Dimensional Fund Advisors

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Objectives

- Understand the nature of the money management industry
- Introduce some the the concepts we will be seeing for the remained of the class:
  - Index Tracking
  - Transaction Costs
- Examine some of the major empirical findings regarding the market produced during the past two decades.
- Study the difficult process by which fund managers use evidence of superior stock performance to construct a realistic investment strategy.

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Dimensional Fund Advisors

Dimensional Fund Advisors (DFA) was in June 2002 a $30 billion investment fund based in Santa Monica, CA. A number of features make DFA an unusual fund:

- A strongly professed belief that the capital markets are efficient
- A passive, buy-and-hold investment approach
- The use of academic research to define and assess the funds strategies
- A specialization in the purchase of large blocks of small stocks at discount prices

Efficient markets?

- Do the managers at DFA really believe in efficient markets?
- If so, why they do not offer growth-stock funds, which should deliver just as good risk-adjusted returns as value-stock portfolios according to the Efficient Markets Hypothesis?

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Explanations for the value effect

- Value stocks riskier in bad times
  Berk, Green and Naik, "Optimal Investment, Growth Options, and Security Returns"
- Value stocks have high returns due to the risk of their cash flows.
  Cohen, Polk, and Vuolteenaho, "Does risk or mispricing explain the cross-section of stock price levels"
- Effect due to irrational behavior.
  Daniel and Titman, "Evidence on the characteristics of cross-sectional variation in stock returns"

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Tax-Managed Funds

- DFA introduced tax-managed funds that attempted to give exposure to the market portfolio, while at the same time minimizing the tax-burden on investors.
- Since dividends are taxed at a higher rate than capital gains, this strategy consisted of investing in low dividend paying stocks.
- Who is the target audience for this product?
  - DFA's original customers were tax-exempt institutions. Clearly they would receive no benefit.
  - Wealthy individuals, investing through RIAs, are clearly the target audience.
- By offering tax-managed products, DFA is attempting to diversify.

Tax-Managed Funds

- Investing in low dividend-yield stocks, while aiming to provide index exposure is tricky because
  a) Large companies in general pay dividends, so this strategy would end up investing more in smaller stocks.
  b) Firms that pay low dividends tend to be growth rather than value firms.
- As a result, tax management also entails costs
  a) Loss of diversification.
  b) Possibly lower returns due to overweighing growth stocks.

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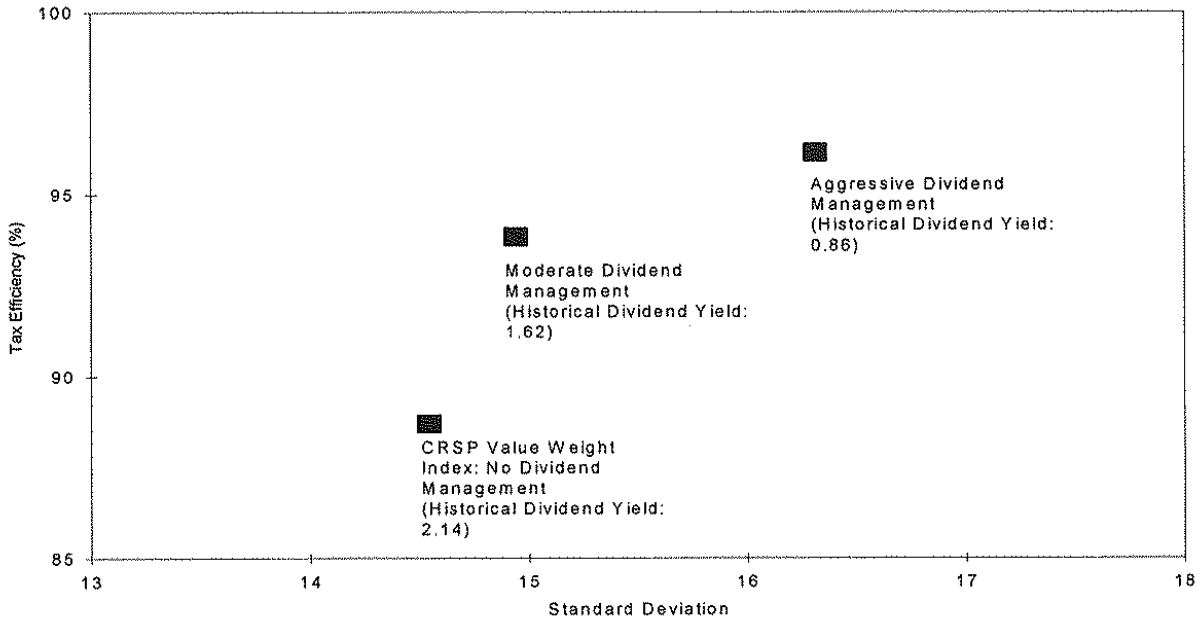
Tax-Managed Funds



Is it worth it? Assuming 7% market premium

- No Dividend Management
  - Sharpe Ratio: $7\%/14.5\% = 0.48$
- Aggressive Dividend Management has
  - gains of $0.40 \times (2.14\% - 0.86\%) = 0.51\%$
  - after higher fees: $0.51\% - 0.1\% = 0.41\%$
  - Sharpe Ratio $(7\% + 0.41\%)/16.3\% = 0.45$

Tax-Managed Funds

- Previous calculation assumes that
  a) Investors only hold the DFA tax-managed fund. If they are invested in other assets (real estate, international equity), they may care about the correlation between these assets and the DFA tax-managed portfolio.
  b) Ignoring tax gains, the tax-managed portfolio had the same average returns as the market portfolio. Due to the possible overweighing of small growth stocks, this need not be the case.

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Returns of portfolios sorted on Dividend Yield

	No Div	1	2	3	4	5	6	7	8	9	10
1927-2007											
E(R)	12.9%	11.1%	11.8%	11.2%	12.1%	11.0%	11.9%	13.0%	13.6%	13.4%	13.1%
dy	0.0%	1.8%	2.7%	3.2%	3.7%	4.1%	4.6%	5.1%	5.6%	6.4%	7.4%
$E(R) - 40\% \times dy$	12.7%	10.3%	10.7%	9.9%	10.6%	9.3%	10.0%	11.0%	11.4%	10.8%	10.2%
σ	30.7%	22.2%	19.8%	19.1%	18.8%	19.4%	19.3%	18.8%	20.1%	21.1%	22.7%
β	1.51	1.10	0.99	0.95	0.94	0.95	0.94	0.92	0.96	0.98	0.98
avg # firms	1317	158	146	141	139	139	138	145	144	136	124
avg size	171	1487	1208	1191	1100	1165	1151	948	974	1046	655
1963-2007											
E(R)	12.4%	12.2%	11.3%	12.3%	12.0%	11.1%	12.2%	12.6%	13.9%	13.5%	13.1%
dy	0.0%	0.8%	1.7%	2.1%	2.6%	3.1%	3.6%	4.0%	4.7%	5.7%	7.1%
$E(R) - 40\% \times dy$	12.3%	11.9%	10.6%	11.5%	11.0%	9.8%	10.8%	11.0%	12.0%	11.2%	10.3%
σ	24.5%	19.3%	17.1%	16.7%	16.1%	15.7%	15.1%	14.8%	14.5%	13.8%	13.5%
β	1.47	1.19	1.06	1.01	0.98	0.91	0.89	0.87	0.82	0.73	0.55
avg # firms	2218	232	211	203	198	199	198	209	208	193	172
avg size	293	2543	1992	2002	1833	1986	1962	1625	1686	1831	1147

- In terms of pre-tax returns, the low DY stocks look like a poor deal.
- Using the average dividend yield portfolio, we can compute after-tax returns assuming zero capital taxes.
- This provides an upper bound on any tax-benefits.

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