15.415 C&D: Excel Tutorial

Spring 1999

- ## How To Run Regressions in Excel

Preliminaries

1. First you want to start with a clean sheet of data in columns.

2. In one column, you should have the variable that you are trying to predict through your regression. This is known as the Y variable. In each of the other columns, you should have the variables that you are thinking of including in your regression model in order to predict the Y variable. The variables in the other columns are known as X variables.

3. You should use a descriptive label in each of the cells immediately above your data so that Excel can keep track of each variable.

Run Regression Using Dialog Box

1. On the Tools menu, click "data analysis". Then Select "regression" in the menu.

   If the "data analysis" command is not on the Tools menu, you need to install the Analysis Toolpak. Click "Add-ins" on the Tools menu. Check the box in front of "Analysis toolpak". You may need to restart Excel afterwards.

2. Under "Input Options", Click the button to the right of "Input Y range" and highlight all the cells in your Y variable column. You should include in input the label on the row above the data and remember to check the "Labels" box below. (Or you can choose not to include the label and not to check the "Labels" box. But it is much harder to read the result.) Press enter to complete this selection.

Do the same thing for the "Input X range", ensuring that you include all columns of data which you are including in the regression and that you include the data labels as well. Note that the columns you want to include need to be contiguous, so you may need to do some cutting and pasting in order for this to occur.

3. In the boxes below, check off "Labels" and "Confidence Interval". Make sure that 95% is the value in the box next to "Confidence Interval". (Note constant is not assumed to be zero(the excess return of the stock), so , do not check the box "constant is zero".)

4. Under "Output Options", choose New Worksheet Ply and in the box to the right, name the new sheet on which the regression data will appear. For example, name it "output".

5. You are ready. Hit "OK".

6. Go to the "output" page you just created. The coefficients of the regression is what is needed for this course.

Run Regression Using LINEST() Function.

1. LINEST() is faster than the dialog box. But it is less user-friendly.

2. To use LINEST, first, prepare the data in columns as above.

3. Count the number of X variables n. Select $n + 1$ cells in a row. This is where the output lies.

4. Type "=LINEST(known_y's,known_x's)", known_y's is the cells that contains input y and same for known_x's.

5. Press CTRL+SHIFT+ENTER.

6. The numbers in cells 1 to n are coefficient for variable X_n to X_1, cell $n+1$ is the interception.

- **How to Use Solver in Excel**

  1. On the Tools menu, click Solver. If the Solver command is not on the Tools menu, you need to install the Solver add-in. Click "Add-ins" on the Tools menu. Check the box in front of "Solver add-in". You may need to restart Excel afterwards.

  2. In the Set Target Cell box, enter a cell reference or name for the target cell. The target cell must contain a formula.

  3. To have the value of the target cell be as large as possible, click Max. To have the value of the target cell be as small as possible, click Min. To have the target cell be a certain value, click Value of, and then type the value in the box.

  4. In the By Changing Cells box, enter a name or reference for each adjustable cell, separating nonadjacent references with commas. The adjustable cells must be related directly or indirectly to the target cell. You can specify up to 200 adjustable cells.

  5. To have Solver automatically propose the adjustable cells based on the target cell, click Guess.

  6. In the Subject to the Constraints box, enter any constraints you want to apply.

  7. Click Solve.

  8. To keep the solution values on the worksheet, click Keep Solver Solution in the Solver Results dialog box. To restore the original data, click Restore Original Values.