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# *The Structure and Performance of the Money Management Industry*

IN 1990 TOTAL FINANCIAL assets in U.S. capital markets amounted to $13.7 trillion, of which $3.4 trillion was equities, and the rest were bonds, government securities, tax-exempt securities, and mortgages. These financial assets were held by two principal types of investors: individuals and institutions. The New York Stock Exchange defines an institution as a firm that employs professionals to manage money for the benefit of others (firms or individuals). At the end of 1990, $6.1 trillion of the total U.S. financial assets was held by institutions. Both the amount of institutional assets and the fraction of the total they represent have increased sharply over the past 30 years. In 1950, for example, institutional assets comprised $107 billion out of a $500 billion total, or 21 percent compared with 45 percent in 1990.[1] The growth of institutional ownership of equities has paralleled their growth in the ownership of other financial assets. In 1955 institutions owned 23 percent of equities compared with 77 percent owned by individuals; in

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1. These numbers are from the *Institutional Investor Fact Book* published by the New York Stock Exchange. Jean Tobin of the NYSE kindly provided the latest figures.

1990 institutions owned 53 percent and individuals 47 percent. Without doubt, institutional ownership is a large and increasingly dominant feature of U.S. financial markets.

Perhaps the most important segment of the institutional market is the discretionary tax-exempt segment. As of the end of 1990, it had approximately $2.2 trillion in assets and $1 trillion in corporate equities. Over 90 percent of these assets belong to corporate, public, and union pension funds. In turn, over 80 percent of all pension money is contained in defined-benefit plans, which promise employees a pattern of benefits after retirement based on a formula that does not depend on the investment performance of the fund. These pension plans invest their assets to ensure sufficient funding of the defined benefits, leaving the plan sponsor as the residual claimant on the fund.

In a defined-contribution plan, employees do not get a fixed amount but the value of the investments that have accumulated in their pension plan. Compared with employees in defined-benefit plans, they have more discretion over how the money is invested. This creates some interesting differences in how the money is actually invested in the two plans. For example, defined-benefit plans typically allocate much greater fractions of their assets to corporate equities other than the company's own stock. Participants in defined-contribution plans typically invest a large chunk of their assets in guaranteed investment contracts (GICs) that lock in a guaranteed rate of return. Hence, there is more active management in defined-benefit plans than in defined-contribution plans.

Historically, defined-benefit plans have been more popular. As a result, the structure of the tax-exempt money management industry is largely based on the model of the corporate sponsor as residual claimant and decisionmaker. In this paper we concentrate on the delegated portfolio management of tax-exempt funds that invest heavily in equities and choose between outside managers to actively manage their portfolios. Management of these portfolios is usually delegated to three types of firms: insurance companies, banks and trust companies, and investment counselors. We will examine the structure and performance of this industry and make comparisons wherever possible to its close cousin, the mutual funds industry, about which a little more is known.

The tax-exempt money management industry manages approximately $2 trillion of retirement assets of U.S. workers. Quite aside from its sheer size, however, there are several reasons to study it. First, most

participants in the pension fund industry actively pick stocks, an activity not predicted by standard finance models yet enthusiastically pursued by virtually all financial market participants. Analyzing the industry can shed light on the behavior of traders in the stock market and perhaps eventually (though not in this paper) on the behavior of stock market prices. Second, the industry differs from the mutual fund industry in one key respect. Investments in mutual funds are decided by individuals who allocate their own wealth. Investments in pension funds are guided by corporate treasurers acting for the corporation that provides benefits for its employees. The extra layers of agency problems may explain some of the most important differences between the mutual fund industry and the pension fund industry. Third, pension fund managers have consistently underperformed the market. It is thus an industry that appears to subtract rather than to add value. Nonetheless, it has survived and grown.

Our paper begins with a description of the agency problems that we believe are crucial for understanding how the money management industry functions. We then focus on the performance of pension funds. On average they perform poorly relative to a passive investment strategy. Over time there is some consistency of performance, which suggests that sponsors should look for better managers on the basis of past performance. Our evidence does not suggest that past performance can be used to pick managers who are expected to beat a passive investment strategy net of management fees. In the next section of the paper we describe the industrial organization of the industry in light of agency problems and the elusiveness of good performance. We then look at the role of the agency approach in explaining other key features of the tax-exempt money management industry. We conclude with a discussion of the likely evolution of this industry. When all is said and done, we doubt that an industry that has added little if any value can continue to exist in its present form.

## The Agency Structure of Defined-Benefit Plans

A defined-benefit plan is a contractual obligation of a corporation to its employees to pay a certain level of benefits. If a corporate pension plan has more money than is necessary to fund the pension obligations,

the excess money belongs to the corporation. (Sometimes, however, implicit contracts with employees lead corporations to pay out some of the excess funds as extra benefits.) If a corporate pension plan is underfunded—does not have enough money to pay the promised level of benefits—the shortfall becomes the most senior claim on the corporation. If the corporation is bankrupt, the pension plan is the most senior creditor, and the Pension Benefit Guarantee Corporation insures the benefits if the corporation does not have enough assets. Aside from the gaming incentives in or near bankruptcy, which we will ignore, it is in the interest of the corporation to ensure the highest returns on the assets in the pension plan given some acceptable level of risk.

The corporation allocates the resources of its pension plan among different investments. These allocation decisions are usually made by the corporate treasurer or someone in that office. Assets are allocated between internal and external managers and between passive managers, such as index funds, and active managers. This allocation decision at the corporate level gives rise to the first relationship that we want to study: the relationship between corporate management and the treasurer's office (TO). The corporate insiders who allocate the money must worry about their own jobs and reputations. The performance of the assets in the pension plan will influence their future success with the company.

This agency relationship between the corporate management and the treasurer's office has several implications. First, the treasurer's office has a bias against passive management because passive management reduces the demand for services produced by that office and thus reduces the size of its empire. Those in charge of the plan must show that they are doing some work to preserve their positions. Giving money to an index fund is probably not enough. This undoubtedly explains some of the preference for active management. Second, the treasurer's office has a bias against internal management of money and for delegation. External management may make good sense because it permits the realization of economies of scale and allows flexibility to switch between many money managers with various investment styles. In addition, the treasurer's office wants to delegate money management in order to reduce its responsibility for potentially poor performance of the plan's assets. Of course, once the decision to delegate money management is reached, the TO has to pick the managers and to reallocate

funds between managers over time. In practice, this becomes the most important job that it does. Many interesting features of the industry result from the interaction of TOs and the outside money managers. Even in this activity, the treasurer's office tries to reduce its own risk by hiring consulting firms that pick money managers. With all these safeguards, it finds a way to stay busy and at the same time unload some of the risk of poor performance. The treasurer's office can always replace a poorly performing money manager with a manager who has done well in the past and promise that future performance will be better.

Most of the assets in defined-benefit pension plans are managed by these professional money managers who compete for money to manage. When a corporation hires one of them to run some of its money, it either creates its own pension fund with that money manager, or it puts the money into one of the commingled pension funds that the manager runs for several pension plans. Money managers receive more compensation the more money they run. Therefore, they have a strong incentive to increase money under their management. To compete for funds, money managers try to offer superior performance for a given level of risk. Most of the equity money managers promise to beat the *Standard and Poor's 500 Index* by 200 to 400 basis points. The sponsors allocate money among money managers based on their evaluations of these money managers' ability to beat the *S&P 500*.

Unfortunately, the quality of these money managers is not perfectly observable, and so the task of the sponsor is not trivial. The money management industry is largely shaped by (1) the desire of the sponsors to achieve superior returns through active money management under very imperfect information and (2) the competition of the money managers for sponsors' funds by offering products designed to ensure superior performance. New money managers are typically selected from the pool of those who have outperformed the median pension manager in the previous three to five years.

The delegation of money management to outsiders gives rise to the second important relationship in that industry: the relationship between the sponsors and the money managers. Sponsors want to allocate money to managers who can beat the market since that serves the interest of both the sponsor corporation and the treasurer's office that allocates the money. In choosing a manager, sponsors have a lot of information at their disposal, such as the past track record of the manager, some

description of the techniques he uses for portfolio selection, past track records of the manager's peers with similar techniques, and many other characteristics of portfolios of the manager in question. Based on that information, they allocate funds among different managers.

Managers have some control over the information that they reveal to the sponsors. In fact, they can manipulate that information. They also can manipulate their portfolio choices to enhance their reputation with the sponsor even when such strategies are not in the best interest of the sponsor. How can sponsors evaluate the quality of money managers, and what are the consequences of making that difficult evaluation? Those are the principal questions addressed in this paper.

## The Data

SEI is a financial services company that specializes in evaluating the performance of pension plans and in helping sponsors select money managers. The empirical work in this paper is based on two databases from SEI: the performance database and the search database. The performance database is a sample of 769 all-equity pension funds run by 341 different money managers. The way a pension fund gets into this performance database is that a plan sponsor asks SEI to monitor the performance of this fund and pays for the service. A fund disappears from SEI's database if the sponsor fires the manager or if the sponsor decides to use another consultant instead of SEI. As of the end of 1989, the performance database covered approximately $124 billion in actively managed tax-exempt equity funds—about 15 to 20 percent of all assets in that segment of the market.

The performance database contains quarterly returns for each equity fund from the beginning of 1983 to the end of 1989. It also contains end-of-quarter holdings (number of shares) by stock for each equity fund from the beginning of 1985 to the end of 1989. Finally, the database contains information about characteristics of the funds, including the manager's investment style. Well-defined investment styles play a central role in the money management industry. To differentiate their product, managers claim adherence to particular styles and expertise. Sponsors divide their funds' assets among many different money managers, each

**Table 1. Investment Styles of Equity Funds by Number and Dollar Value, Average for Quarters 1985:1 to 1989:4[a]**

| *Investment style* | *Percentage of funds using given style* | *Percentage of value in funds (excluding cash) invested according to given style* |
|---|---|---|
| Growth | 38 | 38 |
| Yield | 15 | 11 |
| Value | 31 | 30 |
| Other | 15 | 21 |

a. Performance database of 769 all-equity pension funds.

of whom is a specialist at managing a particular type of asset according to a particular style.

In the performance database there are four possible styles: growth, value, yield, and other. SEI determines the style of a fund based on objective criteria rather than on self-reporting by managers. "Growth" refers to a fund whose portfolio at the end of the quarter has an average price/earnings (P/E) ratio in the 60th percentile or above of the funds included in the performance database. "Value" refers to those funds with an average P/E ratio that is in the 40th percentile or below as measured against other funds on the performance database. "Yield" refers to funds with an average dividend yield that places them in the 80th percentile or above of funds in the performance database. Funds in a given quarter that do not fall into these three categories are categorized as "other." Table 1 shows the distribution across styles of the number of funds and the dollar value of assets. Growth is the largest category (38 percent). Yield and value, which are similar investment styles, together represent 41 to 46 percent of the funds and money. We thus have a reasonably good distribution of money managers by style, and we can perform many of our calculations within style.

Compared with the performance database, the search database has certain advantages and disadvantages. The unit of analysis is an entire money management organization rather than just a particular equity fund managed for a given sponsor. The database covers equity products and fixed-income products. Although it contains some performance information from the mid-1970s, many firms do not show up until the early 1980s. To get into the search database, a money management firm volunteers information about itself to SEI, which then decides whether to include the firm in the database. Firms want to be on this database

because SEI typically recommends money managers to its sponsor-clients from this list. Participation in the database does not cost the money management firms anything; the sponsors pay.

SEI's decision to include a firm in the search database is largely based on the amount of money under management and the track record. SEI's criteria for inclusion in the database, combined with the desire of firms to be included after a period of good recent performance, create a fairly significant selection bias for the early years when many managers were being added every year. Because of this bias, we focus on the performance numbers from the later subperiod. SEI drops firms from the search database infrequently. When it does, it is because assets under management and performance deteriorate significantly. We only have money management firms that still existed on the database in 1990. This creates a selection bias for the better-performing money managers.

Despite this disadvantage, the search database is unique because it contains numerous characteristics of the entire money management firm. In particular, we have data on performance, total money under management, accounts gained and lost over the past five years, management fees charged, number of years in the business, equity share turnover, and investment style. This type of data allows us to extend our study of performance of equity funds to a more full-blown analysis of the structure and performance of the industry. Although the database contains historical data on performance and accounts gained and lost, it mostly contains cross-sectional information on these firms as of the end of 1990. The database has information on approximately 350 large firms whose business includes tax-exempt accounts. These firms are insurance companies, banks, and investment counselors (some of which are subsidiaries of insurance or banking parents). The largest number of firms in the database are investment counselors. For 1990 we have five years of historical equity performance data on approximately 250 firms. These firms managed approximately $540 billion in tax-exempt equity assets. This represents slightly over half of the tax-exempt equity assets under external management.

Returns-based calculations can be done using either database. Although we rely on the data from the performance database, we present the results from the search database as a verification. Luckily, there are no major differences between the two sets of results. For some calculations, however, only one database can provide the information

that we need. When this is the case, we use that database in our presentation. We cannot rely on either database for some industry-wide statistics. In these cases we extracted key numbers from *Pensions and Investments*.

## Elusive Good Performance

In this section we present portfolio performance results from the performance and search databases.

### *Performance Evaluation: Equity Returns Before Management Fees*

We measure performance using actual returns before management fees. To mitigate any problems associated with finding the proper benchmark against which to compare the returns, we look at the performance only of all-equity funds. Apart from these equity funds, we do not have good enough data on the asset composition of funds to make a proper comparison of returns to a passive portfolio strategy. Of course, even for equity funds one might argue that the *S&P 500* may not be the proper benchmark portfolio. We compare the returns on equity funds directly to the *S&P 500* for two reasons. First, the distribution of betas for the equity fund portfolios (measured using the *S&P 500* as the benchmark) are tightly clustered around 1.0. SEI reports that, as of the end of 1990, the median beta for equity funds in the performance database is 1.00, the 25th percentile is 0.96, and the 75th percentile is 1.04.[2] Second, the explicit market objective of most of these funds is to beat the *S&P 500*. We are interested in their ability to achieve that objective quite apart from any benchmark dictated by a particular asset pricing model that market participants may or may not subscribe to. Without any doubt, beating the *S&P 500* consistently will go a long way toward attracting additional business for these money managers.

We make one other important decision in evaluating fund performance. Even though we are looking at equity funds that are almost fully invested, most of the funds have some cash in their holdings. This might be because of liquidity considerations or tactical market timing considerations. During the 1980s the stock market rose sharply, and

2. We also have computed performance numbers analogous to those in tables 1–5 using beta-adjusted returns. The results changed very little.

**Table 2. Annual Return of Equity Funds and Percentage Underperforming *S&P 500*, 1983–89**[a]

Percent

| Year | *Equally-weighted return across funds* | *Value-weighted return across funds* | S&P 500 *return* | *Funds underperforming* S&P 500 |
|---|---|---|---|---|
| 1983 | 17.8 | 18.1 | 22.5 | 59 |
| 1984 | 3.8 | 3.2 | 6.3 | 63 |
| 1985 | 33.3 | 30.5 | 32.2 | 38 |
| 1986 | 18.1 | 16.8 | 18.5 | 50 |
| 1987 | 4.0 | 4.4 | 5.2 | 61 |
| 1988 | 17.9 | 15.7 | 16.8 | 47 |
| 1989 | 29.2 | 25.9 | 31.5 | 61 |
| Mean across years | 17.7 | 16.4 | 19.0 | 54 |

a. Performance database excluding cash portfolio.

holding cash virtually always reduced a fund's performance. Fortunately, we also have information on the return on the equity portion of the fund excluding cash. We compare these latter returns to the return on the *S&P 500 Index* (with dividends included), thereby always overstating actual fund returns. This seems to be a theoretically correct calculation since cash is riskless and returns on cash should not be compared with returns on the *S&P 500*.

Table 2 presents the results on annual performance of pension fund managers using the performance database for each of the years 1983 to 1989 and for the whole sample. We present the return (before management fees) for the equally-weighted portfolio of funds, the value-weighted portfolio of funds, the return on the *S&P 500*, and the percentage of funds that the *S&P 500 Index* beats. On average, the equity portion of a representative fund has underperformed the *S&P 500* by 1.3 percent per year. In some years the equally-weighted portfolio of funds was several percentage points behind the *Index*. The value-weighted portfolio of funds, which puts more weight on large funds, has underperformed by even more—2.6 percent. In all but two years, the *S&P 500* performed better than did the median fund, and overall it was in the 54th percentile. Remember that these results are for the equity portion of the funds; taking account of cash would make the *S&P 500* look even better. Also recall that these returns do not subtract out fees for active management, which averages approximately 50 basis points

**Table 3. Annual Return of Equity Funds and Percentage Underperforming *S&P 500* by Investment Style, 1983–89**[a]

Percent

| *Year* | *Growth* | *Yield* | *Value* | *Other* | *All* |
|---|---|---|---|---|---|
| 1983 | 17.7 (60) | 19.5 (44) | 17.0 (64) | 17.3 (59) | 17.8 (59) |
| 1984 | 1.8 (77) | 8.4 (30) | 4.5 (57) | 5.6 (62) | 3.8 (63) |
| 1985 | 33.1 (42) | 33.5 (38) | 33.6 (33) | 34.7 (31) | 33.3 (38) |
| 1986 | 16.2 (65) | 21.2 (28) | 19.7 (38) | 18.5 (48) | 18.1 (50) |
| 1987 | 5.3 (52) | 1.1 (73) | 2.9 (70) | 4.4 (55) | 4.0 (61) |
| 1988 | 16.6 (57) | 21.3 (23) | 18.2 (43) | 17.9 (48) | 17.9 (47) |
| 1989 | 29.2 (59) | 27.0 (72) | 30.2 (56) | 28.9 (72) | 29.2 (61) |
| Mean | 17.1 (59) | 18.9 (44) | 18.0 (52) | 18.2 (54) | 17.7 (54) |

a. Performance database excluding cash portfolio. Parentheses indicate the percentage underperforming *S&P 500*.

per year for these funds. These results suggest that, during this period, active money management subtracted rather than added value.

It is difficult to come up with the right statistical test of inferior performance by the funds over the 1983–89 period. A pooled time-series cross-section test with 769 fund observations per year over seven years clearly rejects the null hypothesis of returns equal to those of the *S&P 500*, but this test is not strictly correct because of the cross-correlation between the returns on the various funds, especially those with similar investment styles. At the opposite extreme, we can perform a test using only the annual differences between the equally-weighted average return across funds and the *S&P 500*. Such a test is based on seven annual differences and yields a $t$-statistic of $-1.60$, which is borderline significant.

Table 3 presents annual returns for funds grouped by investment style along with the percentage of funds that underperformed the *S&P 500* each year by investment style. Overall, only those employing a yield-based strategy did better than passive investing during this period, and this strategy was used for only 11 percent of all money managed. The growth funds performed quite poorly; the median fund following this strategy outperformed the *Index* in only one out of the seven years. Fund managers employing value and other strategies did poorly as well.[3]

3. This is not to say that most value-based strategies would have done poorly over this period. In fact, it is quite possible that those calling themselves value managers were not faithful to a value-based strategy. Alternatively, they may have just followed suboptimal value-based strategies.

**Table 4. Annualized Return of Equity Funds and Percentage Underperforming *S&P 500*, Three-Year Intervals, 1983–89**[a]

Percent

| *Interval* | *Equally-weighted return* | *Value-weighted return* | S&P 500 *return* | *Funds underperforming* S&P 500 |
|---|---|---|---|---|
| 1983–85 | 17.4 | 16.6 | 19.8 | 65 |
| 1984–86 | 17.6 | 16.3 | 18.5 | 57 |
| 1985–87 | 17.7 | 16.9 | 18.1 | 51 |
| 1986–88 | 13.0 | 12.8 | 13.3 | 54 |
| 1987–89 | 16.4 | 14.9 | 17.4 | 60 |
| Mean | 16.4 | 15.3 | 17.4 | 57 |

a. Performance database excluding cash portfolio.

**Table 5. Annualized Return of Equity Funds and Percentage Underperforming *S&P 500* by Investment Style, Three-Year Intervals, 1983–89**[a]

Percent

| *Interval* | *Growth* | *Yield* | *Value* | *Other* | *All* |
|---|---|---|---|---|---|
| 1983–85 | 16.5 (73) | 19.8 (49) | 17.5 (63) | 18.5 (59) | 17.4 (65) |
| 1984–86 | 16.1 (73) | 20.5 (26) | 18.5 (48) | 18.9 (55) | 17.6 (57) |
| 1985–87 | 17.5 (51) | 17.8 (54) | 18.0 (50) | 18.5 (41) | 17.7 (51) |
| 1986–88 | 12.4 (61) | 14.0 (37) | 13.2 (51) | 13.3 (59) | 13.0 (54) |
| 1987–89 | 16.4 (59) | 15.8 (65) | 16.4 (61) | 16.6 (59) | 16.4 (60) |
| Mean | 15.8 (63) | 17.6 (46) | 16.7 (55) | 17.2 (54) | 16.4 (57) |

a. Performance database excluding cash portfolio. Parentheses indicate the percentage underperforming *S&P 500*.

On average, the *Index* beat 59 percent of growth funds, 52 percent of value funds, and 54 percent of other funds. This is further evidence of value subtraction. The inferior performance of these funds is not the consequence of a single misguided strategy. Funds pursuing strategies as diverse as growth and value achieved bad results.

Table 4 presents results on annualized returns parallel to those in table 2 for overlapping three-year holding periods. This is a typical length of time over which a money manager must prove himself. Here the *Index* looks even better. It has outperformed the median fund in each three-year period, and in an average three-year period during this sample has beat the equally-weighted portfolio of funds by 1 percent per year. As table 5 shows, the *Index* beat the median fund over a three-year holding period in every portfolio strategy except for yield.

Table 6 produces some similar results for the search database. In that database money managers beat the *Index* by a large amount in early

**Table 6. Performance of Equity Funds, 1983–90**[a]

Percent

| Year | *One-year return* | | | *Annualized return for three-year period ending in given year* | | |
|---|---|---|---|---|---|---|
| | *Equally-weighted return* | S&P 500 *return* | *Percentile rank of* S&P 500 | *Equally-weighted return* | S&P 500 *return* | *Funds underperforming* S&P 500 |
| 1983 | 25.9 | 22.5 | 37 | | | |
| 1984 | 4.7 | 6.3 | 57 | | | |
| 1985 | 34.7 | 32.2 | 27 | 20.9 | 19.8 | 41 |
| 1986 | 18.6 | 18.5 | 48 | 18.6 | 18.5 | 52 |
| 1987 | 4.5 | 5.2 | 58 | 18.5 | 18.1 | 52 |
| 1988 | 18.4 | 16.8 | 46 | 13.4 | 13.3 | 51 |
| 1989 | 29.9 | 31.5 | 57 | 17.0 | 17.4 | 56 |
| 1990 | −4.6 | −3.1 | 58 | 13.9 | 14.2 | 58 |
| Mean | 16.5 | 16.2 | 49 | 17.1 | 16.9 | 51.7 |

a. Search database; equity return excluding cash.

years, but we are fairly confident that this is the consequence of a highly selected sample. Recall that firms are selected for the search database partly on superior past performance. When they get included they typically come with five years of past performance data. This makes the bias during a period when the database is rapidly growing particularly severe. Accordingly, we use performance numbers only for the later years, when the size of the database is growing more slowly, to compare our findings with those of the performance database. Still, there is probably some selection favoring good performers even in the later years. This is borne out by the fact that the equally-weighted returns for the search database are higher than those for the performance database *for every year* from 1983 to 1989, with the differences narrowing in the later years. Despite this potential upward bias, the firms in the search database do not perform all that well. Except for the earlier years 1983 to 1985, when we have reason to believe there is still a substantial selection bias from the growth of the database, the numbers for the search database are fairly close to those for the performance database, even though they are uniformly higher. Factoring in management fees, the results from the search database would lead one to conclude that active management subtracts value.

### *Historical Performance of Pension Funds and Comparison with Mutual Funds*

As we noted earlier, our results on the inferior performance of pension fund equity managers are in complete accord with the historical evidence. In 1981 *Pensions and Investments* reported that 74 percent of the equity funds in the pension fund universe of Becker (SEI's predecessor) underperformed the *S&P 500* over the 1971–80 period. Gilbert Beebower and Gary Bergstrom report results for the 1966–75 period, although they do not seem to limit themselves to equity funds. They find that the average beta-adjusted performance of the pension funds lagged behind the *S&P 500* by approximately 150 basis points per year.[4] Gary Brinson, L. Randolph Hood, and Beebower study the performance of 91 large pension plans over the 1974–83 subperiod. They find that performance of the funds lags behind the *S&P 500* by 110 basis points per year, with more substantial underperformance for the equity portion of the portfolios.[5]

These results are all the more interesting when contrasted with the investment performance of mutual funds. For example, the numbers reported by *Pensions and Investments* indicate that over the 1971–80 period (during which 74 percent of equity pension funds underperformed the *S&P 500*) only 42 percent of equity mutual funds did so. The mean annual return for the mutual funds over this period was 9.2 percent compared with 6.9 percent for the pension funds.

A recent study by Richard Ippolito of mutual fund performance finds that equity mutual funds outperform passive investment strategies by enough to cover all management fees except load charges. (Loads are applicable only to some funds, and there is no positive correlation between load and portfolio performance.) For the period 1964–85, Ippolito finds annual returns of approximately 80 basis points above a beta-adjusted *S&P*-based benchmark net of all fees but load.[6] Edwin Elton, Martin Gruber, Sanjiv Das, and Mathew Hlavka find some abnormalities in Ippolito's data. They assert that the true *S&P*-adjusted superior performance over the same time period is only about 40 basis points. They also question the use of the *S&P 500*–based benchmark

4. Beebower and Bergstrom (1977).
5. Brinson, Hood, and Beebower (1986).
6. Ippolito (1989).

and claim that mutual funds do not exhibit superior performance in Ippolito's sample relative to a multifactor benchmark that includes a small-firm index. In particular, they argue that the holdings of mutual funds are tilted toward smaller firms and that the superior investment performance of mutual funds found by Ippolito over the 1964–85 period is a result of this. Elton and his colleagues estimate that mutual funds underperform the multifactor benchmark by approximately 150 basis points per year, although for those invested 90 percent or more in stocks this number is 107 basis points per year.[7]

Importantly, these numbers for mutual funds are all net of management fees that average 70 to 100 basis points per year. We must add these management fees back in order to look at pure portfolio performance of the mutual funds and compare this to the performance of the pension funds. Hence, if we use Elton's numbers we find mutual fund portfolio performance lags behind a passive benchmark by anywhere from 7 to 80 (107 to 150 minus 70 to 100) basis points depending on how much of the fund is invested in equities and what level of management fees is assumed.

These performance numbers for mutual funds look on the order of 50 to 100 basis points better than any of the numbers we reported for equity pension funds regardless of methodology or sample period. Taken together, this evidence leads us cautiously to conclude that mutual funds have outperformed pension funds, at least from the mid-1960s through the mid-1980s. There are two important remaining questions about this comparison. First, how would the historical comparison look if the pension fund performance were recalculated relative to a multifactor benchmark that included a small-firm index? Although pension funds probably did not venture into small stocks nearly to the extent of the mutual funds, they still held a portfolio tilted toward the smaller stocks in the *S&P 500*. We base this guess on recent data we have on pension fund holdings. If our assumption is correct, then a multifactor correction will probably reduce the estimate of pension fund performance for the mid-1960s through the mid-1980s. Second, there is the question of the performance of mutual funds over the most recent period, 1983 to 1989. We have been unable to find any estimates of mutual fund performance that focus on the equity portion of the fund only. This is a problem

7. Elton and others (forthcoming).

because, in a rising market, holding cash reduces performance. Ignoring this problem, we report the findings of Lipper Analytical Services. Its numbers indicate poor performance of mutual funds over the 1983–89 period.[8] Importantly, this has been one of the worst periods for small firms in a long time. Hence, using a multifactor benchmark and correcting for cash holdings, we see that perhaps mutual funds did not do so badly over this period. On the other hand, this recent experience with mutual funds makes us cautious about leaning too heavily on the pension funds versus mutual funds comparison.[9]

*Does Active Management Pay Off?*

The evidence on poor performance seems quite compelling, but there is another way of looking at the service that active money management provides. The purpose of active management is to trade stocks to ensure higher returns. Accordingly, we can counterfactually ask: what would happen if money managers froze their portfolios at some point in time rather than continuing to trade? In particular, what would be the difference between the return they would have earned if they did not trade for the next 6 or 12 months, and the return that they actually earned? As before, we do this calculation for the part of the portfolio consisting of equity and excluding cash, and for both equally-weighted and value-weighted portfolios of funds. Since only the performance database contains the actual portfolios and so enables us to compute returns on "frozen" portfolios, we use that database in this part of the analysis.

The results are presented in table 7. The results on value-weighted portfolios show quite clearly that the trades made by the funds were counterproductive, costing on average forty-two basis points relative to a portfolio frozen for six months and seventy-eight basis points relative to a portfolio frozen for twelve months. For value-weighted

8. The numbers on performance of mutual funds were kindly provided by Julie Friedlander from Lipper Analytical Services.

9. One explanation for the poor performance of the pension funds and the mutual funds relative to the *S&P 500* is that the stocks in the index did well just by virtue of being in the index. This could be the result of an increased demand for explicit and implicit indexation. We cannot directly evaluate this explanation, but we do have some evidence against it. We have found that, even among the *S&P 500* stocks, pension funds have chosen from among the poor performing groups along certain key dimensions, including past earnings growth.

**Table 7. Difference over Six and Twelve Months Between Actual Return on Equity Fund and Return on Hypothetical Portfolio Frozen at Beginning of Period[a]**

Percent

| *Investment style* | *Difference over 6 months* | | *Difference over 12 months* | |
|---|---|---|---|---|
| | *Equally weighted* | *Value weighted* | *Equally weighted* | *Value weighted* |
| All | 0.004 | −0.42 | 0.140 | −0.78 |
| Growth | 0.076 | −0.24 | 0.620 | −0.48 |
| Yield | −0.039 | −0.26 | −0.720 | −0.80 |
| Value | 0.030 | −0.69 | −0.002 | −1.42 |
| Other | −0.057 | −0.46 | 0.240 | −0.34 |

a. Performance database excluding cash portfolio.

portfolios, the performance of every style has suffered as a result of trading. For equally-weighted portfolios, the results are more ambiguous. Over the 6-month horizon, active trading never makes a difference of more than 10 basis points. Over the 12-month horizon, active trading sometimes helps and sometimes hurts, but it never makes a substantial difference. Overall, a fair conclusion from this evidence seems to be that active trading, which is the principal way in which funds are supposed to add value to passive management, does not really work. These results probably suffer less from the benchmark problem discussed by Elton and his colleagues. The benchmark in this case is just the portfolio held by the fund at the beginning of the year, which should have a composition similar to the fund's portfolio over the year.

*Equity Performance and Turnover*

Another approach to measuring the benefits of active management is to use the data we have on equity turnover as a proxy for the degree of active management. Accordingly, we study the relation between the rate of turnover of an equity manager and the performance he achieves. In table 8 three-year and five-year annualized equity returns are regressed on equity turnover measured in percent per year. The results, somewhat surprisingly, indicate a statistically and economically significant positive relation between turnover and performance. For example, an increase in equity turnover from its median of 45 percent to its 75th percentile value of 70 percent per year is associated with approximately 60 basis points extra return per year over five years. Unlike

**Table 8. Regressions of Three-Year and Five-Year Annualized Equity Performance on Equity Turnover[a]**

Percent

| | *Dependent variable* | | | |
|---|---|---|---|---|
| *Independent variable* | *Three-year return including cash* | *Three-year return excluding cash* | *Five-year return including cash* | *Five-year return excluding cash* |
| Intercept | 12.89 | 12.32 | 11.68 | 11.68 |
| | (31.8) | (18.9) | (35.8) | (24.0) |
| Equity turnover (in percent per year) | 0.008 | 0.028 | 0.019 | 0.025 |
| | (1.29) | (2.68) | (3.55) | (3.22) |
| Number of observations | 203 | 97 | 203 | 97 |
| $R^2$ | 0.01 | 0.07 | 0.06 | 0.10 |

a. Search database; *t*-statistics are in parentheses.

the results in table 7, these estimates indicate that more active management may be associated with higher returns in the data.

We are somewhat puzzled by these results. Apparently, high turnover by itself is not a good proxy for excessive trading or poor execution of an investment strategy. In fact, turnover may be positively correlated with other attributes of the fund's investment strategy that actually produced superior returns over our sample period. We examined this possibility with respect to our four investment styles (value, yield, growth, and other), but we find that this positive relation between return and turnover also seems to hold within investment styles. This indicates that the relation we observed is not driven by a spurious relation between style, turnover, and performance. On the other hand, we would be the first to admit that the coarse style classifications in our data do not characterize investment strategies very precisely.

### *Consistency of a Manager's Performance over Time*

While our results suggest quite clearly that the average or the median fund manager does not add value during our sample period, some funds in some years show superior performance. Is this superior performance just a matter of luck, or is there some consistency over time in achieving good results? If we find that there is no consistency over time, we can make the stronger statement that not only do pension funds on average fail to add value, but that the same is true for just about all of them.

If, on the other hand, we find some consistency, then some money managers have actually delivered value even if most have not. At the very least, it may make sense for a sponsor committed to active management to put substantial weight on past performance when choosing a manager. In this section we address the issue of consistency. We primarily use the performance database, although we briefly look at the search database as well. As before, we look at the equity portion of the funds in the sample.

To check for consistency over time, we divide funds into quartiles based on performance over some period of time. Then we check whether funds manage to stay in their performance quartile over the subsequent period, particularly in the case of the best performance quartile. Put differently, we are asking whether the transition matrix between performance quartiles has diagonal entries above 25 percent. In addition, we are interested in knowing the performance difference in the follow-up period between this period's best and worst performers. We look at the annual, biannual, and triennial performance windows. We also look at transition matrices within investment styles since the relevant measure of consistency might be within a style rather than for all the funds combined.

Table 9 presents the annual results for the performance database. For the pension funds as a whole, there does not appear to be much consistency of performance over time. The diagonal entries of the transition matrix are close to 25 percent; thus, the probability that a fund from the best performing quartile ends up in the best performing quartile the next year is 26 percent and in the worst performing quartile is 27 percent. A fund from the worst performing quartile has a 32 percent probability of ending up in the best performing quartile the next year, and only a 24 percent probability of staying in the worst performing quartile. Perhaps an even more telling way to look at the lack of consistency is by comparing postranking performance. The best performing funds average 25.5 percent in an average year during this period compared with only 5.5 percent for the worst performing funds. Yet in the year after they are ranked, the best performers averaged 17.6 percent compared with 18.5 percent for the worst performers. Thus, a pension plan picking a winning fund could have expected a deterioration of its performance of almost 8 percent, and a pension plan picking a losing fund could have expected an improvement of 13 percent per year. In

**Table 9. Equity Fund Performance over Time Using Quartile Rankings of One-Year Past Performance to Predict Future One-Year Performance[a]**

| *Investment style* | | *1*[b] | *2*[b] | *3*[b] | *4*[b] | *Return over past one-year period*[c] | *Return over future one-year period*[c] |
|---|---|---|---|---|---|---|---|
| All | | | | | | | |
| (Top) | 1 | 26 | 24 | 23 | 27 | 25.5 | 17.6 |
| | 2 | 20 | 26 | 29 | 25 | 18.4 | 17.3 |
| | 3 | 22 | 28 | 26 | 24 | 13.7 | 17.4 |
| (Bottom) | 4 | 32 | 22 | 22 | 24 | 5.5 | 18.5 |
| Growth | | | | | | | |
| | 1 | 26 | 22 | 24 | 27 | 25.5 | 16.6 |
| | 2 | 17 | 29 | 31 | 23 | 17.3 | 16.3 |
| | 3 | 23 | 29 | 25 | 23 | 12.6 | 17.3 |
| | 4 | 34 | 21 | 22 | 24 | 4.6 | 18.0 |
| Yield | | | | | | | |
| | 1 | 21 | 30 | 24 | 24 | 25.3 | 18.6 |
| | 2 | 22 | 24 | 32 | 22 | 20.1 | 19.0 |
| | 3 | 21 | 24 | 29 | 26 | 16.0 | 18.0 |
| | 4 | 33 | 25 | 16 | 26 | 8.4 | 19.4 |
| Value | | | | | | | |
| | 1 | 27 | 26 | 21 | 25 | 24.7 | 18.7 |
| | 2 | 24 | 26 | 29 | 21 | 18.5 | 18.6 |
| | 3 | 22 | 25 | 28 | 25 | 14.3 | 17.6 |
| | 4 | 27 | 22 | 22 | 29 | 6.3 | 17.7 |

a. Performance database excluding cash portfolio. Too few observations prevented us from doing these calculations for the style "Other."

b. Data in these columns show transition probabilities for movement from a given past one-year performance quartile into future performance quartiles.

c. Equally-weighted annual returns for all funds ranking in a given quartile based on one-year past performance.

fact, at the annual frequency, picking a loser gives a higher subsequent return than picking a winner. This is a remarkable lack of performance persistence.

The results for the growth and yield styles are roughly similar to those we reported earlier, although there is some persistence for the value style. For growth and yield, the diagonal entries of the transition matrix are not much above 25 percent, and the worst performers often

have higher subsequent returns than do the best performers. For value, in contrast, the diagonal entries are above 25 percent, and best performers earn an extra 1 percent postranking over the worst performers. A lack of consistency might be from a genuine absence of stock-picking skills. Alternatively, it might be a consequence of too short an evaluation horizon. If annual returns are determined largely by luck, but longer term returns are determined in part by skill, then the lack of consistency in annual data might not be strong evidence against the existence of differences in skills between managers.

Table 10 presents biannual results. To our surprise, there is quite a bit of performance consistency, although quantitatively the effect is not huge. Funds as a whole are clearly more likely than random to remain in their performance quartile; funds that are the best have a 28 percent chance of remaining the best, and funds that are the worst have a 30 percent chance of remaining the worst. The best performers still show a subsequent deterioration of performance of about 4.8 percent per year and the worst performers show an improvement of performance of 8.4 percent. Counting on performance results to continue as before is clearly a mistake. On the other hand, the best performers on average outperform the worst performers by 1.2 percent per year during the postranking period, which is not trivial in this business. While the effects are not huge, these data suggest that it is better to bet on the past winners.

Interestingly, these results obtain for just about every investment style. For growth the expected benefit from investing in a winner relative to investing in a loser is 0.8 percent per year. For yield the benefit is 1 percent, and for value the benefit rises to 1.8 percent. At the biannual frequency, then, there is evidence of performance consistency.

Results on the triennial frequency are by far the strongest, both for pension funds as a whole and for individual styles (table 11). There is very clear consistency. Diagonal entries of the transition matrix are typically above 30 percent. In expectation, the gain from investing in winners relative to losers is 2.1 percent per year for funds as a whole. A test for the difference of future returns between past returns quartiles 1 and 4 has a $t$-statistic of 7.4; the test for differences between past performance quartiles (1,2) versus (3,4) has a $t$-statistic of 6.1. These test statistics are no doubt a bit high because the assumption of independence across funds is violated.

The consistency results are also interesting when broken down by

**Table 10. Equity Fund Performance over Time Using Quartile Rankings of Past Two-Year Performance to Predict Future Two-Year Performance[a]**

| *Investment style* | | *1*[b] | *2*[b] | *3*[b] | *4*[b] | *Return over past two-year period*[c] | *Return over future two-year period*[c] |
|---|---|---|---|---|---|---|---|
| All | | | | | | | |
| (Top) | 1 | 28 | 27 | 24 | 20 | 22.9 | 18.1 |
| | 2 | 21 | 28 | 26 | 25 | 17.8 | 17.5 |
| | 3 | 22 | 27 | 26 | 25 | 14.6 | 17.4 |
| (Bottom) | 4 | 28 | 19 | 23 | 30 | 8.5 | 16.9 |
| Growth | | | | | | | |
| | 1 | 24 | 28 | 25 | 23 | 22.4 | 17.2 |
| | 2 | 21 | 29 | 29 | 24 | 16.7 | 17.0 |
| | 3 | 26 | 23 | 26 | 24 | 13.4 | 17.2 |
| | 4 | 29 | 21 | 21 | 29 | 7.4 | 16.4 |
| Yield | | | | | | | |
| | 1 | 29 | 28 | 23 | 20 | 23.6 | 18.5 |
| | 2 | 23 | 32 | 26 | 19 | 19.8 | 18.4 |
| | 3 | 24 | 20 | 28 | 28 | 16.6 | 18.1 |
| | 4 | 22 | 22 | 24 | 31 | 11.6 | 17.5 |
| Value | | | | | | | |
| | 1 | 30 | 28 | 20 | 23 | 22.9 | 18.5 |
| | 2 | 22 | 28 | 27 | 23 | 18.4 | 18.0 |
| | 3 | 22 | 27 | 27 | 24 | 15.3 | 18.2 |
| | 4 | 26 | 17 | 27 | 30 | 9.1 | 16.7 |

a. Performance database excluding cash portfolio. Too few observations prevented us from doing these calculations for the style "Other."

b. Data in these columns show transition probabilities for movement from a given past two-year performance quartile into various two-year performance quartiles.

c. Equally-weighted annual returns for all funds ranking in a given quartile based on past two-year performance.

investment style. The results indicate some performance consistency within every style. The expected gain from investing in past winners relative to past losers is 2.3 percent for growth funds, 0.9 percent for yield funds, and 1.6 percent for value funds. Growth funds thus seem to show long-run consistency but no short-run consistency even though we often associate these funds with short investment horizons. Yield and value funds do not seem to show nearly as clear an increase in

**Table 11. Equity Fund Performance over Time Using Quartile Rankings of Past Three-Year Performance to Predict Future Three-Year Performance[a]**

| *Investment style* | | *1*[b] | *2*[b] | *3*[b] | *4*[b] | *Return over past three-year period*[c] | *Return over future three-year period*[c] |
|---|---|---|---|---|---|---|---|
| All | | | | | | | |
| (Top) | 1 | 37 | 29 | 20 | 13 | 24.3 | 15.9 |
| | 2 | 20 | 26 | 29 | 25 | 19.3 | 14.6 |
| | 3 | 19 | 24 | 30 | 26 | 16.1 | 14.5 |
| (Bottom) | 4 | 23 | 21 | 20 | 35 | 10.3 | 13.8 |
| Growth | | | | | | | |
| | 1 | 37 | 28 | 21 | 14 | 23.1 | 15.6 |
| | 2 | 20 | 27 | 29 | 24 | 17.8 | 14.5 |
| | 3 | 19 | 27 | 29 | 24 | 15.0 | 14.1 |
| | 4 | 25 | 19 | 21 | 35 | 9.0 | 13.3 |
| Yield | | | | | | | |
| | 1 | 30 | 23 | 23 | 23 | 25.6 | 15.2 |
| | 2 | 31 | 33 | 28 | 9 | 22.3 | 15.8 |
| | 3 | 17 | 24 | 29 | 29 | 18.8 | 14.4 |
| | 4 | 20 | 21 | 21 | 38 | 13.9 | 14.3 |
| Value | | | | | | | |
| | 1 | 33 | 25 | 25 | 16 | 24.2 | 15.6 |
| | 2 | 28 | 25 | 22 | 24 | 20.1 | 15.0 |
| | 3 | 16 | 25 | 32 | 26 | 16.9 | 14.6 |
| | 4 | 22 | 24 | 20 | 34 | 11.0 | 14.0 |

a. Performance database excluding cash portfolio. Too few observations prevented us from doing these calculations for the style "Other."

b. Data in these columns show transition probabilities for movement from a given past three-year performance quartile into various three-year performance quartiles.

c. Equally-weighted annual returns for all funds ranking in a given quartile based on past three-year performance.

consistency as horizons increase even though they are associated with long-term investment. We have no clear explanation for this result.

We also used the search database to look at consistency of performance. The data are organized by money management firm rather than by sponsor. Once again, we use the data only from later years because of the selection bias that may affect the time consistency results as well as the cross-sectional comparisons. On the whole, the results are similar

to those for the performance database, except that there is somewhat less consistency. Consistency does not show up at all strongly except for the three-year horizon. Over that horizon, the expected benefit from going with past winners rather than past losers is approximately 110 basis points per year over the next three years.

Taken together, our results support the notion that some managers are more skillful than others in achieving superior investment performance. They also suggest that allocating money among money managers in response to past performance might be a worthwhile task for the sponsors. The results also weakly suggest that longer horizon performance evaluations might be preferred.

We must present these results with two caveats. First, because there is a bias toward survival of the better funds, we may be overestimating the degree of consistency of performance over time.[10] Second, because we have results only for a relatively short period of time, we cannot be certain that the best performing funds in the first subperiod were not just lucky in the second subperiod due to the fortuitous success of a correlated set of investment strategies that they each employed. Although we made sure that consistency of performance over the sample period was not just the consequence of the performance of our four investment styles over this period, it could be the consequence of certain other strategies over both subperiods.

Our results do not imply that the best money mangers selected in this way can be expected to beat a passive investment strategy since the expected returns net of management fees even for these good managers appear to be below the *S&P 500* returns. Our evidence suggests that by using three years of past performance data and choosing a manager in the top quartile, one can expect to beat the average manager by approximately 100 basis points. But recall that over our sample period the average manager underperforms the *S&P 500* by 130 basis points, and this does not even include 50 basis points of extra management fees.[11] Of course, we make no claim that we have searched

10. Brown and others (1991).

11. An alternative approach here would be to compare the second subperiod returns of the first subperiod top performers directly to the *S&P 500* returns. If we do that we find that the top performers average 15.9 percent; the *S&P 500* return is 15.4 percent. But this does not include approximately 50 basis points in extra management fees, which when included would put the two strategies about even. Moreover, the problem with this approach

for the optimal rule for using past data to pick managers. Perhaps the optimal filter rule can select a manager whose performance net of fees is superior to that of a passive indexing strategy—a subject for a more thorough future study. In the next section we ask how this industry is organized in response to the elusiveness of superior performance.

## Elusive Quality and the Organization of the Industry

In the money management industry, ascertaining the future performance of the manager is very difficult. In response to this difficulty, the industry has split into two segments. The first segment does not face the problem of unobservable quality. Firms in this segment, which tend to be large banks and insurance companies, provide fairly generic products, such as index funds, immunized and dedicated-bond portfolios, guaranteed investment contracts, annuities, and other products that require fewer investment skills but require a reputation for stability acquired over many years in the market. This segment of the industry does not engage in as much constant communication with the sponsors, and its cost structure probably shows rapidly declining average costs. As a result this segment of the industry is very stable and concentrated. A few reputable providers capture and keep a large share of the market.

The second segment of the industry provides specialized rather than generic money management, such as portfolio selection. Firms in this segment are typically much smaller, characterized by highly differentiated products (at least in terms of presentation). Styles and approaches within styles differ. To succeed in this segment of the industry, a firm seems to need a concept and a story as much as it needs good past performance. Firms in this segment also provide a lot more service to the treasurer's office in terms of direct interaction and hand holding. We will argue that this is a direct result of agency problems within the sponsors' organizations. Because one of the inputs into the production

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is that it gives a biased view of the performance of the better pension funds since pension funds do uniformly better in the second subperiod (1986–88 or 1987–89) than in the first subperiod (1983–85 or 1984–86). Hence, all pension funds, not just the best ones, look better when focusing on the second subperiod returns. We believe that the proper approach is to estimate the gain to picking a top performer separately and then to combine this information with performance data on the average fund for the entire sample period.

**Table 12. Top 15 Money Managers, End-1990**

| Rank | Name | *Tax-exempt assets managed (billions)* | *Percentage of tax-exempt market* | *Percentage of assets in generic products* |
|---|---|---|---|---|
| 1 | Bankers Trust | 85.1 | 3.9 | 52.4 |
| 2 | Wells Fargo | 73.9 | 3.4 | 70.2 |
| 3 | Metropolitan Life | 51.6 | 2.4 | 59.1 |
| 4 | Prudential Asset | 48.8 | 2.3 | 67.0 |
| 5 | Aetna Life | 45.2 | 2.1 | 49.6 |
| 6 | State Street Bank | 45.0 | 2.1 | 60.0 |
| 7 | J. P. Morgan | 42.8 | 2.0 | 15.9 |
| 8 | Mellon Capital | 29.2 | 1.4 | 99.7 |
| 9 | Fidelity | 29.0 | 1.3 | 4.8 |
| 10 | CIGNA Investments | 28.4 | 1.3 | 29.6 |
| 11 | Pacific Investment | 28.1 | 1.3 | 3.9 |
| 12 | Northern Trust | 27.4 | 1.3 | 5.1 |
| 13 | Alliance Capital | 27.1 | 1.3 | 23.2 |
| 14 | GE Investments | 27.1 | 1.3 | 23.6 |
| 15 | Equitable Capital | 24.1 | 1.1 | ... |

Source: *Pensions and Investments*, various issues.

process of this segment is extensive interaction between key employees of the money management firm and employees of the treasurer's office, the increasing returns to size are much weaker. In this industry there also is no clear consensus about who the best managers are. Performance varies widely from year to year, and different methods may work at different times.

As a result of these factors, firms in this segment are much smaller than the providers of generic products, and the segment is extremely unconcentrated. As we will show, sponsors clearly reallocate funds in response to past performance, and because consistent performance is fairly elusive, there is tremendous turnover at the top in terms of industry leadership and market share. In short, the industry looks very much like an unconcentrated, highly segmented, service-oriented industry for which perceptions of the qualities of individual firms vary widely over time and across customers. The structure of this industry is not unlike that of hair salons or trendy restaurants. The contrast to the generic, stable segment of the industry is striking.

Tables 12 through 16 illustrate some of these assertions. Table 12 lists the 15 largest tax-exempt money managers. It also shows the total amount of tax-exempt money each manages, its share of the tax-exempt

market, and the fraction of its money under management committed to "generic" products—in particular, index funds, GICs (which lock in a fixed return for defined-contribution plans), immunized and dedicated-bond portfolios (the approximate analog of GICs except for defined-benefit plans), and annuities. The table shows clearly that the largest money managers tend to be insurance companies and banks and that a large fraction of their assets is in generic products. But there is one caveat: insurance companies and banks sometimes buy investment counselors and thereby gain entry into the active management market. The concentration ratio in the overall tax-exempt management industry is not large: the largest 10 firms together have a 22 percent market share. Excluding index fund products, GICs, and immunized and dedicated-bond portfolios, the market share of the top 10 falls to 13.8 percent. The share of the top 10 would be even lower after excluding annuities, but we could not make this calculation without aggregate numbers on pension annuities. In sum, the largest money managers are primarily involved in the production of fairly generic, undifferentiated products for which performance evaluation is relatively easy and where substantial economies of scale exist.

Table 13 provides additional detail on the 10 largest banks, 10 largest insurance companies, and 10 largest investment counselors. Banks and insurance companies are larger than investment counselors and have a higher commitment to generic products. The concentration ratio is much higher within the bank and insurance company subsegments of the market than it is within the investment counselor subsegment. The concentration ratios are 46.0, 51.7, and 22.9 percent for the top 10 firms in each subsegment, respectively. These numbers are consistent with our earlier observation that, within the generic products category, there are more increasing returns and hence more room for concentration. For example, the top four money managers offering equity indexing of discretionary tax-exempt assets manage 73 percent of all the equity-indexed assets managed by the top 25 firms.[12]

Table 14 addresses the issue of mobility by showing the largest 10 banks, the largest 10 insurance companies, and the largest 25 investment counselors at four different years during the 1980–90 period. The table reveals tremendous stability in the relative rankings among banks and

12. *Pensions and Investments*, May 20, 1991, p. 36.

**Table 13. Top 10 Managers by Type of Firm, End-1990**

| *Rank* | *Name* | *Tax-exempt assets managed (billions)* | *Percentage of subsegment of the market* | *Percentage of assets in generic products* |
|---|---|---|---|---|
| | | Insurance companies | | |
| 1 | Metropolitan Life | 51.6 | 8.1 | 59.1 |
| 2 | Prudential | 48.8 | 7.6 | 67.0 |
| 3 | Aetna | 45.2 | 7.1 | 49.6 |
| 4 | CIGNA | 28.4 | 4.4 | 29.6 |
| 5 | Equitable Capital | 24.1 | 3.8 | ... |
| 6 | Principal Financial | 21.5 | 3.4 | 25.6 |
| 7 | Travelers | 21.4 | 3.4 | 93.5 |
| 8 | John Hancock | 19.4 | 3.0 | 62.4 |
| 9 | Equitable Real Estate | 18.6 | 2.9 | ... |
| 10 | Massachusetts Mutual | 14.5 | 2.3 | 46.9 |
| | | Banks or trust companies | | |
| 1 | Bankers Trust | 85.1 | 11.7 | 52.4 |
| 2 | Wells Fargo Nikko | 73.9 | 10.1 | 70.2 |
| 3 | State Street Bank | 45.0 | 6.2 | 60.0 |
| 4 | J. P. Morgan | 42.8 | 5.9 | 15.9 |
| 5 | Mellon Capital | 29.2 | 4.0 | 99.7 |
| 6 | Northern Trust | 27.4 | 3.8 | 5.1 |
| 7 | Mellon Bond | 20.0 | 2.7 | 44.5 |
| 8 | Capital Guardian | 19.6 | 2.7 | ... |
| 9 | Chase Investors | 19.0 | 2.6 | 16.8 |
| 10 | Trust Co. of the West | 14.7 | 2.0 | 1.4 |
| | | Independent investment counselors | | |
| 1 | FMR-Fidelity | 29.0 | 3.7 | 4.8 |
| 2 | GE Investments | 27.1 | 3.4 | 23.6 |
| 3 | Miller, Anderson | 19.7 | 2.5 | ... |
| 4 | Boston Co. | 18.1 | 2.3 | ... |
| 5 | Lincoln Capital | 16.5 | 2.1 | 44.8 |
| 6 | Delaware Investment | 14.8 | 1.9 | ... |
| 7 | Fayez Sarofim | 14.1 | 1.8 | ... |
| 8 | Wellington | 14.0 | 1.8 | ... |
| 9 | INVESCO | 13.4 | 1.7 | ... |
| 10 | Fischer-Francis | 13.4 | 1.7 | 0.8 |

Source: *Pensions and Investments*, various issues.

insurance companies, and a great deal of instability of market shares among investment counselors. Again, this evidence is consistent with our interpretation of the nongeneric end of money management as a highly specialized service business that does not have a well-defined quality aspect and hence lacks a stable configuration of market shares for its differentiated products.

### *Past Performance and Changes in Money Under Management*

This broad characterization of nongeneric money management raises a key question. What determines the movement of money under management between firms? In this section we show that net accounts gained is quite sensitive to past performance. To this end, we use the information in the search database on net number of new accounts gained (in percent) and net dollar value of new accounts gained (in percent) as a function of three previous years' equity returns.

Table 15 presents the results. The first two columns of table 15 show pooled time-series cross-section results; the dependent variable in each column is based on data for accounts gained and lost for each money management firm in each of the years 1987 through 1990. The independent variable is the difference between the money manager's annualized return over the previous three years and the return achieved by the average manager in our sample over that period. The first column shows that for each 100 basis points per year that a manager outperforms the universe of managers over the previous three-year period, he experiences a 1.3 percent increase in the number of new accounts *the following year*. But this 1.3 percent increase does not capture the full effect of the three years of good performance on new accounts gained because it ignores the accounts gained after more than one year. We assume that performance goes back to normal, and in each subsequent year new accounts gained are the same linear function of the equally-weighted return averaged across the previous three years.

The full estimated effect of three years of good past performance in terms of accounts gained over the next three years would then be 2.6 percent more accounts for every 100 basis points per year of superior performance. A typical number for the difference between 90th percentile and median three-year annualized performance is 450 basis points, which would translate into 11.7 percent more accounts over the next

**Table 14. Tax-Exempt Market Leadership over Time by Type of Firm, 1980, 1984, 1987, 1990**

| *Rank*[a] | *1980* | *1984* | *1987* | *1990* |
|---|---|---|---|---|
| | | Insurance companies | | |
| 1 | Prudential | Equitable | Prudential | Prudential |
| 2 | Equitable | Metropolitan Life | Equitable | Metropolitan Life |
| 3 | Aetna | Prudential | Metropolitan | Aetna |
| 4 | Metropolitan Life | Aetna | Aetna | Equitable |
| 5 | CIGNA[b] | Travelers | New England Mutual | New England Mutual |
| 6 | Travelers | CIGNA | Travelers | CIGNA |
| 7 | John Hancock | New England Mutual | CIGNA | Pacific Mutual |
| 8 | Bankers Life | John Hancock | Pacific Mutual | John Hancock |
| 9 | Pacific Mutual | New York Life | John Hancock | Travelers |
| 10 | New England Mutual | Pacific Mutual | New York Life | Principal Financial |
| | | Banks or trust companies | | |
| 1 | J. P. Morgan | Bankers Trust | Bankers Trust | Bankers Trust |
| 2 | Bankers Trust | J. P. Morgan | J. P. Morgan | Wells Fargo |
| 3 | Harris Trust | Citicorp | Wells Fargo | Mellon Bank |
| 4 | Citicorp | Manufacturers Hanover | Mellon Bank | State Street Bank |
| 5 | Mellon Bank | Wells Fargo | State Street Bank | J. P. Morgan |
| 6 | Manufacturers Hanover | Mellon Bank | Citicorp | Northern Trust |
| 7 | Crocker | Chase Investors | Capital Guardian | Capital Guardian |
| 8 | Capital Guardian | Capital Guardian | Chase Investors | Chase Investors |
| 9 | Wells Fargo | State Street Bank | Northern Trust | Trust Co./West |
| 10 | Chemical Bank | Northern Trust | Fiduciary Trust | Boatmen's Trust |

Independent investment counselors

| | | | | |
|---|---|---|---|---|
| 1 | Alliance | Batterymarch | GE Investments | Fidelity |
| 2 | Scudder Stevens | Jennison | Mitchell Hutchins | GE Investments |
| 3 | Fayez Sarofim | Criterion | Boston Co. | Miller Anderson |
| 4 | Lionel Edie | Fayez Sarofim | Miller Anderson | Boston Co. |
| 5 | T. Rowe Price | Fischer-Francis | Lehman Management | Lincoln Capital |
| 6 | State Street Research | T. Rowe Price | Oppenheimer | Morgan Stanley |
| 7 | Putnam | Scudder | Delaware Investment | Delaware Investment |
| 8 | Batterymarch | Lehman Management | INVESCO | Fayez Sarofim |
| 9 | Brown Brothers Harriman | Delaware Investment | Scudder Stevens | Wellington |
| 10 | Loomis Sayles | Wellington Mgmt/Thorndike | RCM Capital | INVESCO |
| 11 | Duff & Phelps | Brown Brothers Harriman | Fischer-Francis | Fischer-Francis |
| 12 | Stein Roe | Boston Co. | Fayez Sarofim | Brinson |
| 13 | Boston Co. | Oppenheimer | T. Rowe Price | Merrill |
| 14 | Jennison | Miller Anderson | Sanford Bernstein | Lehman Management |
| 15 | Thorndike | Rosenberg | Wellington/TDP&L | Lazard Freres |
| 16 | Delaware | Stein Roe | Criterion | Capital Research |
| 17 | IDS | Lincoln Capital | Morgan Stanley | Oppenheimer |
| 18 | Western Asset | Forstman Leff | Lazard Freres | Sanford Bernstein |
| 19 | David Babson | BEA | Lincoln Capital | Scudder Stevens |
| 20 | Oppenheimer | INVESCO | BEA | Duff & Phelps |
| 21 | Rosenberg | Capital Supervisors | Batterymarch | T. Rowe Price |
| 22 | MacKay-Shields | Sanford Bernstein | Neuberger & Berman | JMB Realty |
| 23 | Bernstein-Macaulay | Neuberger & Berman | Brown Brothers Harriman | Mitchell Hutchins |
| 24 | Fischer-Francis | Lazard Freres | Fidelity | Franklin Advisers |
| 25 | Forstman Leff | IDS | Capital Supervisors | PRIMCO |

Source: *Pensions and Investments*, various issues.

a. The rankings are based on a slightly different treatment of subsidiaries so they do not exactly coincide with the rankings in tables 12 and 13.

b. Connecticut General.

**Table 15. Regressions of Net Accounts Gained on Past Performance for Single and Multiple Equity Product Firms[a]**

Percent

| Independent variable | Net percentage gained | | | |
|---|---|---|---|---|
| | *In number of accounts (multiple product firms)* | *In value of accounts (multiple product firms)* | *In number of accounts (single product firms)* | *In value of accounts (single product firms)* |
| Intercept | 8.51 | 3.38 | 8.09 | 3.24 |
| | (9.97) | (6.71) | (7.97) | (3.89) |
| Three-year annualized equity return minus universe mean in percent | 1.28 | 0.99 | 1.85 | 1.36 |
| | (5.80) | (7.57) | (7.38) | (6.60) |
| Number of observations | 935 | 935 | 505 | 505 |
| $R^2$ | 0.03 | 0.06 | 0.10 | 0.08 |

a. Search database.

three years. The second column shows the dollar value of net new accounts gained as a function of past performance. The point estimate of 0.99 indicates that over three years, the value of new accounts gained after three years of outperforming the universe by 100 basis points would be approximately 2 percent of existing accounts. The coefficient is smaller than the coefficient in the first column since new accounts received are typically of smaller than average size in dollar value.

These numbers are likely to underestimate the importance of past equity performance for new equity accounts gained. For the search database used here, we have accounts gained and accounts lost only at the level of the entire money management firm and not for a particular equity product offered by the firm and followed by SEI. We are then predicting the changes in accounts for all fixed income, balanced and equity products offered by the firm using the performance data on only the particular equity products of the firm that are followed by SEI. In the future we will try to compile more specific information on accounts gained and lost from lists provided by SEI. For now we can partially deal with this measurement problem by restricting ourselves to money management firms that offer fewer products. The third and fourth columns of table 15 show the results of restricting the sample to firms that

offer only a single equity product. As expected, the point estimates on the three-year performance variable rise significantly—from 1.28 and 0.99 to 1.85 and 1.36, an increase of approximately 40 percent in the sensitivity of net new accounts with respect to past performance.

The extreme instability of top rankings in the investment counselor category appears to be the result of sponsor responsiveness to past performance. Partly, this responsiveness might reflect the rational response to the consistency of performance over time. But the sensitivity of money inflows to past performance also might in part reflect the agency problems within the sponsor's organization. For example, the treasurer's office may fire a poorly performing manager as part of a scapegoat strategy, or it may hire a stellar past performer in order to avoid being second-guessed ex post.

### *Past Performance and the Dispersion of Management Fees*

In a market supposedly characterized by an important quality component, it is natural to ask whether there is enough agreement on quality that some firms can charge higher fees in exchange for their ostensibly higher quality products. The most basic question is whether there is much variation in fees at all, irrespective of the relation between fees and perceived quality. In fact, there seems to be fairly little variation in fees charged in this industry. Once you restrict yourself to a certain size of account for a particular broad category of product and a particular type of money manager organization, you find fairly small differences in fees charged. For example, for large investment counselors actively managing equities, the median fees charged for a $50 million account in 1985 were 53 basis points per year, with the 25th percentile at 43 basis points and the 75th percentile fee at 56 basis points. The corresponding numbers for a $25 million account were 60 basis points, 52 basis points, and 70 basis points.

While there does not seem to be a large amount of variation in fees, we can still ask: how much of the variation in fees is explained by perceived quality as proxied for by past performance? Table 16 contains the results of regressions of equity management fees for a $25 million account in 1990 on five-year annualized historical equity performance (in percent) with and without controlling for the amount of tax-exempt money under management at the firm (as a proxy for economies of

**Table 16. Regression of Equity Management Fees for a $25 Million Account on Five-Year Past Equity Performance and Log of Amount of Tax-Exempt Money Under Management, 1990[a]**

Percent

| *Independent variable* | *I*[b] | *II*[c] |
|---|---|---|
| Intercept | 0.396 | 0.660 |
| | (4.44) | (4.80) |
| Five-year annualized equity return minus universe mean | 0.019 | 0.016 |
| | (2.79) | (2.27) |
| Log of amount of tax-exempt money under management | | −0.0296 |
| | | (2.35) |
| Number of observations | 156 | 154 |
| $R^2$ | 0.05 | 0.07 |

a. Search database.
b. Controlling for the amount of tax-exempt money under mananagement.
c. Not controlling for the amount of tax-exempt money under management.

scale). The results show that an extra 300 basis points per year over the previous five years translates into only an extra 5 to 6 basis points in management fees. The *R*-squared indicates that past performance alone explains only 5 percent of the variation in fees.

These results are consistent with the notion that managers have little ability to charge for higher quality based on good past performance and that no consensus exists about who the better managers are. Since better past performers do not charge much more, the strategy of switching to the good past performers may not be a bad one. This last suggestion, however, awaits a more thorough study of the consistency of performance over time, which we hope to do in the future.

## Industry Structure and Agency Problems

Some of the features we have described of the money management industry are a direct consequence of the agency problems within the sponsor organizations and those between the sponsor and the money manager. In this section we take the viewpoint first of the sponsors and then of the money managers.

**Table 17. Changes in Pension Fund Composition over Time, 1980–90**

| *Year* | *Percentage of assets* |
|---|---|
| Top 200 indexed plans | |
| 1980 | 2.5 |
| 1984 | 5.0 |
| 1985 | 10.5 |
| 1986 | 12.1 |
| 1987 | 15.5 |
| 1988 | 12.9 |
| 1989 | 16.9 |
| 1990 | 14.4 |
| Top 200 contribution-defined plans | |
| 1985 | 9.3 |
| 1986 | 9.1 |
| 1987 | 8.7 |
| 1988 | 19.1 |
| 1989 | 18.5 |
| 1990 | 19.3 |

Source: *Pensions and Investments*, various issues.

### *Sponsors' Response*

Undoubtedly, the underperformance by active money managers has led sponsors to shift toward generic products in general and indexation in particular.

THE MOVE TO INDEXATION. Table 17 shows the percentage of assets of the top 200 pension plans that are indexed. The allocation of money to index funds increased sharply from 1984 to 1987, with the biggest jump in 1985, allegedly because of extremely poor performance by active money managers in 1983 and 1984. But between 1987 and 1990 there was no clear trend toward increased indexation of pension assets.

Given the inferior historical performance of active pension-fund managers and the extra fees they charge for active management, indexing looks like a very good strategy from the point of view of the beneficiaries and the corporation. Indexing also reduces the number of times the corporate treasurer's office must explain why the money managers it uses perform so poorly. This is because the index may actually perform better on average than a typical money manager and because indexing some significant portion of assets also has the advantage of reducing the so-called "tracking error," which is the difference between the

pension fund's return and the *S&P 500 Index*. On the other hand, indexation has the disadvantage that it puts many of the people allocating the sponsor's money out of their jobs, and perhaps for that reason it has not spread more widely. Moreover, even with indexation somebody must decide which indexes to hold. Those decisionmakers then become vulnerable to poor performance. Giving greater discretion to outside money managers always leaves the treasurer's office with an extra layer of people to blame.

DIVERSIFICATION ACROSS STYLES. The treasurer's office that allocates funds across money managers must account for its allocation decisions to other parties inside the sponsor organization. It mostly cares about its performance relative to that of the other sponsors with whom it will be compared. In particular, it is probably eager to minimize any potential performance shortfalls between its performance and theirs. Even apart from performance tracking error per se, the treasurer's office has an incentive not to pursue a strategy that is too unorthodox. Such a strategy is more likely to be second-guessed ex post. Finally, the treasurer's office wants to pursue a strategy that is sufficiently sophisticated that it can justify the continued existence of its empire.

In practice, these factors move most TOs to diversify across money managers with different investment styles rather than toward either a single-minded investment strategy or complete indexation. For example, the treasurer's office would want to put some of the money with value managers because in some years value managers do better and hence if the TO does not invest with them it might have some explaining to do. Similarly, most sponsors in recent years have tried to put some money in small capitalization stock funds for fear that they will be held responsible for not doing so if such funds perform well. Although our data do not enable us to look at sponsor allocations, diversification across styles appears to have been the virtually universal strategy of most large pension plans. Hence, even though explicit indexation may not have increased recently, "closet indexation" of this type may be on the rise.

FOCUS ON THE PORTFOLIO-SELECTION PROCESS. The third important response by the sponsor to the difficulty of predicting the future performance of the money manager is to try harder to understand the investment strategy that the manager is pursuing. Sponsors listen to extensive presentations describing what the managers are doing, and

they demand frequent and detailed discussions of portfolio choices as well as lists of stocks bought and sold. It is possible that this focus on the actual process of selecting stocks provides sponsors with additional information that enables them to disentangle past luck from manager skill and hence to improve manager selection. But the apparent fact that the portfolio performance of pension funds is no better than that of mutual funds, where most investors look only at past performance and do not get a chance to view the actual portfolio-selection process, suggests that the added information is not being used to great advantage.

One possible reason for this is that employees of the treasurer's office have hubris about their ability to select superior money managers and investment models. In essence, they may be frustrated stock pickers. Alternatively, they may be excessively risk averse and always need a good story to explain poor performance to their superiors inside the sponsor organization. Money managers who can provide a good story about their strategy have a comparative advantage. In fact, the product sold by the professional money managers is not just good performance but *schmoozing*, frequent discussion of investment strategies, and other forms of hand holding.

We can take this reasoning further in contrasting the performance of pension funds and mutual funds. Market forces select mutual fund money managers purely on the basis of performance, and hence the ones that survive are the ones that perform the best. In contrast, market forces select pension fund managers not only on the basis of their performance. They also consider managers' ability to provide sponsors with services such as well-defined products and hand holding and investment approaches that can be easily defended ex post. As a result, pension fund managers must be good at these activities. In fact, market forces may put better investors in charge of mutual funds than in charge of pension funds. The importance of these nonperformance-based objectives probably explains why pension managers offer highly differentiated products, why they cannot expand a lot (the very top people need to spend time with the sponsors), and why their performance is relatively poor.

So far we have argued that employees of the treasurer's office may pursue objectives other than achieving good portfolio performance. They also may have hubris about their ability to pick good performers based on models and interviews. It is still puzzling, however, that the

performance of the fund managers they hire is so poor. After all, the money managers could not on average have substantially underperformed the *S&P 500* by simply throwing darts and then schmoozing to justify their mistakes. Random portfolio selection does not reduce average performance; it only increases risk. To produce this kind of inferior performance on average, fund managers must have systematically picked overpriced stocks that had inferior expected returns.

One possibility is that many fund managers simply trade too much and at the wrong times so that they incur large market impact (or "execution") costs in addition to brokerage commissions. Alternatively, pension managers may gravitate toward groups of stocks that are simultaneously overpriced and yet easy to justify buying. For example, glamour stocks such as Merck or Wal-Mart with proven records of consistent earnings growth may attract fund managers because nobody would ever doubt that these are "good" companies. The great demand for these stocks by institutions and unsophisticated individuals who equate profitability with potential for capital gains makes them overpriced. Nonetheless, fund managers who invest in these stocks may thrive despite their mediocre performance because it is easy to schmooz and smooth over any problems when you invest in such stalwarts. Future research needs to identify these groups of stocks that may explain underperformance by fund managers yet are chosen as part of the desire of money managers and employees of the treasurer's office to keep their jobs.

### *Money Managers' Response*

The most important response of the money managers to process evaluation and more generally to the preference of the sponsor organization for hand holding and defensible strategies is to design strategies that appear to be differentiated but are at the same time highly conventional.

PRODUCT DIFFERENTIATION. Diversification across styles only encourages product differentiation, even if fundamentally the strategy is not different from what is already available in the marketplace. Money managers also spend a great deal of time discussing their strategies with sponsors and attempting to persuade them to give them money to manage. This is not to say that performance is not important. Developing

a track record is clearly part of attracting new money, and our consistency results suggest that track records may be justifiably important. But our evidence also suggests that the track record is only part of the story and that there are other aspects to the products that money managers are selling.

Money managers have been so successful at product differentiation that it is no longer so easy to compare the performance of different managers. Many fund managers are now trying to convince sponsors that even though they underperformed the *S&P 500* they still did well because they outperformed an index geared toward their personal investment style (for example, a growth-based small capitalization index). As in any highly competitive product market, it is in the industry's interest to decrease competition through product differentiation and subdividing the market. Interestingly, 10 to 15 years ago in an environment that was arguably less competitive, most money managers just managed balanced funds that invested in both equity and fixed-income securities. Very few managers explicitly marketed themselves as specialists.

INVESTMENT DISTORTIONS. In addition to working on nonperformance margins of designing their products, money managers sometimes distort their investment behavior to impress sponsors. One commonly noted form of such behavior is, in fact, a direct response to detailed evaluations of the money managers' portfolios. Specifically, money managers are said to window dress their portfolios at the end of the year, which means getting rid of poorly performing stocks that the sponsors might take as independent evidence of low ability. Using the performance database, Lakonishok and others found evidence that window dressing does indeed take place, although it does not appear to be very costly to the sponsors.[13] Not surprisingly, managers respond to the incentives created by the close scrutiny from the sponsors.

Another, potentially much more important investment distortion is the so-called lock-in strategy. This strategy is a direct response to relative performance evaluation of money managers. Money managers are said to lock in their gains when they are ahead of the *Index* by shifting their portfolio to correspond more closely to the *S&P 500*. That way they will be ahead of the *Index* at the time of the evaluation period.

13. Lakonishok and others (1991).

Conversely, money managers are said to increase their risk, particularly the idiosyncratic risk, when they are substantially behind the *Index* and in a desperate attempt to get ahead. We have done some preliminary analysis of the lock-in effect with the performance database and find that it is present in the data. Like window dressing, the lock-in effect is a natural response of money managers to the existing evaluation practices and the highly competitive environment in which they operate.

SUMMARY. This section has attempted to present some of the features of the money management industry as a response to the agency problems prevalent in that industry. We tried to show that the structure and even performance of this industry can be understood in terms of these agency problems. Much of the empirical evidence supports this proposition.

## Discussion and Implications

The picture of the pension fund industry that our analysis has painted is not a positive one. As far as performance is concerned, pension fund equity managers seem to subtract rather than add value relative to the performance of the *S&P 500 Index*. There is some consistency of performance that would enable a firm to pick a better money manager on the basis of past performance, but even so it is not clear that this money manager would be able to beat the market. Much of the organization of the industry seems to be driven by its need to provide sponsors with good excuses for poor performance, clear stories about portfolio strategies, and other services that are related only vaguely to performance. In fact, the multiple layers of agency relationships and the orientation of this industry toward pleasing the treasurer's office may be largely responsible for its poor performance relative to both passive benchmarks and the mutual funds.

It is hard to believe that this situation has lasted for so long. One possible remedy is a move toward indexation and other forms of generic products, which are provided by low-cost, mass-market suppliers such as banks and insurance companies. The recent move toward defined-contribution plans, in which individuals have more control over the allocation of their pension assets, is likely to accelerate this trend away from servicing and answering to the treasurer's office. This move toward greater rationality also can take another form: more mutual-fund-style

**Table 18. Asset Composition of Top 1,000 Defined-Benefit and Defined-Contribution Plans, 1990**

Percent

| *Asset* | *Defined-benefit plans* | *Defined-contribution plans* |
|---|---|---|
| Company stock | ... | 24.0 |
| Other stock | 43.6 | 15.8 |
| Fixed income | 36.0 | 11.4 |
| Cash | 8.7 | 8.7 |
| GIC/BIC | 3.1 | 33.2 |
| Annuities | 0.7 | 0.7 |
| Other | 7.9 | 6.2 |

Source: *Pensions and Investments*, various issues.

money management, where money is allocated based on past performance rather than on ex ante models and stories. The move toward defined-contribution plans obviously facilitates this transition toward the mutual fund model, although pensioners first must be convinced to invest more in stock other than that of their own company (table 18). But even the defined-benefit plans should have tried to solve the agency problems inside the corporations more efficiently and to use more rational portfolio-allocation schemes. With one trillion dollars of pension assets invested in equities, underperformance by 1.5 percent a year costs sponsors $15 billion that go to the brokerage industry, the money management industry, and the smart investors who trade against the funds. The pressure to reduce these costs must eventually bring about important changes in the money management industry, but the question is: how fast?

# *Comments and Discussion*

**Comment by Oliver Hart:** The Lakonishok-Shleifer-Vishny (henceforth, LSV) paper provides evidence showing that pension fund managers who invest in equity significantly underperform the *S&P 500 Index*. This is a striking result since it suggests that considerable social gains could be achieved if large parts of workers' pension money in the United States were switched from active to passive management.

There are two ways to discuss a paper like this. One is to try to find holes in the authors' empirical and statistical methodology. The other is to take the authors' results at face value and try to explain them.

I am going to adopt the second approach, even though, as the authors note, they have not established the significance of fund managers' underperformance beyond any doubt. In particular, if different fund managers choose the same investment strategy, then over the 1983–89 period there are only seven observations, and underperformance can be established only at the borderline significance level. In contrast, if managers' strategies are independent, there are 5,383 observations, and underperformance is clear-cut.

For the remainder of my discussion, I will take underperformance as established and try to explain why it occurs and, in particular, why it may persist. LSV argue that it is due to the extra level of agency between corporate sponsors and money managers in the form of the treasurer's department. I think that they are on to something here, but that the truth may be a bit more complicated, for reasons that I will now explain.

A useful starting point is to consider what a complete theory of underperformance—that is, one that starts from first principles—would

look like. First, it would have to explain why firms provide pensions at all. In particular, why don't workers save by themselves, possibly by buying pensionlike securities in the market place? I'm not sure that it is easy to come up with a completely satisfactory answer, but presumably the following factors are important: (1) firm-provided pensions are tax-favored; (2) they provide workers with an incentive to stay with the firm to the extent that the pension is not fully portable if the workers move;[1] and (3) workers may not be confident of their ability to save an appropriate amount and may prefer to entrust this decision to somebody else.

Given that it is optimal for firms to provide pensions, the next question to ask is: what kind of pension would we expect? The natural way to think of this is in an optimal contracting framework. That is, it is useful to imagine the firm and worker sitting down when the worker is first hired and planning out how retirement benefits should be determined along with wages. Looking at it this way makes it clear that there are many dimensions of retirement benefits that can be negotiated: the annual amount that workers and the firm should be paying in, the level of benefit at retirement, the degree of indexation to the cost of living, and so on. I do not know what an optimal contracting approach would tell us about the determination of each of these aspects of the pension plan, but it seems worth finding out.

Certainly, it is not at all clear that the solution to the optimal contracting problem is a defined-benefit plan. In fact, I suspect—along with the authors—that it is more likely to be a defined-contribution plan. Under a defined-benefit plan, workers are offered a fixed, nominal—or sometimes real—wage many years from now, and it is not clear why firms' shareholders have a comparative advantage in providing this kind of insurance against aggregate nominal or real income shocks. Rather, we might expect workers to look for insurance, if that is what they want, through the market.

On the other hand, maybe the right type of insurance is not available in the market, and workers are so much more risk averse than shareholders that shareholders should provide the insurance anyway; particularly if it is on actually unfavorable terms. I do not know how much

1. Lazear (1979).

workers get out of their pension in practice, but maybe the equilibrium is that the firms do provide it, but the benefits are low relative to the contributions.

Another factor that might help to explain the use of defined-benefit plans is that the government insures them, that is, it covers workers against losses in the event of firm bankruptcy. In contrast, the government does not insure defined-contribution plans.

In any event, let us suppose that we can explain defined-benefit plans along the lines above. This means that the firm has a future obligation that is fixed either in nominal or real terms. How should the firm invest so as to satisfy this obligation? It seems reasonable that the firm will invest in some mix of cash, bonds, and equities, which is what we find. But what mix?

This question is not discussed in the paper. Instead the authors focus just on the equity component. The question might be pursued in future work, however. In particular, it would be nice to know whether sponsors are behaving in some reasonable way in so far as moving in and out of shares is concerned, and also with respect to the division between shares and long-term bonds.

The authors' main—and striking—result is that the equity component is dominated by the *S&P 500*. How can we explain this? This question can in turn be subdivided into two: why did firms start investing inefficiently in the first place? Given that they are doing it, why don't they stop?

The first question does not seem so difficult to answer. Maybe, despite the huge literature on efficient markets, it has not been widely appreciated until recently that "beating the market" is a bad strategy to pursue. That is, maybe firms' workers were happy with the idea that some sophisticated department of professionals was trying to pick winners and, they thought, obtaining a large return. In fact, maybe that's what they think even now. To put it another way, maybe the results of this paper are not yet well known and, once they become so, things will change.

But maybe they won't change that fast. Because the second question is: given that sponsors have invested inefficiently in the past, who would gain from eliminating the inefficiency?

This is where agency problems come in. Suppose, first, that the pension fund is currently overfunded. An important question is: to

whom does the residual belong? It appears that, legally, it belongs to the firm. LSV argue, however, that the firm's implicit contract with workers may be such that the excess effectively belongs to the workers. So the situation is ambiguous and it is useful to consider the two cases separately.

Assume first that the excess belongs to the firm. It seems clear that it is in shareholders' interest to switch to a better investment strategy. However, shareholders are dispersed, and there is a principal-agent problem between management and them.

As far as management is concerned, if the firm's profits go up, then that is not bad, but maybe it is not terribly good either. Maybe their incentive schemes are such that they don't obtain a large direct benefit. And maybe they are not interested right now in having more cash to invest.

As the authors point out, the firm's treasury department would surely be against a move toward investing in something like the *S&P 500 Index*, since many of them would lose their jobs.

Thus the conclusion is that there may be no great pressure for change. Actually, it would be interesting to know something about the order of magnitude of the gains from eliminating the inefficiency for a typical firm. In particular, if you took a large company, what would the gain be relative to the salaries of people in the treasury department? If the net gain is huge, it is harder to explain why there is no change.

The second case is where the excess funds belong to the workers. Here there seems even less reason to expect a change. Certainly it is in the interest of the workers to move toward index investing, but there are tremendous collective action problems unless the workers are represented by a union. Management cares even less than before because their salary won't change and they won't have more money to invest. And the treasury department is against, as before.

In fact, in some cases, management may even *prefer* to have less in the pension fund. Suppose that, along the lines of Shleifer and Summers,[2] a raider who takes over the firm feels no obligation to respect the implicit contracts of incumbent management with workers. Then a large (overfunded) pension fund will increase the probability of a hostile bid since the raider can seize the surplus, but, under incumbent man-

2. Shleifer and Summers (1988).

agement, the surplus accrues to workers rather than shareholders. An inefficient investment strategy may be a subtle way of throwing some of this surplus away, thereby protecting management from a raid.

So far I have been talking about the case where the pension fund is overfunded. Matters are very different if there is underfunding, because then the firm is responsible for the shortfall. That is, the obligation to workers is a bit like debt, and, as we all now know, debt may be a good bonding device. So, under these conditions, we might expect a lot more pressure on the firm to invest efficiently.

It would be interesting to know if the data reflect a different response to pension investment inefficiencies for firms with underfunded pensions as opposed to those with overfunded pensions.

In summary, I liked the paper and found the results very interesting. I think that the authors' agency explanation of slack is plausible, but that they focused a little too narrowly on the extra level of agency represented by the treasury department. It seems to me that the agency problems between management and shareholders and between management and workers are even more important. Another nice aspect of the paper is that the authors are able to come up with an empirical measure of slack. The literature is full of references to agency problems, but it has been surprisingly difficult to measure agency costs. This paper identifies these costs convincingly in a particular context.

**Comment by George L. Perry:** Back in the 1930s, Keynes asked, "Why are New York bankers so successful?" and answered, "Because they compete with New York bankers." Reading their conclusions, I gathered that Lakonishok, Shleifer, and Vishny might update this by changing bankers to pension fund managers. One of my qualifications for discussing this paper is that my wife, Dina, has been a pension fund manager. So I have to look for why the authors are wrong.

The authors have an interesting hypothesis as to why pension fund performance may be poor, and it centers on agency problems of a special sort. The way the industry is organized, corporate professionals (from what the authors call the fund sponsor) are responsible for allocating pension funds to managers, often with the help of consultants who advise in the choice of managers. And managers (by which the authors mean management firms rather than individuals) allocate funds in turn to individual portfolio managers working for them. The authors believe

that these layers of supervision impair performance by tilting portfolio managers away from investing as wisely as possible and toward investing in a way that can be justified to sponsors.

My secondhand impressions are that such agency problems are genuine. Both the need to review portfolio decisions with clients and the fact that performance is evaluated at frequent intervals may be counterproductive under some conditions. The authors' hypothesis is not only plausible but even likely in the limited sense that these agency problems subtract from the average performance of the industry. I think, however, that the paper falls well short of proving the following propositions, offered either explicitly or implicitly: that these agency effects are large enough that, in general, active pension fund management produces no positive value for its clients; that past performance does not provide clients with a basis for picking individual managers who can be expected to outperform the average manager by enough to justify their fees; and that, therefore, the industry cannot continue to exist in its present form.

The authors' central empirical finding—that, as an industry, active pension fund management has underperformed—seems well established for the 1982–89 period for which they have data comparing funds with the *S&P 500 Index*. Whether measured over one- or three-year intervals, the *S&P 500* outperforms the average of funds most of the time. The main problem is the length of the data period. It is so short—just seven years of performance—that it may be unrepresentative, possibly because of the growth of index funds over those years. In fact, one of the authors, Andrei Shleifer, showed that individual stocks experienced abnormal positive returns when they were added to the *S&P 500*. More to the point, Jim Bates, an experienced money manager, has told me of a study showing that over the five-year period when indexing grew in popularity, being in the *S&P* added 2 percent to 3 percent per year to a company's stock price compared with the stock of an objectively similar company that was not in the index.

It is not hard to see a self-fulfilling prophecy at work here. As indexing grew in popularity, starting in the early 1980s, demand tilted toward stocks that were in the index. This made those stocks perform especially well, which made indexing look good, which attracted more money into indexed funds. I used to think there was something to this, and there may be. But the authors' table 17 casts doubt on its importance

for explaining why the industry did not keep up with the *S&P* over this entire period. That table indicates that the popularity of indexing shows no trend after 1987. Yet the *S&P* outperformed in 1988–89 as well as in the earlier years.

There could be other factors justifying below average performance. For example, one could imagine that clients were willing to give up a little average return in the belief that active expert management would avoid extreme bad outcomes and that managers invested accordingly. The paper, however, suggests that the funds did not perform that function particularly well. Table 2 shows that in 1987, the year of the great crash, the *S&P 500 Index* outperformed the equally weighted fund average by 1.2 percentage points, which would have put it in the 61st percentile of funds. In 1990, the only year of decline in the sample, the fund average fell 1.5 percentage points more than did the *S&P 500*. Thus, attaching special weight to avoiding especially bad outcomes does not seem to be an explanation for mediocre average performance in the industry.

That still leaves the fact that the period is probably too short to be conclusive. Results based on it could be unrepresentative. For example, the *S&P* outperformed indexes of smaller capitalization stocks by wide margins over this period. It is fair to ask why fund managers did not figure out that this was a bad period for small stocks. But some funds in the authors' data may have been committed to smaller stocks and thus have had no choice. A comparison with mutual funds in the table below suggests this may have been an unusual period. The *S&P 500* outperformed general equity mutual funds between 1983 and 1989, even though studies of some earlier periods have shown mutual funds kept up with or bettered the broad averages.

Whatever the explanation for average fund performance in this period, average performance is not what matters the most for answering the authors' questions about the industry's organization. A sponsor seeks the best manager rather than the average, so the authors' analysis of whether the sponsor can hope to find above average performers is more to the point. Some versions of efficient market theory would reject that possibility a priori. Richer versions, first associated with Grossman and Stiglitz, allow for some net returns to applying time and brains to stock picking. The authors obviously believe it is an empirical question worth asking, and I agree.

**Table 1. Annual Performance of Equity Mutual Funds, 1983–89**
Percent

| *Year* | *Appreciation of general equity mutual funds* | *Average dividend yield* | *Total return of general equity mutual funds* | S&P 500 *return* |
|---|---|---|---|---|
| 1983 | 21.2 | 4.4 | 25.6 | 22.5 |
| 1984 | −1.3 | 4.6 | 3.4 | 6.3 |
| 1985 | 28.0 | 4.3 | 32.2 | 32.2 |
| 1986 | 14.1 | 3.5 | 17.6 | 18.5 |
| 1987 | 0.7 | 3.1 | 3.8 | 5.2 |
| 1988 | 15.1 | 3.6 | 18.7 | 16.8 |
| 1989 | 24.4 | 3.5 | 27.9 | 31.5 |
| Mean | 14.6 | 3.9 | 18.4 | 19.0 |

Sources: Annual appreciation is from Lipper Analytical Services, and it is an unweighted average of the return on all equity mutual funds existing between 1980 and 1991. The average dividend yield is for *S&P 500* companies, and it is from Economic Indicators. The *S&P 500* return is from the authors' table 2.

The authors' main tool for analyzing the performance of individual managers is the transition probabilities for managers grouped by quartiles. Comparing ranking one year with rankings the next shows little consistency. In fact, there was some negative serial correlation with one year's bottom quartile outperforming all others the next year. But looking at three-year performance, which surely increases the skill-to-luck ratio, gives fairly clear evidence that past performance is positively related to future performance. The relation is particularly apparent for the top quartile of fund managers, although the rank order between past and future is maintained for the collection of all funds and for each category of funds when they are grouped by investment style.

The authors do not go on to refine their analysis of transition probabilities by looking for optimal filters. Thus, they do not tell us what might be the best cut-off point for choosing managers or even how the top 10 percent of managers fared in subsequent years or how long the top managers stay above average. There is clearly a lot of reversion toward the mean in the three-year interval comparisons using quartiles that the authors provide. It would be interesting to know how it looked using performance deciles, or, more important, how much consistency there would be if longer periods of performance were used. But the authors' data period is too short to answer such questions. I believe there are studies of mutual funds that show statistically significant good performance over extended periods.

Most discussions of performance stress the likely importance of luck or noise, and researchers try hard to avoid biases from these sources that might overstate the role of skill. But there is reason to believe the authors' data have an important bias in the other direction, understating the investment skills of some individual managers. The data are organized by management firm rather than by individual manager. The trouble is investment stars often get bid away to other firms or leave to start managing on their own. As a result, the authors' data will not capture many of the best track records of individual managers. Yet in terms of the big question of the paper, a sponsor can hope to keep its money in the hands of a star performer even as she moves from one management firm to another.

All this tells me the authors' prediction of the death of the pension fund management industry as we know it is not warranted by their results. Sponsors have good reason to look for superior managers and can be guided by past performance in their search. But they do need to be careful that they are getting the real thing. The performance record built by one individual will probably not predict the performance of her successor at the same firm. In short, good individual managers are worth finding and hiring. Dina would not let me come to any other conclusion, but neither does the data.

Finally, let me offer some thoughts to justify the personal attention dimensions of pension fund management that the authors treat as an unambiguous disadvantage. They reason that there are two dimensions to the job: managing money and justifying what you do to your clients. By having to choose people who are good at both managing and shmoozing, one gets poorer portfolio results than if one chose on the basis of managing alone. That sounds right, and it probably helps explain why some charming managers with poor track records are still in business. But in my experience most really good managers like their work and are good at talking about it, so there is no necessary trade-off at the high-performance end of the spectrum. What is more, having money managed by people the sponsor trusts and can talk to can add to performance by helping the sponsor avoid all-too-human investing mistakes. In particular, whether to be in stocks at all may matter more for performance than what stocks to be in. A really great manager might have gotten out of stocks in August 1987. But a good manager—one easily worth his fees and one whom a sponsor has come to trust through

the shmoozing that the authors believe can be only counterproductive—might have been invaluable simply by convincing the sponsor not to abandon stocks after the Monday crash in October.

**General Discussion:** Several participants attempted to explain the authors' finding that pension fund managers have consistently performed less well than has the *S&P 500 Index* since the early 1980s. Although generally accepting the authors' conclusion that agency problems played some role in this outcome, many participants felt that this explanation was not adequate.

George Borts said that portfolio risk must also be an important factor affecting pension fund returns. He suggested that lower yield managers are providing lower risk to their clients. The firms that provide pension fund management services to corporations also manage university endowment funds, Borts noted, adding that the universities continue to use these managers even though index funds seem to provide higher returns. He wondered if gathering information about risk characteristics of funds would help to explain the authors' findings on inferior performance by money managers.

Peter Reiss said that the tax-exempt status of pension funds should not be overlooked when trying to explain this apparent pension fund underperformance. He suggested that tax-exempt status might allow fund managers to pursue sophisticated tax arbitrage strategies. As an example, he pointed out that at one time money managers were claiming that they could arrange dividend-capture schemes.

Richard Schmalensee suggested that data problems might be responsible for the results found in the paper. Schmalensee noted that the difference in performance between money managers and mutual funds is critical to the paper's argument, but this comparison is not made using the same time period. He said that the periods must be matched somehow before the authors' conclusions can really be solid.

Sam Peltzman noted that the authors' examination of the pension fund management business begins in the early 1980s, after the conclusion of a period of rapid growth for this industry. He argued that when the authors' study began, it would have been difficult for a sponsor to tell which firms were really successful because rapid growth makes a firm's track record very hazy. He suggested that much of what was occurring in the industry during the seven-year period examined by the

authors was a kind of "sorting out." Peltzman said that the movement of funds toward managers with good three-year track records and toward index funds was a reasonable response to the general situation in the money management industry.

After noting that defined-contribution pension plans use an extra agency level compared with defined-benefit plans, Margaret Blair suggested that examining these two kinds of plans separately should be an adequate test for the authors' agency cost hypothesis.

Joseph Farrell was surprised by the authors' claim that corporations that sponsor pension funds seem to diversify across fund management styles, buying into a combination of growth, yield, and value funds. He said that the benefit of buying into such managed funds is lost once diversification takes place; that is, diversification is an indirect way of buying the whole *S & P 500*, less the fees charged by the fund managers.

Alan Krueger noted that unions can effectively act as agents for their members in union-managed pension funds. He was interested in knowing what kinds of investment strategies unions are using and whether they are moving toward defined-benefit or defined-contribution plans.

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