# Solutions for End-of-Chapter Questions and Problems: Chapter Seventeen

1.17 Explain how technological improvements can increase an FI’s interest and noninterest income and reduce interest and noninterest expenses. Use some specific examples.

3.17 Compare the effects of technology on an FI’s wholesale operations with the effects of technology on an FI’s retail operations. Give some specific examples.

4.17 What are some of the risks inherent in being the first to introduce a financial innovation?

5.17 The operations department of a major FI is planning to reorganize several of its back-office functions. Its current operating expense is $1.5 million, of which $1 million is for staff expenses. The FI uses a 12 percent cost of capital to evaluate cost-saving projects.

a. One way of reorganizing is to outsource a portion of its data entry functions. This will require an initial investment of approximately $500,000 after taxes. The FI expects to save $150,000 in annual operating expenses after taxes for the next seven years. Should it undertake this project?

b. Another option is to automate the entire process by installing new state-of-the-art computers and software. The FI expects to realize more than $500,000 per year in after-tax savings, but the initial investment will be approximately $3 million. In addition, the life of this project is limited to seven years, at which time new computers and software will need to be installed. Using this seven-year planning horizon, should the FI invest in this project? What level of after-tax savings would be necessary to make this plan comparable in value creation to the plan in part (a)?

7.17 Identify and discuss three benefits of technology in generating revenue for FIs?

8.17 Distinguish between economies of scale and economies of scope.

10.17 What are diseconomies of scale? What are the risks of large-scale technological investments, especially to large FIs? Why are small FIs willing to outsource production to large FIs against which they are competing? Why are large FIs willing to accept outsourced production from smaller FI competition?

11.17 What information on the operating costs of FIs is provided by the measurement of economies of scope? What implications do economies of scope have for regulators?

12.17 Buy Bank had $130 million in assets and $20 million in expenses before the acquisition of Sell Bank, which had assets of $50 million and expenses of $10 million. After the merger, the bank had $180 million in assets and $35 million in costs. Did this acquisition generate either economies of scale or economies of scope for Buy Bank?

13.17 A commercial bank with assets of $2 billion and expenses of $200 million has acquired an investment banking firm subsidiary with assets of $40 million and expenses of $15 million. After the acquisition, the expenses of the bank are $180 million and the expenses of the subsidiary are $20 million. Does the resulting merger reflect economies of scale or economies of scope?

14.17 What are diseconomies of scope? How could diseconomies of scope occur?

15.17 A survey of a local market has provided the following average cost data: Mortgage Bank A (MBA) has assets of $3 million and an average cost of 20 percent. Life Insurance Company B (LICB) has assets of $4 million and an average cost of 30 percent. Corporate Pension Fund C (CPFC) has assets of $4 million and an average cost of 25 percent. For each firm, average costs are measured as a proportion of assets. MBA is planning to acquire LICB and CPFC with the expectation of reducing overall average costs by eliminating the duplication of services.

a. What should be the average cost after acquisition for the bank to justify this merger?

b. If MBA plans to reduce operating costs by $500,000 after the merger, what will be the average cost of the new firm?

19.17 What are the differences between the Fedwire and CHIPS payment systems?

20.17 What is a daylight overdraft? How do an FI’s overdraft risks incurred during the day differ for each of the two competing electronic payment systems, Fedwire and CHIPS? What provision has been taken by the members of CHIPS to introduce an element of insurance against the settlement risk problem?

23.17 What has been the impact of rapid technological improvements in the electronic payment systems on crime and fraud risk?

24.17 What are usury ceilings? How does technology create regulatory risk?

25.17 How has technology altered the competition risk of FIs?