

Module 04 – Multiperiod Modeling

Exploratory Data Analysis

Investments	Months to Mature	Return
Lollipop Lane Investments	1	2.00%
LuxeLollipop Asset Management	2	4.22%
Nougat Nest Investments	3	6.47%
SwizzleStick Strategies	4	8.70%
TruffleTrust Holdings	5	10.94%

Model Formulation

- Decision Variables: Amount Invested
- Objective Function: Total Invested in Month 1
- Constraints:
 - Surplus Funds = Required Payments
 - Amount > 0

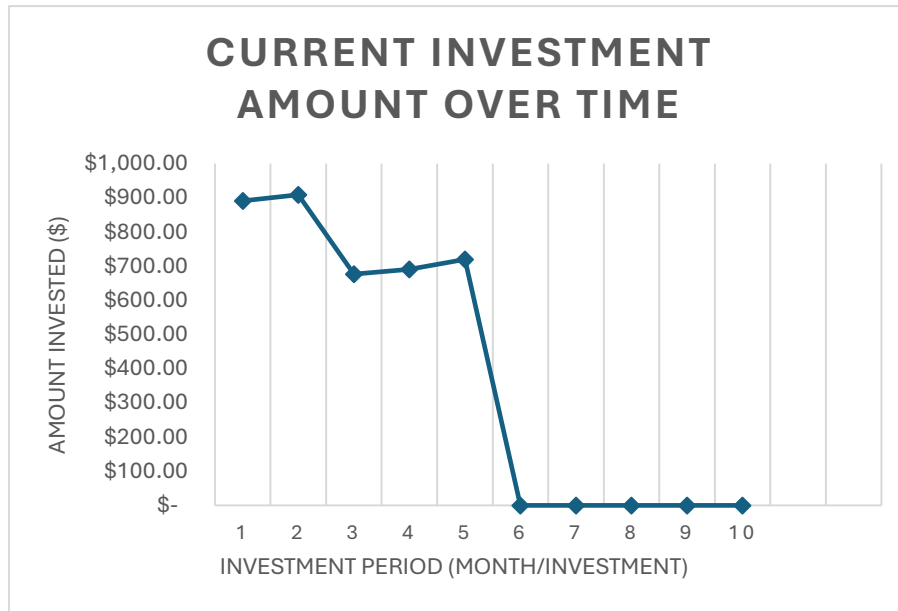
Model Optimized for Least Cost out of Pocket

Month of Cashflow					Cash Flow Summary for Month									
Investment	Inflow	Outflow	Amount	Return	1	2	3	4	5	6	7	8	9	10
Lollipop Lane Investments	1	2	\$ 890.96	2.00%	-1	1.02								
Lollipop Lane Investments	1	2	\$ -	2.00%	-1	1.02								
Lollipop Lane Investments	1	3	\$ -	2.00%	-1 <--->		1.02							
Lollipop Lane Investments	1	6	\$ -	2.00%	-1 <--->		<--->	<--->		1.02				
Lollipop Lane Investments	2	3	\$ 908.78	2.00%		-1	1.02							
Lollipop Lane Investments	2	5	\$ -	2.00%		-1 <--->		<--->	1.02					
Lollipop Lane Investments	3	4	\$ 676.95	2.00%			-1	1.02						
Lollipop Lane Investments	3	5	\$ -	2.00%			-1 <--->		1.02					
Lollipop Lane Investments	3	7	\$ -	2.00%			-1 <--->		<--->		1.02			
LuxeLollipop Asset Management	4	5	\$ 690.49	4.22%			-1	1.0422						
LuxeLollipop Asset Management	5	6	\$ 239.88	4.22%				-1	1.0422					
LuxeLollipop Asset Management	5	7	\$ -	4.22%				-1 <--->		1.0422				
LuxeLollipop Asset Management	5	10	\$ 479.75	4.22%				-1 <--->		<--->	<--->			1.0422
LuxeLollipop Asset Management	6	7	\$ -	4.22%				-1	1.0422					
Nougat Nest Investments	7	8	\$ -	6.47%					-1		1.0647			
Nougat Nest Investments	7	9	\$ -	6.47%					-1 <--->			1.0647		
SwizzleStick Strategies	8	9	\$ -	8.70%							-1	1.087		
TruffleTrust Holdings	9	10	\$ -	10.94%									-1	1.087
Total Invested in Month 1 ->			\$ 890.96		Surplus Funds	\$ -	\$ 250.00	\$ -	\$ (0.00)	\$ 250.00	\$ -	\$ -	\$ -	\$ 500.00
					Req'd Payments	\$0	\$250	0	\$0	\$250	\$0	\$0	\$0	\$500

Model Evaluation & Comments:

- The model tracks investments across multiple funds and firms (e.g., *Lollipop Lane Investments*, *LuxeLollipop Asset Management*, *Nougat Nest Investments*, etc.).
- It records inflows and outflows, along with returns over time, allowing visibility into monthly cash flow.
- The model applies different interest rates per investment (ranging from 2.00% to 10.94%).
- Growth is calculated monthly, showing compounded returns at different points in time.

- The model is missing Total Portfolio Growth: While individual returns are tracked, there is no summary of the total value of the portfolio over time, which would help in performance evaluation.
- No Risk Assessment: Different investments have varying risk levels. A risk-adjusted return metric (e.g., Sharpe Ratio) would be useful.



Model with Stipulation

- An investor normally tries to not be oversubscribed/overexposed to one single investment.
- I added a constraint that puts the amount of every investment minor or qual to 500, this helps to limit the amount of exposure.
- This affected the Total invested in Month 1 increasing it from \$890.96 to \$906.70.

Amount
\$ 890.96
\$ -
\$ -
\$ -
\$ 908.78
\$ -
\$ 676.95
\$ -
\$ -
\$ 690.49
\$ 239.88
\$ -
\$ 479.75
\$ -
\$ -
\$ -
\$ -
\$ -
\$ -
\$ 890.96

Constraints:
 Surplus Funds = Req. Payment
 Amount > 0

Amount
\$ 500.00
\$ 181.02
\$ 225.68
\$ -
\$ 500.00
\$ 194.64
\$ 490.20
\$ -
\$ -
\$ 500.00
\$ 239.88
\$ -
\$ 479.75
\$ -
\$ -
\$ -
\$ -
\$ -
\$ -
\$ 906.70

Constraints:
 Surplus Funds = Req. Payment
 Amount > 0
 Amount <= 500