

Introduction to RISKOptimizer

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RISKOptimizer
optimization with simulation

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RISKOptimizer: what can it do for me?

- » Runs multiple Monte Carlo simulations
- » Adjusts values of selected cells before each simulation (intelligently)
- » Objective: optimize value of some statistic
- » Example: Portfolio 40 Years.xls



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Watcher: Progress Information

- » Progress graphs
- » Log: all solutions or progress steps
- » Pausing an optimization
- » Options at end of optimization



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Reports

- » Summary Report
- » Log: all solutions or progress steps



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Optimization Settings

- » Optimization Runtime
- » Simulation Runtime



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Application Settings

- » Settings that apply to all models/workbooks
- » Can be saved to a file



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Hard Constraints

- » RISKOptimizer throws away solutions that do not meet all the specified hard constraints
- » Example “Portfolio 5 Years.xls”



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Iteration Constraints

- » RISKOptimizer stops simulation as soon as the constraint fails
- » Example “Portfolio 5 Years.xls”:
require that the final portfolio value be $> \$30,000$ on every iteration



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Non-Numeric Solving Methods

- » Order: Salesman.xls
- » Grouping: Portbal.xls



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Optimization Engine: Global Optimization

- » Excel's Solver: local optimization
- » Evolver/RISKOptimizer: global optimization



Evolver
the innovative optimizer for Windows



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Optimization Engine: Genetic Optimization

- » Solution = Organism
- » Adjustable Cell = Gene
- » Adjustable Cell Range = Chromosome
- » Solutions in Memory = Population
- » Observe Population/Diversity in Watcher



Evolver
the innovative optimizer for Windows



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Soft Constraints

- » RISKOptimizer disfavors solutions that fail the constraint
- » Add soft constraint to “Portfolio 5 Years.xls”



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RISKOptimizer: how can I get my hands on it?

- » Included in @RISK Industrial Edition
- » Included in DecisionTools Suite Industrial Edition
- » Runs as stand-alone or part of @RISK



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