

- LG 2** **P10-2** **Payback comparisons** Nova Products has a 5-year maximum acceptable payback period. The firm is considering the purchase of a new machine and must choose between two alternative ones. The first machine requires an initial investment of \$14,000 and generates annual after-tax cash inflows of \$3,000 for each of the next 7 years. The second machine requires an initial investment of \$21,000 and provides an annual cash inflow after taxes of \$4,000 for 20 years.
- Determine the *payback period* for each machine.
 - Comment on the acceptability of the machines, assuming that they are independent projects.
 - Which machine should the firm accept? Why?
 - Do the machines in this problem illustrate any of the weaknesses of using payback? Discuss.

- LG 2** **P10-3** **Choosing between two projects with acceptable payback periods** Shell Camping Gear, Inc., is considering two mutually exclusive projects. Each requires an initial investment of \$100,000. John Shell, president of the company, has set a maximum payback period of 4 years. The after-tax cash inflows associated with each project are shown in the following table.

Year	Cash inflows (CF_t)	
	Project A	Project B
1	\$10,000	\$40,000
2	20,000	30,000
3	30,000	20,000
4	40,000	10,000
5	20,000	20,000

- Determine the *payback period* of each project.
- Because they are mutually exclusive, Shell must choose one. Which should the company invest in?
- Explain why one of the projects is a better choice than the other.

Personal Finance Problem

- LG 2** **P10-4** **Long-term investment decision, payback method** Bill Williams has the opportunity to invest in project A that costs \$9,000 today and promises to pay annual end-of-year payments of \$2,200, \$2,500, \$2,500, \$2,000, and \$1,800 over the next 5 years. Or, Bill can invest \$9,000 in project B that promises to pay annual end-of-year payments of \$1,500, \$1,500, \$1,500, \$3,500, and \$4,000 over the next 5 years.
- How long will it take for Bill to recoup his initial investment in project A?
 - How long will it take for Bill to recoup his initial investment in project B?
 - Using the *payback period*, which project should Bill choose?
 - Do you see any problems with his choice?

- LG 3** **P10-5** **NPV** Calculate the *net present value (NPV)* for the following 15-year projects. Comment on the acceptability of each. Assume that the firm has a cost of capital of 9%.
- Initial investment is \$1,000,000; cash inflows are \$150,000 per year.
 - Initial investment is \$2,500,000; cash inflows are \$320,000 per year.
 - Initial investment is \$3,000,000; cash inflows are \$365,000 per year.