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The Effect of 12b-1 Plans on Mutual Fund Expense Ratios: A Note

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IN 1980, THE SECURITIES AND Exchange Commission approved rule 12b-1 which authorizes mutual funds to deduct a sum of money, called a distribution fee, from net assets, with the money to be paid to selling agents. Proponents of the plan argue that it offers incentives for brokers to sell the funds. The increase in the size of the fund then purportedly produces economies of scale. Opponents of the plan argue that it enables no-load and low-load funds to become *de facto* load funds while publicly proclaiming their no-load or low-load status.[1] In addition, some load funds use the plan, and critics argue that their quoted sales charges understate the full impact of selling expenses. The plans have stirred considerable controversy in the financial press.[2]

Since 12b-1 plans are only sales incentives, they would be expected to have no effect on the mangement of a fund; thus, gross returns and risk should be unaffected. Unless the plan produces an offsetting benefit through economies of scale, the net effect on shareholders should be to lower net returns at the same level of risk.

This study examines the effect of 12b-1 plans on mutual fund expense ratios. Previous studies [1, 2, 3, 4, 5, 6, 7] have looked at risk-adjusted mutual fund returns and have drawn some conclusions about the effect of expenses,[3] but no study has attempted to explain how expense ratios differ in a cross-sectional sample of funds. By developing a model of factors influencing expense ratios, the impact of the plan can be examined simultaneously with such other factors as economies of scale.

Section I provides more detail about the issue of expense ratios, identifies the model, and describes the data. Section II presents our results, and Section III provides a summary and conclusions.

I. Modeling Mutual Fund Expenses

The expense ratio is the ratio of expenses to average net assets. These "expenses" are comprised of the administrative costs of operating the fund, including costs

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[1] Low-load funds have load charges of 3.5 percent or less. The most common load fund charge is 8.5 percent, with the amount reduced as the shareholder's accumulated balance increases above a certain level.

[2] See for example, "Careful It's Loaded," *Forbes*, September 16, 1985; "The Low-Down on Expense Ratios," *Barron's*, February 17, 1986; and "Loaded Down," *The Wall Street Journal*, December 1, 1986.

[3] Sharpe [6] found that good performance is associated with low expense ratios, while Friend, Blume, and Crockett [1] and the Wharton School study [7] found no convincing evidence of such a relationship.

of promotion and compliance, auditors' and legal fees, and the management fee. Brokerage commissions on portfolio transactions are not included in the expense ratio but are deducted before reporting the gross return. Load charges are not included among expenses.

A. Broker Incentives: Load versus Distribution Fees

There are significant differences in the incentives offered to brokers from load and distribution fees. Because distribution fees are paid out of net assets, brokers have an incentive to put their clients in funds with assets that are expected to experience rapid growth.[4] Such growth could come from several sources. The fund could be designated as growth oriented. Since such funds usually are in the upper range of the risk spectrum, brokers would be motivated to put investors into funds with high risk levels; however, since the fee comes from net assets, the broker's risk is equivalent to the investor's risk. Alternatively, growth could come from management intentionally withholding dividend and capital gain distributions. Brokers might tend to recommend such funds. Also, brokers would have an incentive to sell shares of funds that are growing rapidly because of increased sales. By contrast, load fund brokers who do not receive a 12b-1 fee have no direct personal gain from placing customers in growing funds.[5]

B. The Relative Cost of Load and No-Load Funds

The economic impact of the cost of load and no-load funds is different. It has often been said that "mutual funds are not bought—they are sold." This suggests that pressure created by load fund sales personnel induces consumers to purchase load funds even though equivalent gross performance can be obtained by no-load funds.[6] Since the public seems willing to bear the cost of load charges, this may create an incentive for no-load funds to exhibit a type of expense-preference behavior not unlike that observed in the mutual savings and loan industry and closely related to agency costs.

If no-load funds incur higher expense ratios, then investors with sufficiently long holding periods will prefer load funds, while those with shorter holding periods will choose no-load funds.[7] Since this type of clientele effect is an economically rational explanation for the use of both funds, it may be useful in explaining differences in expense ratios across funds.

C. Other Determinants of Expense Ratios

There are several potentially significant determinants of mutual fund expense ratios. Perhaps one of the most important is the size of the fund. Larger funds

[4] The maximum amount payable in distribution fees is specified in the prospectus as a percentage of net assets. This creates a pool of dollars that is directly related to the size of the fund. The pool is then distributed to brokers in an allocation agreed upon by the Board of Directors.

[5] This assumes the load charges of these funds are not higher than those of other comparable funds.

[6] See [1] and [5] for evidence that there are no significant differences in the performance of load and no-load funds.

[7] This assumes away any selling-pressure effects.

may be able to capture economies of scale. This in fact is the primary response of proponents of 12b-1 plans. The additional sales generated by the plan might enable the fund to actually reduce its per-share operating costs. If this hypothesis is correct, then the existence of a 12b-1 plan will lower a fund's expense ratio.

Another factor that might influence expense ratios is the age of the fund. We propose that a type of learning-curve effect might enable older funds to achieve greater operating efficiency.

The objective classification of the fund is also likely to produce differences in expense ratios. For example, funds that trade more actively to achieve their goals would generate greater operating expenses.[8]

Thus, to recap, we propose that size, age, objective, load versus no-load status, and the existence of a 12b-1 plan are factors that could explain cross-sectional differences in mutual fund expense ratios. We now turn to an examination of the data.

D. The Data

Data items on approximately three hundred mutual funds were collected for the years 1984 and 1985 from *Weisenberger's Investment Companies.* The funds chosen were obtained from Weisenberger's "Five Year Summary," section with the actual data items coming from the "Mutual Funds Panorama." The years 1984 and 1985 were chosen because they are the most recent and the number of funds using 12b-1 plans was quite small prior to that time.

The actual number of funds used in the two years' tests differed slightly because of missing data and deletions. Of 306 funds used in 1984, twenty-six had 12b-1 plans, with seventeen of those being no-load funds. Of the 292 funds used in 1985, fifty-five had 12b-1 plans, with twenty-nine of those being no-load funds. Approximately forty-three percent of the funds were no-load funds.

E. Variables and Model Specification

The proposed regression model is

$$E = a + b_1 SIZE + b_2 GROWTH + b_3 INCOME + b_4 AGE + b_5 LOAD + b_6 12B1 + e \quad (1)$$

Let r be the gross continuously compounded return, ε_L and ε_N be the continuously compounded expense ratio of load and no-load funds, s be the load charge, and H be the holding period. It can be shown that, if $\varepsilon_L < \varepsilon_N$, investors will prefer load funds if

$$H > -\frac{\ln(1 - s)}{\varepsilon_N - \varepsilon_L}.$$

Investors making periodic deposits will use load funds while they are young and switch to no-load funds as they get older and their holding periods are shorter.

[8] Recall that commissions on portfolio transactions are not included in expense ratios; however, more active trading will generate other related costs such as research and bookkeeping.

The variables are defined as follows:

E: The expense ratio.

SIZE: End-of-year net assets as reported. Because the effect of economies of scale may be nonlinear, we also examined this variable in logarithmic form.

GROWTH: A dummy variable that equals 1 if classified by Weisenberger's as having a *GROWTH* objective and 0 if not.

INCOME: A dummy variable that equals 1 if classified by Weisenberger's as having an *INCOME* objective and 0 if not. Firms with their objectives stated as *MAXIMUM CAPITAL GAINS* constitute the omitted class.[9]

AGE: Number of years since formation of the fund. As with *SIZE*, we examined this variable in logarithmic form.

LOAD: Load status where 0 = no load and 1 = load.[10]

12*B*1: Status of 12b-1 plan, where 1 = plan in effect and 0 = plan not in effect.

The above model is referred to as equation (1). Three additional regressions are also tested. Equation (2) is identical to equation (1), except that the natural log of *AGE* is used. Equation (3) differs only by the use of the natural log of *SIZE*, and equation (4) uses the natural log of both *AGE* and *SIZE*. The next section reports our findings.

II. Empirical Results

Table I presents the results of these tests. Equations (1) and (2) provided similar results both in 1984 and 1985, each explaining about one fourth of the variation in expense ratios. Better results were obtained in equations (3) and (4), with the coefficient of determination being close to fifty percent. The log of *SIZE* was negative and highly significant, suggesting that there are apparently substantial economies of scale. The *GROWTH* and *INCOME* dummy variables were also negative and significant. Since *MAXIMUM CAPITAL GAINS* was the omitted class, it, therefore, has the highest expense ratio. *GROWTH* funds have the second highest ratios, and *INCOME* funds have the lowest expense ratios. The results seem to be consistent with expectations. *MAXIMUM CAPITAL GAINS* funds would be likely to trade more frequently, while *INCOME* funds would tend to pursue buy-and-hold policies.

The *AGE*-variable effect was ambiguous. The coefficient was negative and

[9] These three general groups were constructed by combining several finer classifications. The *GROWTH* class included firms with objectives of growth, growth stability, growth and income, and growth income. The *INCOME* class consisted of firms with the objectives of income, income growth, income-growth stability, and income stability.

[10] Low-load funds were treated as load funds. A few funds had back-end loads or redemption fees. These were omitted from the sample.

Table I

Regressions of Mutual Fund Expense Ratios[a]

Variable	1984 Data Equation (1)	1984 Data Equation (2)	1984 Data Equation (3)	1984 Data Equation (4)	1985 Data Equation (1)	1985 Data Equation (2)	1985 Data Equation (3)	1985 Data Equation (4)
Intercept	1.222	1.424	1.800	1.946	1.165	1.298	1.780	1.845
	(27.73)	(17.29)	(32.37)	(25.62)	(24.42)	(15.03)	(29.65)	(23.05)
SIZE[b]	−.000	−.000			−.000	−.000		
	(−7.77)	(−7.91)			(−6.56)	(−6.61)		
$\log_e$ (*SIZE*)			−.144	−.144			−.143	−.143
			(−14.74)	(−15.07)			(−14.30)	(−14.43)
GROWTH	−.010	−.100	−.148	−.144	−.087	−.098	−.131	−.135
	(−2.46)	(−2.52)	(−4.35)	(−4.36)	(−2.02)	(−2.28)	(−3.68)	(−3.85)
INCOME	−.162	−.181	−.196	−.209	−.127	−.140	−.156	−.162
	(−3.68)	(−4.09)	(−5.32)	(−5.72)	(−2.73)	(−2.96)	(−4.08)	(−4.20)
AGE	−.003		−.002		−.003		−.001	
	(−2.89)		(−1.92)		(−2.94)		(−1.54)	
$\log_e$ (*AGE*)		−.090		−.060		−.068		−.031
		(−3.55)		(−2.87)		(−2.64)		(−1.46)
LOAD	−.038	−.044	−.016	−.022	−.058	−.058	−.029	0.028
	(−1.22)	(−1.41)	(−0.60)	(−0.83)	(−1.76)	(−1.74)	(−1.05)	(−1.04)
12*B*1	.053	.048	.085	.083	.173	.175	.159	.159
	(0.94)	(0.86)	(1.79)	(1.79)	(4.15)	(4.16)	(4.64)	(4.65)
R^2	.2440	.2582	.4741	.4912	.2479	.2434	.4967	.4963
Adj R^2	.2288	.2432	.4634	.4809	.2320	.2275	.4860	.4856
Obs.	306	305	306	305	292	292	292	292

[a] *t*-Statistics are in parentheses.

[b] Coefficients on *SIZE* were very small but highly significant; space limits prevent showing beyond the first three digits.

significant in 1984 but lost its significance in 1985. The *LOAD* variable was negative and not significant.[11]

In the 1984 regressions of equations (3) and (4), the 12b-1 dummy variable was positive and significant at a level of about 7.5 percent. The existence of a 12b-1 plan increased expenses by about 0.083 to 0.085 percent of net assets. In 1985, the 12b-1 dummy was positive and significant at better than the one percent level. The plan added 0.157 to 0.159 percent of net assets to the expense ratio.

III. Interpretation of the Results

Our tests examined a number of cross-sectional factors that should explain mutual fund expense ratios. Most of the proposed variables behaved in the expected manner. Since a 12b-1 plan would not be expected to affect the management of the fund, the only impact it could have would be on the expense ratio. If the plan offers economic value to shareholders, its benefits should outweigh its costs and the net effect should be a reduced expense ratio. Our evidence suggests that the plan is only a dead-weight cost. Whether time will produce any economic benefits is a subject for future research.

Why are investors willing to accept this cost? One reason is that the plan is still fairly new, and, despite much publicity in the financial press, most investors probably know very little about it, much less how to evaluate its economic impact. Even though the existence of the plan must be disclosed in the prospectus, it, like many other "fine-print" items, is frequently overlooked.

[11] We also conducted separate univariate tests of the difference between the average expense ratios of load and no-load funds. For 1984, the mean expense ratios were 0.99 percent (no load) and 0.92 percent (load), and the t-statistic was 2.07. For 1985, the means were 0.99 percent (no load) and 0.89 percent (load), with a t-statistic of 2.80. Using the formula in footnote 7, it would take almost 127 years for the return from a load fund to exceed that of an otherwise equivalent no-load fund using the 1984 expense ratios and eighty-eight years using the 1985 expense ratios. Thus, the difference in expense ratios does not seem to be a sufficient explanation for why some investors choose load funds. Moreover, the regression results were unable to discriminate among funds by their load status. For certain individual fund comparisons, however, the differences might be much greater.

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