

Portfolio Simulation Model



Simulation Engine Inputs			
<i>Kindly provide the below inputs and click on simulate.</i>			
# of longs	<input type="text" value="10"/>	# of shorts	<input type="text" value="10"/>
Hedge Ticker	<input type="text" value="SPY US EQUITY"/>	# of simulations	<input type="text" value="2"/>
Multiplier	<input type="text" value="1.5"/>	Net Exposure	<input type="text" value="25%"/>
Maximum Position Long	<input type="text" value="10%"/>	Maximum Position Short	<input type="text" value="3%"/>
Minimum Position Long	<input type="text" value="2%"/>	Minimum Position Short	<input type="text" value="1%"/>
Upside Long	<input type="text" value="40%"/>	Upside Short	<input type="text" value="30%"/>
Downside Long	<input type="text" value="40%"/>	Downside Short	<input type="text" value="30%"/>
<input type="button" value="Clear All"/>		<input type="button" value="Simulate"/>	
<input type="button" value="Default I/P"/>			

Request and Guidelines Provided

- **Client:** New York based advisory firm
- Build a portfolio simulation model based on user-defined inputs for standard parameters
- Evaluate the volatility and returns the profile based on hit rates and net exposure

Methodology and Final Deliverable

- Provided a user interface to the client for inputs such as #longs, #shorts, multiplier
- Randomized simulation was run in R using distributed computing (parallel processing) capabilities
- Generated output enabled the selection of ideal portfolio indices

Iteration	LHR_2007	LHR_2008	LHR_2009	LHR_2010	LHR_2011	LHR_2012	LHR_2013	LHR_2014	LHR_2015	LHR_2016	LHR_2017	SHR_2007	SHR_2008	SHR_2009	SHR_2010	SHR_2011	SHR_2012	SHR_2013	SHR_2014
1	50%	33%	40%	35%	25%	25%	42%	25%	42%	75%	37%	76%	72%	57%	57%	62%	50%	43%	71%
2	38%	22%	50%	55%	20%	32%	40%	32%	44%	50%	21%	66%	62%	45%	53%	73%	73%	34%	53%
3	30%	26%	50%	35%	37%	37%	45%	20%	33%	65%	37%	70%	57%	40%	50%	69%	68%	32%	66%
4	37%	50%	65%	60%	39%	33%	85%	28%	20%	60%	35%	73%	67%	29%	37%	69%	47%	48%	83%
5	35%	50%	68%	47%	22%	47%	78%	25%	35%	44%	24%	73%	59%	57%	47%	59%	59%	43%	57%
6	22%	55%	68%	70%	24%	70%	61%	37%	40%	55%	35%	77%	57%	50%	53%	60%	50%	43%	66%
7	32%	47%	45%	56%	26%	16%	63%	26%	47%	67%	37%	86%	59%	37%	31%	69%	55%	45%	71%
8	37%	39%	55%	79%	42%	40%	42%	50%	44%	44%	68%	86%	64%	30%	46%	44%	57%	39%	63%
9	28%	45%	42%	55%	35%	40%	55%	26%	37%	72%	17%	77%	59%	50%	48%	69%	59%	45%	86%
10	37%	50%	61%	63%	40%	35%	44%	26%	31%	39%	50%	66%	57%	37%	52%	57%	68%	32%	73%
11	21%	40%	50%	40%	25%	32%	45%	21%	35%	50%	42%	68%	57%	17%	58%	64%	67%	46%	70%
12	25%	40%	60%	60%	37%	47%	65%	32%	30%	25%	42%	70%	62%	39%	43%	68%	71%	41%	52%
13	21%	50%	58%	76%	15%	35%	71%	39%	26%	47%	20%	79%	80%	33%	53%	70%	53%	33%	72%
14	41%	42%	60%	47%	19%	30%	63%	25%	42%	59%	40%	69%	43%	50%	61%	62%	41%	30%	61%
15	40%	50%	47%	56%	25%	40%	60%	42%	21%	68%	40%	64%	57%	55%	38%	57%	59%	43%	72%
16	21%	44%	39%	40%	50%	42%	63%	25%	40%	56%	21%	66%	62%	41%	34%	70%	61%	53%	77%
17	45%	60%	45%	55%	16%	40%	68%	42%	45%	63%	56%	63%	67%	48%	45%	70%	64%	23%	70%
18	32%	50%	37%	60%	26%	50%	42%	44%	59%	61%	11%	81%	55%	55%	53%	71%	59%	39%	75%
19	42%	37%	65%	58%	41%	65%	37%	45%	30%	53%	56%	67%	68%	57%	38%	59%	63%	56%	72%
20	33%	55%	65%	42%	50%	58%	50%	39%	21%	56%	58%	86%	52%	24%	59%	72%	72%	50%	67%
21	30%	37%	47%	58%	28%	22%	65%	42%	40%	76%	50%	70%	67%	34%	57%	71%	61%	54%	76%
22	21%	42%	65%	50%	28%	44%	65%	33%	42%	72%	29%	68%	63%	27%	55%	64%	53%	41%	54%
23	30%	68%	50%	47%	44%	20%	68%	15%	47%	74%	50%	68%	60%	62%	33%	73%	59%	37%	81%
24	28%	45%	50%	50%	25%	26%	58%	35%	30%	61%	50%	71%	62%	50%	48%	59%	67%	48%	52%
25	20%	32%	55%	56%	11%	30%	84%	32%	24%	63%	20%	65%	63%	53%	57%	69%	60%	45%	70%
26	42%	32%	45%	53%	16%	58%	40%	59%	29%	53%	37%	78%	46%	52%	66%	72%	48%	34%	59%
27	39%	35%	58%	33%	22%	37%	58%	26%	35%	65%	15%	75%	48%	37%	43%	66%	52%	30%	57%

Tools/Technology used : VBA, Macro, R , MS Excel