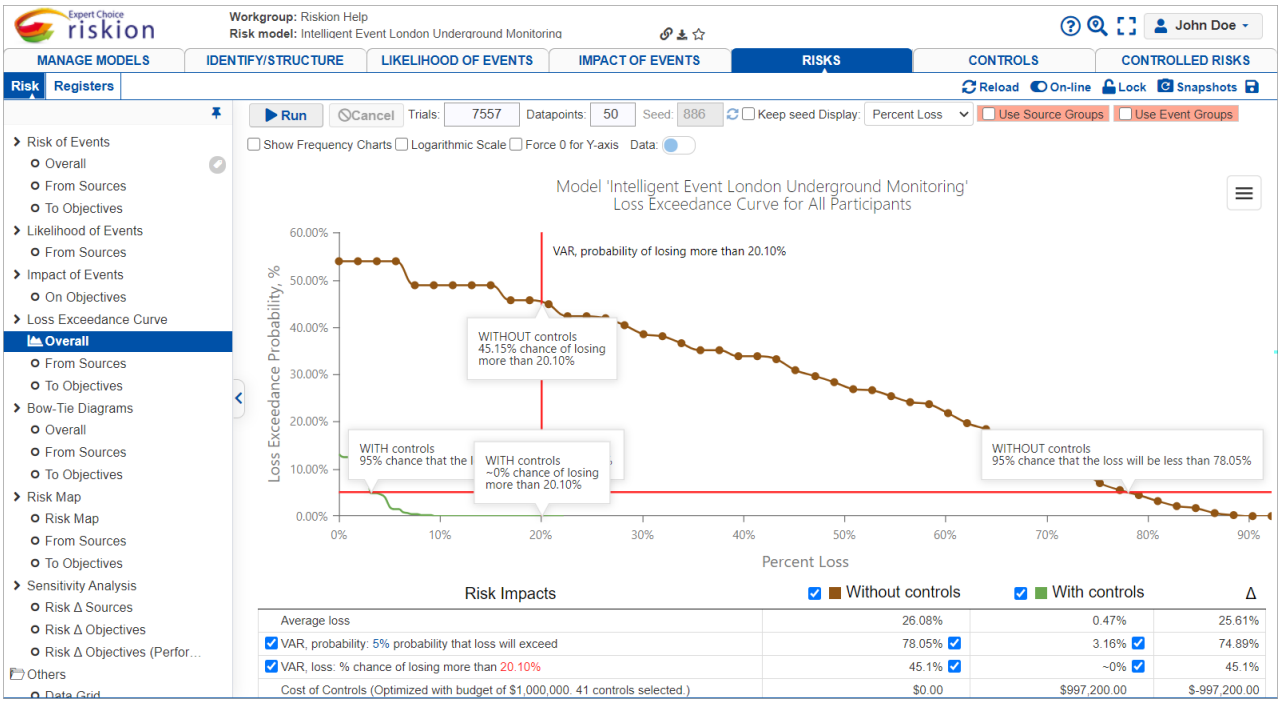
Overall Loss Exceedance Curve (LEC) with Controls

Overview

The LEC represents the annual frequency whereupon a determining economic loss will be exceeded. It is the most important and strongest measurement of risk since it provides basic information for the planning and appropriation of the resources necessary to fulfill particular management objectives. The LEC can be calculated based on the greatest probable event of a year or uniformly for all possible events, based on their recurrence interval. The latter approach is preferred, given that it allows for considering more than one disaster event per year.

We can view the LEC both for "without controls" and "with controls". The LEC for "with controls" reflects the controls that are currently 'selected', either manually or via an optimization. The brown curve represents the "Without Controls" and the green curve the"With Controls".



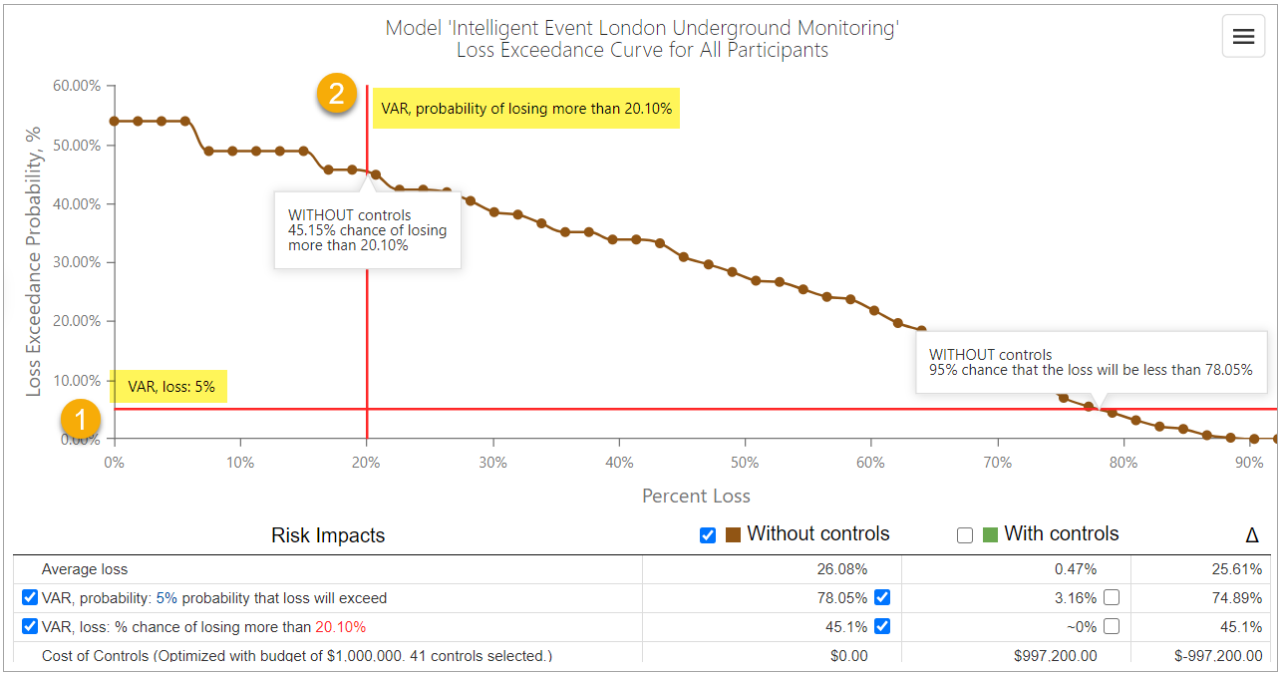
The **x-axis** represents the Percent Loss (or Monetary Loss).

The **y-axis** represents the Loss Exceedance Probability, %.

You can show/hide the with or without controls curve/tooltips by checking/unchecking the options from the bottom grid.

The **Average loss** is the Total Risk.

Below, we only enabled the without controls options.



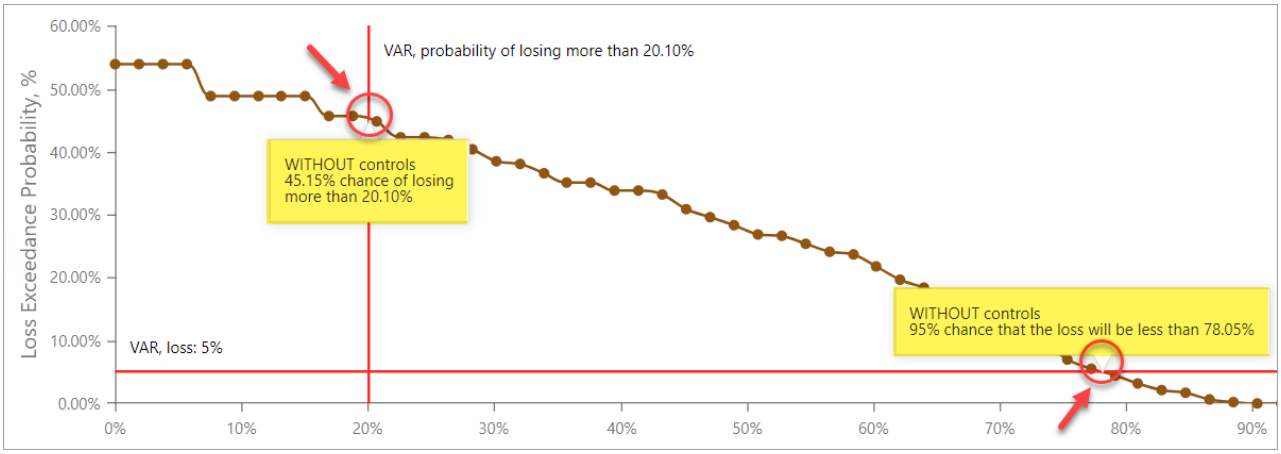
Risk Impacts	Without controls	With controls	Δ
Average loss	26.08%	0.47%	25.61%
VAR, probability: 5% probability that loss will exceed	78.05%	3.16%	74.89%
VAR, loss: % chance of losing more than 20.10%	45.1%	~0%	45.1%
Cost of Controls (Optimized with budget of $1.000.000. 41 controls selected.)	$0.00	$997.200.00	$-997.200.00

From the grid at the bottom, we can define the VARs represented by the horizontal and vertical red lines in the graph.

1. VAR, probability, n% probability that loss will exceed (horizontal red line)
2. VAR, loss % chance of losing more than n% (vertical red line)

You can edit the **%** by clicking on it; a prompt where you can enter the value will pop out.

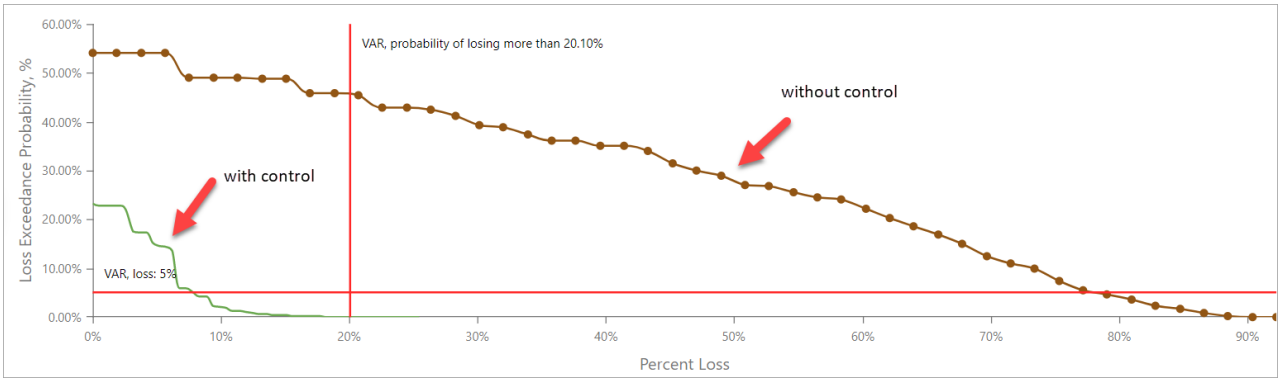
As these lines touch the "Without Controls" (or With Controls) curve, we can see the %probability.



The vertical red line %Loss = 20.1% (vertical red line) touches the curve at 45.15%, which means that for "Without controls", there is a 45.15 % chance of losing more than 20.1%.

The horizontal line %Loss Exceedance Probability (horizontal line) = 5% touches the curve at 78.05%. This means that for "Without Controls", there is a 95% chance that the loss will be less than 78.05%.

Notice how the curve is flattened/shortened for LEC with controls -- loss is reduced when controls are in effect.


60.00%
50.00%
40.00%
30.00%
20.00%
10.00%
0.00%
Loss Exceedance Probability, %
VAR, probability of losing more than 20.10%
without control
with control
VAR, loss: 5%
0%
10%
20%
30%
40%
50%
60%
70%
80%
90%
Percent Loss