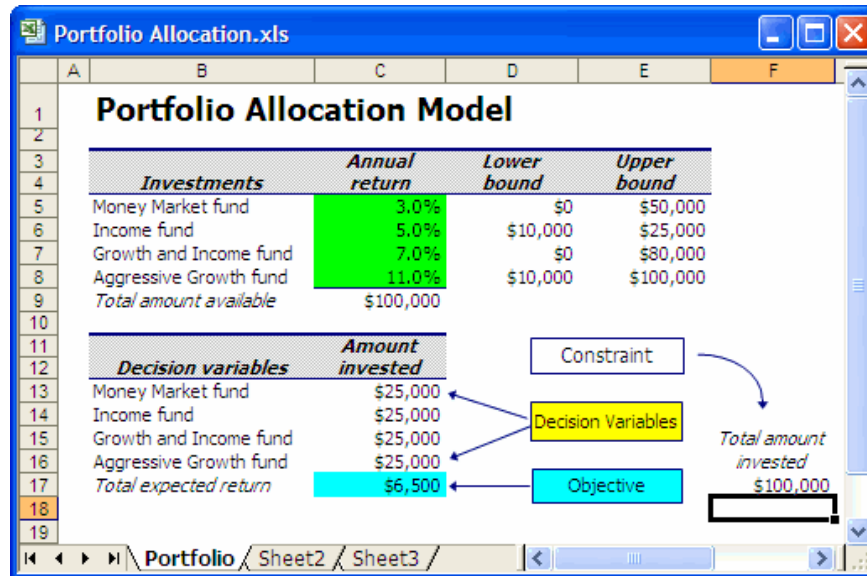


One-Minute Spotlight

Correlation Matrix Tool

The Oracle Crystal Ball correlation feature helps you model dependencies between pairs of assumptions. Correlation can increase the accuracy of your simulation's forecast results because you are taking into account the relationships among the uncertain variables. For complex models with many correlated variables, you can use the **Correlation Matrix tool** to save time and effort.



The Crystal Ball assumptions in the above model are the annual returns for the four investments (cells C5:C8). While each investment's annual return is uncertain, these assumptions are not independent because they share similar market forces. You have already calculated their relationships, so now you use the tool to quickly add them all into your model.

Opening the Tool and Selecting Assumptions

The Correlation Matrix tool is opened through the Run > Tools menu.

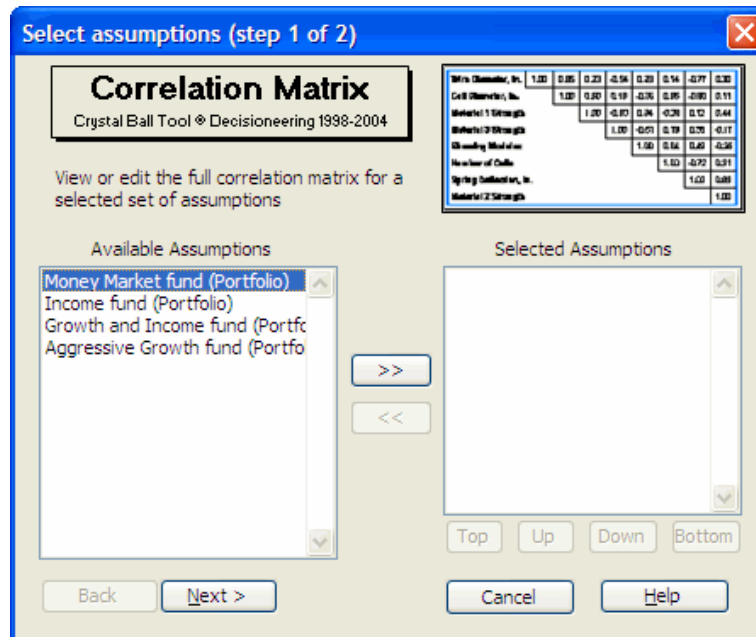
When the tool opens, you will see the Step 1 dialog as shown below. The tool detects and then lists all of the Crystal Ball assumptions available on the active worksheet.

To select an assumption for the matrix, highlight the assumption on the left and click the >> button to move it to the Selected Assumption list on the right.

After all of the assumptions you wish to correlate are selected, click Next to move to Step 2.

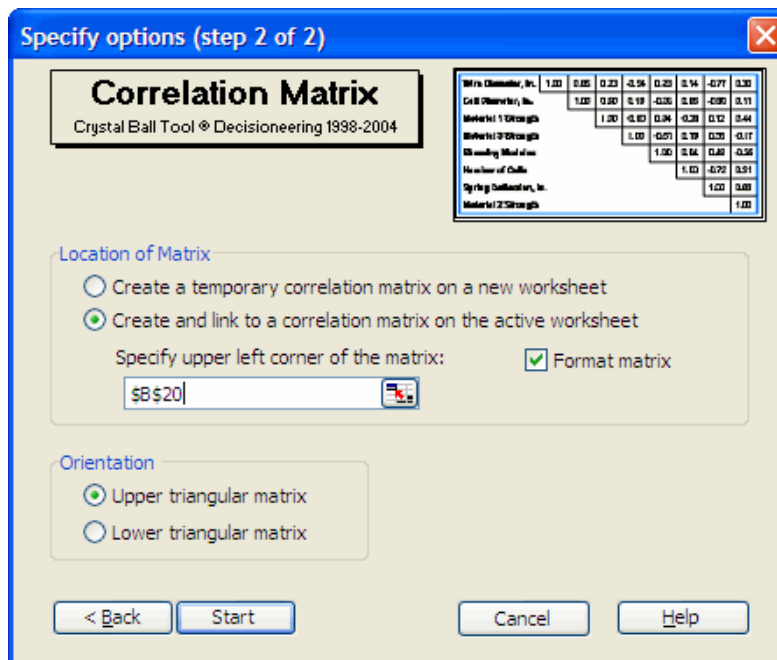


One-Minute Spotlight



Positioning and Creating the Matrix

In Step 2, you select options for where you want the matrix created and how you would like it organized.



One-Minute Spotlight

You have the choice of creating a temporary matrix on a new worksheet or creating a permanent matrix on your existing model. You can also control the orientation of the matrix. In this example, you choose to create and link the matrix starting in cell B20, just below where the model calculates the Total expected return. Click Start to create the matrix.

Completing the Matrix

Placing the matrix in view on the same sheet lets you view and change the correlations whenever you want. Once the matrix has been created, simply enter the coefficients into the cells for each pair of assumptions. In the screen shown below, the six coefficients for your returns have already been entered.

The screenshot shows an Excel spreadsheet with the following data:

Investments	return	bound	bound
Money Market fund	3.0%	\$0	\$50,000
Income fund	5.0%	\$10,000	\$25,000
Growth and Income fund	7.0%	\$0	\$80,000
Aggressive Growth fund	11.0%	\$10,000	\$100,000
Total amount available		\$100,000	

Decision variables	Amount invested
Money Market fund	\$25,000
Income fund	\$25,000
Growth and Income fund	\$25,000
Aggressive Growth fund	\$25,000
Total expected return	\$6,500

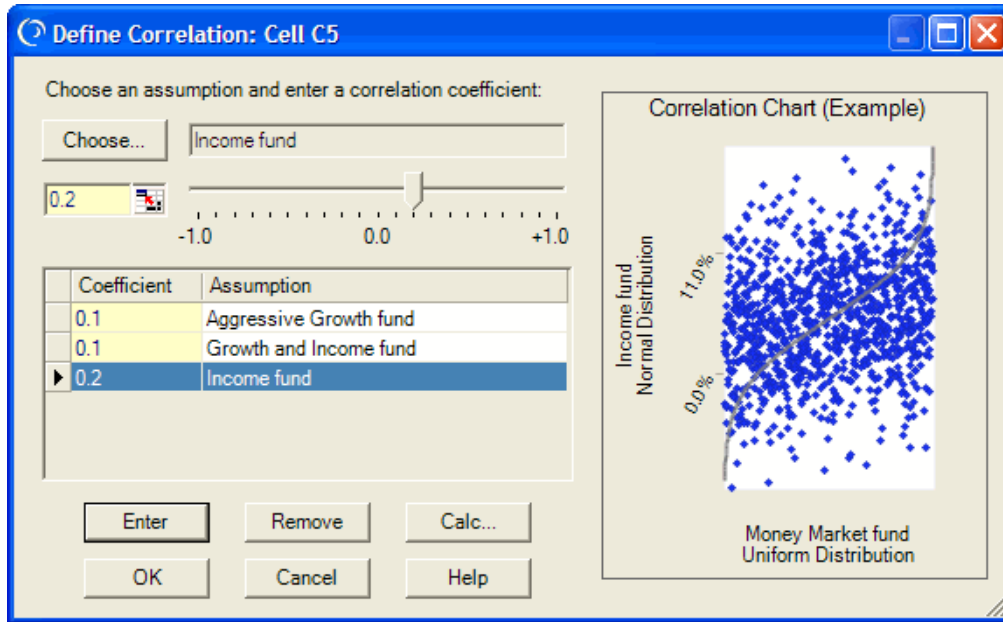
	Money Market fund (Portfolio)	Income fund (Portfolio)	Growth and Income fund (Portfolio)	Aggressive Growth fund (Portfolio)
Money Market fund (Portfolio)	1.000	0.200	0.100	0.100
Income fund (Portfolio)		1.000	0.300	0.200
Growth and Income fund (Portfolio)			1.000	0.500
Aggressive Growth fund (Portfolio)				1.000



One-Minute Spotlight

How Are the Assumptions Linked to the Matrix?

After you have entered the correlations, the assumptions are linked to the matrix. To test this, select an assumption, click on the Define Assumption button, and click the Correlate... button on the assumption dialog. The correlation list will be filled with the data from the matrix.



For the Money Market fund, shown above, the correlations with the other three funds are shown. When you select one, such as the income fund, the top field will show the cell that contains the assumption, and the field below it will show the link to the correct cell in the correlation matrix.

The Correlation Matrix tool has quickly imported all of your correlations so that you can spend more of your time running and analyzing simulations.

For more information or to contact us, browse to <http://www.oracle.com/crystalball>.