

# 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:*
  - *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 invest	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%



