SIPmath™ Modeler Tools

Overview

For details see the SIPmath Modeler Tools Reference Manual

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Overview

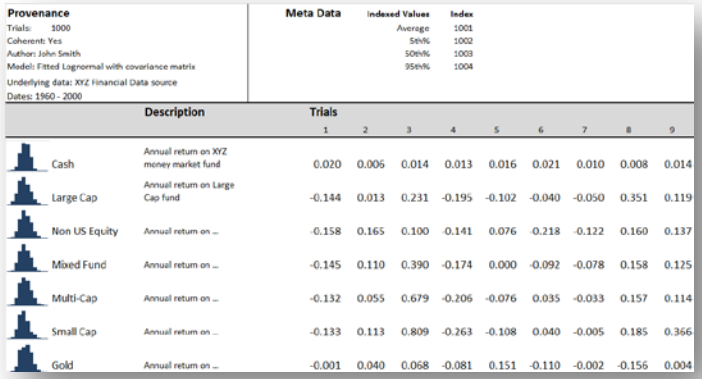
Distribution Processing

Distribution processing involves running pre-computed Monte Carlo trials (SIPs) through interactive models to reflect the uncertainty of the inputs. This may be accomplished using nothing but the Index formula and Data Table in Excel. The **SIPmath** modeler tools are a set of macros to facilitate the setup of data tables and input and output of results. The models so created may be run in native Excel without macros.

Note: The data table approach may also be used to create random simulations when the index statements are replaced by formulas depended on =RAND(). Visit SIPmath.org for a tutorial on Data Table simulation in Excel.

Stochastic Libraries

Excel files comprised of coherent SIPs and meta data

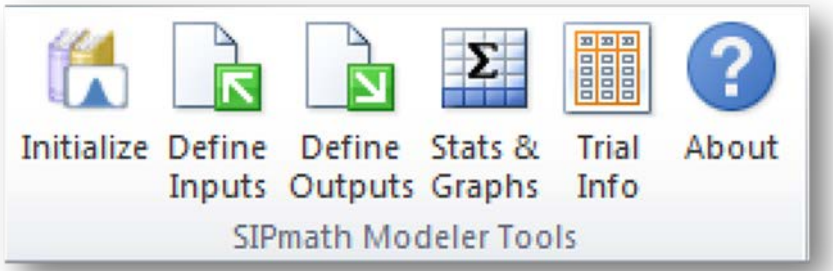


Provenance		Meta Data	Indexed Values	Index
Trials: 1000			Average	1001
Coherent: Yes			5e\%	1002
Author: John Smith			50e\%	1003
Model: Fitted Lognormal with covariance matrix			95e\%	1004
Underlying data: XYZ Financial Data source				
Dates: 1960 - 2000				
	Description	Trials		
		1	2	3
Cash	Annual return on XYZ money market fund	0.020	0.006	0.014
Large Cap	Annual return on Large Cap fund	-0.144	0.013	0.231
Non US Equity	Annual return on ...	-0.158	0.165	0.100
Mixed Fund	Annual return on ...	-0.145	0.110	0.390
Multi-Cap	Annual return on ...	-0.132	0.055	0.679
Small Cap	Annual return on ...	-0.133	0.113	0.809
Gold	Annual return on ...	-0.001	0.040	0.068

4	5	6	7	8	9
0.013	0.016	0.021	0.010	0.008	0.014
-0.195	-0.102	-0.040	-0.050	0.351	0.119
-0.141	0.076	-0.218	-0.122	0.160	0.137
-0.174	0.000	-0.092	-0.078	0.158	0.125
-0.206	-0.076	0.035	-0.033	0.157	0.114
-0.263	-0.108	0.040	-0.005	0.185	0.366
-0.081	0.151	-0.110	-0.002	-0.156	0.004

SIPmath Ribbon

Excel macros for facilitating development of Distribution Processing models using the Data Table.



Stochastic Libraries

Libraries are free format, with information conveyed in Key Range Names

Optional Indexed Meta Data Values may be appended to the ends of the SIPs. The names and index positions must be stored in arrays with special names. In this case, for example, the Average is stored one position beyond the last trial in the SIP

Number of trials stored in a cell named: PM_Trials

Provenance
Trials: 1000
Coherent: Yes
Author: John Smith
Model: Fitted Lognormal with covariance matrix
Underlying data: XYZ Financial Data source
Dates: 1960 - 2000

Meta Data

Indexed Values	Index
Average	1001
5th%	1002
50th%	1003
95th%	1004

name: PM_Meta

name: PM_Meta_INDEX

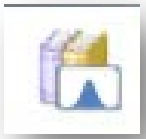
	Description	Trials								
		1	2	3	4	5	6	7	8	9
Cash	Annual return on XYZ money market fund	0.020	0.006	0.014	0.013	0.016	0.021	0.010	0.008	0.014
Large Cap	Annual return on Large Cap fund	-0.144	0.013	0.231	-0.195	-0.102	-0.040	-0.050	0.351	0.119
Non US Equity	Annual return on ...						0.076	-0.218	-0.122	0.160	0.137

SIPs may be stored as Rows or Columns, but must be named for example name: Large_Cap

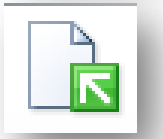
Macros

There are five tools on the **SIPmath** Ribbon:

The *Initialize* tool is where the modeler identifies the Stochastic Library containing the Input SIPs for use in Distribution Processing mode and specifies the number of trials to run if creating a model to run in Random mode.



The *Define Inputs* tool is where the modeler identifies the model's input cells and links them to the desired input SIPs. This tool is not required in Random Mode.



The *Define Outputs* tool is where the modeler identifies the model's output cells and links them to the data table to create the Output SIPs, which are created in either mode.

The *Stats & Graphs* tool provides an easy way to create graphs and statistics from the output SIPs in either mode.

The *Trial Info* tool provides a simple way to step through the input SIPs one trial at a time or view optional metadata in Distribution Processing mode only.