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Mutual Fund Performance and Cash Inflows

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1. INTRODUCTION

THE BUSY, unsophisticated investor often turns to open-end management investment companies for dividend income, capital gains, or both. The growth of such companies, the 'mutual funds,' has been phenomenal. There were more than six hundred mutual funds with total asset value greater than \$55,000,000,000 in the first quarter of 1969 (*Fortune*), compared to total assets of \$447,959 at the end of 1940 (*Mutual Fund Fact Book*).

This study examines the relationship between net cash inflows and net performance of twenty mutual funds. The twenty mutual funds studied were categorized either as load funds (those mutual funds that charged a sales commission when an investor contracted to purchase mutual fund shares: an acquisition cost), or as no-load funds (the no-load funds did not charge a sales commission or redemption fee). Comparisons were made over an eight-year period from 1960 to 1967. Section II briefly discusses data selection, variables used, and the method of analysis. Section III discusses the results of the empirical tests and Section IV briefly discusses the implications of the results.

2. DATA SELECTION, VARIABLES AND METHODOLOGY

Ten no-load funds and ten load funds were analyzed. The primary investment objective of all twenty mutual funds was described in their prospectuses as capital appreciation. The ten no-load funds whose life cycles were the longest were chosen and ten load funds were chosen to represent the several asset size categories of the no-load funds. The chosen no-load funds comprised better than 90 per cent of the population of such funds in existence for the full eight years of the study. Four load funds were randomly chosen from a grouping with the largest net asset value; three were randomly chosen from those in the median range; and three were randomly chosen from the lower range of the load funds in existence from 1959 to 1967. The variables utilized in the simple correlation studies were the net cash inflows and net performance. Net cash inflows were defined as the proceeds in cash received by the mutual funds from investors who received capital shares in exchange, less the cost of the capital shares which investors redeemed to the mutual fund for cash, all in current dollars. Symbolically:

$$I_n = S - R$$

I_n = Net inflows

S = Sales of capital shares

R = Redemption of capital shares

In this study 'net performance' was defined as gross income plus realized capital gains plus unrealized capital gains less gross expenses (which included management's fee). Gross income included all dividends or interest received by the mutual funds from their investment during their fiscal year. Realized capital gains were the gains received by the funds from sale of securities. Unrealized capital gains ("Paper Profits") were the gains made on the portfolio holdings that were not sold at the end of the fiscal year. Unrealized capital gains were included in the measure of net performance for two reasons; first, an investor may redeem his shares on any day that the organized markets are open or 'in session' and, second, mutual funds traditionally publicize their net asset values which includes appreciation or depreciation of unrealized capital gains. The formula utilized to compute net performance was as follows:

$$P_n = I_g + K_r + K_{un} - E_g$$

P_n = Net performance

I_g = Gross income

K_r = Realized capital gains

K_{un} = Unrealized capital gains

E_g = Gross expenses.

Rational investors who invest in those funds whose primary objective is capital appreciation are assumed to expect a high return or superior performance. The study attempted to measure the extent to which growth and net performance were associated.

3. EMPIRICAL TESTS OF THE MODELS

The statistical study measured the degree of association between the net inflows and net performance of ten no-load and ten load mutual funds. The first correlation test covered the years 1960-1967 and the results are shown in Table 1. To be judged significant at the 0.05 level the correlation coefficients would have to be equal to or greater than 0.707. Only the no-load fund, American Investors Fund, Inc., showed a significant coefficient of correlation.

In an effort to eliminate the effects of a strong upward trend in the two series, a simple correlation of the relative first differences of net inflows and net performance was ascertained. The relative differences tend to show a more uniform dispersion over a period of time (SPURR and BONINI, 1967). Autocorrelation will therefore be reduced because each year's value will be more independent of the adjoining year (EZEKIEL and FOX, 1965). The correlation coefficients of the relative first differences are shown in Table 1. None of the correlation coefficients were significant at the 0.05 level. Only a no-load fund, Guardian Mutual Fund, Inc., approached significance at the 0.05 level.

The third simple correlation related net inflows in time period $(t - 1)$ to net performance in the succeeding time period (t) . The reasoning behind the use of lagged values is that mutual funds can obtain cash inflows in one quarter and not invest these inflows until the fund managers feel confident that the investment will return a profit to the fund. An example of this has occurred during the last five months of 1968 through the first quarter of 1969. As much as 10 per cent of the net asset value of several mutual funds was held in cash (*Fortune*, 1969).

Only one no-load fund, American Investors Fund, Inc., had a correlation coefficient that was significant at the 0.05 level as can be seen in Table 1.

TABLE 1. *Coefficients of Correlation for three studies of cash inflows and net performance*

| | <i>I</i> <i>Current</i> <i>Values</i> | <i>II</i> <i>First</i> <i>Differences</i> | <i>III</i> <i>Lagged</i> <i>Inflows</i> |
|--------------------------------------------------|---------------------------------------------|-------------------------------------------------|-----------------------------------------------|
| <i>No-Load Funds</i> | | | |
| American Investors Fund, Inc. | 0.95313* | - 0.24747 | 0.85702* |
| de Vegh Mutual Fund, Inc. | 0.15684 | 0.00408 | - 0.22336 |
| Energy Fund, Inc. | 0.68563 | - 0.11163 | 0.37189 |
| Guardian Mutual Fund, Inc. | 0.27937 | 0.62069 | - 0.53564 |
| Penn Square Mutual Fund | 0.65742 | - 0.07098 | - 0.43676 |
| Pine Street Mutual Fund, Inc. | - 0.26205 | - 0.25166 | 0.09432 |
| Scudder, Stevens & Clark Common Stock Fund, Inc. | 0.00320 | 0.00851 | - 0.16078 |
| Stein Roe & Farnham Stock Fund, Inc. | 0.07331 | 0.34365 | - 0.29680 |
| The Johnston Mutual Fund | 0.24107 | 0.53388 | 0.00487 |
| T. Rowe Price Growth Stock Fund, Inc. | 0.68943 | 0.03375 | 0.58053 |
| <i>Load Funds</i> | | | |
| American Mutual Fund, Inc. | - 0.61395 | - 0.02871 | 0.11612 |
| Channing Growth Fund | 0.22517 | - 0.23419 | 0.18845 |
| Eaton & Howard Stock Fund, Inc. | 0.07537 | - 0.06517 | - 0.01063 |
| Imperial Capital Fund, Inc. | - 0.48185 | - 0.07819 | - 0.46774 |
| Investors Variable Payments Fund, Inc. | 0.58326 | 0.14908 | 0.48320 |
| Massachusetts Investors Growth Stock Fund, Inc. | 0.38347 | 0.24088 | 0.10666 |
| • The Investment Company of America | 0.30931 | - 0.00561 | 0.43158 |
| The Putman Growth Fund | 0.03868 | - 0.21234 | 0.25257 |
| Twentieth Century Investors, Inc. | - 0.49910 | 0.18560 | 0.12623 |
| Wisconsin Fund, Inc. | - 0.29499 | - 0.20733 | - 0.21871 |

* Significant at the 0.05 level.

Two additional correlation studies were done. The first was a multiple linear correlation of net inflows and disposable personal income on the dependent variable, net performance. The multiple correlation coefficients of the twenty mutual funds are shown on Table 2. The correlation coefficients of three no-load funds exceeded the critical value. They were American Investors Fund, Inc., The Johnston Mutual Fund, Inc., and Energy Fund, Inc. Only one load fund, Twentieth Century Investors, Inc., showed a correlation coefficient higher than the critical value. The results suggest that other variables play a significant role in the closeness of the correlation between net inflows and net performance.

The second multiple correlation related net inflows and disposable personal income in the present time period to net performance in the succeeding time period. Table 2 shows four no-load funds with significant correlation coefficients. They were as follows: American Investors Fund, Inc., Guardian Mutual Fund, Inc., Scudder, Stevens & Clark Common Stock Fund, Inc., and Energy Fund, Inc. In addition, the correlation coefficients of two load funds exceeded the critical value. They were The Investment Company of America and Channing Growth Fund.

TABLE 2. *Multiple Correlation Coefficients for two studies of Net Inflows, Disposable Personal Income and Net Performance*

| | <i>I</i> <i>Current</i> <i>Values</i> | <i>II</i> <i>Lagged</i> <i>Values</i> |
|--------------------------------------------------|---------------------------------------------|---------------------------------------------|
| <i>No-Load Funds</i> | | |
| American Investors Fund, Inc. | 0.95466* | 0.88251* |
| de Vegh Mutual Fund, Inc. | 0.60612 | 0.48616 |
| Energy Fund, Inc. | 0.74851* | 0.76888* |
| Guardian Mutual Fund, Inc. | 0.41436 | 0.86419* |
| Penn Square Mutual Fund | 0.08462 | 0.73225 |
| Pine Street Mutual Fund, Inc. | 0.57552 | 0.44739 |
| Scudder, Stevens & Clark Common Stock Fund, Inc. | 0.37086 | 0.77213* |
| Stein Roe & Farnham Stock Fund, Inc. | 0.51714 | 0.54870 |
| The Johnston Mutual Fund | 0.76596* | 0.74487 |
| T. Rowe Price Growth Stock Fund, Inc. | 0.69396 | 0.66881 |
| <i>Load Funds</i> | | |
| American Mutual Fund, Inc. | 0.46535 | 0.33002 |
| Channing Growth Fund | 0.64835 | 0.80781* |
| Eaton & Howard Stock Fund, Inc. | 0.16340 | 0.46945 |
| Imperial Capital Fund, Inc. | 0.48709 | 0.47252 |
| Investors Variable Payments Fund, Inc. | 0.49340 | 0.56309 |
| Massachusetts Investors Growth Stock Fund, Inc. | 0.52048 | 0.36565 |
| The Investment Company of America | 0.63187 | 0.88087* |
| The Putman Growth Fund | 0.44266 | 0.50462 |
| Twentieth Century Investors, Inc. | 0.70718* | 0.59186 |
| Wisconsin Fund, Inc. | 0.47935 | 0.41688 |

* Significant at the 0.05 level.

4. IMPLICATIONS OF THE STUDY

This study has examined the degree of association between mutual fund performance and cash inflows, using samples of ten no-load funds and ten load funds. Three simple correlation analyses and two multiple correlation analyses were run. When current inflows and current performance were correlated, only a single no load firm showed a statistically significant degree of correlation. When relative first differences were correlated, no funds showed a significant relationship although one no-load fund approached significance. In the third simple correlation, inflows in a given period were correlated with performance in the previous period and again only one no-load firm showed a significant relationship. Two multiple correlation studies introduced disposable personal income as an additional variable. Several of the multiple correlation coefficients were statistically significant in each study but more than twice as many significant relationships appeared among the no-load funds than among the load funds.

Any conclusions based on this exploratory study must be considered very tentative. However, the results do suggest that there is a much weaker relationship between performance and growth among load funds than is the case with no-load funds. A possible explanation of this is the fact that load funds normally distribute their shares either through their own sales organizations or through underwriters who sell at a discount to dealers who in turn sell them

to the investing public. Fund salemen tend to 'push' particular funds and otherwise influence potential purchasers. Therefore, it is possible that cash inflows are more a function of the effectiveness of the fund's sales operation than its performance. Further research is clearly needed to investigate the relationships between performance and growth and to test various possible explanations for the observed relationships.

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