

When he returned to his office, Wingo summoned corporate controller Ron Wright to tell him the bad news. “Ron, I wish there were some way to turn this situation around. We’ve had so many bad things happen lately—the fire in Lexington, the strike in Pulaski, and now this. Why didn’t I stay at Cave Spring High?”

“Warren, it may not be as bad as it seems,” Ron replied. “Let’s put our heads together and do some investigating. We’ve got some great folks working here, and I bet if we asked them to think about it, they could come up with some options.” With that encouragement, Warren sent Ron out to find some way of disposing of the Roanoke facility.

Early Monday morning, Ron ran into Warren’s office waving a legal pad. “We’ve done it, Warren. We’ve got three good options for the Roanoke plant. One of them even has us keeping the plant.” Warren listened intently as Ron laid out the three options his staff had developed:

Option 1

Sell the plant immediately to Tinsley Togs for \$9,000,000.

Option 2

Lease the plant for four years to Star City Mills (one of Wingo’s suppliers). Under the lease terms, Star City would pay Wingo \$2,400,000 in rent each year and would grant Wingo a 10% discount on fabric purchased by another of its plants. The fabric normally sells for \$2 per yard, and Wingo expects to purchase 2,370,000 yards of it each year. Star City would cover all the plant’s ownership costs, including property taxes. At the end of the lease, Wingo would sell the plant for \$2,000,000.

Option 3

Use the plant for four years to make souvenir 2022 Winter Olympic jackets. Fixed overhead, before equipment upgrades, is estimated at \$200,000 a year. The jackets are expected to have a variable cost of \$33 per unit and to sell for \$42 each. Estimated unit sales are as follows; annual production would equal sales.

| <u>Year</u> | <u>Jacket Sales in Units</u> |
|-------------|------------------------------|
| 2019 | 200,000 |
| 2020 | 300,000 |
| 2021 | 400,000 |
| 2022 | 100,000 |

To manufacture the jackets, some of the plant’s equipment would have to be replaced at an immediate cost of \$1,500,000. The equipment would have a useful life of four years. Because of the upgraded equipment, Wingo could sell the plant for \$3,000,000 at the end of four years.

Required

- Calculate the cash flows for years one through four for each option.
- Calculate the net present value of each option. Assume a 12% discount rate.
- Use Excel or another spreadsheet application to determine the discount rate that equates options 1 and 2. Do the same for options 1 and 3.
- What should Wingo do?

9.32 (LO 3) Net present value, ethics (adapted from Roland L. Madison, “Should Finance Make the Numbers ‘Come Out,’” *Strategic Finance*, 86, no. 10 (April 2005): 17–18.) Amy Kimbell, CPA, CMA, and a member of the Institute of Management Accountants, recently joined Magee Metals and Moldings as a senior financial analyst. One of her major responsibilities is to prepare data to support capital equipment purchases.

Magee is trying to expand its international operations. The company is currently spending \$275,000 each year on international travel, an amount that is expected to increase by 20% each year for the next four years and then level off. Since none of Magee’s current fleet of corporate jets has the range to fly internationally, Magee’s CFO, Tony Smith, recently asked Amy to run some numbers on the purchase of a new corporate jet with an international range.

Amy determined that the jet upper managers want to buy has a purchase price of \$15 million and a useful life of 15 years. Variable operating costs are an estimated \$220,000 per year, based on a projected usage of 400 hours per year. Fixed operating costs are estimated at \$375,000 per year, not including depreciation. When Magee employees aren’t using the company’s jets, they are rented to other parties at a rate of \$3,500 per hour. Based on existing rental requests, Amy estimated that the new jet would be rented for 500 hours each year.

Using Magee's 12% discount rate, Amy calculated the net present value of the new jet purchase to be at most (\$6,000,000). She knew there was no way the capital budget committee would approve a purchase with such a large negative net present value. When she presented her analysis to Tony, he responded. "Go back and check your work. When I ran the preliminary numbers, I found a positive net present value. You must have made a mistake." Tony suggested that she increase the useful life of the jet to 25 years, raise the salvage value by 25%, and increase the rental usage by 50%.

Amy did some additional research and determined through discussions with the jet's manufacturer that her original salvage value and estimated life were aggressive, but realistic. In fact, if the jet were used for 25 years, it would require a multimillion-dollar overhaul in year 15 to remain flight-worthy. Beginning in year 11, operating costs would increase by 30%. With this new information, Amy reworked her analysis and obtained an even larger negative net present value.

When Tony saw the revised numbers, he blew up. "I told you what to do with the numbers and you did something else. Now go back and do what I said. And have the correct analysis back to me by the end of the day."

Amy returned to her office slowly, thinking about what Tony was telling her to do. She had been at Magee for only a month and really liked her job. In fact, she was looking forward to a long career at Magee.

Required

- Should Amy make the changes Tony has requested, noting in her analysis that the CFO provided the estimates? Why or why not?
- If Amy makes the changes Tony has requested, but doesn't want to list him as the source of the estimates, should she send an unsigned note to the chair of the capital budget committee, informing him of the problems with the analysis? Why or why not?
- What actions should Amy take in response to Tony's final request? Support your answer by referring to the IMA's Statement of Ethical Professional Practice.
- Tony Smith is a licensed CPA and a member of the IMA. Should Amy report his behavior to the state accounting board and the IMA? Why or why not?

Data Analytics Problems

9.33 (LO 3, 4, 5) Capital Budgeting Screening and Preference Decisions Preston Plastics is about to wrap up its capital budgeting cycle, and department managers across the company have submitted 500 capital project requests for consideration in the next round of funding. Preston's CFO, Dan LaMontagne, is trying to decide which projects to recommend for funding to the capital projects executive committee. He has gathered all the information about each project's estimated life, initial investment, and cash flows in an Excel spreadsheet and is ready to make his decisions. Preston requires all capital projects to have a payback period of 5 years or less and uses a 12% discount rate.

The Excel data files for answering this problem can be found in WileyPLUS.

Required

- Calculate the net present value (use Excel's NPV formula with a 12% discount rate), internal rate of return (use Excel's IRR formula), payback period, and profitability index for each project and save in the worksheet.
- How many of the submitted projects meet the payback period screening criterion? *Hint:* Use Excel's COUNTIF formula to easily calculate this number.
- Copy the original data and your calculations from part (a) to a new worksheet. Sort the data by payback period and delete all projects that do not meet the screening criteria.
- Preston has only \$2 billion in capital funds to allocate this period. Will this be enough to fund all the requested projects that meet the payback screening criterion? What is the shortfall amount?
- Suppose Preston chooses to fund capital projects based on net present value. How many projects will be funded? What is the total amount of capital funds that will be allocated? *Hint:* Sort the data from part (c) by net present value and calculate a running sum of project investment to help you determine which projects can be funded.