

Equity Fund Size and Growth: Implications for Performance and Selection

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Should individuals choose the largest or smallest equity funds for investment? This study explores the relationship of equity fund size to performance. Historical returns of large funds are found to be superior to their smaller peers. Yesterday's best performing funds tend to become today's largest funds as individuals invest heavily in response to the communications about the fund's past success. But the findings suggest that, once large, equity funds do not outperform their peers. Especially for funds in aggressive growth objectives, the advantages of being small appear to outweigh the disadvantages. For individual investors with aggressive growth objectives, a strategy of investing in smaller funds may thus be wealth maximizing.

I. INTRODUCTION

Equity fund size and growth are becoming increasingly critical considerations in the choice of funds. This paper documents that successful funds grow dramatically as investors react to favorable past performance. But as a fund grows, can it continue to outperform its peers? The findings in this paper suggest to individual investors that smaller funds, especially those within the more aggressive investment objectives, tend to outperform larger funds.

Advice on choosing funds is more relevant than ever for individuals who rely heavily on mutual funds to accumulate wealth. Both the mutual fund industry and the number of funds available are growing rapidly. The popularity of fund investing stems from the benefits of diversification. In addition, professional mutual fund management can generally trade stocks at favorable prices. Ippolito (1989, 1993, p. 42) concludes that mutual funds are "sufficiently successful in finding and implementing new information to offset their expenses."

To argue that the mutual fund industry is informationally efficient in the aggregate, however, ignores individual fund characteristics such as asset size. Funds can be enor-

mous; as of early 1996, Fidelity Magellan Fund has over \$40B in assets. At the same time, many other open-end funds have assets less than \$10M. Do large funds have systematic advantages over small funds that permit superior performance? Or, should individual investors rely on smaller funds for superior returns? To examine this issue, this paper studies the relationship of mutual fund performance and asset size. In particular, this research extends the work done in previous studies by focusing on the implications of fund size for individuals faced with selecting funds for investment.

The issue of asset size and fund performance has been examined by other researchers. Grinblatt and Titman (1989) study the performance of mutual fund portfolios over the period from 1975 to 1984. Mutual funds are ranked by asset size and then divided into quintiles. Using 1975 asset size, the authors find some evidence of abnormal performance in gross returns over a 10-year period (1975-1984) in the smaller asset-size quintiles, especially in the more aggressive fund objectives. Net of expenses, however, the returns of funds in smaller quintiles are not different from the returns of funds in larger quintiles. Droms and Walker (1994) find no relationship between fund size and performance in their study of international mutual funds. Droms and Walker (1994) use fund size as one of a number of explanatory variables for fund performance. They find that the coefficient for fund size is generally insignificantly different from zero for both unadjusted and risk-adjusted returns.

From these studies, the general inference is that asset size is a poor predictor of a fund's future performance. But does this conclusion mean that a fund's asset size is meaningless? A fund's current size may be related to its past performance. If investors rely on funds' past performance to infer how the fund will do in the future, then mutual fund historical performance will be highly relevant to investors' fund selections. Funds that have performed well, especially in the recent past, may thus attract significant investor attention.

Hendricks, Patel, and Zeckhauser (1993) document that mutual fund managers can have "hot hands" that allow them to outperform their peers in the short run. Grinblatt and Titman (1992) find that mutual funds can enjoy positive abnormal performance for periods up to five years of time. Patel, Zeckhauser, and Hendricks (1992) find that investors pour money into funds that have performed well recently, based on favorable press coverage and the positive advertisements made by the fund to the investing public. Based on evidence from surveys of individual investors who had recently made mutual fund purchases, Goetzmann, Greenwald, and Huberman (1992) and Capon, Fitzsimons, and Prince (1992) observe that recent investment performance is a critical input in fund selection. The result is that successful funds can change greatly in size over a relatively short period of time. One example is Twentieth Century's Ultra Fund. According to *Morningstar*, this aggressive growth stock fund grew in assets from \$458.3M in 1990 to \$9.85B in 1994.

Once attracted by a fund's recent success, new individual investors may benefit or be hurt by a fund's large size. Large funds have several structural and institutional advantages over small funds. For example, big funds can spread fixed overhead expenses, such as rent or salaries of administrative personnel, over a larger asset base. This economy of scale advantage could lead to large funds outperforming small funds after adjustment for risk. This is because additional expenses for overhead do not contribute directly to obtaining information that allows managers to execute trades at favorable prices (See Ciccotello & Grant, 1996).

Influential managers of big funds can obtain positions in lucrative investment opportunities not available to other market participants. For example, Smith (1994) reports that

managers at Fidelity Investments routinely are allotted shares in oversubscribed initial public offerings. Glosten and Harris (1988) suggest that managers of larger funds may be able to execute trades at more favorable spreads, given their powerful market position and large volume trading. Together, these institutional and cost advantages should lead to large funds outperforming small funds.

But big funds also present management challenges. Continuing to find worthwhile investment opportunities as the fund grows may strain the capabilities of even a top manager or management team. Phalon (1994) outlines the circumstances associated with the closing of the highly-successful SoGen International Fund. How much strain may depend upon the objective of the fund being managed. If more aggressive funds invest in smaller firms, then rapid asset growth may be more difficult to manage. Large asset size also reduces a fund's "nimbleness." The manager becomes less able to quickly move in or out of positions without attracting a great deal of attention. Managing the fund becomes like "maneuvering a battleship in a bathtub." Beating the market indexes becomes difficult as the fund itself grows to become a market proxy. These challenges support the assertion that funds can grow too big, and that optimal performance occurs in smaller funds.

This paper contributes to the existing research by offering individual investors insight regarding the relationship of fund performance and fund size. The findings suggest that, smaller funds, especially those within the more aggressive objectives, offer the best potential for superior returns. To illustrate these findings, the paper proceeds as follows: Section II describes the data and hypotheses. Section III presents the results and discussion. Section IV concludes and summarizes.

II. DATA AND HYPOTHESES

This study uses equity mutual fund data taken from several sources. They include *Alexander Steele's Mutual Fund Database*, *Wiesenberger*, and *Morningstar*. The paper's initial sample is contained in Steele and consists of 182 Aggressive Growth (AG) funds, 248 Long-Term Growth (LTG) funds, and 196 Growth and Income (GI) funds.¹ Mutual fund annual returns and descriptive statistics are evaluated over the period from 1982 through 1992. Descriptive data for the equity funds is summarized in Table 1. For this study, funds are classified by investment objective. The average 3-year beta² for the funds in each objective is shown to illustrate that as the fund risk objective moves from Growth and Income through Long-Term Growth to Aggressive Growth, beta increases monotonically, as expected. Table 1 also displays the differences in average fund expenses, turnover, and size among these three investment objectives. Many of the significant differences observed in Table 1 are not surprising. Larger funds tend to have lower expenses, lower turnover ratios, and be older, on average.

Using the sample from the *Steele* database, this paper first tests whether large funds have greater historical returns than their smaller counterparts. The hypothesis is as follows:

H1: Large funds should have greater historical returns than small funds.

Historical returns are relevant to individual investors as they are the basis for advertisement of performance.³ To test H1, funds are ranked within investment objectives on the

TABLE 1
Descriptive Comparison of Fund Variables (Whole Sample)

| | <i>Mean</i> | <i>SD</i> | <i>Sample Size</i> |
|----------------------------|-------------|-----------|--------------------|
| Aggressive Growth | | | |
| Assets | 325.96 | 622.32 | 182 |
| Beta | 1.12 | .28 | 182 |
| Expenses | 1.43 | .53 | 181 |
| Turnover | 118.00 | 216.98 | 167 |
| Years Incorporated | 11.75 | 10.21 | 180 |
| Long-Term Growth | | | |
| Assets | 544.68 | 1567.12 | 248 |
| Beta | 1.04 | .22 | 248 |
| Expenses | 1.28 | .57 | 248 |
| Turnover | 78.30 | 80.24 | 221 |
| Years Incorporated | 14.60 | 14.56 | 244 |
| Growth & Income | | | |
| Assets | 676.40 | 1674.40 | 196 |
| Beta | .91 | .17 | 196 |
| Expenses | 1.09 | .53 | 195 |
| Turnover | 59.25 | 95.63 | 175 |
| Years Incorporated | 18.90 | 20.03 | 194 |

Notes: This table contains mean values and standard deviations of fund variables. Included are tests for significant differences in the variables. Each of these individual parameters for each objective is significantly different from its counterparts at the 5% level. The only exception is the difference between the average asset size of the Long-Term Growth and Growth & Income objectives.

basis of 1992 asset size. Each set of ranked funds is then divided into quartiles and both 5-year (1987-1992) and 10-year historical (1982-1992) quartile returns within each investment objective are examined for significant differences.⁴ Large funds have become large for two reasons: (a) the value of the stocks in the fund has increased; and/or (b) the additions to the fund by investors have outstripped redemptions. The reasons for growth are complementary. Net additions to the fund have probably occurred because of the fund's superior historical performance. To examine the patterns of fund growth and past performance, the asset growth rates of the best and worst performers are studied for the 1982-1992 period.

As Patel, Zeckhauser, and Hendricks (1992) have observed, funds that have performed well attract large amounts of new capital from investors. But new investors entering the fund do not earn the fund's historical returns. These investors care about what will happen after they invest. To examine this issue, the paper tests whether asset size can predict future returns. The hypothesis is as follows:

H2: Small funds should have greater future returns than large funds.

To test H2, funds are ranked on the basis of historical (1982) asset size and divided into quartiles. Both 5-year (1982-1987) and 10-year (1982-1992) future returns for each quartile are then examined for significant differences. Funds are also ranked on 1987 asset size and 5-year (1987-1992) returns are evaluated. These tests are similar to those conducted by Grinblatt and Titman (1989). If small fund advantages such as nimbleness and ready investment opportunities dominate, then the smaller quartiles should outperform the larger. Such a finding would support H2. On the other hand, if economies of scale and other

institutional advantages dominate, then the future performance of larger funds should dominate that of smaller funds within an investment objective.

III. RESULTS AND DISCUSSION

A. Historical Returns

Table 2 separates funds within each risk objective into the smallest and largest quartiles based on 1992 asset size. All funds with 5 (10) years of performance data are included in the 5-year (10-year) results. The large-fund quartiles have superior historical returns, as predicted by H1. Significant differences are found mainly in the 10-year historical returns. Ten-year superior returns make attractive advertisement testimonials for funds seeking additional capital. These findings are consistent with the argument that successful funds tend to grow rapidly in size while poorly performing funds do not attract additional cash from investors at as rapid a rate.

To further examine the relationship between fund growth and historical performance, the best performing and worst performing funds in each investment objective over the past 10 years are identified. This process starts with finding the 15 best 10-year historical performers and the corresponding 15 worst performers in each investment category. These groups performance and asset growth are compared in Table 3. Table 3A shows the top and bottom performers' mean growth in each investment objective. The fund growth in the Aggressive Growth objective is a typical pattern. In that category, the mean percentage growth in assets for the top performers over the decade is 2622.6%. The corresponding mean 10-year asset growth for the bottom performers is 527.4%. A fund's asset value can

TABLE 2
Comparison of Mean Performance Values—Ranked on 1992 Asset Size
Quartile 1 (Smallest-Size) Vs. Quartile 4 (Largest-Size)

| | <i>Quartile 1</i> | <i>Quartile 4</i> | <i>Significance</i> |
|----------------------------|-------------------|-------------------|---------------------|
| Aggressive Growth | | | |
| 5-Year Return % | 113.4 | 131.3 | .070 |
| <i>N</i> = 134 | | | |
| 10-Year Return % | 216.0 | 297.1 | .051 |
| <i>N</i> = 62 | | | |
| Long-Term Growth | | | |
| 5-Year Return % | 104.7 | 117.1 | .086 |
| <i>N</i> = 166 | | | |
| 10-Year Return % | 229.4 | 325.1 | .000 |
| <i>N</i> = 97 | | | |
| Growth & Income | | | |
| 5-Year Return % | 94.0 | 99.2 | .233 |
| <i>N</i> = 137 | | | |
| 10-Year Return % | 243.0 | 301.9 | .001 |
| <i>N</i> = 82 | | | |

Notes: This table compares the mean total returns of the quartiles of funds with the smallest current asset size to the mean total returns of the quartiles of funds with the largest current asset size. All returns are in percentage terms; assets are in \$M. *N* is the number of funds with return data for each of the performance periods. *p*-values are reported for *t*-tests of equality between quartile returns. All performance periods end on December 31, 1992.

TABLE 3A
Asset Growth in the 10-Year Best and Worst Performers

| | <i>Top 15 Performers</i> | <i>Bottom 15 Performers</i> | <i>p-Value</i> |
|----------------------------|------------------------------|---------------------------------|----------------|
| Aggressive Growth | | | |
| 10-Year Return | 372.5 | 170.9 | .000 |
| 1982 Assets (\$M) | 65.0 | 181.6 | .157 |
| 1992 Assets (\$M) | 1094.3 | 444.8 | .149 |
| Percent Growth (raw) | 2622.6 | 527.4 | .033 |
| Percent Growth (new) | 2308.1 | 356.5 | .051 |
| Long-Term Growth | | | |
| 10-Year Return | 412.1 | 164.8 | .000 |
| 1982 Assets (\$M) | 146.2 | 116.9 | .524 |
| 1992 Assets (\$M) | 3124.8 | 401.9 | .075 |
| Percent Growth (raw) | 2645.2 | 863.5 | .085 |
| Percent Growth (new) | 2233.0 | 698.7 | .141 |
| Growth & Income | | | |
| 10-Year Return | 350.6 | 201.2 | .000 |
| 1982 Assets (\$M) | 299.3 | 103.2 | .201 |
| 1992 Assets (\$M) | 3190.3 | 220.4 | .025 |
| Percent Growth (raw) | 2378.5 | 253.3 | .009 |
| Percent Growth (new) | 2027.9 | 52.0 | .013 |

Notes: Table 3A compares the mean asset size and growth for the best performing funds over the period 1982-1992 with the asset growth of the worst performing funds over that period. Fifteen funds are chosen from each investment objective. Percentage growth (raw) considers the total growth in fund size over the decade. Percentage Growth (new) removes the fund's 10-year performance to examine the change in size based on new additions. *p*-values are for significant differences in *t*-tests. Table 3B lists the actual funds from each objective.

grow from either the appreciation of assets in the fund or net cash inflows from investors. The extreme differences in these growth rates cannot be explained by differences in investment performance. After removing the effects of 10-year fund performance from the samples, the differences in growth rates are still highly statistically significant, as a comparison of the percent growth (new) figures demonstrates.

These findings are consistent with the research of Patel, Zeckhauser, and Hendricks (1992), who find that successful funds receive large amounts of new investment capital. They are also in line with the results from surveys of individual investors done by Capon, Fitzsimons, and Prince (1992) and Goetzmann, Greenwald, and Huberman (1992) showing that recent fund performance is a key element in the fund selection decision.

B. Future Returns

Using current asset size and historical returns does not address the issue of whether asset size can be used by individual investors to predict future returns. To examine this issue, all funds with 5 (10) years of performance as of the end of 1987 (1992) are ranked on the basis of end-of-year 1982 asset size. Funds are also ranked on 1987 asset size and 5-year (1987-1992) performance is shown. All 5- and 10-year future returns quartiles are contained in Table 4.

Table 4 illustrates that investing in smaller asset size funds does not lead to superior future returns in the Growth & Income Objective. In this objective, 10-year returns are

TABLE 3B
Asset Growth in the 10-Year Best and Worst Performers

| | <i>Top 15 Performers:</i> | <i>Bottom 15 Performers:</i> |
|----------------------------|--|---|
| Aggressive Growth | Putnam OTC Emerging Growth AIM Constellation Acorn Twentieth Century Ultra SIT New Beginning Growth Putnam Voyager /A Neuberger Manhattan Keystone America-Omega Special Portfolios-Stocks Twentieth Century Growth Fortis Growth FPA Capital Quest for Value Fund Inc Salomon Brothers Opportunities Delaware Trend | Lord Abbett Developing Growth Security Ultra Vanguard Explorer Steinroe Capital Opportunities USAA Aggressive Growth Price New Horizons IDS Progressive Oppenheimer Target Prudential Gwth Opportunities (B) DFA US 9-10 Small Company IDS Discovery Fund Keystone S-4 Value Line Leveraged Growth Investors Research Scudder Development |
| Long-Term Growth | CGM Capital Development Fidelity Magellan Fidelity Destiny Plan 1 New York Venture AIM Weingarten Fidelity Contrafund IDS New Dimensions Guardian Park Avenue Sequoia Steinroe Special Phoenix Growth Berger One Hundred Janus Elfun Trusts Fortis Fiduciary | American Investors Growth Value Line Special Situations Merrill Lynch Special Value-A Oppenheimer American Growth MFS Capital Development American National Growth USAA Growth Eaton Vance Special Equity Security Action MSB A-C Pace (A) Safeco Growth Keystone S-3 United Vanguard |
| Growth & Income | Mutual Shares Mutual Qualified Merrill Lynch Phoenix-A Selected American Shares Windsor FPA Paramount Washington Mutual Fundamental Investors Dodge & Cox Stock Mutual Benefit Investment Company of America Lexington Corporate Leaders Vanguard Index Trust-500 John Hancock Sovereign Federated Stock Trust | Security Investment National Industries Philadelphia Gateway Index Plus Keystone S-1 TNE Growth Opportunities Value Line Provident Mutual Transamerica Growth/Income (A) Financial Industrial Trustees Commingled USA A-C Growth & Income A-C Comstock/A United Retirement Shares Winthrop Focus Growth/Income |

Note: See Table 3A notes.

nearly the same across all size quartiles. So far, these results are consistent with those of Grinblatt and Titman (1989). These results are not consistent with H2, that small funds would outperform large funds within a given risk objective in future periods.

TABLE 4
Comparison of Mean Performance Values Ranked on 1982/1987 Asset Size
Quartile 1 (Smallest-Size) Vs. Quartile 4 (Largest-Size)

| <i>Quartile</i> | <i>1</i> | <i>2</i> | <i>3</i> | <i>4</i> | <i>Significance of Return Comparisons</i> | <i>p-value</i> |
|-----------------------------------|----------|----------|----------|----------|---|----------------|
| <u>Aggressive Growth</u> | | | | | | |
| 1982-1987 | | | | | | |
| 5-Year Return % | 89.8 | 76.4 | 64.9 | 54.0 | Q1 vs Q2 | (.388) |
| 1982 Assets (\$M) | 10.2 | 29.3 | 62.7 | 240.5 | Q1 vs Q3 * | (.081) |
| <i>N</i> | (13) | (13) | (14) | (14) | Q1 vs Q4 ** | (.015) |
| | | | | | Q2 vs Q3 | (.400) |
| | | | | | Q2 vs Q4 | (.108) |
| | | | | | Q3 vs Q4 | (.370) |
| 1987-1992 | | | | | | |
| 5-Year Return % | 151.5 | 135.2 | 96.5 | 113.1 | Q1 vs Q2 | (.227) |
| 1987 Assets (\$M) | 11.8 | 45.7 | 114.0 | 450.8 | Q1 vs Q3*** | (.000) |
| <i>N</i> | (29) | (29) | (30) | (30) | Q1 vs Q4*** | (.004) |
| | | | | | Q2 vs Q3*** | (.000) |
| | | | | | Q2 vs Q4** | (.038) |
| | | | | | Q3 vs Q4* | (.060) |
| 1982-1992 | | | | | | |
| 10-Year Return % | 298.1 | 260.6 | 283.8 | 222.3 | Q1 vs Q2 | (.199) |
| 1982 Assets (\$M) | 10.2 | 29.3 | 62.7 | 240.5 | Q1 vs Q3 | (.690) |
| <i>N</i> | (13) | (13) | (14) | (14) | Q1 vs Q4** | (.025) |
| | | | | | Q2 vs Q3 | (.462) |
| | | | | | Q2 vs Q4 | (.169) |
| | | | | | Q3 vs Q4* | (.080) |
| <u>Long Term Growth</u> | | | | | | |
| 1982-1987 | | | | | | |
| 5-Year Return % | 82.5 | 79.3 | 86.5 | 82.4 | Q1 vs Q2 | (.682) |
| 1982 Assets (\$M) | 16.3 | 55.2 | 140.1 | 477.6 | Q1 vs Q3 | (.631) |
| <i>N</i> | (24) | (24) | (24) | (25) | Q1 vs Q4 | (.990) |
| | | | | | Q2 vs Q3 | (.434) |
| | | | | | Q2 vs Q4 | (.718) |
| 1987-1992 | | | | | | |
| 5-Year Return % | 131.2 | 108.9 | 102.2 | 104.3 | Q1 vs Q2** | (.012) |
| 1987 Assets (\$M) | 18.4 | 79.0 | 204.8 | 944.6 | Q1 vs Q3*** | (.000) |
| <i>N</i> | (37) | (37) | (37) | (38) | Q1 vs Q4*** | (.000) |
| | | | | | Q2 vs Q3 | (.402) |
| | | | | | Q2 vs Q4 | (.522) |
| | | | | | Q3 vs Q4 | (.725) |
| 1982-1992 | | | | | | |
| 10-Year Return % | 277.1 | 264.8 | 278.4 | 282.9 | Q1 vs Q2 | (.537) |
| 1982 Assets (\$M) | 16.3 | 55.2 | 140.1 | 477.6 | Q1 vs Q3 | (.958) |
| <i>N</i> | (24) | (24) | (24) | (25) | Q1 vs Q4 | (.773) |
| | | | | | Q2 vs Q3 | (.615) |
| | | | | | Q2 vs Q4 | (.448) |
| | | | | | Q3 vs Q4 | (.866) |
| <u>Growth & Income</u> | | | | | | |
| 1982-1987 | | | | | | |
| 5-Year Return % | 99.7 | 96.0 | 89.3 | 98.6 | Q1 vs Q2 | (.654) |
| 1982 Assets (\$M) | 11.5 | 51.5 | 157.5 | 777.0 | Q1 vs Q3 | (.225) |
| <i>N</i> | (20) | (20) | (20) | (21) | Q1 vs Q4 | (.890) |
| | | | | | Q2 vs Q3 | (.427) |
| | | | | | Q2 vs Q4 | (.723) |
| | | | | | Q3 vs Q4 | (.232) |

(continued)

TABLE 4 (Continued)

| Quartile | 1 | 2 | 3 | 4 | Significance of Return Comparisons | p-value |
|----------------------------|-------|-------|-------|--------|--|---------|
| Growth & Income | | | | | | |
| 1987-1992 | | | | | | |
| 5-Year Return % | 105.0 | 92.5 | 91.3 | 93.4 | Q1 vs Q2 | (.172) |
| 1987 Assets (\$M) | 16.0 | 66.3 | 207.7 | 1399.3 | Q1 vs Q3 | (.134) |
| <i>N</i> | (29) | (30) | (30) | (30) | Q1 vs Q4 | (.203) |
| | | | | | Q2 vs Q3 | (.775) |
| | | | | | Q2 vs Q4 | (.854) |
| | | | | | Q3 vs Q4 | (.612) |
| 1982-1992 | | | | | | |
| 10-Year Return % | 278.3 | 268.7 | 267.7 | 283.0 | Q1 vs Q2 | (.567) |
| 1982 Assets (\$M) | 11.5 | 51.5 | 157.5 | 777.0 | Q1 vs Q3 | (.555) |
| <i>N</i> | (20) | (20) | (20) | (21) | Q1 vs Q4 | (.731) |
| | | | | | Q2 vs Q3 | (.959) |
| | | | | | Q2 vs Q4 | (.379) |
| | | | | | Q3 vs Q4 | (.380) |

Notes: *, **, and *** connote significance at the 10%, 5%, and 1% levels, respectively.

This table compares the mean total returns of the quartiles of funds with the smallest asset size to the mean total returns of the quartiles of funds with the largest asset size. For the 1982 size rankings, both the 5-year (1982-1987) and the 10-year (1982-1992) returns are examined. For the 1987 size rankings, the 5-year (1987-1992) returns are examined. All returns are in percentage terms; assets are in \$M. *N* is the number of funds in each quartile. *p*-values are reported for *t*-tests of equality between quartile returns.

But in support of H2, the results do show strong indications that smaller funds outperform their larger counterparts in the Aggressive Growth category. Superiority is evident in both the 5- and 10-year returns. There is also some evidence of small fund superiority in the Long-Term Growth Objective. Unlike Grinblatt and Titman (1989), these significant differences are net of expenses. In further support of the superiority of small funds in this objective is the calculation of the increased wealth an investor could achieve by rebalancing her portfolio every 5 years to include only the smallest quartile of funds at that time. Table 5 illustrates the results of starting in 1982 with an investment of \$10,000 in each quartile of each investment objective, equally spread among the funds in each quartile. The portfolio is then reinvested in 1987 in the funds in each quartile at that time. As of 1992, this portfolio would have been worth \$47,735 had it been invested in the smallest fund-size

TABLE 5
Results of a \$10,000 Investment in 1982 in Each Size Quartile.
Quartile 1 (Smallest-Size) Vs. Quartile 4 (Largest-Size)

| Quartile | 1 | 2 | 3 | 4 |
|-------------------|----------|----------|----------|----------|
| Aggressive Growth | \$47,735 | \$41,489 | \$32,403 | \$32,817 |
| Long-Term Growth | \$42,194 | \$37,456 | \$37,710 | \$37,264 |
| Growth & Income | \$40,939 | \$37,730 | \$36,213 | \$38,409 |

Notes: Assume an original investment portfolio on December 31, 1982 of \$10,000 in each quartile of each investment objective, equally weighted among the funds in each quartile. After 5 years, the portfolio is reinvested to be equally weighted amongst the funds that are in that same size quartile at that time (1987). At the end of 1992, the investments in the respective quartiles would be worth the following. These calculations are based on the return percentages presented in Table 4.

quartile of the Aggressive Growth Objective versus \$32,817 for an investment in the largest fund-size quartile of that objective.

The findings support the argument that more aggressive funds have a smaller optimal size than less aggressive funds. Managers of aggressive funds must often invest in smaller, lesser-known firms to achieve their objectives. Finding these "diamonds in the rough" may become more difficult as the fund grows. A random sample of 20 of the funds in each investment category supports the assertion that aggressive growth funds invest in smaller, less-known firms. Using *Morningstar*, the median market value of the stocks that each of the 20 funds holds as an investment is determined. Next the median of these individual fund medians is computed for each investment objective. For the Aggressive Growth Objective, the median market value of stocks in the funds is \$908M, for the Long-Term Growth Objective, \$3.68B, and for Growth and Income Objective, \$6.88B. Superior performance in these smaller, aggressive growth funds thus attracts cash inflows thus making the achievement of superior returns in the future harder to achieve.

Asset growth is easier to manage in less aggressive fund objectives. Additional cash contributed by investors may be easier to employ as these less aggressive funds generally invest in larger, more studied firms. Having more cash may permit them to take larger stakes in these firms or add to their portfolio without a great deal of additional research. More aggressive funds, on the other hand, may find growth more of a research challenge as they are investing in smaller, less known firms.

Regarding fund nimbleness, managers with aggressive objectives may have to engage in more trading to stay on top of changing technologies and trends in emerging industries. Table 1 shows that turnover is positively correlated to risk objective. For aggressive funds, growing larger impedes a manager's ability to move quickly without attracting attention.

In sum, the evidence suggests that current size offers some insight into future returns, but only with regard to the more aggressive funds. For investors with aggressive objectives, smaller funds offer the better potential for superior returns. This is a new finding previously undocumented in the literature. Grinblatt and Titman (1989) find superior future returns in smaller aggressive growth funds, but not net of expenses. The returns here are net of expenses. For less risky fund objectives, the findings parallel those of Grinblatt and Titman (1989) and Droms and Walker (1994).

IV. SUMMARY AND CONCLUSIONS

This paper builds upon existing research to provide a framework for individual investor consideration of fund size in the selection of mutual funds. Superior historical returns are largely found in today's largest funds. Funds grow based mainly on new investments made in response to favorable communications about superior performance. To attempt to use fund size to predict future returns, however, is not useful unless investors have aggressive growth objectives. These investors should choose smaller funds. This is an intuitive result, as a flood of new cash presents more problems than opportunities for managers with aggressive growth objectives. For funds in Growth and Income Objectives, on the other hand, the evidence supports the argument that there is no systematic relationship between fund size and future performance.

Unfortunately, for individual investors seeking superior returns, investing in the funds with the best historical performance is not the answer. Yesterday's best performers are today's largest funds. To achieve superior returns, the individual investor must find the "next Magellan." Expecting the current-day "Magellans" to systematically outperform their peers appears to be unrealistic.

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NOTES

1. *Steele* and *Morningstar* are commercially available, computer-based sources of mutual fund information. Both include annual returns, which are the basic returns periods studied. From the original *Steele* database, a total of 26 funds (10 in AG, 8 in LTG, and 8 in GI) are closed (as of December 31, 1992) to new investors. This paper focuses on size and return, and does not drop these funds from the sample or examine them separately. Despite their closure, they still have an asset size and existing investors are generally permitted to continue to contribute (and withdraw) cash from the fund. Several of the "closed funds," such as Acorn, also reopened periodically to new investors during the return periods studied. This paper does not remove any merged funds in the database from the sample. The resulting survivorship bias has previously been found to be very small by Grinblatt and Titman (1989).

2. Individual betas for each fund are computed for the most recent 3-year period using the Standard and Poors 500 index as the proxy for the market.

3. One common adage given to individual investors is to "pick a fund with a good track record." Fund management realizes this. It is common to see advertisements similar to: "The XYZ fund is ranked number one in its category over the period from January 1, 19xx to December 31, 19xx."

4. The market model is not explicitly used for risk adjustment here. As Ippolito (1993) has observed, the inconsistent results of prior mutual fund studies are mainly due to the selection of the market portfolio. As Roll (1977) argues, the true market portfolio cannot be determined. The paper relies on fund risk objective to classify funds. Within each risk objective, three-year betas are tested for each quartile to assess whether risk bias is driving results. None of the quartile betas are significantly different. See Ciccotello and Grant (1996). When samples have sizes not equally divisible by four, the "extra" funds are assigned to the largest asset-size quartile first.

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