

Crystal Ball Software and Risk Analysis Tips

(#40) Truncating a Distribution

For each distribution in the Distribution Gallery (except custom), you can change the distribution's bounds by adjusting the truncation grabbers (the small, black triangles at the bottom of the chart area) in the distribution's dialog. Modelers often consider truncating a distribution because of some limit, above or below, on the range. An example of this would be if you had a distribution of a product price that can never be negative (therefore, your truncation for the lower limit of the range would be zero.).

Adjusting the grabbers truncates the distribution and changes the distribution's calculated statistics, such as the mean. Turning on the mean line lets you see the effect truncation has on the mean. For example, a normal distribution defined with a mean of \$100,000 and a standard deviation of \$15,000 will no longer have a calculated mean of \$100,000 after truncation that isn't symmetrical. Crystal Ball uses numerical integration (Newton's method) to calculate the truncated mean.

Further technical information: Crystal Ball calculates the truncated mean as the numerical integration of $f(x)x$ from the lower truncation point to the upper truncation point of the distribution, divided by the numerical integration of $f(x)$, where $f(x)$ is the probability distribution function of the nontruncated distribution.

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

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