Module 04 - Multiperiod Modeling

Exploratory Data Analysis

In this section, you should perform some data analysis on the data provided to you. Please format your findings in a visually pleasing way and please be sure to include these cuts:

- Make a nicely formatted table with the needed data on each investment

Model Formulation

Write the formulation of the model into here prior to implementing it in your Excel model. Be explicit with the definition of the decision variables, objective function, and constraints

Min (yr 1 Investment): A1+B1+E1

Constraints:

Year 2: 1.099A1 - 1A2 - 1C2 = 0

Year 3: 1.0422B1 + 1.0199A2 - 1A3 - 1B3 - 1D3 = 250

Year 4: 1.1099A3 - 1A4 = 0

Year 5: 1.0646C2 + 1.0422B3 + 1.0199A4 - 1A5 - 1B5 - 1C5 = 0

Year 6: 1.1094E1 + 1.0199 - 1A6 = 250

Year 7: 1. 0869 D3 + 1.0422B5 + 1.0199A6 - 1A7 -1B7 = 0

Year 8: 1.0643C5 + 1.0199A7 - 1A8 = 0

Year 9: 1.0422B7 + 1.0199A8 - 1A9 = 0

Year 10: 1.0199A9 = 500

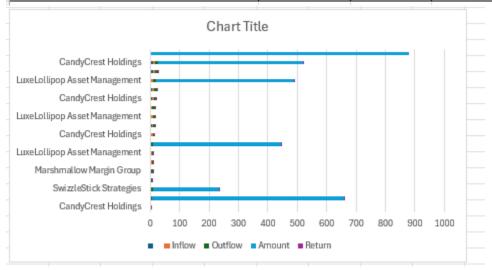
Model Optimized for Least Cost out of Pocket

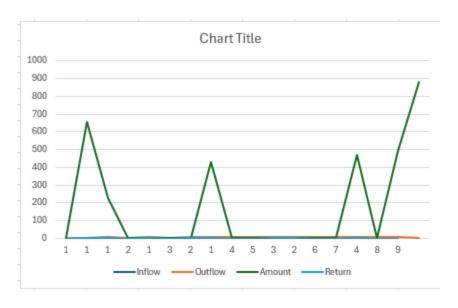
Implement your formulation into Excel and be sure to make it neat. This section should include:

- A screenshot of your optimized final model (formatted nicely, of course)
- A text explanation of what your model is recommending
- Add some sort of visualization. Some ideas:
 - o A pie chart or stacked bar chart to compare money out of pocket vs end amount
 - A line chart to show either current amount or cumulative amount invested in each investment
 - Any other solution you may have

Investment		Inflow	Outflow	Amount	Return	1	2	3	4	5	6	7	8	9	10
CandyCrest Holdings	1	1	2	0	1.99%	-1	1.0199								
LuxeLollipop Asset Management	1	1	3	655.138	4.22%	-1	<>	1.0422							
SwizzleStick Strategies	1	1	6	225.347	10.94%	-1	<>	<>	<>	<>	1.1094				
CandyCrest Holdings	2	2	3	0	1.99%		-1	1.0199							
Marshmallow Margin Group	1	2	5	0	6.46%		-1	<>	<>	1.0646					
CandyCrest Holdings	3	3	4	0	1.99%			-1	1.0199						
LuxeLollipop Asset Management	2	3	5	0	4.22%			-1	<>	1.0422					
Nougat Nest Investments	1	3	7	432.785	8.69%			-1	<>	<>	<>	1.0869			
CandyCrest Holdings	4	4	5	0	1.99%				-1	1.0199					
CandyCrest Holdings	5	5	6	0	1.99%					-1	1.0199				
LuxeLollipop Asset Management	3	5	7	0	4.22%					-1	<>	1.0422			
Marshmallow Margin Group	2	5	8	0	6.46%					-1	<>	<>	1.0646		
CandyCrest Holdings	6	6	7	0	1.99%						-1	1.0199			
CandyCrest Holdings	7	7	8	0	1.99%							-1	1.0199		
LuxeLollipop Asset Management	4	7	9	470.394	4.22%							-1	<>	1.0422	
CandyCrest Holdings	8	8	9	0	1.99%								-1	1.0199	
CandyCrest Holdings	9	9	10	490.244	1.99%									-1	1.0199
			Total	880.485		surplus fur	0	250	0	0	250	0	0	0	500
						required p	0	\$250.00	\$ -	\$ -	\$250.00	\$ -	\$ -	\$ -	\$500.00

Investment	start investi	Matures	Return of Maturity			
CandyCrest Holdings	1	1	1.99%			
LuxeLollipop Asset Management	1	2	4.22%			
Marshmallow Margin Group	2	3	6.46%			
Nougat Nest Investments	3	4	8.69%			
SwizzleStick Strategies	1	5	10.94%			





Model with Stipulation

Please copy the tab of your original model before continuing with the next part to avoid messing up your original solution.

Try one of these 2 scenarios:

- If we remove the midterm payments and instead pay the entirety at the end of the time period, does your model change at all? If so, why may there be a change?
- An investor normally tries to not be oversubscribed/overexposed to one single investment. Can you add a constraint to your model to limit the amount of exposure in any single investment and describe how the model has changed?

Solver with stipulation took away surplus funds and required payments which just spanned out the increments and consolidated more.

		Inflow	0.10		Return			_		-		7		_	10
Investment		Inflow	Outflow	Amount		1		3	4	5	6	/	8	9	10
CandyCrest Holdings	1	1	2	0	1.99%	-1	1.0199								
LuxeLollipop Asset Management	1	1	3	830.521	4.22%	-1	<>	1.0422							
SwizzleStick Strategies	1	1	6	0	10.94%	-1	<>	<>	<>	<>	1.1094				
CandyCrest Holdings	2	2	3	0	1.99%		-1	1.0199							
Marshmallow Margin Group	1	2	5	0	6.46%		-1	<>	<>	1.0646					
CandyCrest Holdings	3	3	4	0	1.99%			-1	1.0199						
LuxeLollipop Asset Management	2	3	5	0	4.22%			-1	<>	1.0422					
Nougat Nest Investments	1	3	7	865.569	8.69%			-1	<>	<>	<>	1.0869			
CandyCrest Holdings	4	4	5	0	1.99%				-1	1.0199					
CandyCrest Holdings	5	5	6	0	1.99%					-1	1.0199				
LuxeLollipop Asset Management	3	5	7	0	4.22%					-1	<>	1.0422			
Marshmallow Margin Group	2	5	8	0	6.46%					-1	<>	<>	1.0646		
CandyCrest Holdings	6	6	7	0	1.99%						-1	1.0199			
CandyCrest Holdings	7	7	8	0	1.99%							-1	1.0199		
LuxeLollipop Asset Management	4	7	9	940.787	4.22%							-1	<>	1.0422	
CandyCrest Holdings	8	8	9	0	1.99%								-1	1.0199	
CandyCrest Holdings	9	9	10	980.488	1.99%									-1	1.0199
			Total 830.521			surplus funds	0	0	0	0	0	0	0	0	1000
						required payments	0	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$1,000.00