



The Case For Passive Investing

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The Mechanics of Indexing

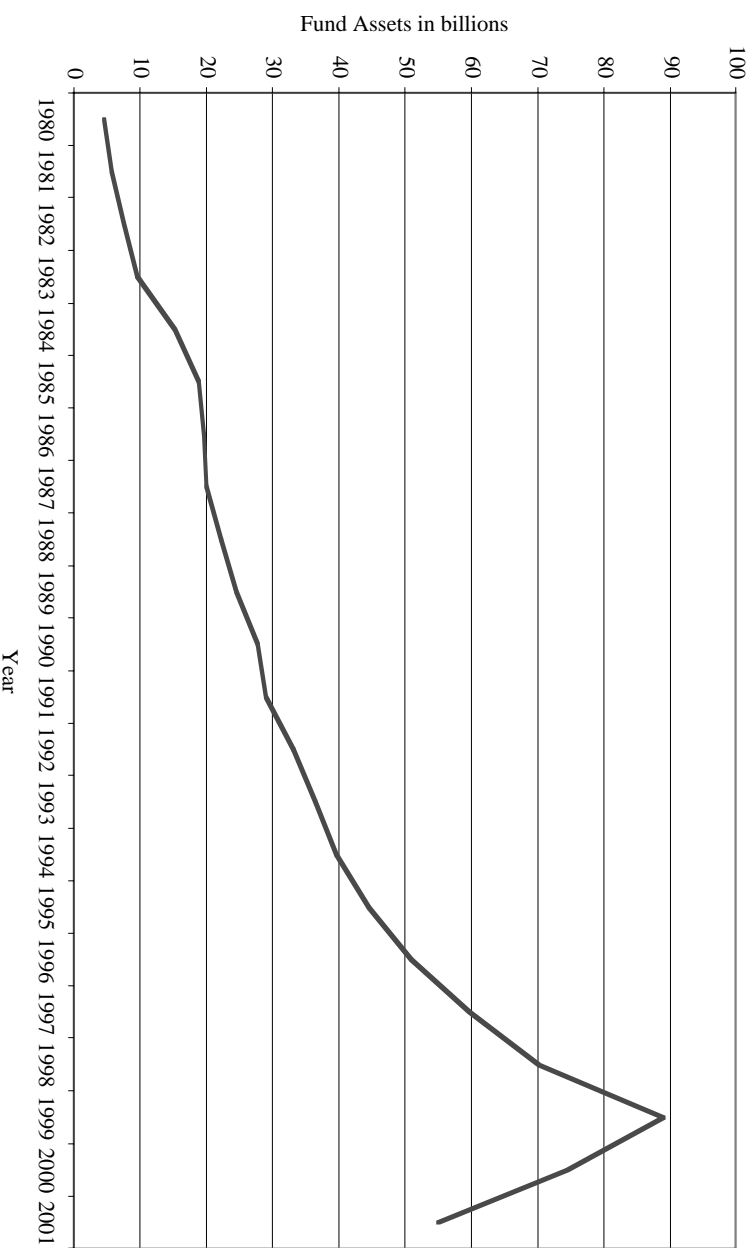
- *Fully indexed fund*: An index fund attempts to replicate a market index. It is relatively simple to create, once the index to be replicated has been identified.

1. Identify the index to be replicated. (Example: S & P 500)
2. Estimate the total market values of equity of all firms in that index.
3. Create a market-value weighted portfolio of stocks in the index. This fund will replicate the index and is self correcting. It will need to be adjusted only if stocks enter or leave the index.

- *Sampled Index fund*: Here, you sample an index because the index contains too many stocks like the Wilshire 5000 or it is too expensive to index the assets in a fund.

The Vanguard 500 Index Fund

Figure 13.2: Growth of the Vanguard 500 index fund



The Case for Indexing

- The case for indexing is best made by active investors who try to beat the market and fail.

- In the following pages, we will consider whether

- Individual investors who are active investors beat the market
- Professional money managers beat the market

Individual Investors

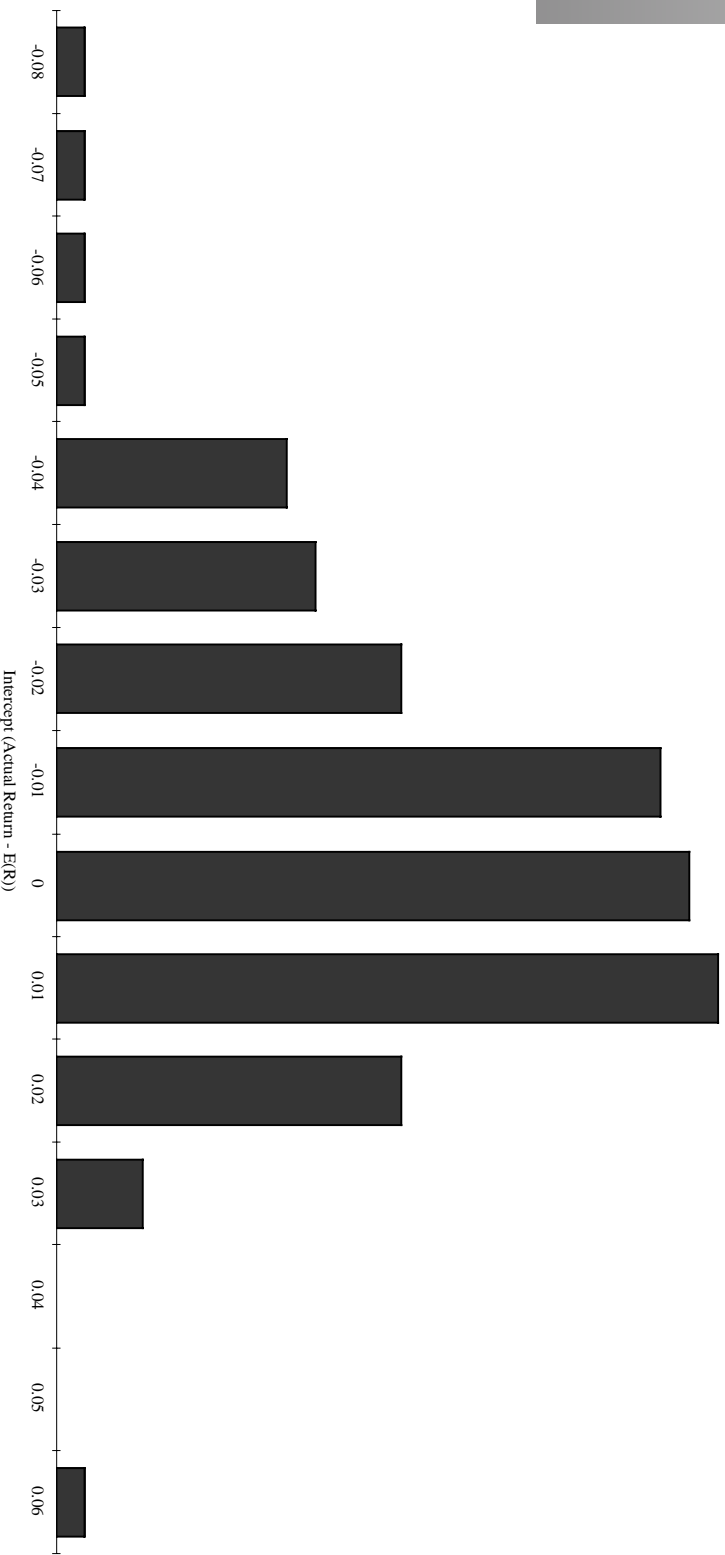
- The average individual investor does not beat the market, after netting out trading costs. Between 1991 and 1996, for instance, the annual net (of transactions costs) return on an S&P 500 index fund was 17.8% whereas the average investor trading at the brokerage house had a net return of 16.4%.
- The more individual investors trade, the lower their returns tend to be. In fact, the returns before transactions costs are accounted for are lower for more active traders than they are for less active traders. After transactions costs are accounted for, the returns to active trading get worse.
- Pooling the talent and strengths of individual investors into investment clubs does not result in better returns. Barber and Odean examined the performance of 166 randomly selected investment clubs that used the discount brokerage house. Between 1991 and 1996, these investment clubs had a net annual return of 14.1%, underperforming the S&P 500 (17.8%) and individual investors (16.4%).

Professional Money Managers

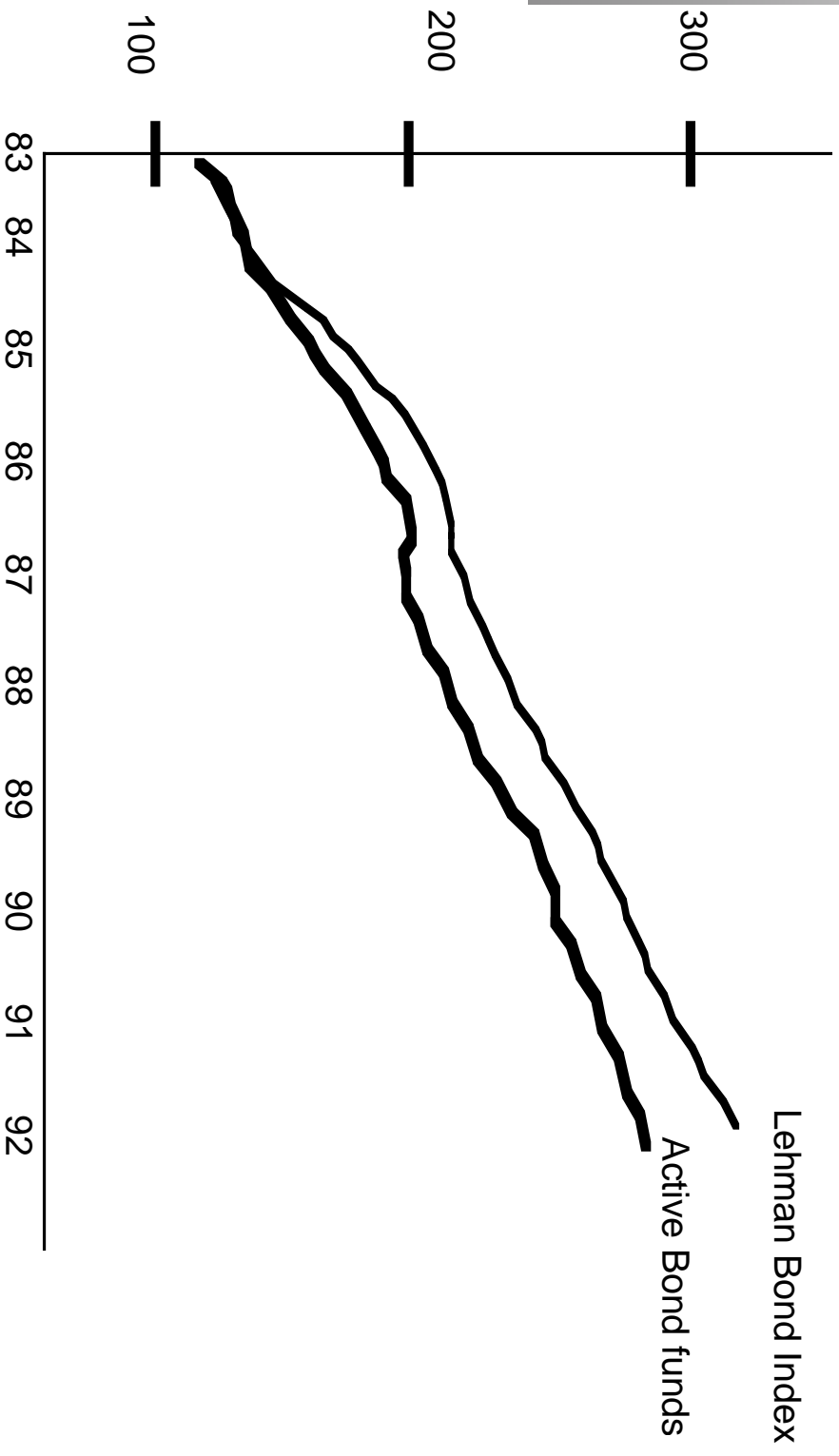
- **Professional money managers operate as the experts** in the field of investments. They are supposed to be better informed, smarter, have lower transactions costs and be better investors overall than smaller investors.
- Studies of mutual funds do not seem to support the proposition that professional money managers each **excess returns**.

Jensen's Results

Figure 13.3: Mutual Fund Performance: 1955-64 - The Jensen Study



The same holds true for bond funds as well...



More Findings on Money Managers

- These results have been replicated with mild variations in the conclusions. In the studies that are most favorable for professional money managers, **they break even against the market after adjusting for transactions costs, and in those that are least favorable, they underperform the market even before adjusting for transactions costs.**

Measurement Issue 1: Sensitivity to Risk Measures

- The Jensen study used the capital asset pricing model to estimate and correct for risk.
- The limitations of the CAPM have opened up the question of how sensitive the conclusions are to different risk and return models.

1. Relative to the Market

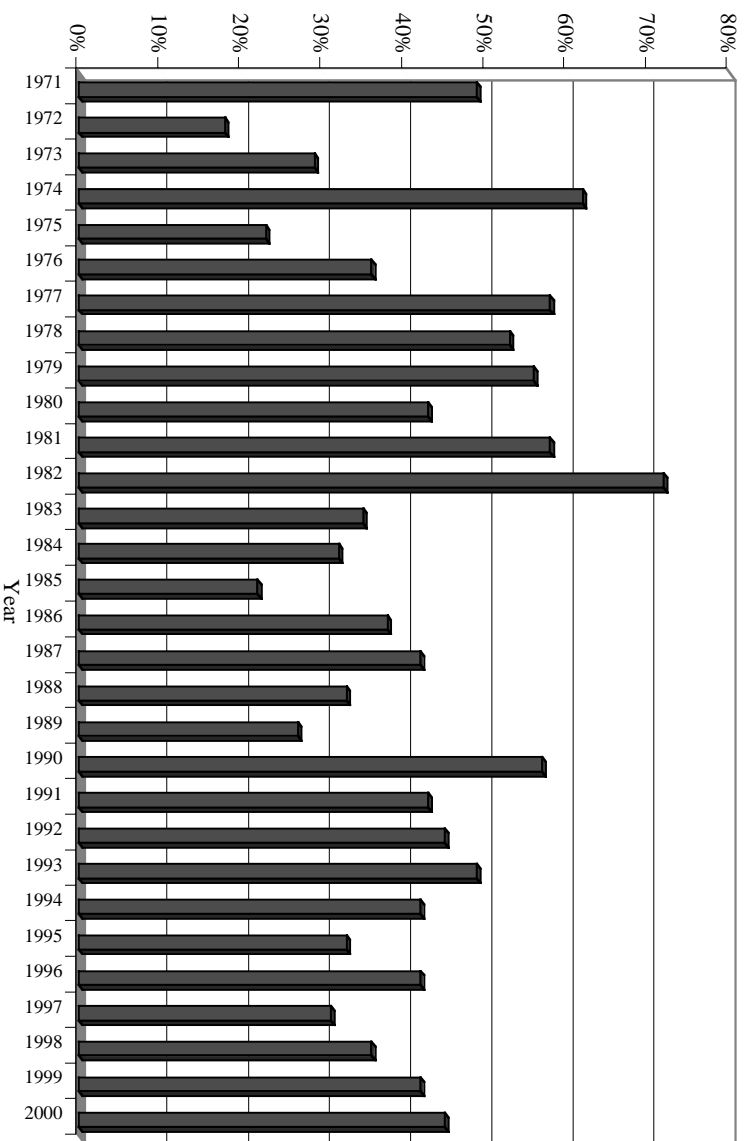


Figure 13.5: Percent of Money Managers who beat the S&P 500

2. Other Risk Measures

- : The Sharpe ratio, which is computed by dividing the excess return on a portfolio by its standard deviation, the Treynor measure, which divides the excess return by the beta and the appraisal ratio which divides the alpha from the regression by the standard deviation can be considered close relatives of Jensen's alpha. Studies using all three of these alternative measures conclude that mutual funds continue to under perform the market.
- In a study that examined the sensitivity of the conclusion to alternative risk and return models, Lehmann and Modest computed the abnormal return earned by mutual funds using the arbitrage pricing model for 130 mutual funds from 1969 to 1982. While the magnitude of the abnormal returns earned is sensitive to alternative specifications of the model, every specification of the model yields negative abnormal returns.

3. Expanded Proxy Models

- Studies seem to indicate that risk and return model consistently under estimate the expected returns for stocks with low price to book ratios, low market capitalization and price momentum.
- In 1997, Carhart used a four-factor model, including beta, market capitalization, price to book ratios and price momentum as factors, and concluded that the average mutual fund still under performed the market by about 1.80% a year. In other words, you cannot blame empirical irregularities for the under performance of mutual funds.

Measurement Issue 2: Survivor Bias

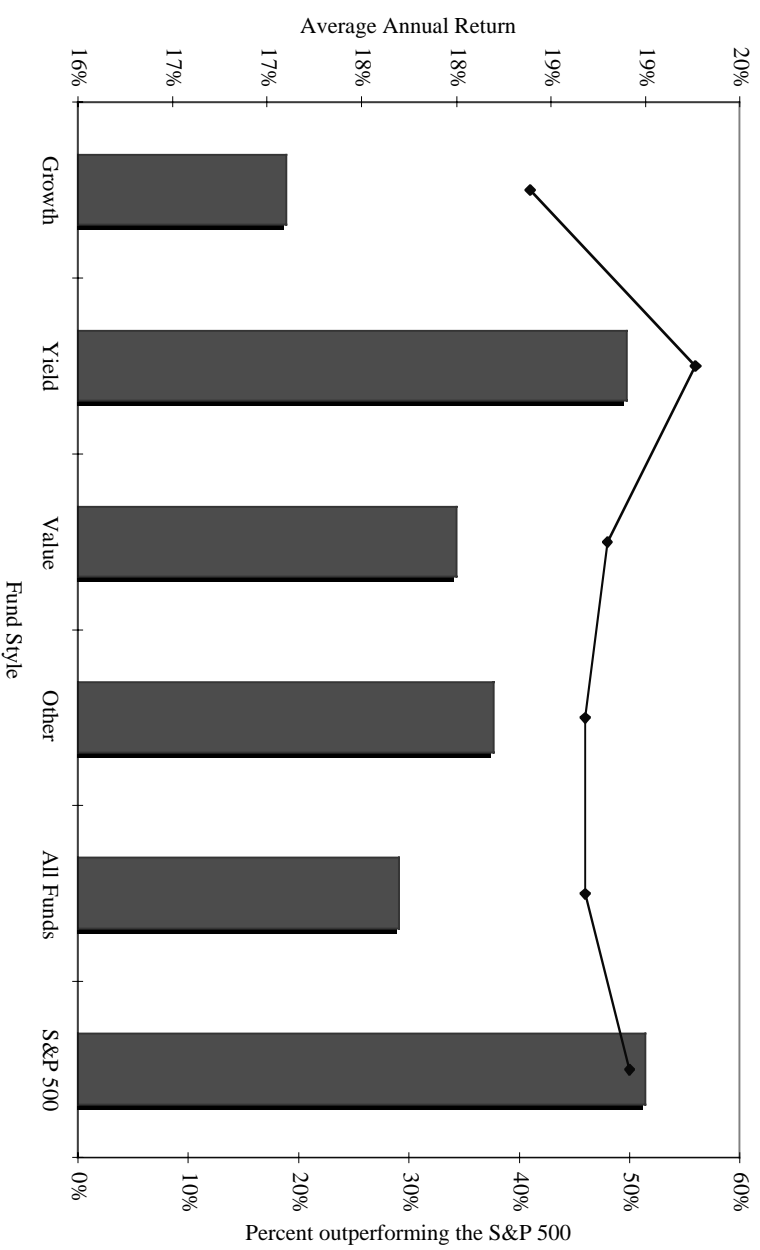
- One of the limitations of many studies of mutual funds is that they use only mutual funds that have data available for a sample period and are in existence at the end of the sample period. Since the funds that fail are likely to be the poorest performers, there is likely to be a bias introduced in the returns that we compute for funds.
- Carhart examined all equity mutual funds (including failed funds) from January 1962 to December 1995. Over that period, approximately 3.6% of the funds in existence failed each year and they tend to be smaller and riskier than the average fund in the sample. In addition, and this is important for the survivor bias issue, about 80% of the non-surviving funds under perform other mutual funds in the 5 years preceding their failure. Ignoring them as many studies do when computing the average annual return from holding mutual funds results in annual returns being overstated by 0.17% with a one-year sample period to more than 1% with 20-year time horizons.

Performance by Sub-categories

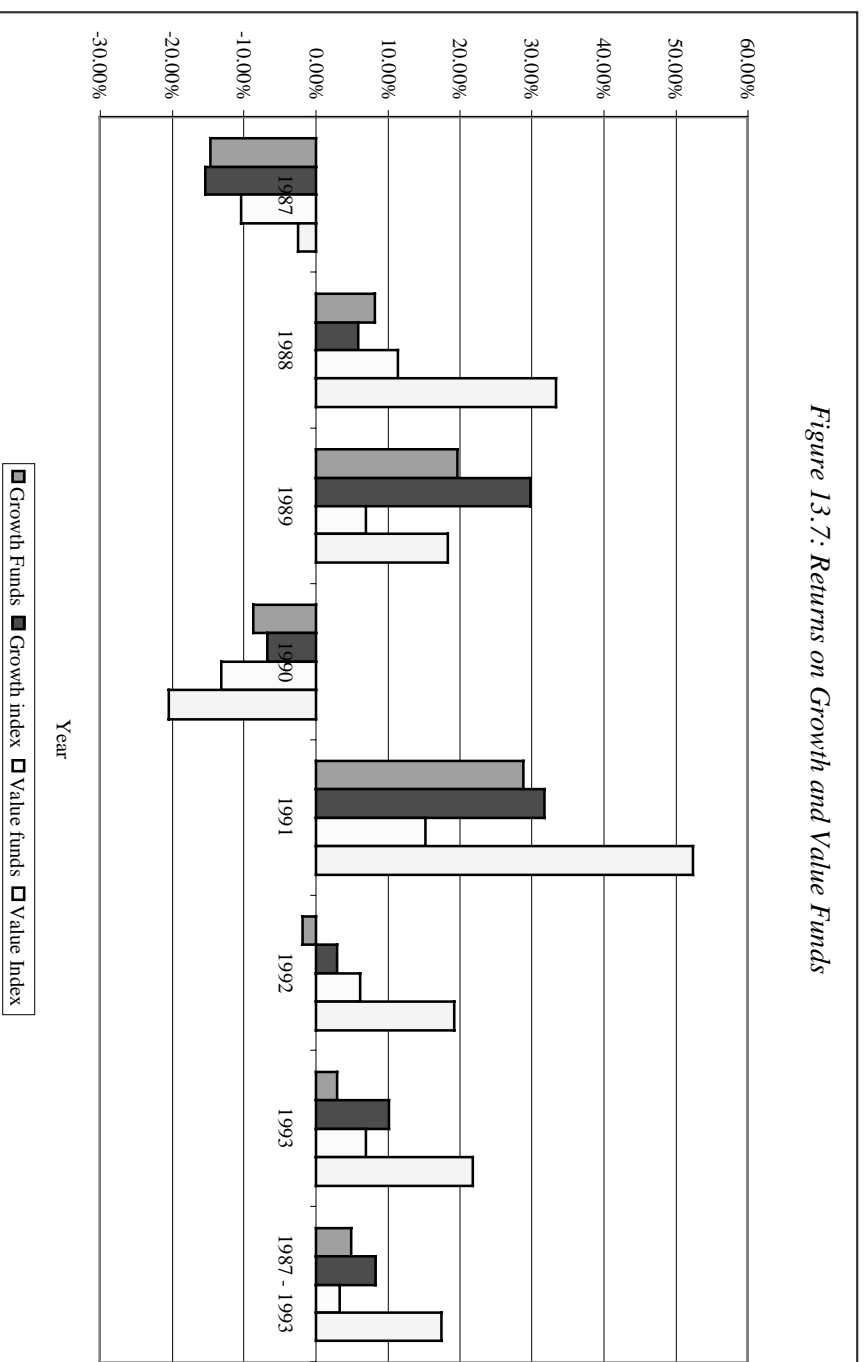
- Mutual funds adopt a variety of styles. Some are value funds while others are growth funds. Some buy small-cap stocks whereas others buy large-cap stocks.
- Mutual funds also come in different sizes. Some funds have tens of billions to invest whereas others have only a few hundred million to invest.
- Mutual funds can also be domestic and foreign, load and no-load...

1. Categorized by Style

Figure 13.6: Performance by Fund Style - 1983-1990



But growth investors tend to do better relative to their indices..



And funds that invest in small cap stocks do not
do much better than others..

	<i>Value</i>	<i>Blend</i>	<i>Growth</i>
Large Cap	-1.3%	-1.4%	-1.0%
Medium Cap	-2.8%	-1.5%	-3.0%
Small Cap	-1.0%	-1.8%	-1.3%

Capitalization: >5 Billion: Large

1-5 Billion: Medium

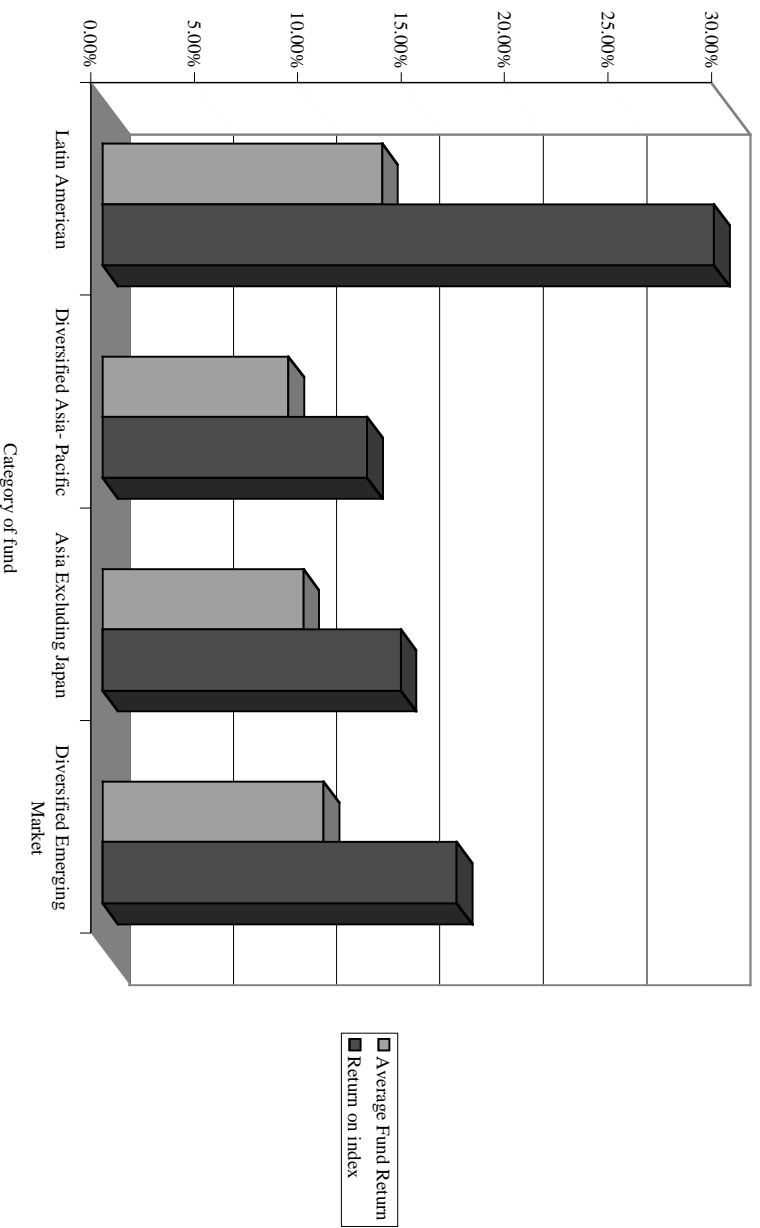
<1 Billion: Small

Value: PE or PBV less than S& P 500;

Growth: PE or PBV higher;

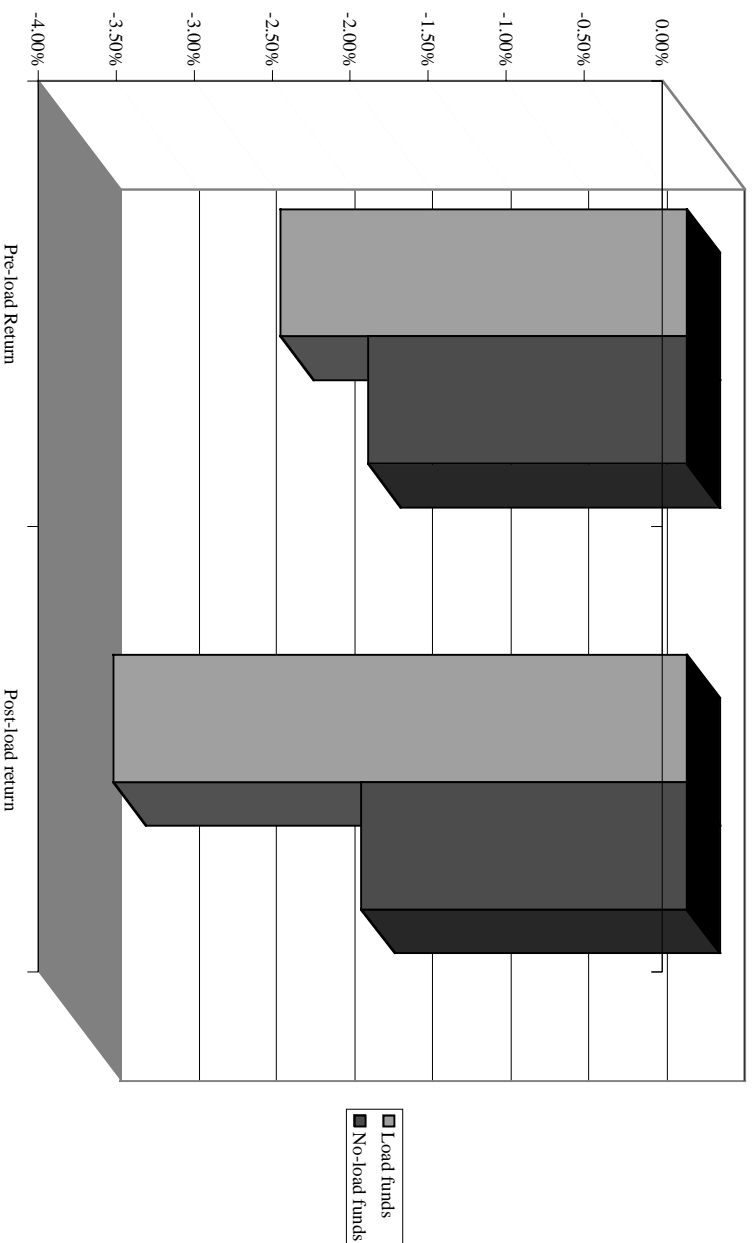
Blend: Close to Average

2. Emerging Market and International Funds



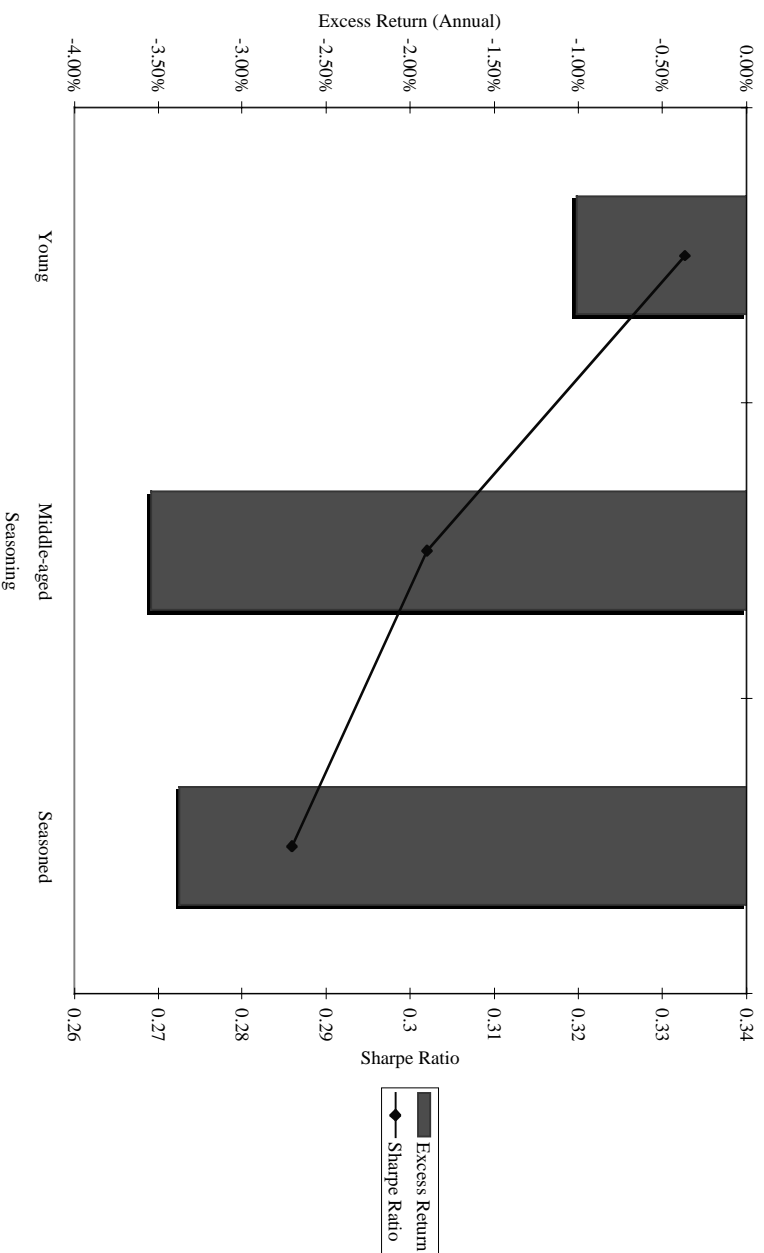
3. Load versus No-load Funds

Figure 13.9: Jensen's Alpha: Load versus No-load Funds



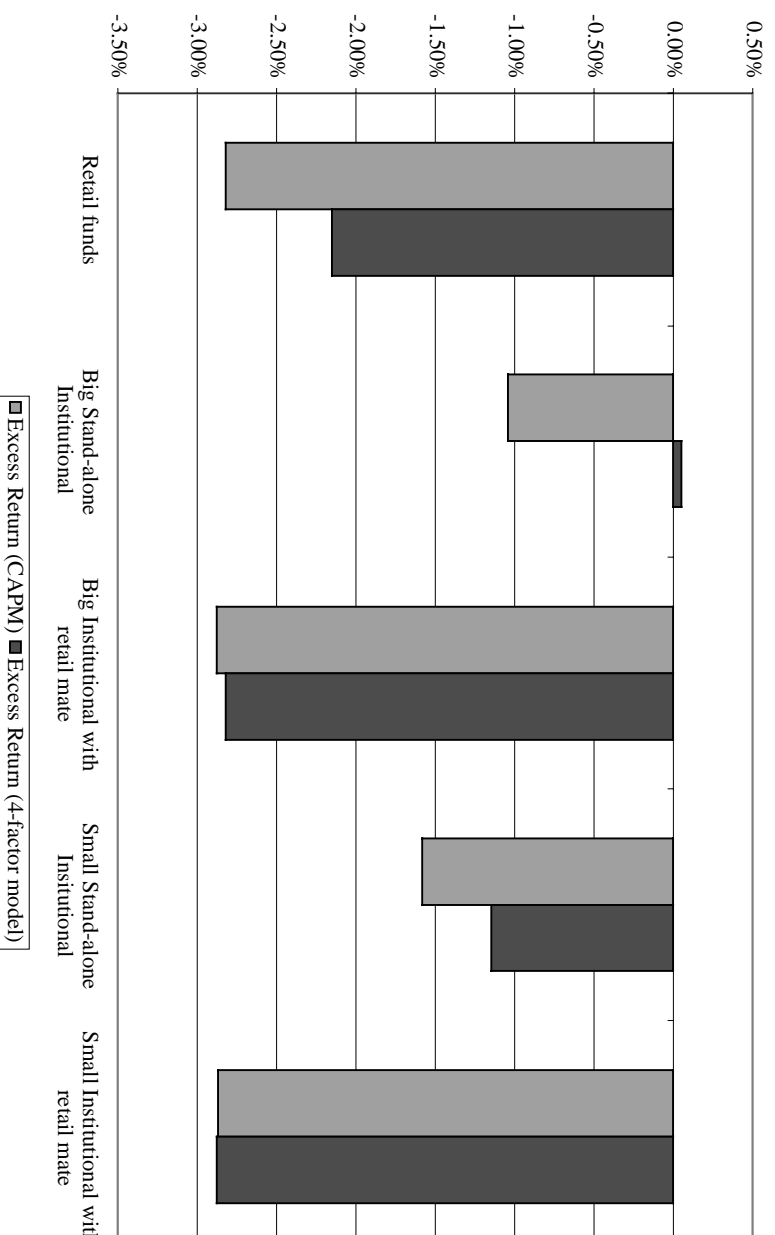
4. And fund age...

Figure 13.10: Excess Returns by Fund Age



5. Institutional versus Retail Funds

Figure 13.11: Institutional versus Retail Funds: Annualized Excess Returns



Performance Continuity

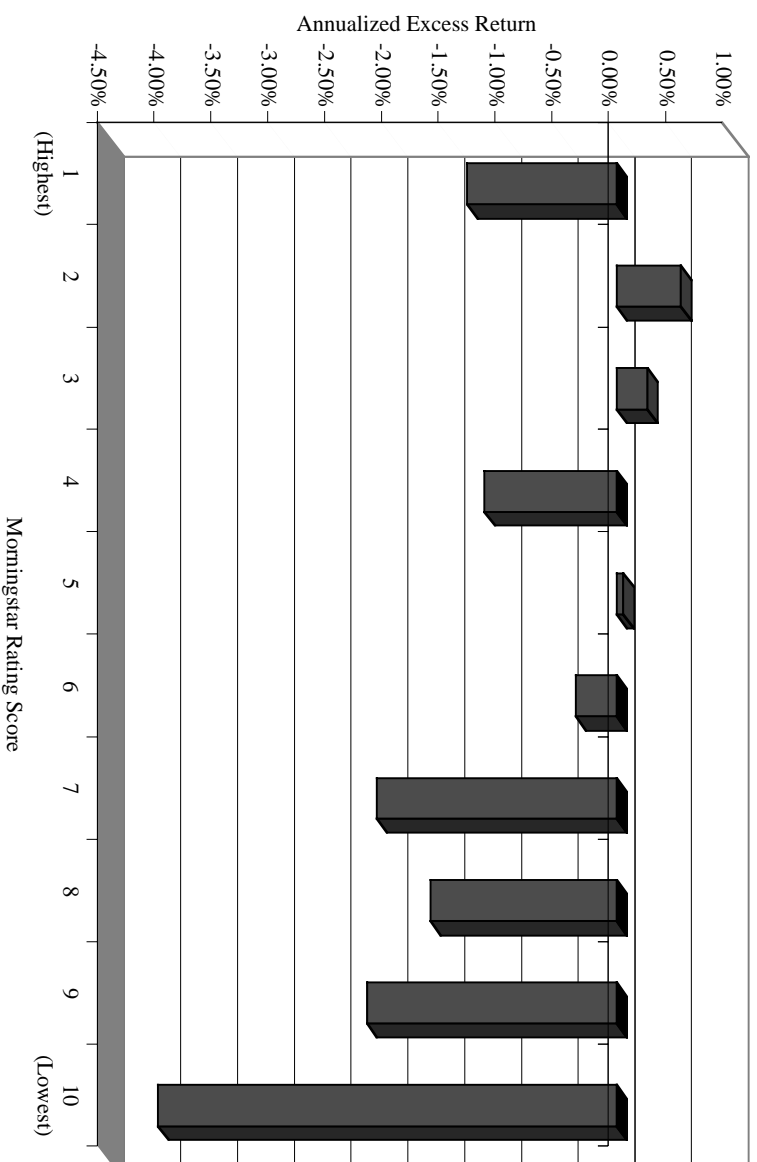
- Fund managers argue that the average is brought down by poor money managers. They argue that good managers continue to be good managers whereas bad managers drag the average down year after year.
- The evidence indicates otherwise.

1. Transition Probabilities

Quartile ranking this period	Quartile ranking next period			
	1	2	3	4
1	26%	24%	23%	27%
2	20%	26%	29%	25%
3	22%	28%	26%	24%
4	32%	22%	22%	24%

2. The Value of Rankings

Figure 13.12: Annualized Return based on Morningstar Ratings - 1994-1997



Though there is some evidence of hot hands..

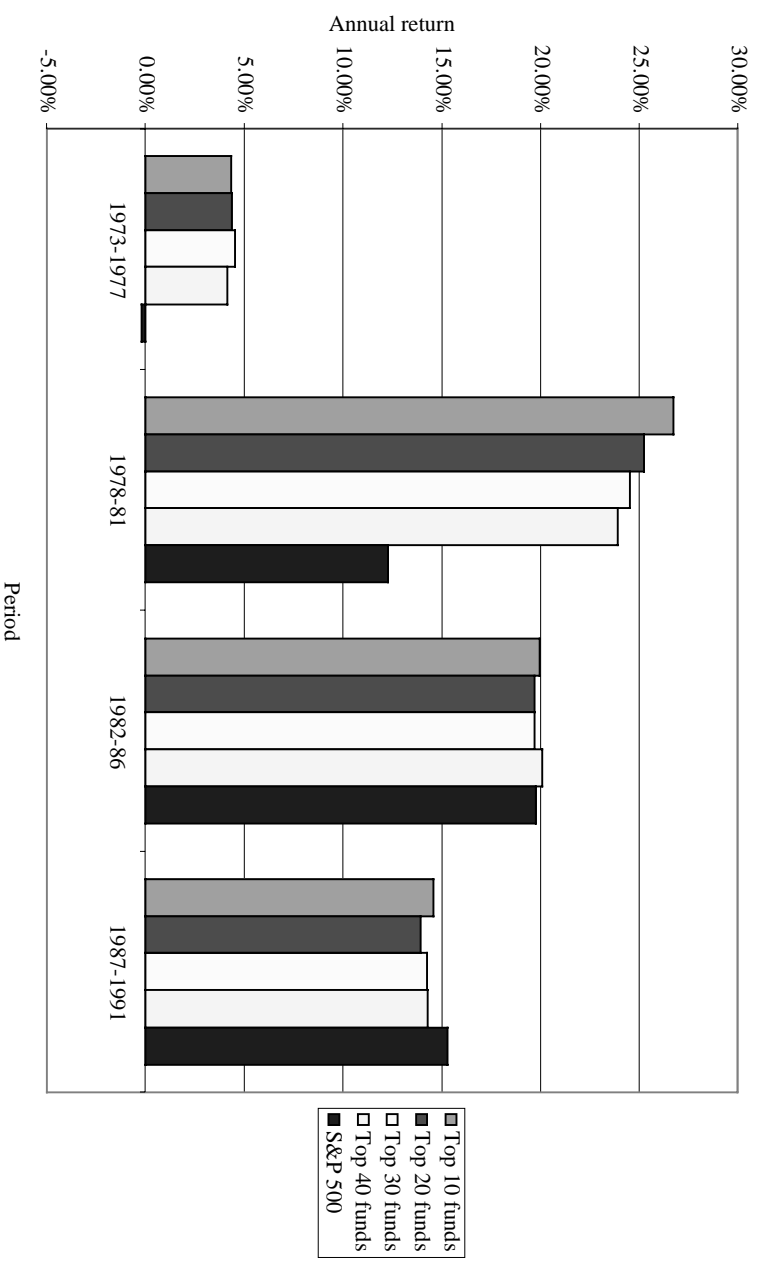


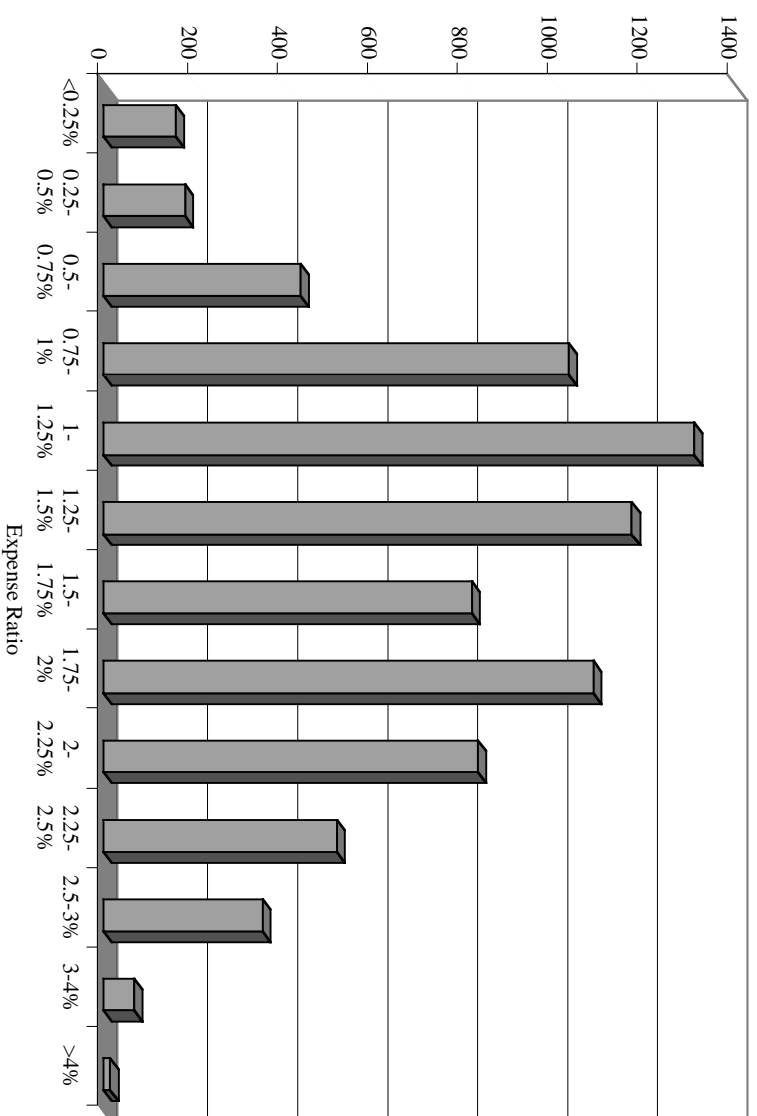
Figure 13.13: Returns on top-ranked funds: 1973- 1991

Why active money managers fail...

- High Transactions Costs
- High Taxes
- Too much activity
- Failure to stay fully invested in equities
- Behavioral factors

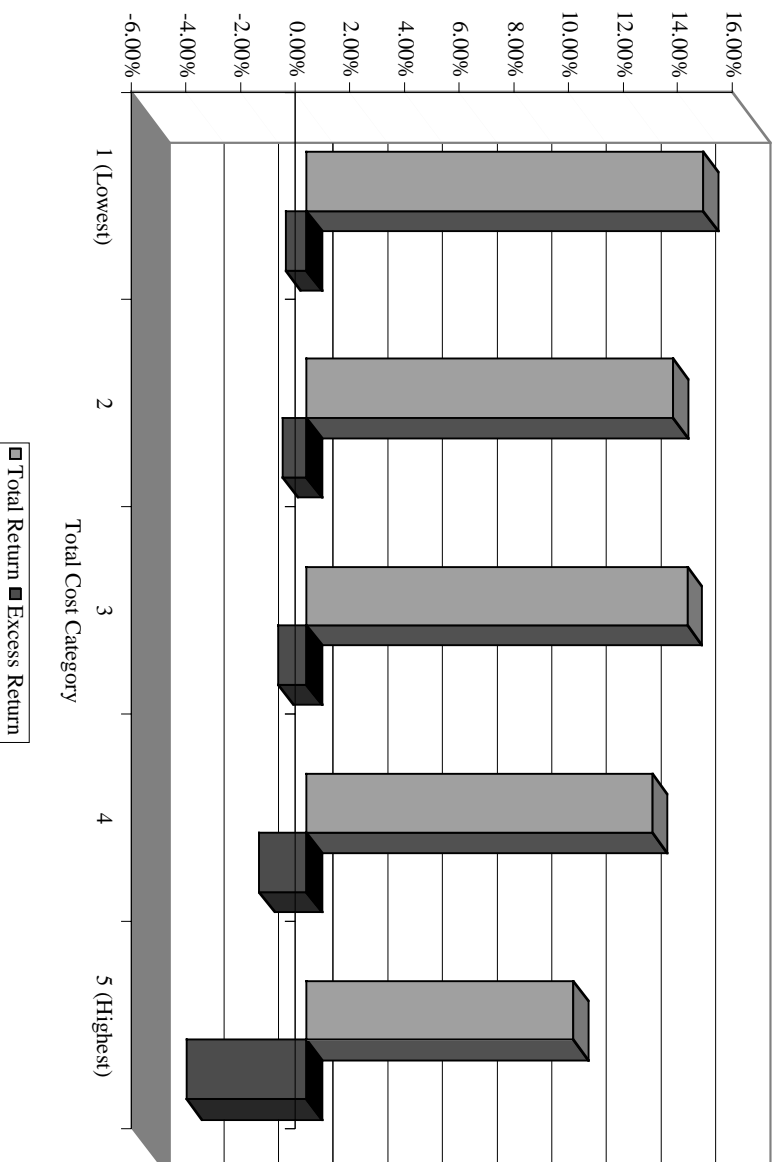
1. High Transactions Costs

Figure 13.14: Expense Ratios at Equity Mutual Funds



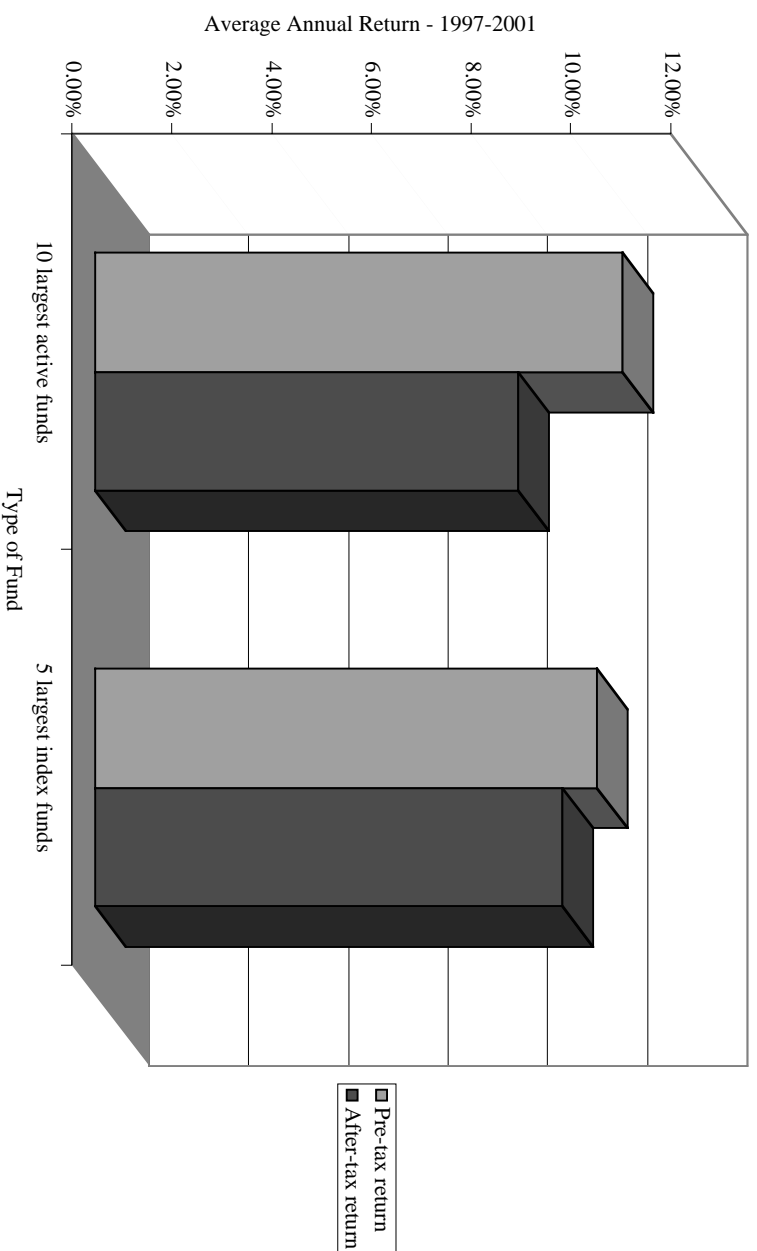
Trading Costs and Returns

Figure 13.16: Trading Costs and Returns: Mutual Funds



2. High Tax Burdens

Figure 13.17: Tax Effects at Index and Actively Managed Funds



3. Too Much Activity

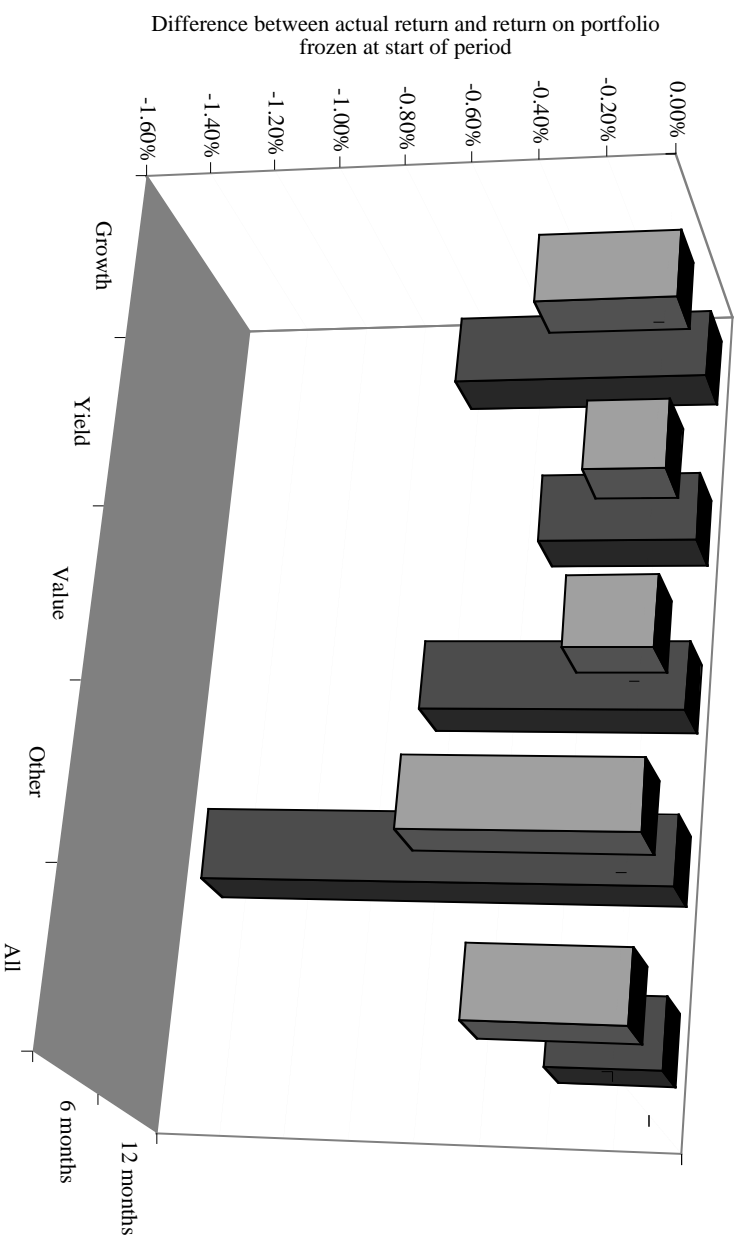
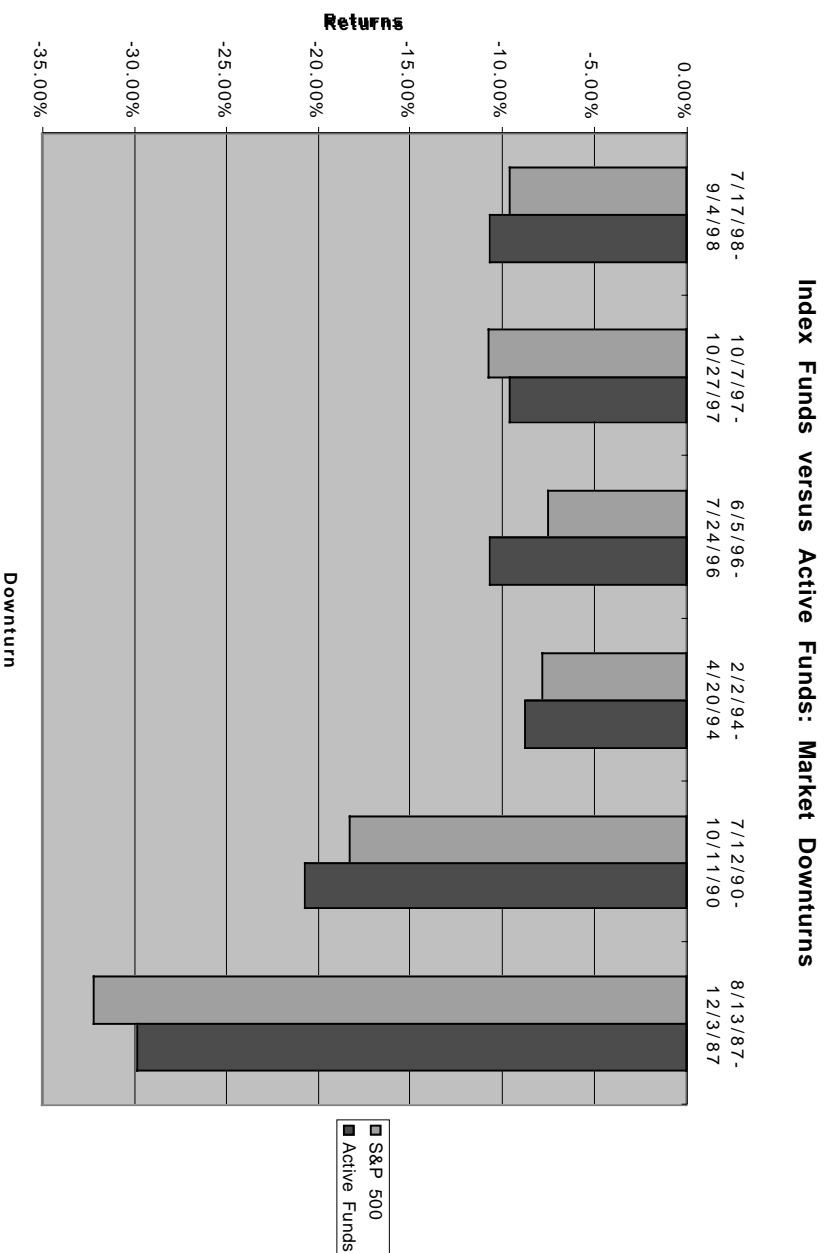


Figure 13.18: Payoff to Active Money Management

4. Failure to stay fully invested



And staying in cash too long..

Performance of General Equity Managers During 12 Months Following Bear Markets

	Standard & Poor's 500	Lipper General Equity Average	Index Out- Performance
October, 1974 - September, 1975	38.11 %	35.36 %	+2.75 %
August, 1982 - July, 1983	60.57	66.10	-5.53
December, 1987 - November, 1988	25.40	21.95	+3.45
Cumulative 12 Months Following Bear Markets	178.09 %	174.18 %	+3.91 %
Cumulative Bear Plus Subsequent 12 Month Periods	-8.48 %	-8.49 %	+0.01 %

5. Behavioral Factors

- *Lack of consistency*: Brown and Van Harlow examined several thousand mutual funds from 1991 to 2000 and categorized them based upon style consistency. They noted that funds that switch styles had much higher expense ratios and much lower returns than funds that maintain more consistent styles.
- *Herd Behavior*: One of the striking aspects of institutional investing is the degree to which institutions tend to buy or sell the same investments at the same time.
- *Window Dressing*: It is a well documented fact that portfolio managers try to rearrange their portfolios just prior to reporting dates, selling their losers and buying winners (after the fact). O'Neal, in a paper in 2001, presents evidence that window dressing is most prevalent in December and that it does impose a significant cost on mutual funds.

Alternatives to Indexing

- Exchange Traded Funds such as SPDRs provide investors with a way of replicating the index at low cost, while preserving liquidity.
- Index Futures and Options
- Enhanced Index Funds that attempt to deliver the low costs of index funds with slightly higher returns.

Exchange Traded Funds...

	1993	1994	1995	1996	1997	1998	1993-98
SPDR NAV	8.92%	1.15%	37.20%	22.72%	33.06%	28.28%	21.90%
S & P 500	9.19%	1.32%	37.56%	22.97%	33.40%	28.57%	22.17%
Shortfall	-0.27%	-0.17%	-0.36%	-0.25%	-0.34%	-0.29%	-0.28%

Mechanics of Enhanced Index Funds...

- In synthetic enhancement strategies, you build on the derivatives strategies that we described in the last section. Using the whole range of derivatives – futures, options and swaps- that may be available at any time on an index, you look for mispricing that you can use to replicate the index and generate additional returns.
- In stock-based enhancement strategies, you adopt a more conventional active strategy using either stock selection or allocation to generate the excess returns.
- In quantitative enhancement strategies, you use the mean-variance framework that is the foundation of modern portfolio theory to determine the optimal portfolio in terms of the trade-off between risk and return.

Enhanced Index Funds... The Returns Promise..

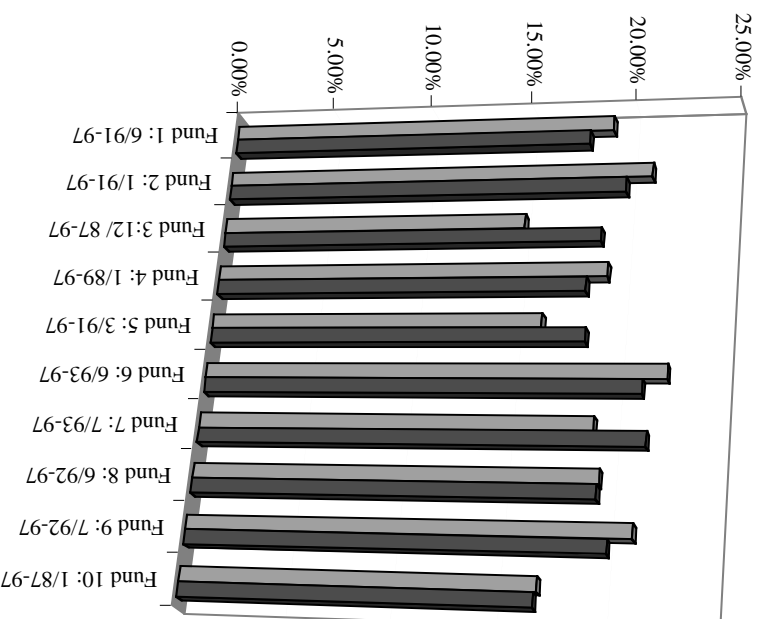
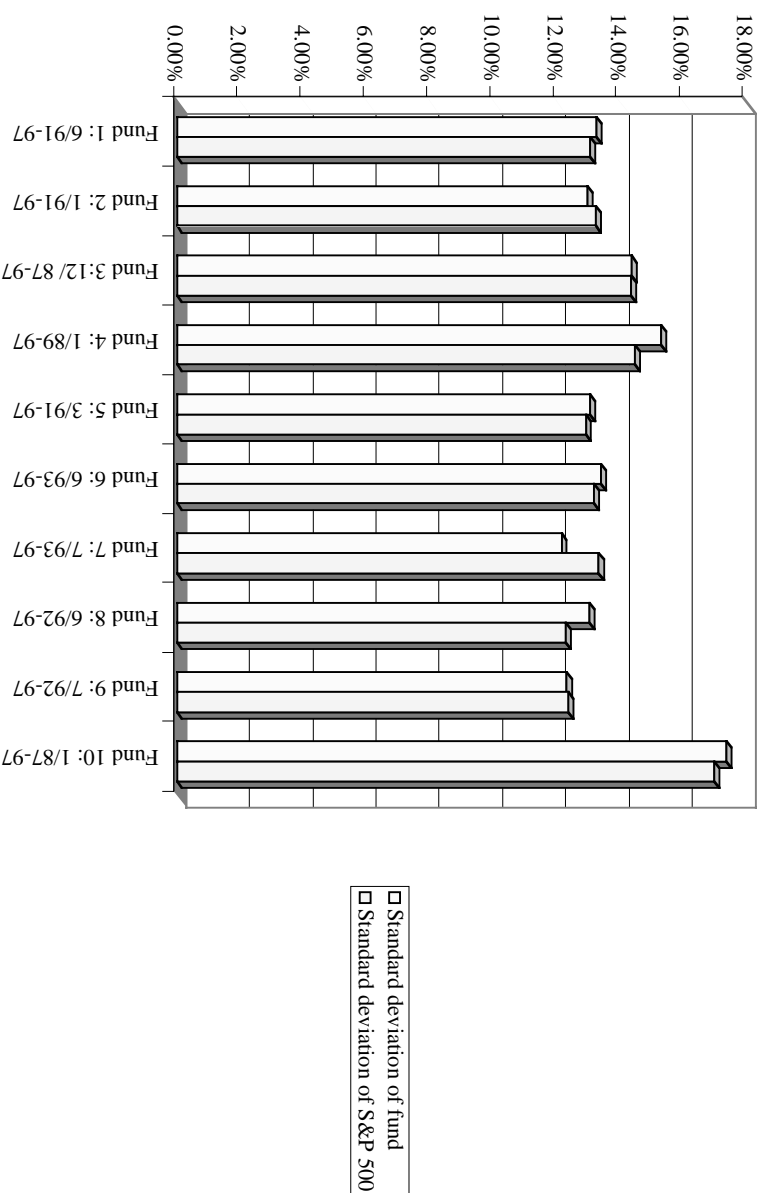


Figure 13.20: Enhanced Index funds vs. S&P 500

Enhanced Index Funds... The Risk



The Choices

- Put all of your wealth in active money management, if you believe that the payoff exceeds the costs.
- Put all of your money in index funds, if you believe that the reverse is true.
- Allocate your funds between passive and active investment, if you are not quite sure.

Conclusion

- There is **substantial evidence of irregularities in market behavior**, related to systematic factors such as size, price-earnings ratios and price book value ratios.
- While these irregularities may be inefficiencies, there is also **the sobering evidence that professional money managers**, who are in a position to exploit these inefficiencies, have a very difficult time consistently beating financial markets.
- Read together, the persistence of the irregularities and the inability of money managers to beat the market is testimony to the **gap between empirical tests on paper and real world money management** in some cases, and the **failure of the models of risk and return** in others.
- The performance of active money managers provides the best evidence yet that indexing may be the best strategy for many investors.