Homework 2
Due Wednesday, April 12th 2006

Use the dataset for the second STATA Tutorial from the course website, go over the STATA tutorial, read Piotroski (2000) before answering the following questions.

1. Construct Book/Market Ratio sorted quartile portfolio returns.

Limit attention to December fiscal year firms. Consider the period 1980 to 2004.

Start with 1980. Compute the book value and market value of equity of each firm based on the balance sheet information for the fiscal year that ended in 1980. Group firms into four quartiles based on book/market ratio – the first quartile has the smallest book/market ratio and the fourth quartile has the highest book/market ratio.

Note that for each firm, for each fiscal year that ended in 1980, you are also given the 12 month (6^{th} through 17^{th}, i.e., June 1981 through May 1982 in this case) return in the database – this variable is denoted "ret12" in the databse.

Compute the equally weighted 12 month return (June 1981 – May 1982) for each of the quartile portfolios.

Repeat this exercise for 1981 through 2004, to get a time series of twenty five 12 month returns for each of the 4 quartile portfolios.

2. Analysis of the Book/Market Ratio sorted quartile portfolio returns.

(a) Provide the summary statistics for the four quartile returns: Average return; Standard Deviation of the returns; Min and Max of the returns; Sharpe Ratio.

(b) Form a long-short portfolio of the top and bottom quartiles. Again provide the summary statistics for the return (return on the low book/market minus high book/market portfolio) on that position; and the Sharpe Ratio.

(c) Plot the time series of return – return on the vertical axis and the year on the horizontal axis. During which year the long-short strategy worked best? Worst?

3. Suppose you had foresight right after you formed the quintile portfolios each year.

(a) You knew the stocks that would be in the top 5% of the performers within each quartile after forming the portfolios. Suppose you are prohibited to invest in these stocks. How would the returns on the quartile portfolios look in that case? Will the highest book/market quartile portfolio continue to be attractive relative to the lowest book/market quartile portfolio?