

ICE Monte Carlo

The Monte Carlo Simulation module in the ICE application introduces variance to determine a probability of goal-based portfolio vitality.

Click on either the Monte Carlo Simulation button from the Cash flow and Plan Analysis screen or on the roulette wheel button at the top of the Efficient Frontier window to access the Monte Carlo Simulation report.

At what age will your primary objective begin? 60 Number of years to complete objective? (i.e., years in college=4, years in retirement=20, one-time goal=1) 25

How much will you need to withdraw each year to meet this objective? \$40,000.00 (Pre-tax, start inflation Today with 3.00% inflation rate)

For detailed contributions and withdrawals including withdrawals from Roth IRAs and 401k plans, use the Cash Flow options. Create Additional Goals

Goal Description	Type	Amount	Start Inflation	Inflation Rate	Frequency	Begin Date	End Date	Number of Times
Monthly Funding	Contribution	\$500	Today	0.00%	Monthly	12/2002	12/2012	121

How much do you want to leave to heirs, charity, etc.? \$0.00

Settings

- Apply Mgmt Fees:
- Apply Taxes:
- Reinvest Cap Gains:
- Reinvest Dividends:

Date of Birth: 03/25/1952
Current Age: 50
Date to begin Analysis: 12/2002
Age to begin analysis: 50
Portfolio Value: \$500,000.00
Portfolio ROR: 5.99%
Income Tax: 0.00%
Capital Gains Tax: 27.20%
Turnover Ratio: 100.00%

Analysis Results

- End Portfolio Value: \$73,783.29
- Portfolio Value at Objective: \$933,505.16
- Portfolio Value Needed for Objective: \$960,459.19
- Portfolio Income Needed for Objective: \$52,578.03
- Total Annual Portfolio Income: \$51,644.96
- Net Income Shortfall (-)/Surplus (+): \$933.05
- Contributions/Withdrawals required for Shortfall/Surplus Correction: Max Objective Withdrawal Available: \$39,290.16
- Lump-sum: \$9,862.12
- OR Monthly Payments: \$114.63
- OR Annual Payments: \$1,363.76
- Minimum ROB required: 6.09%

Buttons: CALCULATE Show Cash Flow Report **Monte Carlo Simulation** Close

150 portfolios found

Click the Frontier to select Portfolio

Efficient Frontier Portfolio Assets
Compared Portfolio Frontier

	ROR	Std	Sharpe	Min.ROR	Goal
Selected Portfolio	5.99	6.34	0.65	-4.44	
Optimal-goal Portfolio	6.10	4.97	0.84	-2.00	6.09
Optimal-risk Portfolio	7.50	7.71	0.73	-5.17	-5.25
Current Portfolio	5.99	6.34	0.65	-4.44	
No Compare Portfolios	0.00	0.00	0.00	0.00	

Holdings

Asset	Hold %	Min	Max	Cur Hold	100.00%	ROE %	STD %
Domestic Equities: Indices	21.00	0.00	100.00	21.00			
JJWSLV (Int security)	98.10	0.00	100.00	38.39	12.12	14.33	
JJWLG (Int security)	47.42	0.00	100.00	47.42	15.53	21.88	
JJWSVY (Int security)	14.29	0.00	100.00	14.29	13.99	14.31	
Domestic Bonds	24.00	0.00	100.00	24.00			
JJICV (Int security)	41.67	0.00	100.00	41.67	6.91	10.95	
JJICQ (Int security)	38.33	0.00	100.00	38.33	6.77	9.24	
International Equities	15.00	0.00	100.00	15.00			
JJWE (Int security)	60.00	0.00	100.00	60.00	8.91	17.17	
JJWE (Int security)	40.00	0.00	100.00	40.00	13.38	29.18	
Cash Equivalents	40.00	0.00	100.00	40.00			
JJDMA (Int security)	100.00	0.00	100.00	100.00	5.21	1.74	

Buttons: Apply and Close Save as a new Portfolio Rebalance Current Close

Press Continue

Report Parameters Specifying - Microsoft Internet Explorer

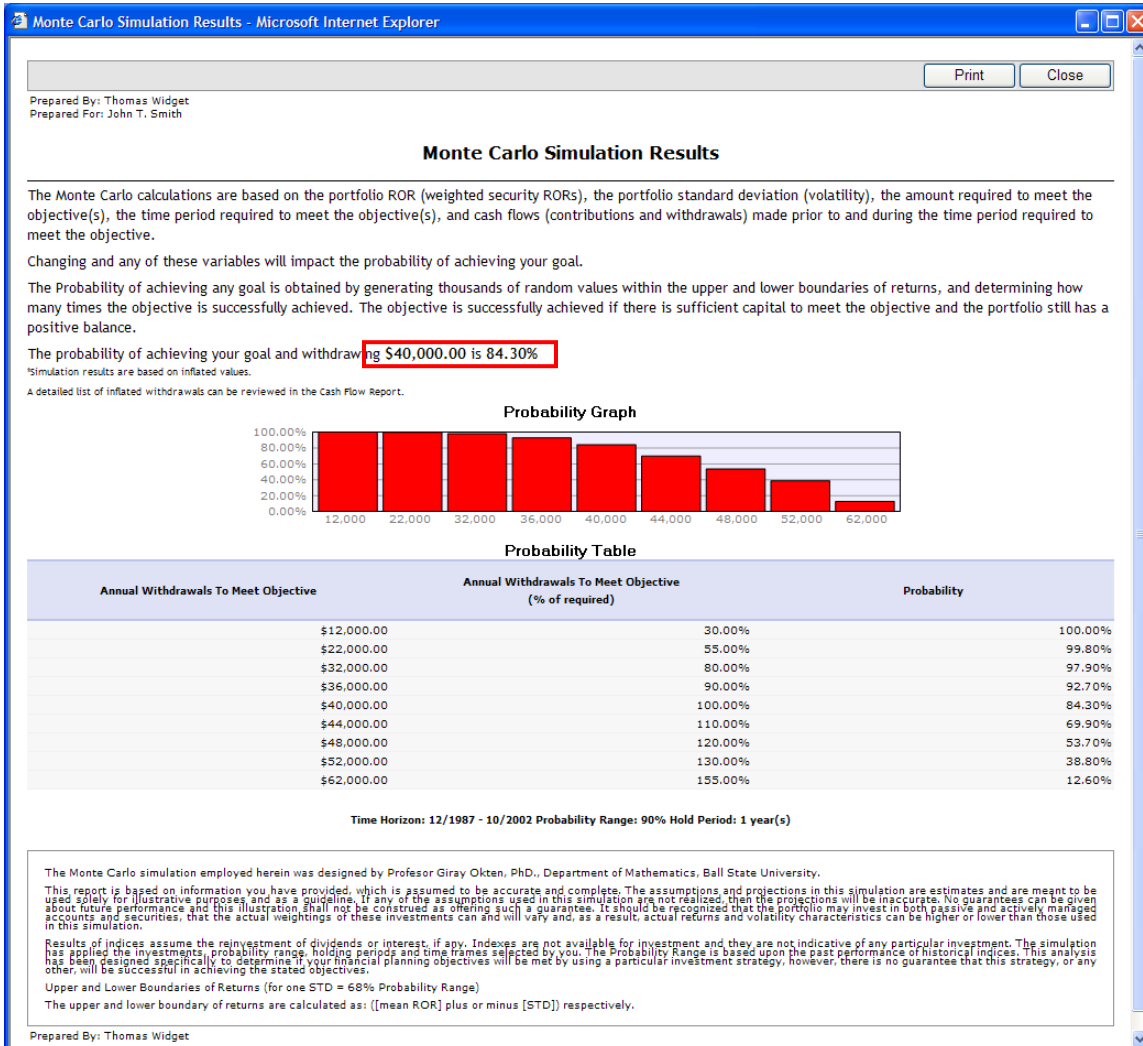
Please Specify Report Parameters

Parameters

Action	View & Print
E-mail address	john@smith.com
Comments	

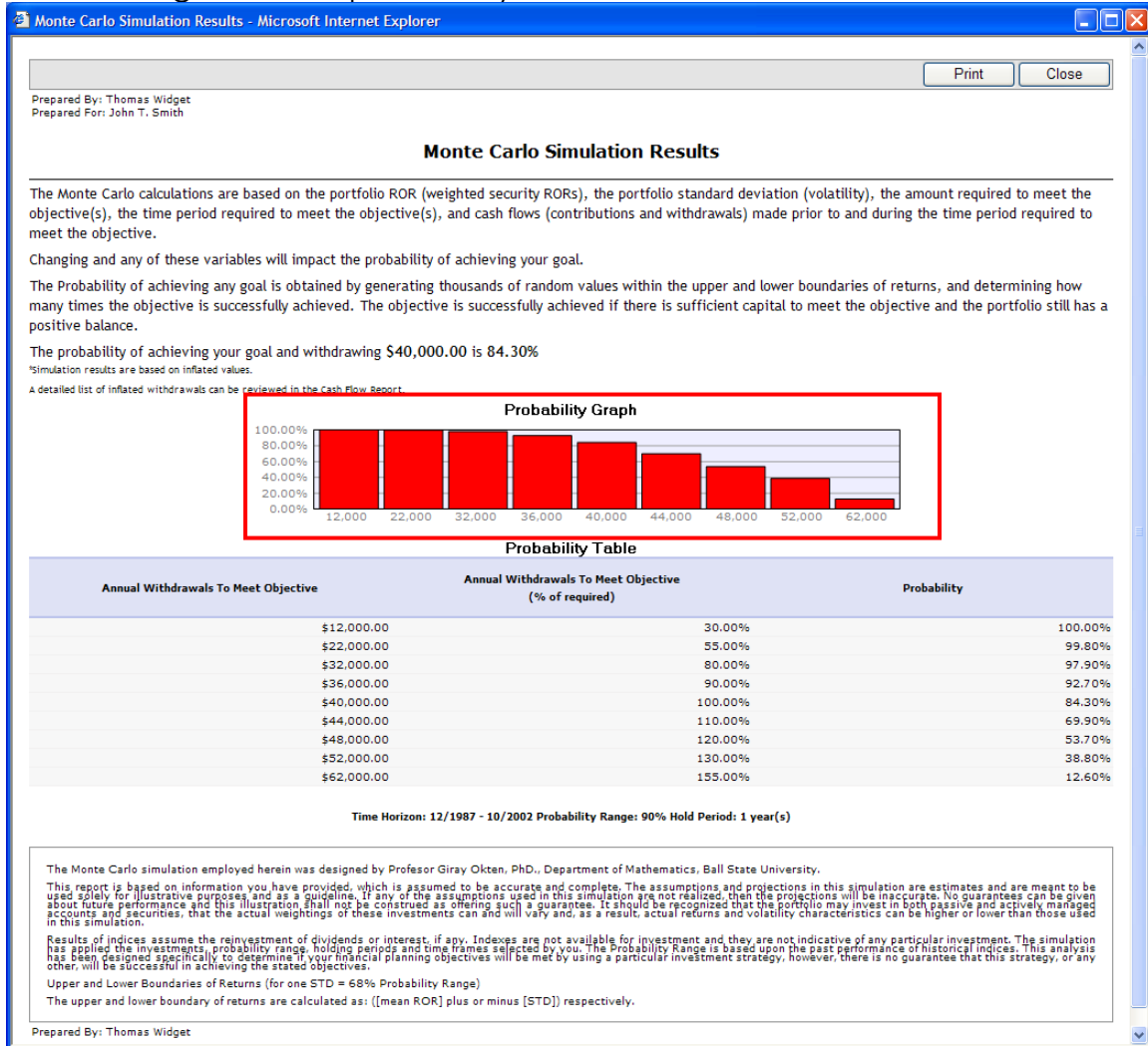
Note
Printed pages has header and footer (usually URL and date) according to the File->Page setup browser's settings.
To remove page header and footer click [here](#), select "Open this file from its current location" and answer "Yes" to its confirmation.
Note: Browser settings will be changed! You can restore them by **File->Page setup dialog**

The following Monte Carlo Simulation Results screen will pop-up. The first data to review is the actual probability of your *Target Main Goal* being achieved. This probability is based on the current portfolio value, historical Rate of Return, all contributions/withdrawals and **Variance**.



The Graph:

The probability graph plots various Main Goal annual dollar withdrawal amounts against their probability of achievement.



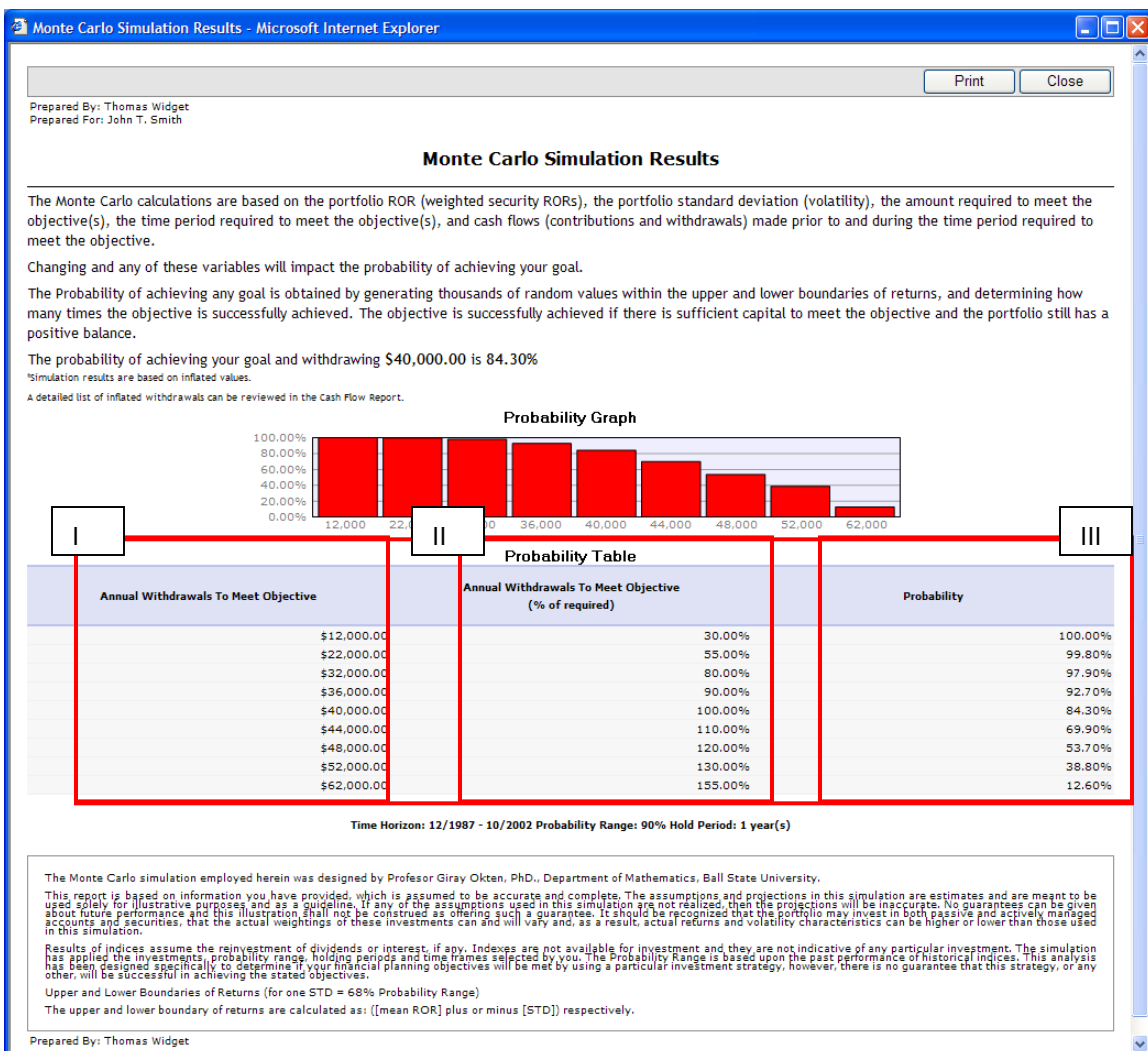
The Table:

The probability table consists of three columns.

I. Annual Withdrawals To Meet Objective=Various Main Goal dollar withdrawal amounts. These figures will include your Target Main Goal.

II. Annual Withdrawals To meet Objective (%of Required)= Take the Target Main Goal and divide it by the Annual Withdrawals To Meet Objective from the first column.

III. Probability=The % of simulated results that achieve the Annual Withdrawals To Meet Objective(column I).



Increase Probability

-Using Financial planning

I. Simply reducing the annual withdrawal amount of the Main Goal will increase probability of success as demonstrable in both the probability graph and table.

II. Your client can also improve their likelihood of success by contributing to the portfolio either monthly or annually. Try adding a contribution and see what that does to the Monte Carlo Simulation.

The screenshot shows the 'Financial Explorer' software interface. At the top, there are input fields for 'At what age will your primary objective begin?' (set to 60), 'How much will you need to withdraw each year to meet this objective?' (set to \$40,000.00), and 'How much do you want to leave to heirs, charity, etc.?' (set to \$0.00). A table below shows a 'Monthly Funding' goal with a contribution of \$500. The bottom section contains 'Settings' and 'Financial Analysis' results.

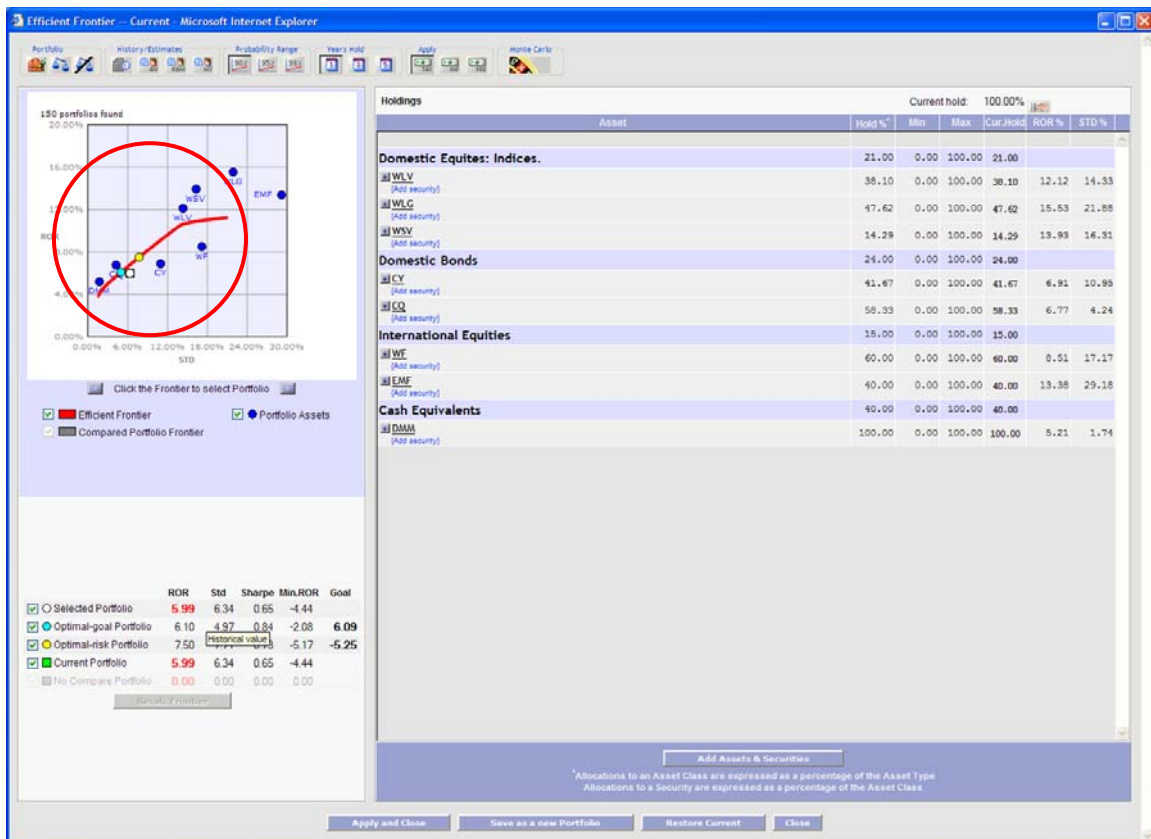
Goal Description	Type	Amount	Start	End	Frequency	Begin Date	End Date	Number of Times
Monthly Funding	Contribution	\$500	Today	25	Monthly	12/2002	12/2012	121

Settings	Financial Analysis
<input type="checkbox"/> Apply Mgmt Fees	End Portfolio Value: \$-73,783.29
<input checked="" type="checkbox"/> Apply Taxes	Portfolio Value at Objective: \$533,505.16
<input checked="" type="checkbox"/> Reinvest Cap Gains	Portfolio Value Required for Objective: \$950,459.19
<input checked="" type="checkbox"/> Reinvest Dividends	Portfolio Income Needed for Objective: \$52,578.03
Date of Birth: 03/25/1952	Total Annual Portfolio Income: \$51,644.98
Current Age: 50	Net Income Shortfall (-)/Surplus (+): \$-933.05
Date to begin Analysis: 12/2002	Contributions/Withdrawals (-)/required for Shortfall/Surplus Correction
Age to begin analysis: 50	Max Objective Withdrawal Available: \$39,290.16
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Portfolio ROR: 5.99%	OR Monthly Payments: \$114.63
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Capital Gains Tax: 27.20%	Minimum ROR required: 6.09%
Turnover Ratio: 100.00%	

-Using Optimization

In general optimal portfolios tend to have a higher probability of achieving success than inefficient portfolios.

Simply click on different points on the efficient frontier (red line) and then run the Monte Carlo Simulation on that new portfolio's asset mix. You might find it interesting that many times portfolios with a lower Rate of Return (lower on the curve) show a higher likelihood of success. These results will help you, and your clients, understand the true value in diversification.



Please feel free to contact us if you have any questions about Monte Carlo Simulation or the **ICE** application .

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