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The Investment Detective

The essence of capital budgeting and resource allocation is a search for good investments to place the firm's capital. The process can be simple when viewed in purely mechanical terms, but a number of subtle issues can obscure the best investment choices. The capital-budgeting analyst, therefore, is necessarily a detective who must winnow bad evidence from good. Much of the challenge is in knowing what quantitative analysis to generate in the first place.

Suppose you are a new capital-budgeting analyst for a company considering investments in the eight projects listed in **Exhibit 1**. The chief financial officer of your company has asked you to rank the projects and recommend the "four best" that the company should accept.

In this assignment, only the quantitative considerations are relevant. No other project characteristics are deciding factors in the selection, except that management has determined that projects 7 and 8 are mutually exclusive.

All the projects require the same initial investment: \$2 million. Moreover, all are believed to be of the same risk class. The firm's weighted average cost of capital has never been estimated. In the past, analysts have simply assumed that 10% was an appropriate discount rate (although certain officers of the company have recently asserted that the discount rate should be much higher).

To stimulate your analysis, consider the following questions:

1. Can you rank the projects simply by inspecting the cash flows?
2. What criteria might you use to rank the projects? Which quantitative ranking methods are better? Why?
3. What is the ranking you found by using quantitative methods? Does this ranking differ from the ranking obtained by simple inspection of the cash flows?
4. What kinds of real investment projects have cash flows similar to those in **Exhibit 1**?

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EXHIBIT 1 | Projects' Free Cash Flows (dollars in thousands)

Project number:		1	2	3	4	5	6	7	8
Initial investment		\$(2,000)	\$(2,000)	\$(2,000)	\$(2,000)	\$(2,000)	\$(2,000)	\$(2,000)	\$(2,000)
Year	1	\$ 330	\$1,666		\$ 160	\$ 280	\$ 2,200*	\$1,200	\$ (350)
	2	330	334*		200	280		900*	(60)
	3	330	165		350	280		300	60
	4	330			395	280		90	350
	5	330			432	280		70	700
	6	330			440*	280			1,200
	7	330*			442	280			\$ 2,250*
	8	\$1,000			444	280*			
	9				446	280			
	10				448	280			
	11				450	280			
	12				451	280			
	13				451	280			
	14				452	280			
	15			\$10,000*	\$(2,000)	\$ 280			
Sum of cash									
flow benefits		\$3,310	\$2,165	\$10,000	\$ 3,561	\$4,200	\$ 2,200	\$2,560	\$ 4,150
Excess of cash flow									
over initial investment		\$1,310	\$ 165	\$ 8,000	\$ 1,561	\$2,200	\$ 200	\$ 560	\$ 2,150

*Indicates year in which payback was accomplished.



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