THE "DISPOSITION EFFECT" IN A STUDENT-MANAGED INVESTMENT FUND: AN APPLICATION OF THE OWN-BENCHMARK PORTFOLIO

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Abstract

This study examines the disposition effect in a student-managed investment fund. Trades were made in the fund only twice a year. Each semi-annual set of trades was made by a new management team. Previous studies have found strong evidence of the disposition effect in the investment decisions of experimental subjects, individual investors, investment clubs, and mutual fund managers. We find no evidence for the disposition effect in this student-managed investment fund. Over the period of the study, the fund outperforms its own-benchmark portfolio by an average of 31% over a one year holding period, by an average of 105% over a two year holding period, and by an average of 58% over a three year holding period. These results are consistent with prior results showing that new mutual fund managers are less subject to the disposition effect than continuing managers. We find that use of the own-benchmark portfolio as one benchmark for a student-managed investment fund provides an excellent motivation for discussion of behavioral finance concepts in portfolio management and the potential for behavioral biases in investment decisions.

INTRODUCTION

The concept of an "own-benchmark" portfolio developed by Lakonishok, Shleifer, and Vishny (1992) and Grinblatt and Titman (1993) was used in a series of studies by Barber and Odean (1999, 2001) to test the investment performance of U.S. households. The own-benchmark portfolio is the beginning-of-year portfolio held by the investor. If the investor did not trade during the following year (or other period) the own-benchmark portfolio would be identical to the investor's actual portfolio. If the investor traded during the period, the return on the investor's actual portfolio could be compared to the own-benchmark portfolio. The own-benchmark portfolio does not assume any particular model or measure for risk. It does provide a benchmark for the investor, where the investor's own investment style and risk tolerance is set by that investor at the start of the period.

Kahneman and Tversky's (1979) prospect theory suggests that investors facing risky choices act as if they were maximizing the value/utility function shown in Figure 1. The investor, whose utility function is shown in Figure 1, would be generally risk averse since the utility function is upward sloping and steeper in the loss quadrant than in the gain quadrant. In the gain quadrant of Figure 1, the utility function is concave reflecting the investor's risk aversion. However, the convexity of the utility function in the loss quadrant implies risk seeking behavior by the investor when facing losses. Such an investor would require a larger decline in his expected return to justify a sale of a loser than to justify the sale of a winner.

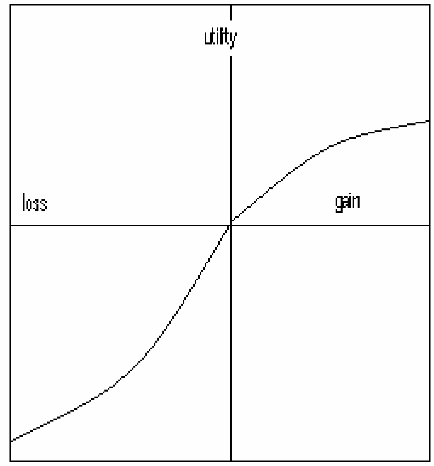

Figure 1. Prospect Theory

Based on the prospect theory of Kahneman and Tversky's (1979), Shefrin and Statman (1985) developed a concept called the "disposition effect". The disposition effect implies that investors, in trying to avoid regret, will have a greater tendency to sell winners than losers. As a result, investors will tend to hold losers too long and sell winners too soon.

Weber and Camerer (1998) demonstrate the disposition effect in an experimental security trading scenario. Barber and Odean (1999) test the disposition effect using a data set of 10,000 households having accounts at a national discount brokerage house. They find that individual investors have a greater propensity to sell winners than to sell losers, as predicted by the disposition effect. They also find that the portfolio of securities investors sell outperform the portfolio of securities investors buy. In a follow-up study, Barber and Odean (2001) find that households, whether married or single, whether headed by men or women, do not outperform their own benchmark portfolio. They also find that the underperformance is worse for men than for women and that the difference is stronger for singles than for married couples.

In a subsequent paper, Barber and Odean (2000) report that investment clubs' net returns under perform a broad stock market index, individual investors, and the clubs' own benchmark portfolio. Cici (2005) finds evidence of the disposition effect in a sizable fraction of mutual funds. Cici's results do not appear to be related to a fund's investment style. Scherbina and Jin (2005) also find evidence of the disposition effect in mutual fund managers. They find that new managers taking over an existing fund are less subject to the disposition effect than continuing managers.

In this paper, we test the disposition effect for a student-managed investment fund using the own-benchmark portfolio. We test whether underperformance found by Barber and Odean for households, investment clubs, and by Cici for mutual funds, also applies to non-household groups of students managing a student-managed investment fund.

DATA

The data consists of the portfolio of the undergraduate Student-Managed Investment Fund at The University of Akron. The Fund is completely revised in the Portfolio Management course each December and June. Further discussion of the management of the fund over this period can be found in Kahl (1997). Data is available for 1998 through 2002. The system for managing the Fund was changed at that point, and no additional data will be available. Five distinct portfolios are each followed for three years. The performance of each portfolio is compared to its own benchmark portfolio and to the MSCI USA Index for one, two, and three year holding periods.

RESULTS

All results for the Student-Managed Investment Fund are net of all transactions costs. The performance for the Student-Managed Investment Fund versus its own benchmark portfolio is shown in Table 1. Five distinct portfolios starting in January 1998, June 1998, January 1999, June 1999, and January 2000 are each followed for three years. The one-, two-, and three-year returns for the actual portfolio and the own benchmark portfolios are shown for each of the five starting dates. For one-year returns, the actual portfolio outperforms the own benchmark portfolio for three of the five starting dates, one portfolio ties its own benchmark, and one underperforms its own benchmark.

Table 1. Performance Versus Own Benchmark Portfolio

Starting Date	Ending Date	Return on Own Benchmark	Actual Return	Excess Return Over Own Benchmark
1/1/1998	12/31/1998	-32%	47%	79%
	12/31/1999	-37%	345%	382%
	12/31/2000	-17%	204%	221%
6/1/1998	6/30/1999	-48%	91%	139%
	6/30/2000	29%	213%	184%
	6/30/2001	-26%	82%	108%
1/1/1999	12/31/1999	267%	202%	-65%
	12/31/2000	131%	106%	-25%
	12/31/2001	56%	23%	-33%
6/1/1999	6/30/2000	84%	84%	0%
	6/30/2001	28%	7%	-21%
	6/30/2002	-34%	-42%	-8%
1/1/2000	12/31/2000	-35%	-32%	3%
	12/31/2001	-66%	-59%	7%
	12/31/2002	-80%	-79%	1%
			Holding Period	Average
			One Year	31%
			Two Years	105%
			Three Year	58%

On average the five portfolios outperform their own benchmark portfolios by 31.2% for one year. On two-year and three-year returns, the actual portfolio outperforms its own benchmark portfolio three years out of five by an average of 105.45 for two years and.

Table 2. Performance Versus MSCI USA Index

Starting Date	Ending Date	Return on MSCI USA Index	Actual Return	Excess Return Over Own Benchmark
1/1/1998	12/31/1998	30%	47%	17%
	12/31/1999	58%	345%	287%
	12/31/2000	38%	204%	166%
6/1/1998	6/30/1999	27%	91%	64%
	6/30/2000	35%	213%	178%
	6/30/2001	13%	82%	69%
1/1/1999	12/31/1999	22%	202%	180%
	12/31/2000	7%	106%	99%
	12/31/2001	-5%	23%	28%
6/1/1999	6/30/2000	12%	84%	72%
	6/30/2001	-6%	7%	13%
	6/30/2002	-27%	-42%	-15%
1/1/2000	12/31/2000	-13%	-32%	-19%
	12/31/2001	-24%	-59%	-35%
	12/31/2002	-41%	-79%	-38%
			Holding Period	Average
			One Year	63%
			Two Years	108%
			Three Years	42%

57% for three years. Unlike the results reported by Barber and Odean (2000) for investment clubs, the Student-Managed Investment Fund generally outperforms its own benchmark portfolio

The performance for the Student-Managed Investment Fund versus the MSCI USA Index is shown in Table 2 for the five portfolios. The one-, two-, and three-year returns for the actual portfolio and the MSCI USA Index are shown for each of the five starting dates. For one-year returns, the actual portfolio outperforms the MSCI USA Index for four of the five starting dates, and one underperforms the MSCI USA Index. On average the five portfolios outperform the MSCI USA Index by 62.8% for one year. On two-year returns, the actual portfolio outperforms the MSCI USA Index four years out of five by an average of 108.4%. On three-year returns, the actual portfolio outperforms the MSCI USA Index three years out of five by an average of 42.0%. Unlike the results reported by Barber and Odean (2000) for investment clubs, the student-managed fund generally outperforms a broad based benchmark index.

CONCLUSIONS

There is insufficient data for this paper to draw statistical conclusions. However, the results do provide anecdotal evidence that this student-managed investment fund outperformed both its own benchmark portfolio and a broad market index for five portfolios followed over three years. Unlike individual investors, investment clubs, or mutual fund managers, the decision makers for the Student-Managed Investment Fund change prior to each decision made by the fund. A result of the frequent change of decision makers may be that the disposition effect does not apply in this case. If the disposition effect is responsible for the underperformance shown by Barber and Odean (2000) and others, the frequent change of decision makers may eliminate the disposition effect and allow superior fund performance. Superior performance relative to the own-benchmark portfolio resulting from frequent changes of managers is consistent with the findings of Scherbina and Jin (2005).

Finally, we find that use of the own-benchmark portfolio as one benchmark for a student-managed investment fund provides an excellent motivation for discussion of behavioral finance concepts in portfolio management and the potential for behavioral biases in investment decisions. Behavioral finance discussions arising from the own-benchmark portfolio are applicable to both the periodic fund management paradigm discussed above and to the continuous fund management paradigm currently used to manage the Fund.

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