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*

A screenshot of a spreadsheet

AI-generated content may be incorrect.

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*

Decision Variables

Ci = amount placed in CandyCrest Holding at the beginning of each month

i= 1,2,3,4,5,6,7,8,9

Li = amount placed in Luxelollipop Asset Management at the beginning of each month

i= 1,3,5,7

Si = amount placed in Swizzlestick Strategies at the beginning of each month

i= 1,6

Mi = amount placed in Marshmellow Margin Group at the beginning of each month

i= 2,5

Ni = amount placed in Nougat Nest Investment

i= 3

Objective Function

MIN = C1 + L1 + S1

Constraints

Month 2 = 1.0199CCH(1) – 1CCH(2) – 1MMG(1)

Month 3 = 1.0422LAM(1) + 1.0199CCH(2) – 1CCH(3) – 1LAM(2) – 1NNI(1) = 250

Month 4 = 1.0199CCH(3) – 1CCH(4)

Month 5 = 1.0646MMG(1) + 1.0422LAM(2) + 1.0199CCH(4) – 1CCH(5) – 1LAM(3) – 1MMG(2)

Month 6 = 1.1094SSS(1) + 1.0199CCH(5) -1CCH(6) = 250

Month 7 = 1.0869NNI(1) + 1.0422LAM(3) + 1.0199CCH(6) - 1CCH(7) – 1LAM(4)

Month 8 = 1.0646MMG(2) + 1.0199CCH(7) – 1CCH(8)

Month 9 = 1.0422LAM(4) + 1.0199CCH(8) – 1CCH(9)

Month 10 = 1.0199CCH(9) = 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 screenshot of a computer

AI-generated content may be incorrect.

* *A text explanation of what your model is recommending*

*The model is recommending that to minimize total cost, the investments in year 1 would be $655 in LuxeLollipop Asset Management and $225 in SwizzleSticks Strategies.*

* *Add some sort of visualization. Some ideas:*

A graph with a line and a line

AI-generated content may be incorrect.

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?*
  + *If we remove the midterm payments, the overall payment would be $830 for the first year. The change occurs because the return rates vary based on investment and amount varies on the year of investment.*
* *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?*
  + *If you add a constraint that limits the amount of exposure in a single investment, the numbers would become capped at a specific number and would have to fulfill the investment in other years. However, there can be a possibility that there is no feasible solution.*