

SELECTION OF MUTUAL FUNDS: RECENT RESEARCH IN THE JOURNAL OF FINANCE

Fiduciaries seek to invest in winning mutual funds and avoid the losers. But is there a selection process that can identify above average mutual fund managers? Questions relating to the selection process include:

- ⇒ Does an MBA degree help fund managers achieve better results?
- ⇒ Will funds receiving large cash inflows perform better or worse than average over the following year?
- ⇒ Can a select group of mutual funds consistently evidence superior performance?
- ⇒ Do fund advertisements indicate that the advertised fund's manager possesses superior skill?
- ⇒ What data should fiduciaries review to pick good funds and implement winning portfolio strategies?

Several recent articles in the *Journal of Finance* report on academic research into these issues. Fiduciaries increasingly rely on independent data sources, such as Morningstar, Lipper and Standard & Poors, to justify and document fund selection and retention decisions. These data sources provide independent quantitative and qualitative information. The results from the academic research should provide insight into whether or not this independent information is in fact useful.

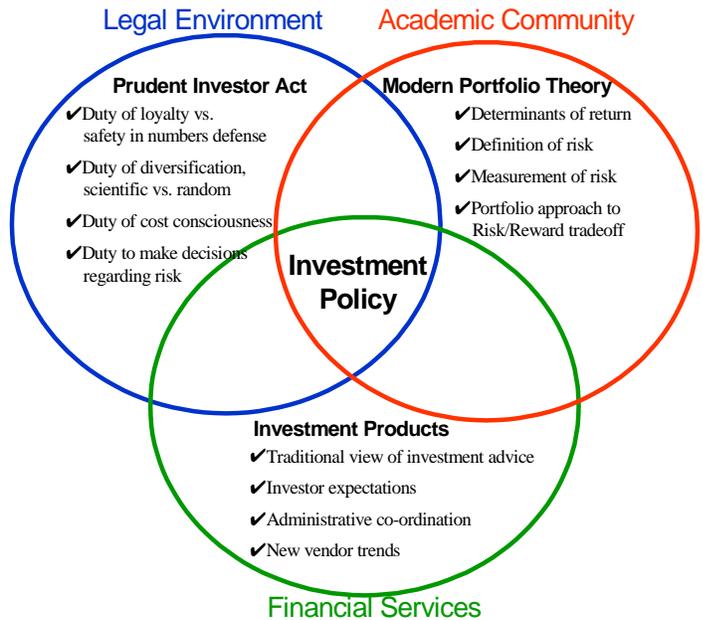
Often, the fiduciary seeks a well-known fund with a good track record generated by a veteran fund manager. Such a fund is likely to be popular with participants and beneficiaries, and furthermore, it seems intuitive that these common-sense guidelines should produce good results.

This issue of *Fiduciary Forum* summarizes key findings from three recent articles:

- ⇒ "Are Some Mutual Fund Managers Better Than Others? Cross-Sectional Patterns in Behavior and Performance?"
- ⇒ "Truth in Mutual Fund Advertising: Evidence on Future Performance and Fund Flows;" and,
- ⇒ "Is Money Smart? A Study of Mutual Fund Investors' Fund Selection Ability."

ARE SOME MUTUAL FUND MANAGERS BETTER THAN OTHERS?

Judith Chevalier (University of Chicago) and Glenn Ellison (MIT) are the authors of the first essay on mutual fund managers. They point out that retail financial magazines, such as *Forbes*, *Fortune* and *Business Week*, frequently profile top investment managers. Similarly, other media, such as financial



talk shows, speculate about implications of changes in fund management. Given the attention devoted to the cult of the manager, Chevalier and Ellison think it reasonable to ask "whether some managers are indeed better than others."¹

To answer this question, we need to determine whether a fund manager can demonstrate persistently superior performance (known as the "hot hand" phenomenon). Evidence on the degree of performance "heat" is mixed. Burton Malkiel, former chair of the economics department at Princeton, authored a well-known 1995 study suggesting that the hot hand phenomenon was operative during the 1970s but subsequently disappeared. Other studies find weak evidence that some managers consistently outperform their peer group over only relatively short planning horizons (one to three years), and stronger evidence that managers with below average returns tend to consistently underperform. Expressed differently, hot funds tend to cool off quickly, while cold funds tend to stay in the deep freeze. A University of Chicago study concludes that the persistency of hot or cold performance is attributable to fund expenses, not to superior stock selection and market timing ability. Funds with high expense ratios tend to underperform.² This study is part of a growing body of academic literature that attributes superior performance to rigorous cost control, not superior investment skill.³ A preponderance of research indicates that even top managers have great difficulty beating objective market benchmarks.

(Continued on page 2)

SELECTION OF MUTUAL FUNDS

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Tracking Managers, Not Funds

Chevalier & Ellison, however, tackle the problem from a different angle. They examine a sample of 492 managers who had sole responsibility for a Growth or Growth and Income mutual fund for at least some part of the period from 1988 through 1994. They focus on the manager rather than on the fund, because funds change managers frequently (18% of funds changed managers during the 1993-1994 period). Consequently, "hot" managers may migrate from fund to fund, seeking better compensation or a more compatible organization. Therefore, they present a cross-section of *manager* performance rather than a cross-section of *fund* performance to determine whether managerial ability actually exists. Specifically, they seek to ascertain if winning managers have identifiable characteristics that fiduciaries can use to increase their chances of choosing successful funds.

Distinguishing Between Luck and Skill

Discerning ability, however, is not a trivial task. A fund might evidence investment success for numerous reasons not attributable to the manager's skill. These include:

- ⇒ Risk (funds that take more risk are expected to generate higher returns);
- ⇒ Investment style (in some periods growth stocks outperform value stocks, in other periods the converse is true);
- ⇒ Investment constraints (in some periods, small company stock funds do better than large company stocks); and
- ⇒ Expense factors (some funds are less handicapped by high costs).

The authors statistically adjust the raw data to distinguish skill from random variance. Furthermore, they exclude sector funds and international funds from their study. The performance results confirm the mainstream academic conclusion that, after expenses, the average manager does not outperform a comparable benchmark. Overall, the managers earn just 99.50% of the mar-

ket return during the period. However, the dispersion of manager returns is high (standard deviation of excess returns equals 8.45% per year). In other words, the managers that do well do really well, and the managers that do poorly tank. Consequently, there may be an identifiable subset of managers who can consistently deliver superior performance. Do members of this subset share common characteristics that can be recognized by the astute investor?

Matching Performance to Manager Characteristics

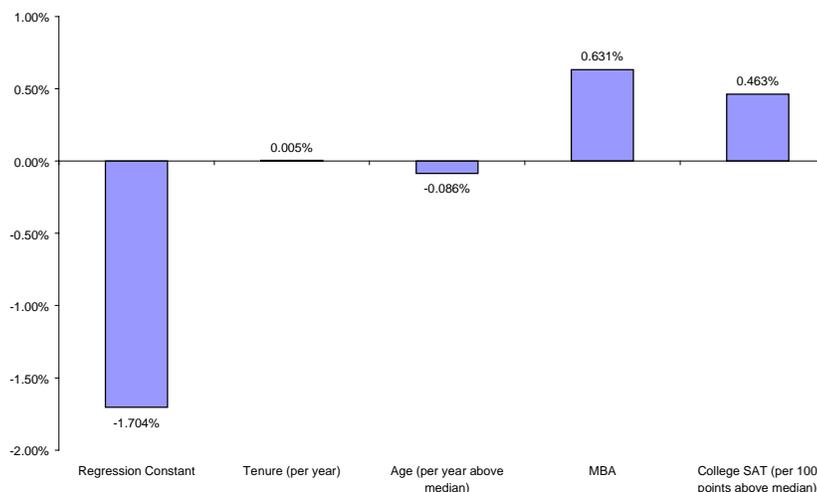
Chevalier & Ellison find that readily available databases list manager characteristics, such as age, tenure, college attended, and whether the manager has earned an MBA. The authors regress these traits against investment performance to determine which traits can be associated with investment success. Their findings enable them to test various hypotheses: for example, is a veteran (older) manager who is an Ivy League school alumnus with an MBA likely to outperform a younger manager who is a Southeastern Conference school alumnus without an MBA?

In the chart below, the authors report the following results from a regression of excess returns (return differential between manager returns and returns of the aggregate U.S. stock market) against a set of manager characteristics.

Older Managers Underperform

These results suggest that, on average, managers significantly underperform the market (regression constant = -170.4 basis points per year). Manager tenure is largely irrelevant

Manager Characteristics That Influence Fund Returns



(Continued on page 3)

SELECTION OF MUTUAL FUNDS

"...a manager who attended the 4th highest SAT score school in our sample, Princeton (composite 1355), is expected to outperform a manager from the mean school in our sample, University of Florida (composite 1142), by about one percentage point [100 basis points] per year."

(return increases only ½ of a basis point per year of manager tenure). Older managers tend to underperform. Managers give up 8.6 basis points for each year that their age exceeds the average manager's age (44). Apparently, the myth of the savvy market veteran is not well founded. However, older managers also tend to run funds with higher expense ratios. After adjusting for fund expense differentials, age ceases to be a statistically significant predictor of manager skill. Nevertheless, the data indicates that a 30-year-old manager can be expected to outperform a 55-year-old manager by approximately 100 basis points per year, after expenses.

Managers With MBAs Outperform--Maybe

On average, managers with MBAs add about 63 basis points in yearly return. However, MBA managers also tend to run riskier funds. After risk-adjusting returns, the annual MBA advantage drops from 63 basis points to 4, indicating that an MBA has no signaling value for the presence or absence of manager skill.

Top Managers Come From Top Schools

The final characteristic is the average SAT score achieved by attendees of the manager's undergraduate college. Surprisingly, this coefficient retains its statistical significance and may, in fact, be a predictor of skill at a high confidence level. As the authors point out:

"...a manager who attended the 4th highest SAT score school in our sample, Princeton (composite 1355), is expected to outperform a manager from the mean school in our sample, University of Florida (composite 1142), by about one percentage point [100 basis points] per year."

The authors speculate as to whether this is due to a better education, a smarter individual, better social networking opportunities at prestige schools, or greater propensity for high SAT school alumni to work for low-expense fund families. Given the current state of the data, no definitive answer is possible.

Can managers from high SAT school beat the market? The average mutual fund earns back only about 75% of the expenses that it charges to investors. The authors find weak evidence that high SAT school managers can beat the market, although the predicted outperformance is so small that it is not significantly different from zero even when considering a manager from a school with the highest SAT scores (composite 1420) in the sample. It is more important to find the subset of funds with low expenses. Reviewing funds in the lowest

quartile of expenses, the authors note that graduates from schools with high SAT scores manage approximately 14% of these funds. Although the authors state that the predicted outperformance of this group is statistically significant at the 95% confidence level, they add: "We do not want to emphasize these results...because they involve making predictions away from the sample mean while maintaining the assumption of linearity." While the data suggests that a small subset of managers may exhibit stock-picking ability, there are many other possible explanations that could account for the analytical results. Therefore, the authors cannot conclude that there is an identifiable subset of characteristics that the investor can identify as predictors of above average manager skill.

TRUTH IN MUTUAL FUND ADVERTISING

The authors of the second article also study the issue of luck vs. skill in investment management.⁴ P.C. Jain of Tulane University and J.S. Wu of the University of Rochester study a sample of 294 mutual funds that advertised in *Barron's* or *Money* magazine from July 18, 1994 through June 30th 1996. Additionally, they identify and study a subset of 117 funds that advertised in two or more consecutive quarters.

On July 12, 1994 the Securities and Exchange Commission (SEC) approved new mutual fund advertising guidelines requiring funds to report performance over one, five, and ten year periods, ending with the most recent calendar quarter. Previously, funds could (and did!) select arbitrary time periods for reporting performance, such that the consumers saw ads from several funds, each touting that they were the top performer in their class.

Jain and Wu posit that mutual fund companies tend to advertise funds that exhibit superior track records. Since the SEC guidelines impose uniform reporting standards, funds advertising on or after July 18, 1994 should be top performing funds (fund companies are unlikely to choose to advertise funds that have performed poorly). By tracking the performance of funds *after* the advertisement appears in print, the authors hope to determine the likelihood of continued above-average performance. If above-average performance is attributable to management skill, funds should continue to do well after the ad runs. Likewise, if investors believe that top performance will continue, these funds should attract increased cash flows.

(Continued on page 4)

SELECTION OF MUTUAL FUNDS

Previously, funds could (and did!) select arbitrary time periods for reporting performance, such that the consumers saw ads from several funds, each touting that they were the top performer in their class.

Are Advertised Funds Top Performers?

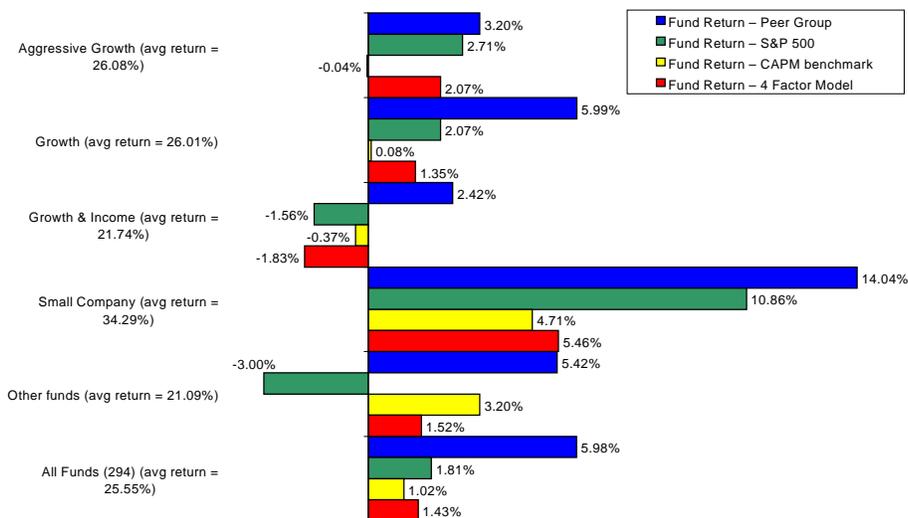
Initially, the authors wish to confirm that the pre-advertisement performance of the funds evidences relative superiority. Funds are grouped by investment objective, as reported by Morningstar. Sector and foreign funds are excluded. The authors compare the pre-advertisement performance of each investment category group to four benchmarks:

- 1) Peer Group Benchmark: the average results for the funds within the Morningstar category. The authors note that it should be easy for the funds to beat this benchmark because the average fund typically underperforms objective market-oriented benchmarks;
- 2) Index benchmark: the S&P 500 index;

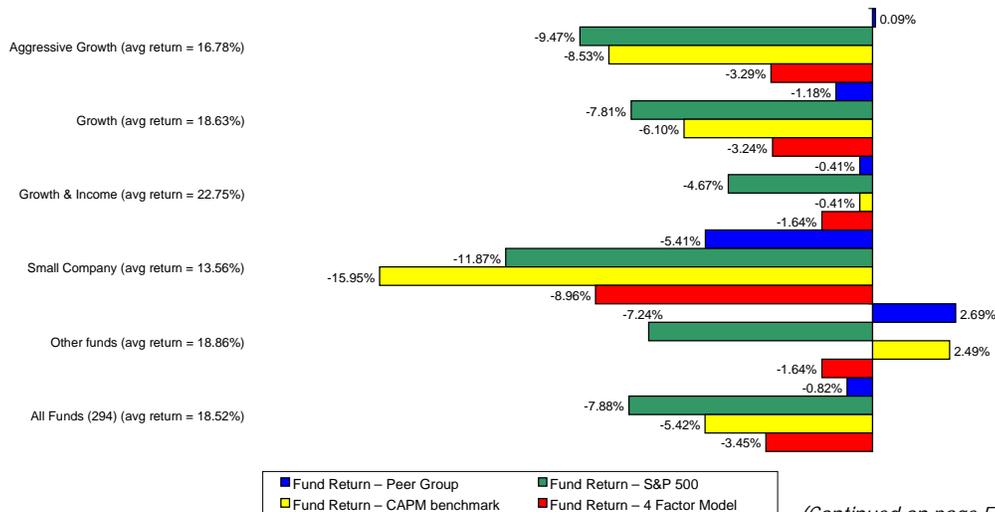
- 3) A capital asset pricing model (CAPM) benchmark adjusted for the risk-free rate and designed to indicate positive or negative alpha (a risk-adjusted performance measurement statistic); and,
- 4) A four-factor benchmark designed to match the return of the fund against the returns of portfolios reflecting four explanatory factors: (a) Market exposure (market return less risk free rate); (b) Investment Style (growth or value selection approach); (c) Size (small or large cap orientation), and (d) Momentum (sensitivity to a momentum factor).

The following charts present the one-year results (pre-advertisement and post-advertisement) of the author's comparative tests for the full 294-fund sample:

Preadvertisement Relative Returns for Various Fund Groups



Postadvertisement Relative Returns for Various Fund Groups



(Continued on page 5)

SELECTION OF MUTUAL FUNDS

Hot Funds Cool Down

Note that in the pre-advertisement chart, the advertised funds generally plot to the right of the vertical axis. Based on these results, the authors conclude that, during the preadvertisement period, the sample group generally outperformed the various benchmarks. Conversely, the advertised funds generally plot to the left of the vertical axis in the postadvertisement chart. This would indicate that the sample funds underperform after the advertisements are published.

The authors note that of the 294 funds in the sample, 246 did not experience manager turnover during the subsequent year; and, therefore, the substantial reversal in relative investment performance cannot be attributed to manager turnover. Given their results, they conclude: "...that the past superior performance of the advertised funds cannot be attributed to superior skills on the part of the fund managers and there is no persistence in performance." This conclusion has significance for the fiduciary who bases fund selection/retention decisions primarily on criteria such as "brand-name" products or past track record. It would seem that, absent further investigation, reliance on these criteria is neither legally defensible nor academically sound.

Advertising Attracts Investors

Does advertising work? To answer this question, the authors form control groups of funds within each investment category. The control groups exhibit characteristics similar to the advertised funds (including top performance) during the pre-advertisement period. Thus, the primary difference between the sample group and the control group is the presence of ads in *Money* and *Barron's*. Apparently, during the period of the study, advertising was very successful in attracting new money: "...inflows to the advertised funds are about 20 percent larger than those for the nonadvertised funds with similar characteristics." This result suggests some degree of naiveté on the part of investors. It seems that performance advertising is effective despite the fact that the investor's reliance on past performance is misplaced.

IS MONEY SMART?

Is Money Smart? This is the question posed by Lu Zheng of the Yale School of Management.⁵ Zheng notes that many investors conduct intensive study of current and historical information about mutual fund performance prior to selecting mutual funds for their portfo-

lios. Zheng's study "investigates whether investors' purchasing and selling decisions are able to predict funds' future performance, and whether investors are smart in selecting funds." Whereas the previously discussed research papers focus on whether managers possess superior stock selection ability, Zheng focuses on the question of whether investors possess fund selection ability. Zheng divides the question into two parts:

- 1) The "smart money" effect: whether investors are smart *ex ante*, in that they invest more money in funds that will perform better; and,
- 2) The information effect: whether investors' moves have information that can be used to make abnormal returns. The information effect asks whether an investor who studies where other investors are putting their money can use this information to select winning funds.

To test whether money is smart, Zheng forms eight benchmark portfolios. Each portfolio is constructed from information about mutual fund cash flows as of the end of the immediately preceding quarter. Portfolios are formed at the beginning of the next day (i.e. start of the current quarter) and are held throughout the quarter. The process of quarterly reconstituted portfolios continues throughout the period January 1970 to December 1993. Sector funds, international funds and balanced funds are excluded. All in all, the study tracks the results of 13,944 "fund years." Sales loads and other redemption costs that investors would incur from active trading are ignored.

The eight benchmark portfolios track the new quarterly cash flows (i.e. the allegedly "smart money") and are constructed as follows:

- ⇒ Portfolio 1: Money (quarterly cash flows) invested equally in all available funds;
- ⇒ Portfolio 2: Money invested in all available funds, weighted by each fund's current total net assets (i.e. larger funds get more money than smaller funds);
- ⇒ Portfolio 3: Money invested equally in funds with positive cash flow;
- ⇒ Portfolio 4: Money invested equally in funds with negative cash flow;

...the advertised funds generally plot to the left of the vertical axis in the postadvertisement chart. This would indicate that the sample funds underperform after the advertisements are published.

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(Continued on page 6)

SELECTION OF MUTUAL FUNDS

- ⇒ Portfolio 5: Money invested in funds with positive cash flow, with investment weighted by the fund's cash flow;
- ⇒ Portfolio 6: Money invested in funds with negative cash flow, with investment weighted by the fund's cash flow;
- ⇒ Portfolio 7: Money invested equally in funds with above-median cash flow; and.
- ⇒ Portfolio 8: Money invested equally in funds with below-median cash flow.

The negative results for portfolios one and two (the control portfolios) are consistent with the other academic studies indicating that the average actively managed fund generates below market results for investors. Portfolios 3, 5 and 7 (the positive cash flow portfolios) do not appear to generate significantly better results than the market as a whole. Consequently, the study shows little evidence that money is smart.

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Does Short-Selling Make a Difference?

However, Zheng considers what results might be if investors were allowed to short-sell the negative cash flow portfolios while, simultaneously, maintaining long positions in the positive cash flow portfolios (i.e. a long-short portfolio position). If such a strategy were possible, the annual results would be as presented on the following page.

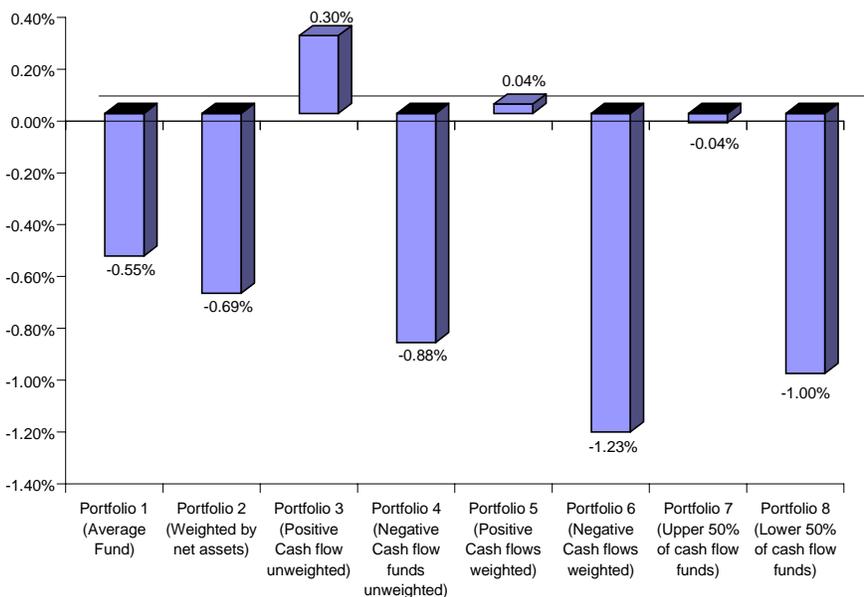
Portfolios 1 and 2 are control portfolios, while portfolios 3 through 8 are cash flow portfolios that are constructed based on market signals as to where investors are directing their money. Portfolios 3, 5, and 7 are positive cash flow portfolios and portfolios 4, 6, and 8 are negative cash flow portfolios.

General Study Results

So how did the investors do? Results are calculated by subtracting the return of the general market (as measured by a value-weighted portfolio of all stocks listed on the Center for Research in Security Prices database) from that of each benchmark portfolio. Incremental returns are reported on an annualized basis; positive excess returns indicate investor success while negative returns indicate inferior performance.

The excess returns on the long-short strategy are statistically significant and therefore provide evidence of investor ability to select funds by moving away from the poor performers and moving towards the good performers. However, because the SEC prohibits short sales of mutual funds, forming an investment program based on long-short strategies is impossible. Therefore, Zheng concludes that there is no exploitable information effect that will help the investor to achieve above average returns by following a cash flow tracking sys-

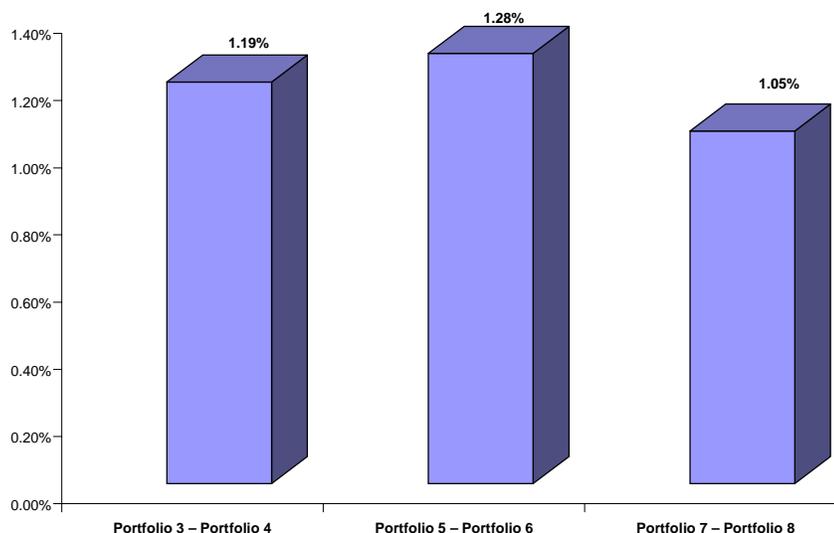
Incremental Annualized Returns for Various Portfolio Strategies



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SELECTION OF MUTUAL FUNDS

Annualized Returns for Long/Short Portfolio Strategies



Zheng sounds a theme that is present in the other two Journal of Finance articles—although an informed mutual fund investor may be able to beat the average fund, the average fund does not beat the market.

tem. [Even if the strategy were exploitable, investors could not know cash flow results quickly enough to formulate accurate quarter-by-quarter portfolios].

Diminishing/Negative Returns from Chasing Cash Flows

There is an interesting pattern in the results for the eight portfolios. Investment in positive cash flow funds equally weighted over the entire subpopulation earns an excess monthly return of +0.025. Investment in positive cash flows where the investment is weighted towards those funds in the subpopulation with the greatest increase in total net assets earns an excess monthly return of almost zero (+0.003). Finally, an investment in above median cash flow funds generates a negative monthly return (-0.003). It seems that the more the investor tries to capture the “positive cash flow strategy” the poorer the results. How can this be explained?

Zheng concludes that the explanation lies in the fact that many funds find it difficult to accommodate large new cash flows: “It might be hard for these funds to quickly find enough good opportunities for all the money, and thus their subsequent returns would be diluted.” Additionally, Zheng sounds a theme that is present in the other two Journal of Finance articles—although an informed mutual fund investor may be able to beat the average fund, the average fund does not beat the market. As Zheng states: “...there is no significant evidence that investors can beat the market by investing in funds with positive new money.”

Cash Flow Less Significant Factor for Larger Funds

Additionally, Zheng tests the sensitivity of the long-short portfolio strategy to fund size. When this strategy is tested for large funds (in terms of the total net assets of the fund), the statistical significance disappears completely. Thus, in the universe of large, popular, “brand-name” mutual funds there is no evidence that investors demonstrate fund selection ability. There is some evidence that positive new money flowing into smaller-sized (newer, less well known) funds may beat the market. This, of course, does not mean that the average investment position in such funds beats the market; only that the differential new money position beats the market. At this point, a critical question becomes the length of time over which the above-average performance ranking can expect to continue. Zheng not only finds that the time period for the differential money’s outperformance is extremely short (approximately 75% of the performance gap between positive and negative cash flow portfolios disappears by month 12), but that the absolute performance ranking of the two portfolio groups actually reverses after month 30! This brings Zheng’s conclusions close to those reached in many other academic studies that have examined the “momentum” effect of mutual fund investing. Past winners continue to win, but only for short durations and with limited magnitude. Thereafter, reversals can be substantial.

(Continued on page 8)

SELECTION OF MUTUAL FUNDS

**Positive Cash Flow Strategies
Similar to Hot Hand Phenomenon**

Zheng concludes that forming portfolios using information about fund cash flows is, in many respects, similar to the buy-recent-hot-performance strategy used by many naive investors. Funds that have performed well recently tend to attract significant positive cash flows (particularly if this performance has been advertised—see Jain & Wu, above). Buying the recent winners and buying the funds with significant positive cash flow may amount to buying the same funds.

CONCLUSIONS

What are the implications for investment fiduciaries? Certainly, one important implication is that fiduciaries are well advised to pay particular attention to investment expenses. A recent SEC report (December 2000) emphasizes that trading expenses are “anti-performance” and that excessive investment charges can be onerous to future wealth accumulation: “seemingly small changes in expenses can have a large impact on the amount of money accumulated for a long-term goal. For example, if a retirement saver invested \$5,000 per year starting at age 25, earned an average annual rate of 9% over 40 years, and incurred no expenses, his or her ending value would be \$1,841,459. If the same investment were subject to annual expenses of 50 basis points [0.50%], his or her ending value would be reduced by more than \$257,000, or 14%.⁶”

Investment fiduciaries are also well advised to consider the strategy most appropriate for management of assets. Active investment management entails greater portfolio expenses, research costs, and operational fees than passive investment management (e.g., index funds). The fiduciary choosing active management will incur higher costs in exchange for an uncertain chance of market-beating performance. Most actively managed investments fail to earn market returns net of their costs. Indeed, John Bogle, former chairman of the Vanguard Fund Group, estimates that, in the 15 years ending in December 1998, mutual funds accumulated only 59% of the capital accumulated by the market as measured by the Wilshire 5000 Equity Index. Much of this shortfall is attributable to costs that “without your noticing...nibble at your returns, gradually eroding them almost right before your unsuspecting eyes. As the years roll on, costs loom even larger. We see the same principle at work that creates the magic of compounding, but it works in reverse.”⁷ By contrast, fiduciaries can capture market returns at low cost by buying index

funds. Therefore, the fiduciary deciding to employ active management should document why he reasonably expects that the extra costs of active management will be justified.

Many fiduciaries may have other reasons for wanting to engage active management. For example, a trustee may want to provide the possibility for better than market performance for at least a portion of the trust corpus. Similarly, fiduciaries responsible for participant directed defined contribution plans (e.g., 401(k) programs) may want to use the services of large mutual fund complexes such as Fidelity. These fund complexes generally require that the majority of plan assets be invested in actively managed funds. Under these scenarios, the fiduciary may have legitimate reasons for engaging active management. However, the prudent fiduciary should conduct appropriate due diligence reviews of funds selected, at a level that goes well beyond a perfunctory examination of performance history. Similarly, the fiduciary should document the rationale supporting fund selection in an appropriately structured investment policy statement (IPS), and should periodically review the selected funds, to ensure that they continue to be appropriate. Further information on investment policy statements can be found in “Investment Policy Statements for Defined Contribution Plans” by Jon Chambers (Journal of Pension Benefits) and “The Do-It-Yourself Investment Fiduciary” by Patrick Collins and Jon Chambers (The Maryland Bar Journal). Copies are available upon request.

Endnotes

- ¹ *The Journal of Finance* (June, 1999), p. 875.
- ² Carhart, Mark M., “On persistence in mutual fund performance,” *The Journal of Finance* (1997), pp. 57-82.
- ³ See, for example, Avery, Luther J. & Collins, Patrick J., “Managing Investment Expenses: Trustee Duty to Avoid Unreasonable or Inappropriate Costs,” *ACTEC Notes* (Fall, 1999), pp. 123-136.
- ⁴ Jain, P. C., & Wu, J. S., “Truth in Mutual Fund Advertising: Evidence on Future Performance and Fund Flows,” *The Journal of Finance* (April, 2000), pp. 937-958.
- ⁵ Zheng, L., “Is Money Smart? A Study of Mutual Fund Investors’ Fund Selection Ability,” *The Journal of Finance* (June, 1999), pp. 901-933.
- ⁶ SEC Division of Investment Management, Report on Mutual Fund Fees and Expenses, December 2000, p. 80, www.sec.gov/news/studies/feestudy.htm.
- ⁷ Address delivered February 1999, as reported in *Financial Planning* (November, 2000) pp 160 ff.

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**SCHULTZ COLLINS
LAWSON CHAMBERS
INVESTMENT COUNSEL**

155 Montgomery Street, 2nd Floor
San Francisco, California 94104
(877) 291-2205
(415) 291-3000
FAX (415) 291-3015

22 W. Pennsylvania Ave., Suite 606
Towson, Maryland 21204
(410) 583-5800

1912 Sunderland Place N.W.
Washington, DC 20036
(202) 429-0200

www.schultzcollins.com
E-Mail: trusts@schultzcollins.com

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