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*

Bonbon Balance Investments- A

Bugglegum Benchmark Fund- B

GummyBear Growth Fund-C

Masrshmallow Margin Group-D

TruffeTrust Holdings-E

Min: A1+B1+C1+D1+E1

Ai= amount which is in 1000s placed in investment A at the beginning of month i= 1,2,3,4,5,6,7,8,9

Bi= amount which in 1000s placed in investment A at the beginning of month i= 1,3,5,7

Ci= amount which in 1000s placed in investment A at the beginning of month i= 2,5

Di= amount which in 1000s placed in investment A at the beginning of month i= 3

Ei= amount which in 1000s placed in investment A at the beginning of month i= 1

Constraints- Starting Month 2

1.0199A1 – 1A2 – 1C2 = 0

1.0421B1 +1.0199A2-1A3\_1B3-1D3 = 250

1.0199A3 – A4 = 0

1.0643C2 + 1.0421B3 +1.0199A4 – 1A5 -1B5 -1C5 = 0

1.1091E1 +1.0199A5 – 1A6 = 250

1.0865D3 + 1.0421B5 +1.0199A6 -1A7 -1B7 = 0

1.0199A7 -1A8 = 0

1.0421B7 + 1.0199A8 -1A9 =0

1.0643C10+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 screenshot of a spreadsheet

AI-generated content may be incorrect.*

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

The model suggests investing money in different candies over 10 months while making sure there’s enough cash available for required payments. It aims to grow the investments by choosing funds with good returns and reinvesting wisely.

* *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 graph with blue squares and white text

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?*

Yes, my model changes. The out-of-pocket amount becomes smaller. The out of pocket drops from $880.80 to $830.99. If you delay payments until the end, more money stays invested longer, potentially earning more, but you’ll need to make sure you have enough cash saved up for the final payment.