

- LO 4 12-35 *Computing division income* A home services company offers renovations, as well as heating, air conditioning, and plumbing services, to its customers. Imagine that you are in the process of computing the income for the renovations division. What problems may you encounter in computing this income?
- LO 4 12-36 *Controllability and evaluation* Suppose you are the manager of a fitness center that is one of many in a chain. Give one example of a cost that you control and one example of a cost you do not control. Why is it important in this setting to distinguish between costs that are controllable and costs that are not controllable?
- LO 4 12-37 *Controllability and motivation* Give an example of a situation for which invoking the controllability principle would have a desirable motivational effect. Also give an example of a situation for which suspending the controllability principle would have a desirable motivational effect.
- LO 5, 6 12-38 *Domestic and international transfer pricing* Organizations might desire to use one transfer pricing system designed to support international transfer pricing and another domestic transfer pricing system designed to achieve motivational objectives. Give a reason why you think organizations would not use two transfer pricing systems—one for international tax purposes and one for motivational purposes.
- LO 6 12-39 *Choosing transfer prices* How might a transfer price for logs be chosen in an organization that cuts down trees and processes the logs either in a sawmill to make lumber or in a pulp mill to make paper?
- LO 6 12-40 *Choosing transfer prices* In a fishing products company, the harvesting division catches and delivers the fish to the processing division that, in turn, delivers the processed fish to the selling division to sell to customers. How can you determine the appropriate transfer price between harvesting and processing and between processing and selling?
- LO 6 12-41 *Using market-based transfer prices* What is the main advantage and the main obstacle in using market-based transfer prices?
- LO 4, 6 12-42 *Soft numbers* Why did accountants develop the expression “soft number”?
- LO 4, 6 12-43 *Allocating costs* A store is divided into four departments: automotive products, home products, paint, and lumber. How would you assign the building costs, such as depreciation, to each of these departments?
- LO 7 12-44 *Return on investment measurement issues* Green Company has prepared the following information for three of its divisions:

DIVISION	HISTORICAL COST OF INVESTMENTS	DIVISION OPERATING INCOME
X	\$560,000	\$66,500
Y	532,000	64,400
Z	350,000	43,120

### Required

- Compute each division's return on investment and residual income, assuming a 10% cost of capital.
- Suppose the net book value of each division's investments is half of the historical cost. Using net book value as the measure of investment, compute each division's return on investment and residual income, assuming a 10% cost of capital.
- Comment on the division rankings in (a) and (b).
- If the division managers are rewarded on the basis of return on investment or residual income, will they find it attractive to invest in new, more costly equipment?

- LO 7 12-45 *Return on investment components* Alpha Company would like to examine the sales margin and asset turnover components of return on investment for three of its divisions and has accordingly prepared the following information:

DIVISION	INVESTMENT	DIVISION OPERATING INCOME	SALES
E	\$575,000	\$75,000	\$500,000
F	700,000	91,000	542,000
G	1,000,000	176,000	763,000

**Required**

- a. Compute each division's return on investment, sales margin, and asset turnover.  
 b. Comment on the divisions' relative rankings on the ratios computed in (a).
- LO 7 12-46 *Characteristic return-on-investment ratios* For-profit organizations face a requirement to earn at least a minimum-level return on investment. Some businesses rely on high ratios of income to sales; other businesses rely on high ratios of sales to investment. Give an example of each of these types of businesses and explain what this characteristic implies about the business.
- LO 7 12-47 *Productivity ratio* Give an example of why using units, rather than the value of the products produced, in the numerator of a productivity ratio may give a misleading picture of the process that produced that output.
- LO 7 12-48 *Computing residual income* A business whose investors require a return on investment of 8% reports an income of \$1 million on an investment of \$20 million. What is the residual income for this business?
- LO 7 12-49 *Residual income in a multiproduct company* Based on an analysis of operations, a company making sporting goods has determined that the income provided by its golf, ski, tennis, and football product lines are \$3.5 million, \$7.8 million, \$2.6 million, and \$1.7 million, respectively. The accountant believes that the investment levels in these product lines are \$35 million, \$50 million, \$45 million, and \$23 million, respectively. Use a residual income analysis to evaluate the performance of each of these product lines, assuming that the organization requires a 10% return on investment.
- LO 1, 2, 8 12-50 *Single ratio values* Give an example of why looking at a single value of a financial ratio may give either a misleading or a meaningless result.
- LO 8 12-51 *Common size statements; profitability, efficiency, and market value ratios* Cotter Company's balance sheet at December 31, 2005 and income statement for the year ended December 31, 2005 are shown here:

**Cotter Company  
Balance Sheet  
December 31, 2005**

<b>Assets</b>	
Current assets:	
Cash	\$35,000
Marketable securities	60,000
Accounts receivable	45,000
Inventories	215,000
Prepaid expenses	45,000
Total current assets	400,000
Property, plant, and equipment, net	1,300,000
<b>Total assets</b>	<b>\$1,700,000</b>

## Problems

LO 2, 3, 4 12-53 *Choosing responsibility center type* For each of the following units, identify whether the most appropriate responsibility center form is a cost center, a profit center, or an investment center and why you have made that choice.

- A laboratory in a hospital
- A restaurant in a department store
- The computer services group in an insurance company
- A maintenance department in a factory
- A customer service department in a mail-order company
- A warehouse used to store goods for distribution in a large city
- A publishing company acquired by a diversified corporation

LO 4 12-54 *Allocating common costs to cost centers* You have decided to divide a factory into cost centers. How would you allocate depreciation expense on the factory building to its individual cost centers?

LO 4 12-55 *Implementing the controllability principle* One of the most widely accepted and longest held beliefs is the controllability principle, which says that organization units and people should be held accountable only for things that they can control.

## Required

- For any job you choose, give one example of something you should be expected to control and one example of something you should not be expected to control.
- Can you think of an example in which making yourself responsible for something that you cannot control would promote a desirable activity?

LO 4 12-56 *Segment margins* Following is the information on Paragon Company's three product lines:

	Product Line		
	1	2	3
Revenue	\$7,160,000	\$1,900,000	\$4,200,000
Variable cost percentage of sales	60%	50%	40%
Other costs	\$859,200	\$237,500	\$693,000
Allocated avoidable corporate costs	\$349,000	\$156,000	\$698,000
Allocated unavoidable corporate costs	\$570,800	\$206,500	\$24,000

## Required

- Construct a segment margin statement for Paragon Company.
- Explain why the segment margins reported for an organization unit must be interpreted carefully.

LO 4 12-57 *Drop unprofitable segments* Perform an Internet search on "close underperforming stores" or similar phrase to locate an example of a company that has closed unprofitable stores or other segments. Explain what issues the company considered in dropping the unprofitable segments and improving profitability of the remaining segments.

LO 5, 6 12-58 *Transfer prices and division autonomy* You are a government controller. A division manager being audited objects to the transfer price he is being charged by the audit group for the audit services. The manager observes,

"If I have to pay for these services, I should be allowed to buy them from an outside supplier who is prepared to offer them to me at a lower price." You have been asked to mediate this dispute. What would you do?

**LO 5, 6 12-59 Transfer pricing and outside opportunities** Deseronto Electronics manufactures motherboards for computers. The company is divided into two divisions: manufacturing and programming. The manufacturing division makes the board, and the programming division makes the adjustments required to meet the customer's specifications.

The average total cost per unit of the boards in the manufacturing division is about \$450, and the average total cost per board incurred in the programming division is about \$100. The average selling price of the boards is \$700. The company is now operating at capacity, and increasing the volume of production is not a feasible alternative.

In the past, the managers of the two divisions have negotiated a transfer price. The average transfer price has been about \$500, resulting in the manufacturing division recognizing a profit of about \$50 per board and the programming division recognizing a profit of about \$100 per board. Each of the managers receives a bonus that is proportional to the profit reported by his or her division.

Karen Barton, the manager of the manufacturing division, has announced that she is no longer willing to supply boards to the programming division. Sam Draper, the senior purchasing executive for Koala Electronics, a computer manufacturer, has indicated that he is willing to purchase, at \$650 per unit, all the boards that Karen's division can supply and is willing to sign a long-term contract to that effect. Karen indicated that she offered the boards to the programming division at \$625 per board on the grounds that selling and distribution costs would be reduced by selling inside. Neil Wilson, the manager of the programming division, refused the offer on the grounds that the programming division would show a loss at this transfer price.

Neil has appealed to Shannon McDonald, the general manager, arguing that Karen should be prohibited from selling outside. Neil has indicated that a preliminary investigation suggests that he cannot buy these boards for less than about \$640 outside. Therefore, allowing Karen to sell outside would effectively doom Neil's division.

**Required**

- What transfer price would you recommend? Why?
- What recommendations do you have for the programming division?

**LO 7 12-60 Return on investment** Michelle Gutierrez, manager of the Components Division of FX Corporation, is considering a new investment for her division. The division has an investment base of \$4,000,000 and operating income of \$600,000. The new investment of \$500,000 supports corporate strategy and is expected to increase operating income by \$50,000 next year, an acceptable level of return from corporate headquarters' point of view.

**ter type** For each of the following units, appropriate responsibility center form is a cost investment center and why you have made that

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an organization unit must be interpreted

Performance criteria research on close should plan to locate an example of a product line should be other segments. Explain what

- d. Suggest changes to FX Corporation's management that will better align performance evaluation and compensation with corporate goals.

**LO 7 12-61 Return on investment and residual income** The Newburg Flyers operate a major sports franchise from a building in downtown Newburg. The building was built in 1940 at a cost of \$5,000,000 and is fully depreciated so that it is shown on the company's balance sheet at a nominal value of \$1. The land on which the building was built in 1940 was purchased in 1935 for \$10,000 and is valued at this amount for balance sheet purposes. The franchise, which is the company's only other major investment, cost \$100,000 in 1940.

The current assessed value of the building is \$200,000. The assessed value of the land, which is located in a prime urban area, is \$20,000,000 and reflects the net value of the property if the current building is demolished and replaced with an office and shopping complex. The current value of the franchise, assuming that the league owners would approve a franchise sale, is \$50,000,000.

### Required

- a. Ignoring taxes in this calculation, if the team earns an income of approximately \$3,000,000 per year, what is the return on investment using net book value and historical cost as the measures of investment?
- b. Ignoring taxes in this calculation and assuming that the organization's cost of capital is 15%, if the team earns approximately \$3,000,000 per year, what is the residual income using net book value and historical cost as the measures of investment?

**LO 7 12-62 Problems in computing economic value added** A bank is thinking of using economic value added to identify services that require improvement or elimination. What problems may the bank have in computing the economic value added of any of the services that it offers to its customers?

**LO 7 12-63 Evaluating the potential of economic value added** The owner of a chain of fast-food restaurants has decided to use economic value added to evaluate the performance of the managers of each of the restaurants. What do you think of this idea?

**LO 7 12-64 Using residual income** As a result of a residual income analysis, the owner of a company that makes and installs swimming pools has decided to shut down the manufacturing operations that show a negative residual income for the current year. Is this necessarily the proper response to this information?

**LO 7 12-65 Conflicting organization and individual objectives** Strathcona Paper rewards its managers on the basis of the after-tax return on investment of the assets that they manage—the higher the reported return on investment, the higher the reward. The company uses net book value to value the assets employed in the return on investment calculation. The company's cost of capital is assessed as 12% after taxes. The organization's tax rate is 35%.

The manager of the logistics division is faced with an opportunity to replace an aging truck fleet. The current net income after taxes of the logistics division is \$7 million, and the current investment base is valued at \$50 million. The current net income after taxes and the current investment base, absent any investment in new trucks, are expected to remain at their existing levels.

The investment opportunity would replace the existing fleet of trucks, which have a net book-value of about \$100,000, with new trucks costing about \$50 million net of the trade-in allowance for the old trucks. If kept, the

ment that will better align performance goals.

**Residual income** The Newburg Flyers operate a building in downtown Newburg. The building is \$5,000,000 and is fully depreciated so that it is a net book value of \$1. The land on which the building is located was purchased in 1935 for \$10,000 and is being depreciated on a straight-line basis. The franchise, which was purchased in 1940, has a net book value of \$100,000. The assessed value of the building is \$200,000. The assessed value of the land is \$10,000. The assessed value of the building in a prime urban area, is \$20,000,000 and is being depreciated on a straight-line basis. The property is being depreciated on a straight-line basis. The current value of the building and shopping complex is \$20,000,000. The league owners would approve a franchise sale, which would be a franchise sale.

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old trucks would last another 5 years and would have no salvage value. The new trucks would last 5 years, have zero salvage value, and increase cash flow relative to keeping the old trucks (through increased revenues and decreased operating costs) by about \$16 million per year. If purchased, the new trucks would be depreciated for both accounting and tax purposes on a straight-line basis.

### Required

- From the point of view of the company, should this investment be made? Support your conclusion with net present value calculations.
- From the point of view of the manager, should this investment be made?
- If the manager were rewarded on the basis of after-tax residual income, would the manager want to make the investment? Show why or why not.

**LO 1, 2, 3, 4** **12-66 Strategy and control** Many people believe that the focus of control in a successful organization reflects the strategic initiatives in the organization. For each of the following organizations, identify what you think are the three most important items assessed by the organization's financial control system and why each is important. For each organization, what critical information is not assessed by the financial control system?

- A company selling cable television services to its subscribers
- A symphony orchestra
- An organization selling canned soup
- A government agency responsible for finding jobs for its clients
- An auditing firm
- A company selling high-fashion clothing

**LO 2** **12-67 Organic and mechanistic organizations** Researchers have defined two extreme forms of organizations. Organic organizations are highly decentralized with few rules. Most people agree that software development companies are very organic. Mechanistic organizations are highly centralized and use many rules to prescribe behavior. Most people agree that government agencies are very mechanistic.

Do you agree with these examples? Give your own examples of each of these types of organizations, along with your reason for giving each organization the chosen classification.

**LO 2, 3, 4** **12-68 Group and individual conflict** Think of an example of an organization in which it is important that the various functional areas be closely coordinated to promote the organization's overall success. Show how performance measures that focus solely on the performance of an individual unit could create problems in this organization.

**LO 2, 3, 4** **12-69 Coordinating divisional activities** For many years, automobile companies were highly decentralized in terms of functions. The most obvious effect of this heavy decentralization of function was apparent when all the groups needed to work together to accomplish a goal. The highest order of integration occurs in the design of a new automobile.



modifications to it to incorporate parts that could be made or purchased. Finally, the manufacturing group modified the design to reflect the nature and capabilities of the production process. This process took up to 4 years and usually resulted in a vehicle that was far removed from the initial design.

What was wrong here? How could the process be improved?

LO 1, 2, 3, 4 12-70 *Choices in financial control* Bennington Home Products sells home products. It buys products for resale from suppliers all over the world. The products are organized into groups. A few examples of these groups are floor care products, kitchen products, tool products, and paper products. The company sells its products all over the world from regional offices and warehouses in every country where it operates. Because of differences in culture and taste, the product lines and products within those lines vary widely among countries.

The regional offices have administrative staff that manage the operations, place orders to the corporate office, and undertake the usual office administrative functions, and they have sales staff that do the selling directly to stores within each region. The regional offices are evaluated as investment centers because they have responsibility for revenues, costs, and investment levels. The regional offices make suggestions for new products.

The corporate office manages the regional offices and places the orders received from the regional offices with suppliers. The corporate office does the ordering for three reasons. First, it is believed that one ordering office eliminates duplication in ordering activities. Second, it is believed that one office ordering for all the regional offices gives the organization more power when dealing with suppliers. Third, it is believed that one office can develop the expertise to find and negotiate with suppliers of unique and innovative products.

#### Required

- Describe an appropriate system of financial control at the regional level.
- Describe an appropriate system of financial control at the corporate office level.
- Explain why the systems of financial control should or need not mesh.

LO 4 12-71 *Assigning responsibility for uncontrollable events* Some people and organizations believe that the discussion of controllable and uncontrollable events is distracting in the sense that it encourages finger-pointing and an excessive preoccupation with assigning blame. These observers argue that it is more important to find solutions than to identify responsibility for unacceptable or acceptable events.

#### Required

- What do you think of this argument?
- As an organization moves away from assessing and rewarding controllable performance, what changes would you expect to see in its organization structure?

LO 6 12-72 *New product opportunities and transfer pricing* Plevna Manufacturing makes and distributes small prefabricated homes in kits. The kits contain all the pieces needed to assemble the home. All that is required is that the builder erect the home on a foundation.

Plevna Manufacturing is organized into two divisions: the manufacturing division and the sales division. Each division is evaluated on the basis of its

- LO 1, 7 12-75 *Market value added, economic value added, and net income* If you look through *Fortune* magazine, you will find articles that rank organizations by market value added and economic value added. Find one such article and identify three firms: the one with the highest economic value added, the one with the highest market value added, and the one with the highest reported net income. Compare the three firms. Explain the difference in rankings. (In the event that the top-ranked firms by any two of these criteria are the same, do the same for the second-ranked firms.)
- LO 8 12-76 *Common size income statements* Osborne Company's income statements for 2004 and 2005 are shown here:

Osborne Company  
Annual Income Statements (in millions)  
For the Years Ended December 31, 2005 and 2004

	2005	2004
Sales	\$35,000	\$60,000
Cost of sales	<u>20,000</u>	<u>23,000</u>
Gross margin	15,000	37,000
Selling, general, and administrative expenses	<u>12,000</u>	<u>15,000</u>
Operating profit	3,000	22,000
Interest expense	<u>750</u>	<u>420</u>
Pretax income	2,250	21,580
Income taxes	<u>765</u>	<u>7,337</u>
Net income	<u>\$1,485</u>	<u>\$14,243</u>

### Required

- Present the income statements for the years ended December 31, 2005 and 2004, in monetary and common size form.
- Discuss the changes that occurred between 2004 and 2005.

### Cases

LO 2, 3, 4, 7 12-77 *Choosing an organization structure* You are a senior manager responsible for overall company operations in a large courier company. Your company has 106 regional offices (terminals) scattered around the country and a main office (hub) located in the geographical center of the country. Your operations are strictly domestic. You do not accept international shipments.

The day at each terminal begins with the arrival of packages from the hub. The packages are loaded onto trucks for delivery to customers during the morning hours. In the afternoon, the same trucks pick up packages that are returned to the terminal in late afternoon and then shipped to the hub, where shipments arrive from the terminals into the late evening and are sorted for delivery early the next day for the terminals.

Each terminal in your company is treated as an investment center and prepares individual income statements each month. Each terminal receives 30% of the revenue from packages that it picks up and 30% of the revenue from the packages it delivers. The remaining 40% of the revenue from each transaction goes to the hub. Each terminal accumulates its own costs. All costs relating to travel to and from the hub are charged to the hub. The revenue per package is based on size and service type and not the distance that the package travels. (There are two services, overnight and ground delivery, which take between 1 and 7 days, depending on the distance traveled.)

All customer service is done through a central service group located in the hub. Customers access this service center through a toll-free telephone number. The most common calls to customer service include requests for package pickup, requests to trace an overdue package, and requests for billing



information. The company has invested in complex and expensive package tracking equipment that monitors the package's trip through the system by scanning the bar code placed on every package. The bar code is scanned when the package is picked up, enters the originating terminal, leaves the originating terminal, arrives at the hub, leaves the hub, arrives at the destination terminal, leaves the destination terminal, and is delivered to the customer. All scanning is done by handheld wands that transmit the information to the regional and then central computer.

The major staff functions in each terminal are administrative (accounting, clerical, and executive), marketing (the sales staff), courier (the people who pick up and deliver the shipments and the equipment they use), and operations (the people and equipment who sort packages inside the terminal).

This organization takes customer service very seriously. The revenue for any package that fails to meet the organization's service commitment to the customer is not assigned to the originating and destination terminals.

All company employees receive a wage and a bonus based on the terminal's residual income. This system has promoted many debates about the sharing rules for revenues, the inherent inequity of the existing system, and the appropriateness of the revenue share for the hub. Service problems have arisen primarily relating to overdue packages. The terminals believe that most of the service problems relate to mis-sorting in the hub, resulting in packages being sent to the wrong terminals.

### Required

- a. Explain why you believe an investment center is or is not an appropriate organization design in this company.
- b. Assuming that this organization is committed to the current design, how would you improve it?
- c. Assuming that this organization has decided that the investment center approach is unacceptable, what approach to performance evaluation would you recommend?

LO 1, 2, 3, 4 12-78 *Computing objectives and organization responsibility* Baden is a city with a population of 450,000. It has a distinct organization group, called the Public Utilities Commission of the City of Baden, or Baden PUC, whose responsibility is to provide the water and electrical services to the businesses and homes in the city. Baden PUC's manager is evaluated and rewarded on the basis of the profit that Baden PUC reports.

Baden PUC buys electricity from a privately owned hydroelectric facility several hundred miles away for resale to its citizens. Baden PUC is responsible for acquiring, selling, billing, and servicing customers. The maintenance and moving of electric wires within the city are, however, the responsibility of the City of Baden maintenance department, or Baden Maintenance. Baden PUC pays Baden Maintenance for work done on its electrical wires.

Over the years, many squabbles have occurred between Baden Maintenance and Baden PUC. These squabbles have usually involved two items: complaints by customers about delays in restoring disrupted service and complaints by Baden PUC that the rates charged by Baden Maintenance are too high. However, the most recent quarrel concerns a much more serious issue.

On July 12, at about 10:30 A.M., a Baden city employee working in the parks and recreation department noticed an electrical wire that seemed to be damaged. The employee reported the problem to Baden Maintenance at about 12:15 P.M., during his lunch break. At 1:15 P.M., the report was placed on the maintenance supervisor's desk, where it was found at 2:05 P.M., when the supervisor returned from lunch. The maintenance supervisor then called the Baden PUC dispatch office to report the problem and request permission to investigate the report and make any required repairs. The request for repair was placed on the Baden PUC service manager's desk for approval at 2:25 P.M. The service manager received the message at 4:00 P.M., when he returned from a meeting. He approved the work and left a memo for a subordinate to call in the request. The request was then mistakenly called in by a clerk at 4:50 P.M. as a request for routine service and logged by the dispatcher in Baden.