

## One-Minute Spotlight

### THE CRYSTAL BALL TORNADO ANALYSIS TOOL

Oracle Crystal Ball includes a collection of tools that can help you build and improve your spreadsheet models. The Tornado Analysis tool can be especially useful in determining which model variables are the most important inputs; these are the inputs that you should define as probability distributions (Crystal Ball assumptions).

In this example model, your company is planning to introduce a new drug, code named "ClearView." When loaded from the Crystal Ball Examples folder, not all assumptions are defined. You can do that after running the analysis.

The screenshot displays the Oracle Crystal Ball Tornado Analysis tool interface. The spreadsheet shows the following data:

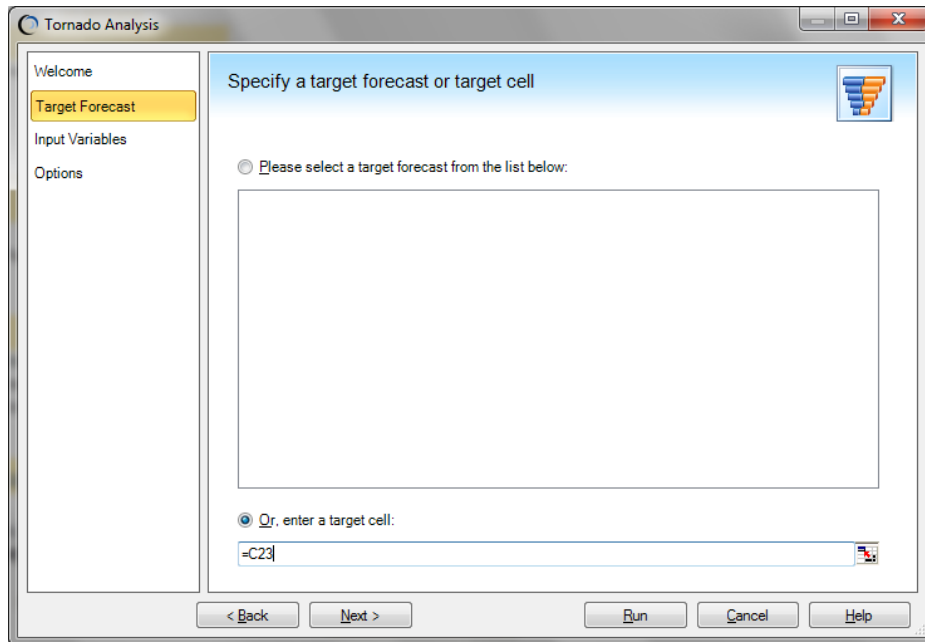
Row	Column	Value	Distribution
3	Section Header	Costs	
4	Development Cost of ClearView to Date	\$10.0	
5	Testing Costs	\$4.0	Uniform
6	Marketing Costs	\$16.0	Triangular
7	Total Costs	\$30.0	
8	Section Header	Drug Test	
10	Patients Cured	100	Binomial
11	FDA Approved if 20 or More Patients Cured	TRUE	
13	Section Header	Market Study	
14	Persons in U.S. with Nearsightedness Today	40.0	
15	Growth Rate of Nearsightedness	2.00%	Custom
16	Persons with Nearsightedness After One Year	40.8	
18	Section Header	Gross Profit on Dosages Sold	
19	Market Penetration	8.00%	Normal
20	Profit Per Customer in Dollars	\$12.00	
21	Gross Profit if Approved (MM)	\$39.2	
22			
23	Net Profit (MM)	\$9.2	

A callout box labeled "Gross and Net Profit Forecasts" points to the Gross Profit and Net Profit values.

## Tornado Analysis, continued

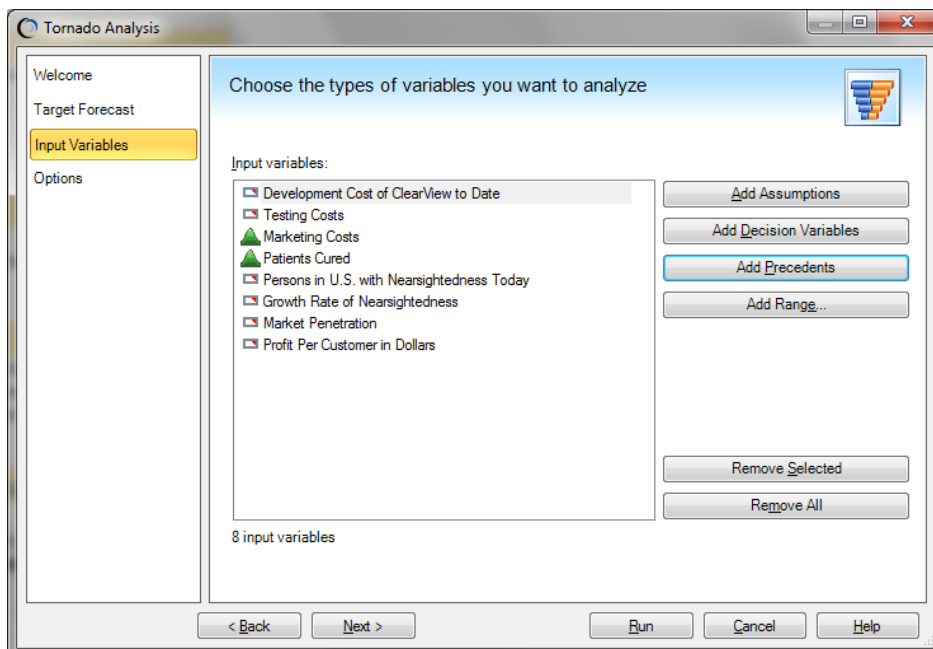
### BEGINNING THE TORNADO ANALYSIS

After opening the Tornado Analysis tool, the first step of analysis is to define the target cell -- in this case, the Net Profit (\$C\$23).



### SELECTING THE INPUT VARIABLES

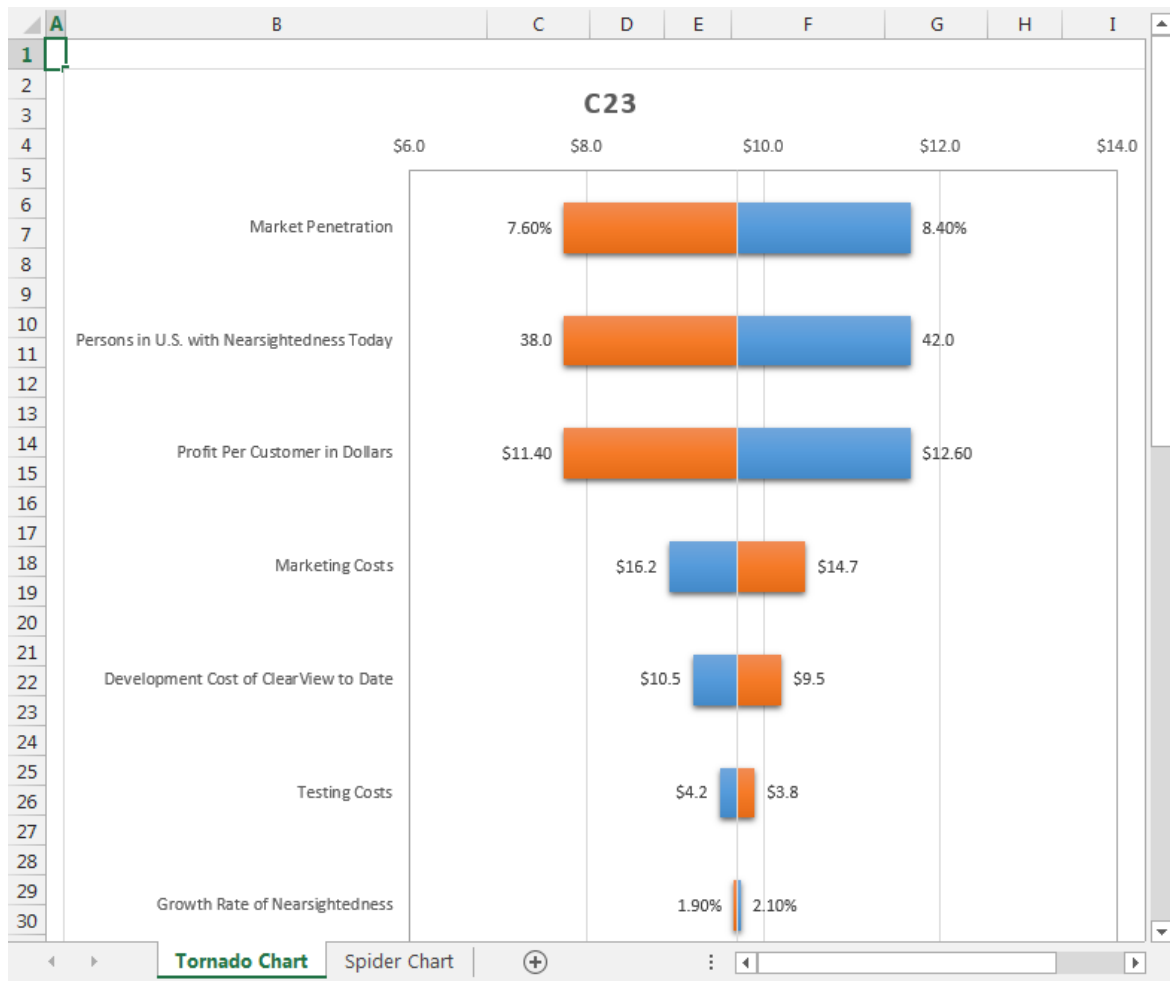
Next, you are directed to select the inputs, assumptions, or decision variables that you want to test. In this model, since you have not defined all of these yet, you select Add Precedents to choose the model input cells that affect the Net Profit formula.



Tornado Analysis, continued

## RUNNING THE TOOL AND ANALYZING YOUR RESULTS

You then run the tool. After the analysis is completed, the tool creates a Tornado chart for the Net Profit variable (as shown below).



The variables with the widest ranges are listed at the top of the diagram. These will likely cause the greatest variability in the possible Net Profit values (represented by the scale at the top). Net Profit is most sensitive to changes in the top three: Persons in the U.S. with Nearsightedness Today (\$C\$14), Market Penetration (\$C\$19), and Profit per Customer (\$C\$20).

Therefore, these are the variables that you might want to define as assumptions. The other variables have less impact on the analysis, and defining these cells as assumptions will not significantly affect the results.

While this is only a rough, preliminary estimate, you can see that the Tornado tool can be a powerful tool, providing a starting place for defining your assumptions.

For more information or to contact us, browse to <http://www.oracle.com/technetwork/middleware/crystalball/overview/index.html>.