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 table with numbers and text

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*

Objective: Min (Amount invested in Period 1) = A1+B1+E1

DV: amount invested in each stock in each period.

Constraints:

Year 2: 1.0199A1 -1A2 -1C2 = 0

Year 3: 1.0423B1 + 1.0199A2-1A3-1B3 -1D3 = 250

Year 4: 1.0199A3 -1A4 = 0

Year 5: 1.0646C2 + 1.0423B3 + 1.0199A4 -1A5-1B5 – 1C5 = 0

Year 6: 1.1095E1 + 1.0199A5-1A6 = 250

Year 7: 1.0868D3 + 1.0423B5 + 1.0199A6 -1A7-1B7 = 0

Year 8: 1.0646C5 + 1.0199A7 -1A8 = 0

Year 9: 1.0423B7 + 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*

A screenshot of a computer screen

AI-generated content may be incorrect.

The model tells us that the least cost out of pocket would be to invest $655.07 in Candy Crest Holdings and $225.33 in Taffy Trend Ventures during period 1. This will yield the exact amount needed to meet the required payments.

A graph of a number of blue and black bars

AI-generated content may be incorrect.

Model with Stipulation

*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?*

The stocks invested in are almost the same the only that wasn’t used from before was E1, in the first month the investment is 50 dollars less, but the total invested is higher.

* *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?*