Week 2: Toolbox

Keyboard Shortcuts

Array Formulas

Compute an array formula - **CTRL + Shift + Enter**

Convert an existing formula into an array formula **- F2**, and then **CTRL + Shift + Enter**

Terminology

Array

This is a grid of any number of cells. In the formula bar, a colon separating two cell references indicates a reference to an array. E.g. **A5:A7** is a reference to the array containing the cells **A5**, **A6** and **A7**.

Array Formula

Also known as a CSE (Control-Shift-Enter) Formula, this is an advanced Excel formula which relies on the use of arrays. Curly braces { } in the formula bar indicate the use of an array formula.

Multi-Cell Array Formula

A type of array formula which gives results in multiple cells from a single formula.

Single-Cell Array Formula

A more common type of array formula which produces a result in a single cell from a single formula.

Array Constant

This is an array of values as opposed to an array of cell references. It is specified by putting values in curly braces which are separated by semicolons. E.g. {1;2;3} is an array constant.

Transpose

The action of converting a row of Excel values to a column of the same values, or vice versa.

Structured Referencing

This is a type of referencing that Excel uses for tables. After creating a table, Excel automatically designates names to the table and each column header in the table. Then, formulas that refer to cells within the table can refer to those names instead of actual cell references.

Ninja Tips

Using TRUE and FALSE for counting

If you multiply the logical values **TRUE** or **FALSE** by 1 (one), then Excel will return the numerical values 1 (one) or 0 (zero), respectively. This will allow you to use Excel formulas that are based on the original logical values, which would otherwise not be possible.

Consider this example: Given two named ranges for current and old USD price, the array formula **{=SUM((USD_Price<Old_USD_Price)*1)}** will first convert the logical values produced by **USD_Price<Old_USD_Price** to '0's and '1's and then sum the results. Effectively, you will have counted how many price decreases have occurred amongst all the pairs of current and old USD prices.

Structured References

When using structured referencing, a mixture of relative referencing and absolute referencing is employed by Excel. Generally, referencing tends to be absolute for formulas copied vertically but relative for formulas copied horizontally. To convert from relative to absolute structured referencing, the name for the column header needs to be duplicated before the formula is copied horizontally. For example, use:

TopQtr[@[Best Quarters]:[Best Quarters]] instead of just **TopQtr[@[Best Quarters]]**

Where **TopQtr** is the name of the table being extracted from and **Best Quarters** is the header name of the desired column in the table.