The beta problem

Data:

Pick a publicly traded firm. Go to "http://biz.yahoo.com/i/" (don’t start with www) and look up the ticker symbol for your company. Click on “quote” and then on “historical prices” and select weekly data. Enter the dates **February 14, 2005** for a beginning date and **October 22, 2001** for an ending date. Download the data to your spreadsheet.

Get the S&P 500 index for the same period by going to "Market Overview" or to http://finance.yahoo.com/. Look under “Today’s Market.” Click on the S&P 500, and its historical prices. Use the same dates as above and download the price data. Transfer both streams of price data to one spreadsheet and in both series, eliminate all price data except the adjusted closing price.

Computations in the spreadsheet:

The assigned computations should be done without using the built-in excel functions such as "var," "covar" and other statistical functions. You may use the built-in functions to check your work, but be aware of subtle differences among the available statistical functions. The regression section below is another check. Incidentally, the regression package (and matrix inversion) in excel was a poor performer in critical applications a few years ago. It’s fine for this exercise, but perhaps not for the purpose of serious financial research.

Use adjusted closing prices because they count the dividend and any splits.

**Important:** The top sheet of your homework should be a summary page answering each of the questions in a clear, readable format.

Questions to answer: part one

1. For the firm and the S&P 500, find the weekly rates of return. Show the first two rates and the last two rates in both series.

2. Find the sample average rates of return for each asset.

3. Compute estimates of the variances.

4. Compute estimates of the covariance.

5. Compute the sample correlation coefficient.

6. Compute an estimate of the beta for the firm. (It should be the same as the beta you get by regression in the next part.)

The regression check question:

In excel, under the "Tools" menu, click on "Data Analysis." (If "Data Analysis" does not appear in the "Tools" menu, click "Add-Ins" on that menu and activate the "Analysis Tool Pak."). Click the regression option. (In spread sheets other than excel, find the linear regression package.) Regress the rate of return of your firm as the y variable on the rate of return of the S&P 500 as the x variable.

1. What is the estimate of beta obtained by regression? (It should be exactly the same as your previous estimate down to four or five decimal places.) (You can use the "plot" option to get a nice diagram of your results).

2. Remember to summarize your results on the top page.
2. Ken Lay and Jeffrey Skilling are on trial for allegedly giving false and misleading information about the earnings of Enron. Give three arguments showing that they should be acquitted. You don’t have to be convinced by the arguments, but you must be able to state them cogently.