



## C A S E 2 1

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# FRANKLIN LUMBER CAPITAL BUDGETING PROCEDURES

Pete Parker, the owner and CEO of Franklin Lumber, is being quite frank with Courtney Jones, a recent hire. “As I told you at our interview, I’m hiring you despite your MBA. I haven’t had good experiences with MBA’s. They tend to be too technical, lack communication skills, and view problems as mere academic exercises. But you seem to be different. Your recommendations cited your sensitivity to real-world complexities and I’ve been impressed with your communication and people skills. I think you can help us.”

Jones received her MBA four weeks ago from a southern university with a strong regional and a bit of a national reputation. She received a number of “big city” job offers but turned them down to accept a position with Franklin Lumber, a firm based in Lenoir, North Carolina. The company has four plants in the southeast, and primarily manufactures lumber that is used to produce various types of furniture such as desks and doors.

Jones took the job because she wanted a position with a small firm where she “could make a difference,” the company is located very near her family, and the compensation is surprisingly attractive. She is also impressed with Parker. Though a bit gruff, he seems sharp, fair, direct, and willing to give her much job freedom and responsibility. In fact, her first assignment is of some importance and consists of two parts. Parker wants Jones to (1) perform a financial evaluation on two new machines that he is considering and (2) “critique” the company’s capital budgeting policies.

### PLYWOOD PRESSES

The plywood division is an important component of the firm’s business and nearly two entire plants are devoted to the production of plywood panels. In

brief, the production process involves gluing a thin layer of wood to each side of a particle board that forms the core of the plywood. The plywood is then cut into panels of various sizes suitable for the manufacturing of furniture.

The plywood division is operating very close to capacity and Parker is seriously considering the purchase of an additional plywood press in order to expand the division's production capability. He has narrowed the choice to two models: the Nakoi, which is made in Japan, and the American-manufactured Dakota.

The Nakoi costs \$750,000 and the Dakota \$1,300,000, both figures including installation. The Dakota has three advantages over the Nakoi. First, because it is a bit faster its daily production rate is higher, and Parker is confident he could sell the extra output. Second, labor costs will be lower since it is easier to operate. Finally, the Dakota should hold its value better because it is a more state-of-the-art press. Still, the Dakota is nearly twice as expensive and Parker isn't sure these advantages are worth the extra cost.

Exhibit 1 shows information on each machine. For the purpose of analysis, straight-line depreciation will be used over the seven-year time horizon of the project. The relevant tax rate is 40 percent.

The purchase of either machine will cause a modest increase in inventory and receivables. Parker thinks that these increases will be almost completely offset by changes in accounts payable and accruals. Thus, on balance, working capital requirements for both machines will be negligible and can be ignored in any evaluation.

## PARKER'S FAPG

Parker then explains his capital budgeting practices, which he calls his fixed asset purchase guidelines (FAPG). The first step is to make sure that a proposal fits with the company's mission. Parker is "simply not interested in projects outside the lumber industry." He is quick to add that nearly all proposals fall within the industry though occasionally one "seems far-out." As an example, Parker recalls a suggestion that the firm buy a local convenience store. "No way I'd do this. After all, I have enough headaches with the lumber industry. One industry is about all I can handle."

For relatively small investments the company relies exclusively on the payback method. There is no set guideline but Parker admits that he wants to see "at least a two-year payback, three years tops." And he defines a "small investment" as a project less than \$10,000 and "maybe as much as \$15,000." Examples include the replacement of relatively inexpensive equipment and the installation of energy-saving devices.

Parker uses somewhat different techniques for more expensive proposals, such as a plant modernization, an expansion, or the purchase of a new plywood press. The payback is still used in part because Parker uses it as a measure of risk, and in part because it is simple to calculate and easy to understand.

He also wants a measure of the project's expected return and—based on the suggestion of a friend with a strong accounting background—the firm calculates the investment's average accounting rate of return (AARR). The AARR is determined by dividing the project's average annual net income by its average book value. An example of the AARR is presented in Exhibit 2.

In order to be acceptable, a relatively large investment must pass two tests. First, the AARR must exceed the firm's target book return. This book return is currently 20 percent, the figure that Parker uses to evaluate the performance of the firm's plant managers.

In addition, the project must have an "acceptable payback." Parker explains, "I use my judgment about what is an 'acceptable' payback. There are no strict guidelines." He admits, though, that he doesn't like to see a project's payback exceed five years.

## FORECASTING ACCURACY

In Parker's view the most important part of a capital budgeting decision is the accuracy of the forecasts, and he goes to great lengths to make this clear to the firm's executives. He constantly reminds them that "forecasters need to be 'honest seekers of truth' if the company is to be the best it can be."

He monitors the company's forecasting efforts in two ways. First, if a project's payback looks "suspiciously low," he personally investigates the forecast. Second, from time to time Parker has hired outside consultants to compare the actual cash flows of a project with those predicted. And if a set of estimates looks "severely optimistic," then Parker will question the forecasters, perhaps intensively. As he puts it, "I had better receive satisfactory answers to my questions." Executives who Parker thinks are negligent or allowing personal bias to cloud their judgment face a severe reprimand and even dismissal in one extreme case.

Parker is aware that many companies are plagued by overly optimistic forecasts, and he is proud of the fact that a postaudit indicated that this has not been true for Franklin. In fact, there appears to be a tendency for the forecasts to be too conservative. That is, the postaudit showed that on average the predicted cash flows were less than the actual cash flows.

## REFLECTIONS

Back at her apartment that evening Jones reflected on her meeting with Parker. She sees "both good and not so good" with Parker's capital budgeting procedures. Perhaps the biggest negative is the lack of any discounted cash flow technique. It is clear to Jones, however, that Parker recognizes that the 20 percent target return is a book and not a market rate. It also appears that Parker is willing to consider "capital budgeting techniques based on market returns," as he puts it. Conversations with Parker suggest that a 15 percent market return

would be acceptable. That is, Jones thinks that Parker would undertake a project if he felt that the expected return exceeded 15 percent per year.

Jones is pleased at the responsibility of the assignment and is eager to “make a difference.” At the same time, however, she is a bit apprehensive. Jones realizes that Parker will take her report very seriously, and knows that her recommendations must not only be correct, but must also be clearly justified and explained.

## QUESTIONS

1. Calculate the annual cash flows of the Dakota (the Nakoi’s cash flow is \$265,820 per year, not including its after-tax terminal value).
2. Calculate the Dakota’s
  - (a) payback period
  - (b) average accounting rate of return (AARR)
  - (c) IRR
  - (d) NPV
  - (e) profitability index (PI)

**NOTE:** The table below shows these figures for the Nakoi.

Financial Statistics for the Nakoi	
Payback	2.8 years
AARR	42.3%
IRR	30.4%
NPV	\$384,000
PI	1.51

3. Rank the plywood presses by the five techniques listed in Question 2.
4. Do the techniques rank the projects the same? If not, why do the rankings differ?
5. Parker’s two primary capital budgeting methods are the payback and the average accounting rate of return.
  - (a) What are the disadvantages of the payback? What, if any, are its advantages?
  - (b) What are the disadvantages of the AARR? What, if any, are its advantages?
6. Jones intends to discuss with Parker the net present value and internal rate of return methods. She wants to be well prepared for the meeting and feels that Parker is quite likely to want the following questions addressed.
  - (a) How do you interpret an NPV? an IRR?
  - (b) What are the accept/reject criteria for each?

- (c) What are the advantages of the NPV? What, if any, are its disadvantages?
  - (d) What are the advantages of the IRR? What, if any, are the disadvantages?
  - (e) Does it really matter which method is used to evaluate a project? Defend your answer.
7. What are the advantages of the profitability index? What, if any, are the disadvantages?
  8. Parker apparently spends much time and effort trying to obtain accurate cash flow forecasts. Is Parker's concern about and attention to these estimates justified? Explain.
  9. Any capital budgeting decision involves estimating future cash flows. Financial theory suggests that we want these estimates to be "unbiased." That is, we want forecasts that are just as likely to be above as below the actual cash flow. Thus, given numerous "unbiased" estimates, *on average* the cash flow forecasts will equal the actual cash flows.
    - (a) It does not appear that Franklin's executives generate "unbiased" forecasts since a postaudit concluded that "on average the predicted cash flows were less than the actual cash flows." Are you surprised by the result of the postaudit? Explain.
    - (b) Suppose that a firm's estimates are consistently too low, i.e. on average the predicted cash flows are below the actual cash flows. What difficulties, if any, would this create?
  10. (a) What do you like about Parker's capital budgeting procedures and why?
    - (b) What do you dislike and why?
  11. What suggestions would you give Parker regarding his capital budgeting procedures? Make sure that each suggestion is appropriately justified.
  12. Which, if any, of the two presses do you recommend that Parker buy? Defend your position.



### SOFTWARE QUESTION

13. (a) Courtney Jones immediately realized that her evaluation would have to be redone. Pete Parker, the firm's owner and CEO, has revised the information Jones used to evaluate the plywood presses. He now thinks that it is more appropriate to assume:
  1. The selling (market) price of plywood increases by 4 percent per year.
  2. Cash costs also increase by 4 percent per year.
  3. Material costs will run 72 percent of sales.

4. The appropriate discount rate is 17 percent.

5. Other estimates are at their original values.

Evaluate the equipment with these changes.

(b) Parker feels quite good about all his estimates in (a) except for the growth rates in selling (market) price and cash costs.

Evaluate the machines in the following scenarios, and keep all other estimates at the values used in (a).

1. Both grow at 3 percent per year.

2. Both grow at 4 percent per year (actually done in part (a)).

3. Both grow at 5 percent per year.

(c) Parker also thinks there is some possibility that cash costs will increase faster than unit selling price.

Evaluate the machines in the following scenarios, and keep all other estimates at the values used in part (a).

1. Selling price grows at 3 percent per year, cash costs at 4 percent.

2. Selling price grows at 4 percent per year, cash costs at 5 percent.

3. Selling price grows at 3 percent per year, cash costs at 5 percent.

(d) Based on your answers to (b) and (c), does it appear that Parker should be concerned about the growth rates he is using? Explain.

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**EXHIBIT 1**  
**Information on the Plywood Presses**

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	<i>Nakoi</i>	<i>Dakota</i>
Output per day (square feet)	6,000	7,000
Days used each year	240	240
Market price per square foot of plywood	\$1.80	\$1.80
Raw materials (% of sales)	70	70
Annual labor cost	\$276,000	\$245,000
Annual maintenance cost	\$52,000	\$60,000
Annual overhead(cash)	\$78,000	\$60,000
Year 7 after-tax market value	\$75,000	\$390,000

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**EXHIBIT 2**
**Example of the Average Accounting Rate of Return**


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The example assumes that a project's initial cost is depreciated over the life of the project on a straight line basis.

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	<i>Year</i>				
	0	1	2	3	4
Initial project cost	\$8				
Accumulated depreciation	\$0	2	4	6	8
Book value	\$8	6	4	2	0
Net Income	NA	1	2	2	1

Average Book Value = \$4

Average Net Income = \$1.50

AARR =  $1.50/4 = .375 = 37.5\%$

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