

INSTRUCTIONS: Please submit all calculation in Excel. SHOW ALL CALCULATIONS. Please answer all questions completely and exhaustively. The essay type questions may be submitted in word format. Please submit a professional, well-prepared report. Credit will not be given calculations that do not show how the answer was derived.

ABC Electronics is a video sunglass manufacturer. One of the major revenue-producing items manufactured by ABC is a video sunglasses. ABC currently has one video sunglass model on the market, and sales have been excellent. The video sunglasses are a unique item. However, as with any electronic item, technology changes rapidly, and the current video sunglasses have limited features in comparison with newer models. ABC Republic spent \$825,000 to develop a prototype for new video sunglasses that have all the features of the existing video sunglasses but adds new features such as Wi-Fi tethering. The company has spent a further \$275,000 for a marketing study to determine the expected sales figures for the new video sunglasses.

ABC can manufacture the new video sunglasses for \$220 each in variable costs. Fixed costs for the operation are estimated to run \$7.2 million per year. The estimated sales volume is 175,000, 185,000, 145,000, 105,000, and 85,000 per year for the next five years, respectively. The unit price of the new video sunglasses will be \$550. The necessary equipment can be purchased for \$48 million and will be depreciated on a seven-year MACRS depreciation schedule (provided below). It is believed the value of the equipment in five years will be \$7.2 million.

Production of the existing model of sunglasses is expected to be terminated in two years. If ABC does not introduce the new video sunglasses, sales will be 125,000 units and 95,000 units for the next two years, respectively. The price of the existing video sunglasses is \$435 per unit, with variable costs of \$174 each and fixed costs of \$6.4 million per year. If ABC does introduce the new video sunglasses, sales of the existing video sunglasses will fall by 35,000 units per year, and the price of the existing units will have to be lowered to \$235 each. Net working capital for the video sunglasses will be 20 percent of sales and will occur with the timing of the cash flows for the year; for example, there is no initial outlay for NWC, but changes in NWC will first occur in Year 1 with the first year's sales. ABC has a 31 percent corporate tax rate and a required return of 14 percent.

Modified ACRS Depreciation Allowances

| Year | Property Class | | |
|------|----------------|-----------|------------|
| | Three-Year | Five-Year | Seven-Year |
| 1 | 33.33% | 20.00% | 14.29% |
| 2 | 44.45 | 32.00 | 24.49 |
| 3 | 14.81 | 19.20 | 17.49 |
| 4 | 7.41 | 11.52 | 12.49 |
| 5 | | 11.52 | 8.93 |
| 6 | | 5.76 | 8.92 |
| 7 | | | 8.93 |
| 8 | | | 4.46 |

current credit policy is net 30. The current default rate on credit is 1.6%. The first option is to relax the company's decision on when to grant credit. The second option is to increase the credit period to net 45. The third option is a combination of the relaxed credit policy and the extension of the credit period to net 45. Each of the three possible policies would increase sales. The three policies each have the drawback that default rates would increase as would administrative and receivables period. The effect of the credit policy change would affect all four of the variables to different degrees. The following table outlined the effects:

| | <i>Projected 1st Year Sales</i> | <i>Default rate</i> | <i>Administrative costs</i> | <i>Receivables period</i> |
|----------------|-------------------------------------|-------------------------|---------------------------------|-------------------------------|
| Current policy | \$ 96,250,000 | 1.60% | 2.20% | 37 |
| Option 1 | \$ 110,687,500 | 2.50% | 3.20% | 40 |
| Option 2 | \$ 105,875,000 | 1.80% | 2.40% | 50 |
| Option 3 | \$ 115,500,000 | 2.20% | 3.00% | 48 |
| Variable costs | 40% | | | |
| Interest rate | 6.25% | | | |

Prepare a report that answers the following questions.

1. What is the profitability index of the project?
2. What is the IRR of the project?
3. What is the NPV of the project?
4. Explain your findings? Is this a viable project for consideration? What are some operating and economic considerations the company should consider?
5. Which credit policy should the company select based on the information provided?
6. In option 3, the default rate and the administrative costs both exceed those in Option 2. Why?