GAPENSKI'S HEALTHCARE FINANCE
Seventh Edition

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Corrections Sheet 9-16-2021

The following errors appeared in the first printing of this book and were corrected in subsequent printings.

Page 401: Question 10.8 should be worded as follows: "a. What is market risk? b. How is it defined?"

Pages 619–620: The sentence beginning with "The managers of United Medtronics…" is actually the start of problem 15.4. Thus, "15.4" needs to be inserted and "e." and "f." need to be changed to "a." and "b." All of the following problems need to be renumbered as "15.5," "15.6," "15.7," and "15.8."

PDFs of the corrected pages are attached.

Questions

10.1. When considering stand-alone risk, the return distribution of a less risky investment is more peaked ("tighter") than that of a riskier investment. What shape would the return distribution have for an investment with (a) completely certain returns and (b) completely uncertain returns?

10.2. Stock A has an expected rate of return of 8 percent, a standard deviation of 20 percent, and a market beta of 0.5. Stock B has an expected rate of return of 12 percent, a standard deviation of 15 percent, and a market beta of 1.5. Which investment is riskier? Why? (Hint: Remember that the risk of an investment depends on its context.)

10.3. a. What is risk aversion?
b. Why is risk aversion so important to financial decision-making?

10.4. Explain why holding investments in portfolios has such a profound impact on the concept of financial risk.

10.5. Assume that two investments are combined in a portfolio.
a. In words, what is the expected rate of return on the portfolio?
b. What condition must be present for the portfolio to have lower risk than the weighted average of the two investments?
c. Is it possible for the portfolio to have lower risk than that of either investment?
d. Is it possible for the portfolio to be riskless? If so, what condition is necessary to create such a portfolio?

10.6. Explain the difference between market risk and diversifiable risk.

10.7. What are the implications of portfolio theory for investors?

10.8. a. What is market risk?
b. How is it defined?

10.9. Under what circumstances is stand-alone and market risk most relevant?

10.10. a. What is the capital asset pricing model (CAPM)? The security market line (SML)?
b. What are the weaknesses of the CAPM?
c. What is the value of the CAPM?

c. Finally, assume that California Health Clinic's average project has a coefficient of variation of NPV in the range of 1.0–2.0. (Hint: The coefficient of variation is defined as the standard deviation of NPV divided by the expected NPV.) The hospital adjusts for risk by adding or subtracting 3 percentage points to its 10 percent corporate cost of capital. After adjusting for differential risk, is the project still profitable?

d. What type of risk was measured and accounted for in parts b and c? Should this be of concern to the hospital's managers?

15.4. The managers of United Medtronics are evaluating the following four projects for the coming budget period. The firm's corporate cost of capital is 14 percent.

Project	Cost	IRR
A	$15,000	17%
B	15,000	11
C	12,000	15
D	20,000	13

a. What is the firm's optimal capital budget?

b. Now, suppose Medtronics's managers want to consider differential risk in the capital budgeting process. Project A has average risk, project B has below-average risk, project C has above-average risk, and project D has average risk. What is the firm's optimal capital budget when differential risk is considered? (Hint: The firm's managers *lower* the IRR of high-risk projects by 3 percentage points and *raise* the IRR of low-risk projects by the same amount.)

15.5. Arc Managed Care Company is evaluating two different computer systems for handling provider claims. There are no incremental revenues attached to the projects, so the decision will be made on the basis of the present value of costs. Arc's corporate cost of capital is 10 percent. Here are the net cash flow estimates in thousands of dollars:

Year	System X	System Y
0	($500)	($1,000)
1	(500)	(300)
2	(500)	(300)
3	(500)	(300)

a. Assume initially that both systems have average risk. Which one should be chosen?

b. Assume that system X is judged to have high risk. Arc accounts for differential risk by adjusting its corporate cost of capital up or down by 2 percentage points. Which system should be chosen?

15.6. University Health Center has three divisions: Real Estate, with an 8 percent cost of capital; Health Services, with a 10 percent cost of capital; and Managed Care, with a 12 percent cost of capital. The center's risk adjustment procedures call for adding 3 percentage points to adjust for high risk and subtracting 2 percentage points for low risk. Construct a diagram such as the one in exhibit 15.8 that illustrates the range of project costs of capital for the center.

15.7. Refer to the table developed in problem 15.5 for University Health Center. Assume the Managed Care Division is evaluating a project with the net cash flows and probabilities shown in the table below. Assume the Managed Care Division has judged the project to have lower-than-average risk. Is the project financially attractive?

Year	Prob. = 0.3	Prob. = 0.4	Prob. = 0.3
0	($100,000)	($100,000)	($100,000)
1	20,000	30,000	40,000
2	20,000	30,000	40,000
3	20,000	30,000	40,000
4	20,000	30,000	40,000

15.8. Pediatric Partners is evaluating a project with the following net cash flows and probabilities:

Year	Prob. = 0.25	Prob. = 0.5	Prob. = 0.25
0	($75,000)	($75,000)	($75,000)
1	15,000	20,000	30,000
2	15,000	20,000	30,000
3	15,000	20,000	30,000
4	15,000	20,000	30,000
5	20,000	30,000	40,000

The year 5 values include salvage value. Pediatric Partners' corporate cost of capital is 12 percent.