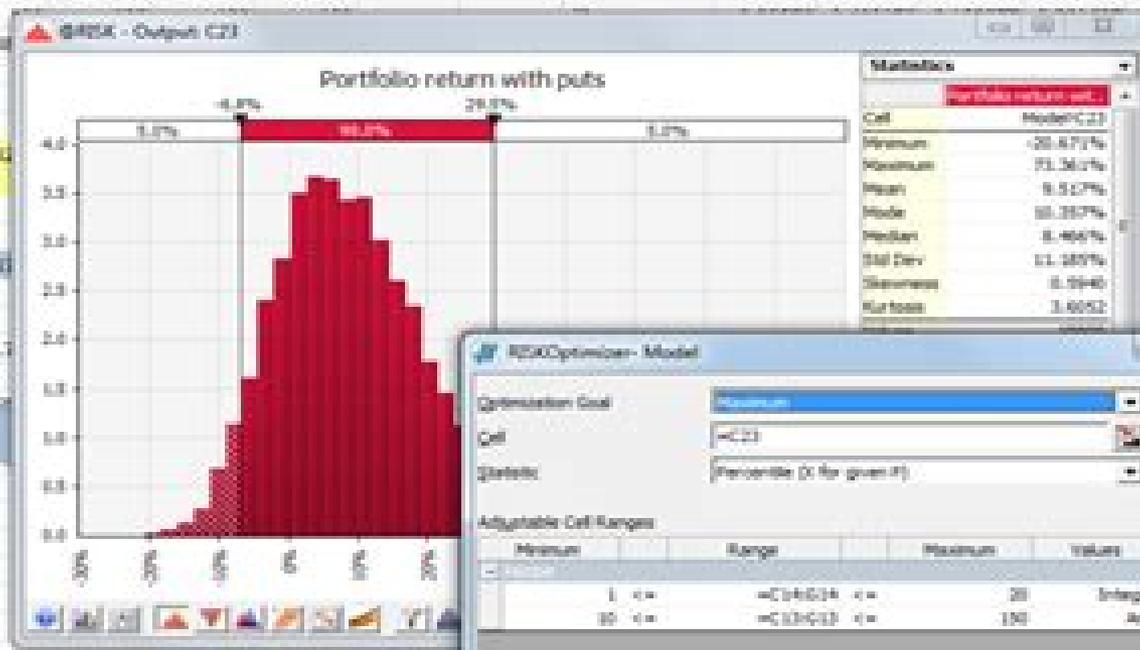


C23 =RISKOutput("Portfolio return with puts")+(SUMPRODUCT(C14:G14,C22:G22)+SUMPRODUCT(I4:G4,C37:G17))/(SUMPRODUCT(C14:G14,C9:G9)+SUMPRODUCT(I4:G4,C37:G17))

A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
2	Known inputs	Stock1	Stock2	Stock3	Stock4	Stock5									
3	Current stock price	\$25.47	\$31.42	\$92.97	\$41.33	\$17.48									
4	Shares purchased	1000	2000	1500	500	1500									
5	Time to hold (years)	0.5	0.5	0.5	0.5	0.5									
6	Mean annual growth rate	12.47%	24.14%	16.86%	22.54%	18.22%									
7	Annual volatility	25.34%	19.85%	29.74%	22.36%	22.06%									
8	Shares per put	100													
9	Price per put	\$88.23													
10	Risk free rate	3.50%													
11	Decision variables														
13	Exercise price of put	\$24.00	\$31.42												
14	Puts purchased	2													
15	Uncertain inputs														
17	Stock price at expiration	\$26.48	\$31.42												
18	Outputs														
20	Stock returns	4.74%	11.74%												
21	Portfolio return without puts	8.03%													
22	Put values at expiration	\$0.00													
23	Portfolio return with puts	7.36%													
24	Summary statistics without puts														
26	Mean portfolio return	9.02%													
27	Probability of positive return	80.09%													
28	VAR of portfolio return	-7.55%													
29	Summary statistics with puts														
31	Mean portfolio return	9.52%													
32	Probability of positive return	79.81%													
33	VAR of portfolio return	-6.84%													



RISKOptimizer - Model

Optimization Goal: **Minimum**

Cell: **=C23**

Statistics: **Percentile (X for given P)** **5%**

Adjustable Cell Ranges

Minimum	Range	Maximum	Values	Int...
1	=C14:G14	20	Integer	Delete
10	=C13:G13	100	Any	

Constraints

Description	Formula	Type	Add
			Delete

OK Cancel

# Optimization Modeling With Spreadsheets Solutions

**Ensheng Dong**



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**Business Analytics** Stephen G. Powell, Kenneth R. Baker, 2019-01-07 Now in its fifth edition Powell and Baker's Business Analytics The Art of Modeling with Spreadsheets provides students and business analysts with the technical knowledge and skill needed to develop real expertise in business modeling In this book the authors cover spreadsheet engineering management science and the modeling craft The briefness accessibility of this title offers opportunities to integrate other materials such as cases into the course It can be used in any number of courses or departments where modeling is a key skill

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**Statistics Catalog 2005** Neil Thomson, 2004-09

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*Interfaces*, 2000 Seeks to improve communication between managers and professionals in OR MS

*Stanford Bulletin*, 2006

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**Collegiate Microcomputer**, 1986

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