTRODUCTION

Previous research by the Investment Company Institute (ICI) has examined trends in mutual fund fees and expenses.[2] These articles provided evidence that the fees and expenses that mutual fund shareholders pay when purchasing and owning a mutual fund have declined considerably since the 1980s. These articles also found that the annual fees and expenses that an individual fund pays to operate tend to decline as its assets rise.

This paper extends the research of those earlier studies by comparing the expenses of mutual funds with those of defined benefit pension plans sponsored by state and local governments ("public pension plans").[3] Mutual funds and pension plans are similar in that they manage relatively large pools of assets.[4] Nonetheless, there are marked differences between mutual funds and pension plans. They have different business objectives, serve different clienteles, have different organizational structures and operations, and use different conventions for reporting expenses.

Failure to account for differences between mutual funds and pension plans can lead to misinterpretations. For example, a recent study by John Freeman and Stewart Brown (2001) concluded incorrectly that mutual funds pay more for portfolio management than public pension plans,[5] a result reached by including more than portfolio management expenses in the mutual fund fees that they analyzed.

This issue of *Perspective* examines the organizational structures of mutual funds and pension plans and compares levels and trends in their expenses. The major findings of the analysis are:

Organizational Structure

- Mutual funds and pension plans have markedly different business objectives and organizational structures. Mutual funds offer individuals professional portfolio management, risk pooling, diversification, and liquidity.

[1] Sean Collins is a Senior Economist at the Investment Company Institute. Adam Russell and Stefan Kimball assisted in collecting and analyzing the data. Ana Gonzalez prepared the charts and tables.

[2] See Brian K. Reid and John D. Rea, "Mutual Fund Distribution Channels and Distribution Costs," *Perspective,* Vol. 9, No. 3, July 2003 (www.ici.org/pdf/per09-03.pdf); "Total Shareholder Cost of Mutual Funds: An Update," *Fundamentals,* Vol. 11, No. 4, September 2002 (www.ici.org/pdf/fm-v11n4.pdf); John D. Rea, Brian K. Reid, and Kimberlee W. Millar, "Operating Expense Ratios, Assets, and Economies of Scale in Equity Mutual Funds," *Perspective,* Vol. 5, No. 5, December 1999 (www.ici.org/pdf/per05-05.pdf); and John D. Rea and Brian K. Reid, "Trends in the Ownership Cost of Equity Mutual Funds," *Perspective,* Vol. 4, No. 3, November 1998 (www.ici.org/pdf/per04-03.pdf).

[3] Throughout this article, except where noted, the term "pension plan" refers to a defined benefit pension plan, as opposed to a defined contribution pension plan.

[4] In total, mutual funds and pension plans manage nearly $10 trillion in assets.

[5] John P. Freeman and Stewart L. Brown, "Mutual Fund Advisory Fees: The Cost of Conflicts of Interest," *The Journal of Corporation Law,* Vol. 26, No. 3, Spring 2001, pp. 609–673.

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Pension plans are pooled investments that employers use to provide employees with a guaranteed income in retirement and are akin to life insurance products.

- Mutual funds and pension plans operate under dissimilar legal and regulatory frameworks, and they offer different services to their clients.

Differences in Expense Structures

- Owing to differences in organizational structures, mutual funds and pension plans report and account for their expenses in dissimilar ways.
- Freeman and Brown's (2001) comparison of portfolio management expenses of pension plans and mutual funds illustrates the importance of allowing for differences between the two organizations. Their study compares expenses incurred by public pension plans for third-party portfolio management with the so-called "management fees" paid by mutual funds. The management fee of a mutual fund not only covers portfolio management, but also business and administrative services required to operate the fund. Therefore, not surprisingly, Freeman and Brown found that the fees pension plans incur for portfolio management are lower than the management fees of mutual funds. However, that finding says little about the relative costs that the two entities incur for portfolio management.
- This article provides a more accurate comparison, weighing the fees that pension plans pay for portfolio management against the fees mutual funds pay to "subadvisers" for portfolio management. Such a comparison indicates that mutual funds and pension plans pay like fees for like portfolio management services.
- Another way of providing a more accurate comparison is to examine the *total* expenses that pension plans and mutual funds incur to operate, thus incorporating the costs of portfolio management and all other business and administrative expenses. Such a comparison, which is also presented in this article, indicates that public pension plans, on average, have a lower operating expense ratio (i.e., expenses per dollar of assets) but higher expenses per account than mutual funds. Five factors explain this difference:
  1. Pension plans manage far fewer accounts than mutual funds;
  2. As a result, pension plans have higher average account balances;
  3. Mutual funds provide liquidity for their clients and pension plans do not;
  4. Pension plans have a greater portion of their assets in fixed-income securities; and
  5. Reflecting the choices of pension plan trustees and mutual fund investors, pension plans have a higher proportion of their equity assets in index funds.

Economies of Scale in Mutual Funds and Pension Plans

- Mutual funds and pension plans exhibit economies of scale. The operating expenses of individual mutual funds and pension plans, scaled by assets, fall as assets under management rise. As a result, when the assets of pension plans and mutual funds rose in the 1990s, economies of scale put downward pressure on their operating expense ratios.
- For mutual funds, the influence of economies of scale was masked by a shift in the preferences of investors toward capital appreciation and international equity funds (both of which are more costly to manage) and by growth in the number of new, smaller funds, which, by virtue of economies of scale, have higher-than-average expense ratios. Adjusting for these factors, the operating expense ratios of mutual funds fell as assets rose from 1990 onward.
- The operating expense ratios of mutual funds fall faster than management fees as assets rise. Freeman and Brown claim that this indicates that mutual fund advisers fail to pass on economies of scale in portfolio management. However, roughly the same pattern holds for pension plans. The movement in these two components of overall operating expenses occurs because some of the expenses that mutual funds and pension plans incur are relatively fixed, imparting stronger economies of scale to total operating expenses than to the costs of asset management.

This paper first describes the differences in the organizational structures of mutual funds and public pension plans, and then describes how these organizational differences lead to dissimilarities in their expense structures. The paper next shows that it is inappropriate to compare the fees that pension plans pay for portfolio management with so-called "management fees" of mutual funds because the latter encompass more than the costs of portfolio management. A more appropriate comparison, based on the "subadvisory fees" of

mutual funds, indicates that mutual funds and pension plans incur roughly the same expenses for portfolio management. Thereafter, the paper compares the operating expense ratios and cost per account of pension plans and mutual funds, and also examines economies of scale in the expenses of mutual funds and pension plans. The final section offers conclusions.

ORGANIZATION OF MUTUAL FUNDS AND PENSION PLANS

Mutual funds and pension plans are similar in some respects. Both manage relatively large pools of publicly traded stocks, bonds, and money market instruments. Both pool assets to capture economies of scale and to diversify risks. Both help individuals provide for retirement. Both have oversight boards of directors or trustees that serve as fiduciaries. Nonetheless, mutual funds and pension plans have important differences. This section summarizes the features most relevant to the issues of expenses that are considered in this paper.

Objectives of Mutual Funds and Pension Plans

Mutual funds are sold primarily to individuals, offering them professional investment management, diversification, risk pooling, and liquidity. A fund's objective is to maximize the returns (net of expenses) to the shareholder, given the fund's investment style and level of risk. In essence, mutual funds provide a conduit for passing the rewards and risks of financial market investments to shareholders, either through distributions of income or capital gains. The value of shareholders' claims on a fund fluctuates daily but can nevertheless be readily calculated.

In contrast, pension plans are akin to life insurance products in that both manage asset pools to fund guaranteed payments whose value is uncertain.[6] Pension plans are established by state and local governments (public plans) or businesses (corporate plans) to help employees provide for their retirement. Employers contribute to these plans on behalf of employees. Pension plans receive, pool, and invest these contributions in a manner intended to ensure that plan assets are sufficient to meet current and future obligations to plan participants. The risk of failing to meet those obligations falls on the employer and may even extend to taxpayers.[7]

Although there are many similarities between corporate and public pension plans, in view of the recent interest in comparing the expenses of mutual funds and public pension plans, the remainder of this article focuses mainly on public pension plans.

Clientele of Mutual Funds and Pension Plans

Mutual funds and pension plans, though both help individuals to fund their retirements, serve different clienteles. The clientele of mutual funds in many respects mirrors the population of the U.S. itself. As of 2003, more than 91 million individuals owned shares in mutual funds.[8] According to ICI's *2001 Profile of Mutual Fund Shareholders,* the median investor was in mid-career at age 46, and the median household had roughly $40,000 invested in four mutual funds, or about $10,000 per fund. Only 19 percent of mutual fund investors were retired.[9]

In comparison, pension plans serve far fewer clients (i.e., "participants"), and the average plan participant is older, has been in the work force longer, and has built up larger retirement balances. For instance, in 2001, public pension plans had roughly 23 million participants (both active and retired),[10] with an estimated average age

[6] Life insurance offers a guaranteed payment for an uncertain date of death. Pension plans promise guaranteed retirement income based on uncertainty about date of death, but also about date of retirement and the employee's salary in his or her final years of employment.

[7] Corporate pension plans are insured against default by the Pension Benefit Guarantee Corporation (PBGC), a federal agency. The PBGC operates by collecting insurance premiums from corporate pension plans. However, if the PBGC's assets were to be exhausted owing to defaults of corporate pension plans, additional outlays might be required by the federal government. The benefits promised by public pension plans are usually backed by the full faith and credit of the sponsoring state or municipality.

[8] Investment Company Institute, "U.S. Household Ownership of Mutual Funds in 2003," *Fundamentals,* Vol. 12, No. 4, October 2003 (www.ici.org/pdf/fm-v12n4.pdf).

[9] The latest year for which this breakdown is available is 2001. See Investment Company Institute, *2001 Profile of Mutual Fund Shareholders* (www.ici.org/pdf/rpt_profile01.pdf).

[10] U.S. Bureau of the Census, 2001 State and Local Government Employee Retirement System survey.

of 51 years, of whom 26 percent were in retirement.[11] Reflecting these and other factors,[12] average assets per participant amounted to about $150,000 in public pension plans.[13]

Regulation of Mutual Funds and Pension Plans

Mutual funds and pension plans both face many legal and regulatory restrictions on their activities. Both have boards of directors or trustees who are responsible for overseeing activities and ensuring compliance with laws and regulations. However, reflecting their dissimilar objectives and clienteles, mutual funds and pension plans operate under different laws and regulations, which can affect their relative expenses.

Mutual funds are regulated by the U.S. Securities and Exchange Commission under the Investment Company Act of 1940 (ICA). Among other things, the ICA includes provisions that: (1) require mutual funds to provide disclosure to investors; (2) provide for the safekeeping of fund assets; (3) restrict unfair or unsound capital structures; (4) prohibit or restrict transactions between a fund and its affiliates; (5) regulate how a fund values its portfolio securities; and (6) require a certain percentage of fund directors to be independent of the fund's adviser and its affiliates.

Public pension plans are governed primarily by the laws and regulations of state and local governments. Because a shortfall in a pension plan's assets (relative to its liabilities) poses a financial risk to the employer and potentially also to taxpayers, most pension plans have legal, regulatory, or board-imposed limits on portfolio composition. For example, many public pension plans are limited as to the proportion of plan assets that can be invested in equities. Portfolios of fixed-income securities are generally less expensive to manage than portfolios of equities, reducing pension plan expenses for portfolio management.

Liquidity

A financial security is a liquid investment if it can be bought or sold quickly with little effect on its price. By law, mutual funds must allow shareholders to redeem their shares on a daily basis at net asset value (NAV). Most mutual funds also continuously offer new shares to investors. These features make mutual funds a highly liquid investment. But liquidity is a costly service. To accommodate the daily ebb and flow of share purchases and redemptions, the fund's portfolio manager must manage the fund's cash and less liquid investments, and the fund must support sophisticated trading systems that allow the portfolio manager to buy and sell securities as needed. Also, most funds have recently made significant investments in computers, human resources, and accounting systems to facilitate the ability of fund investors to purchase or redeem fund shares electronically, notably via the Internet.[14]

As a rule, pension plans do not provide participants with liquidity. Plan participants have limited access to their balances before retirement. Consequently, cash flows to and from pension plans are relatively stable, reflecting factors that evolve gradually, such as number of employees, wages and salaries, and benefits payments to current retirees. Evidence that pension plans enjoy an additional degree of comfort in managing assets is that they hold less cash than mutual funds. In 2000, for example, public pension plans held an average of 2.4 percent of assets in liquid investments, compared to 5.6 percent for long-term mutual funds.[15]

[11] These figures are based on the number of active and retired participants in public pension plans that are reported in the *2000 Survey of State and Local Government Employee Retirement Systems,* which is a survey compiled by the Government Finance Officers Association Research Center for the members of the Public Pension Coordinating Council. The survey, though dated 2000, reports data for the fiscal year ended 1998. These data are collated in the so-called *Pendat* database.

[12] Social Security also plays a role. About 30 percent of participants in public pension plans are not covered by Social Security. In such cases, sponsors of public pension plans typically compensate by raising promised benefits and plan contributions. That in turn raises average assets per participant among public plans.

[13] This figure is based on the total of active and retired participants. If retirees were excluded, average assets per participant would be somewhat higher.

[14] See Pozen (2002), pp. 392–418.

[15] The figures for mutual funds are from ICI's *2003 Mutual Fund Fact Book* (www.ici.org/pdf/2003_factbook.pdf). The figures for public pension plans are based on figures from Standard & Poor's MMD Access database.

Investment Management

A mutual fund's investment adviser is responsible for managing the fund's portfolio of securities. Mutual fund investors make broad asset allocations, choosing among bond, equity, hybrid, or money market funds. Still, a fund's investment adviser must make important asset allocation decisions. For example, the adviser of an equity fund must choose how much of the fund's portfolio to hold as cash, and how much to allocate to various sectors like health care, telecommunications, aerospace, and perhaps (especially for hybrid funds) to bonds.[16] Next, the adviser must select individual securities within each asset class ("security selection"). The adviser may make all security selection decisions or may subcontract with an unaffiliated firm (a "subadviser") for security selection.

Pension plans manage their assets to ensure that liabilities to current and future retirees can be met. A "top-down" strategy begins with the pension plan's staff projecting liabilities to current and future retirees.[17] Given projected liabilities, the plan's assets are allocated among broad investments such as equities, bonds, cash, and other investments. This allocation is made by the plan's board with advice from the plan's officers, staff, and outside consultants. It takes account of legal or regulatory restrictions on plan investments, and must balance the expected returns on equities, bonds, and other investments against their associated risks. To achieve the right legal and financial balance, pension plans use consultants and maintain their own staffs of lawyers, actuaries, accountants, financial analysts, and portfolio managers. After asset allocation comes security selection. Pension plan staff sometimes make security selection decisions.

FIGURE 1

Investment Manager Tenure with Public Pension Plans
(years)

	Mandate			
Average of All Mandates	Domestic Equity	International Equity	Bond	Short-Term
7.8	7.7	6.8	9.1	12.3

Source: Standard and Poor's MMD Access database

Other times, the plan delegates these decisions to institutional investment managers ("external managers") who manage a specific portion of a plan's assets, such as that allocated to growth stocks. Most plans use a mix of internal and external management, with large plans relying more heavily on internal management, and small plans relying more on external managers.

Pension plans tend to retain external managers for long periods, with the average tenure being about eight years (Figure 1). In part, this is because the search for a new external manager can be costly. The search must ensure that the external manager's style meets the pension plan's goals, that the external manager has no conflicts of interest, and that the external manager's fees are reasonable. In addition, the fund may incur "transition costs," which can arise from the need to sell some assets and purchase others in order to match the investment style of the newly hired external manager.[18] Cost is not the only reason why external managers tend to have relatively long tenures, though. Pension plans endeavor to establish strong bonds of trust with their external managers. Hence, a plan is unlikely to dismiss an external manager whose performance falls below expectations for a period if the pension plan has otherwise had a long, successful relationship with that manager.

THE STRUCTURE OF MUTUAL FUND AND PENSION PLAN EXPENSES

Mutual funds and pension plans use similar-sounding terms to refer to dissimilar expense concepts. An appreciation of these terms and the expense reporting conventions followed by mutual funds and pension plans is crucial to understanding and analyzing differences in their expenses.

[16] See, for example, Pozen (2002), pp. 208–221.

[17] This projection entails studying demographics, such as employee pay scales, likely ages of employee retirement and death, and the retirement benefits promised by the plan sponsor.

[18] A recent study by Frank Russell (2001) estimates that transitions between external managers could cost a pension plan 100 to 200 basis points of the assets transferred.

Mutual Fund Expenses

Virtually all mutual funds are externally managed: Services are provided by separate legal entities, such as the fund's investment adviser, an affiliate of the adviser, or an independent third party. These services include portfolio management (provided by the fund's adviser or a subadviser), administrative and business services (typically provided by the fund's adviser or a related party), and shareholder services (provided by the transfer agent). The fees for these services plus other fees that are paid for directly by the fund, when divided by the fund's average net assets, make up the fund's "operating expense ratio."[19]

Management Fee. The fund's investment adviser typically receives a single fee from the fund called a "management fee." This fee compensates the adviser for asset allocation and security selection, managing the fund's assets in accordance with its prospectus, and making securities trades. The management fee typically also covers the costs of administrative and business services that the fund must have to operate. These include fund and portfolio accounting, valuation of portfolio securities, oversight of the fund's transfer agent and custodian, legal analysis to ensure compliance with federal and state laws and regulations, preparation and filing of regulatory and tax reports, and preparation and distribution of prospectuses and shareholder reports. The management fee also compensates the adviser for its expenses related to the salaries of fund officers and the costs of clerical staff, office space, equipment, and certain accounting and recordkeeping facilities. Finally, the management fee must offer the fund's adviser a competitive rate of return on capital.

Because a fund's management fee includes business and administrative costs, as well as expenses arising from portfolio management, it cannot be used to approximate costs incurred for portfolio management. Indeed, both the SEC (2000) and Freeman and Brown noted the difficulty in trying to use a fund's management fee as a proxy for portfolio management costs.[20,21]

Transfer Agent Fee. Transfer agents keep shareholder records, process transactions, and maintain costly customer service departments and call centers. Most mutual funds pay a separate fee to their transfer agents for these kinds of services. Commonly, the transfer agent bills the fund for services at a fixed, annual fee per account, which runs about $20 to $30 per year.[22] However, for some mutual funds, transfer agent fees are encompassed in an all-inclusive or "unified" management fee. For these kinds of funds, the management fee is an even more inaccurate measure of the costs that the fund incurs for portfolio management.

"Other Fees." Mutual funds incur a number of ancillary expenses, such as custodial, legal, audit, registration, and directors' fees.[23] Because these kinds of fees tend to be relatively fixed, they typically contribute significantly more to the operating expense ratio of a small fund than to that of a large fund.[24] This is important because it indicates that small funds may benefit more than large funds from asset growth.

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[19] This definition excludes distribution fees charged under what are known as 12b-1 plans.

[20] In *Report on Mutual Fund Fees and Expenses,* December 2000, footnote 60 (www.sec.gov/news/studies/feestudy.htm), the SEC's Division of Investment Management noted the difficulty of interpreting the management fees of mutual funds as a proxy for the fund adviser's costs of portfolio management services:

> Some funds define the term management fee narrowly, to cover only the cost of selecting portfolio securities. These funds pay for administration, record keeping, and other services under separate contracts with other service providers. Other funds define the management fee broadly, to cover a variety of administrative and other services, in addition to expenses associated with selecting portfolio securities. A few funds have "unified" fees under which the management fee pays for all fund expenses (the management fee is equal to the expense ratio). Thus, if Fund A has a higher management fee than Fund B, it may mean that Fund A pays a higher fee to its adviser. Alternatively, it may mean that Fund A's management fee pays for services that are provided and charged for separately by Fund B's adviser, an affiliate of the adviser, or outside contractors.

[21] Freeman and Brown acknowledge that the advisory fees paid by public pensions and the management fees of mutual funds can be difficult to compare. They note that "the 'management fee' reported in Morningstar sometimes includes not only fees for advisory services but some administrative services as well."

[22] See *Mutual Fund Transfer Agents: Trends and Billing Practices 1999,* Investment Company Institute.

[23] Some researchers, including Freeman and Brown, use the term "administrative fees" to refer to the sum of transfer agent fees and "other fees." This is not generally how mutual funds define administrative fees or costs, and it is not in keeping with the definition used in the legally mandated reports that funds must file semiannually with the SEC (the so-called N-SAR reports).

[24] For example, suppose an audit costs $50,000. That would add 100 basis points to the expense ratio of a $5 million fund, but only 50 basis points if the fund's assets grew to $10 million, a drop of 50 basis points. For a larger fund, similar growth in assets would have less effect on the fund's expense ratio. For example, while a $50,000 audit would add 10 basis points to the expense ratio of a $50 million fund, it would add 9.1 basis points to the expense ratio of a $55 million fund, a drop of less than 1 basis point.

Pension Plan Expenses

The two primary categories of expenses for pension plans are portfolio management fees and administrative fees. The sum of these two kinds of expenses, when divided by plan assets, is termed the plan's "operating expense ratio" in this article. These two types of expenses differ in concept from the similarly named counterparts of mutual funds.

Portfolio Management Fees ("Advisory Fees"). Most pension plans manage a portion of their assets internally and allocate the remainder to an external manager. When used, an external manager is responsible for portfolio management (securities selection, executing trades, and limited reporting) within a given sector, such as small-cap stocks. For these services, the pension plan pays the external manager a fee, which plans variously call "investment advisory fees," "investment management fees," or just "management fees."[25] However, in contrast to the "management fees" incurred by mutual funds, the fees paid by pension plans to external managers are narrow in scope. They do not cover the costs of business and administrative activities that pension plans must have to operate. These instead are comprised in the "administrative fees" of pension plans.

Administrative Fees. Administrative fees include the salaries of the pension plan's board, officers, and staff, whose duties include asset allocation, satisfying portfolio limits set by law or the board, ensuring compliance with other laws and regulations, accounting and auditing, managing relationships with external managers, disbursing benefits payments to beneficiaries, and collecting contributions from employers. Administrative fees also include expenses related to managing assets not allocated to external managers, including salaries and benefits of portfolio managers who are members of the pension plan's staff. In addition, administrative costs cover rent to house pension plan staff and operations, computer costs, and expenses (such as fees paid to consultants) for monitoring and hiring and firing of external managers.

In short, the fees paid by public pension plans to external managers comprise only the costs of portfolio management. In comparison, the "management fees" reported by mutual funds are broad in scope, encompassing the costs of portfolio management, as well as a range of business and administrative services. Freeman and Brown attempted to show that mutual funds overpay for portfolio management services by comparing the fees paid by public pensions to external managers with the management fees of mutual funds. Given that the management fees of mutual funds cover a broader array of services, it is not surprising that Freeman and Brown found that the management fees of mutual funds exceed the fees paid by public pensions to external managers. However, this says little about the relative portfolio management expenses.

It is possible to compare the expenses of mutual funds and pension plans in other, more appropriate ways. One approach is to compare the fees paid by pension plans to external managers with a similar measure for mutual funds. The next section does that by examining fees paid by mutual funds to subadvisers. An alternative approach is to compare the total operating expenses of mutual funds and pension plans. That approach is taken up in a subsequent section.

PORTFOLIO MANAGEMENT EXPENSES OF PENSION PLANS AND SUBADVISED MUTUAL FUNDS

The advisers of some mutual funds contract with unaffiliated third-party investment managers for management of all or a portion of their funds' portfolios. The third-party manager, called a "subadviser," holds a position equivalent to that of an external investment manager to a pension plan. Like the pension plan's external manager, the mutual fund's subadviser provides portfolio management services, which primarily entail security selection, trading, and reporting services. The subadviser receives a fee for these services ("subadvisory fee") that the fund's adviser pays for out of the management fee, which it receives from the fund. Funds that are subadvised report

[25] To limit confusion, to distinguish these fees from the management fees of mutual funds, and to maintain consistency with Freeman and Brown, the remainder of the paper will call the fees paid by public pension plans to external managers "advisory fees." However, in contrast with Freeman and Brown, this article does not re-label the management fees of mutual funds as "advisory fees." Such a re-labelling invites the reader to mistakenly infer that the management fees of mutual funds are comparable to the advisory fees that pension plans pay to external managers.

FIGURE 2

Fee Schedules of Institutional Money Managers for Managing Investment Portfolios
(basis points for millions of dollars under management)

	Median Fee for Separately Managed Institutional Accounts				
Investment Objective	**$10 million**	**$50 million**	**$100 million**	**$250 million**	**$500 million**
Equity					
Large-Cap	68	54	45	39	36
Small-Cap	95	81	75	67	65
Mid-Cap	75	68	61	54	52
Value	70	55	47	40	38
Growth	75	60	52	45	41
Fixed-Income					
Long-Term	35	30	26	22	19
Intermediate-Term	38	30	26	22	21
High-Yield	50	50	47	38	35
Short-Maturity	28	25	22	18	16

Source: Frank Russell/Mellon Analytical Services, August 2001

both their management fees and the portion paid to the subadviser. As a result, it is possible to compare the portfolio management fees incurred by pension plans with a comparable measure by examining the subadvisory fees of mutual funds.

Institutional money managers sometimes serve both as subadvisers to mutual funds and as external advisers to pension plans. When they do, fee negotiation typically begins from a common fee schedule, like that which money managers charge for portfolio management of institutional accounts (Figure 2). Fee rates typically fall as the size of the portfolio increases, are higher for equity than for fixed-income portfolios, and among equity portfolios are highest for small-cap portfolios. In addition, fee schedules are fairly "flat" in that a large percentage increase in assets leads to a relatively modest basis point reduction in fee rates. For example, for a large-cap equity portfolio, a fifty-fold increase in assets from $10 million to $500 million leads to a reduction in the fee rate by less than half, from 68 basis points to 36 basis points.

Because fee negotiations often begin from a common fee schedule, it seems plausible to expect that the subadvisory fees of mutual funds should be similar to the fees that pension plans pay to external managers for portfolio management. Evidence indicates that that is the case (Figure 3). For small- and medium-sized portfolios, mutual fund subadvisory fees are lower than those that Freeman and Brown report as being paid by public pension plans. For large-sized portfolios, the fees reportedly paid by public pension plans are slightly lower. Overall, however, the fees are similar, averaging 28 basis points for public pension plans and 31 basis points for subadvised mutual funds.

In sum, this evidence suggests that mutual funds and pension plans incur like fees for like portfolio management services. The conclusion reached by Freeman and Brown that mutual funds overpay for portfolio management is based on a comparison of fees for unlike services.

UNDERSTANDING DIFFERENCES IN THE OPERATING EXPENSES OF MUTUAL FUNDS AND PENSION PLANS

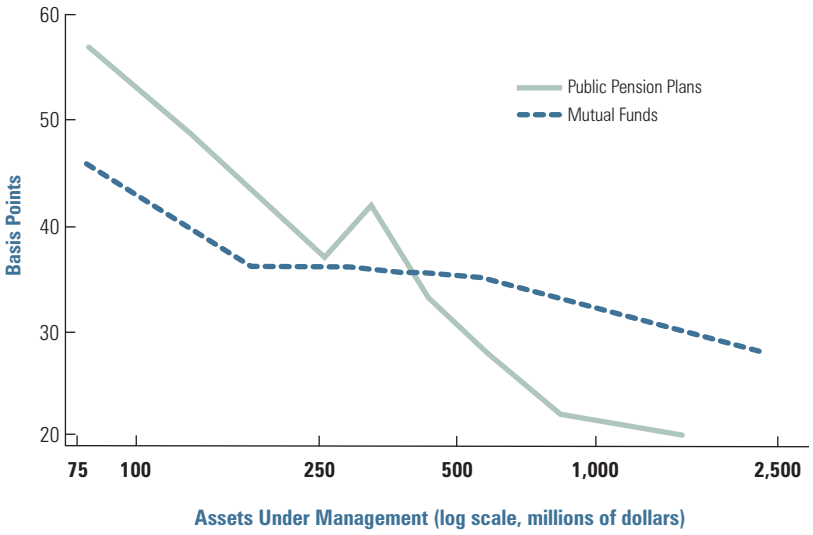
Although mutual funds and pension plans are fundamentally different investment vehicles, comparisons have nevertheless been made between their operating expense ratios. For instance, studies have compared the operating expenses of the two vehicles in the U.S. to help foreign countries structure their retirement systems.[26] In order to achieve a degree of comparability,

[26] See, for example, the World Bank study by James, Smalhout, and Vittas (2001).

FIGURE 3

Fees Paid by Public Pension Plans to External Managers for Portfolio Management and Subadvisory Fees of Mutual Funds

(fees paid for active management of domestic equity portfolios)



Sources: Freeman and Brown (2001) for external management fees, Lipper Associates, Inc. (2000) and Strategic Insight Mutual Fund Research and Consulting, LLC (2000) for subadvisory fees of mutual funds

this section compares the operating expense ratios of pension plans to the operating expense ratios of mutual fund complexes, measured as a weighted average of the operating expense ratios of all funds in a particular complex.[27,28]

In 1998, the average operating expense ratio of mutual fund complexes was 71 basis points, compared to 31 basis points for public pension plans (Figure 5). However, it would be incorrect to conclude that public pension plans are more efficient than mutual funds because efficiency can also be measured in terms of cost per account. From this standpoint, mutual funds are highly efficient, incurring average expenses of $148 per account, compared to $335 for public pension plans (Figure 6).

The striking difference between the expenses of mutual fund complexes and pension plans measured relative to assets, or relative to number of accounts, is the topic of this section. Analysis indicates that it reflects the dissimilar structures of mutual funds and pension plans, and that their dissimilarities are adequately explained by a handful of factors.

Understanding the Operating Expense Ratios of Pension Plans and Mutual Funds

Five main factors account for the difference in the operating expense ratios of mutual fund complexes and pension plans: number of accounts managed; average size of accounts managed; portfolio composition; indexation; and liquidity provision.

Number of Accounts. Mutual funds and pension plans face economies of scale in accounts managed. Generally speaking, as the number of accounts managed rises, average expenses per account falls. The average mutual fund complex manages vastly more accounts than the average public pension plan (Figure 4, line 1). This gives mutual funds a sizable cost advantage in terms of expenses per account relative to pension plans.

[27] A mutual fund complex is the collection of individual funds all managed by a single investment adviser.

[28] Throughout this section, mutual fund expenses exclude 12b-1 fees and are measured at the complex level. 12b-1 fees are excluded because they support distribution, and thus are unrelated to the ongoing costs of operating a mutual fund. In addition, exclusion of 12b-1 fees aids the comparison with pension plans; pension plans, which essentially have captive clienteles, do not pay for distribution. Mutual fund expenses are measured at the complex level to improve the comparison with pension plan expenses. Pension plans invest in fixed equities, fixed-income securities, liquid assets, and other assets. Because fixed-income securities and cash are typically less costly to manage than are equities, it would be inappropriate to compare the expenses of pension plans with those of equity mutual funds alone or with fixed-income mutual funds alone. One way to achieve a level of comparability is to examine the expenses of mutual fund *complexes,* because a given mutual fund complex is much more likely to manage both equity and fixed-income products. Finally, because pension plans are long-term savings vehicles, we exclude from the analysis the assets held in money market mutual funds. For another study that examines the expense ratios of mutual fund complexes, see Baumol et al. (1990).

FIGURE 4

Characteristics of Mutual Fund Complexes[1] and Public Pension Plans, 1998

	Mutual Fund Complexes	Public Pension Plans[2]
1. Average Number of Accounts (asset-weighted)	8,887,178	402,235
Memo: Simple Average	428,464	84,454
2. Average Account Balance (dollars)[3]	$29,667	$143,682
3. Assets in Equities (percent of total assets)	71%	61%
Memo: Assets in Fixed-Income Securities (percent of total assets)	20%	36%
4. Percent of Equity Assets in Index Funds	9%	47%
5. Redemption Rate (annual average)	34%	3%

[1] Excludes the money market funds of mutual fund complexes.

[2] Excludes $770 million in assets of public pension plans whose expenses are subsidized by employers.

[3] For mutual funds, average account balance is measured as fund total net assets divided by number of accounts; for public pensions, it is measured as pension fund assets divided by number of participants plus current beneficiaries.

Sources: Pendat for public pension funds, Lipper Associates, Inc. and Investment Company Institute for mutual funds

Account Balances. Other things the same, a mutual fund or pension plan with a high average account balance will have a lower operating expense ratio than one with a lower average balance.[29] Mutual funds have considerably lower average account balances than pension plans (Figure 4, line 2). This helps to explain why mutual fund complexes have higher operating expense ratios but lower expenses per account than public pension plans. Mutual funds are very efficient in terms of cost per account, but they manage vastly more accounts with lower average balances than pension plans. Thus, by simple arithmetic, mutual funds tend to have higher total expenses per dollar of assets than do public pension plans.[30]

Portfolio Composition. Equity pools are more costly to manage than pools of fixed-income securities. Thus, an institution with a higher-than-average proportion of its assets in equities will have higher-than-average portfolio management expenses, boosting its operating expense ratio. Pension plans shifted away from fixed-income securities toward equities during the 1990s. Nevertheless, by the end of the decade, pension plans still had a smaller proportion of their assets in equities than did long-term mutual funds (Figure 4, line 3). This held down the operating expense ratios of public pension plans relative to mutual funds.

Indexation. Indexed portfolios can be managed inexpensively because they entail little or no research costs. Pension plan trustees have favored indexed investments more than have mutual fund investors. At year-end 1998, public pension plans had an estimated 47 percent of their equity investments in index funds, whereas just 9 percent of equity mutual fund assets were in index funds (Figure 4, line 4).

Liquidity. Direct estimates of the costs of providing liquidity are unavailable. However, they can be gauged indirectly by comparing the operating expense ratios of mutual funds and pension plans with their corresponding redemption rates (measured as total dollar redemptions plus exchanges divided by assets). Average redemption rates of mutual funds are considerably higher than like measures for public pension plans (Figure 4, line 5).[31]

[29] This is because certain kinds of expenses rise with the number of individuals served rather than with assets under management. For example, consider two mutual funds, both with $1 billion in assets under management. Assume that the first fund has 50,000 accounts, giving it an average account balance of $20,000. Assume, also, that the second fund has 100,000 accounts for an average account balance of $10,000. Suppose, reasonably, that the transfer agents of both funds bill their respective funds for services provided at a flat rate of $25 per account. In that case, transfer agent fees contribute 12.5 basis points to the expense ratio of the first fund and 25 basis points to the expense ratio of the second fund.

[30] James, Smalhout, and Vittas (2001) make essentially the same point, noting that "holding aggregate assets constant, the expense ratio [of a mutual fund] increases with the number of shareholders and decreases as average account size rises. The basic reason … is that funds incur a fixed cost per account for record-keeping and shareholder communication … and the larger each account the smaller this cost will be, as a percentage of assets." Baumol et al. (1990) also make this point, indicating that "an increase in assets per account leads to a decrease in costs. The reason for this is that an increase in assets per account with a fixed total quantity of assets must entail a decrease in the number of accounts, an occurrence that can be expected to reduce total costs."

[31] The influence of liquidity on the relative expenses of mutual funds and pension plans was mentioned over a decade ago by Baumol et al (1990) in a comment about the so-called Wharton Report (1962), prepared for Congress by the Wharton School of Finance and Commerce at the University of Pennsylvania. Baumol et al. note that "The Wharton Report … compared the advisory fees charged to mutual funds versus other [institutional] clients. [However, Baumol et al. noted that] such fee comparisons are clouded by the fact that the same bundle of services is not offered. For example, one important difference is the ability of mutual fund shareholders to engage in virtually unlimited transactions. While this would lead to higher costs, the fee comparisons [in the Wharton Report] made no adjustments for this important factor."

Combined Effects. Together, these five factors largely explain the differences in the operating expense ratios and cost per account between mutual funds and public pension plans. For example, analysis in the appendix indicates that a mutual fund complex with attributes identical to those of the average public pension plan (the attributes shown in the right-most column of Figure 4) would have an operating expense ratio of about 35 basis points, little different from the *actual* average of 31 basis points for a public pension plan.[32]

ECONOMIES OF SCALE IN MUTUAL FUNDS AND PENSION PLANS

By definition, economies of scale exist if the average costs of production decline with increases in the scale of output, holding product mix constant.[33] For instance, in the auto industry, the average cost of producing an automobile declined with mass production. Studies of financial intermediaries—bank, thrifts, credit unions, insurance companies, as well as mutual funds and pension plans—have most often taken "output" to mean assets under management. In that case, economies of scale arise if the average cost of managing a dollar of assets declines as assets rise.

Economies of Scale in the Operating Expenses of Mutual Funds and Pension Plans

Research has found that mutual funds and pension plans, like other financial intermediaries, exhibit economies of scale in assets under management.[34] For example, Figure 5 compares the operating expense ratios of mutual fund complexes and pension plans by assets under management.[35] Over the range of assets, operating expenses fall by 109 basis points for mutual funds and 94 basis points for public pension plans, indicating economies of scale in assets under management.

Research has also shown that economies of scale tend to dissipate quickly as the assets of financial intermediaries expand. For example, the operating expense ratio for public pension plans falls 65 basis points as assets rise from $25 million to $250 million, but only 30 basis points as assets rise from $250 million to $65 billion. The reason for the greater economies of scale evident among smaller institutions is simple: Fixed costs matter more for small than for large institutions. This is important because it indicates that the influence of economies of scale on a fund's expense ratio is not limitless, contrary to opinions sometimes expressed.[36] Indeed, because economies of scale dissipate as a firm's assets expand, asset growth may reduce the expense ratios of already large funds relatively little.[37]

The presence of economies of scale requires careful interpretation. For pension plans and mutual funds, as for other financial intermediaries, the concept of an "output" is ambiguous. An "output" can also be viewed in terms of number of accounts managed,[38] in which case economies of scale arise if average expenses per account

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[32] Another factor that could explain some of the differences in operating expense ratios of mutual funds and pension plans is that the reported expenses of public pension plans may be understated. Hsin and Mitchell (1997) indicate that "[p]rivate pension systems are likely to report most administrative expenditures, including operating expenses and such expenses as building and capital depreciation, but these may not be properly accounted for by public pension plan administrations. Public plans might also understate their costs if they share equipment or offices with other government branches. Hence, administrative expenses reported by public pension agencies almost certainly understate the full cost of resources devoted to providing pension services, a point that should be kept in mind when comparing the administrative efficiency of public and private pension systems." This same situation likely applies to a comparison of the operating expense ratios of public pension plans with those of mutual funds.

[33] See Carlton and Perloff (2000), p. 36.

[34] For evidence on banks, see Wheelock and Wilson (2001) and references therein. Mitchell (1981) and Hsin and Mitchell (1997) present evidence for private and public defined benefit pension plans, respectively. For mutual funds, see Baumol et al. (1990), Collins and Mack (1997), Latzko (1999), and LaPlante (2001). For evidence on life insurance companies, see Yuengert (1993). Finally, for evidence on thrifts, see Mester (1993).

[35] For mutual funds, economies of scale may arise at the share class level (Latzko (1999)), the fund level, or the complex level (Baumol et al. (1990); Collins and Mack (1997)), or all three. To maintain comparability with public pension plans, however, the analysis here is conducted at the complex level.

[36] For example, Freeman and Brown state that "[g]iven the [mutual fund] industry's explosive growth, one would expect that [mutual] fund expenses on average would have plummeted." It is telling that researchers have not advanced this argument with respect to the expenses of banks, insurance companies, pension plans, or other financial intermediaries, even though they too face economies of scale and have experienced robust asset growth in the past few decades.

[37] Researchers have often noted that the benefits of economies of scale are not limitless for financial intermediaries. For example, James, Smalhout, and Vittas (2001) suggest that "economies from asset aggregation [by mutual funds] do not continue indefinitely."

[38] For a comparison of economies of scale in mutual funds by assets under management and by number of accounts, see Baumol et al (1990). For a similar study with respect to public pension plans, see Hsin and Mitchell (1997).

FIGURE 5

Economies of Scale in Operating Expense Ratios of Public Pension Plans and Mutual Fund Complexes, 1998

(asset-weighted, basis points)

	Public Pension Plans		Mutual Fund Complexes[1]	
Decile	Assets Under Management (millions of dollars)	Operating Expense Ratio (basis points)	Assets Under Management (millions of dollars)	Operating Expense Ratio (basis points)
1	24	120	8	176
2	97	111	33	135
3	246	55	96	116
4	535	63	171	129
5	1,040	53	347	117
6	1,967	50	711	111
7	5,011	30	1,687	101
8	9,628	46	3,367	99
9	20,507	36	10,300	85
10	64,377	26	88,400	67
Average	**10,249**	**31**	**10,388**	**71**

[1] Excludes money market funds. Also excluded are complexes that are primarily institutional (either as reported by the complex itself, or as indicated by an average account balance in excess of $500,000, or as indicated by complexes with fewer than 100 accounts).

Sources: Pendat for public pension plans, Lipper Associates, Inc. and Investment Company Institute for mutual funds

FIGURE 6

Economies of Scale in Expenses per Account of Public Pension Plans and Mutual Fund Complexes, 1998

(account-weighted, basis points)

	Public Pension Plans		Mutual Fund Complexes[1]	
Decile	Number of Participants	Expenses per Participant (dollars)	Number of Accounts	Expenses per Account (dollars)
1	180	1,844	330	1,023
2	857	692	1,002	704
3	1,890	582	2,780	731
4	4,053	928	5,167	424
5	7,978	726	10,518	524
6	17,876	413	23,053	376
7	53,305	323	47,675	438
8	94,385	412	107,074	295
9	182,339	467	377,839	198
10	481,688	254	4,028,925	132
Average	**84,454**	**335**	**428,464**	**148**

[1] Excludes money market funds. Also excluded are complexes that are primarily institutional (either as reported by the complex itself, or as indicated by an average account balance in excess of $500,000, or as indicated by complexes with fewer than 100 accounts).

Sources: Pendat for public pension plans, Lipper Associates, Inc. and Investment Company Institute for mutual funds

FIGURE 7

Assets of Long-Term Mutual Funds and Public Defined Benefit Pension Plans in Selected Investment Objectives, Selected Years

	1992	1994	1996	1998	2000
Long-Term Mutual Funds[1]					
Percent of Long-Term Assets in:					
Fixed-Income (Bond Funds)	46	34	25	20	16
Hybrid	7	11	10	9	7
Equity	47	55	66	71	77
Memo: Percent of Equity Assets in:					
Growth and Income Funds	45	39	38	40	32
Capital Appreciation Funds	46	42	45	47	54
International Funds	9	19	17	13	14
Public Defined Benefit Pension Plans					
Percent of Assets in:					
Fixed-Income	45	44	34	31	
Other	11	12	9	10	
Equity	45	45	57	60	
Memo: Percent of Equity Assets in:					
Domestic Securities	95	88	79	79	
International Securities	5	12	21	21	

[1] *Excludes money market mutual funds.*

Sources: Investment Company Institute for long-term mutual funds and Pendat for public pension plans

fall as the number of accounts rises. Figure 6 compares the cost per account of mutual funds and pension plans. As before, pension plans and mutual funds exhibit economies of scale: Average cost per account falls as output (number of accounts) rises. Once again, small institutions benefit most from economies of scale, in that cost per account declines fastest for smaller institutions as the number of accounts managed rises.

The presence of economies of scale requires careful interpretation for another reason. Economies of scale are a property of individual firms, rather than of an industry *per se.* Thus, if mutual funds have economies of scale in asset management, the operating expense ratio of a particular fund is expected to fall as its assets under management rise. This does not mean, however, that the average expense ratio of all mutual funds must fall as industry assets rise. As the industry expands, product mix could change, contrary to the definition of economies of scale. Alternatively, industry assets could increase because of a large number of new, small mutual funds, which, reflecting economies of scale, have higher-than-average expense ratios.

Both of these factors were at work in the 1990s. Scale economies were masked by a shift in the mix of the assets of mutual funds and pension plans from bonds toward equities (Figure 7), and, within equities, toward international equities. This likely raised the expenses incurred by pension plans and mutual funds because equities are more costly to manage than bonds,[39] and international equities are generally more costly to manage than domestic equities. In addition, mutual funds experienced a shift in assets away from growth and income funds toward capital appreciation funds, the latter of which are more costly to manage.

[39] See, for example, Figure 2.

FIGURE 8

Number of Equity Mutual Funds Created, 1990–2002

Year Created	Number of Funds Created	Average Net Assets of Funds as of 2002[1] (millions of dollars)	Percent of All Equity Funds in Existence as of 2002[1]
1990 or before	1,009	1,949	19.3
1991	135	801	2.6
1992	228	711	4.4
1993	276	480	5.3
1994	365	350	7.0
1995	309	345	5.9
1996	335	295	6.4
1997	466	182	8.9
1998	458	161	8.8
1999	488	120	9.3
2000	555	70	10.6
2001	418	55	8.0
2002	181	44	3.5

[1] *Measured as of December 2002.*
Source: Investment Company Institute

Also, in the 1990s many new equity funds were created. New funds tend to be small and take many years to grow to the size of pre-existing funds. For example, Figure 8 shows the number of new equity funds created in recent years. Equity funds created after 1990 account for 80 percent of all equity funds in existence as of December 2002. However, by 2002, these new funds were still considerably smaller in size than funds created in 1990 or before. For example, funds created in 1990 or before had average net assets of about $1.9 billion in December 2002, while those created in 1995 had grown to have assets of only $345 million. These kinds of developments obscure the influence of economies of scale in industry-average expense ratios. Suppose, for instance, that the expense ratios of funds that existed in 1990 or before fell from 1991 to 2002 as their assets grew. Nevertheless, the average expense ratio of *all* funds might fall little because new funds, which will tend to have higher expense ratios, boost the industry average.[40]

To properly assess the influence of economies of scale, the effects of changes in product mix and newly created funds must be disentangled. Studies that adjust for changes in the product mix of mutual funds, or that track individual mutual funds through time, have generally concluded that economies of scale have worked to lower fund expense ratios.[41] To illustrate, Figure 9 tracks the operating expense ratios of share classes of long-term mutual funds continuously in existence from 1990 to 2002. This eliminates the effects of newly created mutual funds. In addition, to reduce the influence of changes in product mix, the figure examines expense ratios for a range of investment objectives. From 1990 to 2000, most of these investment objectives saw healthy asset growth, and among those that did, average operating expense ratios declined on net. Since 2000, in large measure because of the correction in the equity market, the assets of the equity mutual funds included in Figure 9 have fallen, and, owing to economies of scale, the operating expense ratios of equity fund objectives have risen since then.[42]

What Is the Source of Economies of Scale for Mutual Funds and Pension Plans?

The economies of scale evident in the operating expense ratios of mutual funds and pension plans could reflect economies from portfolio management, from other components of operating expenses, or from both.

[40] Costs are also influenced by factors other than assets, such as the level and quality of services provided. The development of the Internet has allowed financial intermediaries to offer customers better access to information and to transact more easily, but it has also required significant capital investment on the part of both mutual funds and defined benefit pension plans.

[41] See, for example, Lipper Analytical (1997), Rea, Reid, and Millar (1999), General Accounting Office (2000), and LaPlante (2001).

[42] The rise in the average expense ratio of these funds since 2000 owes almost entirely to the influence of transfer agent fees and "other fees" such as audit, registration, custody, and directors' fees. Because the dollar amounts of these fees either depend on the number of accounts managed (transfer agent fees) or are relatively fixed ("other fees"), when assets fell at these equity funds after 2000, these fees by sheer arithmetic added more to the expense ratios of equity funds. In contrast, the basis point contribution of management fees to the operating expense ratios of these equity funds was essentially unchanged as assets fell after 2000. Thus, advisers of these funds have not generally raised management fees in the past few years.

FIGURE 9

Operating Expense Ratios for Long-Term Mutual Funds, Selected Investment Objectives, 1990–2002

(share classes continuously in existence since 1990)

Equity Mutual Funds

(basis points)

	Capital Appreciation			International			Total Return			Hybrid		
	Assets	Average Expense Ratio		Assets	Average Expense Ratio		Assets	Average Expense Ratio		Assets	Average Expense Ratio	
	(billions of dollars)	Asset-Weighted	Simple Average	(billions of dollars)	Asset-Weighted	Simple Average	(billions of dollars)	Asset-Weighted	Simple Average	(billions of dollars)	Asset-Weighted	Simple Average
1990	83	96	130	21	95	146	92	66	94	17	72	97
1991	97	96	128	23	99	152	103	64	93	21	68	97
1992	139	95	122	28	102	152	130	62	91	34	67	95
1993	186	95	117	35	101	141	173	61	87	56	65	91
1994	228	95	114	63	97	129	208	63	88	79	67	89
1995	281	93	113	77	94	129	246	62	88	87	65	90
1996	395	89	108	96	90	125	328	59	86	98	61	88
1997	500	81	106	124	87	123	443	55	83	115	57	87
1998	620	78	104	140	85	120	576	53	81	136	54	84
1999	750	76	103	145	82	126	666	50	81	146	53	84
2000	1,057	77	102	184	79	119	643	50	83	132	54	85
2001	801	80	105	147	80	127	589	51	85	132	54	86
2002	640	84	108	125	82	138	514	52	88	132	54	91

Bond Mutual Funds

(basis points)

	Corporate and High-Yield			Government and Mortgage-Backed			Global			Municipal		
	Assets	Average Expense Ratio		Assets	Average Expense Ratio		Assets	Average Expense Ratio		Assets	Average Expense Ratio	
	(billions of dollars)	Asset-Weighted	Simple Average	(billions of dollars)	Asset-Weighted	Simple Average	(billions of dollars)	Asset-Weighted	Simple Average	(billions of dollars)	Asset-Weighted	Simple Average
1990	39	76	85	82	64	71	1	119	119	96	58	63
1991	38	74	85	84	63	70	2	117	115	110	58	62
1992	52	71	82	100	61	70	3	106	109	135	57	63
1993	71	67	81	116	60	69	6	95	99	166	56	63
1994	82	66	80	109	61	70	11	92	93	186	54	63
1995	80	67	80	91	62	71	12	94	95	176	56	65
1996	90	66	80	85	63	72	14	89	93	179	56	65
1997	104	64	80	78	62	71	15	86	94	178	55	65
1998	117	61	77	75	62	71	14	88	98	185	55	65
1999	124	60	76	77	60	69	10	94	106	196	53	63
2000	116	59	77	70	58	71	7	91	146	174	52	64
2001	123	57	78	77	57	70	7	96	117	181	51	63
2002	132	56	80	94	55	68	6	95	97	186	52	64

Sources: Lipper Associates, Inc. and Investment Company Institute

FIGURE 10

Operating Expense Ratios of Mutual Funds and Pension Plans, 1998

Mutual Funds

Decile	Assets (millions of dollars)	Operating Expense Ratio (basis points)	Management Fees (basis points)	Difference (basis points)
1	15	154	90	64
2	30	133	72	61
3	65	136	84	52
4	127	118	79	39
5	218	121	84	37
6	425	96	66	30
7	1,012	100	72	27
8	2,415	97	64	33
9	7,372	97	71	26
10	65,853	59	40	20

Sources: Lipper Associates, Inc. and Investment Company Institute

Public Pension Plans

Decile	Assets (millions of dollars)	Operating Expense Ratio (basis points)	Fees Paid to External Managers ("Advisory Fees") (basis points)	Difference (basis points)
1	59	67	45	22
2	161	62	43	19
3	378	51	35	16
4	779	58	41	17
5	1,258	56	40	16
6	2,732	43	33	10
7	6,237	31	21	9
8	11,489	28	17	11
9	29,037	37	31	6
10	86,811	22	14	8

Source: Pendat

Corporate Pension Plans

Decile	Assets (millions of dollars)	Operating Expense Ratio (basis points)	Fees Paid to External Managers ("Advisory Fees") (basis points)	Difference (basis points)
1	22	96	44	52
2	28	96	45	51
3	35	88	41	47
4	44	89	40	49
5	58	78	40	38
6	77	75	38	37
7	106	72	39	33
8	168	63	36	27
9	302	61	35	26
10	4,555	48	27	21

Source: Department of Labor, Form 5500

Hypothetical Mutual Fund or Pension Plan

Assets (millions of dollars)	Operating Expense Ratio (basis points)	Portfolio Management Fees (basis points)	Difference (basis points)
10	118	68	50
50	64	54	10
100	50	45	5
250	41	39	2
500	37	36	1

It is sometimes suggested that economies of scale should be greater for portfolio management than for other factors.[43] However, evidence for mutual funds has been interpreted as suggesting the opposite. For example, Freeman and Brown show that the operating expense ratios of domestic equity mutual funds fall faster than their management fees as assets expand. This indicates that mutual funds exhibit weaker economies of scale in management fees than in the other components of operating expenses, namely transfer agent fees and "other fees." Freeman and Brown *assume* that economies of scale ought to be at least as great in management fees, and, based on this assumption, conclude that fund advisers are not fully passing along economies of scale in fund management fees to shareholders.

However, an alternative, more plausible, explanation is available. Figure 10 shows the operating expense ratios of mutual funds, their management fees, and the difference between the two. As Freeman and Brown noted, operating expense ratios are seen to fall faster than management fees as assets rise. However, Figure 10 shows that public and corporate pension plans exhibit much the same trait. For instance, the operating expense ratios of public pension plans decline more sharply than fees paid to external managers ("advisory fees") as assets rise.

This likely occurs because the management fees of mutual funds and the advisory fees of pension plans are asset-based, while the other expenses they incur have a significant fixed component. A simple example illustrates. Suppose that a mutual fund or a pension plan incurs only two costs: audit fees and fees for portfolio management. Assume that annual audit fees total $50,000. In addition, suppose that the mutual fund or pension plan incurs portfolio management fees identical to those in Figure 2 for large-cap equities. For this hypothetical mutual fund or pension plan, operating expenses decline more rapidly than portfolio management fees as assets increase (Figure 10, bottom panel). This happens because, as suggested earlier, fixed costs can impart significant economies of scale to a small mutual fund or pension plan, but relatively weaker economies of scale to a large mutual fund or pension plan.

In short, the operating expense ratios of mutual funds fall faster than their management fees as assets increase for the same reason that the operating expense ratios of pension plans fall faster than their advisory fees: Institutional investors—whether they are mutual funds, pension plans, or other entities—pay fees for portfolio management that are primarily asset-based while their remaining operating costs have a significant fixed component.

CONCLUSION

Although mutual funds and pension plans have some features in common—such as managing large pools of assets—they also have significant organizational and institutional differences. Because of these differences, considerable care must be exercised when analyzing the expenses of the two entities. When care is exercised, seemingly apparent differences in the expenses of mutual funds and pension plans fade. For example, there is little evidence that mutual funds overpay for the services they receive. On the contrary, the evidence presented in this article indicates that mutual funds and pension plans pay like fees for like portfolio management services. Moreover, this article shows that mutual funds are highly cost effective in terms of cost per account to individual shareholders. In addition, careful analysis indicates, as expected, that economies of scale help to reduce the expense ratios of mutual funds as assets increase. Finally, there is no compelling evidence that mutual fund advisers fail to pass on economies of scale in portfolio management.

APPENDIX: A STATISTICAL ANALYSIS OF THE OPERATING EXPENSES OF MUTUAL FUND COMPLEXES

The text relies on the statistical analysis described in this appendix. The analysis uses a linear regression approach to examine the operating expense ratios of the long-term (bond, equity, and hybrid) assets of mutual fund complexes. Mutual fund complexes are used, rather than individual mutual funds themselves, in order to keep the analysis simple, and to maintain as great a degree of comparability as possible with the structure of pension plans.

[43] For example, the SEC (2000) indicates that "most observers believe that portfolio management is the fund cost with the greatest economies of scale."

FIGURE A1

Statistical Analysis of Operating Expense Ratios of Mutual Fund Complexes

Dependent Variable: Operating Expense Ratio for Mutual Fund Complex; Long-Term Assets Only

Variable	Coef. Estimate	"T-Statistic"
1. log(number of accounts)	-8.09	-14.12
2. log(average account balance)	-14.25	-6.96
3. % of complex assets in equity funds	.28	4.42
4. % of complex equity fund assets in index funds	-.34	-2.93
5. log(complex average redemption rate)	4.97	2.98
6. constant	205.75	15.09
7. R-squared	.54	
8. Number of observations	256	

The regression model posits that the operating expense ratio (the total expense ratio net of 12b-1 fees) depends on: (1) the percent of complex assets in equity funds; (2) the percent of complex equity fund assets that are in index funds; (3) the average redemption rate (measured as redemptions plus redemption exchanges divided by assets) for a complex; (4) total number of accounts for the complex; and (5) the average account balance for the complex. Thus, the regression model is:[44]

$$\textit{operating expense ratio} = \beta_0 + \beta_1 \textit{ log(number of accounts)} + \beta_2 \textit{ log(average account balance)} + \beta_3 \textit{ (\% of complex assets in equity funds)} + \beta_4 \textit{ (\% of complex equity fund assets in index funds)} + \beta_5 \textit{ log(complex average redemption rate)}$$

The most recent data we had for public pension plans was as of 1998. Consequently, the regression analysis also uses data for mutual fund complexes as of 1998. In order to ensure that the complexes represent retail, as opposed to institutional investors, complexes with over 50 percent of their assets in institutional accounts have been eliminated, as well as those complexes with average account balances of over $500,000 or with fewer than 100 accounts. The excluded complexes have a relatively small proportion of the total long-term assets of mutual funds, amounting to about $100 billion as of December 1998.

The results of the regression analysis (Figure A1) indicate that the operating expense ratios of mutual fund complexes exhibit economies of scale in both number of accounts and average account balance (the coefficient estimates in lines 1 and 2 are both negative). However, as Hsin and Mitchell (1997) found for public pension plans, economies of scale tend to be greater in average account balance than in number of accounts (the coefficient estimate in line 1 is smaller in absolute terms than the coefficient in line 2). This indicates that for a given number of accounts, a fund complex with a higher-than-average account balance will have a lower-than-average operating expense ratio. This helps explain why institutional mutual funds, as well as public pension plans, tend to have lower operating expense ratios than retail mutual funds. The regression analysis also indicates that funds with a high proportion of complex assets in equity funds will have a commensurately higher operating expense ratio, acknowledging the fact that equity mutual funds tend to be more expensive to manage than bond or hybrid mutual funds. The analysis also suggests that the average operating expense ratio for a complex will be lower, the greater the proportion of its equity assets that are in index funds (the coefficient in line 4 is negative). Finally, complexes with higher-than-average redemption rates will have higher-than-average operating expense ratios (line 5), indicating that it is costly to provide liquidity. The R-squared of .54 indicates that the model fits the data rather well.

The analysis in the text uses the regression coefficients in Figure A1, along with the characteristics shown in Figure 4, to derive an expected average operating expense ratio of 36 basis points for a mutual fund complex with attributes similar to those of the average public pension plan.

[44] A similar framework is used by Hsin and Mitchell (1997) to analyze the operating expense ratios of public pension plans.

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