Pivot Tables

According to Excel help, a PivotTable report is an interactive way to quickly summarize large amounts of data. You can use a PivotTable report to analyze numerical data in depth and to answer unanticipated questions about your data. A PivotTable report is especially designed for:

- Querying large amounts of data in many user-friendly ways.
- Subtotaling and aggregating numeric data, summarizing data by categories and subcategories, and creating custom calculations and formulas.
- Expanding and collapsing levels of data to focus your results, and drilling down to details from the summary data for areas of interest.
- Filtering, sorting, grouping, and conditionally formatting the most useful and interesting subset of data to enable you to focus on specific information.
- Presenting concise, attractive, and annotated online or printed reports.

CREATING A PIVOTTABLE

PivotTables are very useful in the audit function, however creating one the first time can be a challenge. Here are five easy steps to creating a Pivot Table:

1. **Clean the data.** PivotTables only work when your base data is in a single table with no empty columns or rows. Make sure every column has a header; it's easiest if the headers are unique.

2. **Select the data.** Highlight the data that will be analyzed, including the headers and all records.

3. **Create the PivotTable.** Click the 'PivotTable' icon on the Insert Ribbon; select PivotTable. Confirm the data range and the desired location of the table.

4. **Choose aggregating fields.** One or more field can be used to create row and column labels; the values in that field define how data is aggregated.

5. **Choose fields to aggregate.** One or more fields can be aggregated (sum, count, average, etc.) on an absolute or relative basis against the row and column labels selected.

Some Useful Functions
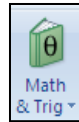
ABS – Calculates the absolute value.

CEILING – Rounds up to a given level of significance.

FLOOR – Rounds down to a given level of significance.

RANDBETWEEN – Provides a random number between a provided range. *(Great for sampling, but use the Paste Values option to avoid recalculating.)*

ROUND – Rounds a number to a chosen level of significance.

SUBTOTAL –Used to aggregate visible data only in a variety of ways including: SUM, COUNT, MAX, AVERAGE, MAX. *(Great when you're using active filters.)*

SUM – Sums a range of cells.

SUMIF – Sums numbers in a range according to criteria defined for a second range.
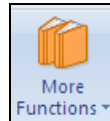
See Statistical Submenu

AVERAGE – Calculates the average of a series.

COUNT – Counts cells that contain numeric items.

COUNTA – Counts cells that contain alpha items.

COUNTBLANK – Counts the number of cells that are blank.

COUNTIF – Counts the number of cells that meet a given criteria.

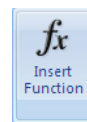MAX – Returns the maximum numeric value in a range.

MEDIAN – Returns the median of a range.

MIN – Returns the minimum numeric value in a range.

MODE – Returns the most frequently occurring value in the range.

PERCENTILE – Helps you identify the break point for a particular percentage based on a range of values. *(Great to develop a Pareto analysis.)*

Insert Function

Can't create a function from your memory? No problem! Use Insert Function (or Paste Function) to set-up complicated functions, or functions with which you aren't familiar. The handy wizard has an entry box for each input and helpful text to guide you through the process.
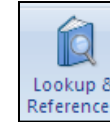
GETPIVOTDATA – Used to pick values out of a PivotTable based on the report, column and row heading values. *(Great for creating good looking reports from data in PivotTables.)*

HLOOKUP – Finds a value in the leftmost column of a table and provides a value from another column of the table.

VLOOKUP – Finds a value in the top row of a table and provides a value from another row of the table.
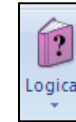
CONCATENATE – Joins multiple items (cells or text) together into a single cell.
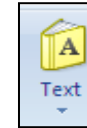
LEFT / MID / RIGHT – Takes a subset of the text off the string based on the number of characters defined.

VALUE – Converts a number that is formatted as text to a number.

AND – Generates a 'true' response if all criteria are met, and a 'false' response if not.

IF – Evaluates the accuracy of a statement and then provides two possible responses depending on whether the statement is true or false.

OR – Generates a 'true' response if any of the criteria are met, and a 'false' response if not.
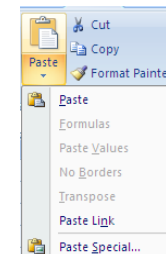
DAY – Reports the day from a standard date.
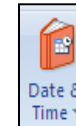
DATEVALUE – Converts a 'text date' into a numeric date. *(Great for imported data.)*

MONTH – Generates the month from a date.

YEAR – Gives the 4-digit year from a date.

Paste Special

Don't like the results when you Paste something in Excel? You can choose to be *specific* about what you want to Paste with the Paste Special command.

Keep your eye on: **Paste Values** (converts formulas and ignores format), **Paste Link** (which inserts a link to another cell, tab or worksheet) and **Paste Formats** (which repeats the format, not data.)

PivotTables (Continued)

The most critical part of the PivotTable is the Values – namely what data you will be aggregating. Within the Value Field Settings dialog box, you can do four things:
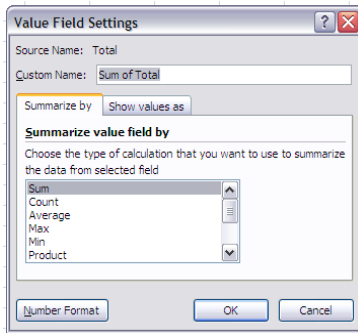

- Create a custom name.
- Choose the calculation method that is being used.
  Excel will default to Sum for fields with a number format and Count for fields with a text format.
- Select how the values will be shown.
  Data can be shown in the normal way, or in comparison with the other data in the table.
- Change the format of the data.
  All of the normal number formats are available to cells within a PivotTable.

KEY PIVOTTABLE TOOLS

Refresh. PivotTables can contain significant amounts of data and complex formulas. For that reason, they do not re-calculate automatically. If the underlying data for the PivotTable changes, you will need to refresh the table. You can refresh the data by right-clicking on the PivotTable and choosing Refresh or by clicking the Refresh button on the PivotTable Tools Ribbon.

Change Data Source. Once a PivotTable has been created, the source of the data can be modified using this function. Note: columns inserted before the last column will be automatically added.

Formula. The Formula tool allows existing fields in your data table to be used to create new fields that can be included in the PivotTable.
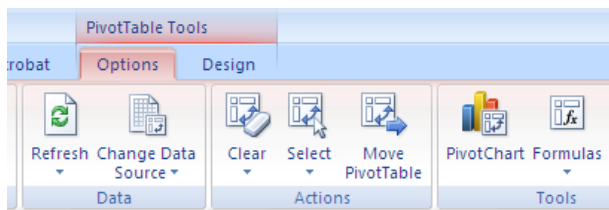
Good Stuff to Know

Within Excel, there are a couple of basic building block skills needed to create complex functions.
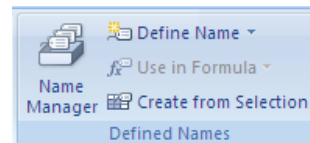
ABSOLUTE & RELATIVE REFERENCES

How you reference a cell or range impacts what happens when you copy and paste that formula into another location. A relative cell reference adjusts to its new location when the formula is copied and pasted. An absolute cell reference does not change, even when the formula is copied and pasted elsewhere. For example, let's assume that you create the following formula in cell A6 to sum a column of numbers:

Absolute Reference → SUM($A$1:$A$5)
If copied to B6, the formula and result are unchanged.

Relative Reference → SUM(A1:A5)
If copied to B6, the formula would adjust to SUM(B1:B5), resulting in a new sum.

NAMING CELLS & RANGES

You can Name a cell or a range of cells to increase ease of function development. Although the Name Manager (in the Formula ribbon) can be used to define and manage names, the easiest way to create a named range is to follow these quick steps:

1. Highlight the cell or cells that you would like to Name

2. Click on the "Name Box", which is the box to the left of the formula bar (shown by the orange box)

3. Type in the Name you would like to use. Names should be brief, descriptive and cannot contain spaces.

4. When you want to use the Name in a formula, just press F5 and pick the name from the list or type the Name in the formula.

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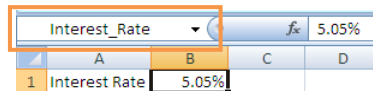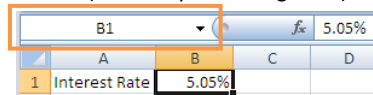
EXCEL FUNCTIONS FOR AUDITORS

A Reference Guide for Excel 2007